KivyMD

Release 1.1.0

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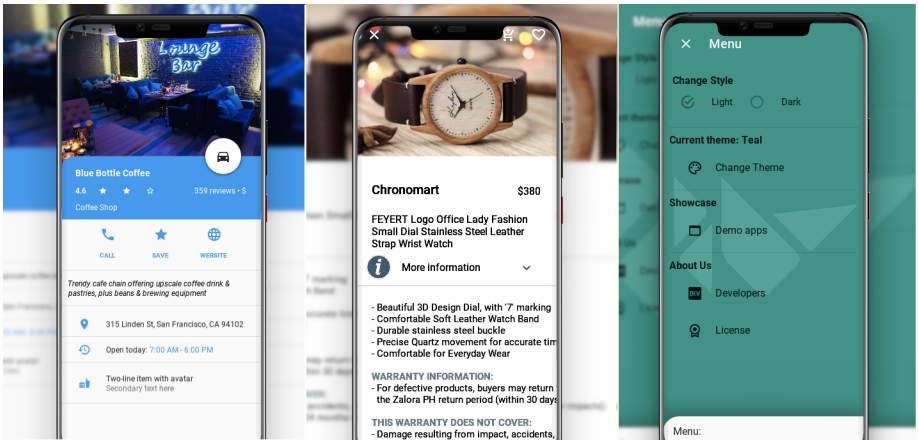
CHAPTER

ONE

KIVYMD



Is a collection of Material Design compliant widgets for use with, Kivy cross-platform graphical framework a framework for cross-platform, touch-enabled graphical applications. The project's goal is to approximate Google's Material Design spec as close as possible without sacrificing ease of use.

This library is a fork of the KivyMD project. We found the strength and brought this project to a new level.

If you wish to become a project developer (permission to create branches on the project without forking for easier collaboration), have at least one PR approved and ask for it. If you contribute regularly to the project the role may be offered to you without asking too.

CHAPTER

TWO

CONTENTS

2.1 Getting Started

In order to start using *KivyMD*, you must first install the Kivy framework on your computer. Once you have installed *Kivy*, you can install *KivyMD*.

Warning: *KivyMD* depends on *Kivy*! Therefore, before using *KivyMD*, first learn how to work with *Kivy*.

2.1.1 Installation

pip install kivymd

Command above will install latest release version of KivyMD from PyPI. If you want to install development version from master branch, you should specify link to zip archive:

pip install https://github.com/kivymd/KivyMD/archive/master.zip

Note: Replace *master.zip* with <*commit hash*>*.zip* (eg *51b8ef0.zip*) to download KivyMD from specific commit.

Also you can install manually from sources. Just clone the project and run pip:

```
git clone https://github.com/kivymd/KivyMD.git --depth 1
cd KivyMD
pip install .
```

Note: If you don't need full commit history (about 320 MiB), you can use a shallow clone (*git clone https://github.com/kivymd/KivyMD.git –depth 1*) to save time. If you need full commit history, then remove *–depth 1*.

2.1.2 First KivyMD application

```
from kivymd.app import MDApp
from kivymd.uix.label import MDLabel


class MainApp(MDApp):
    def build(self):
        return MDLabel(text="Hello, World", halign="center")


MainApp().run()
```

And the equivalent with *Kivy*:

```
from kivy.app import App
from kivy.uix.label import Label


class MainApp(App):
    def build(self):
        return Label(text="Hello, World")


MainApp().run()
```

To left - *Kivy*, to right - *KivyMD*:

At first glance, the *KivyMD* example contains more code... However, the following example already demonstrates how difficult it is to create a custom button in *Kivy*:

```
from kivy.app import App
from kivy.metrics import dp
from kivy.uix.behaviors import TouchRippleBehavior
from kivy.uix.button import Button
from kivy.lang import Builder
from kivy.utils import get_color_from_hex
```

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```
KV = """
#:import get_color_from_hex kivy.utils.get_color_from_hex


<RectangleFlatButton>:
    ripple_color: 0, 0, 0, .2
    background_color: 0, 0, 0, 0
    color: root.primary_color

    canvas.before:
        Color:
            rgba: root.primary_color
        Line:
            width: 1
            rectangle: (self.x, self.y, self.width, self.height)

Screen:
    canvas:
        Color:
            rgba: get_color_from_hex("#0F0F0F")
        Rectangle:
            pos: self.pos
            size: self.size
"""


class RectangleFlatButton(TouchRippleBehavior, Button):
    primary_color = get_color_from_hex("#EB8933")

    def on_touch_down(self, touch):
        collide_point = self.collide_point(touch.x, touch.y)
        if collide_point:
            touch.grab(self)
            self.ripple_show(touch)
            return True
        return False

    def on_touch_up(self, touch):
        if touch.grab_current is self:
            touch.ungrab(self)
            self.ripple_fade()
            return True
        return False


class MainApp(App):
    def build(self):
        screen = Builder.load_string(KV)
        screen.add_widget(
            RectangleFlatButton(
                text="Hello, World",
```

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```
                pos_hint={"center_x": 0.5, "center_y": 0.5},
                size_hint=(None, None),
                size=(dp(110), dp(35)),
                ripple_color=(0.8, 0.8, 0.8, 0.5),
            )
        )
        return screen


MainApp().run()
```

And the equivalent with *KivyMD*:

```
from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.button import MDRectangleFlatButton


class MainApp(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        return (
            MDScreen(
                MDRectangleFlatButton(
                    text="Hello, World",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                )
            )
        )


MainApp().run()
```

KivyMD:

Kivy:

2.2 Themes

2.2.1 Theming

See also:

Material Design spec, Material theming

Material App

The main class of your application, which in *Kivy* inherits from the App class, in *KivyMD* must inherit from the *MDApp* class. The *MDApp* class has properties that allow you to control application properties such as `color/style/font` of interface elements and much more.

Control material properties

The main application class inherited from the *MDApp* class has the *theme_cls* attribute, with which you control the material properties of your application.

Changing the theme colors

The standard theme_cls is designed to provide the standard themes and colors as defined by Material Design.

We do not recommend that you change this.

However, if you do need to change the standard colors, for instance to meet branding guidelines, you can do this by overloading the *color_definitions.py* object.

Create a custom color defintion object. This should have the same format as the colors object in *color_definitions.py* and contain definitions for at least the primary color, the accent color and the Light and Dark backgrounds.

Note: Your custom colors *must* use the names of the existing colors as defined in the palette e.g. You can have *Blue* but you cannot have *NavyBlue*.

Add the custom theme to the *MDApp* as shown in the following snippet.

Imperative python style with KV

```
from kivy.lang import Builder
from kivy.properties import ObjectProperty

from kivymd.app import MDApp
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.tab import MDTabsBase
from kivymd.icon_definitions import md_icons

colors = {
    "Teal": {
        "200": "#212121",
```

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```
        "500": "#212121",
        "700": "#212121",
    },
    "Red": {
        "200": "#C25554",
        "500": "#C25554",
        "700": "#C25554",
    },
    "Light": {
        "StatusBar": "E0E0E0",
        "AppBar": "#202020",
        "Background": "#2E3032",
        "CardsDialogs": "#FFFFFF",
        "FlatButtonDown": "#CCCCCC",
    },
}


KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "Custom theme"

    MDTabs:
        id: tabs


<Tab>

    MDIconButton:
        id: icon
        icon: root.icon
        icon_size: "48sp"
        theme_icon_color: "Custom"
        icon_color: "white"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''

    icon = ObjectProperty()


class Example(MDApp):
    icons = list(md_icons.keys())[15:30]

    def build(self):
        self.theme_cls.colors = colors
```

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```
        self.theme_cls.primary_palette = "Teal"
        self.theme_cls.accent_palette = "Red"
        return Builder.load_string(KV)

    def on_start(self):
        for name_tab in self.icons:
            tab = Tab(title="This is " + name_tab, icon=name_tab)
            self.root.ids.tabs.add_widget(tab)


Example().run()
```

Declarative python style

```
from kivy.properties import ObjectProperty

from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDIconButton
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.tab import MDTabsBase, MDTabs
from kivymd.icon_definitions import md_icons
from kivymd.uix.toolbar import MDTopAppBar

colors = {
    "Teal": {
        "200": "#212121",
        "500": "#212121",
        "700": "#212121",
    },
    "Red": {
        "200": "#C25554",
        "500": "#C25554",
        "700": "#C25554",
    },
    "Light": {
        "StatusBar": "E0E0E0",
        "AppBar": "#202020",
        "Background": "#2E3032",
        "CardsDialogs": "#FFFFFF",
        "FlatButtonDown": "#CCCCCC",
    },
}


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''

    icon = ObjectProperty()


class Example(MDApp):
```

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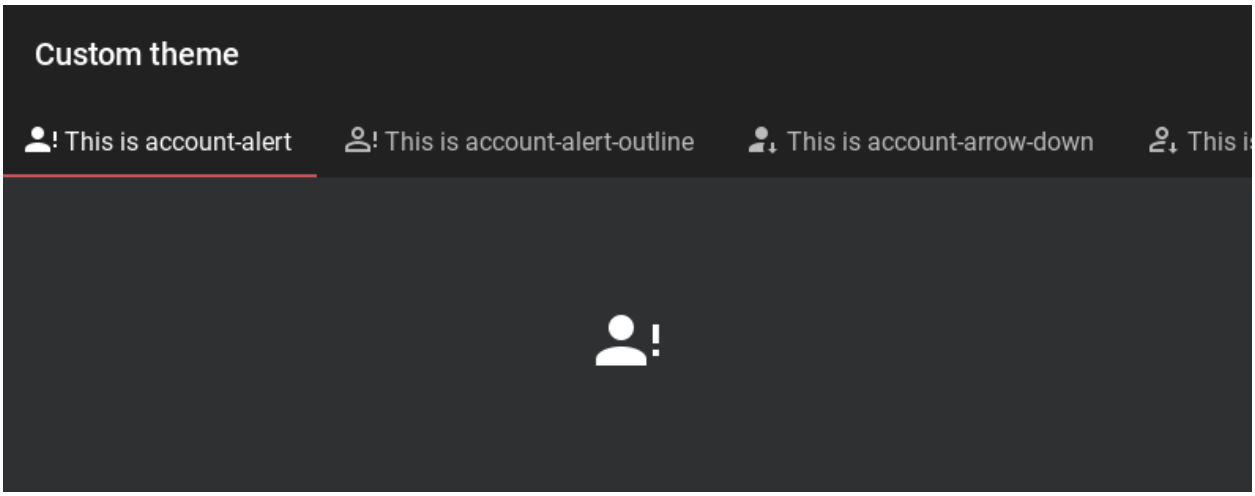
```
    icons = list(md_icons.keys())[15:30]

    def build(self):
        self.theme_cls.colors = colors
        self.theme_cls.primary_palette = "Teal"
        self.theme_cls.accent_palette = "Red"

        return (
            MDBoxLayout(
                MDTopAppBar(title="Custom theme"),
                MDTabs(id="tabs"),
                orientation="vertical",
            )
        )

    def on_start(self):
        for name_tab in self.icons:
            self.root.ids.tabs.add_widget(
                Tab(
                    MDIconButton(
                        icon=name_tab,
                        icon_size="48sp",
                        theme_icon_color="Custom",
                        icon_color="white",
                        pos_hint={"center_x": .5, "center_y": .5},
                    ),
                    title="This is " + name_tab,
                    icon=name_tab,
                )
            )


Example().run()
```



This will change the theme colors to your custom definition. In all other respects, the theming stays as documented.

Warning: Please note that the key `'Red'` is a required key for the dictionary `kivymd.color_definition.colors`.

API - kivymd.theming

class kivymd.theming.**ThemeManager**(***kwargs*)

primary_palette

The name of the color scheme that the application will use. All major *material* components will have the color of the specified color theme.

Available options are: *'Red'*, *'Pink'*, *'Purple'*, *'DeepPurple'*, *'Indigo'*, *'Blue'*, *'LightBlue'*, *'Cyan'*, *'Teal'*, *'Green'*, *'LightGreen'*, *'Lime'*, *'Yellow'*, *'Amber'*, *'Orange'*, *'DeepOrange'*, *'Brown'*, *'Gray'*, *'BlueGray'*.

To change the color scheme of an application:

Imperative python style with KV

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDRectangleFlatButton:
        text: "Hello, World"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Red"  # "Purple", "Red"

        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.button import MDRectangleFlatButton
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"  # "Purple", "Red"
```

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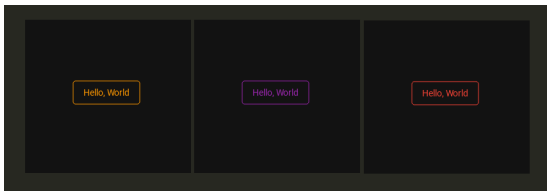
```
        return (
            MDScreen(
                MDRectangleFlatButton(
                    text="Hello, World",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                )
            )
        )


Example().run()
```



primary_palette is an OptionProperty and defaults to *'Blue'*.

primary_hue

The color hue of the application.

Available options are: *'50'*, *'100'*, *'200'*, *'300'*, *'400'*, *'500'*, *'600'*, *'700'*, *'800'*, *'900'*, *'A100'*, *'A200'*, *'A400'*, *'A700'*.

To change the hue color scheme of an application:

Imperative python style with KV

```
from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.button import MDRectangleFlatButton


class MainApp(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.primary_hue = "200"  # "500"
        screen = MDScreen()
        screen.add_widget(
            MDRectangleFlatButton(
                text="Hello, World",
                pos_hint={"center_x": 0.5, "center_y": 0.5},
            )
        )
        return screen


MainApp().run()
```

Declarative python style

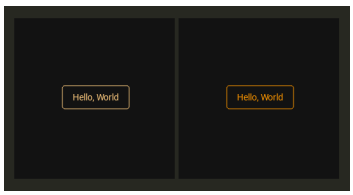
```
from kivymd.app import MDApp
from kivymd.uix.button import MDRectangleFlatButton
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_hue = "200"  # "500"

        return (
            MDScreen(
                MDRectangleFlatButton(
                    text="Hello, World",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                )
            )
        )


Example().run()
```

With a value of `self.theme_cls.primary_hue = "200"` and `self.theme_cls.primary_hue = "500"`:



primary_hue is an OptionProperty and defaults to *'500'*.

primary_light_hue

Hue value for *primary_light*.

primary_light_hue is an OptionProperty and defaults to *'200'*.

primary_dark_hue

Hue value for *primary_dark*.

primary_light_hue is an OptionProperty and defaults to *'700'*.

primary_color

The color of the current application theme.

primary_color is an AliasProperty that returns the value of the current application theme, property is readonly.

primary_light

Colors of the current application color theme (in lighter color).

Declarative style with KV

```
from kivy.lang import Builder

from kivymd.app import MDApp


KV = '''
MDScreen:

    MDRaisedButton:
        text: "primary_light"
        pos_hint: {"center_x": 0.5, "center_y": 0.7}
        md_bg_color: app.theme_cls.primary_light

    MDRaisedButton:
        text: "primary_color"
        pos_hint: {"center_x": 0.5, "center_y": 0.5}

    MDRaisedButton:
        text: "primary_dark"
        pos_hint: {"center_x": 0.5, "center_y": 0.3}
        md_bg_color: app.theme_cls.primary_dark
'''


class MainApp(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


MainApp().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.button import MDRaisedButton
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.theme_style = "Dark"

        return (
            MDScreen(
                MDRaisedButton(
                    text="Primary light",
                    pos_hint={"center_x": 0.5, "center_y": 0.7},
                    md_bg_color=self.theme_cls.primary_light,
                ),
                MDRaisedButton(
```

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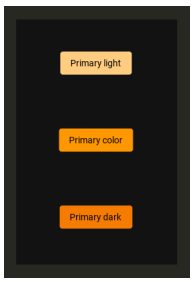
```
                    text="Primary color",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                ),
                MDRaisedButton(
                    text="Primary dark",
                    pos_hint={"center_x": 0.5, "center_y": 0.3},
                    md_bg_color=self.theme_cls.primary_dark,
                ),
            )
        )


Example().run()
```



primary_light is an AliasProperty that returns the value of the current application theme (in lighter color), property is readonly.

primary_dark

Colors of the current application color theme (in darker color).

primary_dark is an AliasProperty that returns the value of the current application theme (in darker color), property is readonly.

accent_palette

The application color palette used for items such as the tab indicator in the MDTabsBar class and so on. See kivymd.uix.tab.MDTabsBar.indicator_color attribute.

accent_palette is an OptionProperty and defaults to *'Amber'*.

accent_hue

Similar to *primary_hue*, but returns a value for *accent_palette*.

accent_hue is an OptionProperty and defaults to *'500'*.

accent_light_hue

Hue value for *accent_light*.

accent_light_hue is an OptionProperty and defaults to *'200'*.

accent_dark_hue

Hue value for *accent_dark*.

accent_dark_hue is an OptionProperty and defaults to *'700'*.

accent_color

Similar to *primary_color*, but returns a value for *accent_color*.

accent_color is an AliasProperty that returns the value in rgba format for *accent_color*, property is readonly.

accent_light

Similar to *primary_light*, but returns a value for *accent_light*.

accent_light is an AliasProperty that returns the value in rgba format for *accent_light*, property is readonly.

accent_dark

Similar to *primary_dark*, but returns a value for *accent_dark*.

accent_dark is an AliasProperty that returns the value in rgba format for *accent_dark*, property is readonly.

material_style

Material design style. Available options are: 'M2', 'M3'.

New in version 1.0.0.

See also:

Material Design 2 and Material Design 3

material_style is an OptionProperty and defaults to *'M2'*.

theme_style_switch_animation

Animate app colors when switching app color scheme ('Dark/light').

New in version 1.1.0.

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDCard:
        orientation: "vertical"
        padding: 0, 0, 0 , "36dp"
        size_hint: .5, .5
        pos_hint: {"center_x": .5, "center_y": .5}
        elevation: 4
        shadow_radius: 6
        shadow_offset: 0, 2

        MDLabel:
            text: "Theme style - {}".format(app.theme_cls.theme_style)
            halign: "center"
            valign: "center"
            bold: True
            font_style: "H5"

        MDRaisedButton:
            text: "Set theme"
            on_release: app.switch_theme_style()
            pos_hint: {"center_x": .5}
'''
```

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```
class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style_switch_animation = True
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def switch_theme_style(self):
        self.theme_cls.primary_palette = (
            "Orange" if self.theme_cls.primary_palette == "Red" else "Red"
        )
        self.theme_cls.theme_style = (
            "Dark" if self.theme_cls.theme_style == "Light" else "Light"
        )


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.button import MDRaisedButton
from kivymd.uix.card import MDCard
from kivymd.uix.label import MDLabel
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style_switch_animation = True
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDCard(
                    MDLabel(
                        id="label",
                        text="Theme style - {}".format(self.theme_cls.theme_
↪style),
                        halign="center",
                        valign="center",
                        bold=True,
                        font_style="H5",
                    ),
                    MDRaisedButton(
                        text="Set theme",
                        on_release=self.switch_theme_style,
                        pos_hint={"center_x": 0.5},
                    ),
                    id="card",
```

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```
                    orientation="vertical",
                    padding=(0, 0, 0, "36dp"),
                    size_hint=(0.5, 0.5),
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                    elevation=4,
                    shadow_radius=6,
                    shadow_offset=(0, 2),
                )
            )
        )

    def switch_theme_style(self, *args):
        self.theme_cls.primary_palette = (
            "Orange" if self.theme_cls.primary_palette == "Red" else "Red"
        )
        self.theme_cls.theme_style = (
            "Dark" if self.theme_cls.theme_style == "Light" else "Light"
        )
        self.root.ids.card.ids.label.text = (
            "Theme style - {}".format(self.theme_cls.theme_style)
        )


Example().run()
```

theme_style_switch_animation is an BooleanProperty and defaults to *False*.

theme_style_switch_animation_duration

Duration of the animation of switching the color scheme of the application ("Dark/light").

New in version 1.1.0.

```
class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style_switch_animation = True
        self.theme_cls.theme_style_switch_animation_duration = 0.8
```

theme_style_switch_animation_duration is an NumericProperty and defaults to *0.2*.

theme_style

App theme style.

Imperative python style

```
from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.button import MDRectangleFlatButton


class MainApp(MDApp):
    def build(self):
```

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```
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.theme_style = "Dark"  # "Light"
        screen = MDScreen()
        screen.add_widget(
            MDRectangleFlatButton(
                text="Hello, World",
                pos_hint={"center_x": 0.5, "center_y": 0.5},
            )
        )
        return screen


MainApp().run()
```

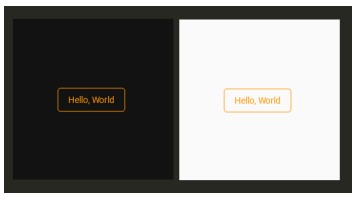
Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.button import MDRectangleFlatButton
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.theme_style = "Dark"  # "Light"

        return (
            MDScreen(
                MDRectangleFlatButton(
                    text="Hello, World",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                ),
            )
        )


Example().run()
```



theme_style is an OptionProperty and defaults to *'Light'*.

bg_darkest

Similar to *bg_dark*, but the color values are a tone lower (darker) than *bg_dark*.

Declarative style with KV

```
from kivy.lang import Builder
```

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```
from kivymd.app import MDApp

KV = '''
MDBoxLayout:

    MDWidget:
        md_bg_color: app.theme_cls.bg_light

    MDBoxLayout:
        md_bg_color: app.theme_cls.bg_normal

    MDBoxLayout:
        md_bg_color: app.theme_cls.bg_dark

    MDBoxLayout:
        md_bg_color: app.theme_cls.bg_darkest
'''


class MainApp(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"  # "Light"
        return Builder.load_string(KV)


MainApp().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.widget import MDWidget


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"  # "Light"

        return (
            MDBoxLayout(
                MDWidget(
                    md_bg_color=self.theme_cls.bg_light,
                ),
                MDWidget(
                    md_bg_color=self.theme_cls.bg_normal,
                ),
                MDWidget(
                    md_bg_color=self.theme_cls.bg_dark,
                ),
                MDWidget(
                    md_bg_color=self.theme_cls.bg_darkest,
                ),
```

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```
            )
        )


Example().run()
```

bg_darkest is an AliasProperty that returns the value in rgba format for *bg_darkest*, property is readonly.

opposite_bg_darkest

The opposite value of color in the *bg_darkest*.

opposite_bg_darkest is an AliasProperty that returns the value in rgba format for *opposite_bg_darkest*, property is readonly.

bg_dark

Similar to *bg_normal*, but the color values are one tone lower (darker) than *bg_normal*.

bg_dark is an AliasProperty that returns the value in rgba format for *bg_dark*, property is readonly.

opposite_bg_dark

The opposite value of color in the *bg_dark*.

opposite_bg_dark is an AliasProperty that returns the value in rgba format for *opposite_bg_dark*, property is readonly.

bg_normal

Similar to *bg_light*, but the color values are one tone lower (darker) than *bg_light*.

bg_normal is an AliasProperty that returns the value in rgba format for *bg_normal*, property is readonly.

opposite_bg_normal

The opposite value of color in the *bg_normal*.

opposite_bg_normal is an AliasProperty that returns the value in rgba format for *opposite_bg_normal*, property is readonly.

bg_light

" Depending on the style of the theme (*'Dark'* or *'Light'*) that the application uses, *bg_light* contains the color value in rgba format for the widgets background.

bg_light is an AliasProperty that returns the value in rgba format for *bg_light*, property is readonly.

opposite_bg_light

The opposite value of color in the *bg_light*.

opposite_bg_light is an AliasProperty that returns the value in rgba format for *opposite_bg_light*, property is readonly.

divider_color

Color for dividing lines such as MDSeparator.

divider_color is an AliasProperty that returns the value in rgba format for *divider_color*, property is readonly.

opposite_divider_color

The opposite value of color in the *divider_color*.

opposite_divider_color is an AliasProperty that returns the value in rgba format for *opposite_divider_color*, property is readonly.

disabled_primary_color

The greyscale disabled version of the current application theme color in rgba format.

New in version 1.0.0.

disabled_primary_color is an AliasProperty that returns the value in rgba format for *disabled_primary_color*, property is readonly.

opposite_disabled_primary_color

The opposite value of color in the *disabled_primary_color*.

New in version 1.0.0.

opposite_disabled_primary_color is an AliasProperty that returns the value in rgba format for *opposite_disabled_primary_color*, property is readonly.

text_color

Color of the text used in the MDLabel.

text_color is an AliasProperty that returns the value in rgba format for *text_color*, property is readonly.

opposite_text_color

The opposite value of color in the *text_color*.

opposite_text_color is an AliasProperty that returns the value in rgba format for *opposite_text_color*, property is readonly.

secondary_text_color

The color for the secondary text that is used in classes from the module TwoLineListItem.

secondary_text_color is an AliasProperty that returns the value in rgba format for *secondary_text_color*, property is readonly.

opposite_secondary_text_color

The opposite value of color in the *secondary_text_color*.

opposite_secondary_text_color is an AliasProperty that returns the value in rgba format for *opposite_secondary_text_color*, property is readonly.

icon_color

Color of the icon used in the MDIconButton.

icon_color is an AliasProperty that returns the value in rgba format for *icon_color*, property is readonly.

opposite_icon_color

The opposite value of color in the *icon_color*.

opposite_icon_color is an AliasProperty that returns the value in rgba format for *opposite_icon_color*, property is readonly.

disabled_hint_text_color

Color of the disabled text used in the `MDTextField`.

disabled_hint_text_color is an `AliasProperty` that returns the value in `rgba` format for *disabled_hint_text_color*, property is readonly.

opposite_disabled_hint_text_color

The opposite value of color in the *disabled_hint_text_color*.

opposite_disabled_hint_text_color is an `AliasProperty` that returns the value in `rgba` format for *opposite_disabled_hint_text_color*, property is readonly.

error_color

Color of the error text used in the `MDTextField`.

error_color is an `AliasProperty` that returns the value in `rgba` format for *error_color*, property is readonly.

ripple_color

Color of ripple effects.

ripple_color is an `AliasProperty` that returns the value in `rgba` format for *ripple_color*, property is readonly.

device_orientation

Device orientation.

device_orientation is an `StringProperty`.

standard_increment

Value of standard increment.

standard_increment is an `AliasProperty` that returns the value in `rgba` format for *standard_increment*, property is readonly.

horizontal_margins

Value of horizontal margins.

horizontal_margins is an `AliasProperty` that returns the value in `rgba` format for *horizontal_margins*, property is readonly.

font_styles

Data of default font styles.

Declarative style with KV

```
from kivy.core.text import LabelBase
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.font_definitions import theme_font_styles

KV = '''
MDScreen:

    MDLabel:
        text: "JetBrainsMono"
        halign: "center"
        font_style: "JetBrainsMono"
```

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```
'''


class MainApp(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"

        LabelBase.register(
            name="JetBrainsMono",
            fn_regular="JetBrainsMono-Regular.ttf")

        theme_font_styles.append('JetBrainsMono')
        self.theme_cls.font_styles["JetBrainsMono"] = [
            "JetBrainsMono",
            16,
            False,
            0.15,
        ]
        return Builder.load_string(KV)


MainApp().run()
```

Declarative python style

```
from kivy.core.text import LabelBase

from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.label import MDLabel
from kivymd.font_definitions import theme_font_styles


class MainApp(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"

        LabelBase.register(
            name="JetBrainsMono",
            fn_regular="JetBrainsMono-Regular.ttf")

        theme_font_styles.append('JetBrainsMono')
        self.theme_cls.font_styles["JetBrainsMono"] = [
            "JetBrainsMono",
            16,
            False,
            0.15,
        ]
        return (
            MDScreen(
                MDLabel(
                    text="JetBrainsMono",
```

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```
                    halign="center",
                    font_style="JetBrainsMono",
                )
            )
        )


MainApp().run()
```

font_styles is an DictProperty.

on_theme_style(*self*, *interval: int*, *theme_style: str*)

set_clearcolor_by_theme_style(*self*, *theme_style*)

set_colors(*self*, *primary_palette: str*, *primary_hue: str*, *primary_light_hue: str*, *primary_dark_hue: str*, *accent_palette: str*, *accent_hue: str*, *accent_light_hue: str*, *accent_dark_hue: str*)

Courtesy method to allow all of the theme color attributes to be set in one call.

set_colors allows all of the following to be set in one method call:

- primary palette color,
- primary hue,
- primary light hue,
- primary dark hue,
- accent palette color,
- accent hue,
- accent ligth hue, and
- accent dark hue.

Note that all values *must* be provided. If you only want to set one or two values use the appropriate method call for that.

Imperative python style

```
from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.button import MDRectangleFlatButton

class MainApp(MDApp):
    def build(self):
        self.theme_cls.set_colors(
            "Blue", "600", "50", "800", "Teal", "600", "100", "800"
        )
        screen = MDScreen()
```

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```
        screen.add_widget(
            MDRectangleFlatButton(
                text="Hello, World",
                pos_hint={"center_x": 0.5, "center_y": 0.5},
            )
        )
        return screen


MainApp().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.button import MDRectangleFlatButton

class MainApp(MDApp):
    def build(self):
        self.theme_cls.set_colors(
            "Blue", "600", "50", "800", "Teal", "600", "100", "800"
        )
        return (
            MDScreen(
                MDRectangleFlatButton(
                    text="Hello, World",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                )
            )
        )


MainApp().run()
```

sync_theme_styles(*self*, **args*)

class kivymd.theming.**ThemableBehavior**(***kwargs*)

theme_cls

Instance of *ThemeManager* class.

theme_cls is an ObjectProperty.

device_ios

True if device is iOS.

device_ios is an BooleanProperty.

widget_style

Allows to set one of the three style properties for the widget: *'android'*, *'ios'*, *'desktop'*.

For example, for the class MDSwitch has two styles - *'android'* and *'ios'*:

```
MDSwitch:
    widget_style: "ios"
```

```
MDSwitch:
    widget_style: "android"
```

widget_style is an OptionProperty and defaults to *'android'*.

opposite_colors

For some widgets, for example, for a widget MDTopAppBar changes the color of the label to the color opposite to the main theme.

```
MDTopAppBar:
    title: "MDTopAppBar"
    opposite_colors: True
```


```
MDTopAppBar:
    title: "MDTopAppBar"
    opposite_colors: True
```

dec_disabled(*self*, **args*, ***kwargs*)

2.2.2 Material App

This module contains *MDApp* class that is inherited from App. *MDApp* has some properties needed for KivyMD library (like *theme_cls*). You can turn on the monitor displaying the current FPS value in your application:

```
KV = '''
MDScreen:

    MDLabel:
        text: "Hello, World!"
        halign: "center"
'''

from kivy.lang import Builder

from kivymd.app import MDApp
```

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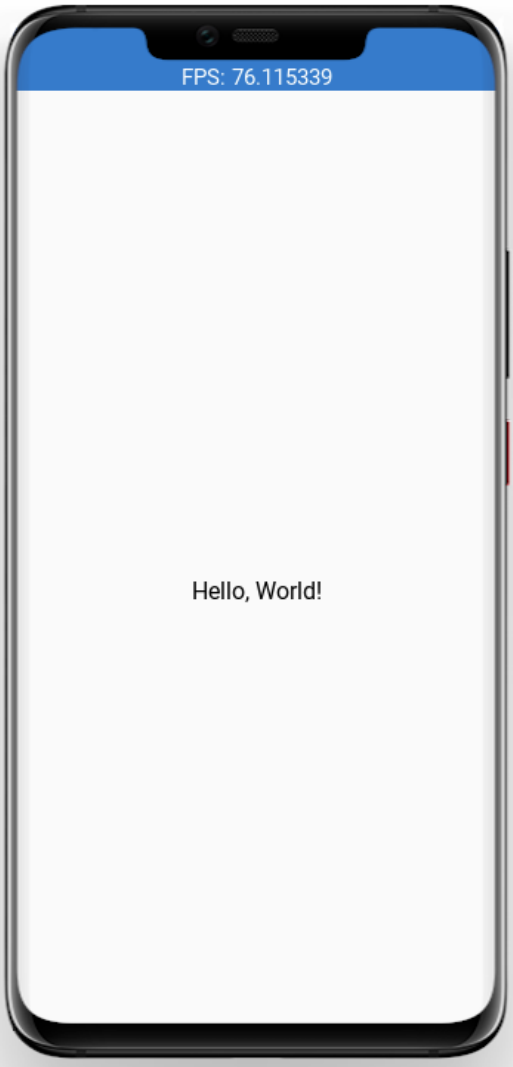
```
class MainApp(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
        self.fps_monitor_start()


MainApp().run()
```



API - kivymd.app

class kivymd.app.**MDApp**(***kwargs*)

Application class, see App class documentation for more information.

icon

See icon attribute for more information.

New in version 1.1.0.

icon is an StringProperty adn default to *kivymd/images/logo/kivymd-icon-512.png*.

theme_cls

Instance of ThemeManager class.

Warning: The *theme_cls* attribute is already available in a class that is inherited from the *MDApp* class. The following code will result in an error!

```
class MainApp(MDApp):
    theme_cls = ThemeManager()
    theme_cls.primary_palette = "Teal"
```

Note: Correctly do as shown below!

```
class MainApp(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Teal"
```

theme_cls is an ObjectProperty.

load_all_kv_files(*self*, *path_to_directory: str*)

Recursively loads KV files from the selected directory.

New in version 1.0.0.

2.2.3 Color Definitions

See also:

Material Design spec, The color system

Material Design spec, The color tool

Material colors palette to use in *kivymd.theming.ThemeManager*. *colors* is a dict-in-dict where the first key is a value from *palette* and the second key is a value from *hue*. Color is a hex value, a string of 6 characters (0-9, A-F) written in uppercase.

For example, `colors["Red"]["900"]` is `"B71C1C"`.

API - kivymd.color_definitions

kivymd.color_definitions.**colors**

Color palette. Taken from 2014 Material Design color palettes.

To demonstrate the shades of the palette, you can run the following code:

```
from kivy.lang import Builder
from kivy.properties import ListProperty, StringProperty

from kivymd.color_definitions import colors
from kivymd.uix.tab import MDTabsBase
from kivymd.uix.boxlayout import MDBoxLayout

demo = '''
<Root@MDBoxLayout>
    orientation: 'vertical'

    MDTopAppBar:
        title: app.title

    MDTabs:
        id: android_tabs
        on_tab_switch: app.on_tab_switch(*args)
        size_hint_y: None
        height: "48dp"
        tab_indicator_anim: False

    RecycleView:
        id: rv
        key_viewclass: "viewclass"
        key_size: "height"

        RecycleBoxLayout:
            default_size: None, dp(48)
            default_size_hint: 1, None
            size_hint_y: None
            height: self.minimum_height
            orientation: "vertical"


<ItemColor>
    size_hint_y: None
    height: "42dp"

    MDLabel:
        text: root.text
        halign: "center"


<Tab>
'''

from kivy.factory import Factory
```

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```
from kivymd.app import MDApp


class Tab(MDBoxLayout, MDTabsBase):
    pass


class ItemColor(MDBoxLayout):
    text = StringProperty()
    color = ListProperty()


class Palette(MDApp):
    title = "Colors definitions"

    def build(self):
        Builder.load_string(demo)
        self.screen = Factory.Root()

        for name_tab in colors.keys():
            tab = Tab(title=name_tab)
            self.screen.ids.android_tabs.add_widget(tab)
        return self.screen

    def on_tab_switch(
        self, instance_tabs, instance_tab, instance_tabs_label, tab_text
    ):
        self.screen.ids.rv.data = []
        if not tab_text:
            tab_text = 'Red'
        for value_color in colors[tab_text]:
            self.screen.ids.rv.data.append(
                {
                    "viewclass": "ItemColor",
                    "md_bg_color": colors[tab_text][value_color],
                    "title": value_color,
                }
            )

    def on_start(self):
        self.on_tab_switch(
            None,
            None,
            None,
            self.screen.ids.android_tabs.ids.layout.children[-1].text,
        )


Palette().run()
```

kivymd.color_definitions.**palette = ['Red', 'Pink', 'Purple', 'DeepPurple', 'Indigo', 'Blue', 'LightBlue', 'Cyan', 'Teal', 'Green', 'LightGreen', 'Lime', 'Yellow', 'Amber', 'Orange', 'DeepOrange', 'Brown', 'Gray', 'BlueGray']**

Valid values for color palette selecting.

kivymd.color_definitions.**hue = ['50', '100', '200', '300', '400', '500', '600', '700', '800', '900', 'A100', 'A200', 'A400', 'A700']**

Valid values for color hue selecting.

kivymd.color_definitions.**light_colors**

Which colors are light. Other are dark.

kivymd.color_definitions.**text_colors**

Text colors generated from *light_colors*. "000000" for light and "FFFFFF" for dark.

How to generate text_colors dict

```
text_colors = {}
for p in palette:
    text_colors[p] = {}
    for h in hue:
        if h in light_colors[p]:
            text_colors[p][h] = "000000"
        else:
            text_colors[p][h] = "FFFFFF"
```

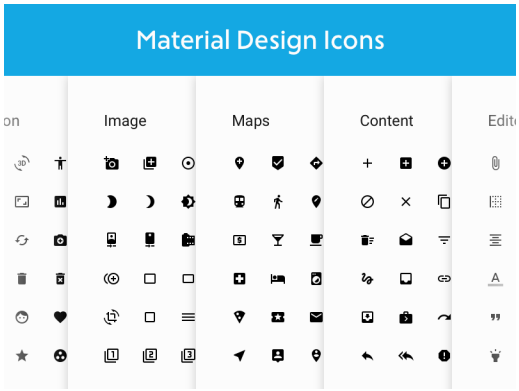
kivymd.color_definitions.**theme_colors = ['Primary', 'Secondary', 'Background', 'Surface', 'Error', 'On_Primary', 'On_Secondary', 'On_Background', 'On_Surface', 'On_Error']**

Valid theme colors.

2.2.4 Icon Definitions

See also:

Material Design Icons



List of icons from materialdesignicons.com. These expanded material design icons are maintained by Austin Andrews (Templarian on Github).

LAST UPDATED: Version 7.0.96

To preview the icons and their names, you can use the following application:

```
from kivy.lang import Builder
from kivy.properties import StringProperty
from kivy.uix.screenmanager import Screen

from kivymd.icon_definitions import md_icons
from kivymd.app import MDApp
from kivymd.uix.list import OneLineIconListItem


Builder.load_string(
    '''
#:import images_path kivymd.images_path


<CustomOneLineIconListItem>

    IconLeftWidget:
        icon: root.icon


<PreviousMDIcons>

    MDBoxLayout:
        orientation: 'vertical'
        spacing: dp(10)
        padding: dp(20)

        MDBoxLayout:
            adaptive_height: True

            MDIconButton:
                icon: 'magnify'

            MDTextField:
                id: search_field
                hint_text: 'Search icon'
                on_text: root.set_list_md_icons(self.text, True)

        RecycleView:
            id: rv
            key_viewclass: 'viewclass'
            key_size: 'height'

            RecycleBoxLayout:
                padding: dp(10)
                default_size: None, dp(48)
                default_size_hint: 1, None
                size_hint_y: None
                height: self.minimum_height
                orientation: 'vertical'
```

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```
'''
)


class CustomOneLineIconListItem(OneLineIconListItem):
    icon = StringProperty()


class PreviousMDIcons(Screen):

    def set_list_md_icons(self, text="", search=False):
        '''Builds a list of icons for the screen MDIcons.'''

        def add_icon_item(name_icon):
            self.ids.rv.data.append(
                {
                    "viewclass": "CustomOneLineIconListItem",
                    "icon": name_icon,
                    "text": name_icon,
                    "callback": lambda x: x,
                }
            )

        self.ids.rv.data = []
        for name_icon in md_icons.keys():
            if search:
                if text in name_icon:
                    add_icon_item(name_icon)
            else:
                add_icon_item(name_icon)


class MainApp(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = PreviousMDIcons()

    def build(self):
        return self.screen

    def on_start(self):
        self.screen.set_list_md_icons()


MainApp().run()
```

API - kivymd.icon_definitions

kivymd.icon_definitions.**md_icons**

2.2.5 Font Definitions

See also:

Material Design spec, The type system

API - kivymd.font_definitions

kivymd.font_definitions.**fonts**

kivymd.font_definitions.**theme_font_styles = ['H1', 'H2', 'H3', 'H4', 'H5', 'H6', 'Subtitle1', 'Subtitle2', 'Body1', 'Body2', 'Button', 'Caption', 'Overline', 'Icon']**

Scale Category	Typeface	Font	Size	Case	Letter spacing
H1	Roboto	Light	96	Sentence	-1.5
H2	Roboto	Light	60	Sentence	-0.5
H3	Roboto	Regular	48	Sentence	0
H4	Roboto	Regular	34	Sentence	0.25
H5	Roboto	Regular	24	Sentence	0
H6	Roboto	Medium	20	Sentence	0.15
Subtitle 1	Roboto	Regular	16	Sentence	0.15
Subtitle 2	Roboto	Medium	14	Sentence	0.1
Body 1	Roboto	Regular	16	Sentence	0.5
Body 2	Roboto	Regular	14	Sentence	0.25
BUTTON	Roboto	Medium	14	All caps	1.25
Caption	Roboto	Regular	12	Sentence	0.4
OVERLINE	Roboto	Regular	10	All caps	1.5

2.3 Components

2.3.1 AnchorLayout

New in version 1.0.0.

`AnchorLayout` class equivalent. Simplifies working with some widget properties. For example:

AnchorLayout

```
AnchorLayout:
    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        Rectangle:
            pos: self.pos
            size: self.size
```

MDAnchorLayout

```
MDAnchorLayout:
    md_bg_color: app.theme_cls.primary_color
```

API - kivymd.uix.anchorlayout

class kivymd.uix.anchorlayout.**MDAnchorLayout**(**args*, ***kwargs*)

Anchor layout class. For more information, see in the AnchorLayout class documentation.

2.3.2 Widget

Widget class equivalent. Simplifies working with some widget properties. For example:

Widget

```
Widget:
    size_hint: .5, None
    height: self.width

    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        RoundedRectangle:
            pos: self.pos
            size: self.size
            radius: [self.height / 2,]
```

MDWidget

```
MDWidget:
    size_hint: .5, None
    height: self.width
    radius: self.height / 2
    md_bg_color: app.theme_cls.primary_color
```

API - kivymd.uix.widget

class kivymd.uix.widget.**MDWidget**(**args*, ***kwargs*)

See `Widget` class documentation for more information.

New in version 1.0.0.

2.3.3 RecycleGridLayout

`RecycleGridLayout` class equivalent. Simplifies working with some widget properties. For example:

RecycleGridLayout

```
RecycleGridLayout:
    size_hint_y: None
    height: self.minimum_height

    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        Rectangle:
            pos: self.pos
            size: self.size
```

MDRecycleGridLayout

```
MDRecycleGridLayout:
    adaptive_height: True
    md_bg_color: app.theme_cls.primary_color
```

Available options are:

- *adaptive_height*
- *adaptive_width*
- *adaptive_size*

adaptive_height

```
adaptive_height: True
```

Equivalent

```
size_hint_y: None
height: self.minimum_height
```

adaptive_width

```
adaptive_width: True
```

Equivalent

```
size_hint_x: None
width: self.minimum_width
```

adaptive_size

```
adaptive_size: True
```

Equivalent

```
size_hint: None, None
size: self.minimum_size
```

API - kivymd.uix.recyclegridlayout

class kivymd.uix.recyclegridlayout.**MDRecycleGridLayout**(**args*, ***kwargs*)

Recycle grid layout layout class. For more information, see in the RecycleGridLayout class documentation.

2.3.4 TapTargetView

See also:

TapTargetView, GitHub

TapTargetView, Material archive

Provide value and improve engagement by introducing users to new features and functionality at relevant moments.

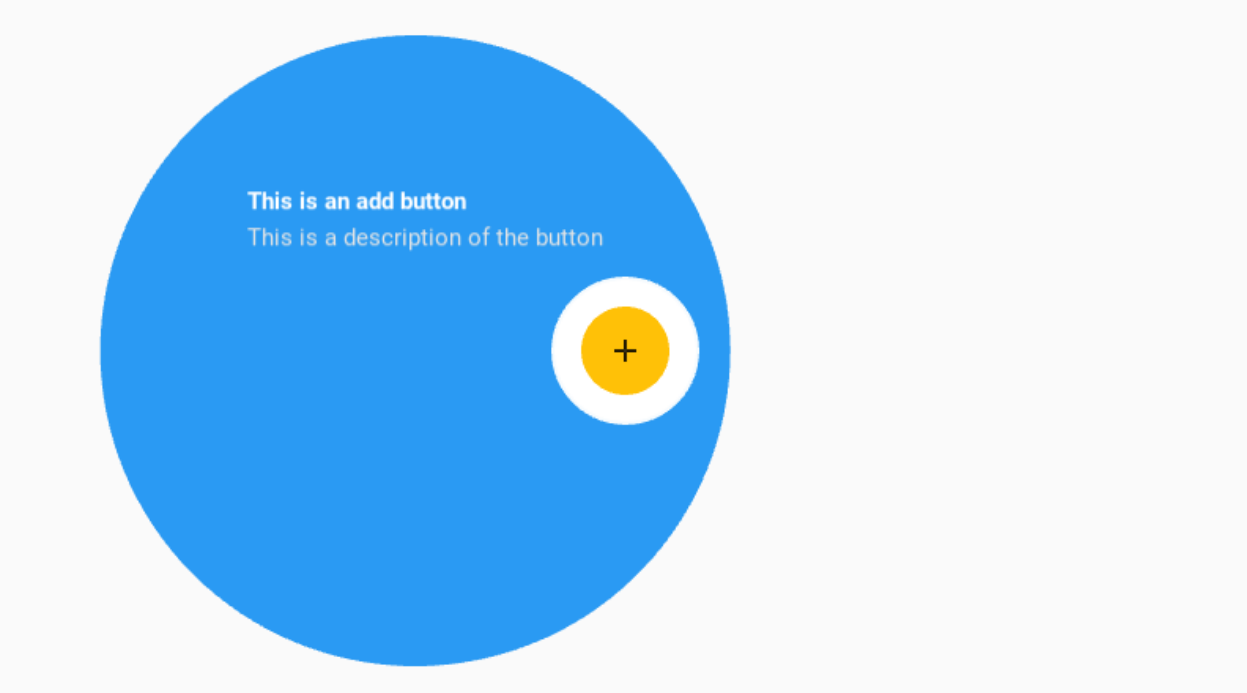
Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.taptargetview import MDTapTargetView

KV = '''
Screen:

    MDFloatingActionButton:
        id: button
        icon: "plus"
        pos: 10, 10
        on_release: app.tap_target_start()
'''


class TapTargetViewDemo(MDApp):
    def build(self):
        screen = Builder.load_string(KV)
        self.tap_target_view = MDTapTargetView(
            widget=screen.ids.button,
            title_text="This is an add button",
            description_text="This is a description of the button",
            widget_position="left_bottom",
        )

        return screen

    def tap_target_start(self):
        if self.tap_target_view.state == "close":
            self.tap_target_view.start()
        else:
            self.tap_target_view.stop()


TapTargetViewDemo().run()
```

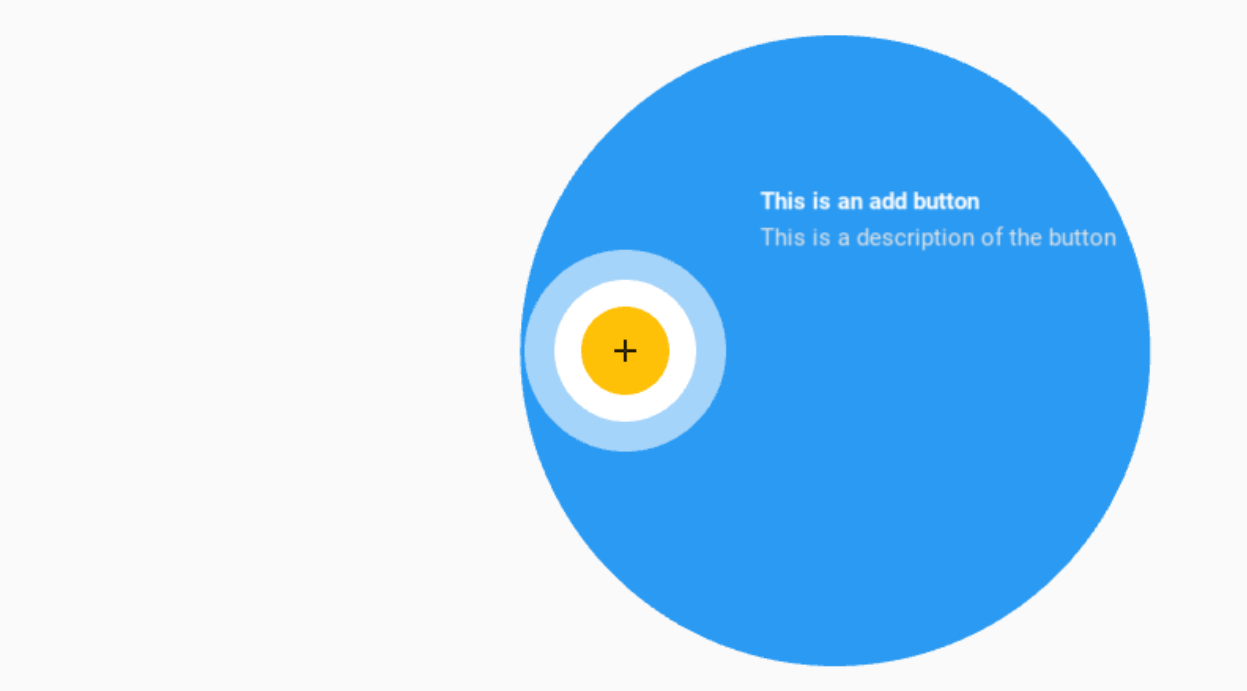
Widget position

Sets the position of the widget relative to the floating circle.

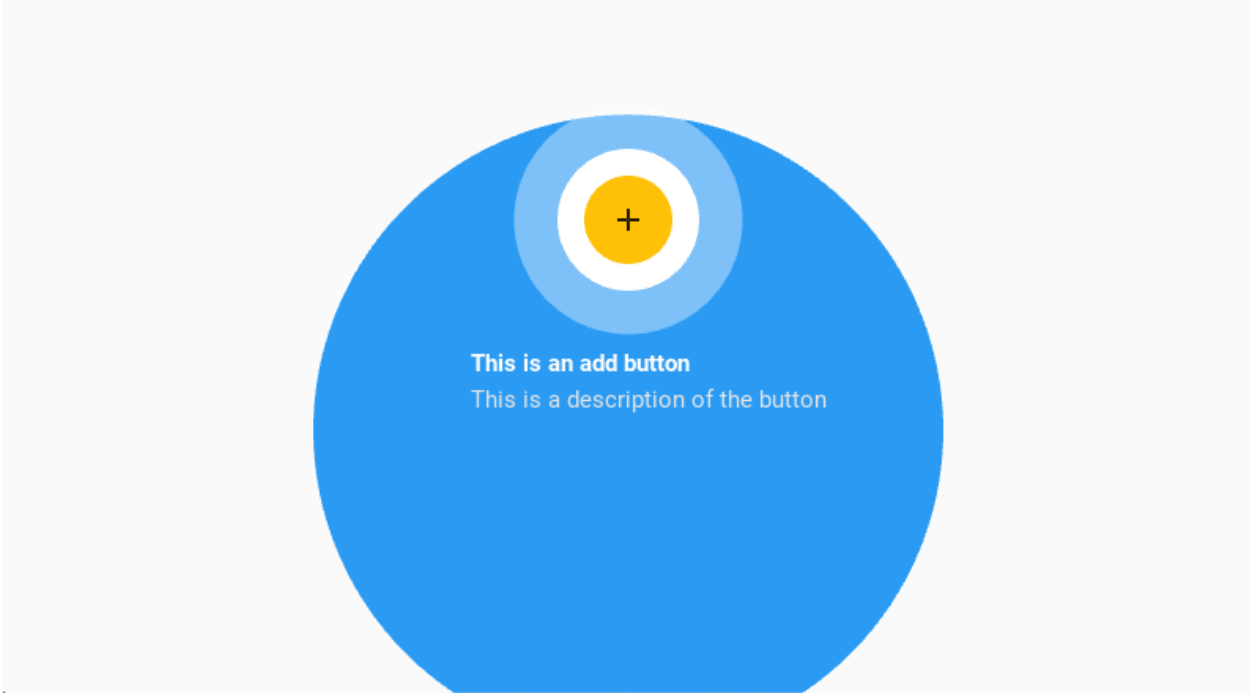
```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="right",
)
```




```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="left",
)
```




```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="top",
)
```




```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="bottom",
```

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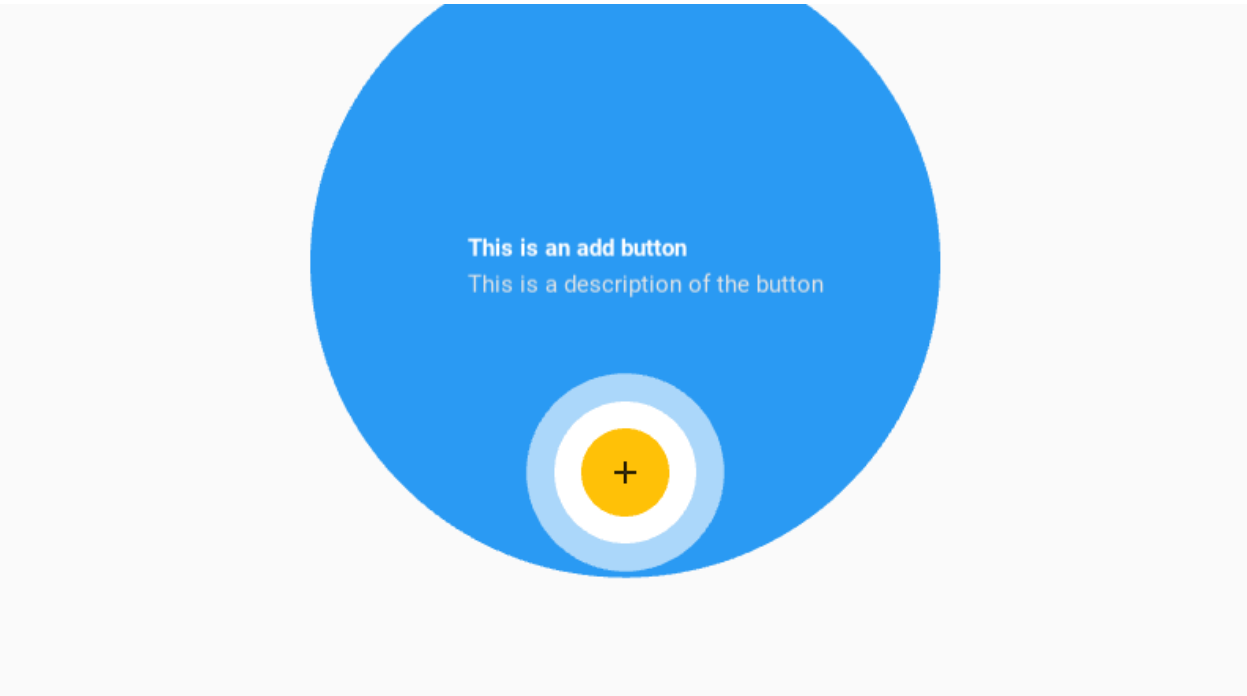
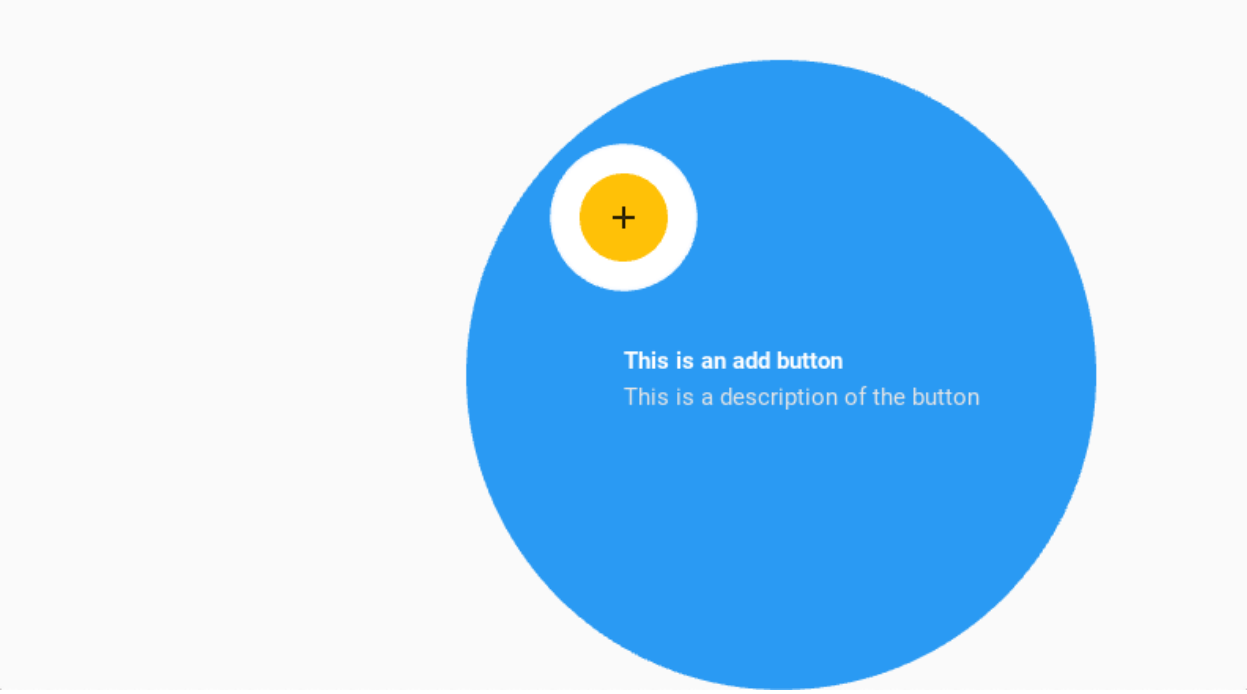
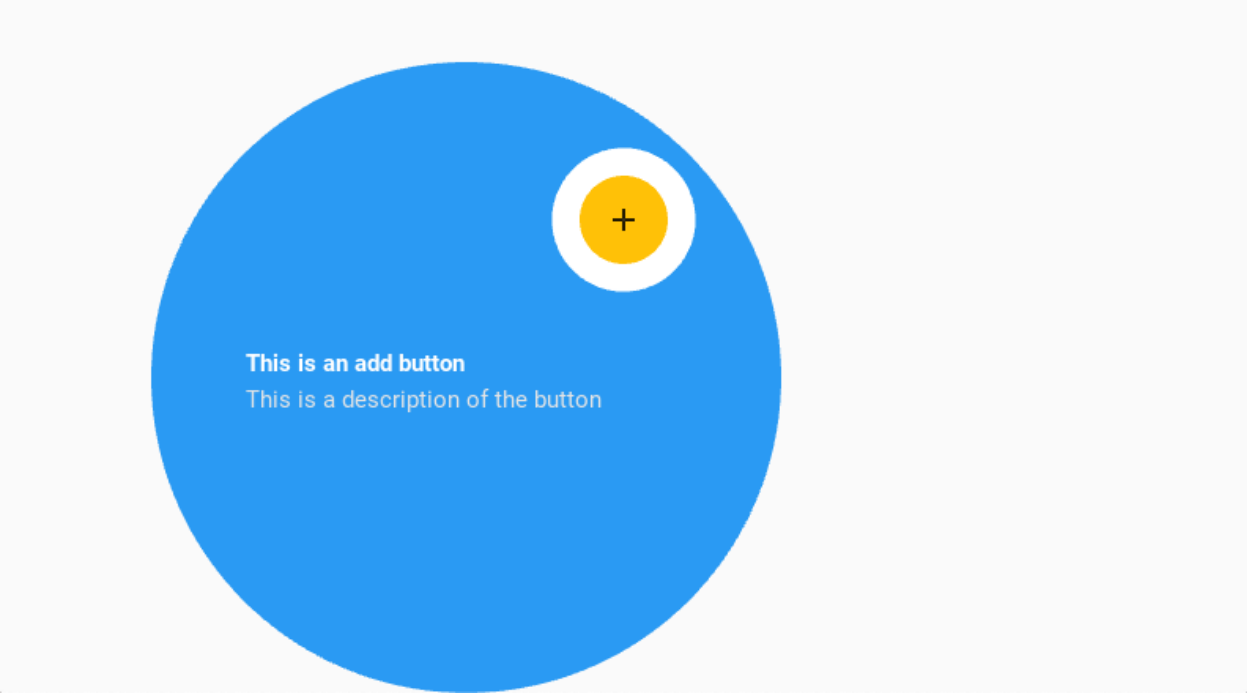
```
)
```



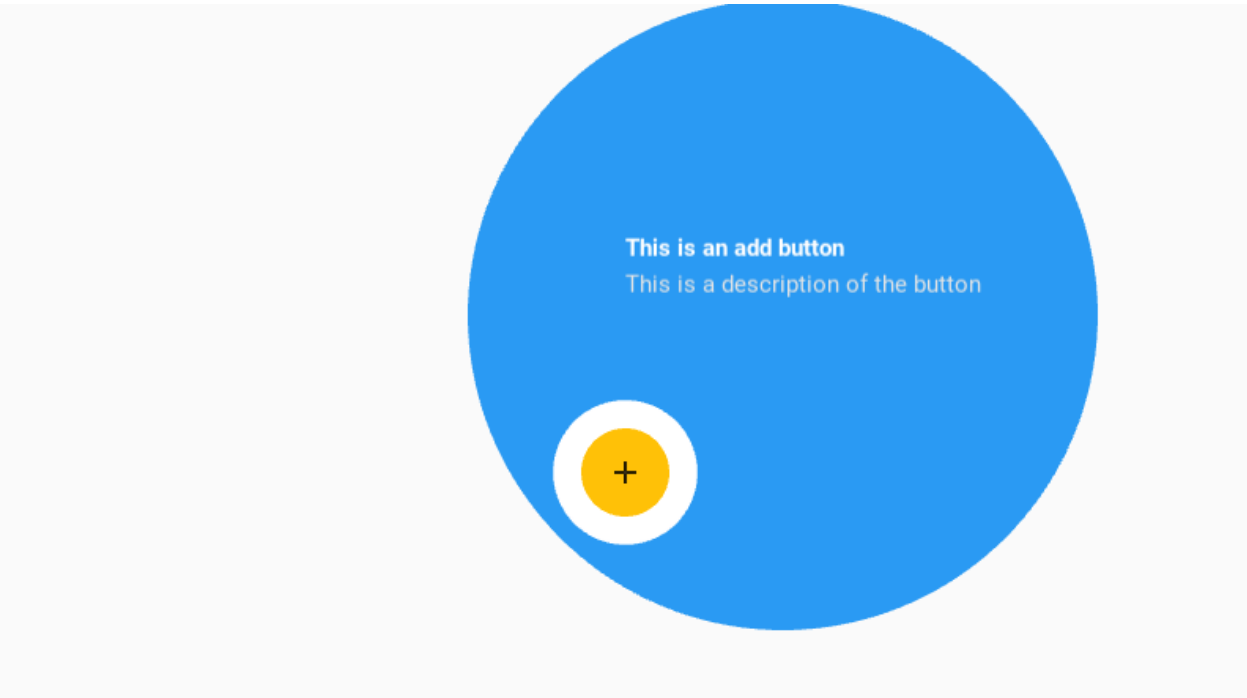

```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="left_top",
)
```



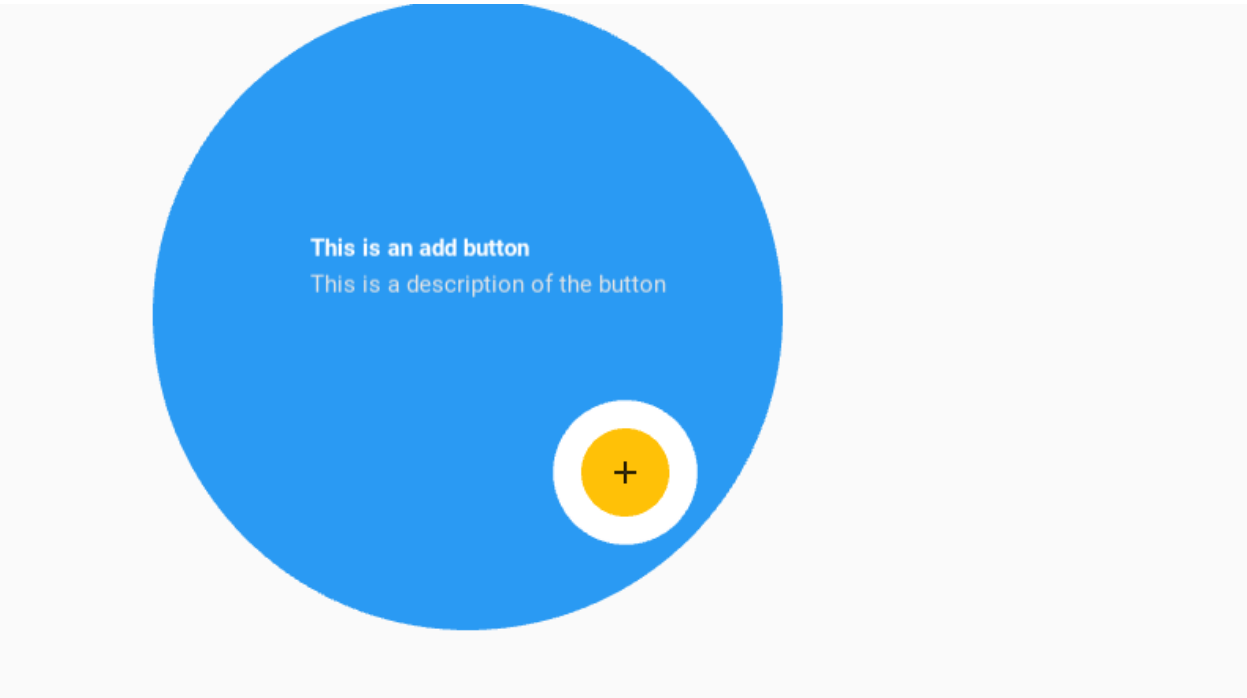
```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="right_top",
)
```




```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="left_bottom",
)
```




```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="right_bottom",
)
```



If you use the `widget_position = "center"` parameter then you must definitely specify the *title_position*.

```
self.tap_target_view = MDTapTargetView(
```

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```
    ...
    widget_position="center",
    title_position="left_top",
)
```

Text options

```
self.tap_target_view = MDTapTargetView(
    ...
    title_text="Title text",
    description_text="Description text",
)
```

You can use the following options to control font size, color, and boldness:

- *title_text_size*
- *title_text_color*
- *title_text_bold*
- *description_text_size*
- *description_text_color*
- *description_text_bold*

```
self.tap_target_view = MDTapTargetView(
    ...
    title_text="Title text",
    title_text_size="36sp",
    description_text="Description text",
    description_text_color=[1, 0, 0, 1]
)
```

But you can also use markup to set these values.

```
self.tap_target_view = MDTapTargetView(
    ...
    title_text="[size=36]Title text[/size]",
    description_text="[color=#ff0000ff]Description text[/color]",
)
```

Events control

```
self.tap_target_view.bind(on_open=self.on_open, on_close=self.on_close)
```

```
def on_open(self, instance_tap_target_view):
    '''Called at the time of the start of the widget opening animation.'''

    print("Open", instance_tap_target_view)

def on_close(self, instance_tap_target_view):
    '''Called at the time of the start of the widget closed animation.'''

    print("Close", instance_tap_target_view)
```

Note: See other parameters in the *MDTapTargetView* class.

API - kivymd.uix.taptargetview

class kivymd.uix.taptargetview.**MDTapTargetView**(***kwargs*)

Rough try to mimic the working of Android's TapTargetView.

Events

on_open
Called at the time of the start of the widget opening animation.

on_close
Called at the time of the start of the widget closed animation.

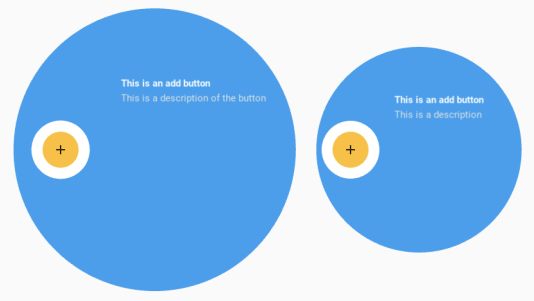
widget

Widget to add `TapTargetView` upon.

widget is an `ObjectProperty` and defaults to *None*.

outer_radius

Radius for outer circle.



outer_radius is an `NumericProperty` and defaults to *dp(200)*.

outer_circle_color

Color for the outer circle in `rgb` format.

```
self.tap_target_view = MDTapTargetView(
    ...
    outer_circle_color=(1, 0, 0)
)
```

outer_circle_color is an ListProperty and defaults to `theme_cls.primary_color`.

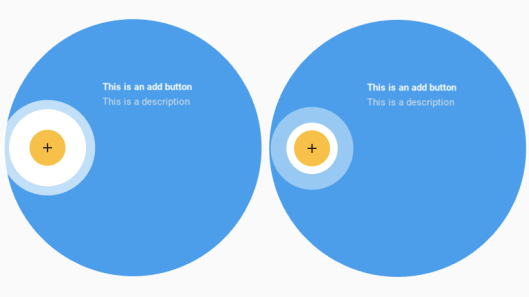
outer_circle_alpha

Alpha value for outer circle.

outer_circle_alpha is an NumericProperty and defaults to *0.96*.

target_radius

Radius for target circle.

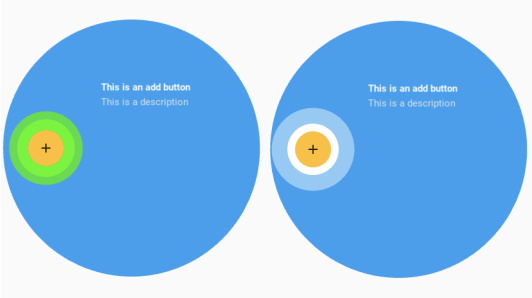


target_radius is an NumericProperty and defaults to *dp(45)*.

target_circle_color

Color for target circle in `rgb` format.

```
self.tap_target_view = MDTapTargetView(
    ...
    target_circle_color=(1, 0, 0)
)
```



target_circle_color is an ListProperty and defaults to *[1, 1, 1]*.

title_text

Title to be shown on the view.

title_text is an StringProperty and defaults to ‘’.

title_text_size

Text size for title.

title_text_size is an NumericProperty and defaults to *dp(25)*.

title_text_color

Text color for title.

title_text_color is an ListProperty and defaults to *[1, 1, 1, 1]*.

title_text_bold

Whether title should be bold.

title_text_bold is an BooleanProperty and defaults to *True*.

description_text

Description to be shown below the title (keep it short).

description_text is an StringProperty and defaults to ‘’.

description_text_size

Text size for description text.

description_text_size is an NumericProperty and defaults to *dp(20)*.

description_text_color

Text size for description text.

description_text_color is an ListProperty and defaults to *[0.9, 0.9, 0.9, 1]*.

description_text_bold

Whether description should be bold.

description_text_bold is an BooleanProperty and defaults to *False*.

draw_shadow

Whether to show shadow.

draw_shadow is an BooleanProperty and defaults to *False*.

cancelable

Whether clicking outside the outer circle dismisses the view.

cancelable is an BooleanProperty and defaults to *False*.

widget_position

Sets the position of the widget on the `outer_circle`. Available options are *'left'*, *'right'*, *'top'*, *'bottom'*, *'left_top'*, *'right_top'*, *'left_bottom'*, *'right_bottom'*, *'center'*.

widget_position is an OptionProperty and defaults to *'left'*.

title_position

Sets the position of :attr`~title_text` on the outer circle. Only works if :attr`~widget_position` is set to *'center'*. In all other cases, it calculates the :attr`~title_position` itself. Must be set to other than *'auto'* when :attr`~widget_position` is set to *'center'*.

Available options are *'auto'*, *'left'*, *'right'*, *'top'*, *'bottom'*, *'left_top'*, *'right_top'*, *'left_bottom'*, *'right_bottom'*, *'center'*.

title_position is an OptionProperty and defaults to *'auto'*.

stop_on_outer_touch

Whether clicking on outer circle stops the animation.

stop_on_outer_touch is an BooleanProperty and defaults to *False*.

stop_on_target_touch

Whether clicking on target circle should stop the animation.

stop_on_target_touch is an BooleanProperty and defaults to *True*.

state

State of *MDTapTargetView*.

state is an OptionProperty and defaults to *'close'*.

start(*self*, **args*)

Starts widget opening animation.

stop(*self*, **args*)

Starts widget close animation.

on_open(*self*, **args*)

Called at the time of the start of the widget opening animation.

on_close(*self*, **args*)

Called at the time of the start of the widget closed animation.

on_draw_shadow(*self*, *instance*, *value*)

on_description_text(*self*, *instance*, *value*)

on_description_text_size(*self*, *instance*, *value*)

on_description_text_bold(*self*, *instance*, *value*)

on_title_text(*self*, *instance*, *value*)

on_title_text_size(*self*, *instance*, *value*)

on_title_text_bold(*self*, *instance*, *value*)

on_outer_radius(*self*, *instance*, *value*)

on_target_radius(*self*, *instance*, *value*)

on_target_touch(*self*)

on_outer_touch(*self*)

on_outside_click(*self*)

2.3.5 ScrollView

New in version 1.0.0.

`ScrollView` class equivalent. Simplifies working with some widget properties. For example:

ScrollView

```
ScrollView:

    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        Rectangle:
            pos: self.pos
            size: self.size
```

MDScrollView

```
MDScrollView:
    md_bg_color: app.theme_cls.primary_color
```

API - kivymd.uix.scrollview

class kivymd.uix.scrollview.**MDScrollView**(**args*, ***kwargs*)

ScrollView class. For more information, see in the `ScrollView` class documentation.

2.3.6 ResponsiveLayout

New in version 1.0.0.

Responsive design is a graphic user interface (GUI) design approach used to create content that adjusts smoothly to various screen sizes.

The *MDResponsiveLayout* class does not reorganize your UI. Its task is to track the size of the application screen and, depending on this size, the *MDResponsiveLayout* class selects which UI layout should be displayed at the moment: mobile, tablet or desktop. Therefore, if you want to have a responsive view some kind of layout in your application, you should have three KV files with UI markup for three platforms.

You need to set three parameters for the *MDResponsiveLayout* class *mobile_view*, *tablet_view* and *desktop_view*. These should be Kivy or KivyMD widgets.

Usage responsive

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.label import MDLabel
from kivymd.uix.responsivelayout import MDResponsiveLayout
from kivymd.uix.screen import MDScreen

KV = '''
<CommonComponentLabel>
    halign: "center"


<MobileView>
    CommonComponentLabel:
        text: "Mobile"


<TabletView>
    CommonComponentLabel:
        text: "Table"


<DesktopView>
    CommonComponentLabel:
        text: "Desktop"


ResponsiveView:
'''


class CommonComponentLabel(MDLabel):
    pass
```

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```
class MobileView(MDScreen):
    pass


class TabletView(MDScreen):
    pass


class DesktopView(MDScreen):
    pass


class ResponsiveView(MDResponsiveLayout, MDScreen):
    def __init__(self, **kw):
        super().__init__(**kw)
        self.mobile_view = MobileView()
        self.tablet_view = TabletView()
        self.desktop_view = DesktopView()


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Note: Use common components for platform layouts (mobile, tablet, desktop views). As shown in the example above, such a common component is the *CommonComponentLabel* widget.

Perhaps you expected more from the *MDResponsiveLayout* widget, but even *Flutter* uses a similar approach to creating a responsive UI.

You can also use the commands provided to you by the developer tools to create a project with an responsive design.

API - kivymd.uix.responsivelayout

class kivymd.uix.responsivelayout.**MDResponsiveLayout**(**args*, ***kwargs*)

Events

on_change_screen_type
Called when the screen type changes.

mobile_view
Mobile view. Must be a Kivy or KivyMD widget.

mobile_view is an ObjectProperty and defaults to *None*.

tablet_view

Tablet view. Must be a Kivy or KivyMD widget.

tablet_view is an ObjectProperty and defaults to *None*.

desktop_view

Desktop view. Must be a Kivy or KivyMD widget.

desktop_view is an ObjectProperty and defaults to *None*.

on_change_screen_type(*self*, **args*)

Called when the screen type changes.

on_size(*self*, **args*)

Called when the application screen size changes.

set_screen(*self*)

Sets the screen according to the type of application screen size: mobile/tablet or desktop view.

2.3.7 CircularLayout

CircularLayout is a special layout that places widgets around a circle.

MDCircularLayout

Usage

```
from kivy.lang.builder import Builder
from kivy.uix.label import Label

from kivymd.app import MDApp

kv = '''
MDScreen:

    MDCircularLayout:
        id: container
        pos_hint: {"center_x": .5, "center_y": .5}
        row_spacing: min(self.size) * 0.1
'''


class Main(MDApp):
    def build(self):
        return Builder.load_string(kv)

    def on_start(self):
        for x in range(1, 49):
            self.root.ids.container.add_widget(
                Label(text=f"{x}", color=[0, 0, 0, 1])
            )
```

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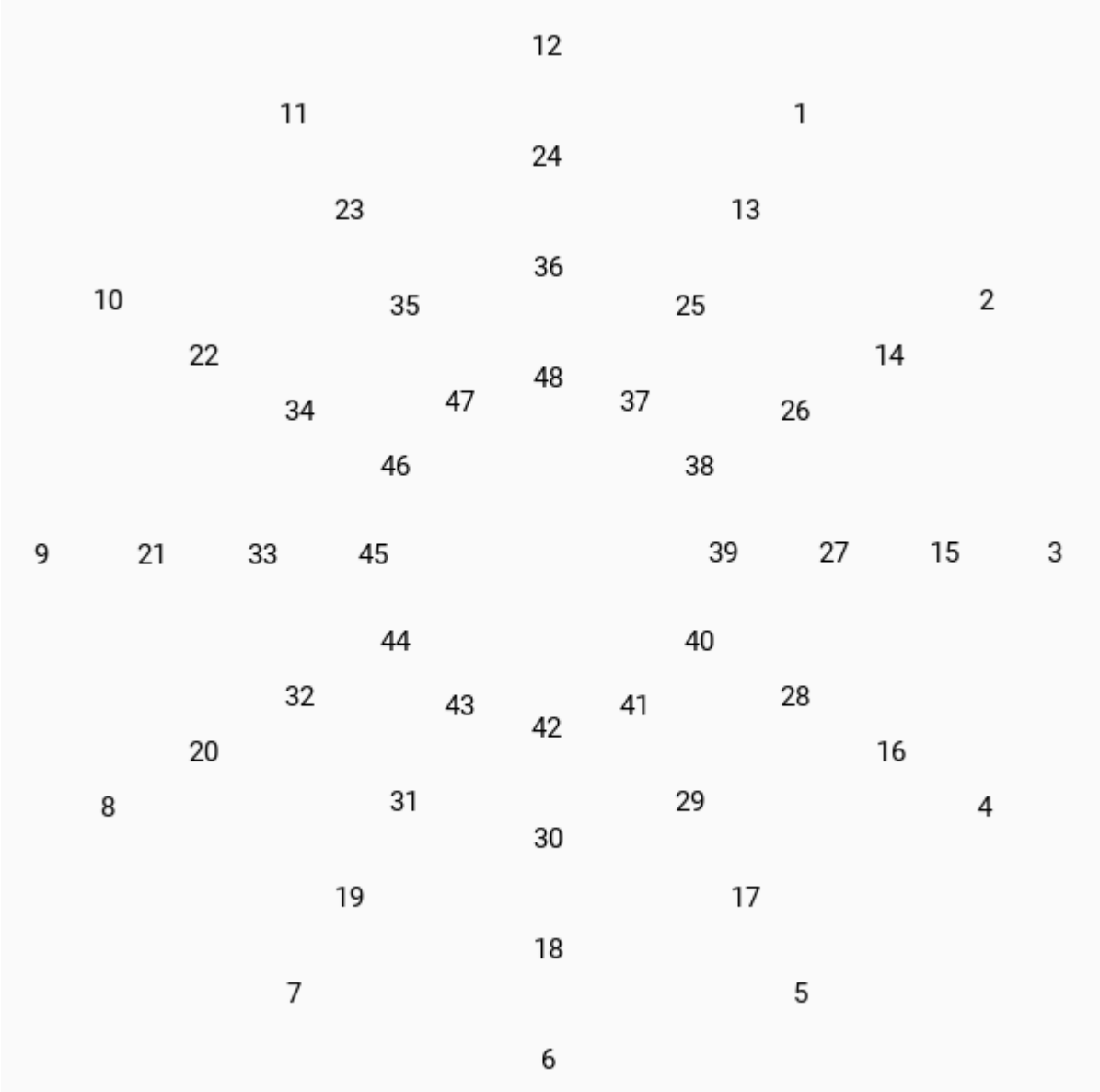
```
Main().run()
```



API - kivymd.uix.circularlayout

class kivymd.uix.circularlayout.**MDCircularLayout**(***kwargs*)

Float layout class. For more information, see in the FloatLayout class documentation.

degree_spacing

The space between children in degree.

degree_spacing is an NumericProperty and defaults to *30*.

circular_radius

Radius of circle. Radius will be the greatest value in the layout if *circular_radius* if not specified.

circular_radius is an NumericProperty and defaults to *None*.

start_from

The positon of first child in degree.

start_from is an NumericProperty and defaults to *60*.

max_degree

Maximum range in degree allowed for each row of widgets before jumping to the next row.

max_degree is an NumericProperty and defaults to *360*.

circular_padding

Padding between outer widgets and the edge of the biggest circle.

circular_padding is an NumericProperty and defaults to *25dp*.

row_spacing

Space between each row of widget.

row_spacing is an NumericProperty and defaults to *50dp*.

clockwise

Direction of widgets in circular direction.

clockwise is an BooleanProperty and defaults to *True*.

get_angle(*self*, *pos: tuple*)

Returns the angle of given pos.

remove_widget(*self*, *widget*, ***kwargs*)

Remove a widget from the children of this widget.

Parameters

***widget*: Widget**
Widget to remove from our children list.

```
>>> from kivy.uix.button import Button
>>> root = Widget()
>>> button = Button()
>>> root.add_widget(button)
>>> root.remove_widget(button)
```

do_layout(*self*, **largs*, ***kwargs*)

This function is called when a layout is called by a trigger. If you are writing a new Layout subclass, don't call this function directly but use `_trigger_layout()` instead.

The function is by default called *before* the next frame, therefore the layout isn't updated immediately. Anything depending on the positions of e.g. children should be scheduled for the next frame.

New in version 1.0.8.

2.3.8 Screen

`Screen` class equivalent. Simplifies working with some widget properties. For example:

Screen

```
Screen:
    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        RoundedRectangle:
            pos: self.pos
            size: self.size
            radius: [25, 0, 0, 0]
```

MDScreen

```
MDScreen:
    radius: [25, 0, 0, 0]
    md_bg_color: app.theme_cls.primary_color
```

API - kivymd.uix.screen

class kivymd.uix.screen.**MDScreen**(**args*, ***kwargs*)

Screen is an element intended to be used with a *MDScreenManager*. For more information, see in the `Screen` class documentation.

hero_to

Must be a *MDHeroTo* class.

See the documentation of the MDHeroTo widget for more detailed information.

Deprecated since version 1.0.0: Use attr:*heroes_to* attribute instead.

hero_to is an `ObjectProperty` and defaults to *None*.

heroes_to

Must be a list of *MDHeroTo* class.

New in version 1.0.0.

heroes_to is an `LiatProperty` and defaults to *[]*.

on_hero_to(*self*, *screen*, *widget:* MDHeroTo)

Called when the value of the *hero_to* attribute changes.

2.3.9 ScreenManager

New in version 1.0.0.

ScreenManager class equivalent. If you want to use Hero animations you need to use *MDScreenManager* not ScreenManager class.

Transition

MDScreenManager class supports the following transitions:

- MDFadeSlideTransition
- MDSlideTransition
- MDSwapTransition

You need to use the *MDScreenManager* class when you want to use hero animations on your screens. If you don't need hero animation use the ScreenManager class.

API - kivymd.uix.screenmanager

class kivymd.uix.screenmanager.**MDScreenManager**(**args*, ***kwargs*)

Screen manager. This is the main class that will control your *MDScreen* stack and memory.

For more information, see in the ScreenManager class documentation.

current_hero

The name of the current tag for the *MDHeroFrom* and *MDHeroTo* objects that will be animated when animating the transition between screens.

Deprecated since version 1.1.0: Use *current_heroes* attribute instead.

See the Hero module documentation for more information about creating and using Hero animations.

current_hero is an StringProperty and defaults to *None*.

current_heroes

A list of names (tags) of heroes that need to be animated when moving to the next screen.

New in version 1.1.0.

current_heroes is an ListProperty and defaults to *[]*.

check_transition(*self*, **args*)

Sets the default type transition.

get_hero_from_widget(*self*)

Get a list of *MDHeroFrom* objects according to the tag names specified in the *current_heroes* list.

on_current_hero(*self*, *instance*, *value: str*)

Called when the value of the *current_hero* attribute changes.

add_widget(*self*, *widget*, **args*, ***kwargs*)

Changed in version 2.1.0.

Renamed argument *screen* to *widget*.

2.3.10 BoxLayout

`BoxLayout` class equivalent. Simplifies working with some widget properties. For example:

BoxLayout

```
BoxLayout:
    size_hint_y: None
    height: self.minimum_height

    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        Rectangle:
            pos: self.pos
            size: self.size
```

MDBoxLayout

```
MDBoxLayout:
    adaptive_height: True
    md_bg_color: app.theme_cls.primary_color
```

Available options are:

- *adaptive_height*
- *adaptive_width*
- *adaptive_size*

adaptive_height

```
adaptive_height: True
```

Equivalent

```
size_hint_y: None
height: self.minimum_height
```

adaptive_width

```
adaptive_width: True
```

Equivalent

```
size_hint_x: None
height: self.minimum_width
```

adaptive_size

```
adaptive_size: True
```

Equivalent

```
size_hint: None, None
size: self.minimum_size
```

API - kivymd.uix.boxlayout

class kivymd.uix.boxlayout.**MDBoxLayout**(**args*, ***kwargs*)

Box layout class.

For more information, see in the BoxLayout class documentation.

2.3.11 RecycleView

New in version 1.0.0.

RecycleView class equivalent. Simplifies working with some widget properties. For example:

RecycleView

```
RecycleView:

    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        Rectangle:
            pos: self.pos
            size: self.size
```

MDRecycleView

```
MDRecycleView:
    md_bg_color: app.theme_cls.primary_color
```

API - kivymd.uix.recycleview

class kivymd.uix.recycleview.**MDRecycleView**(**args*, ***kwargs*)

Recycle view class. For more information, see in the RecycleView class documentation.

2.3.12 StackLayout

StackLayout class equivalent. Simplifies working with some widget properties. For example:

StackLayout

```
StackLayout:
    size_hint_y: None
    height: self.minimum_height

    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        Rectangle:
            pos: self.pos
            size: self.size
```

MDStackLayout

```
MDStackLayout:
    adaptive_height: True
    md_bg_color: app.theme_cls.primary_color
```

Available options are:

- *adaptive_height*
- *adaptive_width*
- *adaptive_size*

adaptive_height

```
adaptive_height: True
```

Equivalent

```
size_hint_y: None
height: self.minimum_height
```

adaptive_width

```
adaptive_width: True
```

Equivalent

```
size_hint_x: None
width: self.minimum_width
```

adaptive_size

```
adaptive_size: True
```

Equivalent

```
size_hint: None, None
size: self.minimum_size
```

API - kivymd.uix.stacklayout

class kivymd.uix.stacklayout.**MDStackLayout**(**args*, ***kwargs*)

Stack layout class. For more information, see in the StackLayout class documentation.

2.3.13 RelativeLayout

RelativeLayout class equivalent. Simplifies working with some widget properties. For example:

RelativeLayout

```
RelativeLayout:
    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        RoundedRectangle:
            pos: (0, 0)
```

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```
            size: self.size
            radius: [25, ]
```

MDRelativeLayout

```
MDRelativeLayout:
    radius: [25, ]
    md_bg_color: app.theme_cls.primary_color
```

API - kivymd.uix.relativelayout

class kivymd.uix.relativelayout.**MDRelativeLayout**(**args*, ***kwargs*)

Relative layout class. For more information, see in the RelativeLayout class documentation.

2.3.14 Hero

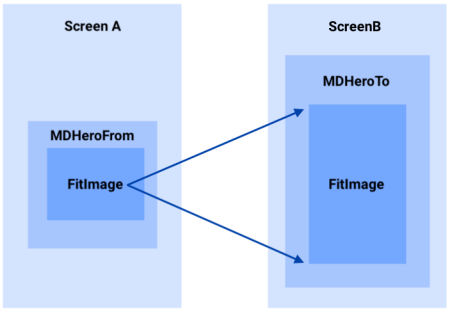
New in version 1.0.0.

Use the MDHeroFrom widget to animate a widget from one screen to the next.

- The hero refers to the widget that flies between screens.
- Create a hero animation using KivyMD's *MDHeroFrom* widget.
- Fly the hero from one screen to another.
- Animate the transformation of a hero's shape from circular to rectangular while flying it from one screen to another.
- The *MDHeroFrom* widget in KivyMD implements a style of animation commonly known as shared element transitions or shared element animations.

The widget that will move from screen A to screen B will be a hero. To move a widget from one screen to another using hero animation, you need to do the following:

- On screen **A**, place the *MDHeroFrom* container.
- Sets a tag (string) for the *MDHeroFrom* container.
- Place a hero in the *MDHeroFrom* container.
- On screen **B**, place the *MDHeroTo* container - our hero from screen **A **will fly into this container.



Warning: *MDHeroFrom* container cannot have more than one child widget.

Base example

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreenManager:

    MDScreen:
        name: "screen A"
        md_bg_color: "lightblue"

        MDHeroFrom:
            id: hero_from
            tag: "hero"
            size_hint: None, None
            size: "120dp", "120dp"
            pos_hint: {"top": .98}
            x: 24

            FitImage:
                source: "kivymd/images/logo/kivymd-icon-512.png"
                size_hint: None, None
                size: hero_from.size

        MDRaisedButton:
            text: "Move Hero To Screen B"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = ["hero"]
                root.current = "screen B"

    MDScreen:
```

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```
        name: "screen B"
        hero_to: hero_to
        md_bg_color: "cadetblue"

        MDHeroTo:
            id: hero_to
            tag: "hero"
            size_hint: None, None
            size: "220dp", "220dp"
            pos_hint: {"center_x": .5, "center_y": .5}

        MDRaisedButton:
            text: "Move Hero To Screen A"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = ["hero"]
                root.current = "screen A"
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Note that the child of the *MDHeroFrom* widget must have the size of the parent:

```
MDHeroFrom:
    id: hero_from
    tag: "hero"

    FitImage:
        size_hint: None, None
        size: hero_from.size
```

To enable hero animation before setting the name of the current screen for the screen manager, you must specify the name of the tag of the *MDHeroFrom* container in which the hero is located:

```
MDRaisedButton:
    text: "Move Hero To Screen B"
    on_release:
        root.current_heroes = ["hero"]
        root.current = "screen 2"
```

If you need to switch to a screen that does not contain heroes, set the *current_hero* attribute for the screen manager as “” (empty string):

```
MDRaisedButton:
    text: "Go To Another Screen"
    on_release:
        root.current_heroes = []
        root.current = "another screen"
```

Example

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreenManager:

    MDScreen:
        name: "screen A"
        md_bg_color: "lightblue"

        MDHeroFrom:
            id: hero_from
            tag: "hero"
            size_hint: None, None
            size: "120dp", "120dp"
            pos_hint: {"top": .98}
            x: 24

            FitImage:
                source: "kivymd/images/logo/kivymd-icon-512.png"
                size_hint: None, None
                size: hero_from.size

        MDRaisedButton:
            text: "Move Hero To Screen B"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = ["hero"]
                root.current = "screen B"

    MDScreen:
        name: "screen B"
        hero_to: hero_to
        md_bg_color: "cadetblue"

        MDHeroTo:
            id: hero_to
            tag: "hero"
            size_hint: None, None
            size: "220dp", "220dp"
            pos_hint: {"center_x": .5, "center_y": .5}
```

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```
        MDRaisedButton:
            text: "Go To Screen C"
            pos_hint: {"center_x": .5}
            y: "52dp"
            on_release:
                root.current_heroes = []
                root.current = "screen C"

        MDRaisedButton:
            text: "Move Hero To Screen A"
            pos_hint: {"center_x": .5}
            y: "8dp"
            on_release:
                root.current_heroes = ["hero"]
                root.current = "screen A"

    MDScreen:
        name: "screen C"

        MDLabel:
            text: "Screen C"
            halign: "center"

        MDRaisedButton:
            text: "Back To Screen B"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current = "screen B"
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Events

Two events are available for the hero:

- *on_transform_in* - when the hero flies from screen **A** to screen **B**.
- *on_transform_out* - when the hero back from screen **B** to screen **A**.

The *on_transform_in*, *on_transform_out* events relate to the *MDHeroFrom* container. For example, let's change the radius and background color of the hero during the flight between the screens:

```
from kivy import utils
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.utils import get_color_from_hex

from kivymd.app import MDApp
from kivymd.uix.hero import MDHeroFrom
from kivymd.uix.relativelayout import MDRelativeLayout

KV = '''
MDScreenManager:

    MDScreen:
        name: "screen A"
        md_bg_color: "lightblue"

        MyHero:
            id: hero_from
            tag: "hero"
            size_hint: None, None
            size: "120dp", "120dp"
            pos_hint: {"top": .98}
            x: 24

            MDRelativeLayout:
                size_hint: None, None
                size: hero_from.size
                md_bg_color: "blue"
                radius: [24, 12, 24, 12]

                FitImage:
                    source: "https://github.com/kivymd/internal/raw/main/logo/kivymd_
↪logo_blue.png"

        MDRaisedButton:
            text: "Move Hero To Screen B"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = ["hero"]
                root.current = "screen B"

    MDScreen:
        name: "screen B"
        hero_to: hero_to
        md_bg_color: "cadetblue"

        MDHeroTo:
            id: hero_to
            tag: "hero"
            size_hint: None, None
            size: "220dp", "220dp"
```

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```
            pos_hint: {"center_x": .5, "center_y": .5}

        MDRaisedButton:
            text: "Move Hero To Screen A"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = ["hero"]
                root.current = "screen A"
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


class MyHero(MDHeroFrom):
    def on_transform_in(
        self, instance_hero_widget: MDRelativeLayout, duration: float
    ):
        '''
        Called when the hero flies from screen **A** to screen **B**.

        :param instance_hero_widget: dhild widget of the `MDHeroFrom` class.
        :param duration of the transition animation between screens.
        '''

        Animation(
            radius=[12, 24, 12, 24],
            duration=duration,
            md_bg_color=(0, 1, 1, 1),
        ).start(instance_hero_widget)

    def on_transform_out(
        self, instance_hero_widget: MDRelativeLayout, duration: float
    ):
        '''Called when the hero back from screen **B** to screen **A**.'''

        Animation(
            radius=[24, 12, 24, 12],
            duration=duration,
            md_bg_color=get_color_from_hex(utils.hex_colormap["blue"]),
        ).start(instance_hero_widget)


Test().run()
```

Usage with ScrollView

```
from kivy.animation import Animation
from kivy.clock import Clock
from kivy.lang import Builder
from kivy.properties import StringProperty, ObjectProperty

from kivymd.app import MDApp
from kivymd.uix.hero import MDHeroFrom

KV = '''
<HeroItem>
    size_hint_y: None
    height: "200dp"
    radius: 24

    MDSmartTile:
        id: tile
        radius: 24
        box_radius: 0, 0, 24, 24
        box_color: 0, 0, 0, .5
        source: "kivymd/images/logo/kivymd-icon-512.png"
        size_hint: None, None
        size: root.size
        mipmap: True
        on_release: root.on_release()

        MDLabel:
            text: root.tag
            bold: True
            font_style: "H6"
            opposite_colors: True


MDScreenManager:

    MDScreen:
        name: "screen A"

        ScrollView:

            MDGridLayout:
                id: box
                cols: 2
                spacing: "12dp"
                padding: "12dp"
                adaptive_height: True

    MDScreen:
        name: "screen B"
        heroes_to: [hero_to]
```

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```
        MDHeroTo:
            id: hero_to
            size_hint: 1, None
            height: "220dp"
            pos_hint: {"top": 1}

        MDRaisedButton:
            text: "Move Hero To Screen A"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = [hero_to.tag]
                root.current = "screen A"
'''


class HeroItem(MDHeroFrom):
    text = StringProperty()
    manager = ObjectProperty()

    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.ids.tile.ids.image.ripple_duration_in_fast = 0.05

    def on_transform_in(self, instance_hero_widget, duration):
        Animation(
            radius=[0, 0, 0, 0],
            box_radius=[0, 0, 0, 0],
            duration=duration,
        ).start(instance_hero_widget)

    def on_transform_out(self, instance_hero_widget, duration):
        Animation(
            radius=[24, 24, 24, 24],
            box_radius=[0, 0, 24, 24],
            duration=duration,
        ).start(instance_hero_widget)

    def on_release(self):
        def switch_screen(*args):
            self.manager.current_heroes = [self.tag]
            self.manager.ids.hero_to.tag = self.tag
            self.manager.current = "screen B"

        Clock.schedule_once(switch_screen, 0.2)


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
```

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```
        for i in range(12):
            hero_item = HeroItem(
                text=f"Item {i + 1}", tag=f"Tag {i}", manager=self.root
            )
            if not i % 2:
                hero_item.md_bg_color = "lightgrey"
            self.root.ids.box.add_widget(hero_item)


Test().run()
```

Using multiple heroes at the same time

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreenManager:

    MDScreen:
        name: "screen A"
        md_bg_color: "lightblue"

        MDHeroFrom:
            id: hero_kivymd
            tag: "kivymd"
            size_hint: None, None
            size: "200dp", "200dp"
            pos_hint: {"top": .98}
            x: 24

            FitImage:
                source: "kivymd/images/logo/kivymd-icon-512.png"
                size_hint: None, None
                size: hero_kivymd.size

        MDHeroFrom:
            id: hero_kivy
            tag: "kivy"
            size_hint: None, None
            size: "200dp", "200dp"
            pos_hint: {"top": .98}
            x: 324

            FitImage:
                source: "data/logo/kivy-icon-512.png"
                size_hint: None, None
                size: hero_kivy.size
```

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```
        MDRaisedButton:
            text: "Move Hero To Screen B"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = ["kivymd", "kivy"]
                root.current = "screen B"

    MDScreen:
        name: "screen B"
        heroes_to: hero_to_kivymd, hero_to_kivy
        md_bg_color: "cadetblue"

        MDHeroTo:
            id: hero_to_kivy
            tag: "kivy"
            size_hint: None, None
            pos_hint: {"center_x": .5, "center_y": .5}

        MDHeroTo:
            id: hero_to_kivymd
            tag: "kivymd"
            size_hint: None, None
            pos_hint: {"right": 1, "top": 1}

        MDRaisedButton:
            text: "Move Hero To Screen A"
            pos_hint: {"center_x": .5}
            y: "36dp"
            on_release:
                root.current_heroes = ["kivy", "kivymd"]
                root.current = "screen A"
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

API - kivymd.uix.hero

class kivymd.uix.hero.**MDHeroFrom**(***kwargs*)

The container from which the hero begins his flight.

For more information, see in the *MDBoxLayout* class documentation.

Events

on_transform_in
when the hero flies from screen **A** to screen **B**.

on_transform_out
Called when the hero back from screen **B** to screen **A**.

tag

Tag ID for heroes.

tag is an StringProperty and defaults to ‘’.

on_transform_in(*self*, **args*)

Called when the hero flies from screen **A** to screen **B**.

on_transform_out(*self*, **args*)

Called when the hero back from screen **B** to screen **A**.

class kivymd.uix.hero.**MDHeroTo**(**args*, ***kwargs*)

The container in which the hero comes.

For more information, see in the *MDBoxLayout* class documentation.

tag

Tag ID for heroes.

tag is an StringProperty and defaults to ‘’.

2.3.15 GridLayout

GridLayout class equivalent. Simplifies working with some widget properties. For example:

GridLayout

```
GridLayout:
    size_hint_y: None
    height: self.minimum_height

    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        Rectangle:
            pos: self.pos
            size: self.size
```

MDGridLayout

```
MDGridLayout:
    adaptive_height: True
    md_bg_color: app.theme_cls.primary_color
```

Available options are:

- *adaptive_height*
- *adaptive_width*
- *adaptive_size*

adaptive_height

```
adaptive_height: True
```

Equivalent

```
size_hint_y: None
height: self.minimum_height
```

adaptive_width

```
adaptive_width: True
```

Equivalent

```
size_hint_x: None
width: self.minimum_width
```

adaptive_size

```
adaptive_size: True
```

Equivalent

```
size_hint: None, None
size: self.minimum_size
```

API - kivymd.uix.gridlayout

class kivymd.uix.gridlayout.**MDGridLayout**(**args*, ***kwargs*)

Grid layout class. For more information, see in the GridLayout class documentation.

2.3.16 Carousel

Carousel class equivalent. Simplifies working with some widget properties. For example:

Carousel

```
kv='''
    YourCarousel:
        BoxLayout:
            [...]
        BoxLayout:
            [...]
        BoxLayout:
            [...]
'''
builder.load_string(kv)

class YourCarousel(Carousel):
    def __init__(self,*kwargs):
        self.register_event_type("on_slide_progress")
        self.register_event_type("on_slide_complete")

    def on_touch_down(self, *args):
        ["Code to detect when the slide changes"]

    def on_touch_up(self, *args):
        ["Code to detect when the slide changes"]

    def Calculate_slide_pos(self, *args):
        ["Code to calculate the current position of the slide"]

    def do_custom_animation(self, *args):
        ["Code to recreate an animation"]
```

MDCarousel

```
MDCarousel:
    on_slide_progress:
        do_something()
    on_slide_complete:
        do_something()
```

API - kivymd.uix.carousel

class kivymd.uix.carousel.**MDCarousel**(**args*, ***kwargs*)

based on kivy's carousel.

See also:

kivy.uix.carousel.Carousel

on_slide_progress(*self*, **args*)

Event launched when the Slide animation is progress. remember to bind and unbid to this method.

on_slide_complete(*self*, **args*)

Event launched when the Slide animation is complete. remember to bind and unbid to this method.

on_touch_down(*self*, *touch*)

Receive a touch down event.

Parameters

***touch*: MotionEvent class**
Touch received. The touch is in parent coordinates. See relativelayout for a discussion on coordinate systems.

Returns
bool If True, the dispatching of the touch event will stop. If False, the event will continue to be dispatched to the rest of the widget tree.

on_touch_up(*self*, *touch*)

Receive a touch up event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

2.3.17 FloatLayout

FloatLayout class equivalent. Simplifies working with some widget properties. For example:

FloatLayout

```
FloatLayout:
    canvas:
        Color:
            rgba: app.theme_cls.primary_color
        RoundedRectangle:
            pos: self.pos
            size: self.size
            radius: [25, 0, 0, 0]
```

MDFloatLayout

```
MDFloatLayout:
    radius: [25, 0, 0, 0]
    md_bg_color: app.theme_cls.primary_color
```

Warning: For a `FloatLayout`, the `minimum_size` attributes are always 0, so you cannot use `adaptive_size` and related options.

API - kivymd.uix.floatlayout

class kivymd.uix.floatlayout.**MDFloatLayout**(**args*, ***kwargs*)

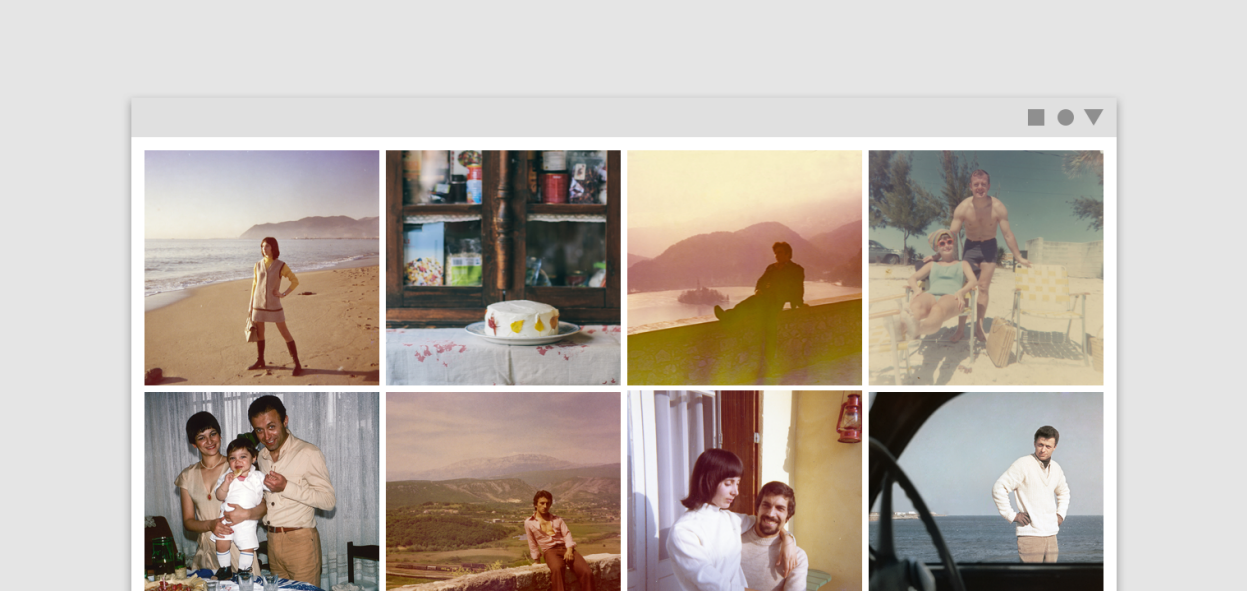
Float layout class. For more information, see in the `FloatLayout` class documentation.

2.3.18 ImageList

See also:

Material Design spec, Image lists

Image lists display a collection of images in an organized grid.

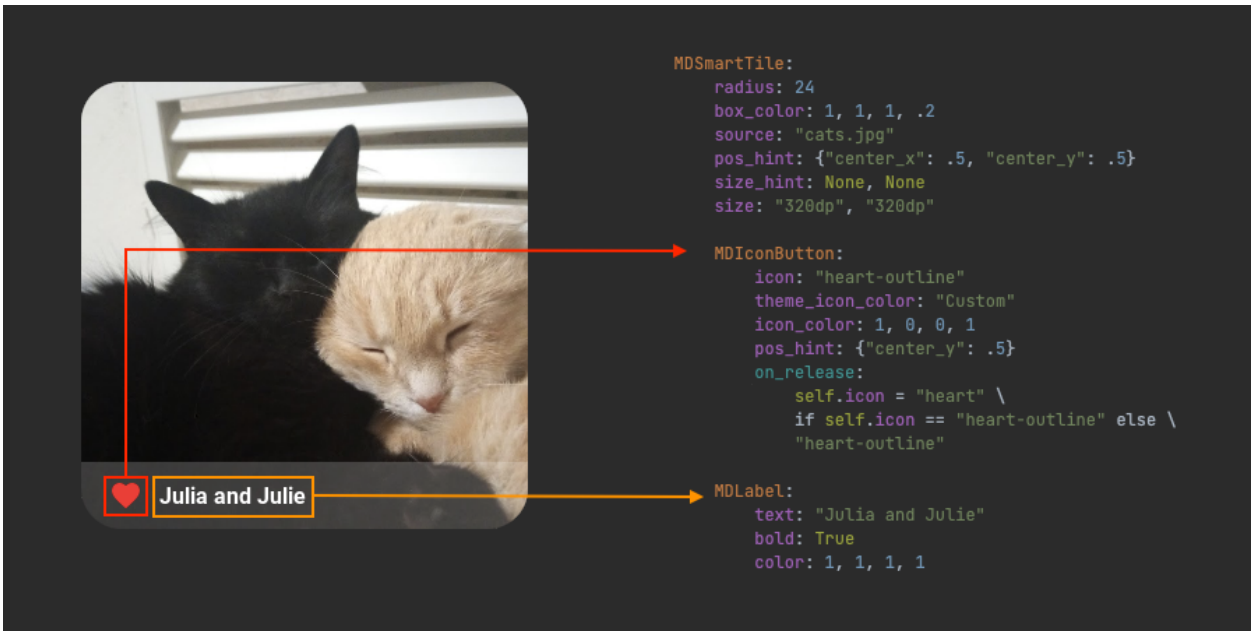


KivyMD provides the following tile classes for use:

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDSmartTile:
        radius: 24
        box_radius: [0, 0, 24, 24]
        box_color: 1, 1, 1, .2
        source: "cats.jpg"
        pos_hint: {"center_x": .5, "center_y": .5}
        size_hint: None, None
        size: "320dp", "320dp"

        MDIconButton:
            icon: "heart-outline"
            theme_icon_color: "Custom"
            icon_color: 1, 0, 0, 1
            pos_hint: {"center_y": .5}
            on_release: self.icon = "heart" if self.icon == "heart-outline" else "heart-
↪outline"

        MDLabel:
            text: "Julia and Julie"
            bold: True
            color: 1, 1, 1, 1
'''


class MyApp(MDApp):
    def build(self):
        return Builder.load_string(KV)


MyApp().run()
```

Implementation



API - kivymd.uix.imagelist.imagelist

class kivymd.uix.imagelist.imagelist.**MDSmartTile**(**args*, ***kwargs*)

A tile for more complex needs.

Includes an image, a container to place overlays and a box that can act as a header or a footer, as described in the Material Design specs.

Events

on_press
Called when the button is pressed.

on_release
Called when the button is released (i.e. the touch/click that pressed the button goes away).

box_radius

Box radius.

New in version 1.0.0.

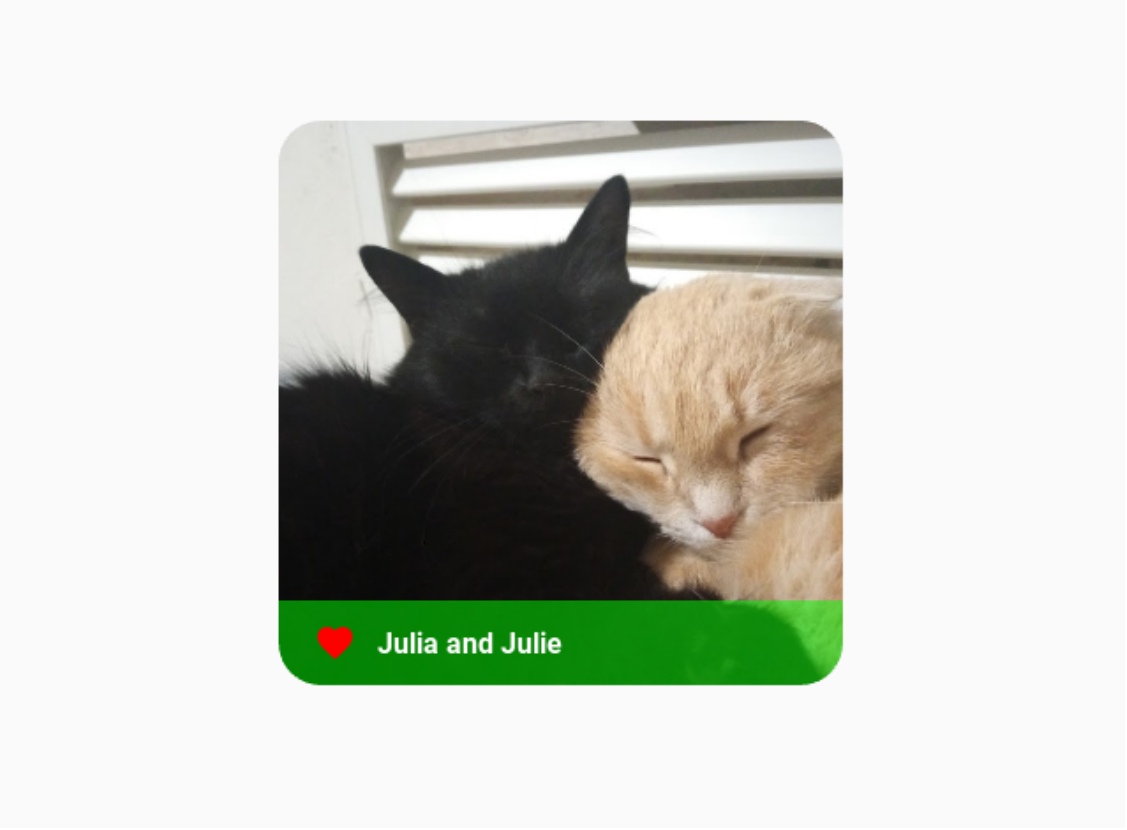
```
MDSmartTile:
    radius: 24
    box_radius: [0, 0, 24, 24]
```

box_radius is an `VariableListProperty` and defaults to *[0, 0, 0, 0]*.

box_color

Sets the color in (r, g, b, a) or string format and opacity for the information box.

```
MDSmartTile:
    radius: 24
    box_radius: [0, 0, 24, 24]
    box_color: 0, 1, 0, .5
```

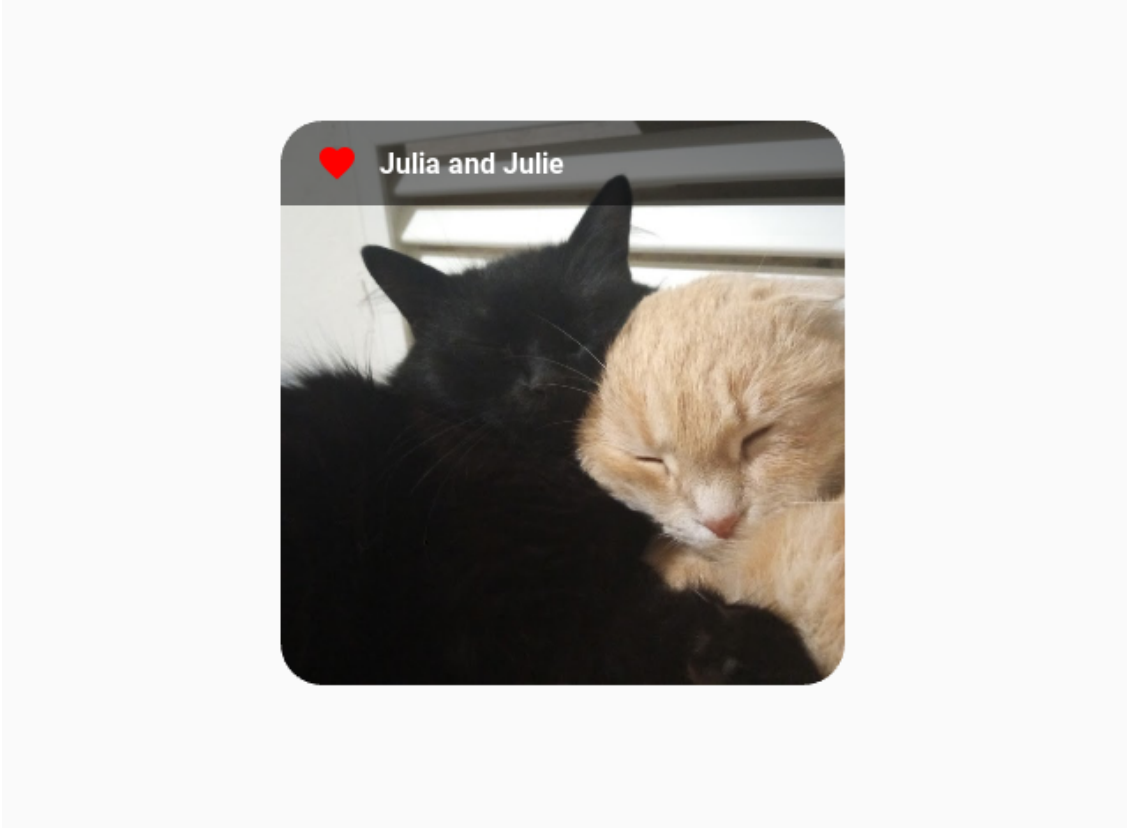


box_color is a ColorProperty and defaults to *(0, 0, 0, 0.5)*.

box_position

Determines weather the information box acts as a header or footer to the image. Available are options: *'footer'*, *'header'*.

```
MDSmartTile:
    radius: 24
    box_radius: [24, 24, 0, 0]
    box_position: "header"
```

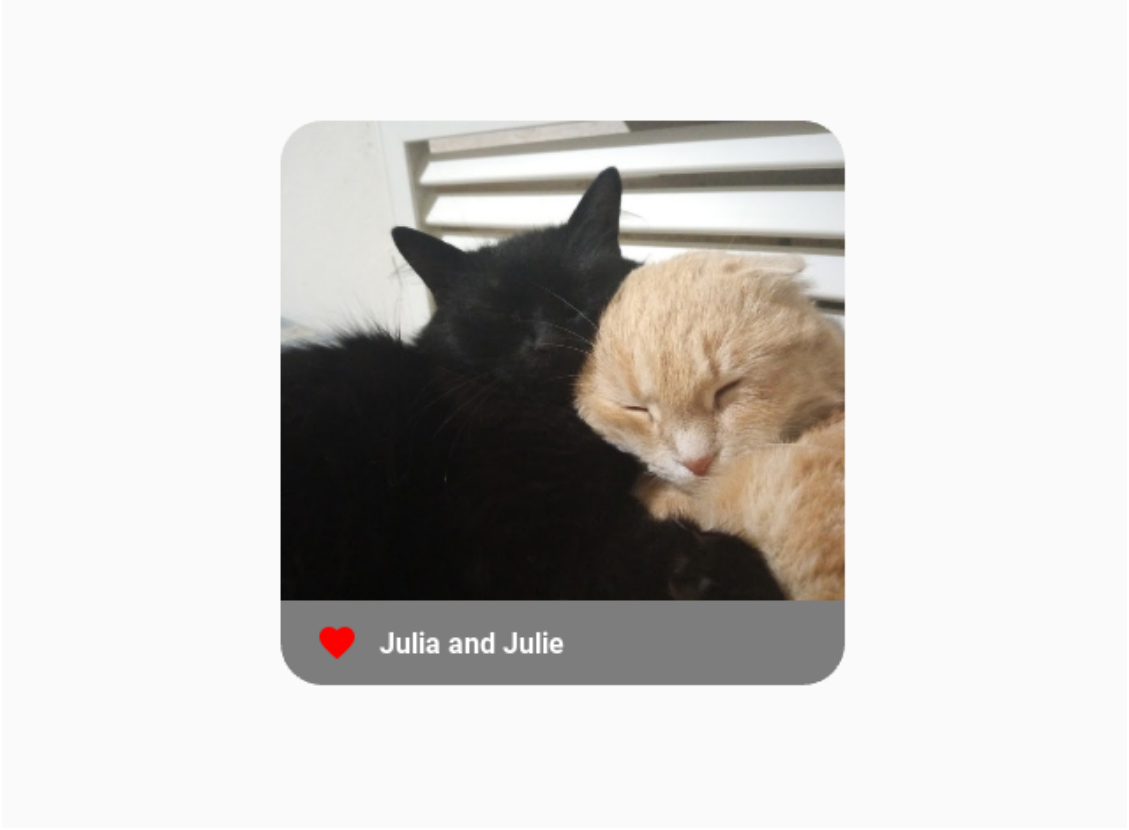


box_position is a OptionProperty and defaults to *'footer'*.

overlap

Determines if the *header/footer* overlaps on top of the image or not.

```
MDSmartTile:
    radius: [24, 24, 0, 0]
    box_radius: [0, 0, 24, 24]
    overlap: False
```



overlap is a BooleanProperty and defaults to *True*.

lines

Number of lines in the *header/footer*. As per *Material Design specs*, only 1 and 2 are valid values. Available are options: *1*, *2*. This parameter just increases the height of the container for custom elements.

```
MDSmartTile:
    radius: 24
    box_radius: [0, 0, 24, 24]
    lines: 2
    source: "cats.jpg"
    pos_hint: {"center_x": .5, "center_y": .5}
    size_hint: None, None
    size: "320dp", "320dp"

    MDIconButton:
        icon: "heart-outline"
        theme_icon_color: "Custom"
        icon_color: 1, 0, 0, 1
        pos_hint: {"center_y": .5}
        on_release: self.icon = "heart" if self.icon == "heart-outline" else
↪"heart-outline"

    TwoLineListItem:
        text: "[color=#ffffff][b]My cats[/b][/color]"
        secondary_text: "[color=#808080][b]Julia and Julie[/b][/color]"
        pos_hint: {"center_y": .5}
```

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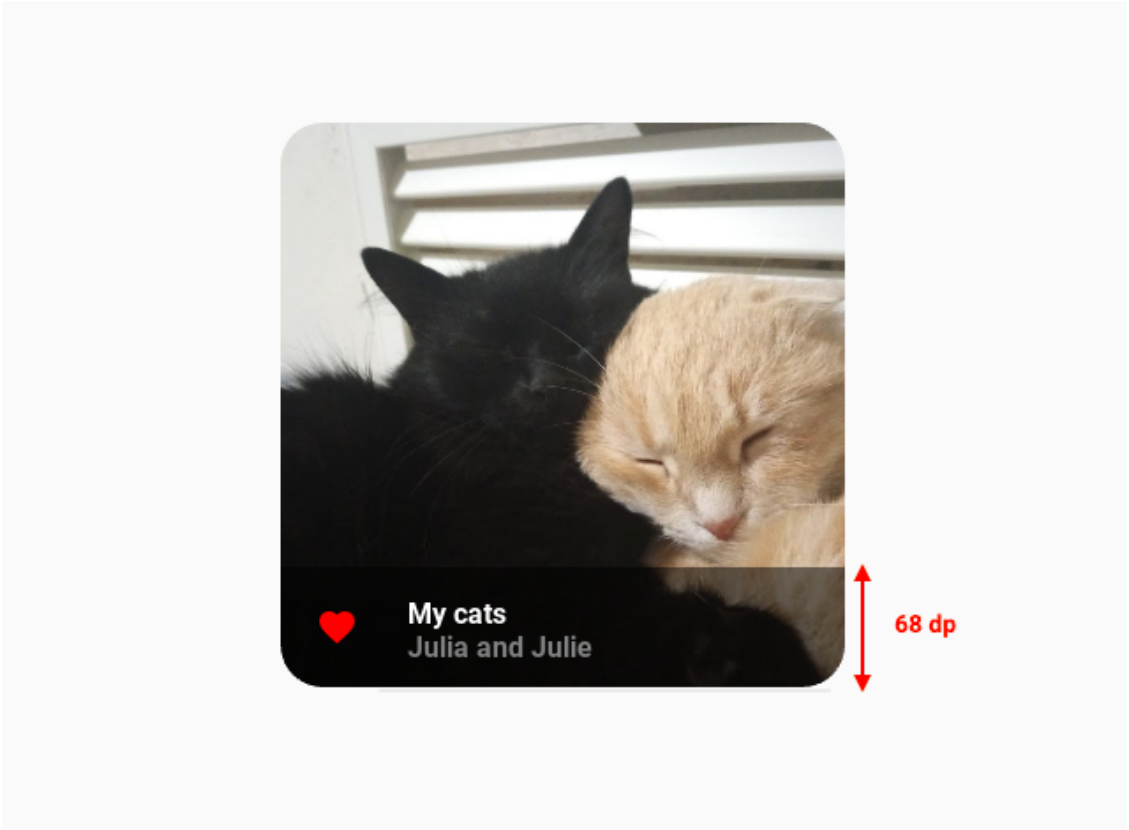
```
        _no_ripple_effect: True
```



lines is a `OptionProperty` and defaults to *1*.

source

Path to tile image. See `source`.

source is a `StringProperty` and defaults to ‘’.

mipmap

Indicate if you want OpenGL mipmapping to be applied to the texture. Read Mipmapping for more information.

New in version 1.0.0.

mipmap is a `BooleanProperty` and defaults to *False*.

on_release(*self*, **args*)

Called when the button is released (i.e. the touch/click that pressed the button goes away).

on_press(*self*, **args*)

Called when the button is pressed.

add_widget(*self*, *widget*, **args*, ***kwargs*)

Add a new widget as a child of this widget.

Parameters

***widget*: `Widget`**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.19 RefreshLayout

Example

```
from kivy.clock import Clock
from kivy.lang import Builder
from kivy.factory import Factory
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.button import MDIconButton
from kivymd.icon_definitions import md_icons
from kivymd.uix.list import ILeftBodyTouch, OneLineIconListItem
from kivymd.theming import ThemeManager
from kivymd.utils import asynckivy

Builder.load_string('''
<ItemForList>
    text: root.text

    IconLeftSampleWidget:
        icon: root.icon


<Example@MDFloatLayout>

    MDBoxLayout:
        orientation: 'vertical'
```

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```
        MDTopAppBar:
            title: app.title
            md_bg_color: app.theme_cls.primary_color
            background_palette: 'Primary'
            elevation: 4
            left_action_items: [['menu', lambda x: x]]

        MDScrollViewRefreshLayout:
            id: refresh_layout
            refresh_callback: app.refresh_callback
            root_layout: root

            MDGridLayout:
                id: box
                adaptive_height: True
                cols: 1
''')


class IconLeftSampleWidget(ILeftBodyTouch, MDIconButton):
    pass


class ItemForList(OneLineIconListItem):
    icon = StringProperty()


class Example(MDApp):
    title = 'Example Refresh Layout'
    screen = None
    x = 0
    y = 15

    def build(self):
        self.screen = Factory.Example()
        self.set_list()

        return self.screen

    def set_list(self):
        async def set_list():
            names_icons_list = list(md_icons.keys())[self.x:self.y]
            for name_icon in names_icons_list:
                await asynckivy.sleep(0)
                self.screen.ids.box.add_widget(
                    ItemForList(icon=name_icon, text=name_icon))
        asynckivy.start(set_list())

    def refresh_callback(self, *args):
        '''A method that updates the state of your application
        while the spinner remains on the screen.'''
```

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```
        def refresh_callback(interval):
            self.screen.ids.box.clear_widgets()
            if self.x == 0:
                self.x, self.y = 15, 30
            else:
                self.x, self.y = 0, 15
            self.set_list()
            self.screen.ids.refresh_layout.refresh_done()
            self.tick = 0

        Clock.schedule_once(refresh_callback, 1)


Example().run()
```

API - kivymd.uix.refreshlayout.refreshlayout

class kivymd.uix.refreshlayout.refreshlayout.**MDScrollViewRefreshLayout**(**args*, ***kwargs*)

ScrollView class. For more information, see in the `ScrollView` class documentation.

root_layout

The spinner will be attached to this layout.

root_layout is a `ObjectProperty` and defaults to *None*.

refresh_callback

The method that will be called at the on_touch_up event, provided that the overscroll of the list has been registered.

refresh_callback is a `ObjectProperty` and defaults to *None*.

on_touch_up(*self*, **args*)

Receive a touch up event. The touch is in parent coordinates.

See `on_touch_down()` for more information.

refresh_done(*self*)

2.3.20 DataTables

See also:

Material Design spec, DataTables

Data tables display sets of data across rows and columns.

Note: *MDDataTable* allows developers to sort the data provided by column. This happens thanks to the use of an external function that you can bind while you're defining the table columns. Be aware that the sorting function must return a 2 value list in the format of:

[Index, Sorted_Row_Data]

This is because the index list is needed to allow MDDataTable to keep track of the selected rows. and, after the data is sorted, update the row checkboxes.

API - kivymd.uix.datatables.datatables

class kivymd.uix.datatables.datatables.**MDDataTable**(***kwargs*)

See AnchorLayout class documentation for more information.

Events

on_row_press
Called when a table row is clicked.

on_check_press
Called when the check box in the table row is checked.

Use events as follows

```
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.datatables import MDDataTable
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.data_tables = MDDataTable(
```

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```
            use_pagination=True,
            check=True,
            column_data=[
                ("No.", dp(30)),
                ("Status", dp(30)),
                ("Signal Name", dp(60), self.sort_on_signal),
                ("Severity", dp(30)),
                ("Stage", dp(30)),
                ("Schedule", dp(30), self.sort_on_schedule),
                ("Team Lead", dp(30), self.sort_on_team),
            ],
            row_data=[
                (
                    "1",
                    ("alert", [255 / 256, 165 / 256, 0, 1], "No Signal"),
                    "Astrid: NE shared managed",
                    "Medium",
                    "Triaged",
                    "0:33",
                    "Chase Nguyen",
                ),
                (
                    "2",
                    ("alert-circle", [1, 0, 0, 1], "Offline"),
                    "Cosmo: prod shared ares",
                    "Huge",
                    "Triaged",
                    "0:39",
                    "Brie Furman",
                ),
                (
                    "3",
                    (
                        "checkbox-marked-circle",
                        [39 / 256, 174 / 256, 96 / 256, 1],
                        "Online",
                    ),
                    "Phoenix: prod shared lyra-lists",
                    "Minor",
                    "Not Triaged",
                    "3:12",
                    "Jeremy lake",
                ),
                (
                    "4",
                    (
                        "checkbox-marked-circle",
                        [39 / 256, 174 / 256, 96 / 256, 1],
                        "Online",
                    ),
                    "Sirius: NW prod shared locations",
                    "Negligible",
```

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```
                    "Triaged",
                    "13:18",
                    "Angelica Howards",
                ),
                (
                    "5",
                    (
                        "checkbox-marked-circle",
                        [39 / 256, 174 / 256, 96 / 256, 1],
                        "Online",
                    ),
                    "Sirius: prod independent account",
                    "Negligible",
                    "Triaged",
                    "22:06",
                    "Diane Okuma",
                ),
            ],
            sorted_on="Schedule",
            sorted_order="ASC",
            elevation=2,
        )
        self.data_tables.bind(on_row_press=self.on_row_press)
        self.data_tables.bind(on_check_press=self.on_check_press)
        screen = MDScreen()
        screen.add_widget(self.data_tables)
        return screen

    def on_row_press(self, instance_table, instance_row):
        '''Called when a table row is clicked.'''

        print(instance_table, instance_row)

    def on_check_press(self, instance_table, current_row):
        '''Called when the check box in the table row is checked.'''

        print(instance_table, current_row)

    # Sorting Methods:
    # since the https://github.com/kivymd/KivyMD/pull/914 request, the
    # sorting method requires you to sort out the indexes of each data value
    # for the support of selections.
    #
    # The most common method to do this is with the use of the builtin function
    # zip and enumerate, see the example below for more info.
    #
    # The result given by these funcitons must be a list in the format of
    # [Indexes, Sorted_Row_Data]

    def sort_on_signal(self, data):
        return zip(*sorted(enumerate(data), key=lambda l: l[1][2]))
```

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```
    def sort_on_schedule(self, data):
        return zip(
            *sorted(
                enumerate(data),
                key=lambda l: sum(
                    [
                        int(l[1][-2].split(":")[0]) * 60,
                        int(l[1][-2].split(":")[1]),
                    ]
                ),
            )
        )

    def sort_on_team(self, data):
        return zip(*sorted(enumerate(data), key=lambda l: l[1][-1]))


Example().run()
```

column_data

Data for header columns.

Imperative python style

```
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.datatables import MDDataTable
from kivy.uix.anchorlayout import AnchorLayout


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        layout = AnchorLayout()
        self.data_tables = MDDataTable(
            size_hint=(0.7, 0.6),
            use_pagination=True,
            check=True,
            # name column, width column, sorting function column(optional),␣
↪custom tooltip
            column_data=[
                ("No.", dp(30), None, "Custom tooltip"),
                ("Status", dp(30)),
                ("Signal Name", dp(60)),
                ("Severity", dp(30)),
                ("Stage", dp(30)),
                ("Schedule", dp(30), lambda *args: print("Sorted using Schedule
↪")),
                ("Team Lead", dp(30)),
```

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```
            ],
        )
        layout.add_widget(self.data_tables)
        return layout


Example().run()
```

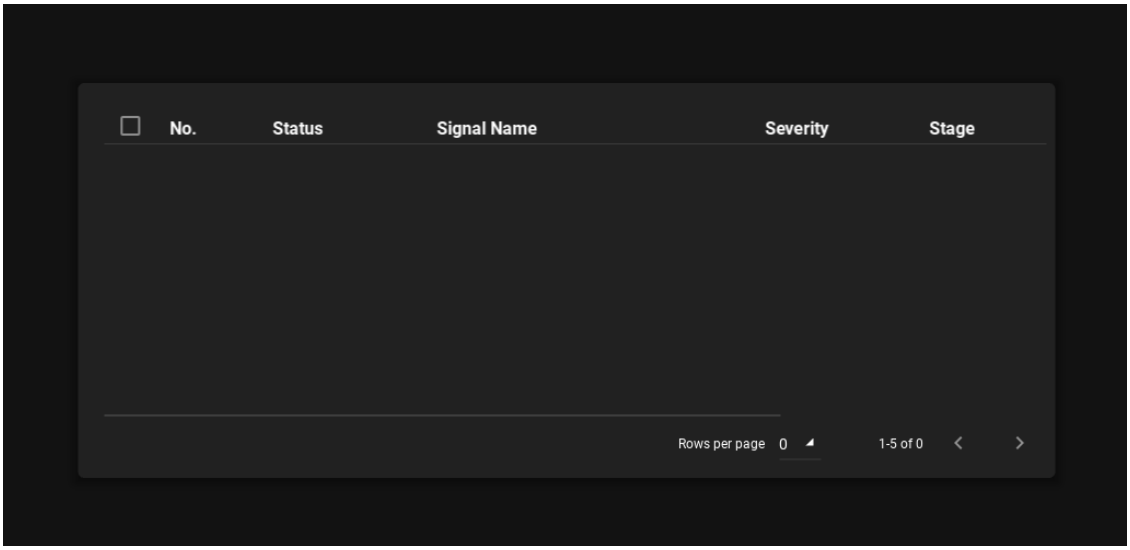
Declarative python style

```
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.anchorlayout import MDAnchorLayout
from kivymd.uix.datatables import MDDataTable


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return MDAnchorLayout(
            MDDataTable(
                size_hint=(0.7, 0.6),
                use_pagination=True,
                check=True,
                # name column, width column, sorting function column(optional)
                column_data=[
                    ("No.", dp(30)),
                    ("Status", dp(30)),
                    ("Signal Name", dp(60)),
                    ("Severity", dp(30)),
                    ("Stage", dp(30)),
                    ("Schedule", dp(30),
                     lambda *args: print("Sorted using Schedule")),
                    ("Team Lead", dp(30)),
                ],
            )
        )


Example().run()
```



column_data is an `ListProperty` and defaults to *[]*.

Note: The functions which will be called for sorting must accept a data argument and return the sorted data. Incoming data format will be similar to the provided row_data except that it'll be all list instead of tuple like below. Any icon provided initially will also be there in this data so handle accordingly.

```
[
    [
        "1",
        ["icon", "No Signal"],
        "Astrid: NE shared managed",
        "Medium",
        "Triaged",
        "0:33",
        "Chase Nguyen",
    ],
    [
        "2",
        "Offline",
        "Cosmo: prod shared ares",
        "Huge",
        "Triaged",
        "0:39",
        "Brie Furman",
    ],
    [
        "3",
        "Online",
        "Phoenix: prod shared lyra-lists",
        "Minor",
        "Not Triaged",
        "3:12",
        "Jeremy lake",
    ],
    [
```

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```
        "4",
        "Online",
        "Sirius: NW prod shared locations",
        "Negligible",
        "Triaged",
        "13:18",
        "Angelica Howards",
    ],
    [
        "5",
        "Online",
        "Sirius: prod independent account",
        "Negligible",
        "Triaged",
        "22:06",
        "Diane Okuma",
    ],
]
```

You must sort inner lists in ascending order and return the sorted data in the same format.

---

row_data

Data for rows. To add icon in addition to a row data, include a tuple with This property stores the row data used to display each row in the DataTable To show an icon inside a column in a row, use the folowing format in the row's columns.

Format:

("MDicon-name", [icon color in rgba], "Column Value")

Example:

For a more complex example see below.

```
from kivy.metrics import dp
from kivy.uix.anchorlayout import AnchorLayout

from kivymd.app import MDApp
from kivymd.uix.datatables import MDDataTable


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        layout = AnchorLayout()
        data_tables = MDDataTable(
            size_hint=(0.9, 0.6),
            column_data=[
                ("Column 1", dp(20)),
                ("Column 2", dp(30)),
                ("Column 3", dp(50), self.sort_on_col_3),
```

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```
                ("Column 4", dp(30)),
                ("Column 5", dp(30)),
                ("Column 6", dp(30)),
                ("Column 7", dp(30), self.sort_on_col_2),
            ],
            row_data=[
                # The number of elements must match the length
                # of the `column_data` list.
                (
                    "1",
                    ("alert", [255 / 256, 165 / 256, 0, 1], "No Signal"),
                    "Astrid: NE shared managed",
                    "Medium",
                    "Triaged",
                    "0:33",
                    "Chase Nguyen",
                ),
                (
                    "2",
                    ("alert-circle", [1, 0, 0, 1], "Offline"),
                    "Cosmo: prod shared ares",
                    "Huge",
                    "Triaged",
                    "0:39",
                    "Brie Furman",
                ),
                (
                    "3",
                    (
                        "checkbox-marked-circle",
                        [39 / 256, 174 / 256, 96 / 256, 1],
                        "Online",
                    ),
                    "Phoenix: prod shared lyra-lists",
                    "Minor",
                    "Not Triaged",
                    "3:12",
                    "Jeremy lake",
                ),
                (
                    "4",
                    (
                        "checkbox-marked-circle",
                        [39 / 256, 174 / 256, 96 / 256, 1],
                        "Online",
                    ),
                    "Sirius: NW prod shared locations",
                    "Negligible",
                    "Triaged",
                    "13:18",
                    "Angelica Howards",
                ),
```

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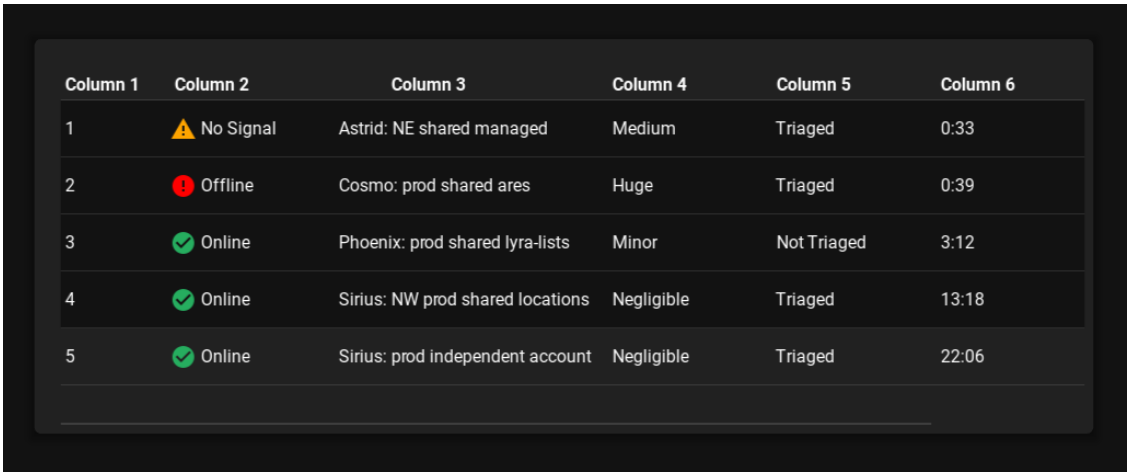
```
                (
                    "5",
                    (
                        "checkbox-marked-circle",
                        [39 / 256, 174 / 256, 96 / 256, 1],
                        "Online",
                    ),
                    "Sirius: prod independent account",
                    "Negligible",
                    "Triaged",
                    "22:06",
                    "Diane Okuma",
                ),
            ],
        )
        layout.add_widget(data_tables)
        return layout

    def sort_on_col_3(self, data):
        return zip(
            *sorted(
                enumerate(data),
                key=lambda l: l[1][3]
            )
        )

    def sort_on_col_2(self, data):
        return zip(
            *sorted(
                enumerate(data),
                key=lambda l: l[1][-1]
            )
        )

Example().run()
```



Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
1	No Signal	Astrid: NE shared managed	Medium	Triaged	0:33
2	Offline	Cosmo: prod shared ares	Huge	Triaged	0:39
3	Online	Phoenix: prod shared lyra-lists	Minor	Not Triaged	3:12
4	Online	Sirius: NW prod shared locations	Negligible	Triaged	13:18
5	Online	Sirius: prod independent account	Negligible	Triaged	22:06

row_data is an `ListProperty` and defaults to *[]*.

sorted_on

Column name upon which the data is already sorted.

If the table data is showing an already sorted data then this can be used to indicate upon which column the data is sorted.

sorted_on is an StringProperty and defaults to ‘’.

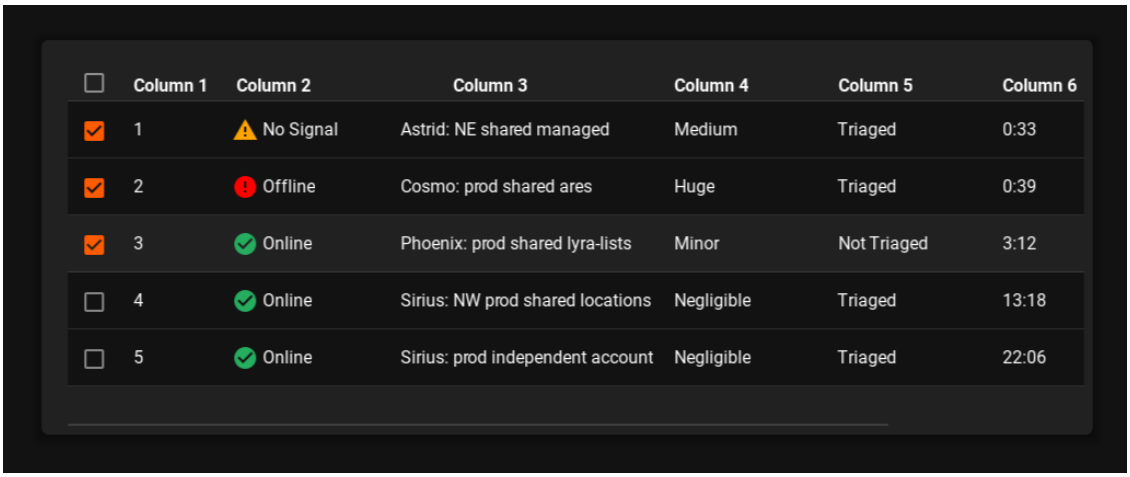
sorted_order

Order of already sorted data. Must be one of *‘ASC’* for ascending or *‘DSC’* for descending order.

sorted_order is an OptionProperty and defaults to *‘ASC’*.

check

Use or not use checkboxes for rows.



check is an BooleanProperty and defaults to *False*.

use_pagination

Use page pagination for table or not.

```
from kivy.metrics import dp
from kivy.uix.anchorlayout import AnchorLayout

from kivymd.app import MDApp
from kivymd.uix.datatables import MDDataTable


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        layout = AnchorLayout()
        data_tables = MDDataTable(
            size_hint=(0.9, 0.6),
            use_pagination=True,
            column_data=[
                ("No.", dp(30)),
                ("Column 1", dp(30)),
                ("Column 2", dp(30)),
```

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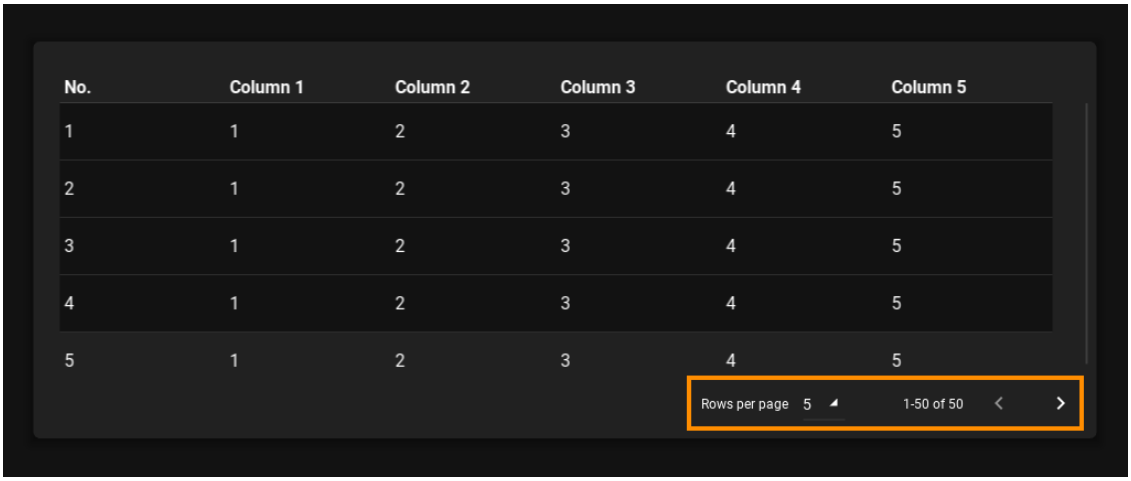
```
                ("Column 3", dp(30)),
                ("Column 4", dp(30)),
                ("Column 5", dp(30)),
            ],
            row_data=[
                (f"{i + 1}", "1", "2", "3", "4", "5") for i in range(50)
            ],
        )
        layout.add_widget(data_tables)
        return layout


Example().run()
```



use_pagination is an BooleanProperty and defaults to *False*.

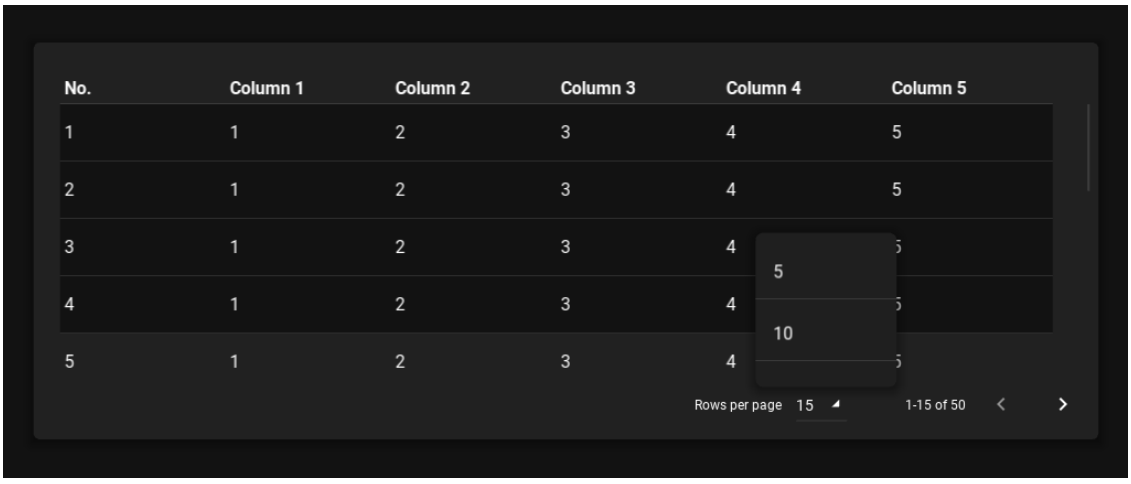
elevation

Table elevation.

elevation is an NumericProperty and defaults to *4*.

rows_num

The number of rows displayed on one page of the table.

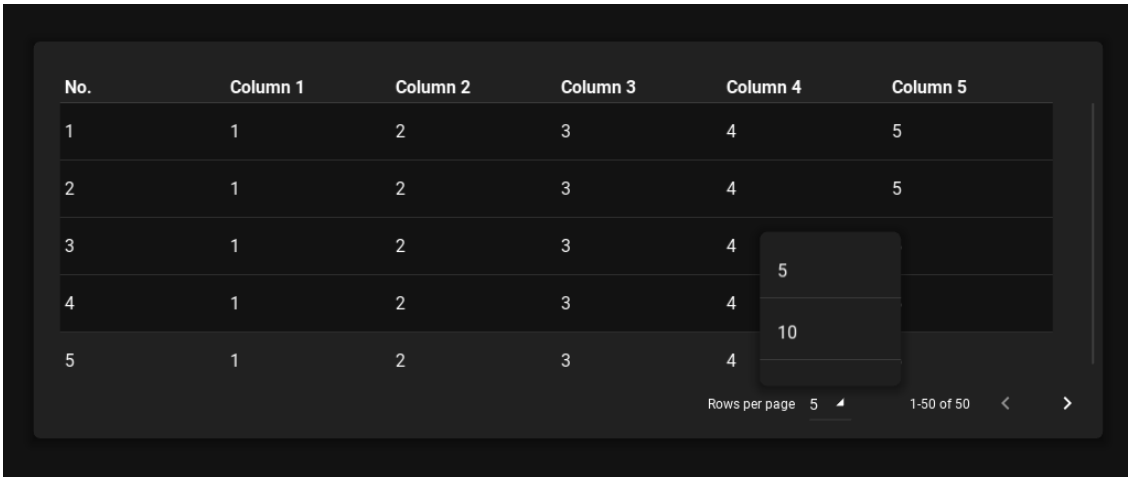


rows_num is an NumericProperty and defaults to *10*.

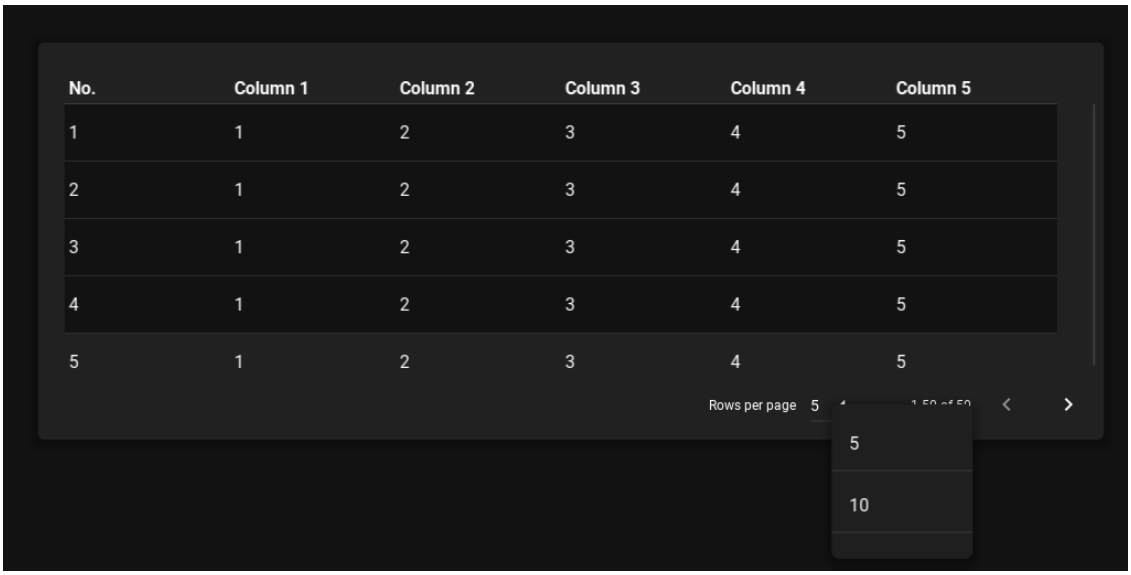
pagination_menu_pos

Menu position for selecting the number of displayed rows. Available options are *'center'*, *'auto'*.

Center



Auto

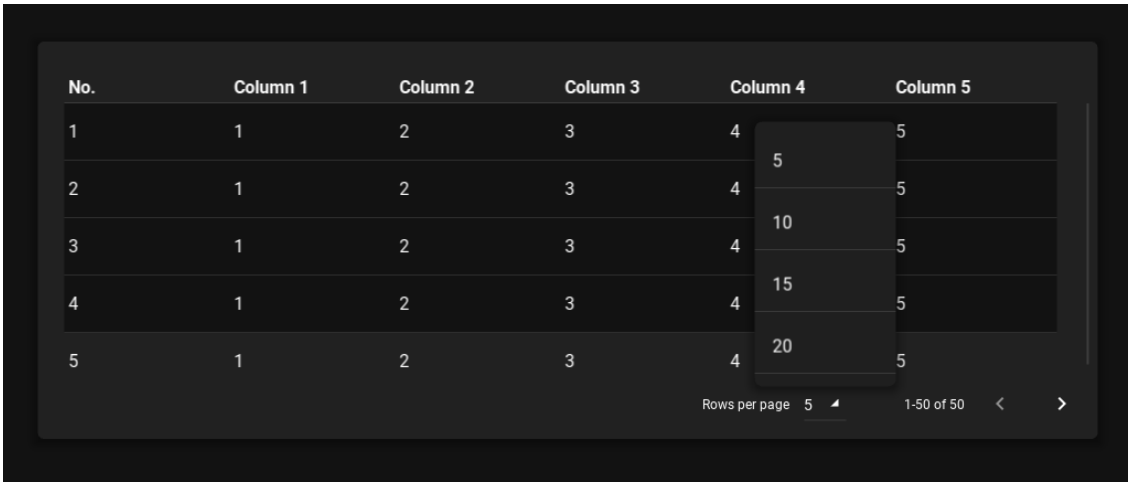


pagination_menu_pos is an OptionProperty and defaults to *'center'*.

pagination_menu_height

Menu height for selecting the number of displayed rows.

240dp



pagination_menu_height is an NumericProperty and defaults to *'140dp'*.

background_color

Background color in the format (r, g, b, a) or string format. See background_color.

```
from kivy.metrics import dp
from kivy.uix.anchorlayout import AnchorLayout

from kivymd.app import MDApp
from kivymd.uix.datatables import MDDataTable


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        layout = AnchorLayout()
        data_tables = MDDataTable(
            size_hint=(0.9, 0.6),
            use_pagination=True,
            column_data=[
                ("No.", dp(30)),
                ("Column 1", dp(30)),
                ("[color=#52251B]Column 2[/color]", dp(30)),
                ("Column 3", dp(30)),
                ("[size=24][color=#C042B8]Column 4[/color][/size]", dp(30)),
                ("Column 5", dp(30)),
            ],
            row_data=[
                (
                    f"{i + 1}",
                    "[color=#297B50]1[/color]",
                    "[color=#C552A1]2[/color]",
                    "[color=#6C9331]3[/color]",
                    "4",
```

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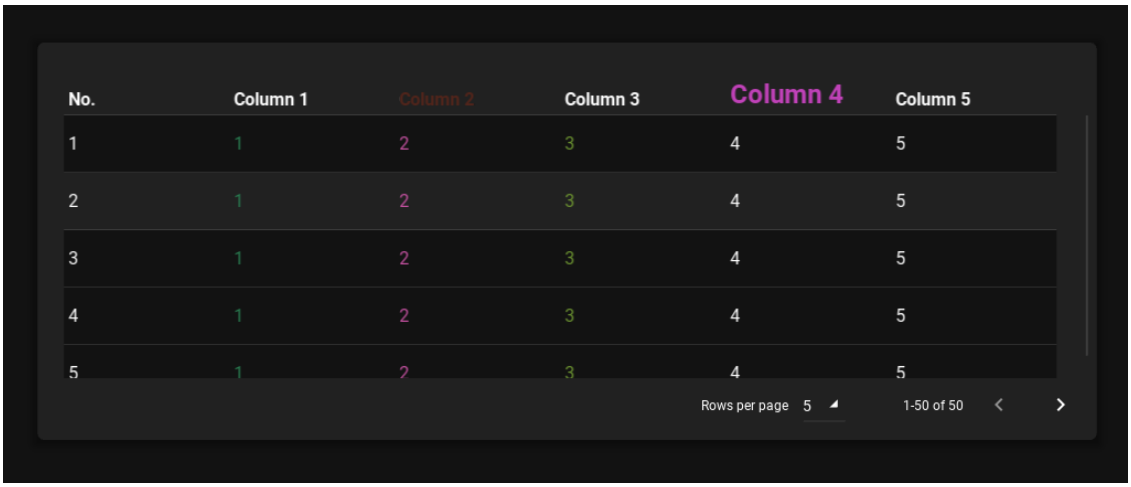
```
                    "5",
                )
                for i in range(50)
            ],
        )
        layout.add_widget(data_tables)
        return layout


Example().run()
```



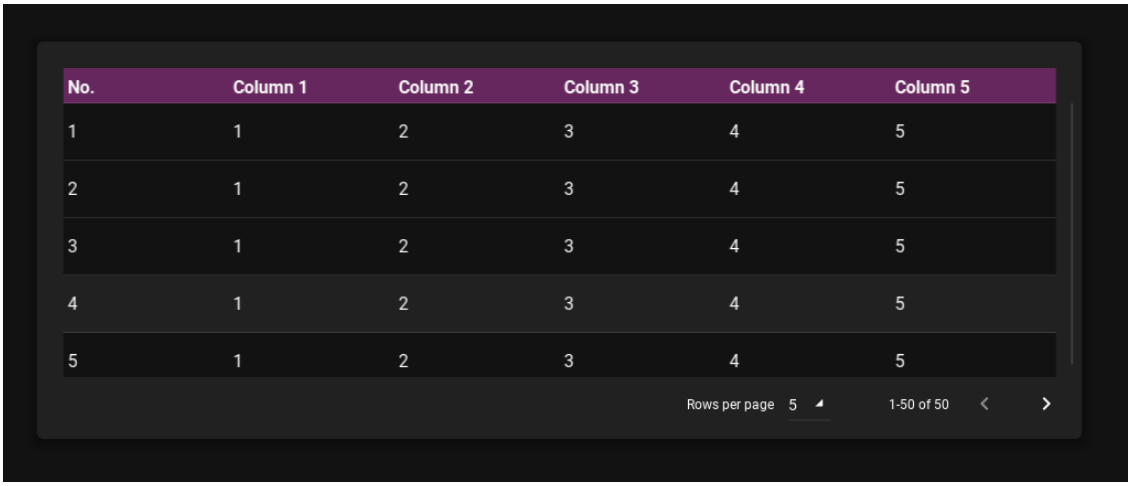
background_color is a ColorProperty and defaults to *[0, 0, 0, 0]*.

background_color_header

Background color in the format (r, g, b, a) or string format for TableHeader class.

New in version 1.0.0.

```
self.data_tables = MDDataTable(
    ...,
    background_color_header="#65275d",
)
```



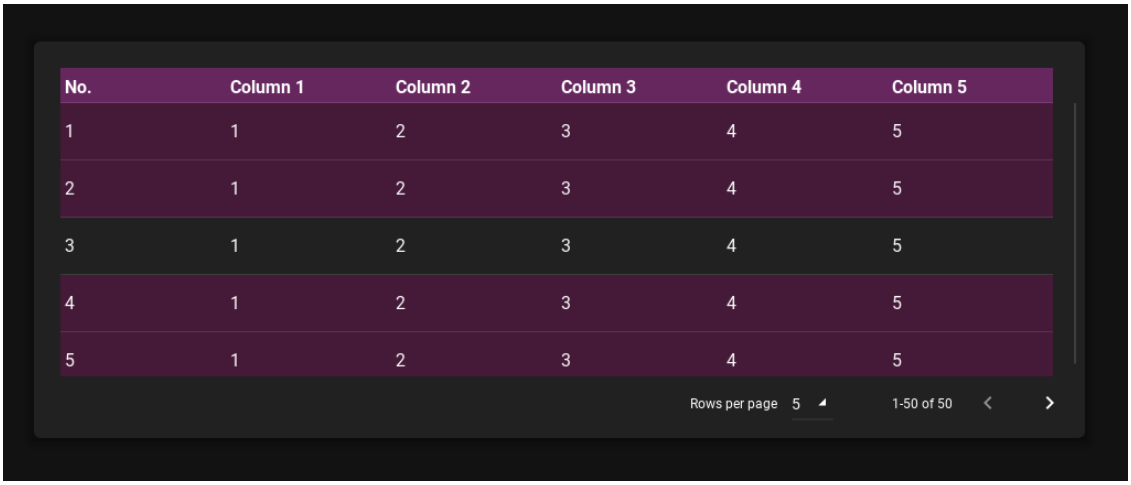
background_color_header is a ColorProperty and defaults to *None*.

background_color_cell

Background color in the format (r, g, b, a) or string format for CellRow class.

New in version 1.0.0.

```
self.data_tables = MDDataTable(
    ...,
    background_color_header="#65275d",
    background_color_cell="#451938",
)
```



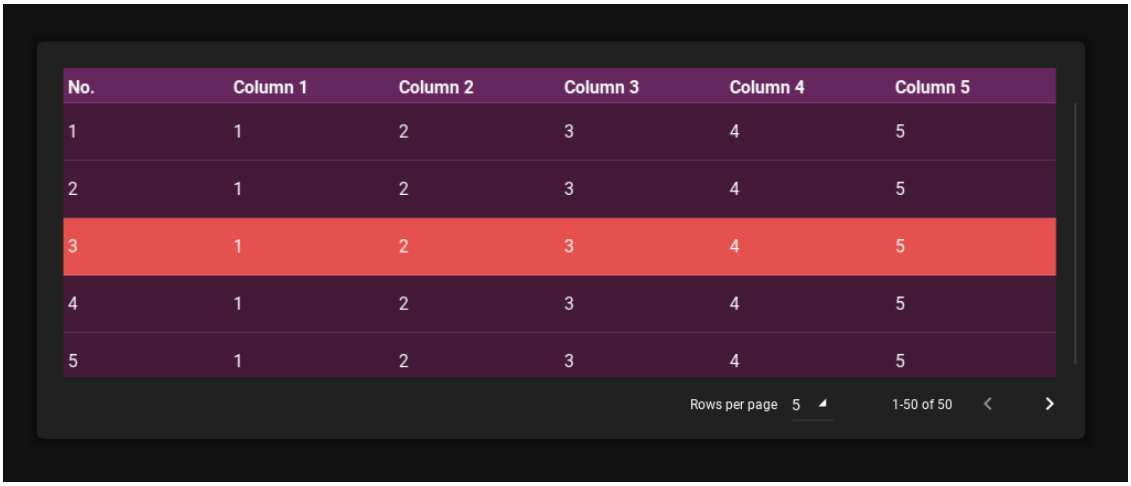
background_color_cell is a ColorProperty and defaults to *None*.

background_color_selected_cell

Background selected color in the format (r, g, b, a) or string format for CellRow class.

New in version 1.0.0.

```
self.data_tables = MDDataTable(
    ...,
    background_color_header="#65275d",
    background_color_cell="#451938",
    background_color_selected_cell="e4514f",
)
```



background_color_selected_cell is a ColorProperty and defaults to *None*.

effect_cls

Effect class. See `kivy/effects` package for more information.

New in version 1.0.0.

effect_cls is an ObjectProperty and defaults to `StiffScrollEffect`.

update_row_data(*self*, *instance_data_table*, *data: list*)

Called when a the widget data must be updated.

Remember that this is a heavy function. since the whole data set must be updated. you can get better results calling this metod with in a coroutine.

add_row(*self*, *data: Union[list, tuple]*)

Added new row to common table. Argument *data* is the row data from the list *row_data*.

Add/remove row

```
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.datatables import MDDataTable
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.button import MDRaisedButton


class Example(MDApp):
    data_tables = None

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        layout = MDFloatLayout()  # root layout
        # Creating control buttons.
        button_box = MDBoxLayout(
```

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```
            pos_hint={"center_x": 0.5},
            adaptive_size=True,
            padding="24dp",
            spacing="24dp",
        )

        for button_text in ["Add row", "Remove row"]:
            button_box.add_widget(
                MDRaisedButton(
                    text=button_text, on_release=self.on_button_press
                )
            )

        # Create a table.
        self.data_tables = MDDataTable(
            pos_hint={"center_y": 0.5, "center_x": 0.5},
            size_hint=(0.9, 0.6),
            use_pagination=False,
            column_data=[
                ("No.", dp(30)),
                ("Column 1", dp(40)),
                ("Column 2", dp(40)),
                ("Column 3", dp(40)),
            ],
            row_data=[("1", "1", "2", "3")],
        )
        # Adding a table and buttons to the toot layout.
        layout.add_widget(self.data_tables)
        layout.add_widget(button_box)

        return layout

    def on_button_press(self, instance_button: MDRaisedButton) -> None:
        '''Called when a control button is clicked.'''

        try:
            {
                "Add row": self.add_row,
                "Remove row": self.remove_row,
            }[instance_button.text]()
        except KeyError:
            pass

    def add_row(self) -> None:
        last_num_row = int(self.data_tables.row_data[-1][0])
        self.data_tables.add_row((str(last_num_row + 1), "1", "2", "3"))

    def remove_row(self) -> None:
        if len(self.data_tables.row_data) > 1:
            self.data_tables.remove_row(self.data_tables.row_data[-1])
```

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```
Example().run()
```

New in version 1.0.0.

remove_row(*self*, *data: Union[list, tuple]*)

Removed row from common table. Argument *data* is the row data from the list *row_data*.

See the code in the doc string for the *add_row* method for more information.

New in version 1.0.0.

update_row(*self*, *old_data: Union[list, tuple]*, *new_data: Union[list, tuple]*)

Updates a table row. Argument *old_data/new_data* is the row data from the list *row_data*.

Update row

```
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.datatables import MDDataTable
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.button import MDRaisedButton


class Example(MDApp):
    data_tables = None

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        layout = MDFloatLayout()
        layout.add_widget(
            MDRaisedButton(
                text="Change 2 row",
                pos_hint={"center_x": 0.5},
                on_release=self.update_row,
                y=24,
            )
        )
        self.data_tables = MDDataTable(
            pos_hint={"center_y": 0.5, "center_x": 0.5},
            size_hint=(0.9, 0.6),
            use_pagination=False,
            column_data=[
                ("No.", dp(30)),
                ("Column 1", dp(40)),
                ("Column 2", dp(40)),
                ("Column 3", dp(40)),
            ],
            row_data=[(f"{i + 1}", "1", "2", "3") for i in range(3)],
```

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```
        )
        layout.add_widget(self.data_tables)

        return layout

    def update_row(self, instance_button: MDRaisedButton) -> None:
        self.data_tables.update_row(
            self.data_tables.row_data[1],  # old row data
            ["2", "A", "B", "C"],          # new row data
        )


Example().run()
```

New in version 1.0.0.

on_row_press(*self*, *instance_cell_row*)

Called when a table row is clicked.

on_check_press(*self*, *row_data: list*)

Called when the check box in the table row is checked.

Parameters

row_data – One of the elements from the *MDDataTable.row_data* list.

get_row_checks(*self*)

Returns all rows that are checked.

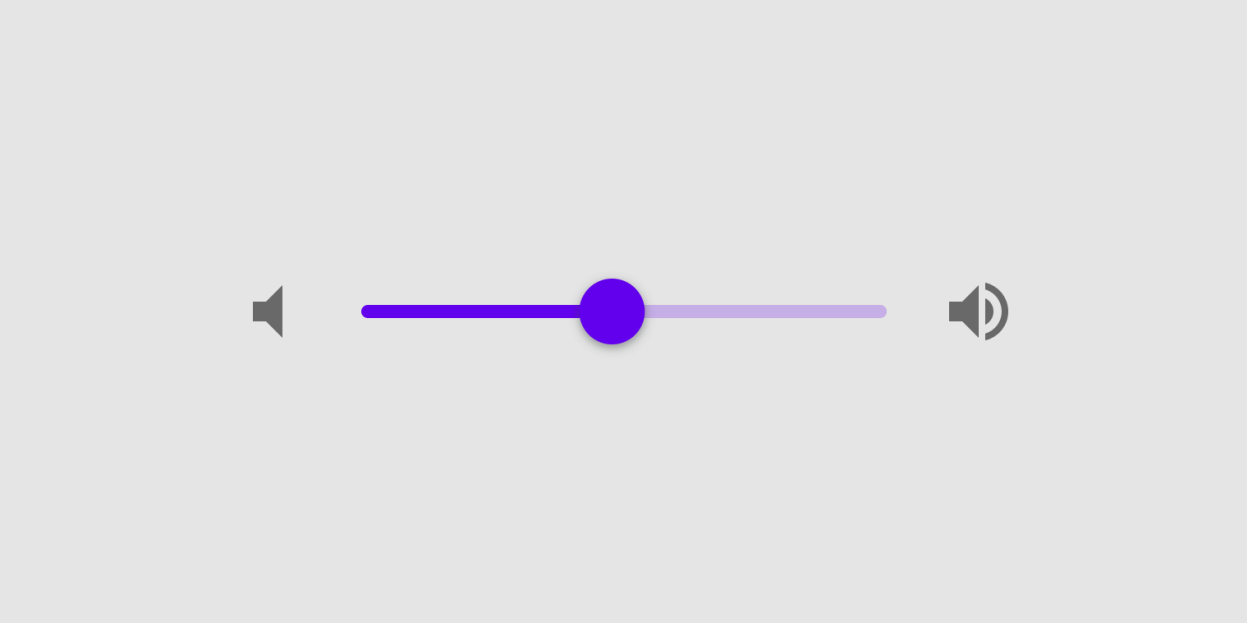
create_pagination_menu(*self*, *interval: Union[int, float]*)

2.3.21 Slider

See also:

Material Design spec, Sliders

Sliders allow users to make selections from a range of values.



API - kivymd.uix.slider.slider

class kivymd.uix.slider.slider.**MDSlider**(***kwargs*)

Class for creating a Slider widget. See in the `Slider` class documentation.

active

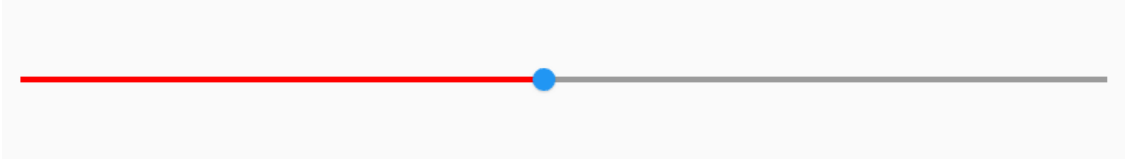
If the slider is clicked.

active is an `BooleanProperty` and defaults to *False*.

color

Color slider in (r, g, b, a) or string format.

```
MDSlider
    color: "red"
```

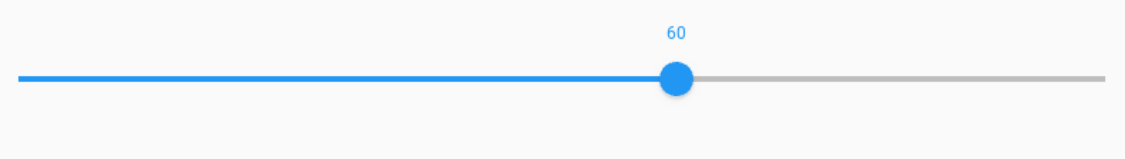


color is an `ColorProperty` and defaults to *None*.

hint

If True, then the current value is displayed above the slider.

```
MDSlider
    hint: True
```



hint is an BooleanProperty and defaults to *True*.

hint_bg_color

Hint rectangle color in (r, g, b, a) or string format.

```
MDSlider
    hint: True
    hint_bg_color: "red"
```

hint_bg_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

hint_text_color

Hint text color in in (r, g, b, a) or string format.

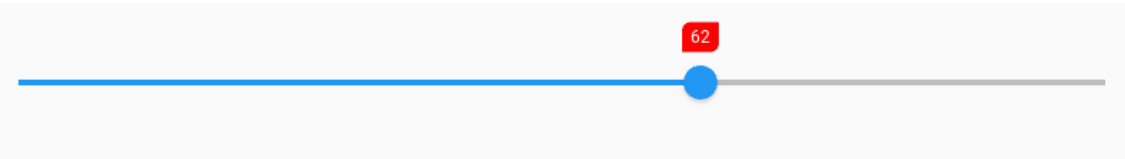
```
MDSlider
    hint: True
    hint_bg_color: "red"
    hint_text_color: "white"
```

hint_text_color is an ColorProperty and defaults to *None*.

hint_radius

Hint radius.

```
MDSlider
    hint: True
    hint_bg_color: "red"
    hint_text_color: "white"
    hint_radius: [6, 0, 6, 0]
```



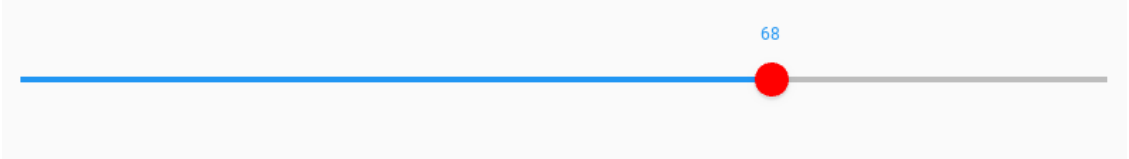
hint_radius is an VariableListProperty and defaults to *[dp(4), dp(4), dp(4), dp(4)]*.

thumb_color_active

The color in (r, g, b, a) or string format of the thumb when the slider is active.

New in version 1.0.0.

```
MDSlider
    thumb_color_active: "red"
```



thumb_color_active is an ColorProperty and default to *None*.

thumb_color_inactive

The color in (r, g, b, a) or string format of the thumb when the slider is inactive.

New in version 1.0.0.

```
MDSlider
    thumb_color_inactive: "red"
```

thumb_color_inactive is an ColorProperty and default to *None*.

thumb_color_disabled

The color in (r, g, b, a) or string format of the thumb when the slider is in the disabled state.

New in version 1.0.0.

```
MDSlider
    value: 55
    disabled: True
    thumb_color_disabled: "red"
```

thumb_color_disabled is an ColorProperty and default to *None*.

track_color_active

The color in (r, g, b, a) or string format of the track when the slider is active.

New in version 1.0.0.

```
MDSlider
    track_color_active: "red"
```

track_color_active is an ColorProperty and default to *None*.

track_color_inactive

The color in (r, g, b, a) or string format of the track when the slider is inactive.

New in version 1.0.0.

```
MDSlider
    track_color_inactive: "red"
```

track_color_inactive is an ColorProperty and default to *None*.

track_color_disabled

The color in (r, g, b, a) or string format of the track when the slider is in the disabled state.

New in version 1.0.0.

```
MDSlider
    disabled: True
    track_color_disabled: "red"
```

track_color_disabled is an ColorProperty and default to *None*.

show_off

Show the *'off'* ring when set to minimum value.

show_off is an BooleanProperty and defaults to *True*.

set_thumb_icon(*self*, **args*)

on_hint(*self*, *instance*, *value*)

on_value_normalized(*self*, **args*)

When the `value == min` set it to *'off'* state and make slider a ring.

on_show_off(*self*, **args*)

on__is_off(*self*, **args*)

on_active(*self*, **args*)

on_touch_down(*self*, *touch*)

Receive a touch down event.

Parameters

***touch*: MotionEvent class**
Touch received. The touch is in parent coordinates. See relativelayout for a discussion on coordinate systems.

Returns
bool If True, the dispatching of the touch event will stop. If False, the event will continue to be dispatched to the rest of the widget tree.

on_touch_up(*self*, *touch*)

Receive a touch up event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

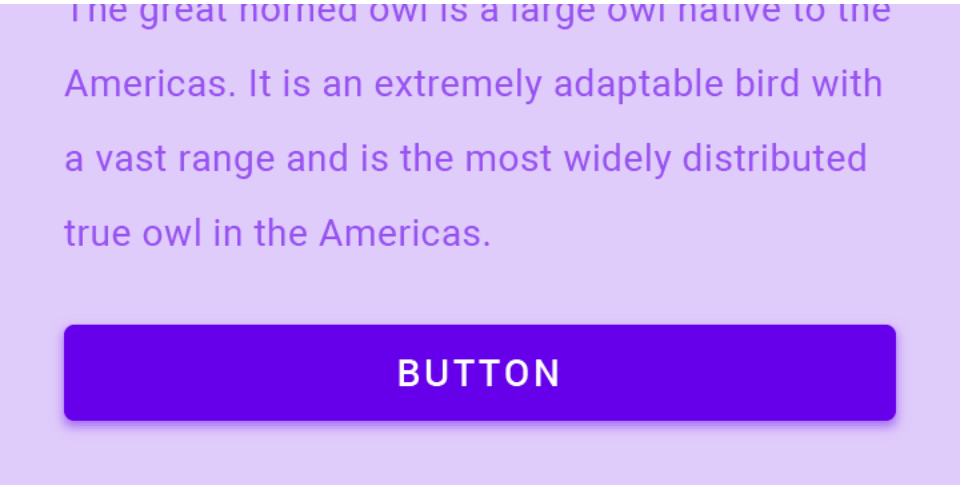
2.3.22 Button

See also:

Material Design spec, Buttons

Material Design spec, Buttons: floating action button

Buttons allow users to take actions, and make choices, with a single tap.



KivyMD provides the following button classes for use:

- *MDIconButton*
- *MDFloatingActionButton*
- *MDFlatButton*
- *MDRaisedButton*
- *MDRectangleFlatButton*
- *MDRectangleFlatIconButton*

- *MDRoundFlatButton*
- *MDRoundFlatIconButton*
- *MDFillRoundFlatButton*
- *MDFillRoundFlatIconButton*
- *MDTextButton*
- *MDFloatingActionButtonSpeedDial*

MDIconButton

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDIconButton:
        icon: "language-python"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.button import MDIconButton
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDIconButton(
                    icon="language-python",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                )
```

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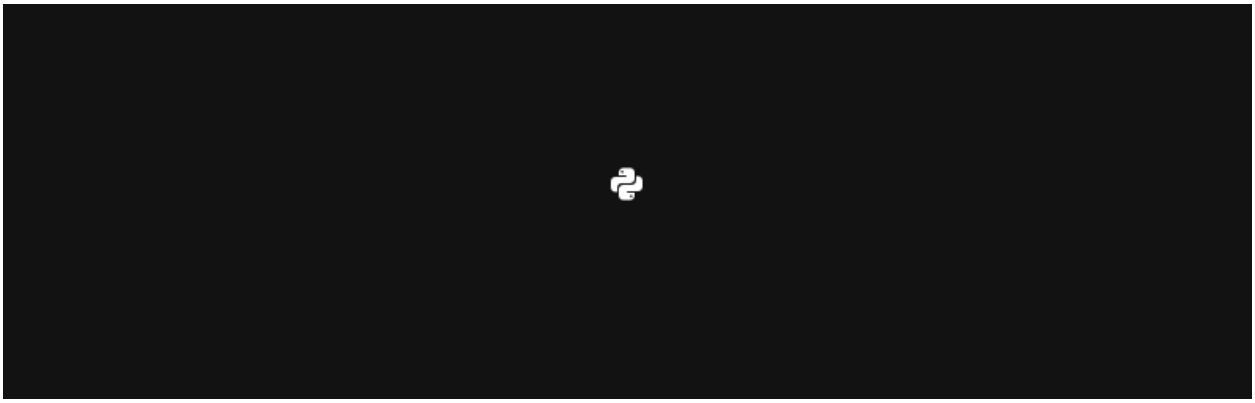
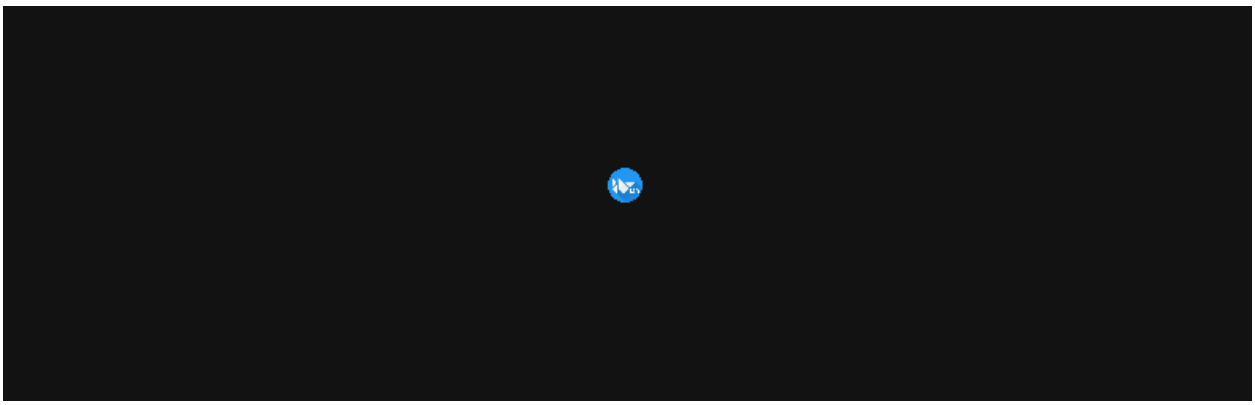
```
            )
        )


Example().run()
```



The *icon* parameter must have the name of the icon from `kivymd/icon_definitions.py` file.

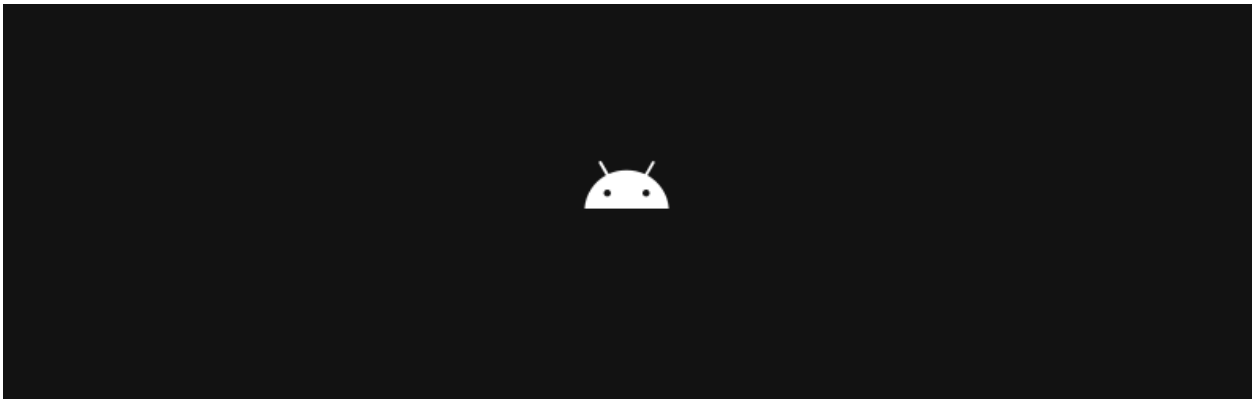
You can also use custom icons:

```
MDIconButton:
    icon: "kivymd/images/logo/kivymd-icon-256.png"
```



By default, *MDIconButton* button has a size `(dp(48), dp (48))`. Use *icon_size* attribute to resize the button:

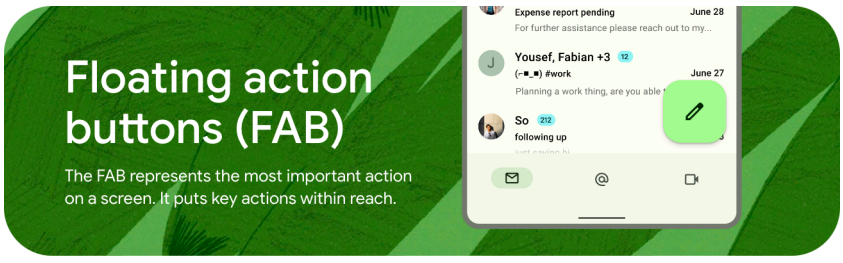
```
MDIconButton:
    icon: "android"
    icon_size: "64sp"
```



By default, the color of *MDIconButton* (depending on the style of the application) is black or white. You can change the color of *MDIconButton* as the text color of `MDLabel`, substituting `theme_icon_color` for `theme_text_color` and `icon_color` for `text_color`.

```
MDIconButton:
    icon: "android"
    theme_icon_color: "Custom"
    icon_color: app.theme_cls.primary_color
```

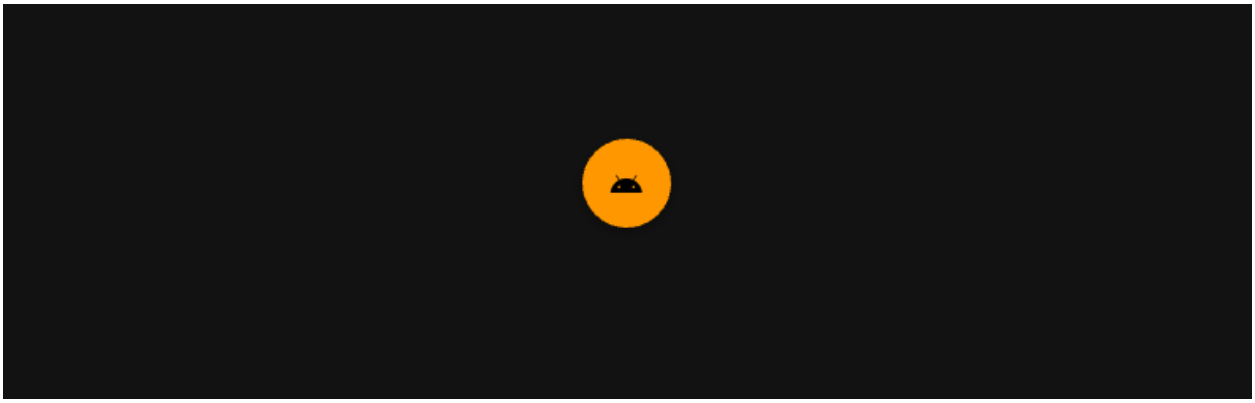
MDFloatingActionButton



The above parameters for *MDIconButton* apply to *MDFloatingActionButton*.

To change *MDFloatingActionButton* background, use the `md_bg_color` parameter:

```
MDFloatingActionButton:
    icon: "android"
    md_bg_color: app.theme_cls.primary_color
```



Material design style 3

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.button import MDFloatingActionButton

KV = '''
MDScreen:
    md_bg_color: "#f7f2fa"

    MDBoxLayout:
        id: box
        spacing: "56dp"
        adaptive_size: True
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.material_style = "M3"
        return Builder.load_string(KV)

    def on_start(self):
        data = {
            "standard": {"md_bg_color": "#fefbff", "text_color": "#6851a5"},
            "small": {"md_bg_color": "#e9dff7", "text_color": "#211c29"},
            "large": {"md_bg_color": "#f8d7e3", "text_color": "#311021"},
        }
        for type_button in data.keys():
            self.root.ids.box.add_widget(
                MDFloatingActionButton(
                    icon="pencil",
                    type=type_button,
                    theme_icon_color="Custom",
```

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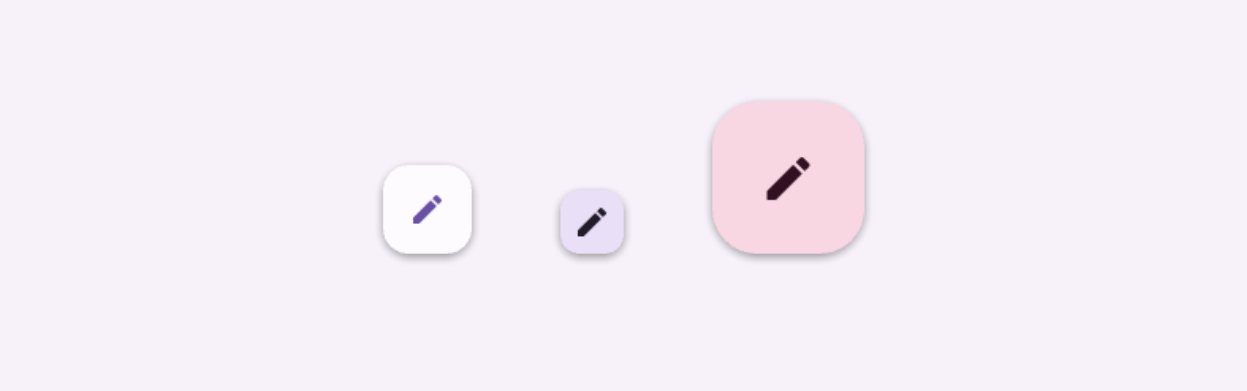
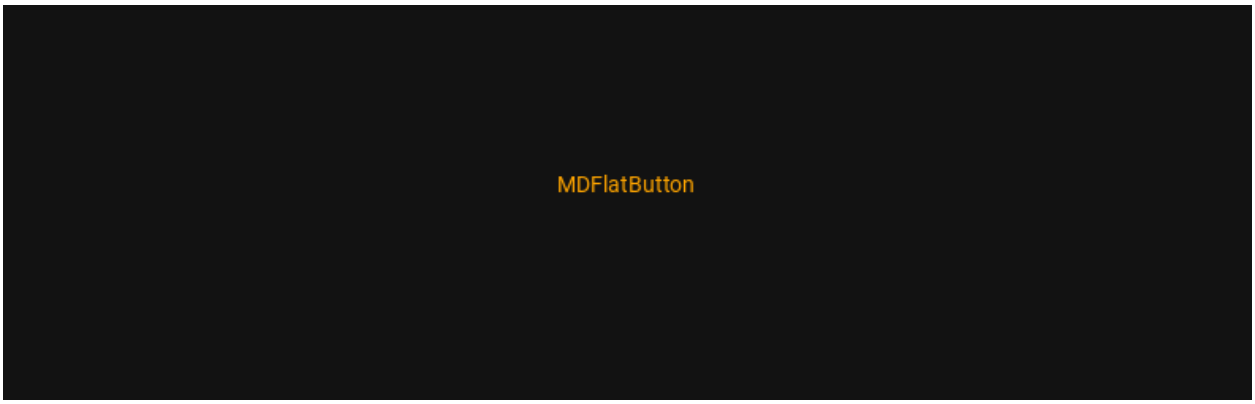
```
                    md_bg_color=data[type_button]["md_bg_color"],
                    icon_color=data[type_button]["text_color"],
                )
            )


Example().run()
```



MDFlatButton

To change the text color of: class:*~MDFlatButton* use the `text_color` parameter:

```
MDFlatButton:
    text: "MDFlatButton"
    theme_text_color: "Custom"
    text_color: "orange"
```



Or use markup:

```
MDFlatButton:
    text: "[color=#00ffcc]MDFlatButton[/color]"
```

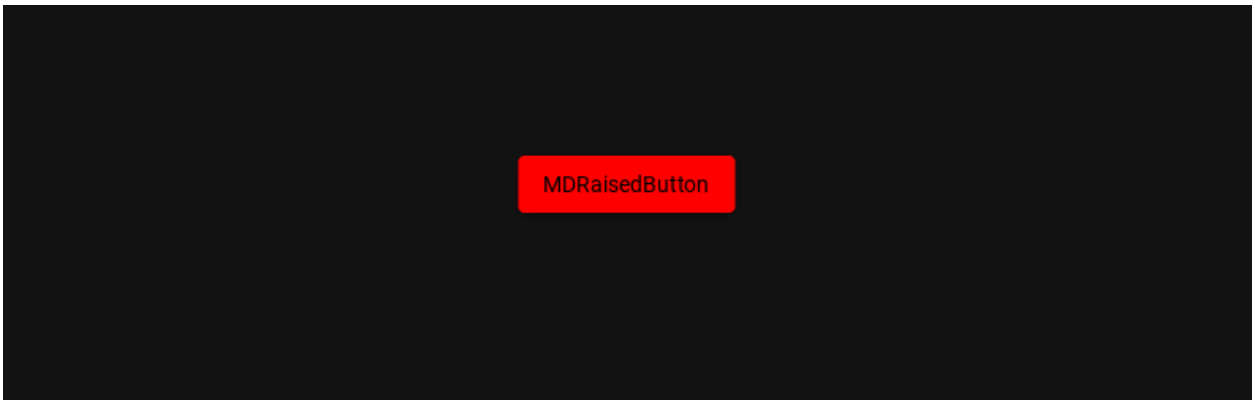
To specify the font size and font name, use the parameters as in the usual *Kivy* buttons:

```
MDFlatButton:
    text: "MDFlatButton"
    font_size: "18sp"
    font_name: "path/to/font"
```

MDRaisedButton

This button is similar to the *MDFlatButton* button except that you can set the background color for *MDRaisedButton*:

```
MDRaisedButton:
    text: "MDRaisedButton"
    md_bg_color: "red"
```



MDRectangleFlatButton

```
MDRectangleFlatButton:
    text: "MDRectangleFlatButton"
    theme_text_color: "Custom"
    text_color: "white"
    line_color: "red"
```

MDRectangleFlatIconButton

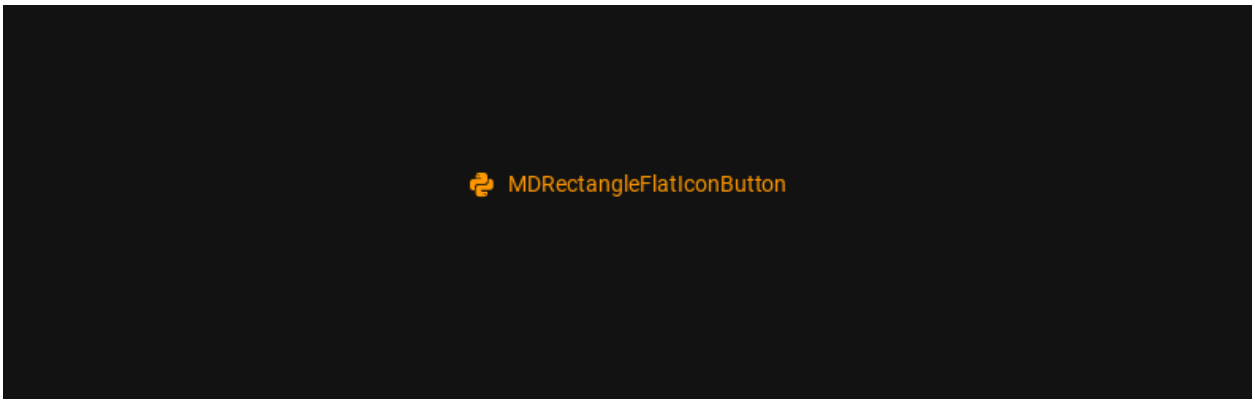
Button parameters *MDRectangleFlatIconButton* are the same as button *MDRectangleFlatButton*, with the addition of the `theme_icon_color` and `icon_color` parameters as for *MDIconButton*.

```
MDRectangleFlatIconButton:
    icon: "android"
    text: "MDRectangleFlatIconButton"
    theme_text_color: "Custom"
    text_color: "white"
    line_color: "red"
    theme_icon_color: "Custom"
    icon_color: "orange"
```

Without border

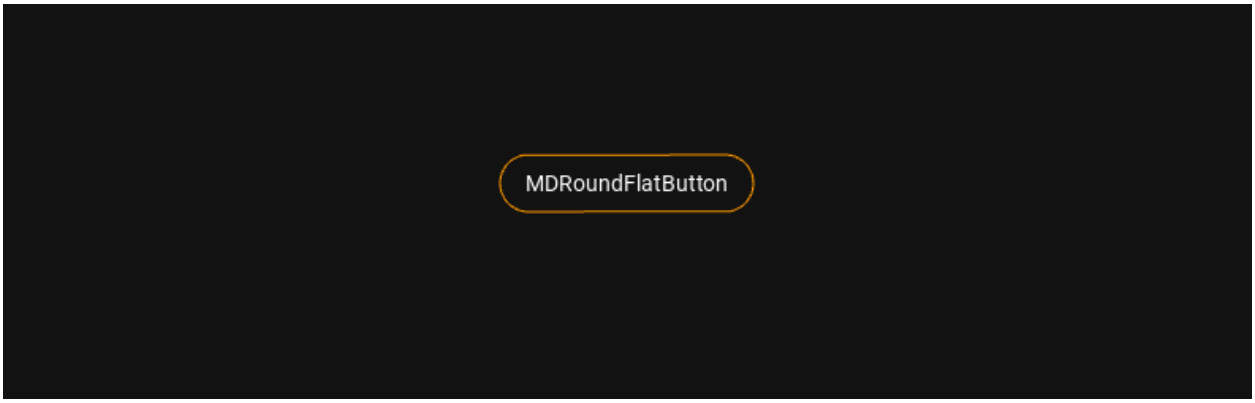
```
from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.button import MDRectangleFlatIconButton


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDRectangleFlatIconButton(
                    text="MDRectangleFlatIconButton",
                    icon="language-python",
                    line_color=(0, 0, 0, 0),
                    pos_hint={"center_x": .5, "center_y": .5},
                )
            )
        )


Example().run()
```

```
MDRectangleFlatIconButton:
    text: "MDRectangleFlatIconButton"
    icon: "language-python"
    line_color: 0, 0, 0, 0
    pos_hint: {"center_x": .5, "center_y": .5}
```



MDRoundFlatButton

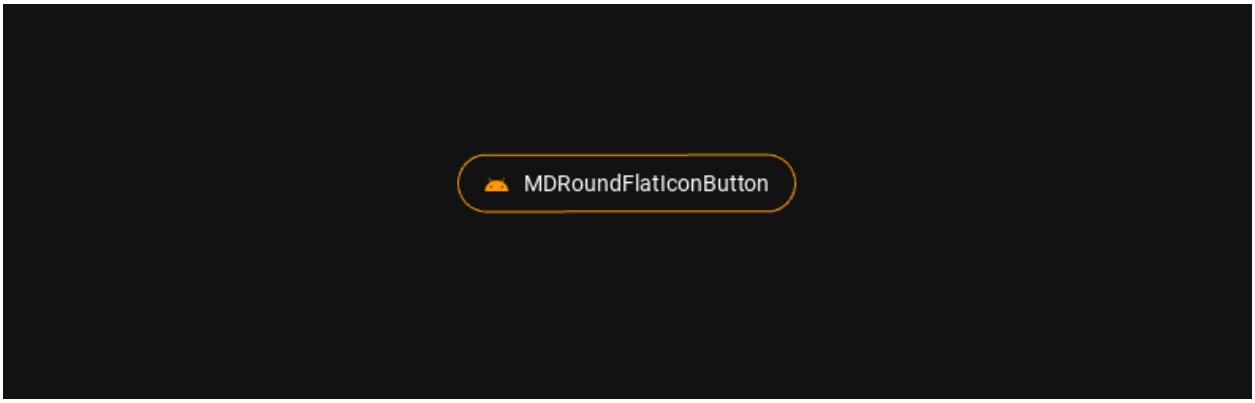
```
MDRoundFlatButton:
    text: "MDRoundFlatButton"
    text_color: "white"
```



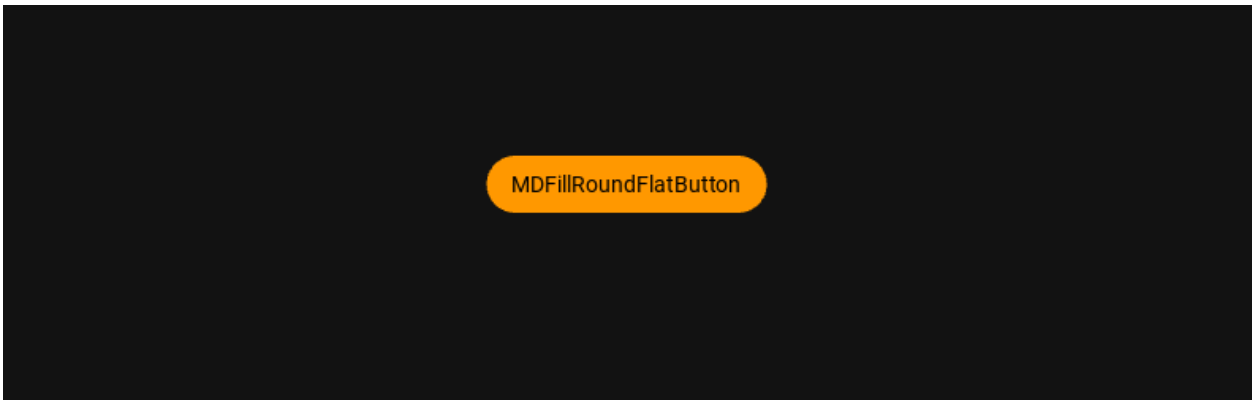
MDRoundFlatIconButton

Button parameters *MDRoundFlatIconButton* are the same as button *MDRoundFlatButton*, with the addition of the `theme_icon_color` and `icon_color` parameters as for *MDIconButton*:

```
MDRoundFlatIconButton:
    text: "MDRoundFlatIconButton"
    icon: "android"
    text_color: "white"
```



MDFillRoundFlatButton



Button parameters *MDFillRoundFlatButton* are the same as button *MDRaisedButton*.

MDFillRoundFlatIconButton

Button parameters *MDFillRoundFlatIconButton* are the same as button *MDRaisedButton*, with the addition of the `theme_icon_color` and `icon_color` parameters as for *MDIconButton*.

Note: Notice that the width of the *MDFillRoundFlatIconButton* button matches the size of the button text.

MDTextButton

```
MDTextButton:
    text: "MDTextButton"
    custom_color: "white"
```

MDFloatingActionButtonSpeedDial

Note: See the full list of arguments in the class *MDFloatingActionButtonSpeedDial*.

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDFloatingActionButtonSpeedDial:
        data: app.data
        root_button_anim: True
'''


class Example(MDApp):
    data = {
        'Python': 'language-python',
        'PHP': 'language-php',
        'C++': 'language-cpp',
    }

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)


Example().run()
```

Or without KV Language:

Imperative python style

```
from kivymd.uix.screen import MDScreen
from kivymd.app import MDApp
from kivymd.uix.button import MDFloatingActionButtonSpeedDial


class Example(MDApp):
    data = {
        'Python': 'language-python',
        'PHP': 'language-php',
        'C++': 'language-cpp',
    }

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        screen = MDScreen()
        speed_dial = MDFloatingActionButtonSpeedDial()
        speed_dial.data = self.data
        speed_dial.root_button_anim = True
        screen.add_widget(speed_dial)
        return screen


Example().run()
```

Declarative python style

```
from kivymd.uix.screen import MDScreen
from kivymd.app import MDApp
from kivymd.uix.button import MDFloatingActionButtonSpeedDial


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDFloatingActionButtonSpeedDial(
                    data={
                        'Python': 'language-python',
                        'PHP': 'language-php',
                        'C++': 'language-cpp',
                    },
                    root_button_anim=True,
                )
            )
        )
```

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```
Example().run()
```

You can use various types of animation of labels for buttons on the stack:

```
MDFloatingActionButtonSpeedDial:
    hint_animation: True
```

You can set your color values for background, text of buttons etc:

```
MDFloatingActionButtonSpeedDial:
    hint_animation: True
    bg_hint_color: app.theme_cls.primary_dark
```

Binds to individual buttons

Declarative KV style

```
from kivy.lang import Builder
from kivy.properties import DictProperty

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDFloatingActionButtonSpeedDial:
        id: speed_dial
        data: app.data
        root_button_anim: True
        hint_animation: True
'''
```

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```
class Example(MDApp):
    data = DictProperty()

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        self.data = {
            'Python': 'language-python',
            'JS': [
                'language-javascript',
                "on_press", lambda x: print("pressed JS"),
                "on_release", lambda x: print(
                    "stack_buttons",
                    self.root.ids.speed_dial.stack_buttons
                )
            ],
            'PHP': [
                'language-php',
                "on_press", lambda x: print("pressed PHP"),
                "on_release", self.callback
            ],
            'C++': [
                'language-cpp',
                "on_press", lambda x: print("pressed C++"),
                "on_release", lambda x: self.callback()
            ],
        }
        return Builder.load_string(KV)

    def callback(self, *args):
        print(args)


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.button import MDFloatingActionButtonSpeedDial
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDFloatingActionButtonSpeedDial(
                    id="speed_dial",
                    hint_animation=True,
                    root_button_anim=True,
```

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```
                )
            )
        )

    def on_start(self):
        data = {
            "Python": "language-python",
            "JS": [
                "language-javascript",
                "on_press", lambda x: print("pressed JS"),
                "on_release", lambda x: print(
                    "stack_buttons",
                    self.root.ids.speed_dial.stack_buttons
                )
            ],
            "PHP": [
                "language-php",
                "on_press", lambda x: print("pressed PHP"),
                "on_release", self.callback
            ],
            "C++": [
                "language-cpp",
                "on_press", lambda x: print("pressed C++"),
                "on_release", lambda x: self.callback()
            ],
        }
        self.root.ids.speed_dial.data = data

    def callback(self, *args):
        print(args)


Example().run()
```

API - kivymd.uix.button.button

class kivymd.uix.button.button.**BaseButton**(**args*, ***kwargs*)

Base class for all buttons.

For more information, see in the AnchorLayout class documentation.

padding

Padding between the widget box and its children, in pixels: [padding_left, padding_top, padding_right, padding_bottom].

padding also accepts a two argument form [padding_horizontal, padding_vertical] and a one argument form [padding].

New in version 1.0.0.

padding is a VariableListProperty and defaults to [16dp, 8dp, 16dp, 8dp].

halign

Horizontal anchor.

New in version 1.0.0.

`anchor_x` is an `OptionProperty` and defaults to 'center'. It accepts values of 'left', 'center' or 'right'.

valign

Vertical anchor.

New in version 1.0.0.

`anchor_y` is an `OptionProperty` and defaults to 'center'. It accepts values of 'top', 'center' or 'bottom'.

text

Button text.

text is a `StringProperty` and defaults to ''.

icon

Button icon.

icon is a `StringProperty` and defaults to ''.

font_style

Button text font style.

Available vanilla font_style are: *'H1'*, *'H2'*, *'H3'*, *'H4'*, *'H5'*, *'H6'*, *'Subtitle1'*, *'Subtitle2'*, *'Body1'*, *'Body2'*, *'Button'*, *'Caption'*, *'Overline'*, *'Icon'*.

font_style is a `StringProperty` and defaults to *'Body1'*.

theme_text_color

Button text type. Available options are: (*"Primary"*, *"Secondary"*, *"Hint"*, *"Error"*, *"Custom"*, *"ContrastParentBackground"*).

theme_text_color is an `OptionProperty` and defaults to *None* (set by button class).

theme_icon_color

Button icon type. Available options are: (*"Primary"*, *"Secondary"*, *"Hint"*, *"Error"*, *"Custom"*, *"ContrastParentBackground"*).

New in version 1.0.0.

theme_icon_color is an `OptionProperty` and defaults to *None* (set by button subclass).

text_color

Button text color in (r, g, b, a) or string format.

text_color is a `ColorProperty` and defaults to *None*.

icon_color

Button icon color in (r, g, b, a) or string format.

icon_color is a `ColorProperty` and defaults to *None*.

font_name

Button text font name.

font_name is a `StringProperty` and defaults to ''.

font_size

Button text font size.

font_size is a `NumericProperty` and defaults to *14sp*.

icon_size

Icon font size. Use this parameter as the font size, that is, in sp units.

New in version 1.0.0.

icon_size is a NumericProperty and defaults to *None*.

line_width

Line width for button border.

line_width is a NumericProperty and defaults to *1*.

line_color

Line color in (r, g, b, a) or string format for button border.

line_color is a ColorProperty and defaults to *None*.

line_color_disabled

Disabled line color in (r, g, b, a) or string format for button border.

New in version 1.0.0.

line_color_disabled is a ColorProperty and defaults to *None*.

md_bg_color

Button background color in (r, g, b, a) or string format.

md_bg_color is a ColorProperty and defaults to *None*.

md_bg_color_disabled

The background color in (r, g, b, a) or string format of the button when the button is disabled.

md_bg_color_disabled is a ColorProperty and defaults to *None*.

disabled_color

The color of the text and icon when the button is disabled, in (r, g, b, a) or string format.

New in version 1.0.0.

disabled_color is a ColorProperty and defaults to *None*.

rounded_button

Should the button have fully rounded corners (e.g. like M3 buttons)?

New in version 1.0.0.

rounded_button is a BooleanProperty and defaults to *False*.

set_disabled_color(*self*, **args*)

Sets the color for the icon, text and line of the button when button is disabled.

set_all_colors(*self*, **args*)

Set all button colours.

set_button_colors(*self*, **args*)

Set all button colours (except text/icons).

set_text_color(*self*, **args*)

Set _theme_text_color and _text_color based on defaults and options.

set_icon_color(*self*, **args*)

Set _theme_icon_color and _icon_color based on defaults and options.

set_radius(*self*, **args*)

Set the radius, if we are a rounded button, based on the current height.

on_touch_down(*self*, *touch*)

Animates fade to background on press, for buttons with no background color.

on_touch_up(*self*, *touch*)

Animates return to original background on touch release.

on_disabled(*self*, *instance_button*, *disabled_value: bool*)

class kivymd.uix.button.button.**MDFlatButton**(**args*, ***kwargs*)

A flat rectangular button with (by default) no border or background. Text is the default text color.

padding

Padding between the widget box and its children, in pixels: [padding_left, padding_top, padding_right, padding_bottom].

padding also accepts a two argument form [padding_horizontal, padding_vertical] and a one argument form [padding].

New in version 1.0.0.

padding is a VariableListProperty and defaults to [8dp, 8dp, 8dp, 8dp].

class kivymd.uix.button.button.**MDRaisedButton**(**args*, ***kwargs*)

A flat button with (by default) a primary color fill and matching color text.

class kivymd.uix.button.button.**MDRectangleFlatButton**(**args*, ***kwargs*)

A flat button with (by default) a primary color border and primary color text.

class kivymd.uix.button.button.**MDRectangleFlatIconButton**(**args*, ***kwargs*)

A flat button with (by default) a primary color border, primary color text and a primary color icon on the left.

class kivymd.uix.button.button.**MDRoundFlatButton**(**args*, ***kwargs*)

A flat button with (by default) fully rounded corners, a primary color border and primary color text.

class kivymd.uix.button.button.**MDRoundFlatIconButton**(**args*, ***kwargs*)

A flat button with (by default) rounded corners, a primary color border, primary color text and a primary color icon on the left.

class kivymd.uix.button.button.**MDFillRoundFlatButton**(**args*, ***kwargs*)

A flat button with (by default) rounded corners, a primary color fill and primary color text.

class kivymd.uix.button.button.**MDFillRoundFlatIconButton**(**args*, ***kwargs*)

A flat button with (by default) rounded corners, a primary color fill, primary color text and a primary color icon on the left.

class kivymd.uix.button.button.**MDIconButton**(**args*, ***kwargs*)

A simple rounded icon button.

icon

Button icon.

icon is a StringProperty and defaults to *'checkbox-blank-circle'*.

set_size(*self*, *interval: Union[int, float]*)

Sets the icon width/height based on the current *icon_size* attribute, or the default value if it is zero. The icon size is set to *(48, 48)* for an icon with the default font_size 24sp.

class kivymd.uix.button.button.**MDFloatingActionButton**(**args*, ***kwargs*)

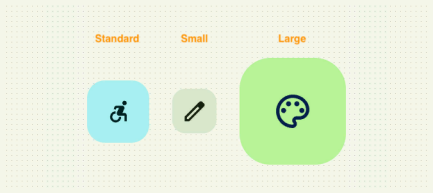
Implementation FAB button.

type

Type of M3 button.

New in version 1.0.0.

Available options are: 'small', 'large', 'standard'.



type is an OptionProperty and defaults to *'standard'*.

set_font_size(*self*, **args*)

set__radius(*self*, **args*)

set_size_and_radius(*self*, **args*)

set_size(*self*, **args*)

on_type(*self*, *instance_md_floating_action_button*, *type: str*)

class kivymd.uix.button.button.**MDTextButton**(***kwargs*)

This mixin class provides Button behavior. Please see the button behaviors module documentation for more information.

Events

on_press
Fired when the button is pressed.

on_release
Fired when the button is released (i.e. the touch/click that pressed the button goes away).

color

Button color in (r, g, b, a) or string format.

color is a ColorProperty and defaults to *None*.

color_disabled

Button color disabled in (r, g, b, a) or string format.

color_disabled is a ColorProperty and defaults to *None*.

animation_label(*self*)

on_press(*self*, **args*)

on_disabled(*self*, *instance_button*, *disabled_value*)

class kivymd.uix.button.button.**MDFloatingActionButtonSpeedDial**(***kwargs*)

For more information, see in the FloatLayout class documentation.

Events

on_open
Called when a stack is opened.

on_close
Called when a stack is closed.

on_press_stack_button
Called at the on_press event for the stack button.

on_release_stack_button
Called at the on_press event for the stack button.

icon

Root button icon name.

```
MDFloatingActionButtonSpeedDial:
    icon: "pencil"
```

icon is a StringProperty and defaults to *'plus'*.

anchor

Stack anchor. Available options are: *'right'*.

anchor is a OptionProperty and defaults to *'right'*.

label_text_color

Color of floating text labels in (r, g, b, a) or string format.

```
MDFloatingActionButtonSpeedDial:
    label_text_color: "orange"
```

label_text_color is a ColorProperty and defaults to *None*.

label_bg_color

Background color of floating text labels in (r, g, b, a) or string format.

```
MDFloatingActionButtonSpeedDial:
    label_text_color: "black"
    label_bg_color: "orange"
```

label_bg_color is a ColorProperty and defaults to *[0, 0, 0, 0]*.

label_radius

The radius of the background of floating text labels.

```
MDFloatingActionButtonSpeedDial:
    label_text_color: "black"
    label_bg_color: "orange"
```

label_radius is a ColorProperty and defaults to *[0, 0, 0, 0]*.

data

Must be a dictionary.

```
{
    'name-icon': 'Text label',
    ...,
    ...,
}
```

right_pad

If *True*, the background for the floating text label will increase by the number of pixels specified in the *right_pad_value* parameter.

Works only if the *hint_animation* parameter is set to *True*.

False

```
MDFloatingActionButtonSpeedDial:
    hint_animation: True
    right_pad: False
```

True

```
MDFloatingActionButtonSpeedDial:
    hint_animation: True
    right_pad: True
    right_pad_value: "10dp"
```

right_pad is a BooleanProperty and defaults to *False*.

right_pad_value

See *right_pad* parameter for more information.

right_pad_value is a NumericProperty and defaults to *0*.

root_button_anim

If True then the root button will rotate 45 degrees when the stack is opened.

root_button_anim is a BooleanProperty and defaults to *False*.

opening_transition

The name of the stack opening animation type.

opening_transition is a StringProperty and defaults to *'out_cubic'*.

closing_transition

The name of the stack closing animation type.

closing_transition is a StringProperty and defaults to *'out_cubic'*.

opening_transition_button_rotation

The name of the animation type to rotate the root button when opening the stack.

opening_transition_button_rotation is a StringProperty and defaults to *'out_cubic'*.

closing_transition_button_rotation

The name of the animation type to rotate the root button when closing the stack.

closing_transition_button_rotation is a StringProperty and defaults to *'out_cubic'*.

opening_time

Time required for the stack to go to: attr:*state 'open'*.

opening_time is a NumericProperty and defaults to *0.2*.

closing_time

Time required for the stack to go to: attr:*state 'close'*.

closing_time is a NumericProperty and defaults to *0.2*.

opening_time_button_rotation

Time required to rotate the root button 45 degrees during the stack opening animation.

opening_time_button_rotation is a NumericProperty and defaults to *0.2*.

closing_time_button_rotation

Time required to rotate the root button 0 degrees during the stack closing animation.

closing_time_button_rotation is a NumericProperty and defaults to *0.2*.

state

Indicates whether the stack is closed or open. Available options are: *'close'*, *'open'*.

state is a OptionProperty and defaults to *'close'*.

bg_color_root_button

Background color of root button in (r, g, b, a) or string format.

bg_color_root_button is a ColorProperty and defaults to *None*.

bg_color_stack_button

Background color of the stack buttons in (r, g, b, a) or string format.

bg_color_stack_button is a ColorProperty and defaults to *None*.

color_icon_stack_button

The color icon of the stack buttons in (r, g, b, a) or string format.

color_icon_stack_button is a ColorProperty and defaults to *None*.

color_icon_root_button

The color icon of the root button in (r, g, b, a) or string format.

color_icon_root_button is a ColorProperty and defaults to *None*.

bg_hint_color

Background color for the floating text of the buttons in (r, g, b, a) or string format.

bg_hint_color is a ColorProperty and defaults to *None*.

hint_animation

Whether to use button extension animation to display floating text.

hint_animation is a BooleanProperty and defaults to *False*.

stack_buttons

on_open(*self*, **args*)

Called when a stack is opened.

on_close(*self*, **args*)

Called when a stack is closed.

on_leave(*self*, *instance_button: MDFloatingBottomButton*)

Called when the mouse cursor goes outside the button of stack.

on_enter(*self*, *instance_button: MDFloatingBottomButton*)

Called when the mouse cursor is over a button from the stack.

on_data(*self*, *instance_speed_dial*, *data: dict*)

Creates a stack of buttons.

on_icon(*self*, *instance_speed_dial*, *name_icon: str*)

on_label_text_color(*self*, *instance_speed_dial*, *color: list | str*)

on_color_icon_stack_button(*self*, *instance_speed_dial*, *color: list*)

on_hint_animation(*self*, *instance_speed_dial*, *value: bool*)

on_bg_hint_color(*self*, *instance_speed_dial*, *color: list*)

on_color_icon_root_button(*self*, *instance_speed_dial*, *color: list*)

on_bg_color_stack_button(*self*, *instance_speed_dial*, *color: list*)

on_bg_color_root_button(*self*, *instance_speed_dial*, *color: list*)

on_press_stack_button(*self*, **args*)

Called at the on_press event for the stack button.

```
MDFloatingActionButtonSpeedDial:
    on_press_stack_button: print(*args)
```

New in version 1.1.0.

on_release_stack_button(*self*, **args*)

Called at the on_release event for the stack button.

```
MDFloatingActionButtonSpeedDial:
    on_release_stack_button: print(*args)
```

New in version 1.1.0.

set_pos_labels(*self*, *instance_floating_label: MDFloatingLabel*)

Sets the position of the floating labels. Called when the application's root window is resized.

set_pos_root_button(*self*, *instance_floating_root_button: MDFloatingRootButton*)

Sets the position of the root button. Called when the application's root window is resized.

set_pos_bottom_buttons(*self*, *instance_floating_bottom_button: MDFloatingBottomButton*)

Sets the position of the bottom buttons in a stack. Called when the application's root window is resized.

open_stack(*self*, *instance_floating_root_button: MDFloatingRootButton*)

Opens a button stack.

do_animation_open_stack(*self*, *anim_data: dict*)

Parameters
anim_data –

{

<kivymd.uix.button.MDFloatingBottomButton object>:
<kivy.animation.Animation>,

<kivymd.uix.button.MDFloatingBottomButton object>:
<kivy.animation.Animation object>,

...,

}

close_stack(*self*)

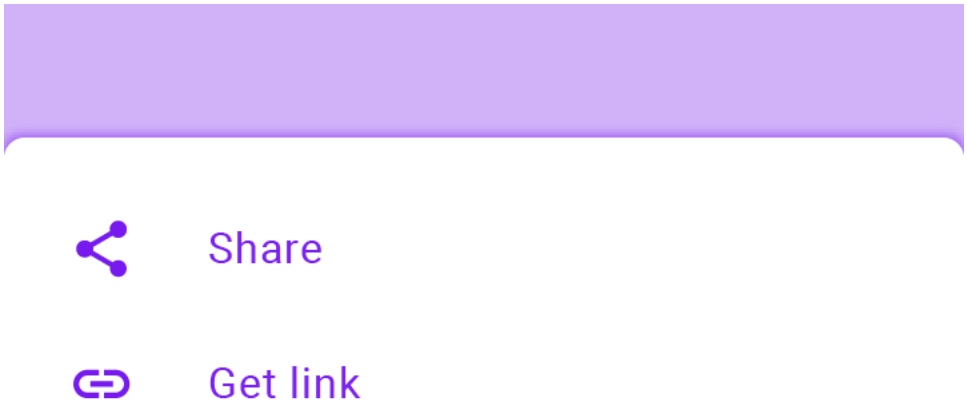
Closes the button stack.

2.3.23 BottomSheet

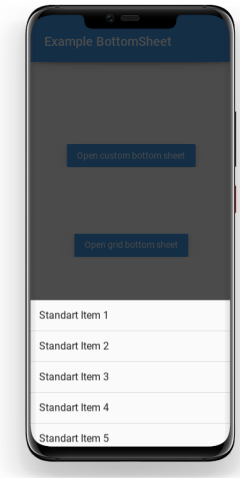
See also:

Material Design spec, Sheets: bottom

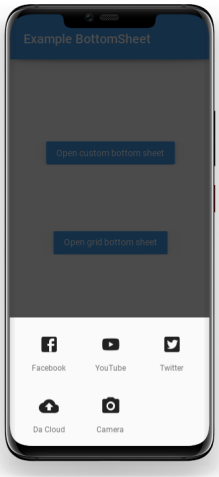
Bottom sheets are surfaces containing supplementary content that are anchored to the bottom of the screen.



Two classes are available to you *MDListBottomSheet* and *MDGridBottomSheet* for standard bottom sheets dialogs:



MDListBottomSheet



MDGridBottomSheet

Usage MDListBottomSheet

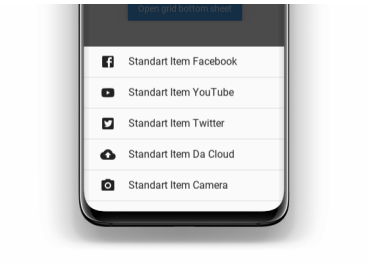
```
from kivy.lang import Builder

from kivymd.toast import toast
from kivymd.uix.bottomsheet import MDListBottomSheet
from kivymd.app import MDApp

KV = '''
MDScreen:

    MDTopAppBar:
        title: "Example BottomSheet"
        pos_hint: {"top": 1}
        elevation: 4

    MDRaisedButton:
        text: "Open list bottom sheet"
        on_release: app.show_example_list_bottom_sheet()
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def callback_for_menu_items(self, *args):
        toast(args[0])

    def show_example_list_bottom_sheet(self):
        bottom_sheet_menu = MDListBottomSheet()
        for i in range(1, 11):
            bottom_sheet_menu.add_item(
                f"Standart Item {i}",
                lambda x, y=i: self.callback_for_menu_items(
                    f"Standart Item {y}"
                ),
            )
        bottom_sheet_menu.open()


Example().run()
```

The *add_item* method of the *MDListBottomSheet* class takes the following arguments:

`text` - element text;

`callback` - function that will be called when clicking on an item;

There is also an optional argument `icon`, which will be used as an icon to the left of the item:



Using the `MDGridBottomSheet` class is similar to using the `MDListBottomSheet` class:

```
from kivy.lang import Builder

from kivymd.toast import toast
from kivymd.uix.bottomsheet import MDGridBottomSheet
from kivymd.app import MDApp

KV = '''
MDScreen:

    MDTopAppBar:
        title: 'Example BottomSheet'
        pos_hint: {"top": 1}
        elevation: 4

    MDRaisedButton:
        text: "Open grid bottom sheet"
        on_release: app.show_example_grid_bottom_sheet()
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def callback_for_menu_items(self, *args):
        toast(args[0])

    def show_example_grid_bottom_sheet(self):
        bottom_sheet_menu = MDGridBottomSheet()
        data = {
            "Facebook": "facebook-box",
            "YouTube": "youtube",
            "Twitter": "twitter-box",
            "Da Cloud": "cloud-upload",
            "Camera": "camera",
        }
        for item in data.items():
            bottom_sheet_menu.add_item(
                item[0],
                lambda x, y=item[0]: self.callback_for_menu_items(y),
```

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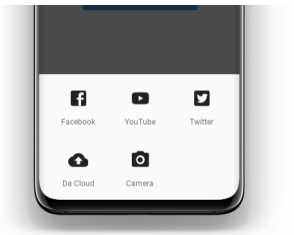
```
                icon_src=item[1],
            )
        bottom_sheet_menu.open()


Example().run()
```



You can use custom content for bottom sheet dialogs:

```
from kivy.lang import Builder
from kivy.factory import Factory

from kivymd.uix.bottomsheet import MDCustomBottomSheet
from kivymd.app import MDApp

KV = '''
<ItemForCustomBottomSheet@OneLineIconListItem>
    on_press: app.custom_sheet.dismiss()
    icon: ""

    IconLeftWidget:
        icon: root.icon


<ContentCustomSheet@BoxLayout>:
    orientation: "vertical"
    size_hint_y: None
    height: "400dp"

    MDTopAppBar:
        title: 'Custom bottom sheet:'

    ScrollView:

        MDGridLayout:
            cols: 1
            adaptive_height: True

            ItemForCustomBottomSheet:
                icon: "page-previous"
                text: "Preview"
```

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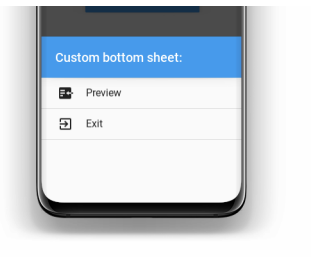
```
            ItemForCustomBottomSheet:
                icon: "exit-to-app"
                text: "Exit"


MDScreen:

    MDTopAppBar:
        title: 'Example BottomSheet'
        pos_hint: {"top": 1}
        elevation: 4

    MDRaisedButton:
        text: "Open custom bottom sheet"
        on_release: app.show_example_custom_bottom_sheet()
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Example(MDApp):
    custom_sheet = None

    def build(self):
        return Builder.load_string(KV)

    def show_example_custom_bottom_sheet(self):
        self.custom_sheet = MDCustomBottomSheet(screen=Factory.ContentCustomSheet())
        self.custom_sheet.open()


Example().run()
```



Note: When you use the *MDCustomBottomSheet* class, you must specify the height of the user-defined content exactly, otherwise `dp(100)` heights will be used for your `ContentCustomSheet` class:

```
<ContentCustomSheet@BoxLayout>:
    orientation: "vertical"
    size_hint_y: None
    height: "400dp"
```

Note: The height of the bottom sheet dialog will never exceed half the height of the screen!

API - kivymd.uix.bottomsheet.bottomsheet

class kivymd.uix.bottomsheet.bottomsheet.**MDBottomSheet**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

***on_dismiss*:**
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

background

Private attribute.

duration_opening

The duration of the bottom sheet dialog opening animation.

duration_opening is an NumericProperty and defaults to *0.15*.

duration_closing

The duration of the bottom sheet dialog closing animation.

duration_closing is an NumericProperty and defaults to *0.15*.

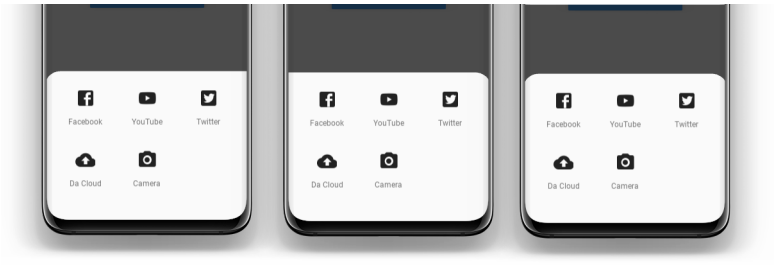
radius

The value of the rounding of the corners of the dialog.

radius is an NumericProperty and defaults to *25*.

radius_from

Sets which corners to cut from the dialog. Available options are: (*"top_left"*, *"top_right"*, *"top"*, *"bottom_right"*, *"bottom_left"*, *"bottom"*).



radius_from is an OptionProperty and defaults to *None*.

animation

Whether to use animation for opening and closing of the bottomsheet or not.

animation is an BooleanProperty and defaults to *False*.

bg_color

Dialog background color in in (r, g, b, a) or string format.

bg_color is an ColorProperty and defaults to *[]*.

value_transparent

Background color in (r, g, b, a) or string format transparency value when opening a dialog.

value_transparent is an ColorProperty and defaults to *[0, 0, 0, 0.8]*.

open(*self*, **args*)

Display the modal in the Window.

When the view is opened, it will be faded in with an animation. If you don't want the animation, use:

```
view.open(animation=False)
```

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
```

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```
>>> slider = Slider()
>>> root.add_widget(slider)
```

dismiss(*self*, **args*, ***kwargs*)

Close the view if it is open.

If you really want to close the view, whatever the on_dismiss event returns, you can use the *force* keyword argument:

```
view = ModalView()
view.dismiss(force=True)
```

When the view is dismissed, it will be faded out before being removed from the parent. If you don't want this animation, use:

```
view.dismiss(animation=False)
```

resize_content_layout(*self*, *content*, *layout*, *interval=0*)

class kivymd.uix.bottomsheet.bottomsheet.**MDCustomBottomSheet**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

***on_dismiss*:**
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

screen

Custom content.

screen is an ObjectProperty and defaults to *None*.

class kivymd.uix.bottomsheet.bottomsheet.**MDListBottomSheet**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

***on_dismiss*:**
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

sheet_list

sheet_list is an ObjectProperty and defaults to *None*.

add_item(*self*, *text*, *callback*, *icon=None*)

Parameters

- **text** – element text;
- **callback** – function that will be called when clicking on an item;
- **icon** – which will be used as an icon to the left of the item;

class kivymd.uix.bottomsheet.bottomsheet.**GridBottomSheetItem**(***kwargs*)

This mixin class provides Button behavior. Please see the button behaviors module documentation for more information.

Events

on_press
Fired when the button is pressed.

on_release
Fired when the button is released (i.e. the touch/click that pressed the button goes away).

source

Icon path if you use a local image or icon name if you use icon names from a file kivymd/icon_definitions.py.

source is an StringProperty and defaults to *''*.

caption

Item text.

caption is an StringProperty and defaults to *''*.

icon_size

Icon size.

caption is an StringProperty and defaults to *'24sp'*.

class kivymd.uix.bottomsheet.bottomsheet.**MDGridBottomSheet**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

***on_dismiss*:**
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

`add_item`(*self*, *text*, *callback*, *icon_src*)

Parameters

- **`text`** – element text;
- **`callback`** – function that will be called when clicking on an item;
- **`icon_src`** – icon item;

2.3.24 SliverAppbar

New in version 1.0.0.

MDSliverAppbar is a Material Design widget in KivyMD which gives scrollable or collapsible MDTopAppBar

Note: This widget is a modification of the silverappbar.py module.

Usage

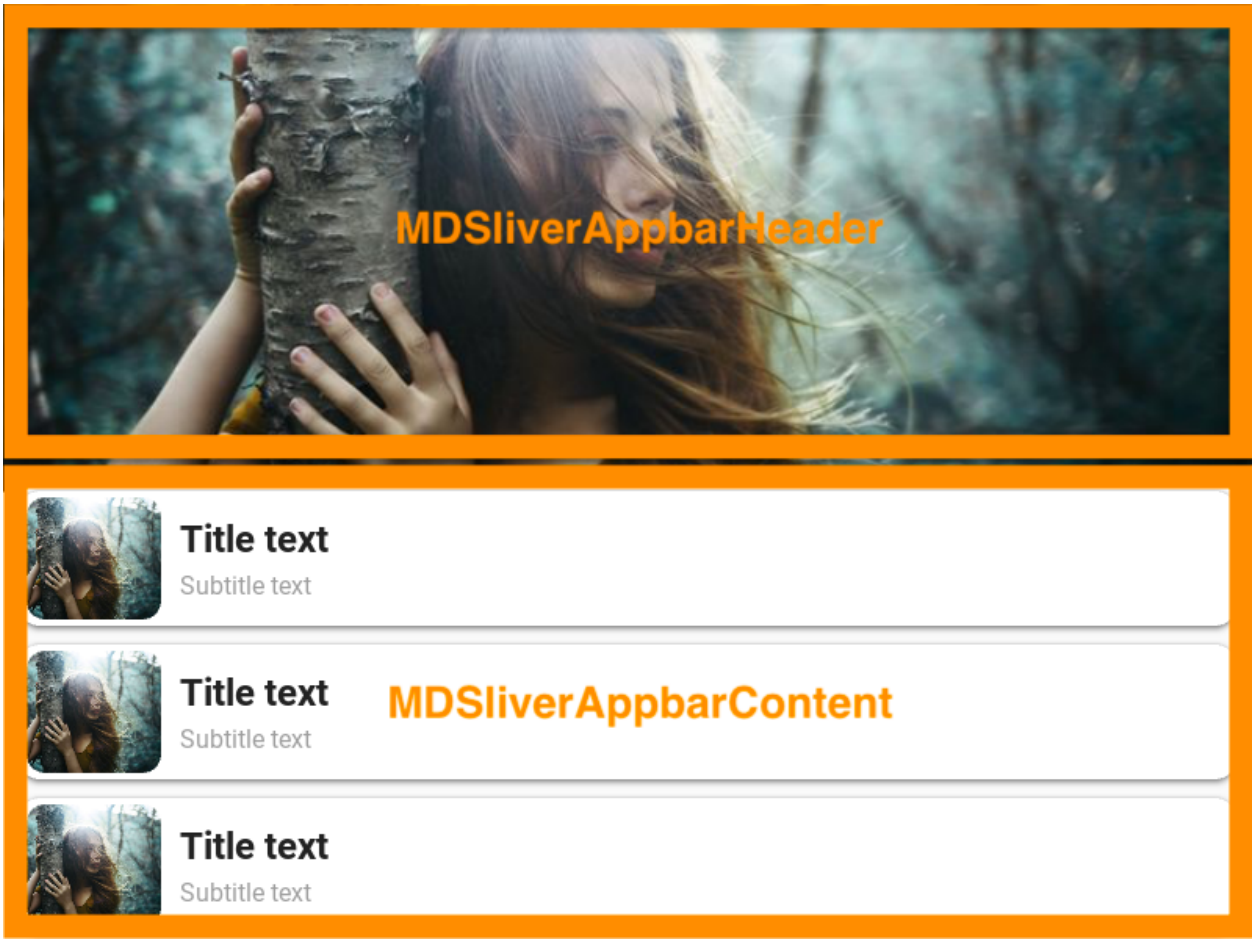
```
MDScreen:

    MDSliverAppbar:

        MDSliverAppbarHeader:

            # Custom content.
            ...

        # Custom list.
        MDSliverAppbarContent:
```



Example

```
from kivy.lang.builder import Builder

from kivymd.app import MDApp
from kivymd.uix.card import MDCard

KV = '''
<CardItem>
    size_hint_y: None
    height: "86dp"
    padding: "4dp"
    radius: 12

    FitImage:
        source: "avatar.jpg"
        radius: root.radius
        size_hint_x: None
        width: root.height

    MDBoxLayout:
```

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```
        orientation: "vertical"
        adaptive_height: True
        spacing: "6dp"
        padding: "12dp", 0, 0, 0
        pos_hint: {"center_y": .5}

        MDLabel:
            text: "Title text"
            font_style: "H5"
            bold: True
            adaptive_height: True

        MDLabel:
            text: "Subtitle text"
            theme_text_color: "Hint"
            adaptive_height: True


MDScreen:

    MDSliverAppbar:
        background_color: "2d4a50"

        MDSliverAppbarHeader:

            MDRelativeLayout:

                FitImage:
                    source: "bg.jpg"

        MDSliverAppbarContent:
            id: content
            orientation: "vertical"
            padding: "12dp"
            spacing: "12dp"
            adaptive_height: True
'''


class CardItem(MDCard):
    def __init__(self, *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.elevation = 3


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
        for x in range(10):
            self.root.ids.content.add_widget(CardItem())
```

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```
Example().run()
```

API - kivymd.uix.sliverappbar.sliverappbar

class kivymd.uix.sliverappbar.sliverappbar.**MDSliverAppbarContent**(***kwargs*)

Implements a box for a scrollable list of custom items.

md_bg_color

See *background_color*.

md_bg_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

set_bg_color(*self*, *interval: Union[int, float]*)

class kivymd.uix.sliverappbar.sliverappbar.**MDSliverAppbarHeader**(**args*, ***kwargs*)

Box layout class.

For more information, see in the BoxLayout class documentation.

class kivymd.uix.sliverappbar.sliverappbar.**MDSliverAppbar**(**args*, ***kwargs*)

MDSliverAppbar class. See module documentation for more information.

Events

on_scroll_content
Called when the list of custom content is being scrolled.

toolbar_cls

Must be an object of the MDTopAppBar class documentation for more information.

By default, MDSliverAppbar widget uses the MDTopAppBar class with no parameters.

```
from kivy.lang.builder import Builder

from kivymd.uix.card import MDCard
from kivymd.uix.toolbar import MDTopAppBar

KV = '''
#:import SliverToolbar __main__.SliverToolbar


<CardItem>
    size_hint_y: None
    height: "86dp"
    padding: "4dp"
    radius: 12

    FitImage:
        source: "avatar.jpg"
        radius: root.radius
        size_hint_x: None
        width: root.height
```

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```
    MDBoxLayout:
        orientation: "vertical"
        adaptive_height: True
        spacing: "6dp"
        padding: "12dp", 0, 0, 0
        pos_hint: {"center_y": .5}

        MDLabel:
            text: "Title text"
            font_style: "H5"
            bold: True
            adaptive_height: True

        MDLabel:
            text: "Subtitle text"
            theme_text_color: "Hint"
            adaptive_height: True


MDScreen:

    MDSliverAppbar:
        background_color: "2d4a50"
        toolbar_cls: SliverToolbar()

        MDSliverAppbarHeader:

            MDRelativeLayout:

                FitImage:
                    source: "bg.jpg"

        MDSliverAppbarContent:
            id: content
            orientation: "vertical"
            padding: "12dp"
            spacing: "12dp"
            adaptive_height: True
'''


class CardItem(MDCard):
    def __init__(self, *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.elevation = 3


class SliverToolbar(MDTopAppBar):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.shadow_color = (0, 0, 0, 0)
```

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```
        self.type_height = "medium"
        self.headline_text = "Headline medium"
        self.left_action_items = [["arrow-left", lambda x: x]]
        self.right_action_items = [
            ["attachment", lambda x: x],
            ["calendar", lambda x: x],
            ["dots-vertical", lambda x: x],
        ]


class Example(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        return Builder.load_string(KV)

    def on_start(self):
        for x in range(10):
            self.root.ids.content.add_widget(CardItem())


Example().run()
```

toolbar_cls is an ObjectProperty and defaults to *None*.

background_color

Background color of toolbar in (r, g, b, a) or string format.

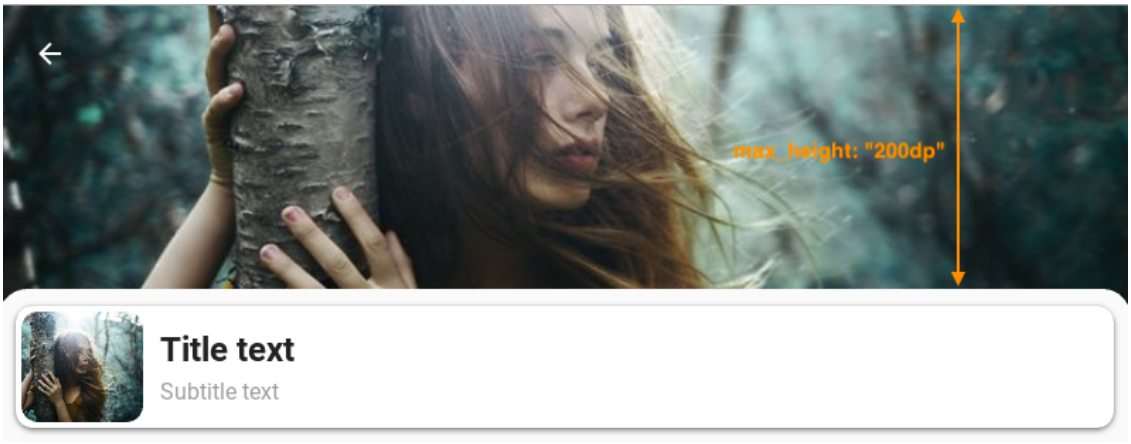
```
MDSliverAppbar:
    background_color: "2d4a50"
```

background_color is an ColorProperty and defaults to *None*.

max_height

Distance from top of screen to start of custom list content.

```
MDSliverAppbar:
    max_height: "200dp"
```



max_height is an NumericProperty and defaults to *Window.height / 2*.

hide_toolbar

Whether to hide the toolbar when scrolling through a list of custom content.

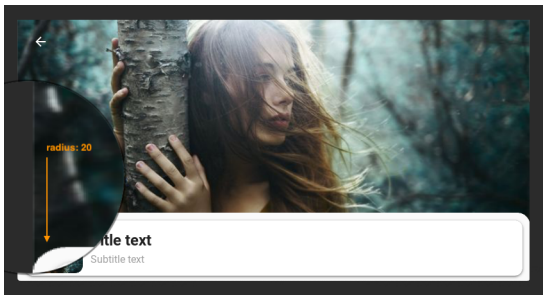
```
MDSliverAppbar:
    hide_toolbar: False
```

hide_toolbar is an BooleanProperty and defaults to *True*.

radius

Box radius for custom item list.

```
MDSliverAppbar:
    radius: 20
```



radius is an VariableListProperty and defaults to *[20]*.

max_opacity

Maximum background transparency value for the *MDSliverAppbarHeader* class.

```
MDSliverAppbar:
    max_opacity: .5
```

max_opacity is an NumericProperty and defaults to *1*.

on_scroll_content(*self*, *instance_sliverappbar: object = None*, *value: float = 1.0*, *direction: str = 'up'*)

Called when the list of custom content is being scrolled.

Parameters

- **instance_sliverappbar** – *MDSliverAppbar*
- **value** – see scroll_y
- **direction** – scroll direction: 'up/down'

on_background_color(*self*, *instance_sliver_appbar*, *color_value: list*)

on_toolbar_cls(*self*, *instance_sliver_appbar*, *instance_toolbar_cls:* MDTopAppBar)

Called when a value is set to the *toolbar_cls* parameter.

on_vbar(*self*)

get_default_toolbar(*self*)

Called if no value is passed for the toolbar_cls attribute.

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

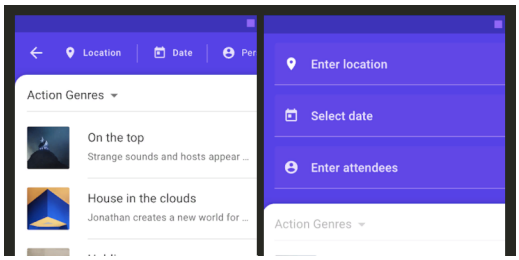
```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.25 Backdrop

See also:

Material Design spec, Backdrop

Skeleton layout for using `MDBackdrop`:



Usage

```
<Root>

    MDBackdrop:

        MDBackdropBackLayer:

            ContentForBackdropBackLayer:

        MDBackdropFrontLayer:

             ContentForBackdropFrontLayer:
```

Example

Declarative KV styles

```
from kivy.lang import Builder

from kivymd.uix.screen import MDScreen
from kivymd.app import MDApp

# Your layouts.
Builder.load_string(
    '''
#:import os os
#:import Window kivy.core.window.Window
#:import IconLeftWidget kivymd.uix.list.IconLeftWidget
#:import images_path kivymd.images_path
```

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```
<ItemBackdropFrontLayer@TwoLineAvatarListItem>
    icon: "android"

    IconLeftWidget:
        icon: root.icon


<MyBackdropFrontLayer@ItemBackdropFrontLayer>
    backdrop: None
    text: "Lower the front layer"
    secondary_text: " by 50 %"
    icon: "transfer-down"
    on_press: root.backdrop.open(-Window.height / 2)
    pos_hint: {"top": 1}
    _no_ripple_effect: True


<MyBackdropBackLayer@Image>
    size_hint: .8, .8
    source: os.path.join(images_path, "logo", "kivymd-icon-512.png")
    pos_hint: {"center_x": .5, "center_y": .6}
'''
)

# Usage example of MDBackdrop.
Builder.load_string(
    '''
<ExampleBackdrop>

    MDBackdrop:
        id: backdrop
        left_action_items: [['menu', lambda x: self.open()]]
        title: "Example Backdrop"
        radius_left: "25dp"
        radius_right: "0dp"
        header_text: "Menu:"

        MDBackdropBackLayer:
            MyBackdropBackLayer:
                id: backlayer

        MDBackdropFrontLayer:
            MyBackdropFrontLayer:
                backdrop: backdrop
'''
)


class ExampleBackdrop(MDScreen):
    pass
```

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```
class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return ExampleBackdrop()


Example().run()
```

Declarative python styles

```
import os

from kivy.core.window import Window
from kivy.uix.image import Image

from kivymd import images_path
from kivymd.uix.backdrop import MDBackdrop
from kivymd.uix.backdrop.backdrop import (
    MDBackdropBackLayer, MDBackdropFrontLayer
)
from kivymd.uix.list import TwoLineAvatarListItem, IconLeftWidget
from kivymd.uix.screen import MDScreen
from kivymd.app import MDApp


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"

        return (
            MDScreen(
                MDBackdrop(
                    MDBackdropBackLayer(
                        Image(
                            size_hint=(0.8, 0.8),
                            source=os.path.join(images_path, "logo", "kivymd-icon-512.png
↪"),
                            pos_hint={"center_x": 0.5, "center_y": 0.6},
                        )
                    ),
                    MDBackdropFrontLayer(
                        TwoLineAvatarListItem(
                            IconLeftWidget(icon="transfer-down"),
                            text="Lower the front layer",
                            secondary_text=" by 50 %",
                            on_press=self.backdrop_open_by_50_percent,
                            pos_hint={"top": 1},
                            _no_ripple_effect=True,
                        ),
                    ),
```

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```
                    id="backdrop",
                    title="Example Backdrop",
                    radius_left="25dp",
                    radius_right="0dp",
                    header_text="Menu:",
                )
            )
        )

    def backdrop_open_by_50_percent(self, *args):
        self.root.ids.backdrop.open(-Window.height / 2)


Example().run()
```

Note: See full example

API - kivymd.uix.backdrop.backdrop

class kivymd.uix.backdrop.backdrop.**MDBackdrop**(**args*, ***kwargs*)

Events

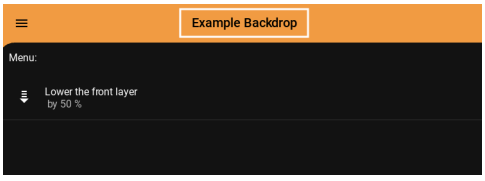
on_open
When the front layer drops.

on_close
When the front layer rises.

anchor_title

Position toolbar title. Only used with *material_style* = *'M3'* Available options are: *'left'*, *'center'*, *'right'*.

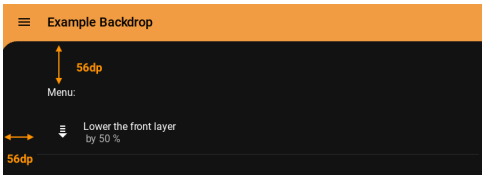
New in version 1.0.0.



anchor_title is an OptionProperty and defaults to *'left'*.

padding

Padding for contents of the front layer.



padding is an ListProperty and defaults to *[0, 0, 0, 0]*.

left_action_items

The icons and methods left of the kivymd.uix.toolbar.MDTopAppBar in back layer. For more information, see the kivymd.uix.toolbar.MDTopAppBar module and *left_action_items* parameter.

left_action_items is an ListProperty and defaults to *[]*.

right_action_items

Works the same way as *left_action_items*.

right_action_items is an ListProperty and defaults to *[]*.

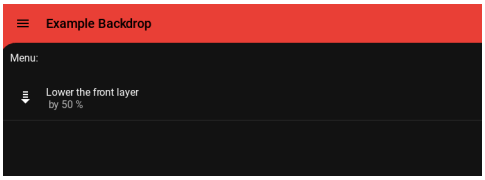
title

See the kivymd.uix.toolbar.MDTopAppBar.title parameter.

title is an StringProperty and defaults to *''*.

back_layer_color

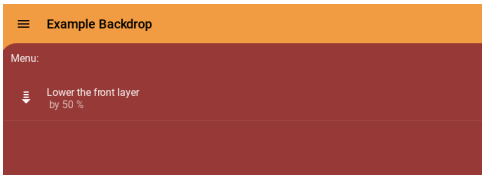
Background color of back layer in (r, g, b, a) or string format.



back_layer_color is an ColorProperty and defaults to *None*.

front_layer_color

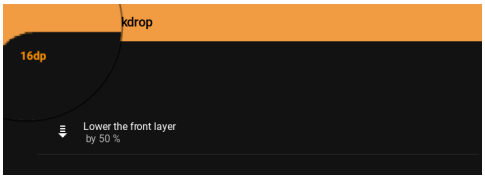
Background color of front layer in (r, g, b, a) or string format.



front_layer_color is an ColorProperty and defaults to *None*.

radius_left

The value of the rounding radius of the upper left corner of the front layer.



radius_left is an NumericProperty and defaults to *16dp*.

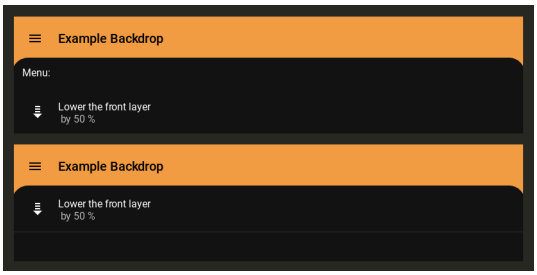
radius_right

The value of the rounding radius of the upper right corner of the front layer.

radius_right is an NumericProperty and defaults to *16dp*.

header

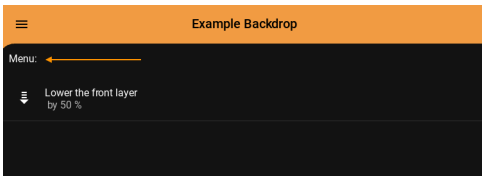
Whether to use a header above the contents of the front layer.



header is an BooleanProperty and defaults to *True*.

header_text

Text of header.



header_text is an StringProperty and defaults to *'Header'*.

close_icon

The name of the icon that will be installed on the toolbar on the left when opening the front layer.

close_icon is an StringProperty and defaults to *'close'*.

opening_time

The time taken for the panel to slide to the `state` *'open'*.

New in version 1.0.0.

opening_time is a NumericProperty and defaults to *0.2*.

opening_transition

The name of the animation transition type to use when animating to the `state` *'open'*.

New in version 1.0.0.

opening_transition is a StringProperty and defaults to *'out_quad'*.

closing_time

The time taken for the panel to slide to the `state` *'close'*.

New in version 1.0.0.

closing_time is a NumericProperty and defaults to *0.2*.

closing_transition

The name of the animation transition type to use when animating to the `state` 'close'.

New in version 1.0.0.

closing_transition is a StringProperty and defaults to *'out_quad'*.

on_open(*self*)

When the front layer drops.

on_close(*self*)

When the front layer rises.

on_left_action_items(*self*, *instance_backdrop*, *menu: list*)

on_header(*self*, *instance_backdrop*, *value: bool*)

open(*self*, *open_up_to: int = 0*)

Opens the front layer.

Open_up_to
the height to which the front screen will be lowered; if equal to zero - falls to the bottom of the screen;

close(*self*)

Opens the front layer.

animate_opacity_icon(*self*, *instance_icon_menu: Union[*ActionTopAppBarButton*, None] = None*, *opacity_value: int = 0*, *call_set_new_icon: bool = True*)

Starts the opacity animation of the icon.

set_new_icon(*self*, *instance_animation: Animation*, *instance_icon_menu:* ActionTopAppBarButton)

Sets the icon of the button depending on the state of the backdrop.

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

class kivymd.uix.backdrop.backdrop.**MDBackdropToolbar**(***kwargs*)

Implements a toolbar for back content.

class kivymd.uix.backdrop.backdrop.**MDBackdropFrontLayer**(**args*, ***kwargs*)

Container for front content.

class kivymd.uix.backdrop.backdrop.**MDBackdropBackLayer**(**args*, ***kwargs*)

Container for back content.

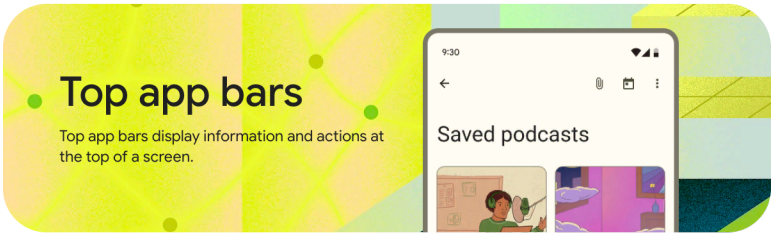
2.3.26 Toolbar

See also:

Material Design spec, App bars: top

Material Design spec, App bars: bottom

Material Design 3 spec, App bars: bottom



KivyMD provides the following toolbar positions for use:

- *Top*
- *Bottom*

Top

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "MDTopAppBar"

    MDLabel:
        text: "Content"
        halign: "center"
'''


class Test(MDApp):
    def build(self):
```

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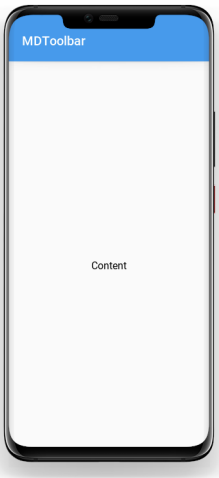
```
        return Builder.load_string(KV)


Test().run()
```



Add left menu

```
MDTopAppBar:
    title: "MDTopAppBar"
    left_action_items: [["menu", lambda x: app.callback()]]
```

Note: The callback is optional. `left_action_items: [["menu"]]` would also work for a button that does nothing.

Add right menu

```
MDTopAppBar:
    title: "MDTopAppBar"
    right_action_items: [["dots-vertical", lambda x: app.callback()]]
```

Add two item to the right menu

```
MDTopAppBar:
    title: "MDTopAppBar"
    right_action_items: [["dots-vertical", lambda x: app.callback_1()], ["clock", lambda␣
↪x: app.callback_2()]]
```

Change toolbar color

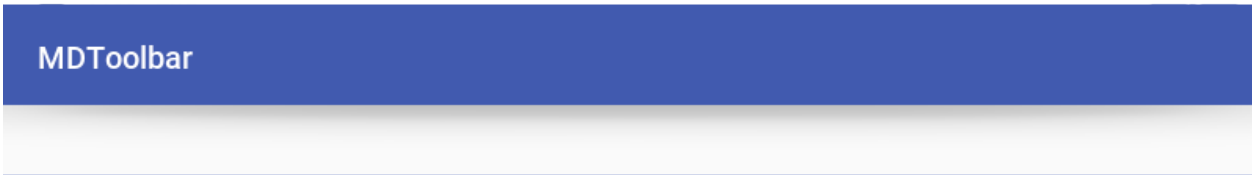
```
MDTopAppBar:
    title: "MDTopAppBar"
    md_bg_color: app.theme_cls.accent_color
```

Change toolbar text color

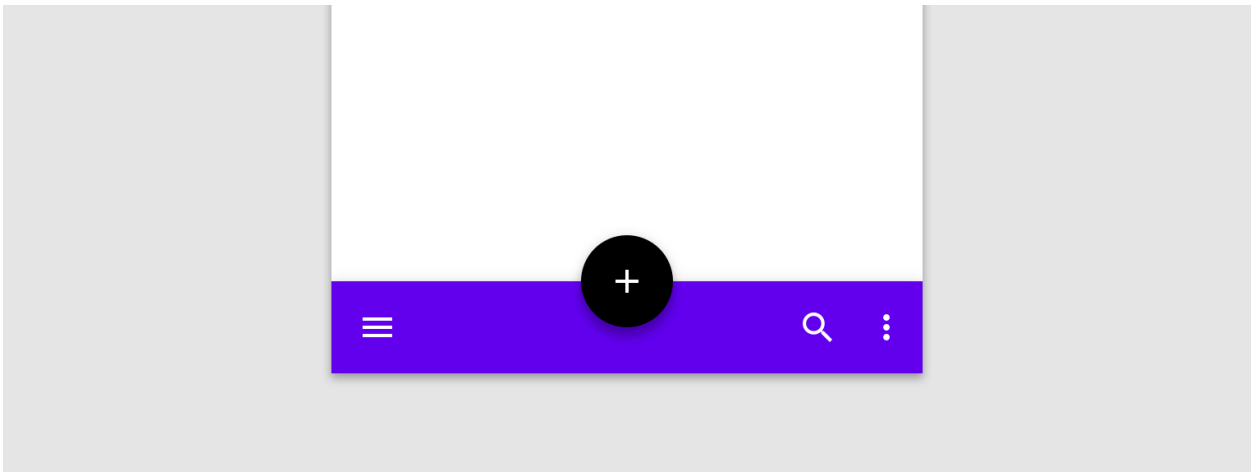
```
MDTopAppBar:
    title: "MDTopAppBar"
    specific_text_color: app.theme_cls.accent_color
```

Shadow elevation control

```
MDTopAppBar:
    title: "Elevation 4"
    elevation: 4
```



Bottom



Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDBoxLayout:

    # Will always be at the bottom of the screen.
    MDBottomAppBar:

        MDTopAppBar:
            title: "Title"
            icon: "git"
            type: "bottom"
            left_action_items: [["menu", lambda x: x]]
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)
```

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```
Test().run()
```

Event on floating button

Event `on_action_button`:

```
MDBottomAppBar:

    MDTopAppBar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        on_action_button: app.callback(self.icon)
```

Floating button position

Mode:

- *'free-end'*
- *'free-center'*
- *'end'*
- *'center'*

```
MDBottomAppBar:

    MDTopAppBar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        mode: "end"
```


```
MDBottomAppBar:

    MDTopAppBar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        mode: "free-end"
```

Custom color

```
MDBottomAppBar:
    md_bg_color: 0, 1, 0, 1

    MDTopAppBar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        icon_color: 0, 1, 0, 1
```

Tooltips

You can add MDTooltips to the Toolbar icons by ading a text string to the toolbar item, as shown below

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.snackbar import Snackbar

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "MDTopAppBar"
        left_action_items: [["menu", "This is the navigation"]]
        right_action_items:
            [["dots-vertical", lambda x: app.callback(x), "this is the More Actions"]]

    MDLabel:
        text: "Content"
        halign: "center"
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def callback(self, button):
        Snackbar(text="Hello World").open()

Test().run()
```

Material design 3 style

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.toolbar import MDTopAppBar

KV = '''
MDScreen:

    MDBoxLayout:
        id: box
        orientation: "vertical"
        spacing: "12dp"
        pos_hint: {"top": 1}
        adaptive_height: True
'''
```

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```
class TestNavigationDrawer(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        return Builder.load_string(KV)

    def on_start(self):
        for type_height in ["medium", "large", "small"]:
            self.root.ids.box.add_widget(
                MDTopAppBar(
                    type_height=type_height,
                    headline_text=f"Headline {type_height.lower()}",
                    md_bg_color="#2d2734",
                    left_action_items=[["arrow-left", lambda x: x]],
                    right_action_items=[
                        ["attachment", lambda x: x],
                        ["calendar", lambda x: x],
                        ["dots-vertical", lambda x: x],
                    ],
                    title="Title" if type_height == "small" else ""
                )
            )


TestNavigationDrawer().run()
```

API - kivymd.uix.toolbar.toolbar

class kivymd.uix.toolbar.toolbar.**ActionTopAppBarButton**(**args*, ***kwargs*)

Implements action buttons on the toolbar.

overflow_text

class kivymd.uix.toolbar.toolbar.**MDTopAppBar**(***kwargs*)

Events

on_action_button

Method for the button used for the *MDBottomAppBar* class.

left_action_items

The icons on the left of the toolbar. To add one, append a list like the following:

```
MDTopAppBar:
    left_action_items: ["dots-vertical", callback, "tooltip text", "overflow␣
↪text"]
```

`icon_name` - is a string that corresponds to an icon definition:

```
MDTopAppBar:
    right_action_items: [["home"]]
```

`callback` - is the function called on a touch release event and:

```
MDTopAppBar:
    right_action_items: [["home", lambda x: app.callback(x)]]
```

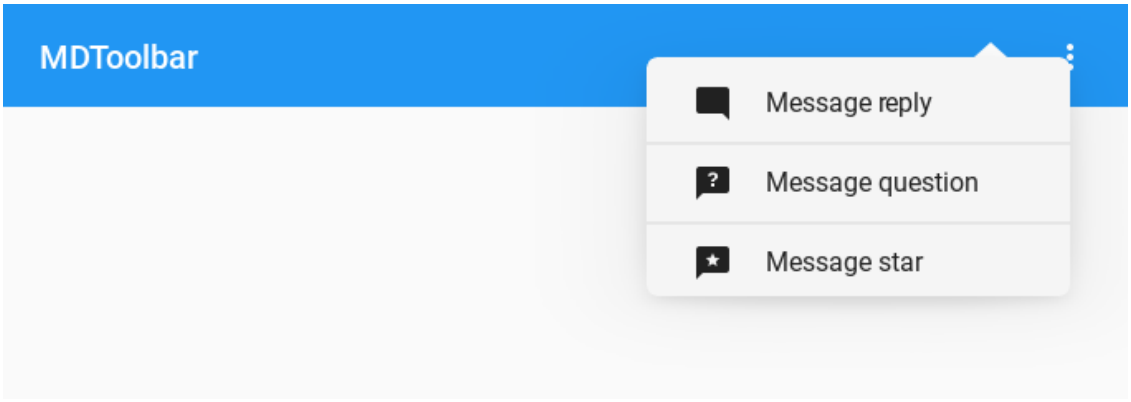
```
class Test(MDApp):
    def callback(self, instance_action_top_appbar_button):
        print(instance_action_top_appbar_button)
```

`tooltip text` - is the text to be displayed in the tooltip:

```
MDTopAppBar:
    right_action_items:
        [
        ["home", lambda x: app.callback(x), "Home"],
        ["message-star", lambda x: app.callback(x), "Message star"],
        ["message-question", lambda x: app.callback(x), "Message question"],
        ["message-reply", lambda x: app.callback(x), "Message reply"],
        ]
```

`overflow text` - is the text for menu items (`OverFlowMenuItem`) of the corresponding action buttons:

```
MDTopAppBar:
    right_action_items:
        [
        ["home", lambda x: app.callback(x), "", "Home"],
        ["message-star", lambda x: app.callback(x), "", "Message star"],
        ["message-question", lambda x: app.callback(x), "" , "Message question
↪"],
        ["message-reply", lambda x: app.callback(x), "", "Message reply"],
        ]
```



Both the `callback` and `tooltip text` and `overflow text` are optional but the order must be preserved.

left_action_items is an `ListProperty` and defaults to *[]*.

right_action_items

The icons on the left of the toolbar. Works the same way as *left_action_items*.

right_action_items is an `ListProperty` and defaults to *[]*.

title

Text toolbar.

```
MDTopAppBar:
    title: "MDTopAppBar"
```

title is an `StringProperty` and defaults to *''*.

mode

Floating button position. Only for *MDBottomAppBar* class. Available options are: *'free-end'*, *'free-center'*, *'end'*, *'center'*.

Mode "end":

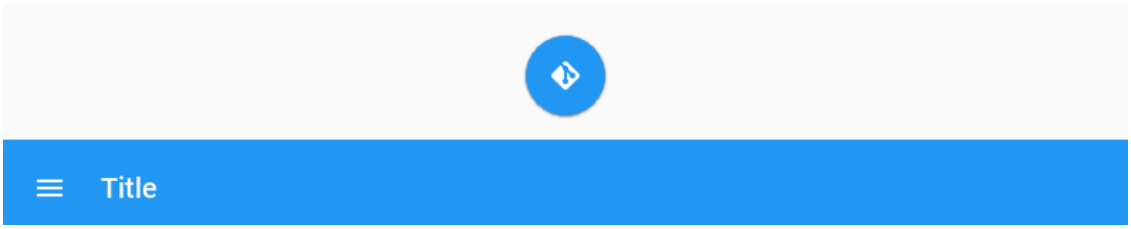
```
MDBottomAppBar:

    MDTopAppBar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        mode: "end"
```

Mode “free-end”:

```
MDBottomAppBar:

    MDTopAppBar:
        mode: "free-end"
```

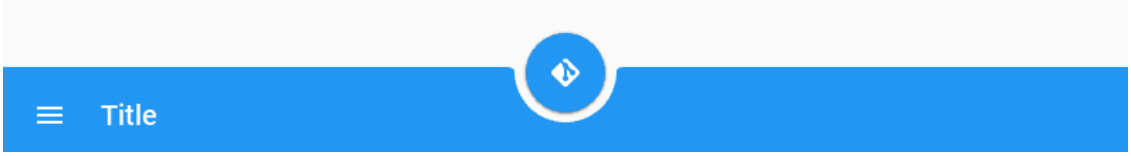
Mode “free-center”:

```
MDBottomAppBar:

    MDTopAppBar:
        mode: "free-center"
```



Mode “center”:

```
MDBottomAppBar:

    MDTopAppBar:
        mode: "center"
```



mode is an `OptionProperty` and defaults to *‘center’*.

type

When using the *MDBottomAppBar* class, the parameter `type` must be set to *‘bottom’*:

```
MDBottomAppBar:

    MDTopAppBar:
        type: "bottom"
```

Available options are: *'top'*, *'bottom'*.

type is an OptionProperty and defaults to *'top'*.

opposite_colors

Changes the color of the label to the color opposite to the main theme.

```
MDTopAppBar:
    opposite_colors: True
```


```
MDTopAppBar:
    opposite_colors: True
```

md_bg_bottom_color

The background color in (r, g, b, a) or string format for the toolbar with the `bottom` mode.

New in version 1.0.0.

```
MDBottomAppBar:

    MDTopAppBar:
        md_bg_bottom_color: 0, 1, 0, 1
        icon_color: self.md_bg_bottom_color
```

md_bg_bottom_color is an ColorProperty and defaults to *None*.

set_bars_color

If *True* the background color of the bar status will be set automatically according to the current color of the toolbar.

New in version 1.0.0.

See *set_bars_colors <https://kivymd.readthedocs.io/en/latest/api/kivymd/utils/set_bars_colors/>* for more information.

set_bars_color is an BooleanProperty and defaults to *False*.

use_overflow

As a top app bar is resized, actions move to the overflow menu from right to left.

New in version 1.0.0.

```
MDTopAppBar:
    title: "MDTopAppBar"
    use_overflow: True
```

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```
    right_action_items:
        [
        ["home", lambda x: app.callback(x), "Home", "Home"],
        ["message-star", lambda x: app.callback(x), "Message star", "Message␣
↪star"],
        ["message-question", lambda x: app.callback(x), "Message question",
↪"Message question"],
        ["message-reply", lambda x: app.callback(x), "Message reply", "Message␣
↪reply"],
        ]
```

use_overflow is an BooleanProperty and defaults to *False*.

overflow_cls

Must be an object of the MDDropdownMenu class documentation for more information.

New in version 1.0.0.

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu

KV = '''
#:import CustomOverFlowMenu __main__.CustomOverFlowMenu


MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "MDTopAppBar"
        use_overflow: True
        overflow_cls: CustomOverFlowMenu()
        right_action_items:
            [
            ["home", lambda x: app.callback(x), "Home", "Home"],
            ["message-star", lambda x: app.callback(x), "Message star",
↪"Message star"],
            ["message-question", lambda x: app.callback(x), "Message question",
↪"Message question"],
            ["message-reply", lambda x: app.callback(x), "Message reply",
↪"Message reply"],
            ]

    MDLabel:
        text: "Content"
        halign: "center"
'''
```

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```
class CustomOverFlowMenu(MDDropdownMenu):
    # In this class you can set custom properties for the overflow menu.
    pass


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def callback(self, instance_action_top_appbar_button):
        print(instance_action_top_appbar_button)


Test().run()
```

overflow_cls is an ObjectProperty and defaults to *None*.

icon

Floating button. Only for *MDBottomAppBar* class.

icon is an StringProperty and defaults to *'android'*.

icon_color

Color in (r, g, b, a) or string format action button. Only for *MDBottomAppBar* class.

icon_color is an ColorProperty and defaults to *[]*.

anchor_title

Position toolbar title. Only used with *material_style = 'M3'* Available options are: *'left'*, *'center'*, *'right'*.

anchor_title is an OptionProperty and defaults to *None*.

headline_text

Headline text toolbar.

New in version 1.0.0.

headline_text is an StringProperty and defaults to *''*.

headline_text_color

Headline text color in (r, g, b, a) or string format.

New in version 1.0.0.

headline_text_color is an ColorProperty and defaults to *None*.

type_height

Toolbar height type.

New in version 1.0.0.

Available options are: 'small', 'large', 'small'.

type_height is an OptionProperty and defaults to *'small'*.

set_headline_font_style(*self*, *interval: Union[int, float]*)

on_width(*self*, *instance_toolbar*, *width: float*)

Called when the toolbar is resized (size of the application window).

return_action_button_to_toolbar(*self*)

remove_overflow_button(*self*)

Removes an overflow button to the toolbar.

add_overflow_button(*self*)

Adds an overflow button to the toolbar.

overflow_action_button_is_added(*self*)

Returns *True* if at least one action button (:class:`~ActionTopAppBarButton') on the toolbar is added to the overflow.

add_action_button_to_overflow(*self*)

Adds an overflow button to the toolbar.

check_overflow_cls(*self*, *interval: Union[int, float]*)

If the user does not set the *overflow_cls* attribute but uses overflows, the *overflow_cls* attribute will use the default value.

on_type(*self*, *instance_toolbar*, *type_value: str*)

Called when the value of the *type* attribute changes.

on_type_height(*self*, *instance_toolbar*, *height_type_value: str*)

Called when the value of the *type_height* attribute changes.

on_action_button(*self*, **args*)

Method for the button used for the *MDBottomAppBar* class.

on_overflow_cls(*self*, *instance_toolbar*, *instance_overflow_cls:* MDDropdownMenu)

Called when the value of the *overflow_cls* attribute changes.

on_md_bg_color(*self*, *instance_toolbar*, *color_value: list*)

Called when the value of the `md_bg_color` attribute changes.

on_left_action_items(*self*, *instance_toolbar*, *items_value: list*)

Called when the value of the *left_action_items* attribute changes.

on_right_action_items(*self*, *instance_toolbar*, *items_value: list*)

Called when the value of the *right_action_items* attribute changes.

on_icon(*self*, *instance_toolbar*, *icon_name: str*)

Called when the value of the *icon* attribute changes.

on_icon_color(*self*, *instance*, *icon_name: str*)

Called when the value of the *icon_color* attribute changes.

on_md_bg_bottom_color(*self*, *instance_toolbar*, *color_value: list*)

Called when the value of the *md_bg_bottom_color* attribute changes.

on_anchor_title(*self*, *instance_toolbar*, *anchor_value: str*)

Called when the value of the *anchor_title* attribute changes.

on_mode(*self*, *instance_toolbar*, *mode_value: str*)

Called when the value of the `mode` attribute changes.

set_md_bg_color(*self*, *instance_toolbar*, *color_value: list*)

set_notch(*self*)

set_shadow(*self*, **args*)

get_default_overflow_cls(*self*)

update_overflow_menu_items(*self*, *action_button*)

update_bar_height(*self*, *instance_theme_manager*, *material_style_value: str*)

update_floating_radius(*self*, *interval: Union[int, float]*)

update_anchor_title(*self*, *material_style_value: str*)

update_action_bar(*self*, *instance_box_layout*, *action_bar_items: list*)

update_md_bg_color(*self*, **args*)

update_action_bar_text_colors(*self*, **args*)

remove_notch(*self*)

remove_shadow(*self*)

class kivymd.uix.toolbar.toolbar.**MDBottomAppBar**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

md_bg_color

Color toolbar in (r, g, b, a) or string format.

md_bg_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

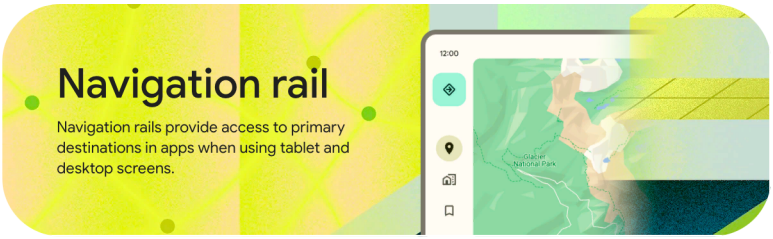
```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.27 NavigationRail

New in version 1.0.0.

See also:

Material Design spec, Navigation rail



Usage

```
MDNavigationRail:

    MDNavigationRailItem:

    MDNavigationRailItem:

    MDNavigationRailItem:
```

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDBoxLayout:

    MDNavigationRail:

        MDNavigationRailItem:
            text: "Python"
            icon: "language-python"

        MDNavigationRailItem:
            text: "JavaScript"
            icon: "language-javascript"

        MDNavigationRailItem:
            text: "CPP"
            icon: "language-cpp"

        MDNavigationRailItem:
            text: "Git"
```

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```
            icon: "git"

    MDScreen:
'''


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.navigationrail import MDNavigationRail, MDNavigationRailItem


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDBoxLayout(
                MDNavigationRail(
                    MDNavigationRailItem(
                        text="Python",
                        icon="language-python",
                    ),
                    MDNavigationRailItem(
                        text="JavaScript",
                        icon="language-javascript",
                    ),
                    MDNavigationRailItem(
                        text="CPP",
                        icon="language-cpp",
                    ),
                    MDNavigationRailItem(
                        text="Git",
                        icon="git",
                    ),
                )
            )
        )


Example().run()
```

Example

Declarative KV and imperative python styles

```
from kivy.clock import Clock
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors import CommonElevationBehavior
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDFillRoundFlatIconButton
from kivymd.uix.label import MDLabel
from kivymd.uix.screen import MDScreen

KV = '''
#:import FadeTransition kivy.uix.screenmanager.FadeTransition


<ExtendedButton>
    elevation: 3.5
    shadow_radius: 12
    shadow_softness: 4
```

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```
    -height: "56dp"


<DrawerClickableItem@MDNavigationDrawerItem>
    focus_color: "#e7e4c0"
    unfocus_color: "#fffcf4"


MDScreen:

    MDNavigationLayout:

        ScreenManager:

            MDScreen:

                MDBoxLayout:
                    orientation: "vertical"

                    MDBoxLayout:
                        adaptive_height: True
                        md_bg_color: "#fffcf4"
                        padding: "12dp"

                        MDLabel:
                            text: "12:00"
                            adaptive_height: True
                            pos_hint: {"center_y": .5}

                    MDBoxLayout:

                        MDNavigationRail:
                            id: navigation_rail
                            md_bg_color: "#fffcf4"
                            selected_color_background: "#e7e4c0"
                            ripple_color_item: "#e7e4c0"
                            on_item_release: app.switch_screen(*args)

                            MDNavigationRailMenuButton:
                                on_release: nav_drawer.set_state("open")

                            MDNavigationRailFabButton:
                                md_bg_color: "#b0f0d6"

                            MDNavigationRailItem:
                                text: "Python"
                                icon: "language-python"

                            MDNavigationRailItem:
                                text: "JavaScript"
                                icon: "language-javascript"
```

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```
                            MDNavigationRailItem:
                                text: "CPP"
                                icon: "language-cpp"

                            MDNavigationRailItem:
                                text: "Swift"
                                icon: "language-swift"

                        ScreenManager:
                            id: screen_manager
                            transition:
                                FadeTransition(duration=.2, clearcolor=app.theme_cls.bg_
↪dark)

    MDNavigationDrawer:
        id: nav_drawer
        radius: (0, 16, 16, 0)
        md_bg_color: "#fffcf4"
        elevation: 4
        width: "240dp"

        MDNavigationDrawerMenu:

            MDBoxLayout:
                orientation: "vertical"
                adaptive_height: True
                spacing: "12dp"
                padding: "3dp", 0, 0, "12dp"

                MDIconButton:
                    icon: "menu"

                ExtendedButton:
                    text: "Compose"
                    icon: "pencil"

            DrawerClickableItem:
                text: "Python"
                icon: "language-python"

            DrawerClickableItem:
                text: "JavaScript"
                icon: "language-javascript"

            DrawerClickableItem:
                text: "CPP"
                icon: "language-cpp"

            DrawerClickableItem:
                text: "Swift"
                icon: "language-swift"
'''
```

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```
class ExtendedButton(MDFillRoundFlatIconButton, CommonElevationBehavior):
    '''
    Implements a button of type
    `Extended FAB <https://m3.material.io/components/extended-fab/overview>`_.

    .. rubric::
        Extended FABs help people take primary actions.
        They're wider than FABs to accommodate a text label and larger target
        area.

    This type of buttons is not yet implemented in the standard widget set
    of the KivyMD library, so we will implement it ourselves in this class.
    '''

    def __init__(self, *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.padding = "16dp"
        Clock.schedule_once(self.set_spacing)

    def set_spacing(self, interval):
        self.ids.box.spacing = "12dp"

    def set_radius(self, *args):
        if self.rounded_button:
            self._radius = self.radius = self.height / 4


class Example(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def switch_screen(
        self, instance_navigation_rail, instance_navigation_rail_item
    ):
        '''
        Called when tapping on rail menu items. Switches application screens.
        '''

        self.root.ids.screen_manager.current = (
            instance_navigation_rail_item.icon.split("-")[1].lower()
        )

    def on_start(self):
        '''Creates application screens.'''

        navigation_rail_items = self.root.ids.navigation_rail.get_items()[:]
        navigation_rail_items.reverse()
```

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```
        for widget in navigation_rail_items:
            name_screen = widget.icon.split("-")[1].lower()
            screen = MDScreen(
                name=name_screen,
                md_bg_color="#edd769",
                radius=[18, 0, 0, 0],
            )
            box = MDBoxLayout(padding="12dp")
            label = MDLabel(
                text=name_screen.capitalize(),
                font_style="H1",
                halign="right",
                adaptive_height=True,
                shorten=True,
            )
            box.add_widget(label)
            screen.add_widget(box)
            self.root.ids.screen_manager.add_widget(screen)


Example().run()
```

Declarative python style

```
from kivy.clock import Clock
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.behaviors import CommonElevationBehavior
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDFillRoundFlatIconButton, MDIconButton
from kivymd.uix.label import MDLabel
from kivymd.uix.navigationdrawer import (
    MDNavigationDrawerItem,
    MDNavigationLayout,
    MDNavigationDrawer,
    MDNavigationDrawerMenu,
)
from kivymd.uix.navigationrail import (
    MDNavigationRail,
    MDNavigationRailMenuButton,
    MDNavigationRailFabButton,
    MDNavigationRailItem,
)
from kivymd.uix.screen import MDScreen
from kivymd.uix.screenmanager import MDScreenManager


class DrawerClickableItem(MDNavigationDrawerItem):
    def __init__(self, *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.focus_color = "#e7e4c0"
```

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```
        self.unfocus_color = self.theme_cls.bg_light
        self.radius = 24


class ExtendedButton(MDFillRoundFlatIconButton, CommonElevationBehavior):
    def __init__(self, *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.padding = "16dp"
        self.elevation = 3.5
        self.shadow_radius = 12
        self.shadow_softness = 4
        self.height = dp(56)
        Clock.schedule_once(self.set_spacing)

    def set_spacing(self, interval):
        self.ids.box.spacing = "12dp"

    def set_radius(self, *args):
        if self.rounded_button:
            self._radius = self.radius = self.height / 4


class Example(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        self.theme_cls.primary_palette = "Orange"
        return MDScreen(
            MDNavigationLayout(
                MDScreenManager(
                    MDScreen(
                        MDBoxLayout(
                            MDBoxLayout(
                                MDLabel(
                                    text="12:00",
                                    adaptive_height=True,
                                    pos_hint={"center_y": 0.5},
                                ),
                                adaptive_height=True,
                                md_bg_color="#fffcf4",
                                padding="12dp",
                            ),
                            MDBoxLayout(
                                MDNavigationRail(
                                    MDNavigationRailMenuButton(
                                        on_release=self.open_nav_drawer,
                                    ),
                                    MDNavigationRailFabButton(
                                        md_bg_color="#b0f0d6",
                                    ),
                                    MDNavigationRailItem(
                                        text="Python",
                                        icon="language-python",
```

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```
                                ),
                                MDNavigationRailItem(
                                    text="JavaScript",
                                    icon="language-javascript",
                                ),
                                MDNavigationRailItem(
                                    text="CPP",
                                    icon="language-cpp",
                                ),
                                MDNavigationRailItem(
                                    text="Swift",
                                    icon="language-swift",
                                ),
                                id="navigation_rail",
                                md_bg_color="#fffcf4",
                                selected_color_background="#e7e4c0",
                                ripple_color_item="#e7e4c0",
                            ),
                            MDScreenManager(
                                id="screen_manager_content",
                            ),
                            id="root_box",
                        ),
                        id="box_rail",
                        orientation="vertical",
                    ),
                    id="box",
                ),
                id="screen",
            ),
            id="screen_manager",
        ),
        MDNavigationDrawer(
            MDNavigationDrawerMenu(
                MDBoxLayout(
                    MDIconButton(
                        icon="menu",
                    ),
                    ExtendedButton(
                        text="Compose",
                        icon="pencil",
                    ),
                    orientation="vertical",
                    adaptive_height=True,
                    spacing="12dp",
                    padding=("3dp", 0, 0, "12dp"),
                ),
                DrawerClickableItem(
                    text="Python",
                    icon="language-python",
                ),
                DrawerClickableItem(
```

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```
                        text="JavaScript",
                        icon="language-javascript",
                    ),
                    DrawerClickableItem(
                        text="CPP",
                        icon="language-cpp",
                    ),
                    DrawerClickableItem(
                        text="Swift",
                        icon="language-swift",
                    ),
                ),
                id="nav_drawer",
                radius=(0, 16, 16, 0),
                elevation=4,
                width="240dp",
            ),
        )

    def switch_screen(self, *args, screen_manager_content=None):
        '''
        Called when tapping on rail menu items. Switches application screens.
        '''

        instance_navigation_rail, instance_navigation_rail_item = args
        screen_manager_content.current = (
            instance_navigation_rail_item.icon.split("-")[1].lower()
        )

    def open_nav_drawer(self, *args):
        self.root.ids.nav_drawer.set_state("open")

    def on_start(self):
        '''Creates application screens.'''

        screen_manager = self.root.ids.screen_manager
        root_box = screen_manager.ids.screen.ids.box.ids.box_rail.ids.root_box
        navigation_rail = root_box.ids.navigation_rail
        screen_manager_content = root_box.ids.screen_manager_content
        navigation_rail_items = navigation_rail.get_items()[:]
        navigation_rail_items.reverse()
        navigation_rail.bind(
            on_item_release=lambda *args: self.switch_screen(
                *args, screen_manager_content=screen_manager_content
            )
        )

        for widget in navigation_rail_items:
            name_screen = widget.icon.split("-")[1].lower()
            screen_manager_content.add_widget(
                MDScreen(
                    MDBoxLayout(
```

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```
                        MDLabel(
                            text=name_screen.capitalize(),
                            font_style="H1",
                            halign="right",
                            adaptive_height=True,
                            shorten=True,
                        ),
                        padding="12dp",
                    ),
                    name=name_screen,
                    md_bg_color="#edd769",
                    radius=[18, 0, 0, 0],
                ),
            )


Example().run()
```

API - kivymd.uix.navigationrail.navigationrail

class kivymd.uix.navigationrail.navigationrail.**MDNavigationRailFabButton**(**args*, ***kwargs*)

Implements an optional floating action button (FAB).

icon

Button icon name.

```
MDNavigationRail:

    MDNavigationRailFabButton:
        icon: "home"
```

icon is an `StringProperty` and defaults to *'pencil'*.

class kivymd.uix.navigationrail.navigationrail.**MDNavigationRailMenuButton**(**args*, ***kwargs*)

Implements a menu button.

icon

Button icon name.

```
MDNavigationRail:

    MDNavigationRailMenuButton:
        icon: "home"
```

icon is an StringProperty and defaults to *'menu'*.

class kivymd.uix.navigationrail.navigationrail.**MDNavigationRailItem**(***kwargs*)

Implements a menu item with an icon and text.

navigation_rail

MDNavigationRail object.

navigation_rail is an ObjectProperty and defaults to *None*.

icon

Icon item.

```
MDNavigationRail:

    MDNavigationRailItem:
        icon: "language-python"
```

icon is an StringProperty and defaults to *'checkbox-blank'*.

text

Text item.

```
MDNavigationRail:

    MDNavigationRailItem:
        text: "Python"
        icon: "language-python"
```

text is an StringProperty and defaults to ‘’.

badge_icon

Badge icon name.

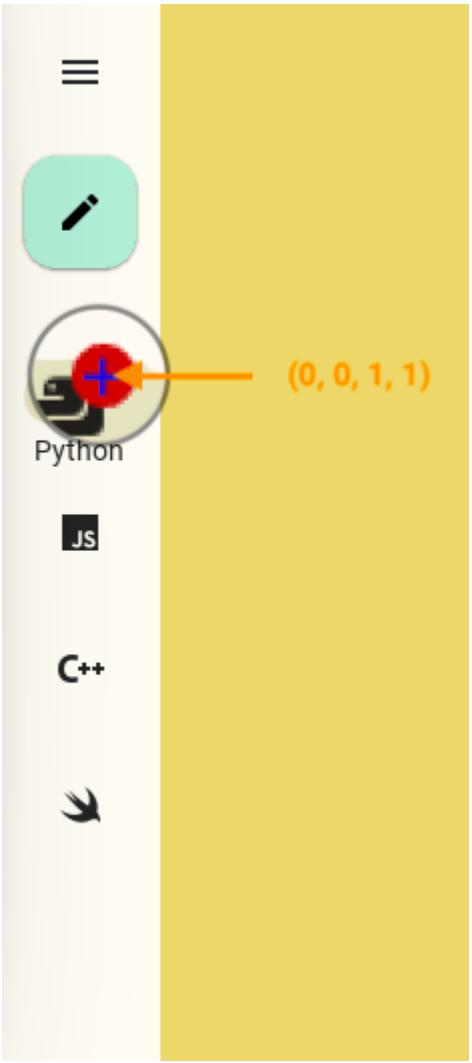
```
MDNavigationRail:

    MDNavigationRailItem:
        text: "Python"
        icon: "language-python"
        badge_icon: "plus"
```

badge_icon is an StringProperty and defaults to ‘’.

badge_icon_color

Badge icon color in (r, g, b, a) format.

```
MDNavigationRail:

    MDNavigationRailItem:
        text: "Python"
        icon: "language-python"
        badge_icon: "plus"
        badge_icon_color: 0, 0, 1, 1
```

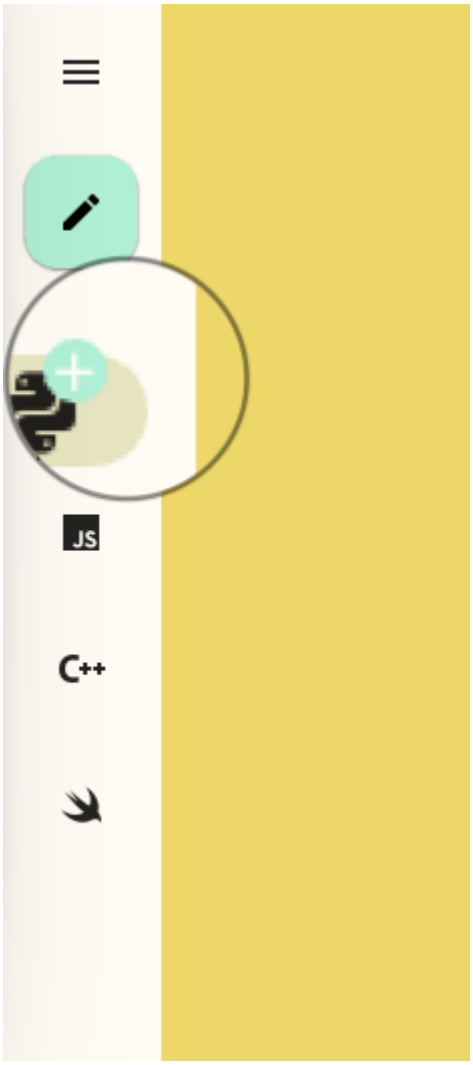


badge_icon_color is an StringProperty and defaults to *None*.

badge_bg_color

Badge icon background color in (r, g, b, a) format.

```
MDNavigationRail:

    MDNavigationRailItem:
        text: "Python"
        icon: "language-python"
        badge_icon: "plus"
        badge_bg_color: "#b0f0d6"
```

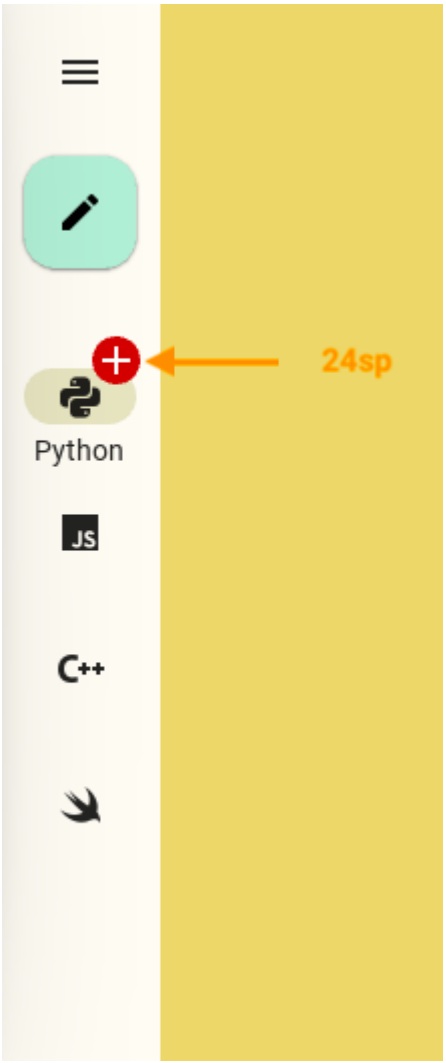


badge_bg_color is an ColorProperty and defaults to *None*.

badge_font_size

Badge icon font size.

```
MDNavigationRail:

    MDNavigationRailItem:
        text: "Python"
        icon: "language-python"
        badge_icon: "plus"
        badge_font_size: "24sp"
```



badge_font_size is an NumericProperty and defaults to *0*.

active

Is the element active.

active is an BooleanProperty and defaults to *False*.

on_active(*self*, *instance_navigation_rail_item*, *value_active: bool*)

Called when the value of *active* changes.

animation_size_ripple_area(*self*, *value: int*)

Animates the size/fade of the ripple area.

on_press(*self*)

Called when pressed on a panel element.

on_release(*self*)

Called when released on a panel element.

class kivymd.uix.navigationrail.navigationrail.**MDNavigationRail**(**args*, ***kwargs*)

Events

on_item_press
: Called on the *on_press* event of menu item - *MDNavigationRailItem*.

on_item_release
: Called on the *on_release* event of menu item - *MDNavigationRailItem*.

radius

Rail radius.

radius is an VariableListProperty and defaults to *[0, 0, 0, 0]*.

padding

Padding between layout box and children: [padding_left, padding_top, padding_right, padding_bottom].

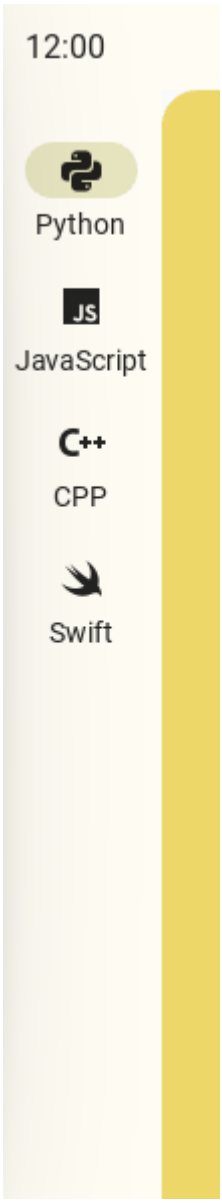
padding is a VariableListProperty and defaults to *[0, '36dp', 0, '36dp']*.

anchor

The position of the panel with menu items. Available options are: *'top'*, *'bottom'*, *'center'*.

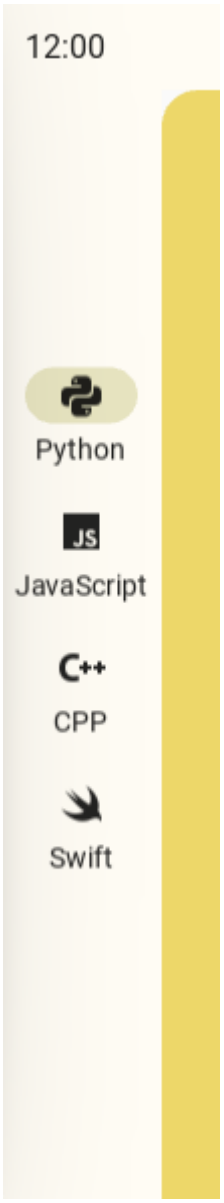
Top

```
MDNavigationRail:
    anchor: "top"

    MDNavigationRailItem:
        ...
```



Center

```
MDNavigationRail:
    anchor: "center"

    MDNavigationRailItem:
        ...
```



Bottom

```
MDNavigationRail:
    anchor: "bottom"

    MDNavigationRailItem:
        ...
```

anchor is an `OptionProperty` and defaults to *'top'*.

type

Type of switching menu items. Available options are: *'labeled'*, *'selected'*, *'unselected'*.

Labeled

```
MDNavigationRail:
    type: "labeled"

    MDNavigationRailItem:
        ...
```

Selected

```
MDNavigationRail:
    type: "selected"

    MDNavigationRailItem:
        ...
```

Unselected

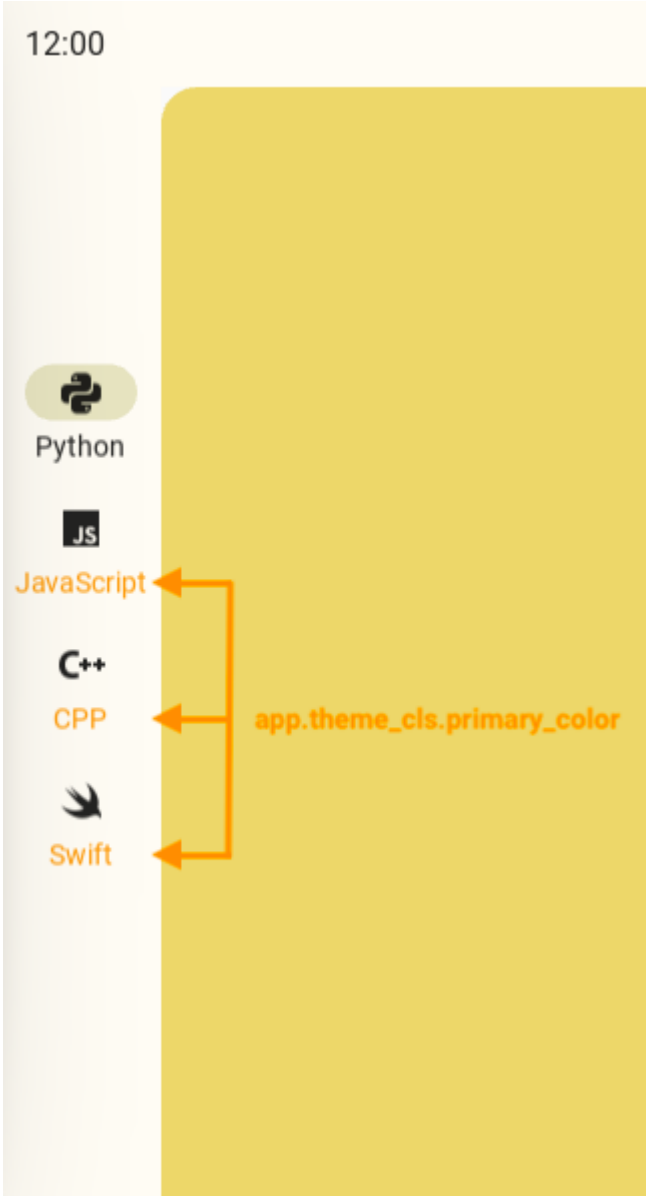
```
MDNavigationRail:
    type: "unselected"

    MDNavigationRailItem:
        ...
```

type is an OptionProperty and defaults to *'labeled'*.

text_color_item_normal

The text color in (r, g, b, a) or string format of the normal menu item (*MDNavigationRailItem*).

```
MDNavigationRail:
    text_color_item_normal: app.theme_cls.primary_color

    MDNavigationRailItem:
        ...
```



text_color_item_normal is an ColorProperty and defaults to *None*.

text_color_item_active

The text color in (r, g, b, a) or string format of the active menu item (*MDNavigationRailItem*).

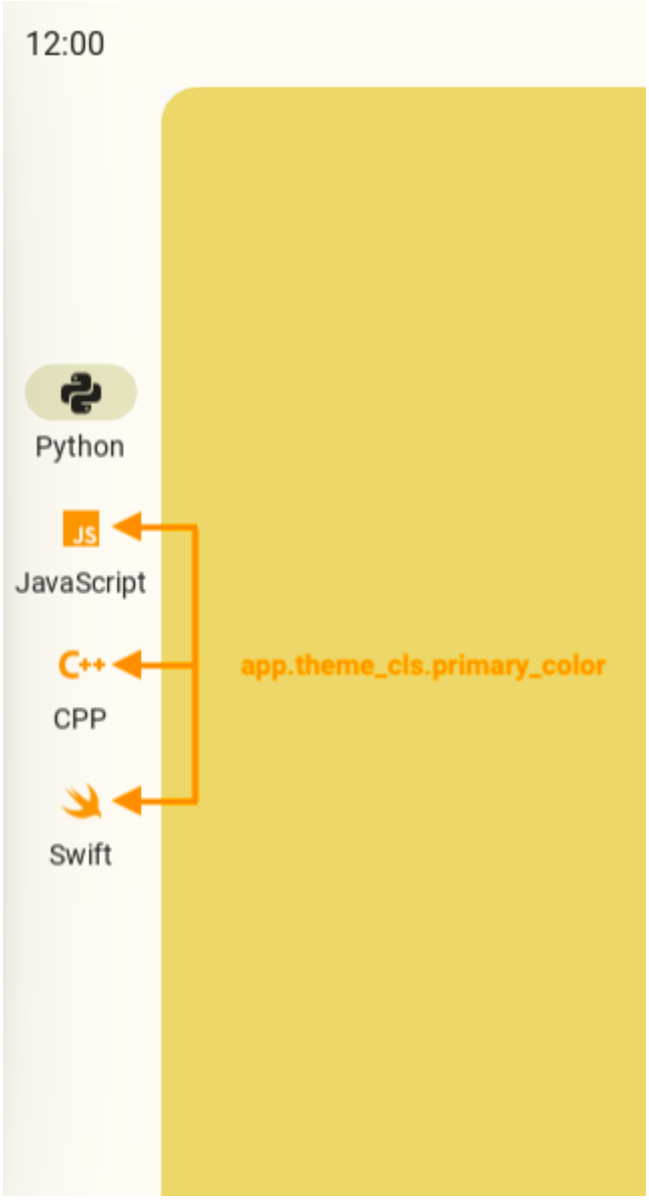
```
MDNavigationRail:
    text_color_item_active: app.theme_cls.primary_color

    MDNavigationRailItem:
        ...
```

text_color_item_active is an ColorProperty and defaults to *None*.

icon_color_item_normal

The icon color in (r, g, b, a) or string format of the normal menu item (*MDNavigationRailItem*).

```
MDNavigationRail:
    icon_color_item_normal: app.theme_cls.primary_color

    MDNavigationRailItem:
        ...
```

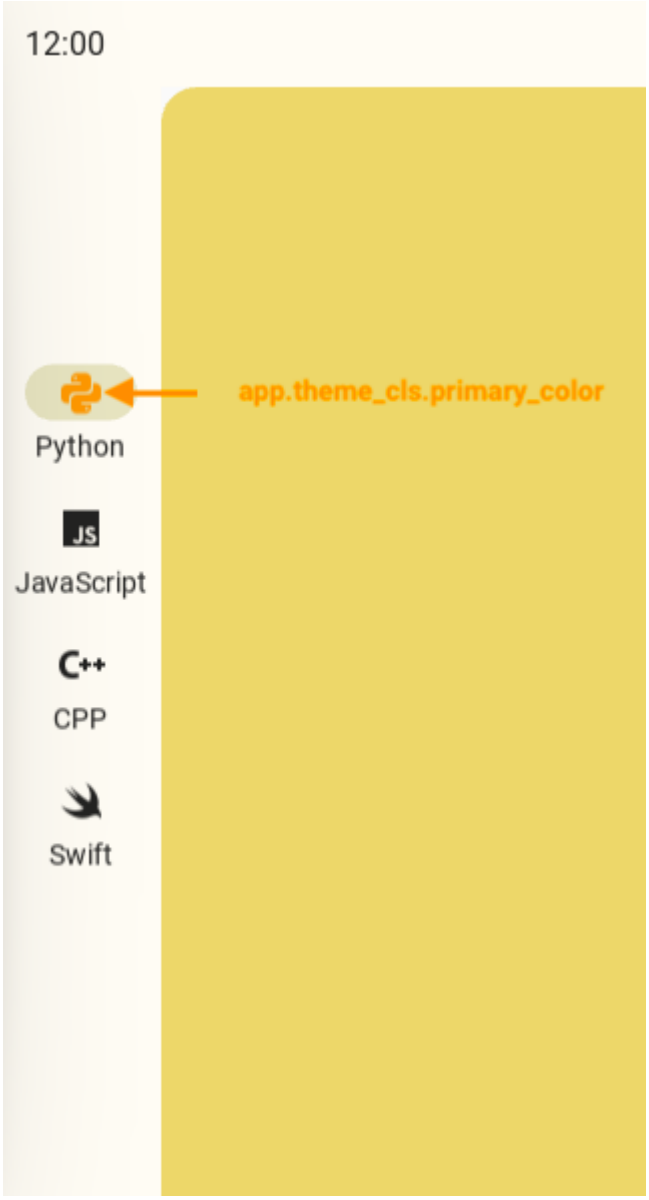


icon_color_item_normal is an ColorProperty and defaults to *None*.

icon_color_item_active

The icon color in (r, g, b, a) or string format of the active menu item (*MDNavigationRailItem*).

```
MDNavigationRail:
    icon_color_item_active: app.theme_cls.primary_color

    MDNavigationRailItem:
        ...
```

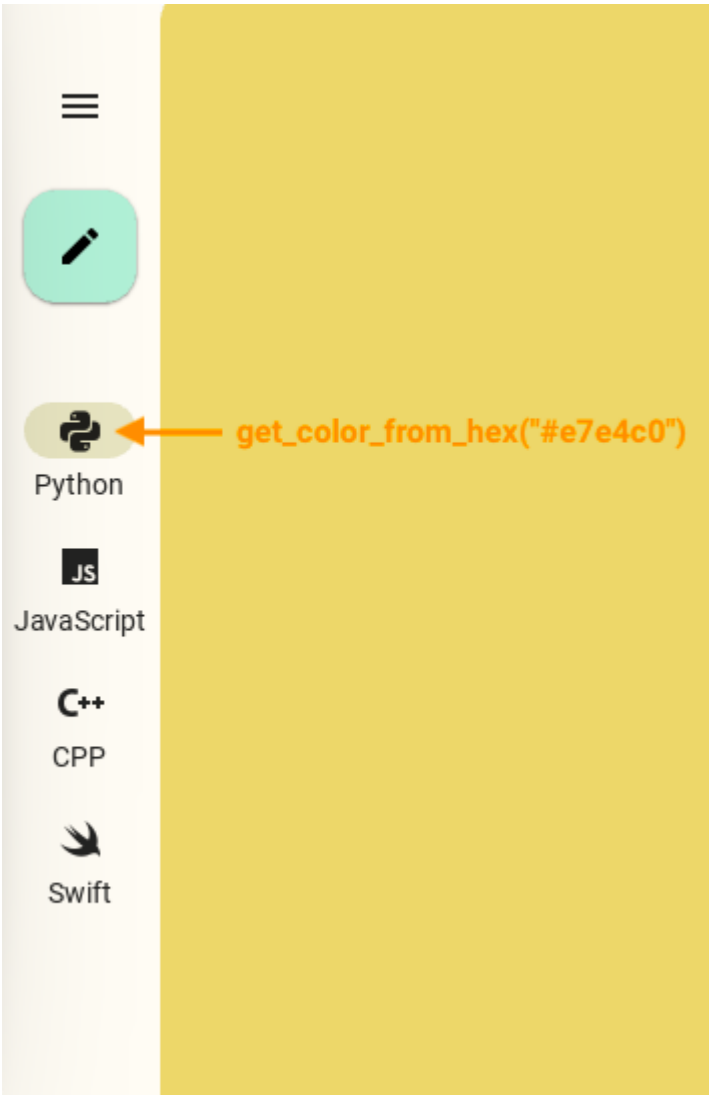


icon_color_item_active is an ColorProperty and defaults to *None*.

selected_color_background

Background color which will highlight the icon of the active menu item - *MDNavigationRailItem* - in (r, g, b, a) format.

```
MDNavigationRail:
    selected_color_background: "#e7e4c0"

    MDNavigationRailItem:
        ...
```



selected_color_background is an ColorProperty and defaults to *None*.

ripple_color_item

Ripple effect color of menu items (*MDNavigationRailItem*) in (r, g, b, a) format.

```
MDNavigationRail:
    ripple_color_item: "#e7e4c0"

    MDNavigationRailItem:
        ...
```

ripple_color_item is an ColorProperty and defaults to *None*.

ripple_transition

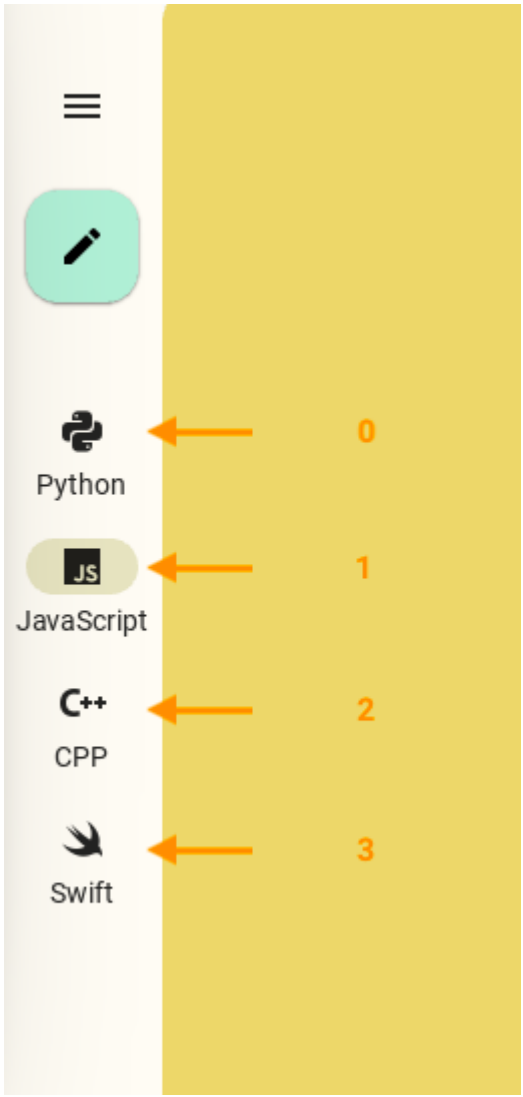
Type of animation of the ripple effect when a menu item is selected.

ripple_transition is a StringProperty and defaults to *'ripple_transition'*.

current_selected_item

Index of the menu list item (*MDNavigationRailItem*) that will be active by default

```
MDNavigationRail:
    current_selected_item: 1

    MDNavigationRailItem:
        ...
```



current_selected_item is a NumericProperty and defaults to *0*.

font_name

Font path for menu item (*MDNavigationRailItem*) text.

```
MDNavigationRail:

    MDNavigationRailItem:
        text: "Python"
        icon: "language-python"
        font_name: "nasalization-rg.ttf"
```

font_name is an StringProperty and defaults to *'Roboto'*.

on_item_press(*self*, **args*)

Called on the *on_press* event of menu item - *MDNavigationRailItem*.

on_item_release(*self*, **args*)

Called on the *on_release* event of menu item - *MDNavigationRailItem*.

deselect_item(*self*, *selected_navigation_rail_item:* MDNavigationRailItem)

Sets the *active* value to *False* for all menu items (*MDNavigationRailItem*) except the selected item. Called when a menu item is touched.

get_items(*self*)

Returns a list of *MDNavigationRailItem* objects

set_pos_panel_items(*self*, *instance_fab_button: Union[None,* MDNavigationRailFabButton*]*, *instance_menu_button: Union[None,* MDNavigationRailFabButton*]*)

Set `Paneltems` panel position with menu items.

set_current_selected_item(*self*, *interval: Union[int, float]*)

Sets the active menu list item (*MDNavigationRailItem*).

set_pos_menu_fab_buttons(*self*, *interval: Union[int, float]*)

Sets the position of the *MDNavigationRailFabButton* and *MDNavigationRailMenuButton* buttons on the panel.

add_widget(*self*, *widget*, **args*, ***kwargs*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

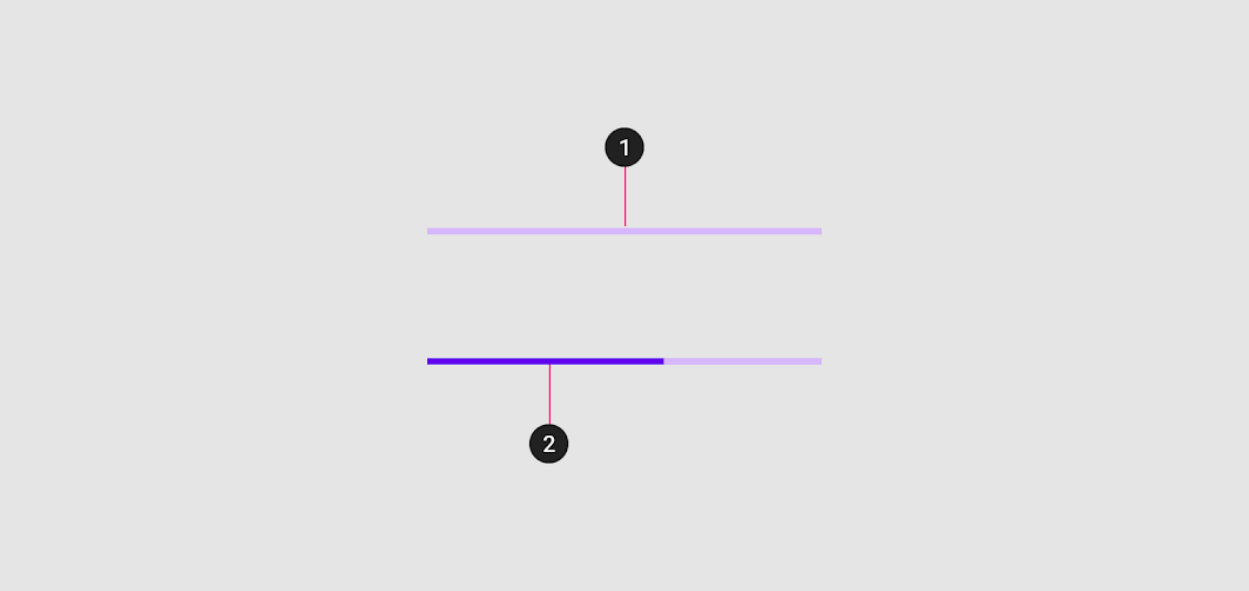
```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.28 ProgressBar

See also:

Material Design spec, Progress indicators

Progress indicators express an unspecified wait time or display the length of a process.



KivyMD provides the following bars classes for use:

- *MDProgressBar*
- *Determinate*
- *Indeterminate*

MDProgressBar

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDBoxLayout:
    padding: "10dp"

    MDProgressBar:
        value: 50
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Vertical orientation

```
MDProgressBar:
    orientation: "vertical"
    value: 50
```


With custom color

```
MDProgressBar:
    value: 50
    color: app.theme_cls.accent_color
```

Indeterminate

```
from kivy.lang import Builder
from kivy.properties import StringProperty

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDProgressBar:
        id: progress
        pos_hint: {"center_y": .6}
        type: "indeterminate"

    MDRaisedButton:
        text: "STOP" if app.state == "start" else "START"
        pos_hint: {"center_x": .5, "center_y": .45}
        on_press: app.state = "stop" if app.state == "start" else "start"
'''


class Test(MDApp):
    state = StringProperty("stop")

    def build(self):
        return Builder.load_string(KV)

    def on_state(self, instance, value):
        {
            "start": self.root.ids.progress.start,
            "stop": self.root.ids.progress.stop,
        }.get(value)()


Test().run()
```

Determinate

```
MDProgressBar:
    type: "determinate"
    running_duration: 1
    catching_duration: 1.5
```

API - kivymd.uix.progressbar.progressbar

class kivymd.uix.progressbar.progressbar.**MDProgressBar**(***kwargs*)

Class for creating a progress bar widget.

See module documentation for more details.

reversed

Reverse the direction the progressbar moves.

reversed is an BooleanProperty and defaults to *False*.

orientation

Orientation of progressbar. Available options are: *'horizontal '*, *'vertical'*.

orientation is an OptionProperty and defaults to *'horizontal'*.

color

Progress bar color in (r, g, b, a) or string format.

color is an ColorProperty and defaults to *None*.

back_color

Progress bar back color in (r, g, b, a) or string format.

New in version 1.0.0.

back_color is an ColorProperty and defaults to *None*.

running_transition

Running transition.

running_transition is an StringProperty and defaults to *'in_cubic'*.

catching_transition

Catching transition.

catching_transition is an StringProperty and defaults to *'out_quart'*.

running_duration

Running duration.

running_duration is an NumericProperty and defaults to *0.5*.

catching_duration

Catching duration.

running_duration is an NumericProperty and defaults to *0.8*.

type

Type of progressbar. Available options are: *'indeterminate '*, *'determinate'*.

type is an OptionProperty and defaults to *None*.

check_size(*self*, *interval: Union[int, float]*)

start(*self*)

Start animation.

stop(*self*)

Stop animation.

running_away(*self*, **args*)

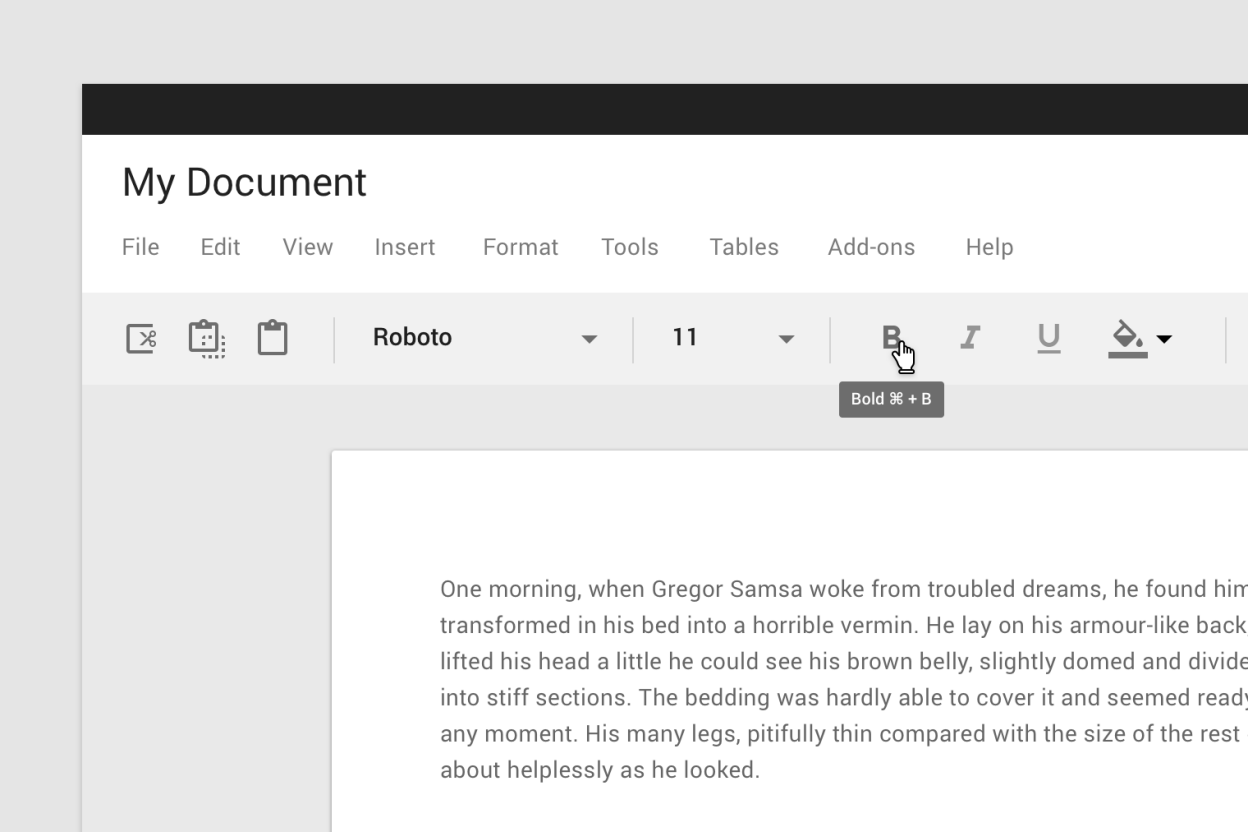
catching_up(*self*, **args*)

2.3.29 Tooltip

See also:

Material Design spec, Tooltips

Tooltips display informative text when users hover over, focus on, or tap an element.



To use the *MDTooltip* class, you must create a new class inherited from the *MDTooltip* class:

In Kv-language:

```
<TooltipMDIconButton@MDIconButton+MDTooltip>
```

In Python code:

```
class TooltipMDIconButton(MDIconButton, MDTooltip):
    pass
```

Warning: *MDTooltip* only works correctly with button and label classes.

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
<TooltipMDIconButton@MDIconButton+MDTooltip>


MDScreen:

    TooltipMDIconButton:
        icon: "language-python"
        tooltip_text: self.icon
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Note: The behavior of tooltips on desktop and mobile devices is different. For more detailed information, click here.

API - kivymd.uix.tooltip.tooltip

class kivymd.uix.tooltip.tooltip.**MDTooltip**(***kwargs*)

Events

on_enter
Called when mouse enters the bbox of the widget AND the widget is visible

on_leave
Called when the mouse exits the widget AND the widget is visible

tooltip_bg_color
Tooltip background color in (r, g, b, a) or string format

tooltip_bg_color is an ColorProperty and defaults to *None*.

tooltip_text_color
Tooltip text color in (r, g, b, a) or string format

tooltip_text_color is an ColorProperty and defaults to *None*.

tooltip_text

Tooltip text.

tooltip_text is an StringProperty and defaults to *''*.

tooltip_font_style

Tooltip font style. Available options are: *'H1'*, *'H2'*, *'H3'*, *'H4'*, *'H5'*, *'H6'*, *'Subtitle1'*, *'Subtitle2'*, *'Body1'*, *'Body2'*, *'Button'*, *'Caption'*, *'Overline'*, *'Icon'*.

tooltip_font_style is an OptionProperty and defaults to *'Caption'*.

tooltip_radius

Corner radius values.

radius is an ListProperty and defaults to *[dp(7),]*.

tooltip_display_delay

Tooltip dsiplay delay.

tooltip_display_delay is an BoundedNumericProperty and defaults to *0*, min of *0* & max of *4*. This property only works on desktop.

shift_y

Y-offset of tooltip text.

shift_y is an NumericProperty and defaults to *0*.

shift_right

Shifting the tooltip text to the right.

New in version 1.0.0.

shift_right is an NumericProperty and defaults to *0*.

shift_left

Shifting the tooltip text to the left.

New in version 1.0.0.

shift_left is an NumericProperty and defaults to *0*.

delete_clock(*self*, *widget*, *touch*, **args*)

adjust_tooltip_position(*self*, *x: float*, *y: float*)

Returns the coordinates of the tooltip that fit into the borders of the screen.

display_tooltip(*self*, *interval: Union[int, float]*)

animation_tooltip_show(*self*, *interval: Union[int, float]*)

Animation of opening tooltip on the screen.

animation_tooltip_dismiss(*self*, *interval: Union[int, float]*)

New in version 1.0.0.

Animation of closing tooltip on the screen.

remove_tooltip(*self*, **args*)

Removes the tooltip widget from the screen.

on_long_touch(*self*, *touch*, **args*)

Called when the widget is pressed for a long time.

on_enter(*self*, **args*)

See *on_enter* method in *HoverBehavior* class.

on_leave(*self*)

See *on_leave* method in *HoverBehavior* class.

on_show(*self*)

Default display event handler.

on_dismiss(*self*)

New in version 1.0.0.

Default dismiss event handler.

class kivymd.uix.tooltip.tooltip.**MDTooltipViewClass**(***kwargs*)

Box layout class. See module documentation for more information.

tooltip_bg_color

See *tooltip_bg_color*.

tooltip_text_color

See *tooltip_text_color*.

tooltip_text

See *tooltip_text*.

tooltip_font_style

See *tooltip_font_style*.

tooltip_radius

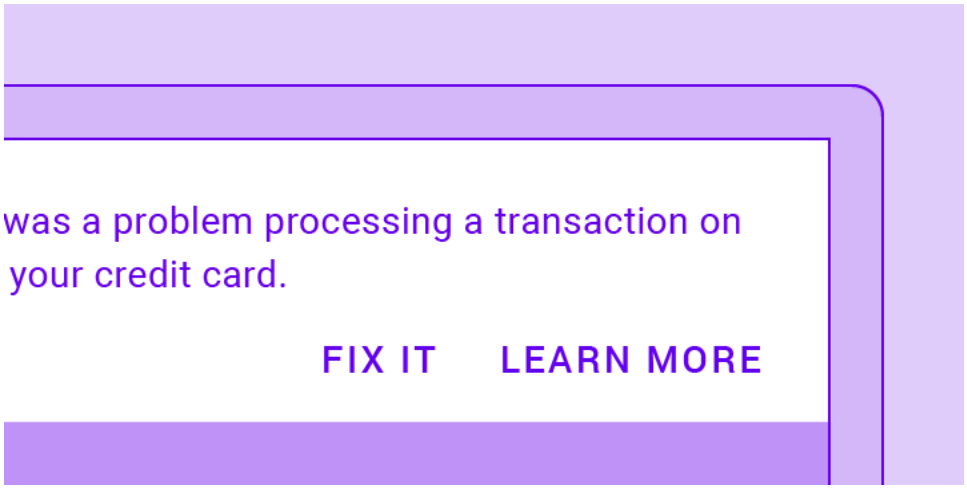
See *tooltip_radius*.

2.3.30 Banner

See also:

Material Design spec, Banner

A banner displays a prominent message and related optional actions.



Usage

```
from kivy.lang import Builder
from kivy.factory import Factory

from kivymd.app import MDApp

Builder.load_string('''
<ExampleBanner@Screen>

    MDBanner:
        id: banner
        text: ["One line string text example without actions."]
        # The widget that is under the banner.
        # It will be shifted down to the height of the banner.
        over_widget: screen
        vertical_pad: toolbar.height

    MDTopAppBar:
        id: toolbar
        title: "Example Banners"
        elevation: 4
        pos_hint: {'top': 1}

    MDBoxLayout:
        id: screen
        orientation: "vertical"
        size_hint_y: None
        height: Window.height - toolbar.height

        OneLineListItem:
            text: "Banner without actions"
            on_release: banner.show()
```

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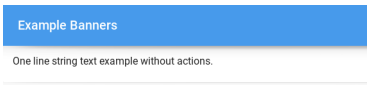
```
        Widget:
''')


class Test(MDApp):
    def build(self):
        return Factory.ExampleBanner()


Test().run()
```

Banner type.

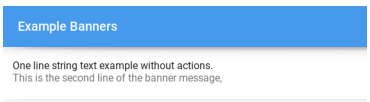
By default, the banner is of the type `'one-line'`:

```
MDBanner:
    text: ["One line string text example without actions."]
```



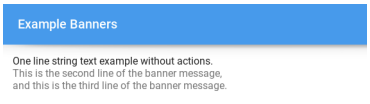
To use a two-line banner, specify the `'two-line'` *MDBanner.type* for the banner and pass the list of two lines to the *MDBanner.text* parameter:

```
MDBanner:
    type: "two-line"
    text:
        ["One line string text example without actions.", "This is the second line of␣
↪the banner message."]
```



Similarly, create a three-line banner:

```
MDBanner:
    type: "three-line"
    text:
        ["One line string text example without actions.", "This is the second line of␣
↪the banner message.", "and this is the third line of the banner message."]
```

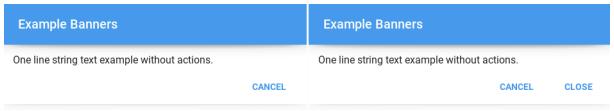


To add buttons to any type of banner, use the *MDBanner.left_action* and *MDBanner.right_action* parameters, which should take a list [‘Button name’, function]:

```
MDBanner:
    text: ["One line string text example without actions."]
    left_action: ["CANCEL", lambda x: None]
```

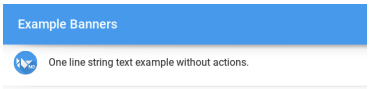
Or two buttons:

```
MDBanner:
    text: ["One line string text example without actions."]
    left_action: ["CANCEL", lambda x: None]
    right_action: ["CLOSE", lambda x: None]
```



If you want to use the icon on the left in the banner, add the prefix *'-icon'* to the banner type:

```
MDBanner:
    type: "one-line-icon"
    icon: f"{images_path}/kivymd.png"
    text: ["One line string text example without actions."]
```



Note: See full example

API - kivymd.uix.banner.banner

class kivymd.uix.banner.banner.**MDBanner**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

vertical_pad

Indent the banner at the top of the screen.

vertical_pad is an NumericProperty and defaults to *dp(68)*.

opening_transition

The name of the animation transition.

opening_transition is an StringProperty and defaults to *'in_quad'*.

icon

Icon banner.

icon is an StringProperty and defaults to *'data/logo/kivy-icon-128.png'*.

over_widget

The widget that is under the banner. It will be shifted down to the height of the banner.

over_widget is an ObjectProperty and defaults to *None*.

text

List of lines for banner text. Must contain no more than three lines for a *'one-line'*, *'two-line'* and *'three-line'* banner, respectively.

text is an ListProperty and defaults to *[]*.

left_action

The action of banner.

To add one action, make a list [*'name_action'*, callback] where *'name_action'* is a string that corresponds to an action name and `callback` is the function called on a touch release event.

left_action is an ListProperty and defaults to *[]*.

right_action

Works the same way as *left_action*.

right_action is an ListProperty and defaults to *[]*.

type

Banner type. . Available options are: (*"one-line"*, *"two-line"*, *"three-line"*, *"one-line-icon"*, *"two-line-icon"*, *"three-line-icon"*).

type is an OptionProperty and defaults to *'one-line'*.

opening_timeout

Time interval after which the banner will be shown.

New in version 1.0.0.

opening_timeout is an BoundedNumericProperty and defaults to *0.7*.

opening_time

The time taken for the banner to slide to the `state` *'open'*.

New in version 1.0.0.

opening_time is a NumericProperty and defaults to *0.15*.

closing_time

The time taken for the banner to slide to the `state` *'close'*.

New in version 1.0.0.

closing_time is a NumericProperty and defaults to *0.15*.

add_actions_buttons(*self*, *instance_box:* MDBoxLayout, *data: list*)

Adds buttons to the banner.

Parameters
data – ['NAME BUTTON', <function>];

show(*self*)

Displays a banner on the screen.

hide(*self*)

Hides the banner from the screen.

set_type_banner(*self*)

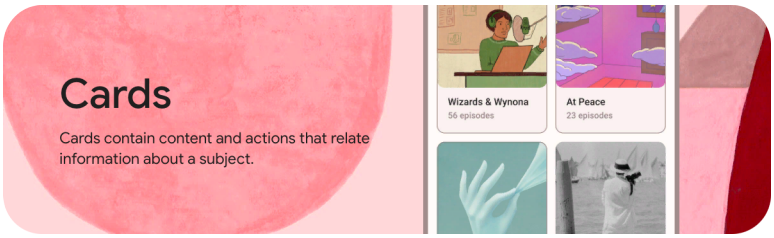
animation_display_banner(*self*, *interval: Union[int, float]*)

2.3.31 Card

See also:

Material Design spec, Cards and Material Design 3 spec, Cards

Cards contain content and actions about a single subject.



KivyMD provides the following card classes for use:

- *MDCard*
- *MDCardSwipe*

Note: *MDCard* inherited from `BoxLayout`. You can use all parameters and attributes of the `BoxLayout` class in the *MDCard* class.

MDCard

An example of the implementation of a card in the style of material design version 3

Declarative KV and imperative python styles

```
from kivy.lang import Builder
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.card import MDCard

KV = '''
<MD3Card>
    padding: 4
    size_hint: None, None
    size: "200dp", "100dp"

    MDRelativeLayout:

        MDIconButton:
            icon: "dots-vertical"
            pos_hint: {"top": 1, "right": 1}

        MDLabel:
```

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```
            id: label
            text: root.text
            adaptive_size: True
            color: "grey"
            pos: "12dp", "12dp"
            bold: True


MDScreen:

    MDBoxLayout:
        id: box
        adaptive_size: True
        spacing: "56dp"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class MD3Card(MDCard):
    '''Implements a material design v3 card.'''

    text = StringProperty()


class Example(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        return Builder.load_string(KV)

    def on_start(self):
        styles = {
            "elevated": "#f6eeee", "filled": "#f4dedc", "outlined": "#f8f5f4"
        }
        for style in styles.keys():
            self.root.ids.box.add_widget(
                MD3Card(
                    line_color=(0.2, 0.2, 0.2, 0.8),
                    style=style,
                    text=style.capitalize(),
                    md_bg_color=styles[style],
                    shadow_softness=2 if style == "elevated" else 12,
                    shadow_offset=(0, 1) if style == "elevated" else (0, 2),
                )
            )


Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
```

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```
from kivymd.uix.button import MDIconButton
from kivymd.uix.card import MDCard
from kivymd.uix.label import MDLabel
from kivymd.uix.relativelayout import MDRelativeLayout
from kivymd.uix.screen import MDScreen


class MD3Card(MDCard):
    '''Implements a material design v3 card.'''


class Example(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        return (
            MDScreen(
                MDBoxLayout(
                    id="box",
                    adaptive_size=True,
                    spacing="56dp",
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                )
            )
        )

    def on_start(self):
        styles = {
            "elevated": "#f6eeee", "filled": "#f4dedc", "outlined": "#f8f5f4"
        }
        for style in styles.keys():
            self.root.ids.box.add_widget(
                MD3Card(
                    MDRelativeLayout(
                        MDIconButton(
                            icon="dots-vertical",
                            pos_hint={"top": 1, "right": 1}
                        ),
                        MDLabel(
                            text=style.capitalize(),
                            adaptive_size=True,
                            color="grey",
                            pos=("12dp", "12dp"),
                        ),
                    ),
                    line_color=(0.2, 0.2, 0.2, 0.8),
                    style=style,
                    padding="4dp",
                    size_hint=(None, None),
                    size=("200dp", "100dp"),
                    md_bg_color=styles[style],
                    shadow_softness=2 if style == "elevated" else 12,
                    shadow_offset=(0, 1) if style == "elevated" else (0, 2),
```

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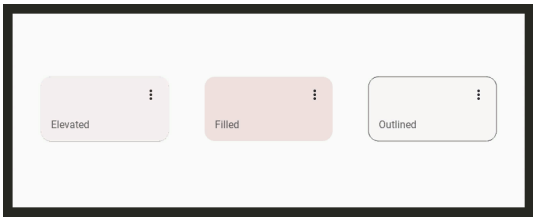
```
                )
            )


Example().run()
```



MDCardSwipe

To create a card with *swipe-to-delete* behavior, you must create a new class that inherits from the *MDCardSwipe* class:

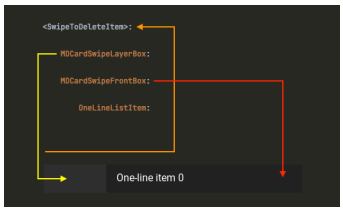
```
<SwipeToDeleteItem>
    size_hint_y: None
    height: content.height

    MDCardSwipeLayerBox:

    MDCardSwipeFrontBox:

        OneLineListItem:
            id: content
            text: root.text
            _no_ripple_effect: True
```

```
class SwipeToDeleteItem(MDCardSwipe):
    text = StringProperty()
```



End full code

Declarative KV and imperative python styles

```
from kivy.lang import Builder
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.card import MDCardSwipe
```

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```
KV = '''
<SwipeToDeleteItem>
    size_hint_y: None
    height: content.height

    MDCardSwipeLayerBox:
        # Content under the card.

    MDCardSwipeFrontBox:

        # Content of card.
        OneLineListItem:
            id: content
            text: root.text
            _no_ripple_effect: True


MDScreen:

    MDBoxLayout:
        orientation: "vertical"

        MDTopAppBar:
            elevation: 4
            title: "MDCardSwipe"

        MDScrollView:
            scroll_timeout : 100

            MDList:
                id: md_list
                padding: 0
'''


class SwipeToDeleteItem(MDCardSwipe):
    '''Card with `swipe-to-delete` behavior.'''

    text = StringProperty()


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def on_start(self):
        '''Creates a list of cards.'''

        for i in range(20):
```

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```
            self.root.ids.md_list.add_widget(
                SwipeToDeleteItem(text=f"One-line item {i}")
            )


Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.card import (
    MDCardSwipe, MDCardSwipeLayerBox, MDCardSwipeFrontBox
)
from kivymd.uix.list import MDList, OneLineListItem
from kivymd.uix.screen import MDScreen
from kivymd.uix.scrollview import MDScrollView
from kivymd.uix.toolbar import MDTopAppBar


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDBoxLayout(
                    MDTopAppBar(
                        elevation=4,
                        title="MDCardSwipe",
                    ),
                    MDScrollView(
                        MDList(
                            id="md_list",
                        ),
                        id="scroll",
                        scroll_timeout=100,
                    ),
                    id="box",
                    orientation="vertical",
                ),
            )
        )

    def on_start(self):
        '''Creates a list of cards.'''

        for i in range(20):
            self.root.ids.box.ids.scroll.ids.md_list.add_widget(
                MDCardSwipe(
                    MDCardSwipeLayerBox(),
                    MDCardSwipeFrontBox(
```

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```
                        OneLineListItem(
                            id="content",
                            text=f"One-line item {i}",
                            _no_ripple_effect=True,
                        )
                    ),
                    size_hint_y=None,
                    height="52dp",
                )
            )


Example().run()
```

Binding a swipe to one of the sides of the screen

```
<SwipeToDeleteItem>
    # By default, the parameter is "left"
    anchor: "right"
```

Note: You cannot use the left and right swipe at the same time.

Swipe behavior

```
<SwipeToDeleteItem>
    # By default, the parameter is "hand"
    type_swipe: "hand"
```

```
<SwipeToDeleteItem>:
    type_swipe: "auto"
```

Removing an item using the `type_swipe = "auto"` parameter

The map provides the *MDCardSwipe.on_swipe_complete* event. You can use this event to remove items from a list:

Declarative KV styles

```
<SwipeToDeleteItem>:
    on_swipe_complete: app.on_swipe_complete(root)
```

Declarative python styles

```
.. code-block:: python

    MDCardSwipe(
        ...
        on_swipe_complete=self.on_swipe_complete,
    )
```

Imperative python styles

```
def on_swipe_complete(self, instance):
    self.root.ids.md_list.remove_widget(instance)
```

Decralative python styles

```
def on_swipe_complete(self, instance):
    self.root.ids.box.ids.scroll.ids.md_list.remove_widget(instance)
```

Add content to the bottom layer of the card

To add content to the bottom layer of the card, use the *MDCardSwipeLayerBox* class.

```
<SwipeToDeleteItem>:

    MDCardSwipeLayerBox:
        padding: "8dp"

        MDIconButton:
            icon: "trash-can"
            pos_hint: {"center_y": .5}
            on_release: app.remove_item(root)
```

End full code

Declarative KV styles

```
from kivy.lang import Builder
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.card import MDCardSwipe

KV = '''
<SwipeToDeleteItem>:
    size_hint_y: None
    height: content.height

    MDCardSwipeLayerBox:
        padding: "8dp"

        MDIconButton:
            icon: "trash-can"
            pos_hint: {"center_y": .5}
            on_release: app.remove_item(root)

    MDCardSwipeFrontBox:

        OneLineListItem:
            id: content
            text: root.text
            _no_ripple_effect: True


MDScreen:

    MDBoxLayout:
        orientation: "vertical"

        MDTopAppBar:
            elevation: 4
            title: "MDCardSwipe"

        MDScrollView:

            MDList:
                id: md_list
                padding: 0
'''


class SwipeToDeleteItem(MDCardSwipe):
    text = StringProperty()


class Example(MDApp):
```

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```
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        self.screen = Builder.load_string(KV)

    def build(self):
        return self.screen

    def remove_item(self, instance):
        self.screen.ids.md_list.remove_widget(instance)

    def on_start(self):
        for i in range(20):
            self.screen.ids.md_list.add_widget(
                SwipeToDeleteItem(text=f"One-line item {i}")
            )


Example().run()
```

Decralative python styles

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDIconButton
from kivymd.uix.card import (
    MDCardSwipe, MDCardSwipeLayerBox, MDCardSwipeFrontBox
)
from kivymd.uix.list import MDList, OneLineListItem
from kivymd.uix.screen import MDScreen
from kivymd.uix.scrollview import MDScrollView
from kivymd.uix.toolbar import MDTopAppBar


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDBoxLayout(
                    MDTopAppBar(
                        elevation=4,
                        title="MDCardSwipe",
                    ),
                    MDScrollView(
                        MDList(
                            id="md_list",
                        ),
                        id="scroll",
                        scroll_timeout=100,
```

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```
                    ),
                    id="box",
                    orientation="vertical",
                ),
            )
        )

    def on_start(self):
        '''Creates a list of cards.'''

        for i in range(20):
            self.root.ids.box.ids.scroll.ids.md_list.add_widget(
                MDCardSwipe(
                    MDCardSwipeLayerBox(
                        MDIconButton(
                            icon="trash-can",
                            pos_hint={"center_y": 0.5},
                            on_release=self.remove_item,
                        ),
                    ),
                    MDCardSwipeFrontBox(
                        OneLineListItem(
                            id="content",
                            text=f"One-line item {i}",
                            _no_ripple_effect=True,
                        )
                    ),
                    size_hint_y=None,
                    height="52dp",
                )
            )

    def remove_item(self, instance):
        self.root.ids.box.ids.scroll.ids.md_list.remove_widget(
            instance.parent.parent
        )


Example().run()
```

Focus behavior

```
MDCard:
    focus_behavior: True
```

Declarative KV styles

```
from kivy.lang import Builder

```

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```
from kivymd.app import MDApp

KV = '''
MDScreen:

    MDCard:
        size_hint: .7, .4
        focus_behavior: True
        pos_hint: {"center_x": .5, "center_y": .5}
        md_bg_color: "darkgrey"
        unfocus_color: "darkgrey"
        focus_color: "grey"
        elevation: 6
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.card import  MDCard
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return (
            MDScreen(
                MDCard(
                    size_hint=(0.7, 0.4),
                    focus_behavior=True,
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                    md_bg_color="darkgrey",
                    unfocus_color="darkgrey",
                    focus_color="grey",
                    elevation=6,
                ),
            )
        )


Example().run()
```

Ripple behavior

```
MDCard:
    ripple_behavior: True
```

API - kivymd.uix.card.card

class kivymd.uix.card.card.**MDSeparator**(***kwargs*)

A separator line.

color

Separator color in (r, g, b, a) or string format.

color is a ColorProperty and defaults to *None*.

on_orientation(*self*, **args*)

class kivymd.uix.card.card.**MDCard**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

focus_behavior

Using focus when hovering over a card.

focus_behavior is a BooleanProperty and defaults to *False*.

ripple_behavior

Use ripple effect for card.

ripple_behavior is a BooleanProperty and defaults to *False*.

radius

Card radius by default.

New in version 1.0.0.

radius is an VariableListProperty and defaults to *[dp(6), dp(6), dp(6), dp(6)]*.

style

Card type.

New in version 1.0.0.

Available options are: 'filled', 'elevated', 'outlined'.

style is an OptionProperty and defaults to *'elevated'*.

update_md_bg_color(*self*, *instance_card*, *theme_style: str*)

set_style(*self*, **args*)

set_line_color(*self*)

set_elevation(*self*)

set_radius(*self*)

on_ripple_behavior(*self*, *interval: Union[int, float]*, *value_behavior: bool*)

class kivymd.uix.card.card.**MDCardSwipe**(**args*, ***kwargs*)

Events

on_swipe_complete
Called when a swipe of card is completed.

open_progress

Percent of visible part of side panel. The percent is specified as a floating point number in the range 0-1. 0.0 if panel is closed and 1.0 if panel is opened.

open_progress is a NumericProperty and defaults to *0.0*.

opening_transition

The name of the animation transition type to use when animating to the *state* *'opened'*.

opening_transition is a StringProperty and defaults to *'out_cubic'*.

closing_transition

The name of the animation transition type to use when animating to the *state* 'closed'.

closing_transition is a StringProperty and defaults to *'out_sine'*.

closing_interval

Interval for closing the front layer.

New in version 1.1.0.

closing_interval is a NumericProperty and defaults to *0*.

anchor

Anchoring screen edge for card. Available options are: *'left'*, *'right'*.

anchor is a OptionProperty and defaults to *left*.

swipe_distance

The distance of the swipe with which the movement of navigation drawer begins.

swipe_distance is a NumericProperty and defaults to *50*.

opening_time

The time taken for the card to slide to the *state* *'open'*.

opening_time is a NumericProperty and defaults to *0.2*.

state

Detailed state. Sets before *state*. Bind to *state* instead of `status`. Available options are: *'closed'*, *'opened'*.

`status` is a OptionProperty and defaults to *'closed'*.

max_swipe_x

If, after the events of *on_touch_up* card position exceeds this value - will automatically execute the method *open_card*, and if not - will automatically be *close_card* method.

max_swipe_x is a NumericProperty and defaults to *0.3*.

max_opened_x

The value of the position the card shifts to when *type_swipe* s set to *'hand'*.

max_opened_x is a NumericProperty and defaults to *100dp*.

type_swipe

Type of card opening when swipe. Shift the card to the edge or to a set position *max_opened_x*. Available options are: *'auto'*, *'hand'*.

type_swipe is a OptionProperty and defaults to *auto*.

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

on_swipe_complete(*self*, **args*)

Called when a swipe of card is completed.

on_anchor(*self*, *instance_swipe_to_delete_item*, *anchor_value: str*)

on_open_progress(*self*, *instance_swipe_to_delete_item*, *progress_value: float*)

on_touch_move(*self*, *touch*)

Receive a touch move event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

on_touch_up(*self*, *touch*)

Receive a touch up event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

on_touch_down(*self*, *touch*)

Receive a touch down event.

Parameters

***touch*: MotionEvent class**
Touch received. The touch is in parent coordinates. See relativelayout for a discussion on coordinate systems.

Returns

bool If True, the dispatching of the touch event will stop. If False, the event will continue to be dispatched to the rest of the widget tree.

complete_swipe(*self*)

open_card(*self*)

close_card(*self*, **args*)

class kivymd.uix.card.card.**MDCardSwipeFrontBox**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

class kivymd.uix.card.card.**MDCardSwipeLayerBox**(**args*, ***kwargs*)

Box layout class.

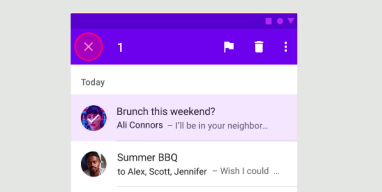
For more information, see in the `BoxLayout` class documentation.

2.3.32 Selection

See also:

Material Design spec, Banner

Selection refers to how users indicate specific items they intend to take action on.



Entering selection mode

To select an item and enter selection mode, long press the item:

Exiting selection mode

To exit selection mode, tap each selected item until they're all deselected:

Larger selections

Note: This feature is missing yet.

Events

```
def on_selected(self, instance_selection_list, instance_selection_item):
    '''Called when a list item is selected.'''

def on_unselected(self, instance_selection_list, instance_selection_item):
    '''Called when a list item is unselected.'''
```

Example with TwoLineAvatarListItem

```
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.utils import get_color_from_hex

from kivymd.app import MDApp
from kivymd.uix.list import TwoLineAvatarListItem

KV = '''
<MyItem>
    text: "Two-line item with avatar"
    secondary_text: "Secondary text here"
    _no_ripple_effect: True

    ImageLeftWidget:
        source: "data/logo/kivy-icon-256.png"


MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        id: toolbar
        title: "Inbox"
        left_action_items: [["menu"]]
        right_action_items: [["magnify"], ["dots-vertical"]]
        md_bg_color: 0, 0, 0, 1

    MDBoxLayout:
        padding: "24dp", "8dp", 0, "8dp"
        adaptive_size: True

        MDLabel:
            text: "Today"
            adaptive_size: True
```

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```
    ScrollView:

        MDSelectionList:
            id: selection_list
            spacing: "12dp"
            overlay_color: app.overlay_color[:-1] + [.2]
            icon_bg_color: app.overlay_color
            on_selected: app.on_selected(*args)
            on_unselected: app.on_unselected(*args)
            on_selected_mode: app.set_selection_mode(*args)
'''


class MyItem(TwoLineAvatarListItem):
    pass


class Example(MDApp):
    overlay_color = get_color_from_hex("#6042e4")

    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
        for i in range(10):
            self.root.ids.selection_list.add_widget(MyItem())

    def set_selection_mode(self, instance_selection_list, mode):
        if mode:
            md_bg_color = self.overlay_color
            left_action_items = [
                [
                    "close",
                    lambda x: self.root.ids.selection_list.unselected_all(),
                ]
            ]
            right_action_items = [["trash-can"], ["dots-vertical"]]
        else:
            md_bg_color = (0, 0, 0, 1)
            left_action_items = [["menu"]]
            right_action_items = [["magnify"], ["dots-vertical"]]
            self.root.ids.toolbar.title = "Inbox"

        Animation(md_bg_color=md_bg_color, d=0.2).start(self.root.ids.toolbar)
        self.root.ids.toolbar.left_action_items = left_action_items
        self.root.ids.toolbar.right_action_items = right_action_items

    def on_selected(self, instance_selection_list, instance_selection_item):
        self.root.ids.toolbar.title = str(
            len(instance_selection_list.get_selected_list_items())
        )
```

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```
    def on_unselected(self, instance_selection_list, instance_selection_item):
        if instance_selection_list.get_selected_list_items():
            self.root.ids.toolbar.title = str(
                len(instance_selection_list.get_selected_list_items())
            )


Example().run()
```

Example with FitImage

```
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.properties import ColorProperty

from kivymd.app import MDApp
from kivymd.uix.fitimage import FitImage

KV = '''
MDBoxLayout:
    orientation: "vertical"
    md_bg_color: app.theme_cls.bg_light

    MDTopAppBar:
        id: toolbar
        title: "Inbox"
        left_action_items: [["menu"]]
        right_action_items: [["magnify"], ["dots-vertical"]]
        md_bg_color: app.theme_cls.bg_light
        specific_text_color: 0, 0, 0, 1

    MDBoxLayout:
        padding: "24dp", "8dp", 0, "8dp"
        adaptive_size: True

        MDLabel:
            text: "Today"
            adaptive_size: True

    ScrollView:

        MDSelectionList:
            id: selection_list
            padding: "24dp", 0, "24dp", "24dp"
            cols: 3
            spacing: "12dp"
            overlay_color: app.overlay_color[:-1] + [.2]
            icon_bg_color: app.overlay_color
```

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```
            progress_round_color: app.progress_round_color
            on_selected: app.on_selected(*args)
            on_unselected: app.on_unselected(*args)
            on_selected_mode: app.set_selection_mode(*args)
'''


class Example(MDApp):
    overlay_color = ColorProperty("#6042e4")
    progress_round_color = "#ef514b"

    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
        for i in range(10):
            self.root.ids.selection_list.add_widget(
                FitImage(
                    source="image.png",
                    size_hint_y=None,
                    height="240dp",
                )
            )

    def set_selection_mode(self, instance_selection_list, mode):
        if mode:
            md_bg_color = self.overlay_color
            left_action_items = [
                [
                    "close",
                    lambda x: self.root.ids.selection_list.unselected_all(),
                ]
            ]
            right_action_items = [["trash-can"], ["dots-vertical"]]
        else:
            md_bg_color = (1, 1, 1, 1)
            left_action_items = [["menu"]]
            right_action_items = [["magnify"], ["dots-vertical"]]
            self.root.ids.toolbar.title = "Inbox"

        Animation(md_bg_color=md_bg_color, d=0.2).start(self.root.ids.toolbar)
        self.root.ids.toolbar.left_action_items = left_action_items
        self.root.ids.toolbar.right_action_items = right_action_items

    def on_selected(self, instance_selection_list, instance_selection_item):
        self.root.ids.toolbar.title = str(
            len(instance_selection_list.get_selected_list_items())
        )

    def on_unselected(self, instance_selection_list, instance_selection_item):
        if instance_selection_list.get_selected_list_items():
            self.root.ids.toolbar.title = str(
```

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```
                len(instance_selection_list.get_selected_list_items())
            )


Example().run()
```

API - kivymd.uix.selection.selection

class kivymd.uix.selection.selection.**MDSelectionList**(***kwargs*)

Events

on_selected
Called when a list item is selected.

on_unselected
Called when a list item is unselected.

selected_mode

List item selection mode. If *True* when clicking on a list item, it will be selected.

selected_mode is an BooleanProperty and defaults to *False*.

icon

Name of the icon with which the selected list item will be marked.

icon is an StringProperty and defaults to *'check'*.

icon_pos

The position of the icon that will mark the selected list item.

icon_pos is an ListProperty and defaults to *[]*.

icon_bg_color

Background color in (r, g, b, a) or string format of the icon that will mark the selected list item.

icon_bg_color is an ColorProperty and defaults to *[1, 1, 1, 1]*.

icon_check_color

Color in (r, g, b, a) or string format of the icon that will mark the selected list item.

icon_check_color is an ColorProperty and defaults to *[1, 1, 1, 1]*.

overlay_color

The overlay color in (r, g, b, a) or string format of the selected list item.

overlay_color is an ColorProperty and defaults to *[0, 0, 0, 0.2]]*.

progress_round_size

Size of the spinner for switching of *selected_mode* mode.

progress_round_size is an NumericProperty and defaults to *dp(46)*.

progress_round_color

Color in (r, g, b, a) or string format of the spinner for switching of *selected_mode* mode.

progress_round_color is an NumericProperty and defaults to *None*.

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

get_selected(*self*)

Returns True if at least one item in the list is checked.

get_selected_list_items(*self*)

Returns a list of marked objects:

[<kivymd.uix.selection.SelectionItem object>, . . .]

unselected_all(*self*)

selected_all(*self*)

on_selected(*self*, **args*)

Called when a list item is selected.

on_unselected(*self*, **args*)

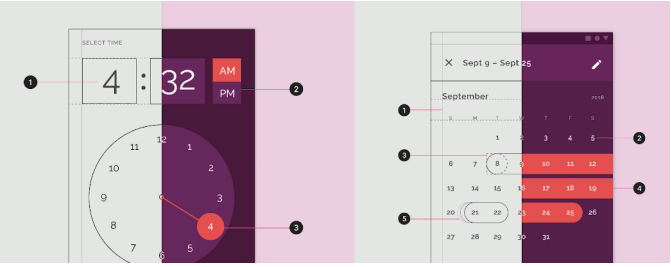
Called when a list item is unselected.

2.3.33 DatePicker

See also:

Material Design spec, Date picker

Includes date picker.



Usage

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.pickers import MDDatePicker

KV = '''
MDFloatLayout:

    MDRaisedButton:
        text: "Open date picker"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_date_picker()
'''


class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def on_save(self, instance, value, date_range):
        '''
        Events called when the "OK" dialog box button is clicked.

        :type instance: <kivymd.uix.picker.MDDatePicker object>;
        :param value: selected date;
        :type value: <class 'datetime.date'>;
        :param date_range: list of 'datetime.date' objects in the selected range;
```

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```
        :type date_range: <class 'list'>;
        '''

        print(instance, value, date_range)

    def on_cancel(self, instance, value):
        '''Events called when the "CANCEL" dialog box button is clicked.'''

    def show_date_picker(self):
        date_dialog = MDDatePicker()
        date_dialog.bind(on_save=self.on_save, on_cancel=self.on_cancel)
        date_dialog.open()


Test().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.button import MDRaisedButton
from kivymd.uix.pickers import MDDatePicker
from kivymd.uix.screen import MDScreen


class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDRaisedButton(
                    text="Open data picker",
                    pos_hint={'center_x': .5, 'center_y': .5},
                    on_release=self.show_date_picker,
                )
            )
        )

    def on_save(self, instance, value, date_range):
        '''
        Events called when the "OK" dialog box button is clicked.

        :type instance: <kivymd.uix.picker.MDDatePicker object>;

        :param value: selected date;
        :type value: <class 'datetime.date'>;

        :param date_range: list of 'datetime.date' objects in the selected range;
        :type date_range: <class 'list'>;
        '''

        print(instance, value, date_range)
```

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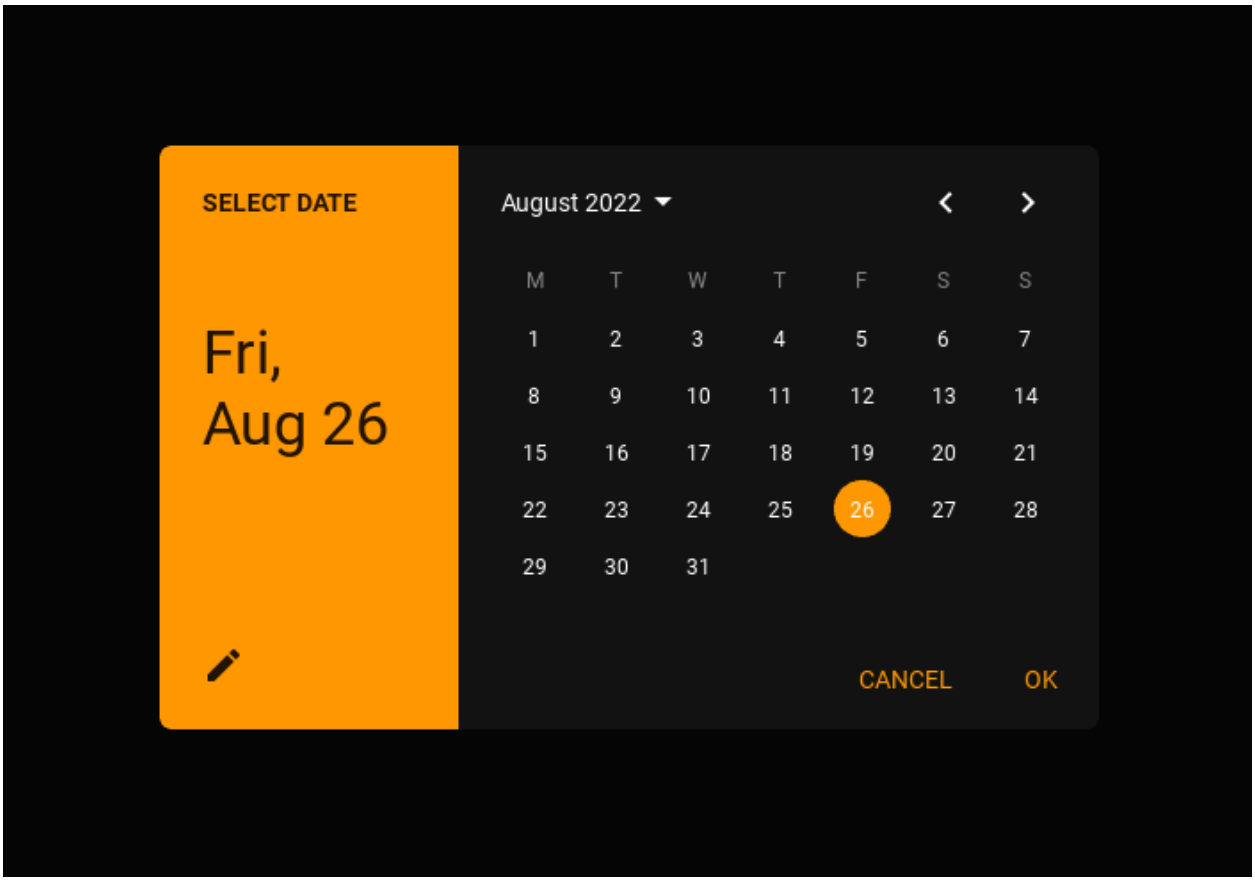
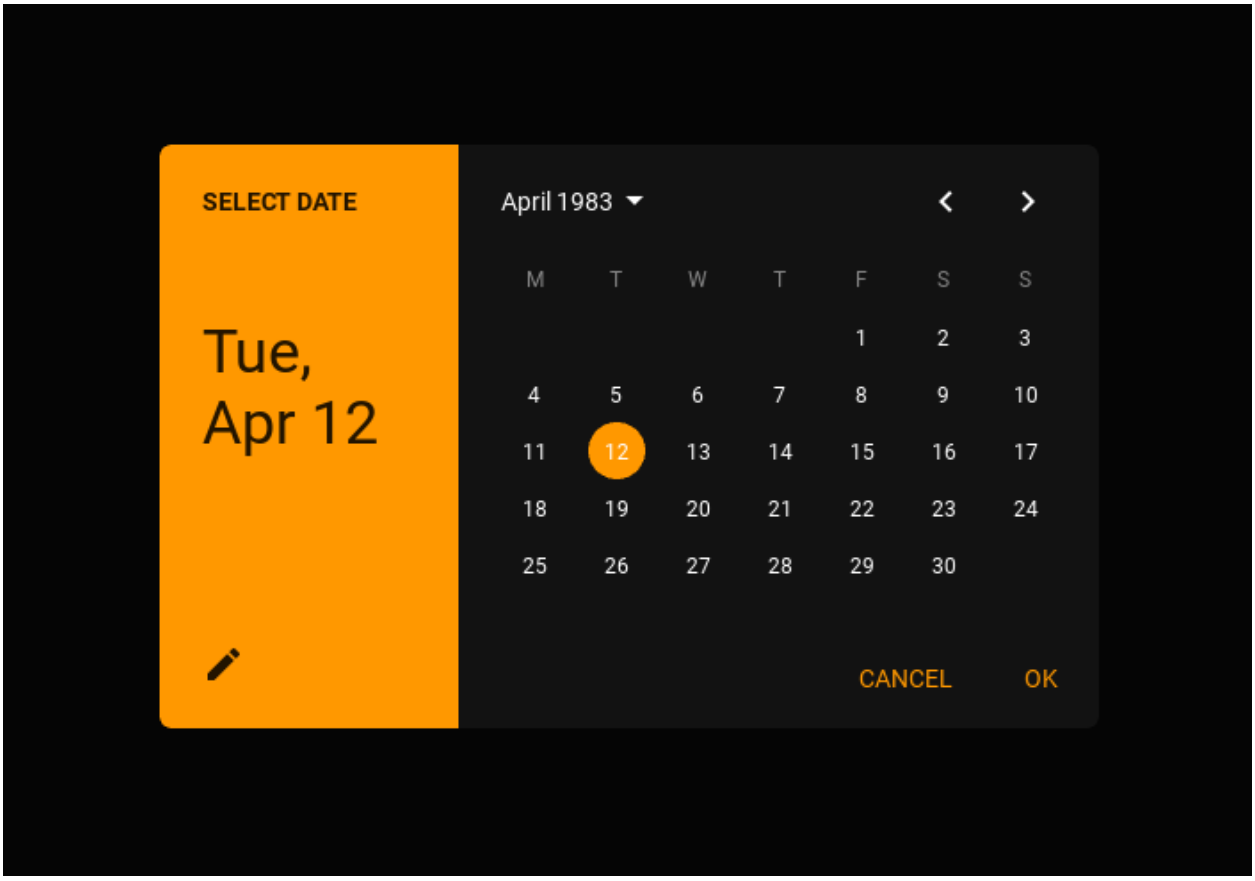
```
    def on_cancel(self, instance, value):
        '''Events called when the "CANCEL" dialog box button is clicked.'''

    def show_date_picker(self, *args):
        date_dialog = MDDatePicker()
        date_dialog.bind(on_save=self.on_save, on_cancel=self.on_cancel)
        date_dialog.open()


Test().run()
```



Open date dialog with the specified date

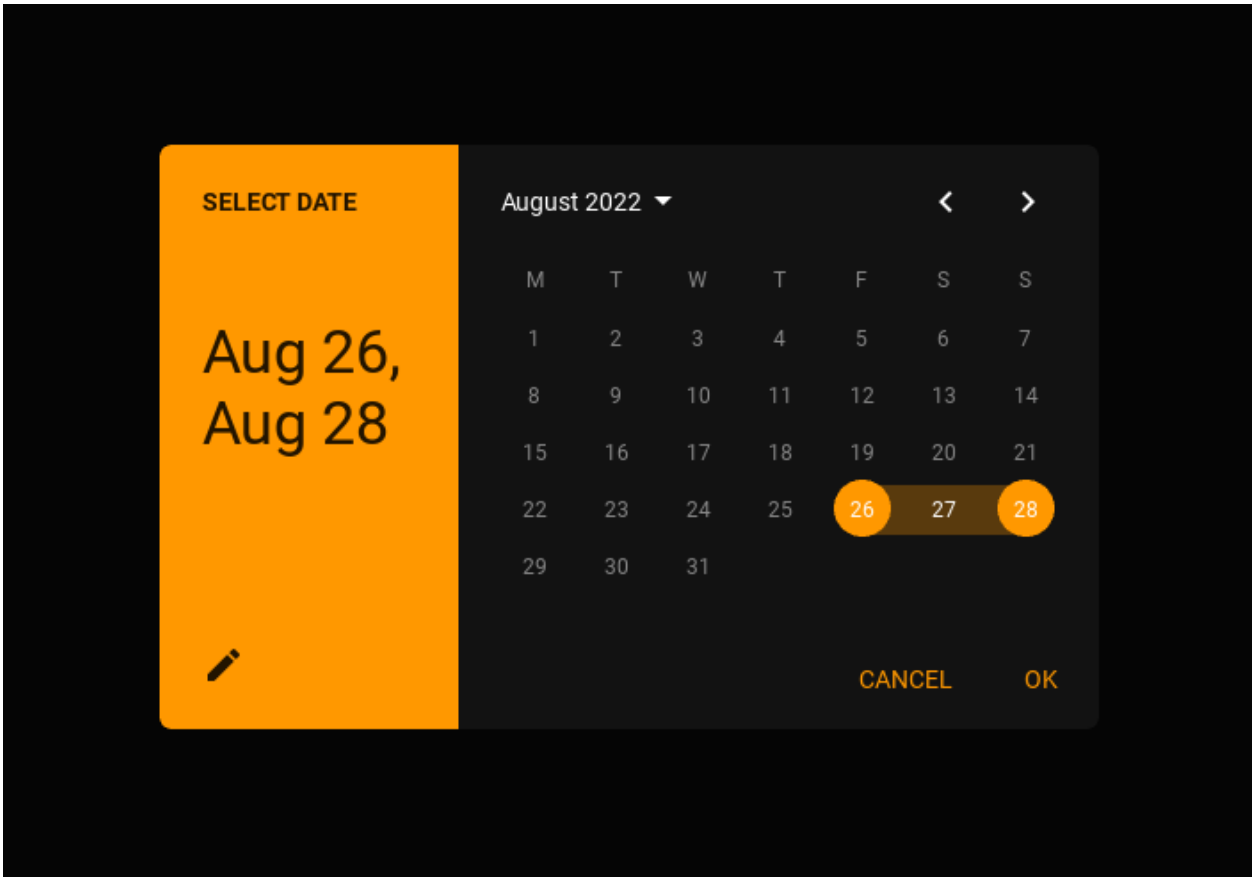
```
def show_date_picker(self):
    date_dialog = MDDatePicker(year=1983, month=4, day=12)
    date_dialog.open()
```



Interval date

You can set the time interval from and to the set date. All days of the week that are not included in this range will have the status *disabled*.

```
def show_date_picker(self):
    date_dialog = MDDatePicker(
        min_date=datetime.date.today(),
        max_date=datetime.date(
            datetime.date.today().year,
            datetime.date.today().month,
            datetime.date.today().day + 2,
        ),
    )
    date_dialog.open()
```



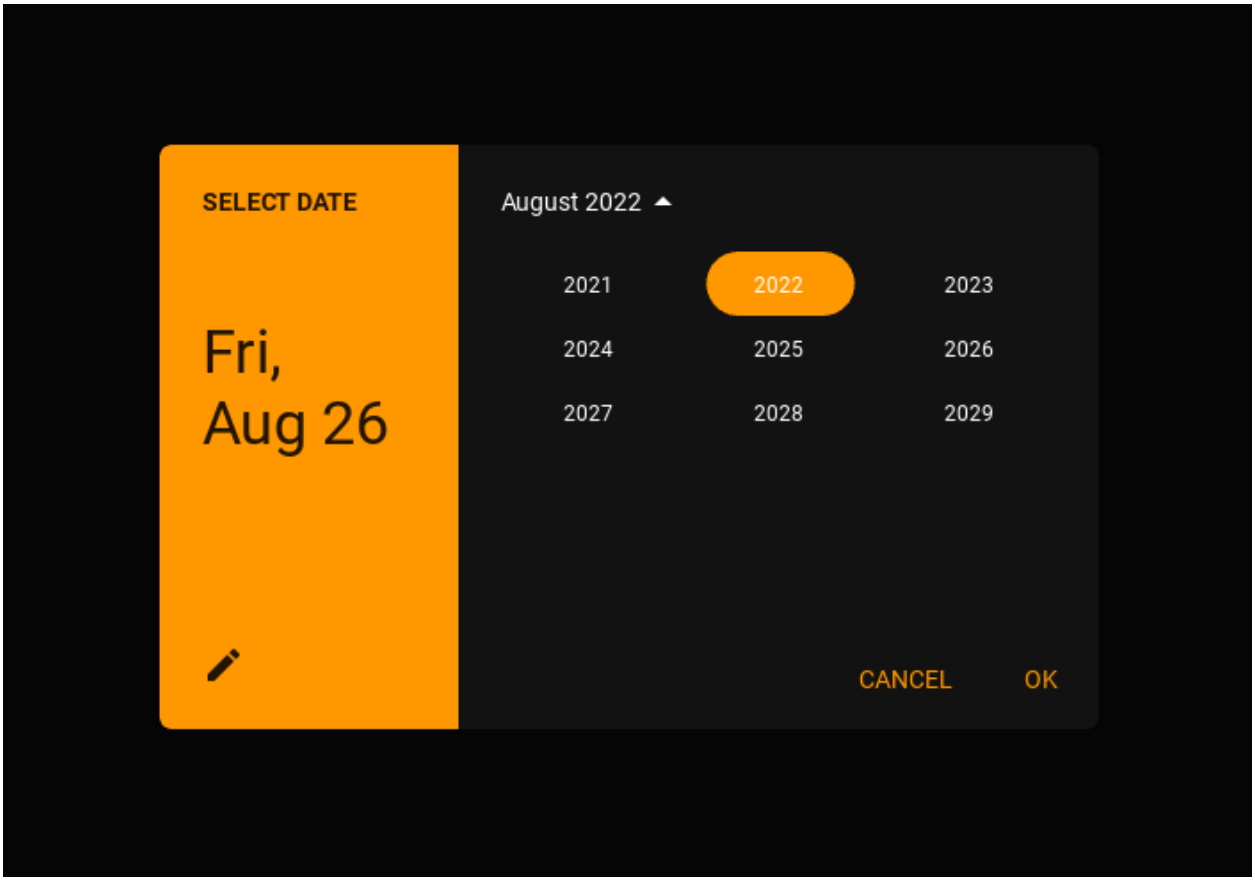
The range of available dates can be changed in the picker dialog:

Select year

Warning: The list of years when opening is not automatically set to the current year.

You can set the range of years using the `min_year` and `max_year` attributes:

```
def show_date_picker(self):
    date_dialog = MDDatePicker(min_year=2022, max_year=2030)
    date_dialog.open()
```



Set and select a date range

```
def show_date_picker(self):
    date_dialog = MDDatePicker(mode="range")
    date_dialog.open()
```

API - kivymd.uix.pickers.datepicker.datepicker

class kivymd.uix.pickers.datepicker.datepicker.**BaseDialogPicker**(***kwargs*)

Base class for `MDDatePicker` and `MDTimePicker` classes.

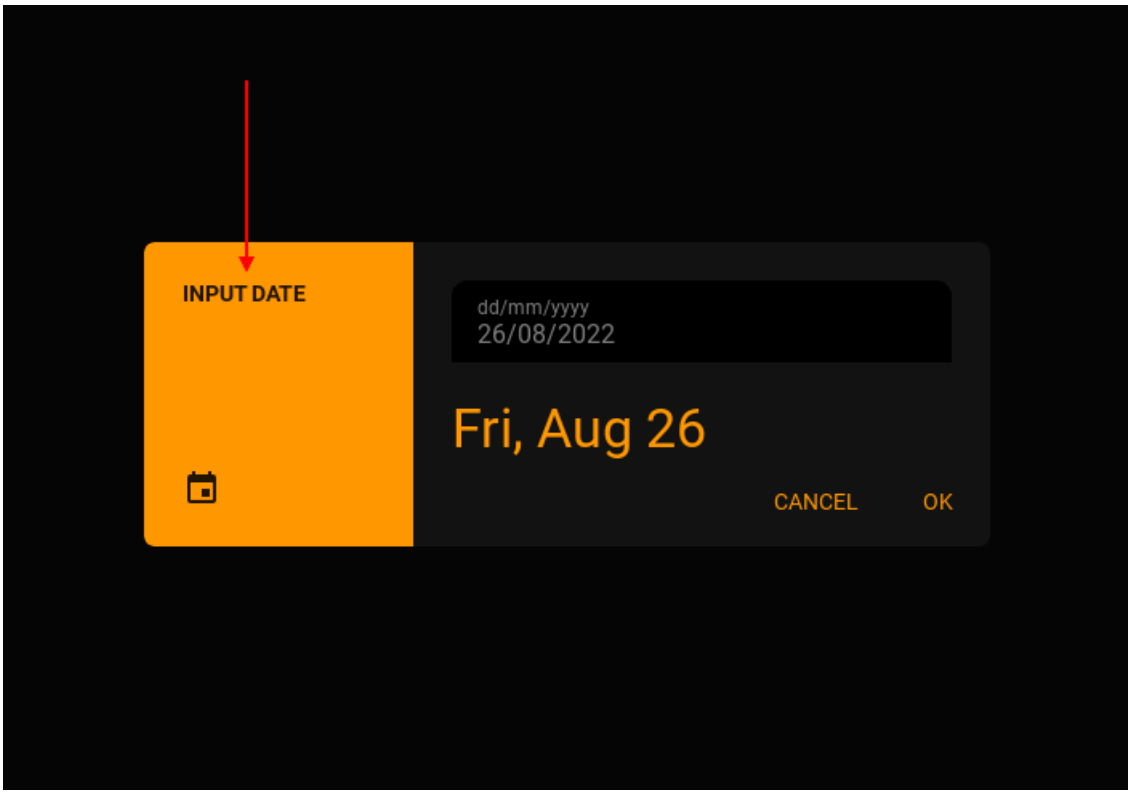
Events

on_save
Events called when the “OK” dialog box button is clicked.

on_cancel
Events called when the “CANCEL” dialog box button is clicked.

title_input
Dialog title fot input date.

```
MDDatePicker(title_input="INPUT DATE")
```

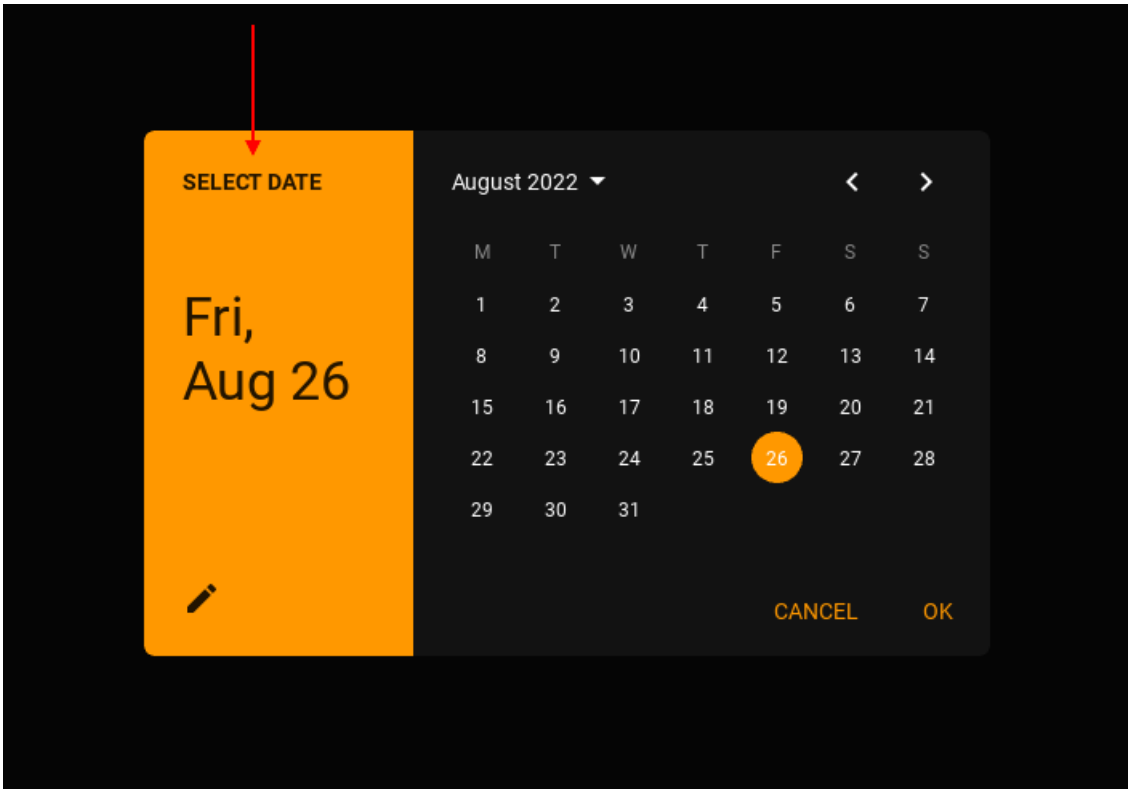


title_input is an StringProperty and defaults to *INPUT DATE*.

title

Dialog title fot select date.

```
MDDatePicker(title="SELECT DATE")
```

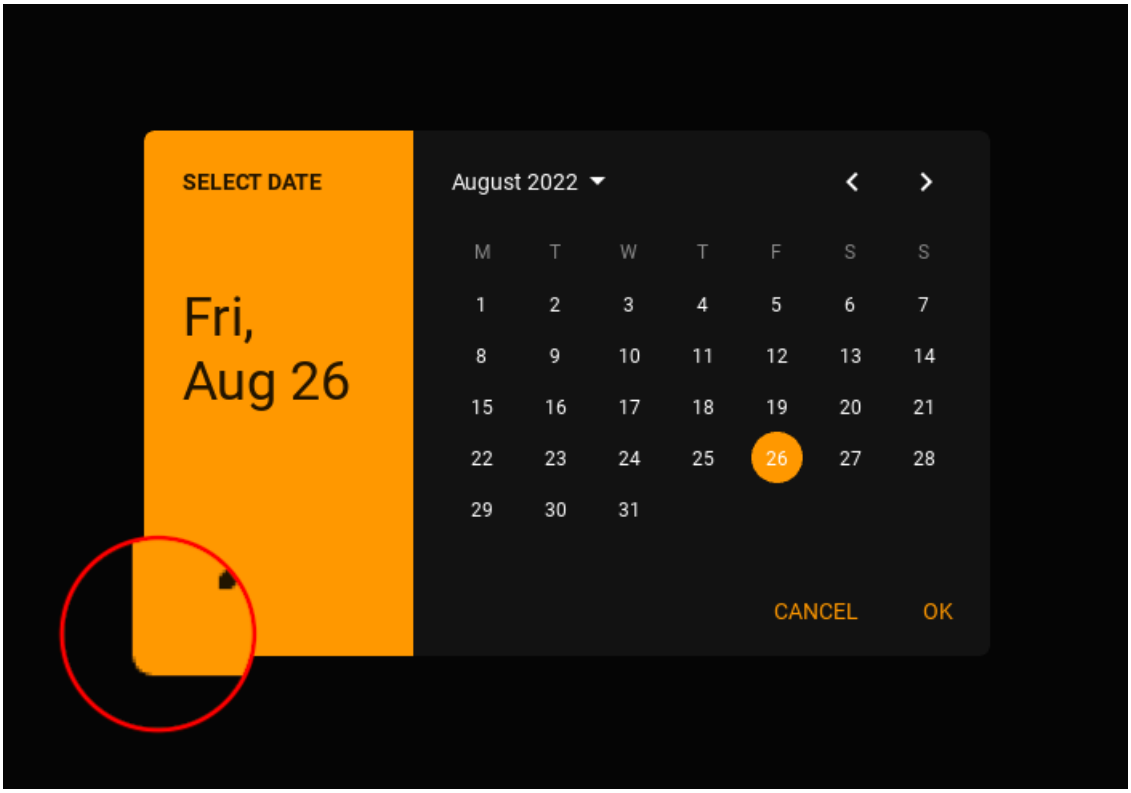


title is an StringProperty and defaults to *SELECT DATE*.

radius

Radius list for the four corners of the dialog.

```
MDDatePicker(radius=[7, 7, 7, 26])
```

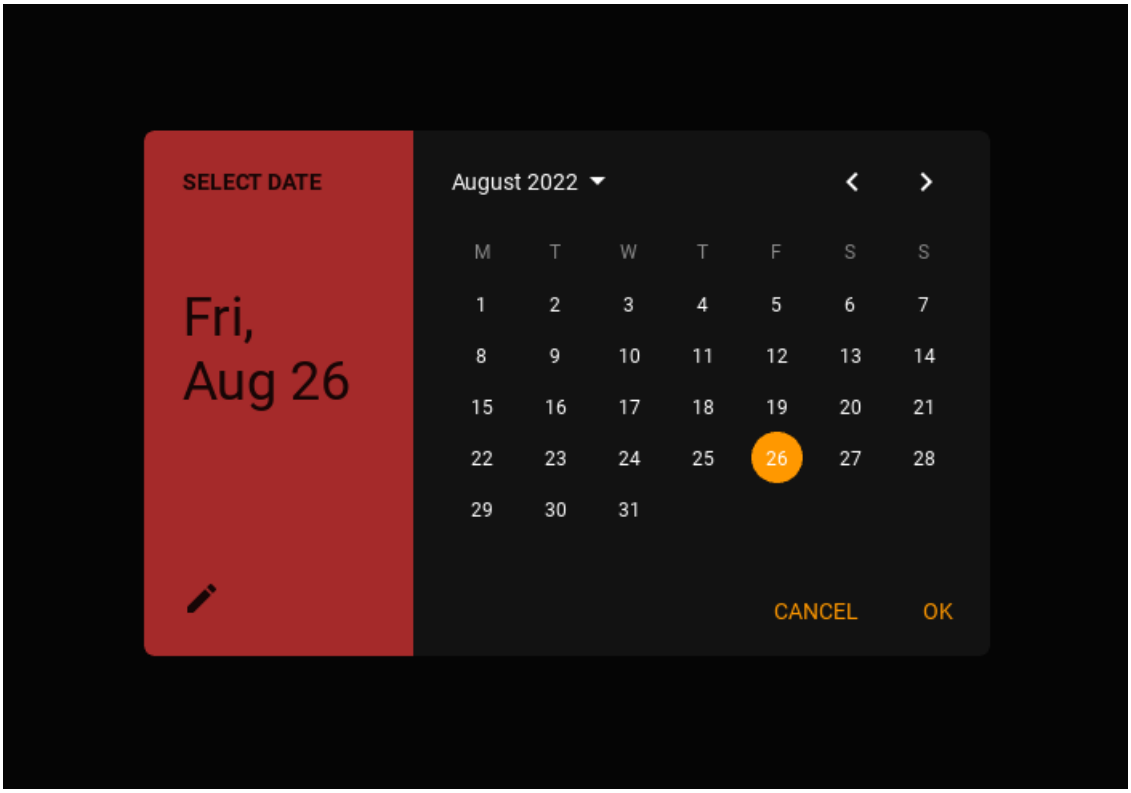


radius is an `ListProperty` and defaults to *[7, 7, 7, 7]*.

primary_color

Background color of toolbar in (r, g, b, a) or string format.

```
MDDatePicker(primary_color="brown")
```

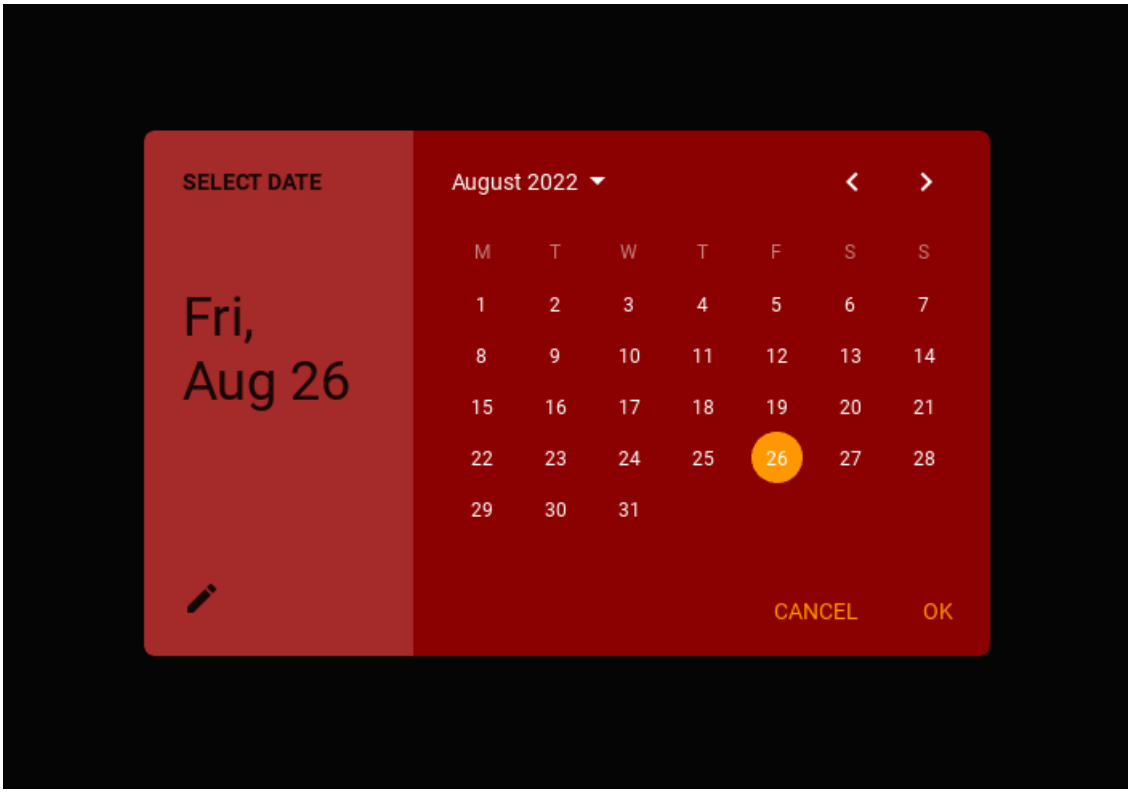


primary_color is an ColorProperty and defaults to *None*.

accent_color

Background color of calendar/clock face in (r, g, b, a) or string format.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
)
```

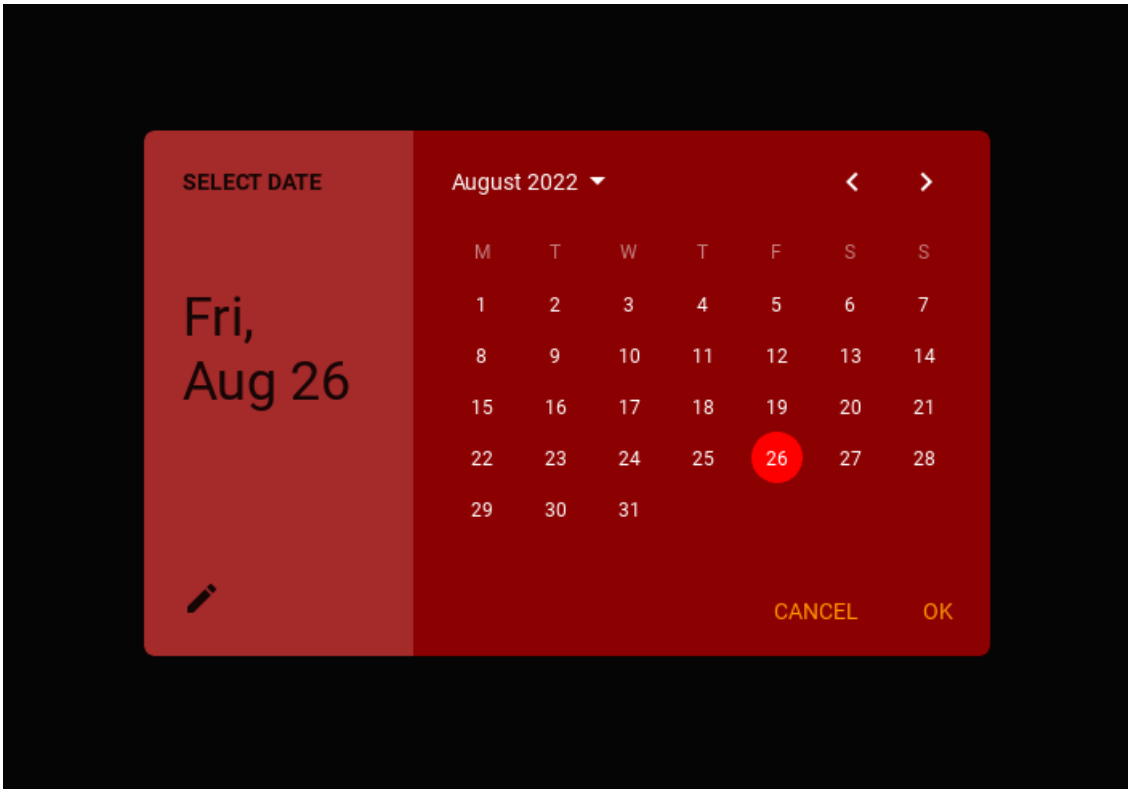


accent_color is an ColorProperty and defaults to *None*.

selector_color

Background color of the selected day of the month or hour in (r, g, b, a) or string format.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
)
```

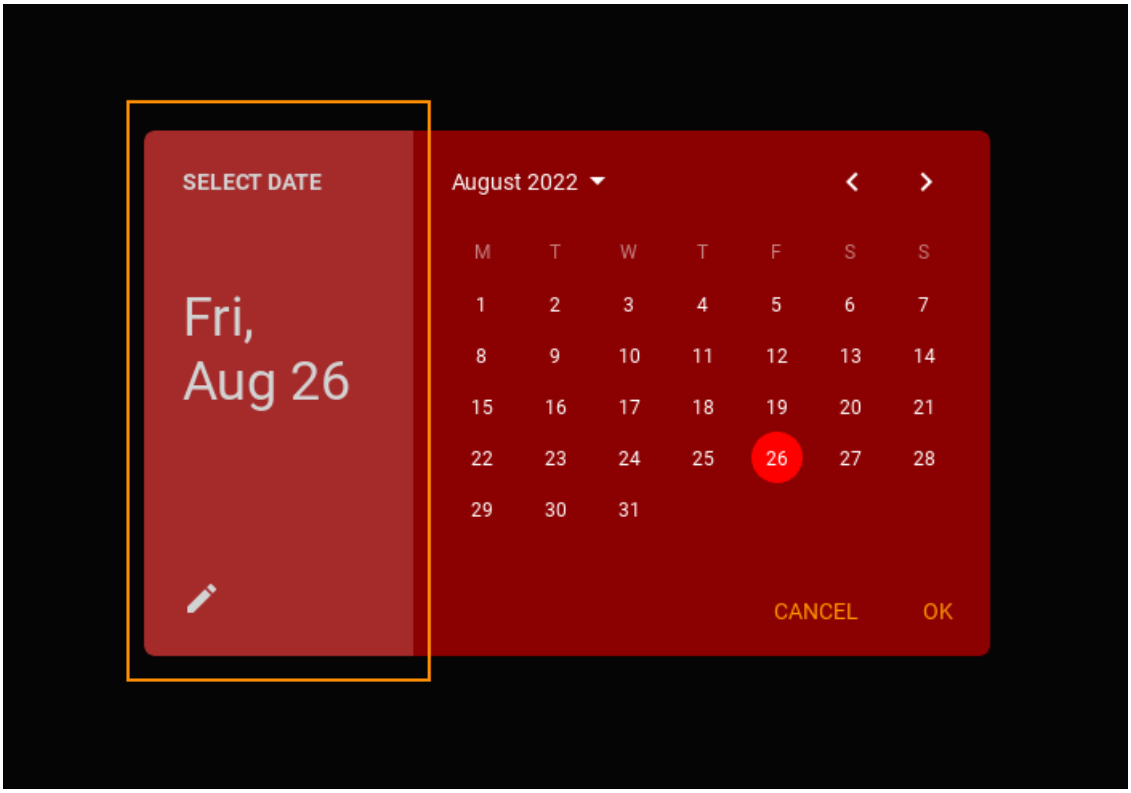


selector_color is an ColorProperty and defaults to *None*.

text_toolbar_color

Color of labels for text on a toolbar in (r, g, b, a) or string format.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
)
```

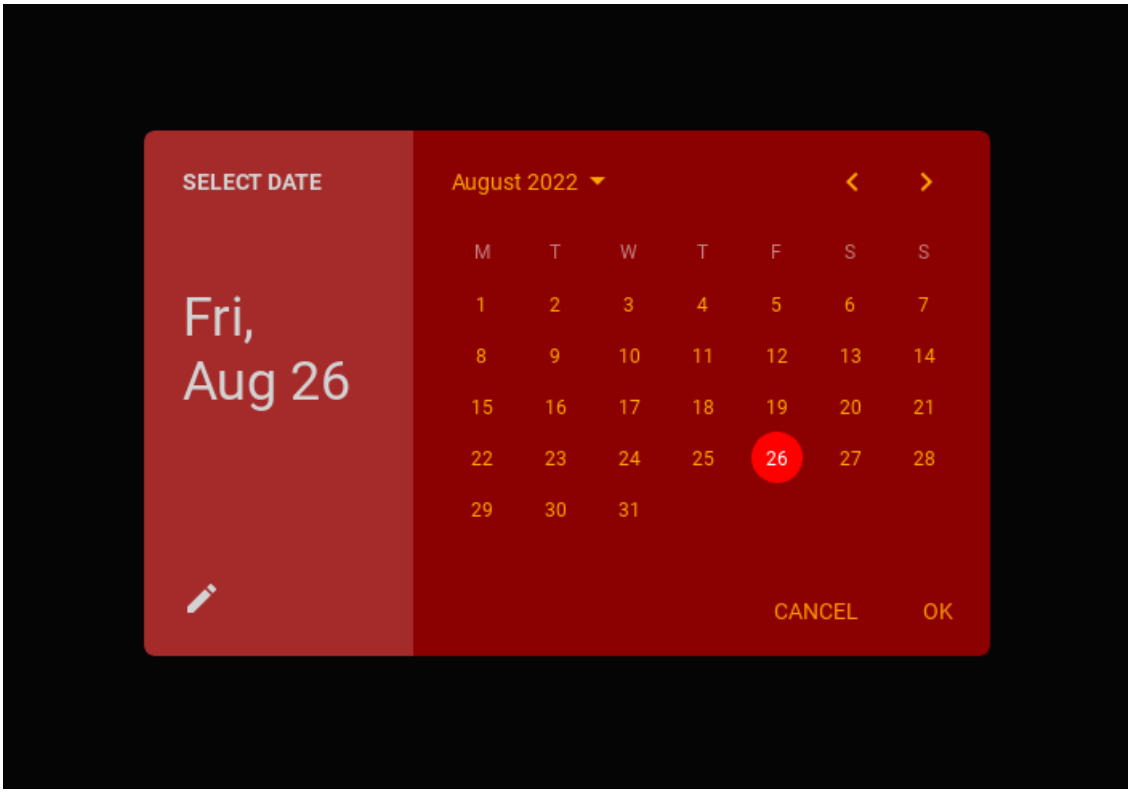


text_toolbar_color is an ColorProperty and defaults to *None*.

text_color

Color of text labels in calendar/clock face in (r, g, b, a) or string format.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
)
```

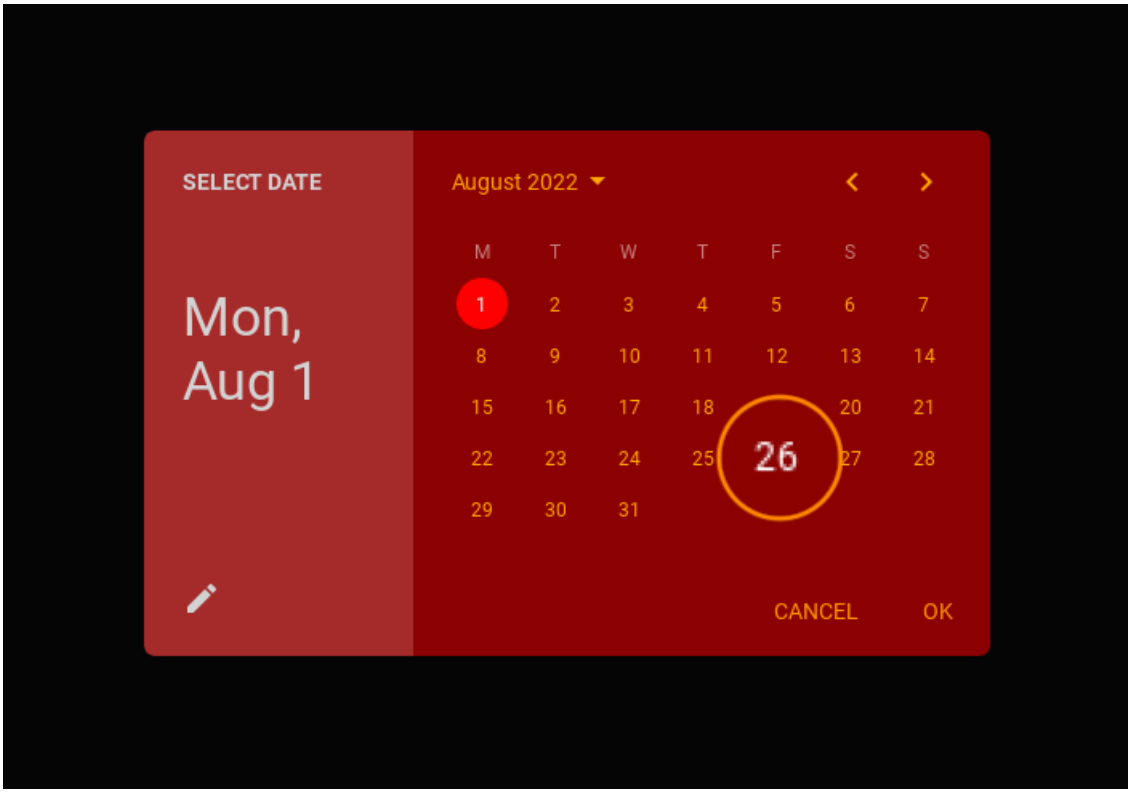


text_color is an ColorProperty and defaults to *None*.

text_current_color

Color of the text of the current day of the month/hour in (r, g, b, a) or string format.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
    text_current_color="white",
)
```

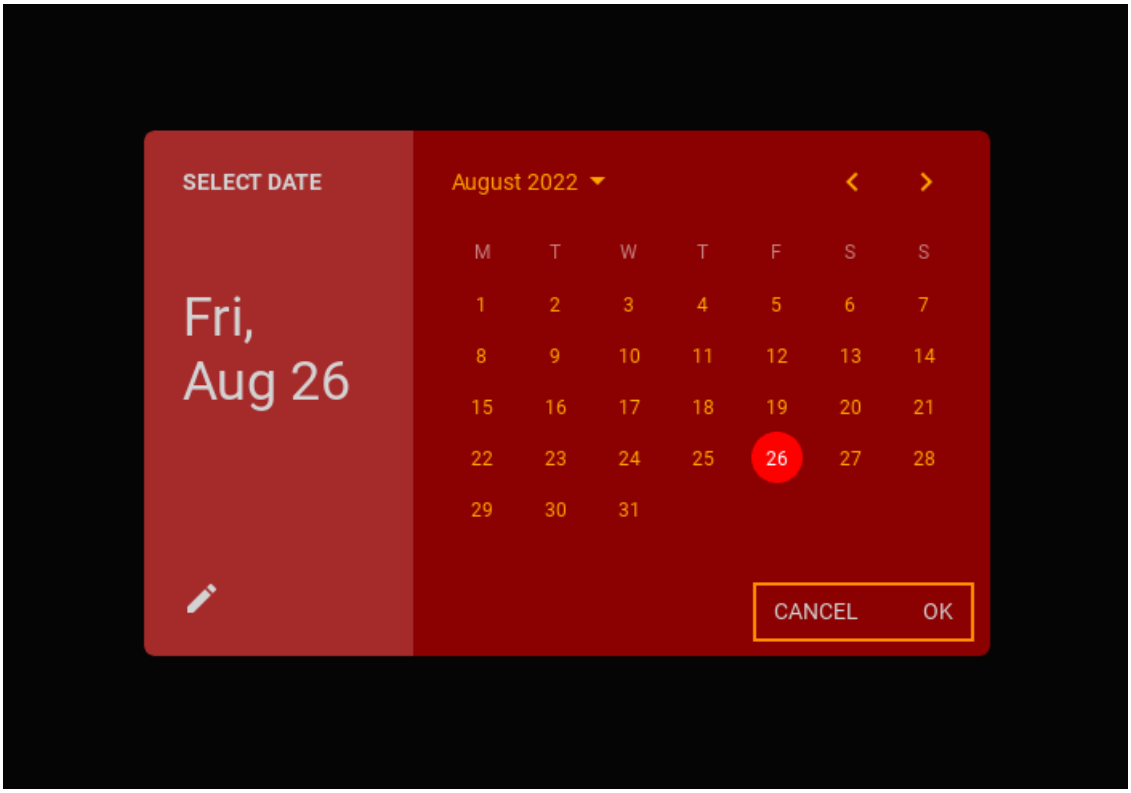


text_current_color is an ColorProperty and defaults to *None*.

text_button_color

Text button color in (r, g, b, a) format.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
    text_current_color="white",
    text_button_color="lightgrey",
)
```



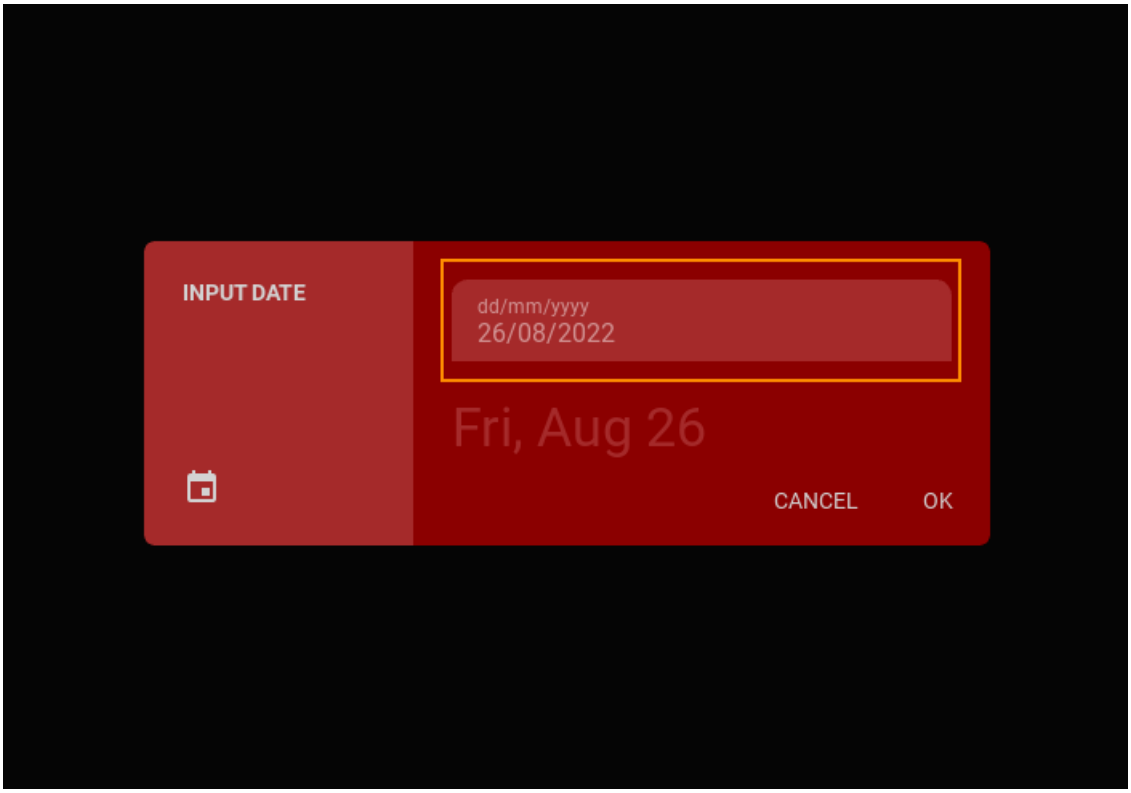
text_button_color is an ColorProperty and defaults to *None*.

input_field_background_color_normal

Background color normal of input fields in (r, g, b, a) or string format.

New in version 1.1.0.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
    text_current_color="white",
    text_button_color="lightgrey",
    input_field_background_color_normal="coral",
)
```



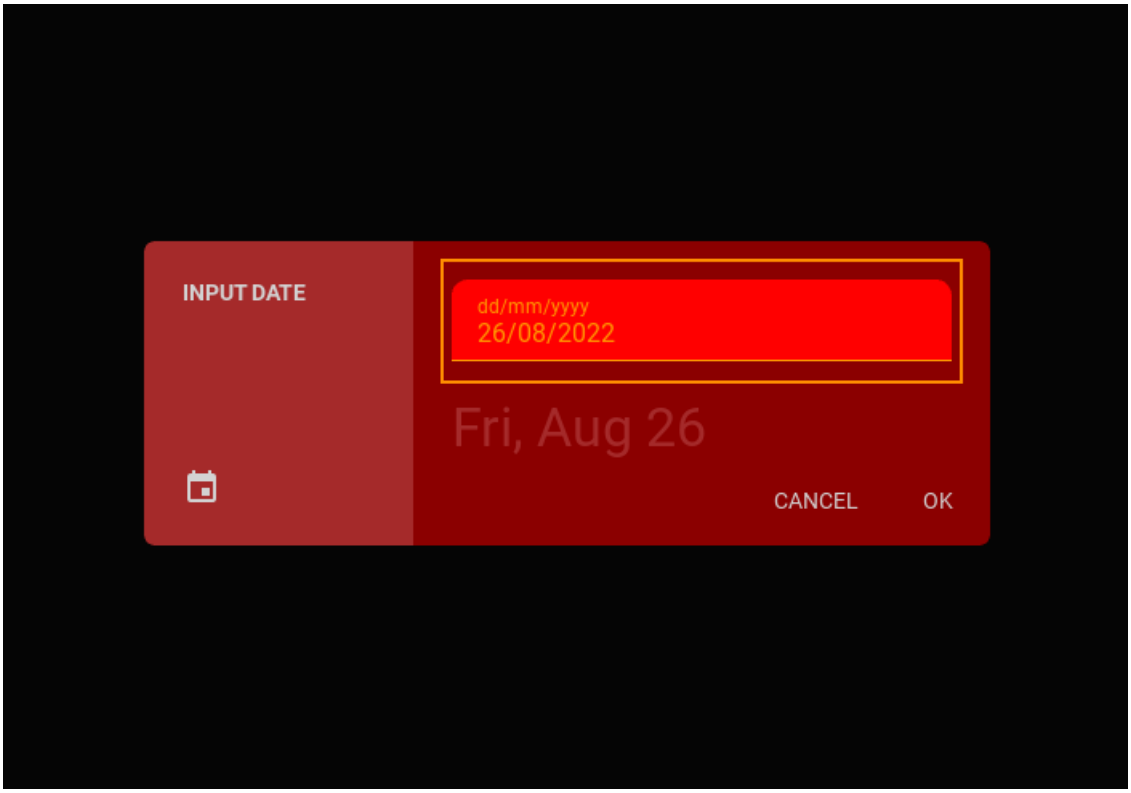
input_field_background_color_normal is an ColorProperty and defaults to *None*.

input_field_background_color_focus

Background color normal of input fields in (r, g, b, a) or string format.

New in version 1.1.0.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
    text_current_color="white",
    text_button_color="lightgrey",
    input_field_background_color_normal="coral",
    input_field_background_color_focus="red",
)
```



input_field_background_color_focus is an ColorProperty and defaults to *None*.

input_field_background_color

Deprecated since version 1.1.0.

Use *input_field_background_color_normal* instead.

input_field_text_color

Deprecated since version 1.1.0.

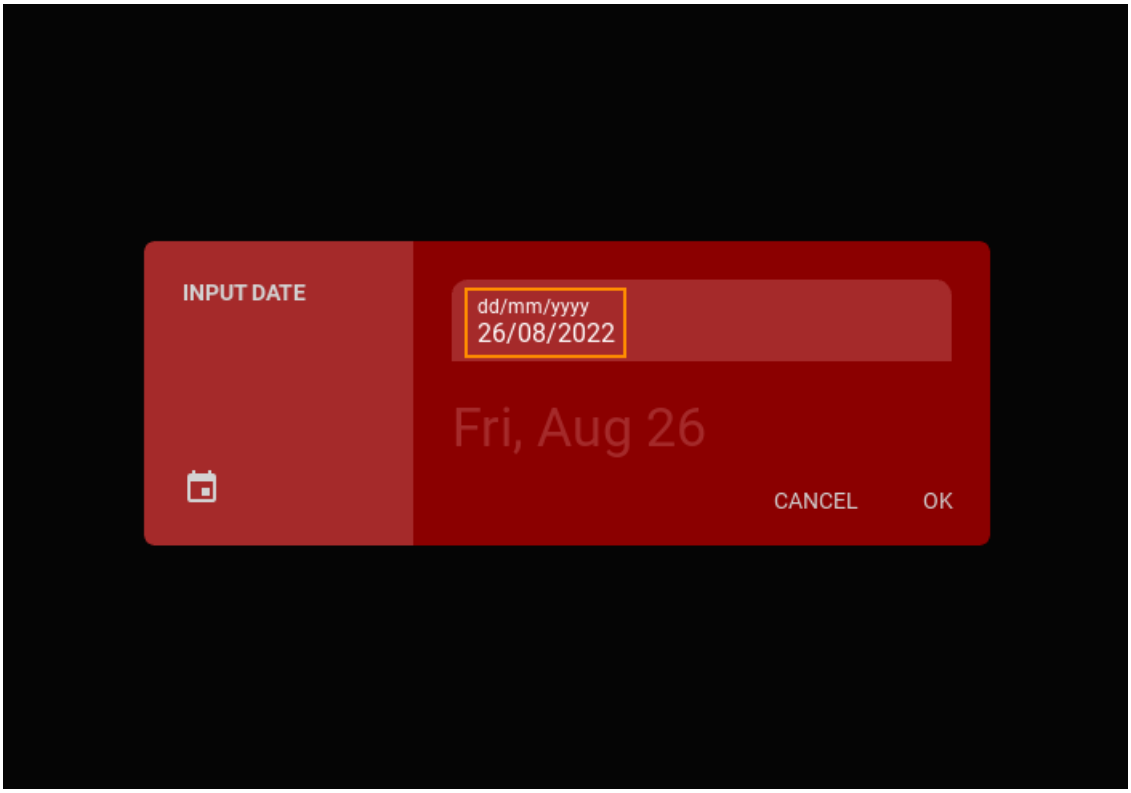
Use *input_field_text_color_normal* instead.

input_field_text_color_normal

Text color normal of input fields in (r, g, b, a) or string format.

New in version 1.1.0.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
    text_current_color="white",
    text_button_color="lightgrey",
    input_field_background_color_normal="brown",
    input_field_background_color_focus="red",
    input_field_text_color_normal="white",
)
```



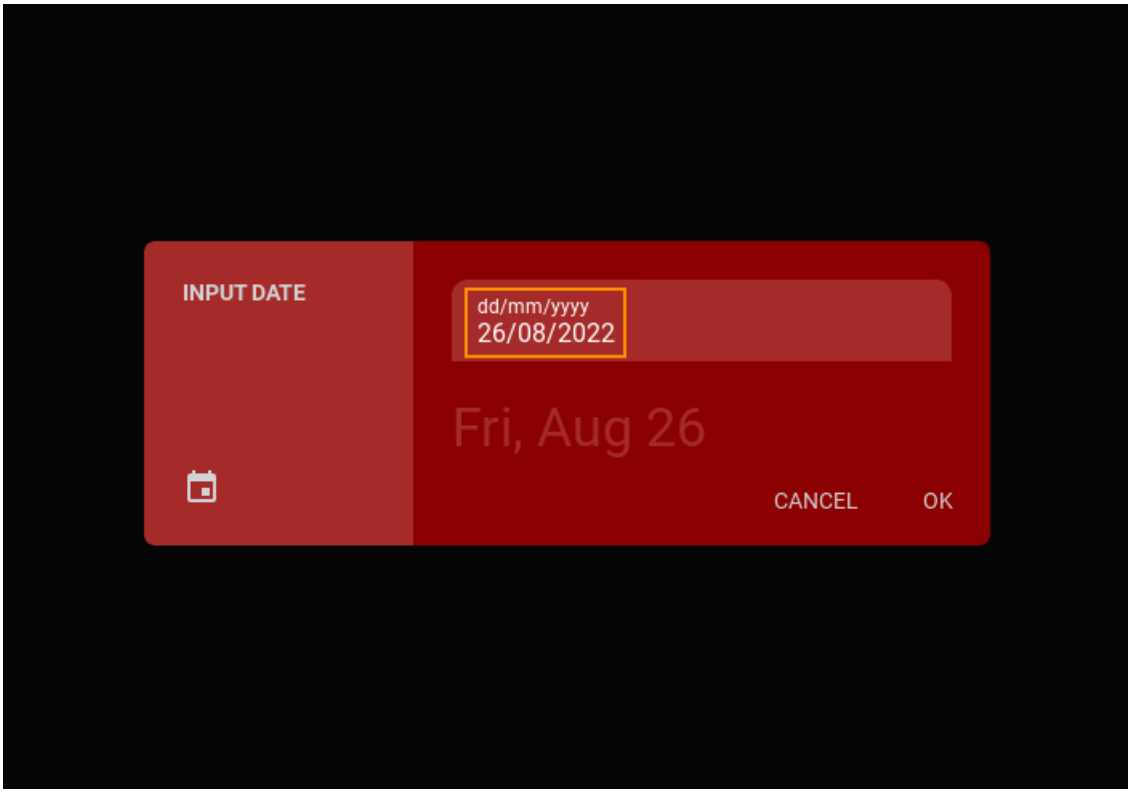
input_field_text_color_normal is an ColorProperty and defaults to *None*.

input_field_text_color_focus

Text color focus of input fields in (r, g, b, a) or string format.

New in version 1.1.0.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
    text_current_color="white",
    text_button_color="lightgrey",
    input_field_background_color_normal="brown",
    input_field_background_color_focus="red",
    input_field_text_color_normal="white",
)
```

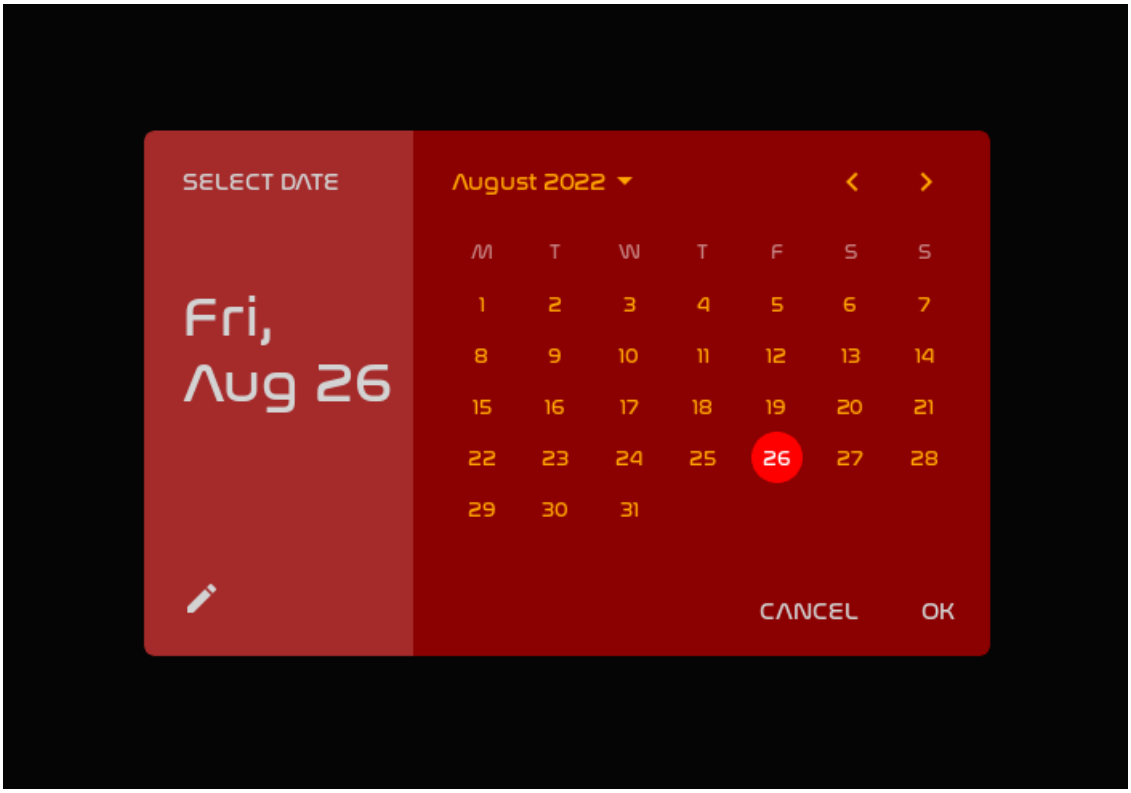


input_field_text_color_focus is an ColorProperty and defaults to *None*.

font_name

Font name for dialog window text.

```
MDDatePicker(
    primary_color="brown",
    accent_color="darkred",
    selector_color="red",
    text_toolbar_color="lightgrey",
    text_color="orange",
    text_current_color="white",
    text_button_color="lightgrey",
    input_field_background_color_normal="brown",
    input_field_background_color_focus="red",
    input_field_text_color_normal="white",
    input_field_text_color_focus="lightgrey",
    font_name="nasalization.ttf",
)
```



font_name is an `StringProperty` and defaults to *'Roboto'*.

on_input_field_background_color(*self*, *instance*, *value: str | list | tuple*)

For supported of current API.

on_input_field_text_color(*self*, *instance*, *value: str | list | tuple*)

For supported of current API.

on_save(*self*, **args*)

Events called when the "OK" dialog box button is clicked.

on_cancel(*self*, **args*)

Events called when the "CANCEL" dialog box button is clicked.

class kivymd.uix.pickers.datepicker.datepicker.**DatePickerInputField**(**args*, ***kwargs*)

Implements date input in dd/mm/yyyy format.

helper_text_mode

owner

set_error(*self*)

Sets a text field to an error state.

input_filter(*self*, *value: str*, *boolean: bool*)

Filters the input according to the specified mode.

is_numeric(*self*, *value: str*)

Returns true if the value of the *value* argument can be converted to an integer, or if the value of the *value* argument is '/'.

get_list_date(*self*)

Returns a list as *[dd, mm, yyyy]* from a text fied for entering a date.

class kivymd.uix.pickers.datepicker.datepicker.**MDDatePicker**(*year=None*, *month=None*, *day=None*, *firstweekday=0*, ***kwargs*)

Base class for `MDDatePicker` and `MDTimePicker` classes.

Events

on_save

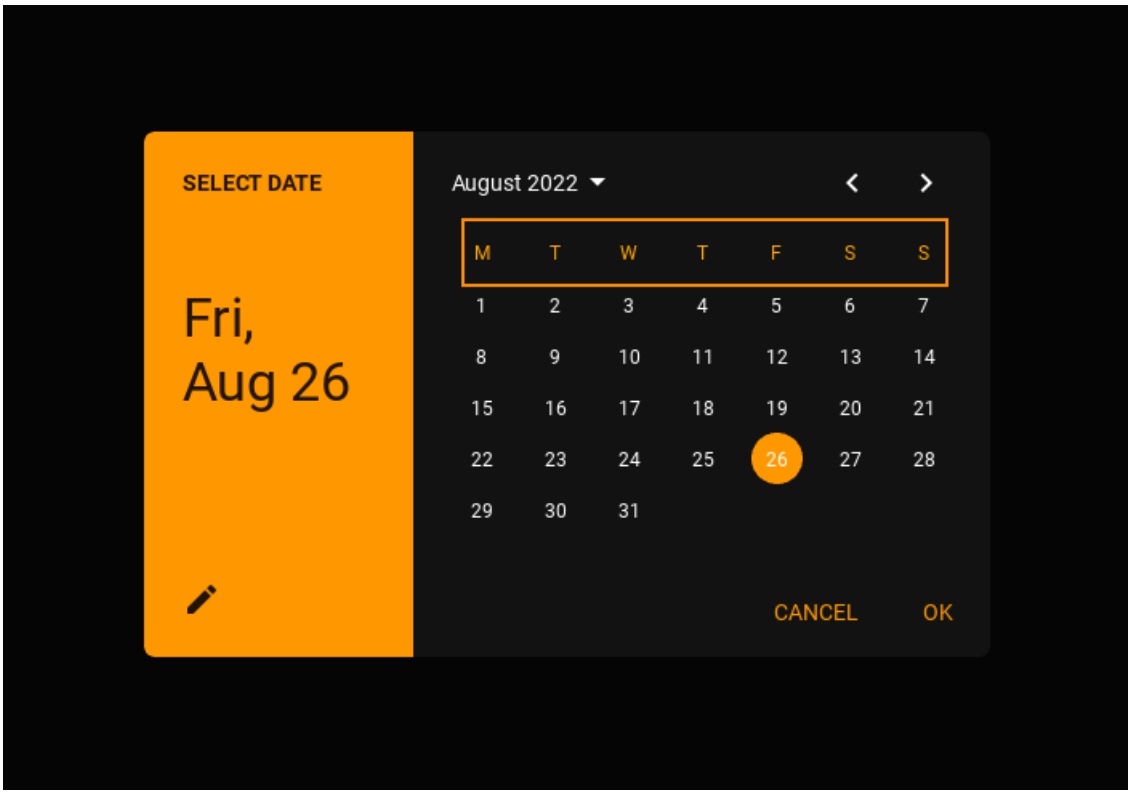
Events called when the "OK" dialog box button is clicked.

on_cancel

Events called when the "CANCEL" dialog box button is clicked.

text_weekday_color

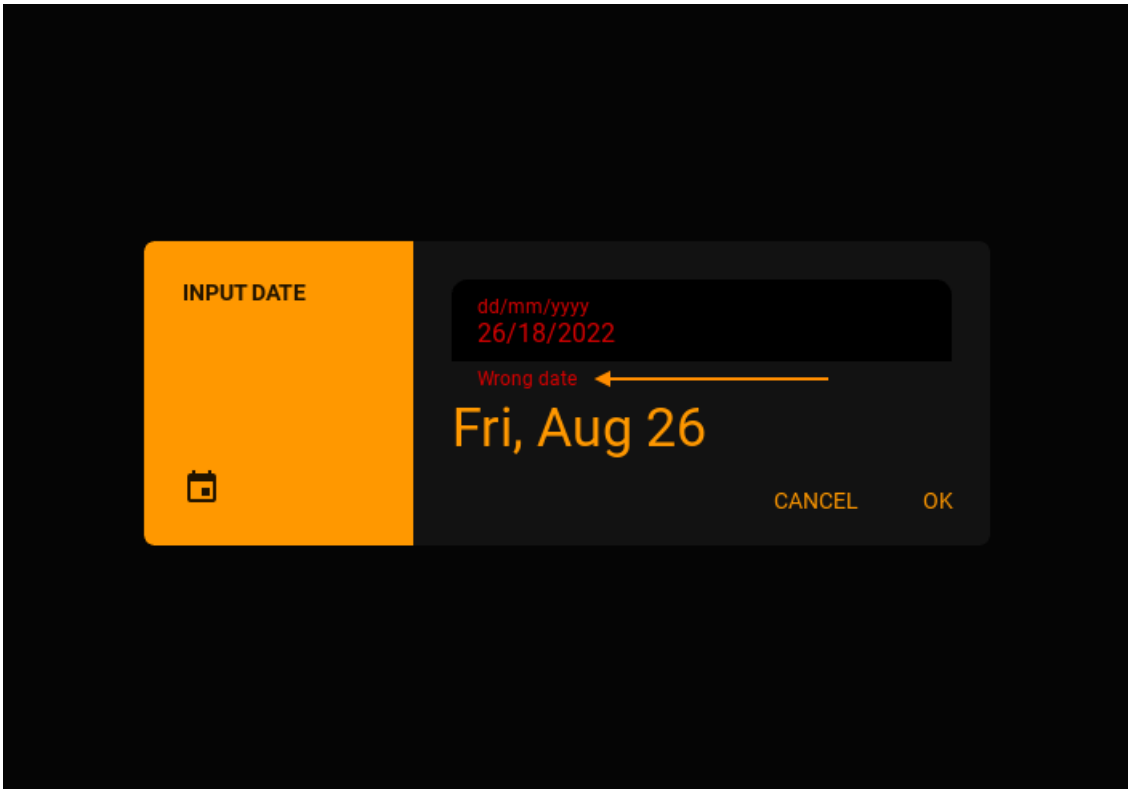
Text color of weekday names in (r, g, b, a) or string format.



text_weekday_color is an `ColorProperty` and defaults to *None*.

helper_text

Helper text when entering an invalid date.



helper_text is an StringProperty and defaults to *'Wrong date'*.

day

The day of the month to be opened by default. If not specified, the current number will be used.

See Open date dialog with the specified date for more information.

day is an NumericProperty and defaults to *0*.

month

The number of month to be opened by default. If not specified, the current number will be used.

See Open date dialog with the specified date for more information.

month is an NumericProperty and defaults to *0*.

year

The year of month to be opened by default. If not specified, the current number will be used.

See Open date dialog with the specified date for more information.

year is an NumericProperty and defaults to *0*.

min_year

The year of month to be opened by default. If not specified, the current number will be used.

min_year is an NumericProperty and defaults to *1914*.

max_year

The year of month to be opened by default. If not specified, the current number will be used.

max_year is an NumericProperty and defaults to *2121*.

mode

Dialog type:*'picker'* type allows you to select one date;
'range' type allows to set a range of dates from which the user can select a date.

Available options are: [*'picker'*, *'range'*].

mode is an `OptionProperty` and defaults to *picker*.

min_date

The minimum value of the date range for the *'mode'* parameter. Must be an object <class 'datetime.date'>.

See Open date dialog with the specified date for more information.

min_date is an `ObjectProperty` and defaults to *None*.

max_date

The minimum value of the date range for the *'mode'* parameter. Must be an object <class 'datetime.date'>.

See Open date dialog with the specified date for more information.

max_date is an `ObjectProperty` and defaults to *None*.

date_range_text_error

Error text that will be shown on the screen in the form of a toast if the minimum date range exceeds the maximum.

date_range_text_error is an `StringProperty` and defaults to *'Error date range'*.

input_field_cls

A class that will implement date input in the format dd/mm/yyyy. See *DatePickerInputField* class for more information.

```
class CustomInputField(MDTextField):
    owner = ObjectProperty()  # required attribute

    # Required method.
    def set_error(self):
        [...]

    # Required method.
    def get_list_date(self):
        [...]

    # Required method.
    def input_filter(self):
        [...]

def show_date_picker(self):
    date_dialog = MDDatePicker(input_field_cls=CustomInputField)
```

input_field_cls is an `ObjectProperty` and defaults to *DatePickerInputField*.

sel_year

sel_month

sel_day

on_device_orientation(*self*, *instance_theme_manager:* ThemeManager, *orientation_value: str*)

Called when the device's screen orientation changes.

on_ok_button_pressed(*self*)

Called when the 'OK' button is pressed to confirm the date entered.

is_date_valaid(*self*, *date: str*)

Checks the valid of the currently entered date.

transformation_from_dialog_select_year(*self*)

transformation_to_dialog_select_year(*self*)

transformation_to_dialog_input_date(*self*)

transformation_from_dialog_input_date(*self*, *interval: Union[int, float]*)

compare_date_range(*self*)

update_calendar_for_date_range(*self*)

update_text_full_date(*self*, *list_date*)

Updates the title of the week, month and number day name in an open date input dialog.

update_calendar(*self*, *year*, *month*)

get_field(*self*)

Creates and returns a text field object used to enter dates.

get_date_range(*self*)

set_text_full_date(*self*, *year*, *month*, *day*, *orientation*)

Returns a string of type "Tue, Feb 2" or "Tue, Feb 2" for a date

choose and a string like "Feb 15 - Mar 23" or "Feb 15,

Mar 23" for
a date range.

set_selected_widget(*self*, *widget*)

set_month_day(*self*, *day*)

set_position_to_current_year(*self*)

generate_list_widgets_years(*self*)

generate_list_widgets_days(*self*)

change_month(*self*, *operation: str*)

Called when "chevron-left" and "chevron-right" buttons are pressed. Switches the calendar to the previous/next month.

2.3.34 ColorPicker

New in version 1.0.0.

Create, share, and apply color palettes to your UI, as well as measure the accessibility level of any color combination..

Usage

```
from typing import Union

from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.pickers import MDColorPicker

KV = '''
MDScreen:

    MDTopAppBar:
        id: toolbar
        title: "MDTopAppBar"
        pos_hint: {"top": 1}
```

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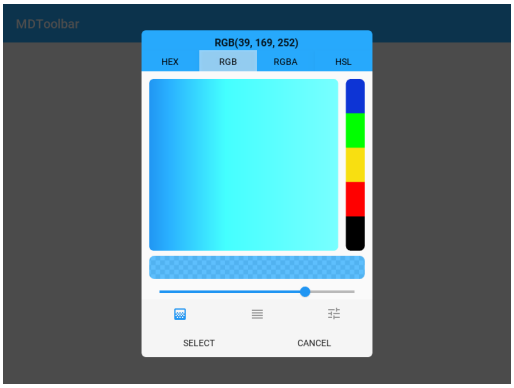
(continued from previous page)

```
    MDRaisedButton:
        text: "OPEN PICKER"
        pos_hint: {"center_x": .5, "center_y": .5}
        md_bg_color: toolbar.md_bg_color
        on_release: app.open_color_picker()
'''


class MyApp(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def open_color_picker(self):
        color_picker = MDColorPicker(size_hint=(0.45, 0.85))
        color_picker.open()
        color_picker.bind(
            on_select_color=self.on_select_color,
            on_release=self.get_selected_color,
        )

    def update_color(self, color: list) -> None:
        self.root.ids.toolbar.md_bg_color = color

    def get_selected_color(
        self,
        instance_color_picker: MDColorPicker,
        type_color: str,
        selected_color: Union[list, str],
    ):
        '''Return selected color.'''

        print(f"Selected color is {selected_color}")
        self.update_color(selected_color[:-1] + [1])

    def on_select_color(self, instance_gradient_tab, color: list) -> None:
        '''Called when a gradient image is clicked.'''


MyApp().run()
```



API - kivymd.uix.pickers.colorpicker.colorpicker

class kivymd.uix.pickers.colorpicker.colorpicker.**MDColorPicker**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

***on_dismiss*:**
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

adjacent_color_constants

A list of values that are used to create the gradient. These values are selected empirically. Each of these values will be added to the selected RGB value, thus creating colors that are close in value.

adjacent_color_constants is an ListProperty and defaults to *[0.299, 0.887, 0.411]*.

default_color

Default color value in (r, g, b, a) or string format. The set color value will be used when you open the dialog.

default_color is an ColorProperty and defaults to *None*.

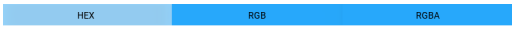
type_color

Type of color. Available options are: *'RGBA'*, *'HEX'*, *'RGB'*.

type_color is an OptionProperty and defaults to *'RGB'*.

background_down_button_selected_type_color

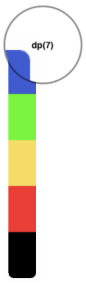
Button background for choosing a color type ('RGBA', 'HEX', 'HSL', 'RGB') in (r, g, b, a) or string format.



background_down_button_selected_type_color is an ColorProperty and defaults to *[1, 1, 1, 0.3]*.

radius_color_scale

The radius value for the color scale.



`radius` is an `VariableListProperty` and defaults to *[8, 8, 8, 8]*.

text_button_ok

Color selection button text.

text_button_ok is an `StringProperty` and defaults to *'SELECT'*.

text_button_cancel

Cancel button text.

text_button_cancel is an `StringProperty` and defaults to *'CANCEL'*.

selected_color

update_color_slider_item_bottom_navigation(*self*, *color: list*)

Updates the color of the slider that sets the transparency value of the selected color and the color of bottom navigation items.

update_color_type_buttons(*self*, *color: list*)

Updating button colors (display buttons of type of color) to match the selected color.

get_rgb(*self*, *color: list*)

Returns an RGB list of values from 0 to 255.

on_background_down_button_selected_type_color(*self*, *instance_color_picker*, *color: list*)

on_type_color(*self*, *instance_color_picker*, *type_color: str = ''*, *interval: Union[float, int] = 0*)

Called when buttons are clicked to set the color type.

on_open(*self*)

Default open event handler.

on_select_color(*self*, *color: list*)

Called when a gradient image is clicked.

on_switch_tabs(*self*, *bottom_navigation_instance*, *bottom_navigation_item_instance*, *name_tab*)

Called when switching tabs of bottom navigation.

on_release(*self*, **args*)

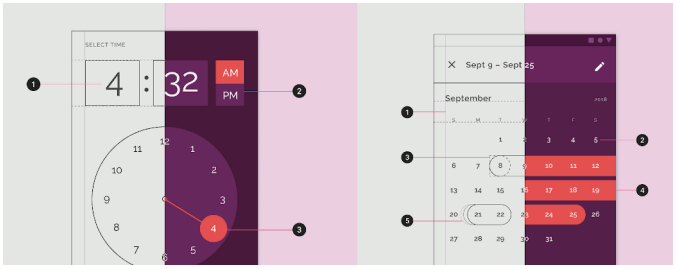
Called when the *SELECT* button is pressed

2.3.35 TimePicker

See also:

Material Design spec, Time picker

Includes time picker.



Warning: The widget is under testing. Therefore, we would be grateful if you would let us know about the bugs found.

Usage

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.pickers import MDTimePicker

KV = '''
MDFloatLayout:

    MDRaisedButton:
        text: "Open time picker"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_time_picker()
'''


class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def show_time_picker(self):
        '''Open time picker dialog.'''

        time_dialog = MDTimePicker()
```

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```
        time_dialog.open()


Test().run()
```

Declarative python style

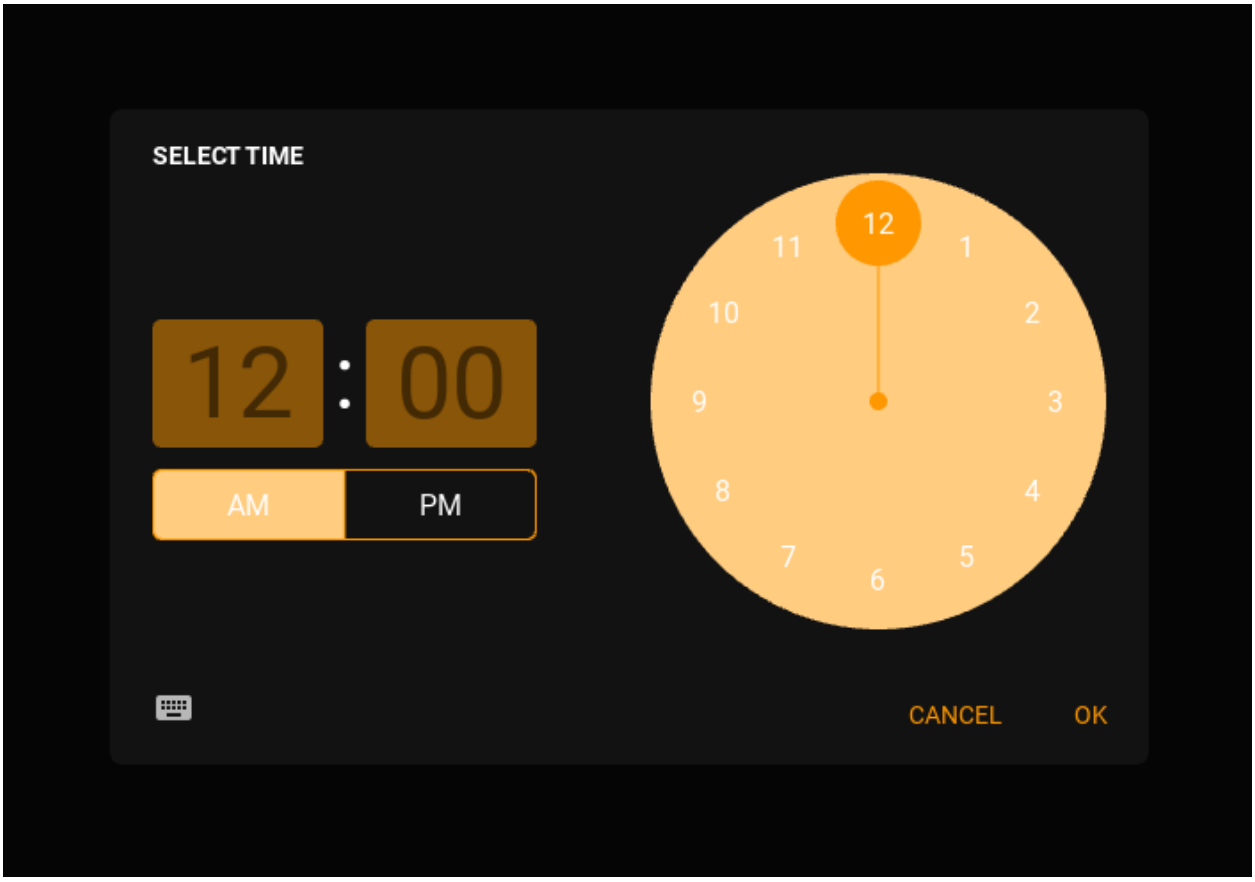
```
from kivymd.app import MDApp
from kivymd.uix.button import MDRaisedButton
from kivymd.uix.pickers import MDTimePicker
from kivymd.uix.screen import MDScreen


class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDRaisedButton(
                    text="Open time picker",
                    pos_hint={'center_x': .5, 'center_y': .5},
                    on_release=self.show_time_picker,
                )
            )
        )

    def show_time_picker(self, *args):
        '''Open time picker dialog.'''

        MDTimePicker().open()


Test().run()
```



Binding method returning set time

```
def show_time_picker(self):
    time_dialog = MDTimePicker()
    time_dialog.bind(time=self.get_time)
    time_dialog.open()

def get_time(self, instance, time):
    '''
    The method returns the set time.

    :type instance: <kivymd.uix.picker.MDTimePicker object>
    :type time: <class 'datetime.time'>
    '''

    return time
```

Open time dialog with the specified time

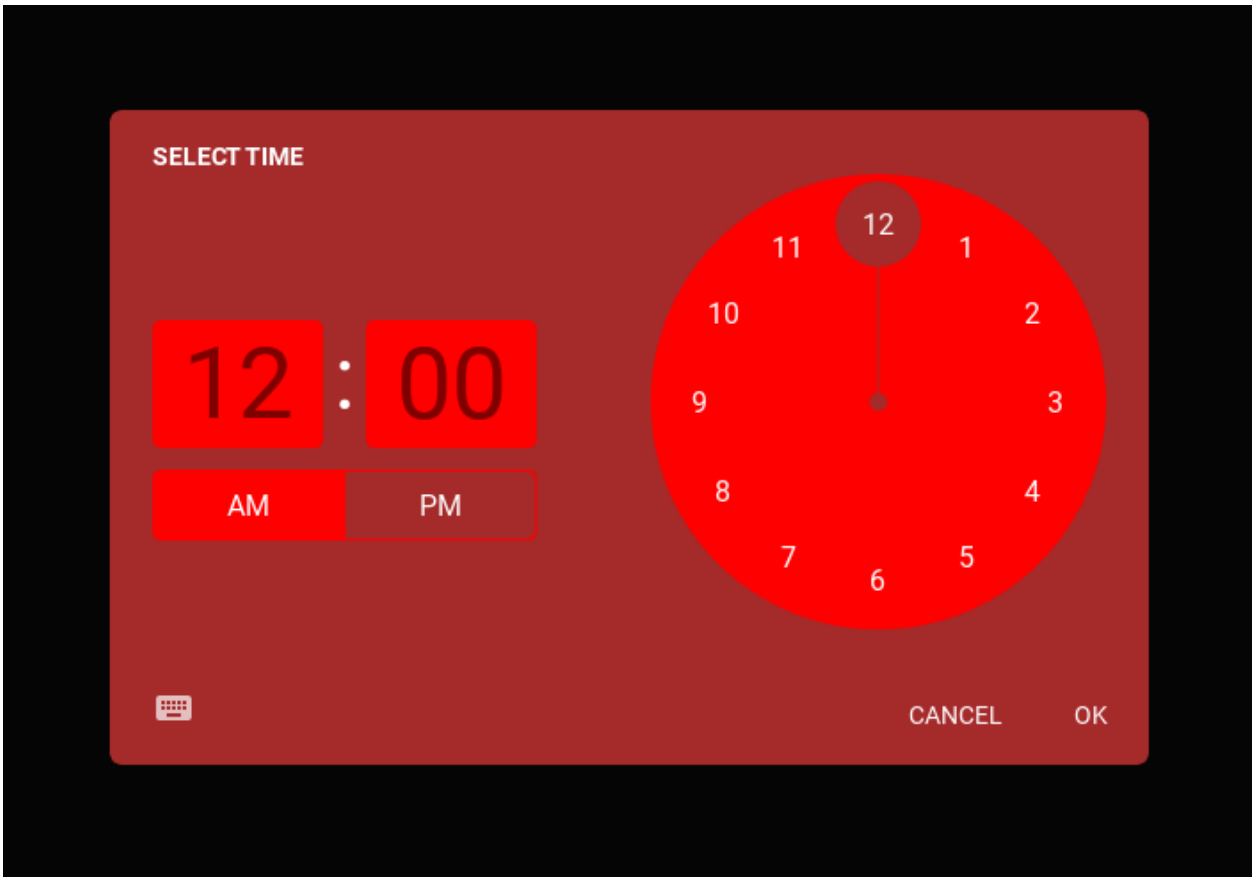
Use the *set_time* method of the class.

```
def show_time_picker(self):
    from datetime import datetime

    # Must be a datetime object
    previous_time = datetime.strptime("03:20:00", '%H:%M:%S').time()
    time_dialog = MDTimePicker()
    time_dialog.set_time(previous_time)
    time_dialog.open()
```

Note: For customization of the *MDTimePicker* class, see the documentation in the *BaseDialogPicker* class.

```
MDTimePicker(
    primary_color="brown",
    accent_color="red",
    text_button_color="white",
).open()
```



API - kivymd.uix.pickers.timepicker.timepicker

class kivymd.uix.pickers.timepicker.timepicker.**MDTimePicker**(***kwargs*)

Base class for `MDDatePicker` and `MDTimePicker` classes.

Events

on_save
Events called when the "OK" dialog box button is clicked.

on_cancel
Events called when the "CANCEL" dialog box button is clicked.

hour

Current hour.

hour is an `StringProperty` and defaults to *'12'*.

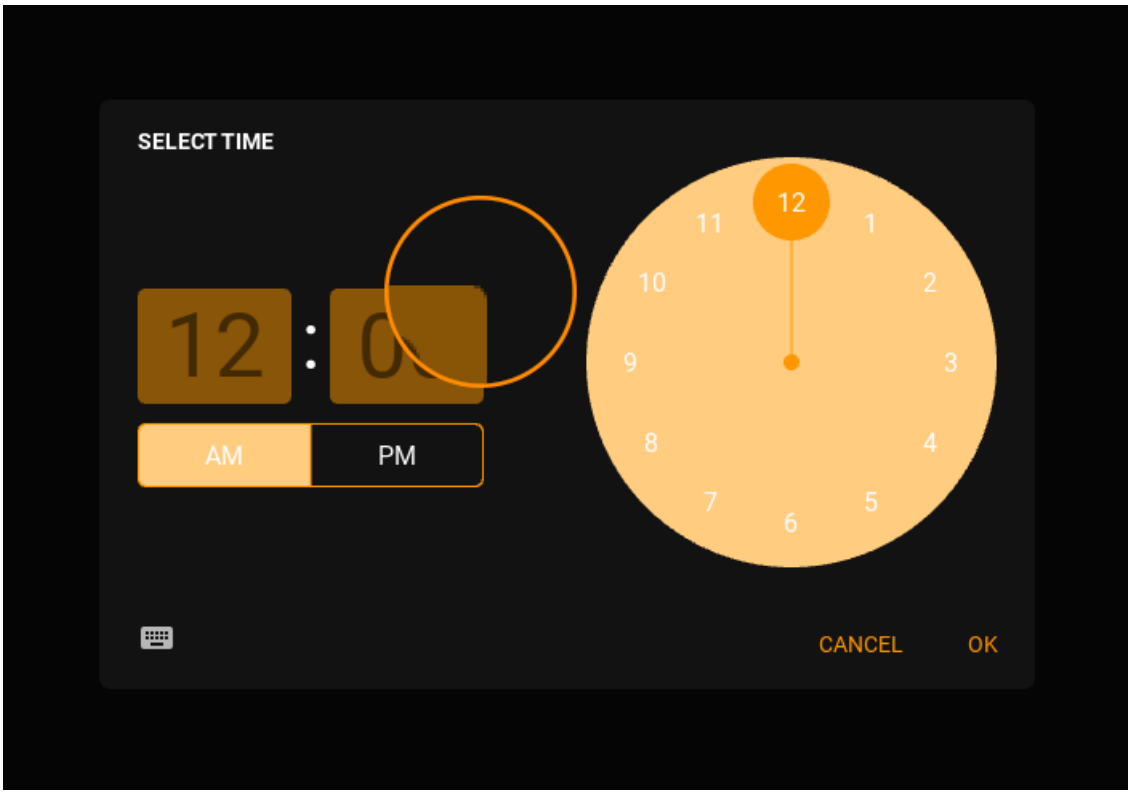
minute

Current minute.

minute is an `StringProperty` and defaults to *0*.

minute_radius

Radius of the minute input field.



minute_radius is an `ListProperty` and defaults to *[dp(5), dp(5), dp(5), dp(5)]*.

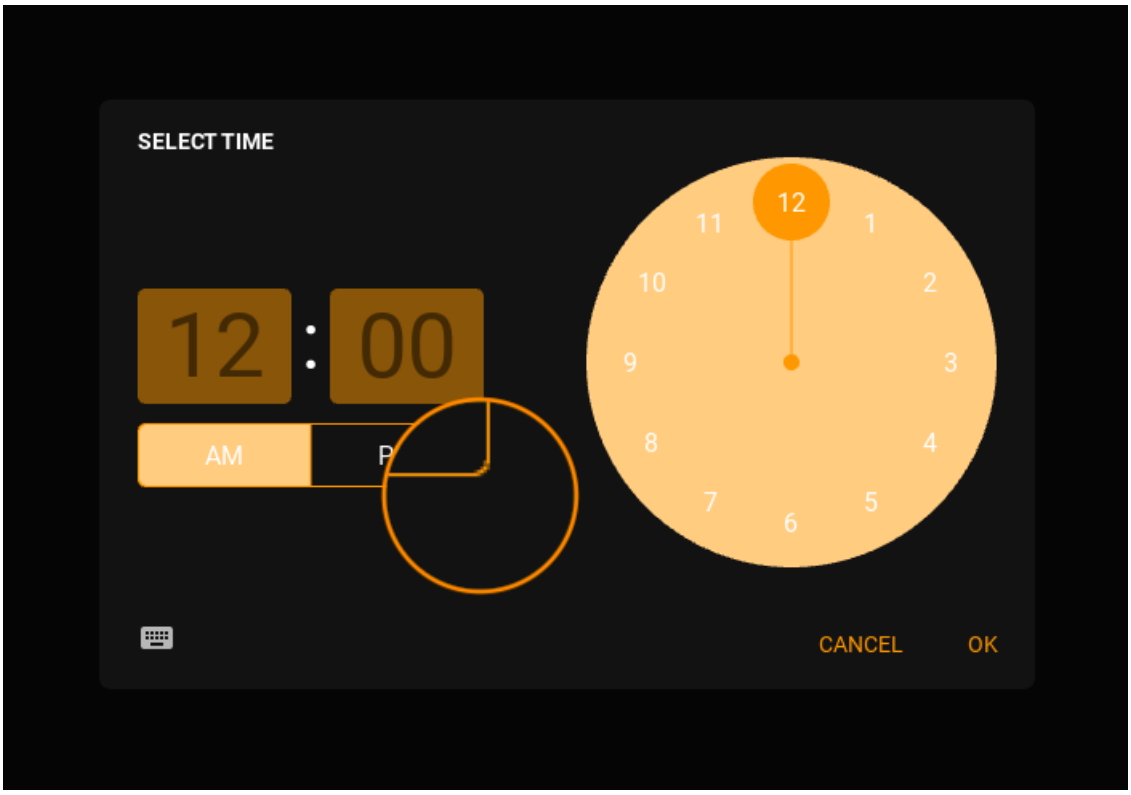
hour_radius

Radius of the hour input field.

hour_radius is an `ListProperty` and defaults to *[dp(5), dp(5), dp(5), dp(5)]*.

am_pm_radius

Radius of the AM/PM selector.



am_pm_radius is an NumericProperty and defaults to *dp(5)*.

am_pm_border_width

Width of the AM/PM selector's borders.

am_pm_border_width is an NumericProperty and defaults to *dp(1)*.

am_pm

Current AM/PM mode.

am_pm is an OptionProperty and defaults to *'am'*.

animation_duration

Duration of the animations.

animation_duration is an NumericProperty and defaults to *0.2*.

animation_transition

Transition type of the animations.

animation_transition is an StringProperty and defaults to *'out_quad'*.

time

Returns the current time object.

time is an ObjectProperty and defaults to *None*.

set_time(*self*, *time_obj*)

Manually set time dialog with the specified time.

get_state(*self*)

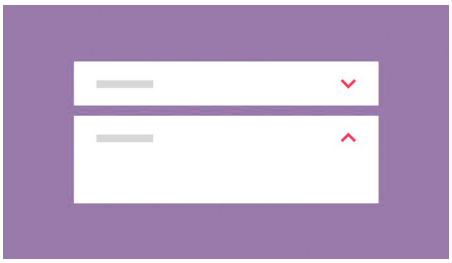
Returns the current state of TimePicker. Can be one of *portrait*, *landscape* or *input*.

2.3.36 ExpansionPanel

See also:

Material Design spec, Expansion panel

Expansion panels contain creation flows and allow lightweight editing of an element.



Usage

```
self.add_widget(
    MDExpansionPanel(
        icon="logo.png",  # panel icon
        content=Content(),  # panel content
        panel_cls=MDExpansionPanelOneLine(text="Secondary text"),  # panel class
    )
)
```

To use *MDExpansionPanel* you must pass one of the following classes to the *panel_cls* parameter:

- *MDExpansionPanelOneLine*
- *MDExpansionPanelTwoLine*
- *MDExpansionPanelThreeLine*

These classes are inherited from the following classes:

- OneLineAvatarIconListItem
- TwoLineAvatarIconListItem
- ThreeLineAvatarIconListItem

```
self.root.ids.box.add_widget(
    MDExpansionPanel(
        icon="logo.png",
        content=Content(),
        panel_cls=MDExpansionPanelThreeLine(
            text="Text",
            secondary_text="Secondary text",
            tertiary_text="Tertiary text",
        )
    )
)
```

Example

```
import os

from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.expansionpanel import MDExpansionPanel, MDExpansionPanelThreeLine
from kivymd import images_path

KV = '''
<Content>
    adaptive_height: True

    TwoLineIconListItem:
        text: "(050)-123-45-67"
        secondary_text: "Mobile"

        IconLeftWidget:
            icon: 'phone'


MDScrollView:

    MDGridLayout:
        id: box
        cols: 1
        adaptive_height: True
'''


class Content(MDBoxLayout):
    '''Custom content.'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
        for i in range(10):
            self.root.ids.box.add_widget(
                MDExpansionPanel(
                    icon=os.path.join(images_path, "logo", "kivymd-icon-128.png"),
                    content=Content(),
                    panel_cls=MDExpansionPanelThreeLine(
                        text="Text",
                        secondary_text="Secondary text",
                        tertiary_text="Tertiary text",
                    )
                )
```

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```
            )


Test().run()
```

Two events are available for `MDExpansionPanel`

- *on_open*
- *on_close*

```
MDExpansionPanel:
    on_open: app.on_panel_open(args)
    on_close: app.on_panel_close(args)
```

The user function takes one argument - the object of the panel:

```
def on_panel_open(self, instance_panel):
    print(instance_panel)
```

See also:

See Expansion panel example

Expansion panel and MDCard

API - `kivymd.uix.expansionpanel.expansionpanel`

class kivymd.uix.expansionpanel.expansionpanel.**MDExpansionPanelOneLine**(**args*, ***kwargs*)

Single line panel.

class kivymd.uix.expansionpanel.expansionpanel.**MDExpansionPanelTwoLine**(**args*, ***kwargs*)

Two-line panel.

class kivymd.uix.expansionpanel.expansionpanel.**MDExpansionPanelThreeLine**(**args*, ***kwargs*)

Three-line panel.

class kivymd.uix.expansionpanel.expansionpanel.**MDExpansionPanelLabel**(***kwargs*)

Label panel.

..warning:: This class is created for use in the
`MDStepperVertical` and `MDStepper` classes, and has not been tested for use outside of these classes.

set_paddings(*self*, *interval: Union[int, float]*)

class kivymd.uix.expansionpanel.expansionpanel.**MDExpansionPanel**(***kwargs*)

Events

on_open
Called when a panel is opened.

on_close
Called when a panel is closed.

content

Content of panel. Must be *Kivy* widget.

content is an ObjectProperty and defaults to *None*.

icon

Icon of panel.

Icon Should be either be a path to an image or a logo name in *md_icons*

icon is an StringProperty and defaults to *''*.

opening_transition

The name of the animation transition type to use when animating to the `state` *'open'*.

opening_transition is a StringProperty and defaults to *'out_cubic'*.

opening_time

The time taken for the panel to slide to the `state` *'open'*.

opening_time is a NumericProperty and defaults to *0.2*.

closing_transition

The name of the animation transition type to use when animating to the `state` 'close'.

closing_transition is a StringProperty and defaults to *'out_sine'*.

closing_time

The time taken for the panel to slide to the `state` *'close'*.

closing_time is a NumericProperty and defaults to *0.2*.

panel_cls

Panel object. The object must be one of the classes *MDExpansionPanelOneLine*, *MDExpansionPanelTwoLine* or *MDExpansionPanelThreeLine*.

panel_cls is a ObjectProperty and defaults to *None*.

on_open(*self*, **args*)

Called when a panel is opened.

on_close(*self*, **args*)

Called when a panel is closed.

check_open_panel(*self*, *instance_panel: [*MDExpansionPanelThreeLine, MDExpansionPanelTwoLine, MDExpansionPanelThreeLine, MDExpansionPanelLabel*]*)

Called when you click on the panel. Called methods to open or close a panel.

set_chevron_down(*self*)

Sets the chevron down.

set_chevron_up(*self*, *instance_chevron: MDExpansionChevronRight*)

Sets the chevron up.

close_panel(*self*, *instance_expansion_panel*, *press_current_panel: bool*)

Method closes the panel.

open_panel(*self*, **args*)

Method opens a panel.

`get_state`(*self*)

Returns the state of panel. Can be *close* or *open* .

`add_widget`(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: `Widget`**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

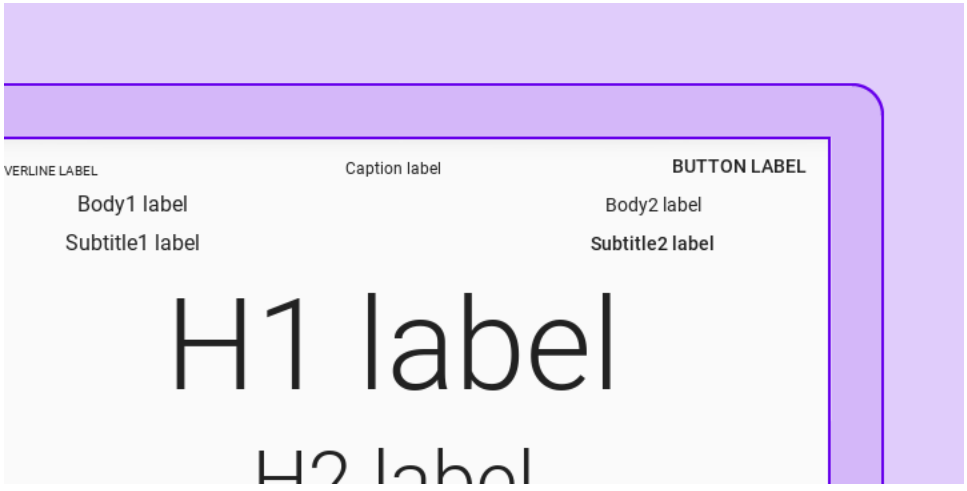
***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.37 Label

The `MDLabel` widget is for rendering text.



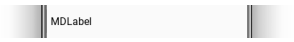
- *MDLabel*

- *MDIcon*

MDLabel

Class *MDLabel* inherited from the Label class but for *MDLabel* the text_size parameter is (self.width, None) and default is positioned on the left:

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDBoxLayout:
        orientation: "vertical"

        MDTopAppBar:
            title: "MDLabel"

        MDLabel:
            text: "MDLabel"
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```



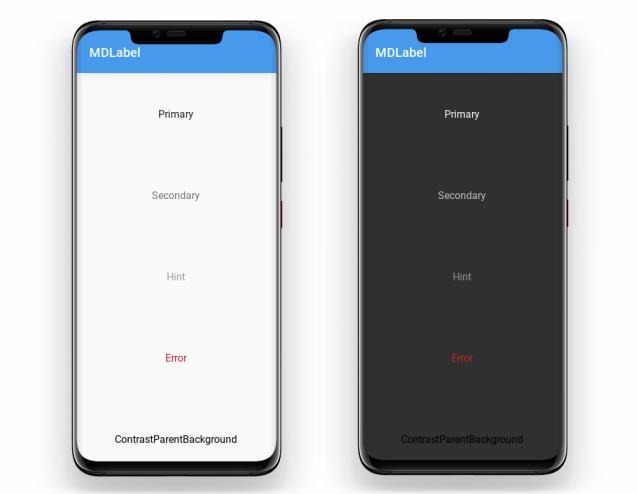
Note: See halign and valign attributes of the Label class

```
MDLabel:
    text: "MDLabel"
    halign: "center"
```

`MDLabel` color:

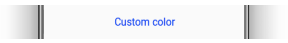
MDLabel provides standard color themes for label color management:

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.label import MDLabel

KV = '''
MDScreen:

    MDBoxLayout:
        id: box
        orientation: "vertical"

        MDTopAppBar:
            title: "MDLabel"
'''


class Test(MDApp):
    def build(self):
        screen = Builder.load_string(KV)
        # Names of standard color themes.
        for name_theme in [
            "Primary",
            "Secondary",
            "Hint",
            "Error",
            "ContrastParentBackground",
        ]:
            screen.ids.box.add_widget(
                MDLabel(
                    text=name_theme,
                    halign="center",
                    theme_text_color=name_theme,
                )
            )
        return screen


Test().run()
```



To use a custom color for *MDLabel*, use a theme *'Custom'*. After that, you can specify the desired color in the `rgba` format in the `text_color` parameter:

```
MDLabel:
    text: "Custom color"
    halign: "center"
    theme_text_color: "Custom"
    text_color: 0, 0, 1, 1
```



MDLabel provides standard font styles for labels. To do this, specify the name of the desired style in the *font_style* parameter:

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.label import MDLabel
from kivymd.font_definitions import theme_font_styles


KV = '''
MDScreen:

    MDBoxLayout:
        orientation: "vertical"

        MDTopAppBar:
            title: "MDLabel"

        ScrollView:

            MDList:
                id: box
'''
```

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```
class Test(MDApp):
    def build(self):
        screen = Builder.load_string(KV)
        # Names of standard font styles.
        for name_style in theme_font_styles[:-1]:
            screen.ids.box.add_widget(
                MDLabel(
                    text=f"{name_style} style",
                    halign="center",
                    font_style=name_style,
                )
            )
        return screen


Test().run()
```

MDIcon

You can use labels to display material design icons using the *MDIcon* class.

See also:

Material Design Icons

Material Design Icon Names

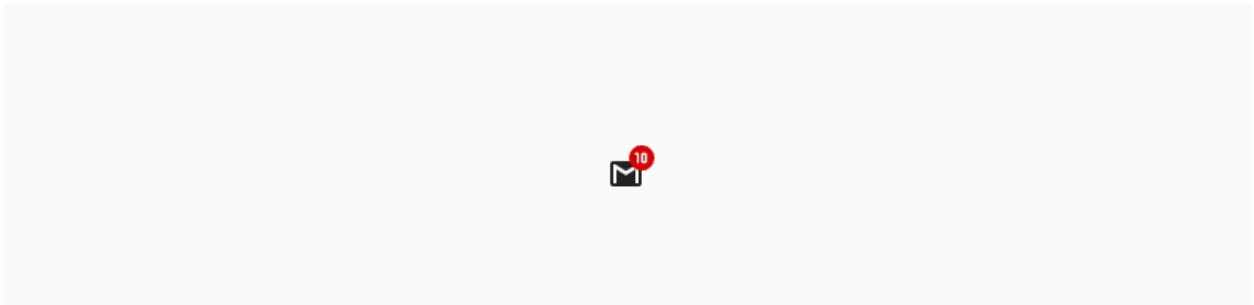
The *MDIcon* class is inherited from *MDLabel* and has the same parameters.

> **Warning:** For the *MDIcon* class, you cannot use `text` and `font_style` options!

```
MDIcon:
    icon: "gmail"
    pos_hint: {"center_x": .5, "center_y": .5}
```

MDIcon with badge icon

```
MDIcon:
    icon: "gmail"
    badge_icon: "numeric-10"
    pos_hint: {"center_x": .5, "center_y": .5}
```



API - kivymd.uix.label.label

class kivymd.uix.label.label.**MDLabel**(***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

font_style

Label font style.

Available vanilla font_style are: *'H1'*, *'H2'*, *'H3'*, *'H4'*, *'H5'*, *'H6'*, *'Subtitle1'*, *'Subtitle2'*, *'Body1'*, *'Body2'*, *'Button'*, *'Caption'*, *'Overline'*, *'Icon'*.

font_style is an StringProperty and defaults to *'Body1'*.

text

Text of the label.

theme_text_color

Label color scheme name.

Available options are: *'Primary'*, *'Secondary'*, *'Hint'*, *'Error'*, *'Custom'*, *'ContrastParentBackground'*.

theme_text_color is an OptionProperty and defaults to *None*.

text_color

Label text color in (r, g, b, a) format.

text_color is an ColorProperty and defaults to *None*.

parent_background

can_capitalize

canvas_bg

check_font_styles(*self*, *interval: Union[int, float] = 0*)

update_font_style(*self*, *instance_label*, *font_style: str*)

on_theme_text_color(*self*, *instance_label*, *theme_text_color: str*)

on_text_color(*self*, *instance_label*, *color: Union[list, str]*)

on_opposite_colors(*self*, **args*)

on_md_bg_color(*self*, *instance_label*, *color: Union[list, str]*)

on_size(*self*, *instance_label*, *size: list*)

update_canvas_bg_pos(*self*, *instance_label*, *pos: list*)

class kivymd.uix.label.label.**MDIcon**(**args*, ***kwargs*)

Float layout class. For more information, see in the FloatLayout class documentation.

icon

Label icon name.

icon is an StringProperty and defaults to *'android'*.

badge_icon

Label badge icon name.

New in version 1.0.0.

badge_icon is an StringProperty and defaults to *''*.

badge_icon_color

Badge icon color in (r, g, b, a) format.

New in version 1.0.0.

badge_icon_color is an ColorProperty and defaults to *None*.

badge_bg_color

Badge icon background color in (r, g, b, a) format.

New in version 1.0.0.

badge_bg_color is an ColorProperty and defaults to *None*.

badge_font_size

Badge font size.

New in version 1.0.0.

badge_font_size is an NumericProperty and defaults to *0*.

source

Path to icon.

source is an StringProperty and defaults to *None*.

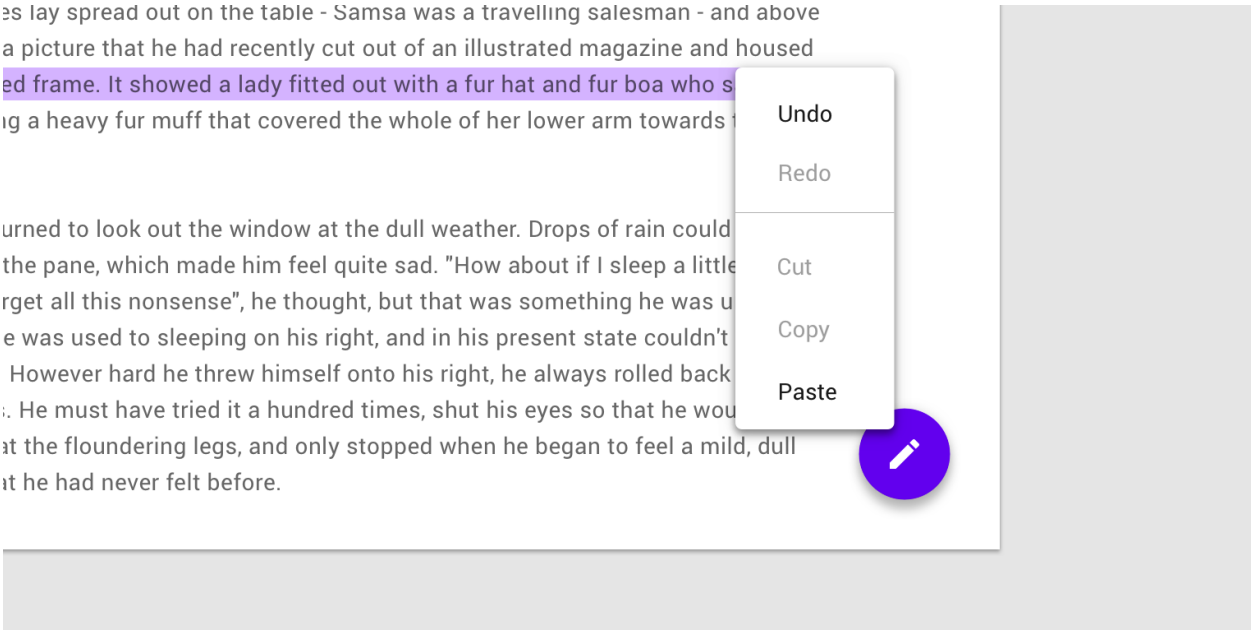
adjust_size(*self*, **args*)

2.3.38 Menu

See also:

Material Design spec, Menus

Menus display a list of choices on temporary surfaces.



Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu

KV = '''
MDScreen:

    MDRaisedButton:
        id: button
        text: "PRESS ME"
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.menu.open()
'''


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
```

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```
        self.screen = Builder.load_string(KV)
        menu_items = [
            {
                "text": f"Item {i}",
                "viewclass": "OneLineListItem",
                "on_release": lambda x=f"Item {i}": self.menu_callback(x),
            } for i in range(5)
        ]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.button,
            items=menu_items,
            width_mult=4,
        )

    def menu_callback(self, text_item):
        print(text_item)

    def build(self):
        return self.screen


Test().run()
```

Warning: Do not create the *MDDropdownMenu* object when you open the menu window. Because on a mobile device this one will be very slow!

Wrong

```
menu = MDDropdownMenu(caller=self.screen.ids.button, items=menu_items)
menu.open()
```

Customization of menu item

Menu items are created in the same way as items for the `RecycleView` class.

```
from kivy.lang import Builder
from kivy.metrics import dp
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.list import IRightBodyTouch, OneLineAvatarIconListItem
from kivymd.uix.menu import MDDropdownMenu

KV = '''
<RightContentCls>
```

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```
    disabled: True
    adaptive_size: True
    pos_hint: {"center_y": .5}

    MDIconButton:
        icon: root.icon
        user_font_size: "16sp"
        md_bg_color_disabled: 0, 0, 0, 0

    MDLabel:
        text: root.text
        font_style: "Caption"
        adaptive_size: True
        pos_hint: {"center_y": .5}


<Item>

    IconLeftWidget:
        icon: root.left_icon

    RightContentCls:
        id: container
        icon: root.right_icon
        text: root.right_text


MDScreen:

    MDRaisedButton:
        id: button
        text: "PRESS ME"
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.menu.open()
'''


class RightContentCls(IRightBodyTouch, MDBoxLayout):
    icon = StringProperty()
    text = StringProperty()


class Item(OneLineAvatarIconListItem):
    left_icon = StringProperty()
    right_icon = StringProperty()
    right_text = StringProperty()


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
```

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```
        menu_items = [
            {
                "text": f"Item {i}",
                "right_text": f"R+{i}",
                "right_icon": "apple-keyboard-command",
                "left_icon": "git",
                "viewclass": "Item",
                "height": dp(54),
                "on_release": lambda x=f"Item {i}": self.menu_callback(x),
            } for i in range(5)
        ]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.button,
            items=menu_items,
            width_mult=4,
        )

    def menu_callback(self, text_item):
        print(text_item)

    def build(self):
        return self.screen


Test().run()
```

Header

```
from kivy.lang import Builder
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu
from kivymd.uix.boxlayout import MDBoxLayout

KV = '''
<MenuHeader>
    orientation: "vertical"
    adaptive_size: True
    padding: "4dp"

    MDBoxLayout:
        spacing: "12dp"
        adaptive_size: True

        MDIconButton:
            icon: "gesture-tap-button"
            pos_hint: {"center_y": .5}
```

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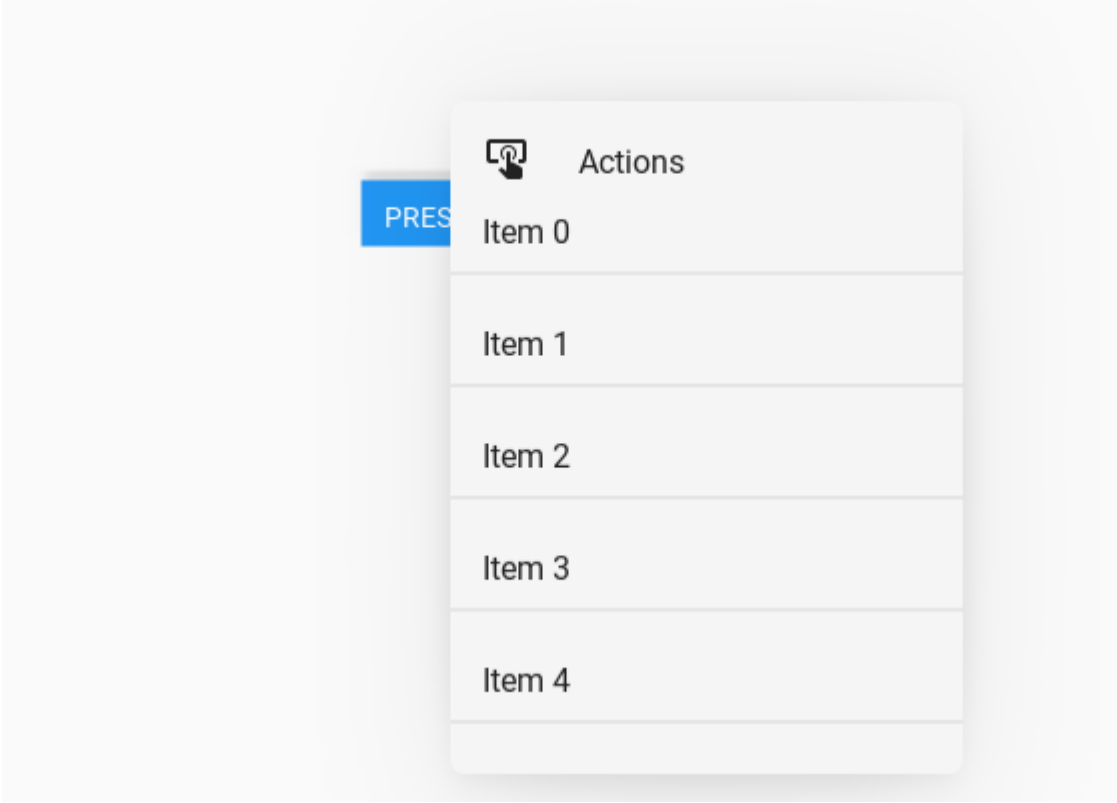
```
        MDLabel:
            text: "Actions"
            adaptive_size: True
            pos_hint: {"center_y": .5}


MDScreen:

    MDRaisedButton:
        id: button
        text: "PRESS ME"
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.menu.open()
'''


class MenuHeader(MDBoxLayout):
    '''An instance of the class that will be added to the menu header.'''


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        menu_items = [
            {
                "text": f"Item {i}",
                "viewclass": "OneLineListItem",
                "height": dp(56),
                "on_release": lambda x=f"Item {i}": self.menu_callback(x),
            } for i in range(5)
        ]
        self.menu = MDDropdownMenu(
            header_cls=MenuHeader(),
            caller=self.screen.ids.button,
            items=menu_items,
            width_mult=4,
        )

    def menu_callback(self, text_item):
        print(text_item)

    def build(self):
        return self.screen


Test().run()
```



Menu with MDTopAppBar

The *MDDropdownMenu* works well with the standard `MDTopAppBar`. Since the buttons on the Toolbar are created by the MDTopAppBar component, it is necessary to pass the button as an argument to the callback using *lambda x: app.callback(x)*.

Note: This example uses drop down menus for both the righthand and lefthand menus (i.e both the 'triple bar' and 'triple dot' menus) to illustrate that it is possible. A better solution for the 'triple bar' menu would probably have been `MDNavigationDrawer`.

```
from kivy.lang import Builder
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu
from kivymd.uix.snackbar import Snackbar

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "MDTopAppBar"
        left_action_items: [["menu", lambda x: app.callback(x)]]
        right_action_items: [["dots-vertical", lambda x: app.callback(x)]]
```

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```
    MDLabel:
        text: "Content"
        halign: "center"
'''


class Test(MDApp):
    def build(self):
        menu_items = [
            {
                "viewclass": "OneLineListItem",
                "text": f"Item {i}",
                "height": dp(56),
                "on_release": lambda x=f"Item {i}": self.menu_callback(x),
             } for i in range(5)
        ]
        self.menu = MDDropdownMenu(
            items=menu_items,
            width_mult=4,
        )
        return Builder.load_string(KV)

    def callback(self, button):
        self.menu.caller = button
        self.menu.open()

    def menu_callback(self, text_item):
        self.menu.dismiss()
        Snackbar(text=text_item).open()


Test().run()
```

Position

Bottom position

See also:

position

```
from kivy.lang import Builder
from kivy.metrics import dp
from kivy.properties import StringProperty

from kivymd.uix.list import OneLineIconListItem
from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu
```

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```
KV = '''
<IconListItem>

    IconLeftWidget:
        icon: root.icon


MDScreen

    MDTextField:
        id: field
        pos_hint: {'center_x': .5, 'center_y': .6}
        size_hint_x: None
        width: "200dp"
        hint_text: "Password"
        on_focus: if self.focus: app.menu.open()
'''


class IconListItem(OneLineIconListItem):
    icon = StringProperty()


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        menu_items = [
            {
                "viewclass": "IconListItem",
                "icon": "git",
                "height": dp(56),
                "text": f"Item {i}",
                "on_release": lambda x=f"Item {i}": self.set_item(x),
            } for i in range(5)]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.field,
            items=menu_items,
            position="bottom",
            width_mult=4,
        )

    def set_item(self, text__item):
        self.screen.ids.field.text = text__item
        self.menu.dismiss()

    def build(self):
        return self.screen


Test().run()
```

Center position

```
from kivy.lang import Builder
from kivy.metrics import dp
from kivy.properties import StringProperty

from kivymd.uix.list import OneLineIconListItem
from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu

KV = '''
<IconListItem>

    IconLeftWidget:
        icon: root.icon


MDScreen

    MDDropDownItem:
        id: drop_item
        pos_hint: {'center_x': .5, 'center_y': .5}
        text: 'Item 0'
        on_release: app.menu.open()
'''


class IconListItem(OneLineIconListItem):
    icon = StringProperty()


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        menu_items = [
            {
                "viewclass": "IconListItem",
                "icon": "git",
                "text": f"Item {i}",
                "height": dp(56),
                "on_release": lambda x=f"Item {i}": self.set_item(x),
            } for i in range(5)
        ]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.drop_item,
            items=menu_items,
            position="center",
            width_mult=4,
        )
        self.menu.bind()
```

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```
    def set_item(self, text_item):
        self.screen.ids.drop_item.set_item(text_item)
        self.menu.dismiss()

    def build(self):
        return self.screen


Test().run()
```

API - kivymd.uix.menu.menu

class kivymd.uix.menu.menu.**MDDropdownMenu**(***kwargs*)

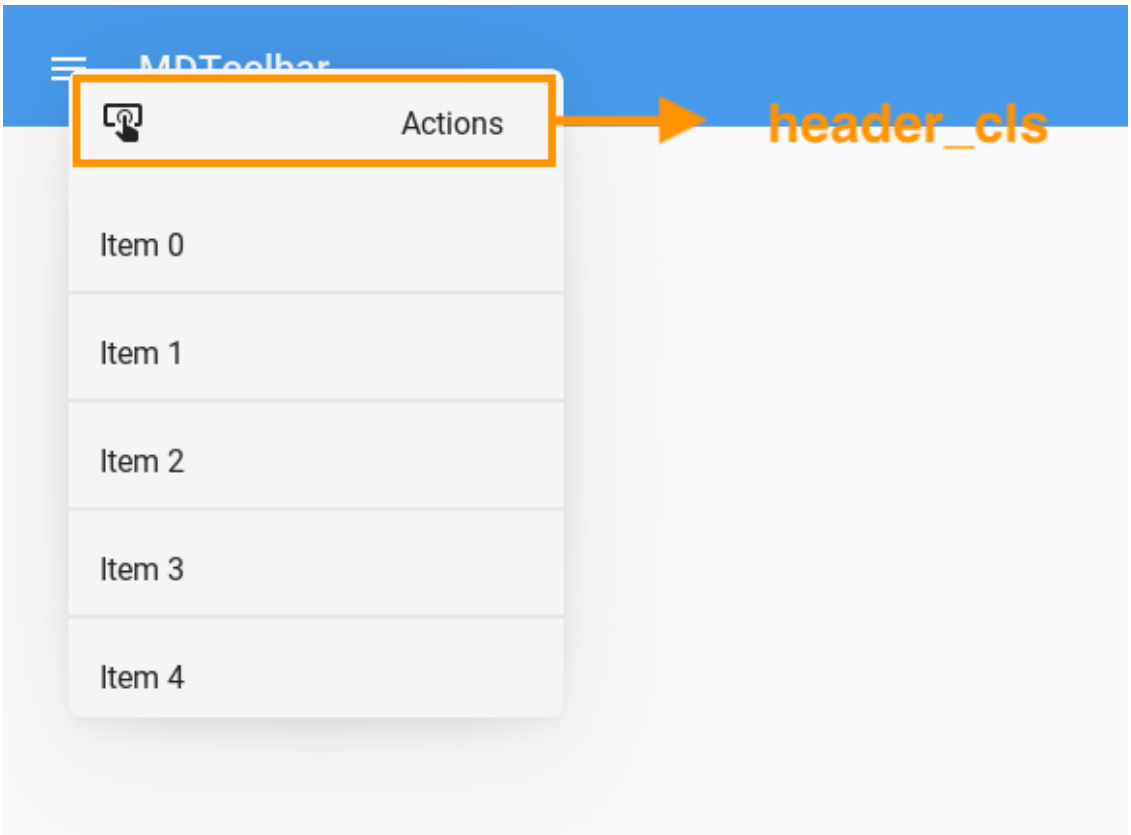
Events

on_release
The method that will be called when you click menu items.

header_cls
An instance of the class (*Kivy* or *KivyMD* widget) that will be added to the menu header.

New in version 0.104.2.

See *Header* for more information.

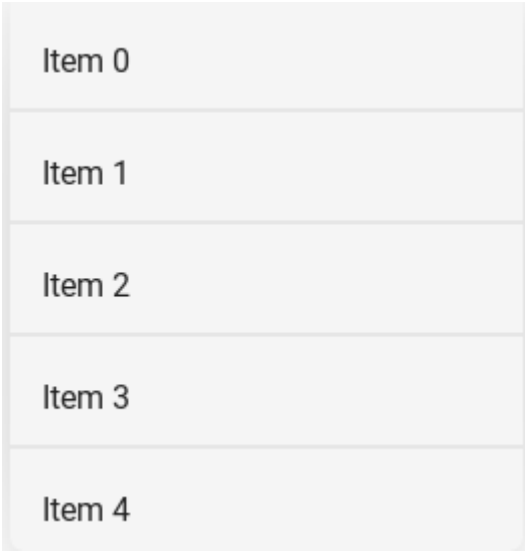


header_cls is a ObjectProperty and defaults to *None*.

items

See data.

```
items = [
    {
        "viewclass": "OneLineListItem",
        "height": dp(56),
        "text": f"Item {i}",
    }
    for i in range(5)
]
self.menu = MDDropdownMenu(
    items=items,
    ...,
)
```



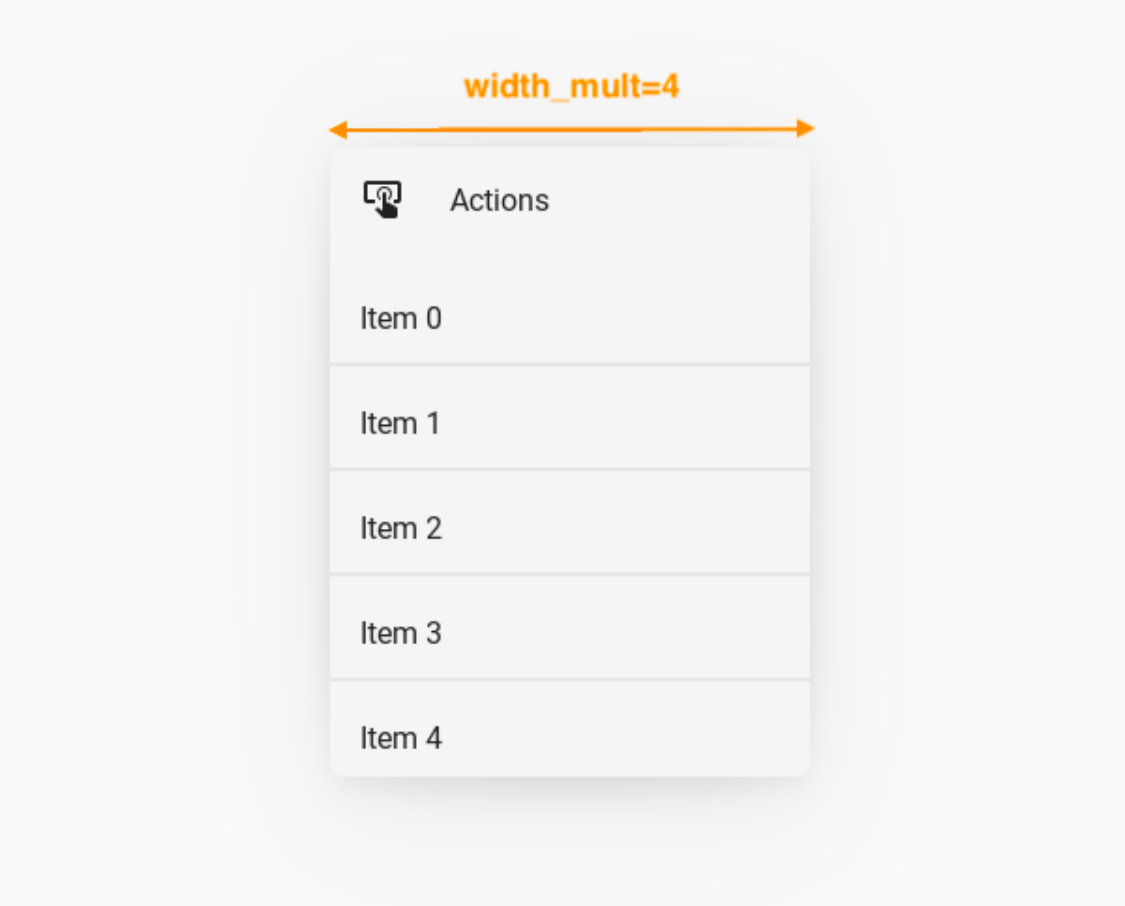
items is a ListProperty and defaults to *[]*.

width_mult

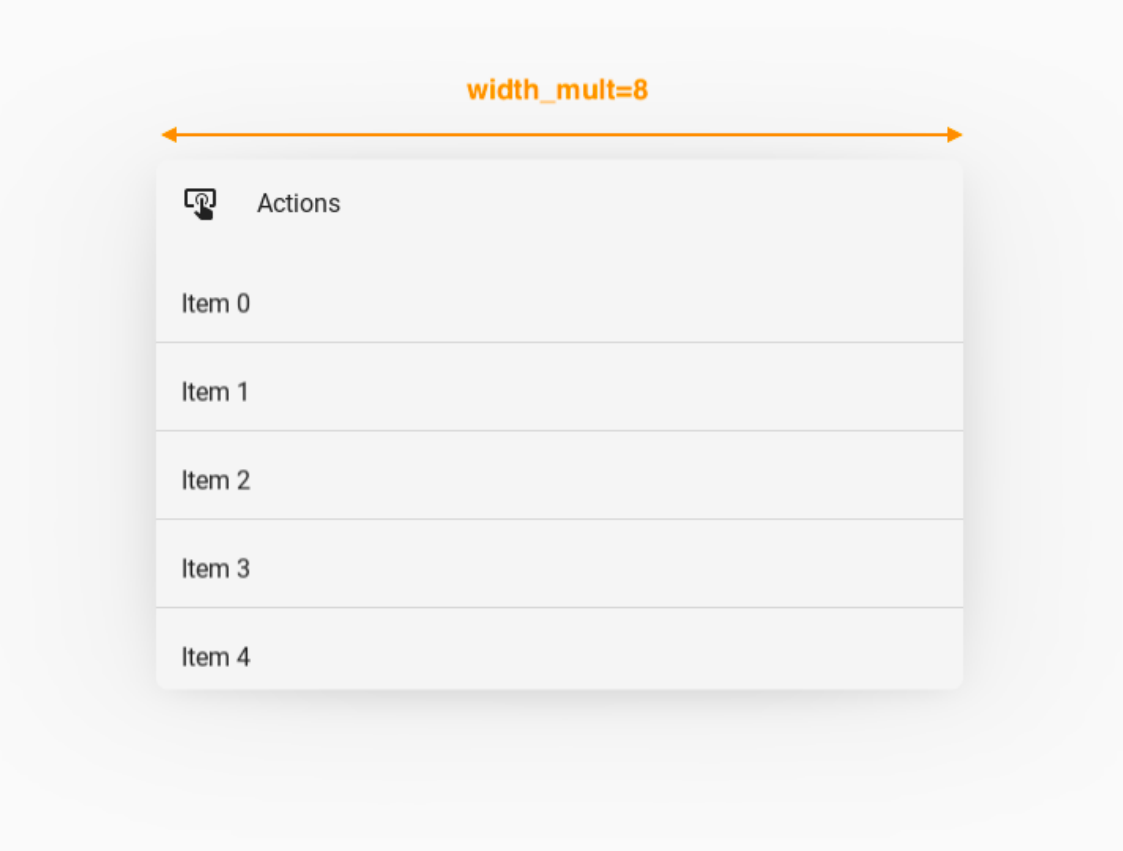
This number multiplied by the standard increment ('56dp' on mobile, '64dp' on desktop), determines the width of the menu items.

If the resulting number were to be too big for the application Window, the multiplier will be adjusted for the biggest possible one.

```
self.menu = MDDropdownMenu(
    width_mult=4,
    ...,
)
```




```
self.menu = MDDropdownMenu(
    width_mult=8,
    ...,
)
```



width_mult is a NumericProperty and defaults to *1*.

max_height

The menu will grow no bigger than this number. Set to 0 for no limit.

```
self.menu = MDDropdownMenu(
    max_height=dp(112),
    ...,
)
```

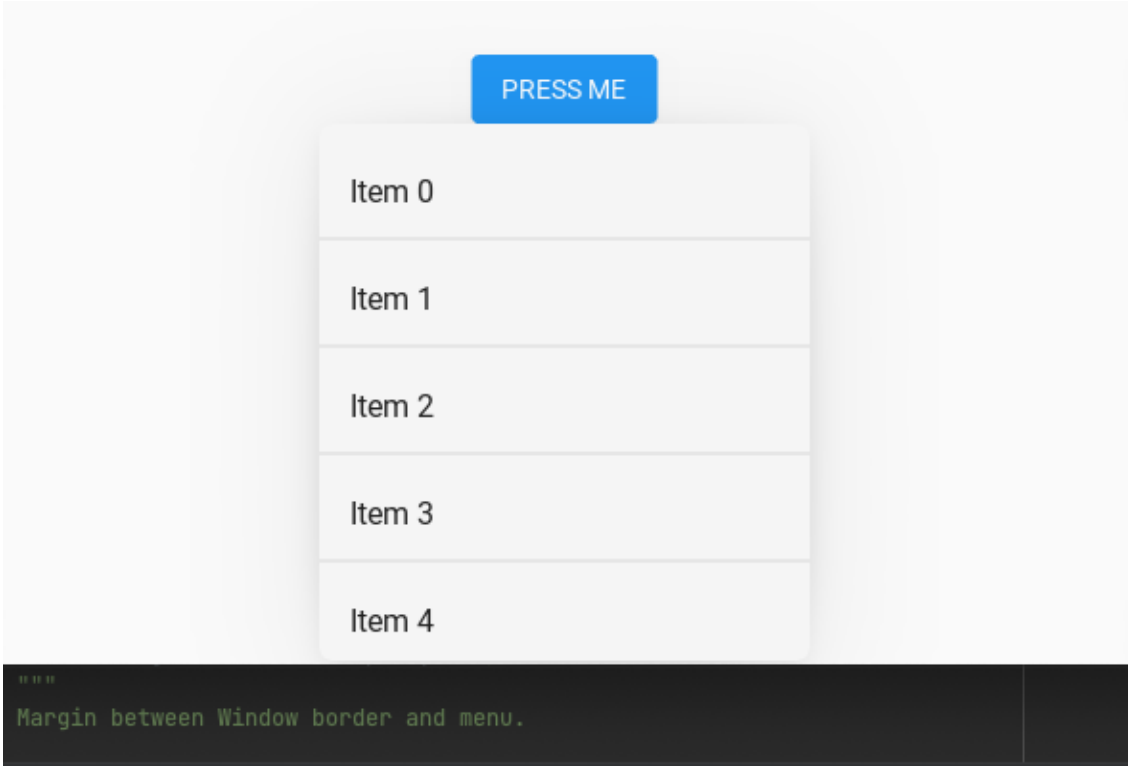

```
self.menu = MDDropdownMenu(
    max_height=dp(224),
    ...,
)
```

max_height is a NumericProperty and defaults to *0*.

border_margin

Margin between Window border and menu.

```
self.menu = MDDropdownMenu(
    border_margin=dp(4),
    ...,
)
```




```
self.menu = MDDropdownMenu(
    border_margin=dp(24),
    ...,
)
```

border_margin is a NumericProperty and defaults to *4dp*.

ver_growth

Where the menu will grow vertically to when opening. Set to *None* to let the widget pick for you. Available options are: *'up'*, *'down'*.

```
self.menu = MDDropdownMenu(
    ver_growth="up",
    ...,
)
```

```
self.menu = MDDropdownMenu(
    ver_growth="down",
    ...,
)
```

ver_growth is a OptionProperty and defaults to *None*.

hor_growth

Where the menu will grow horizontally to when opening. Set to *None* to let the widget pick for you. Available options are: *'left'*, *'right'*.

```
self.menu = MDDropdownMenu(
    hor_growth="left",
    ...,
)
```

```
self.menu = MDDropdownMenu(
    hor_growth="right",
    ...,
)
```

hor_growth is a OptionProperty and defaults to *None*.

background_color

Color in (r, g, b, a) or string format of the background of the menu.

```
self.menu = MDDropdownMenu(
    background_color=self.theme_cls.primary_light,
    ...,
)
```

background_color is a ColorProperty and defaults to *None*.

opening_transition

Type of animation for opening a menu window.

opening_transition is a StringProperty and defaults to *'out_cubic'*.

opening_time

Menu window opening animation time and you can set it to 0 if you don't want animation of menu opening.

opening_time is a NumericProperty and defaults to *0.2*.

caller

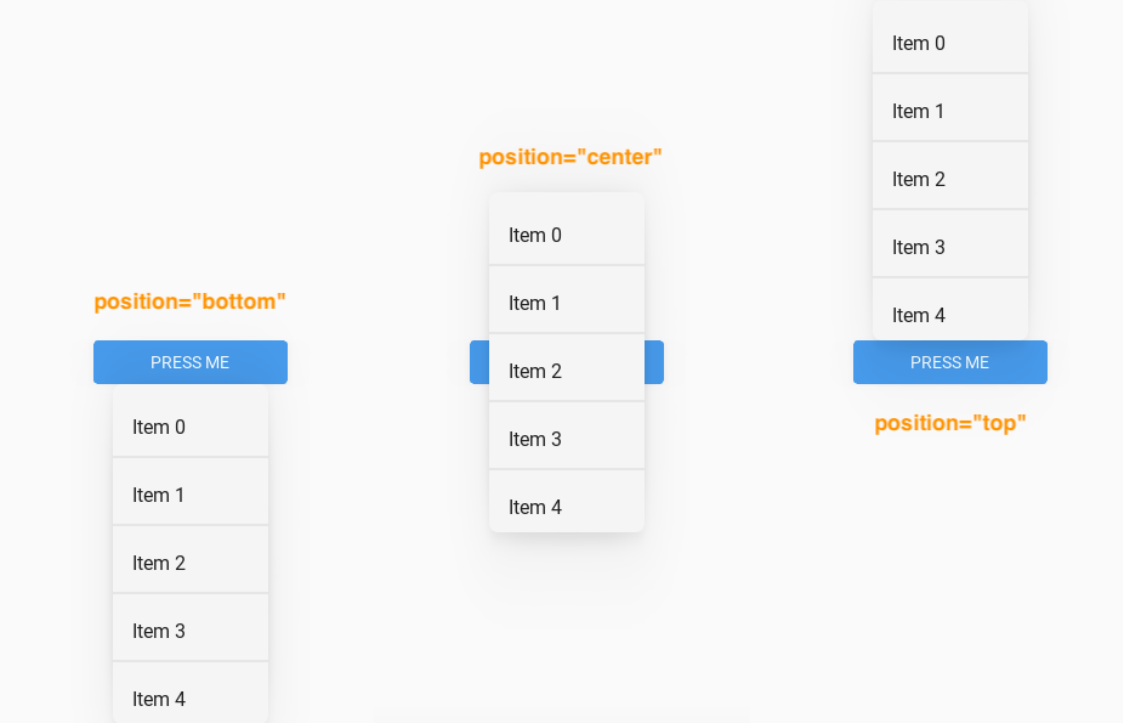
The widget object that calls the menu window.

caller is a ObjectProperty and defaults to *None*.

position

Menu window position relative to parent element. Available options are: *'auto'*, *'center'*, *'bottom'*.

See *Position* for more information.



position is a OptionProperty and defaults to *'auto'*.

radius

Menu radius.

```
self.menu = MDDropdownMenu(
    radius=[24, 0, 24, 0],
    ...,
)
```

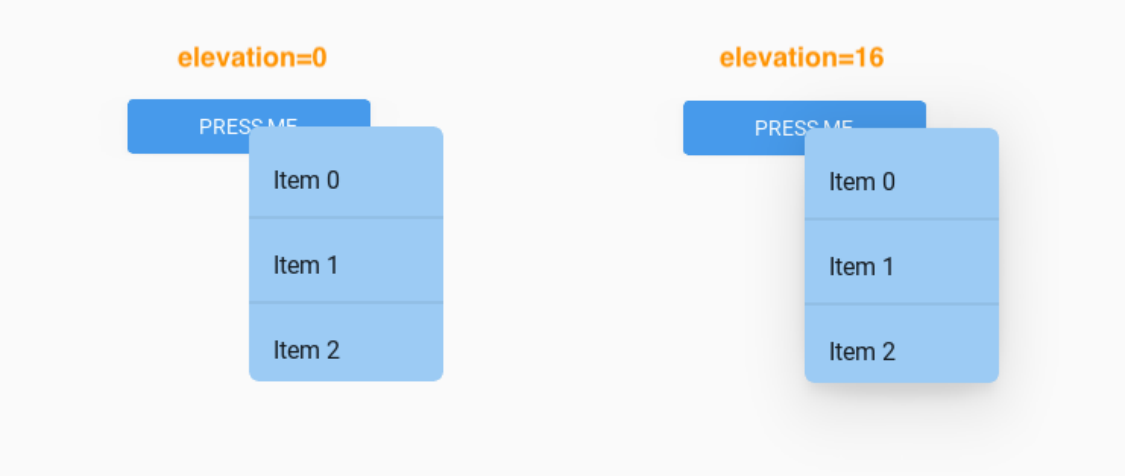
radius is a `VariableListProperty` and defaults to *'[dp(7)]'*.

elevation

Elevation value of menu dialog.

New in version 1.0.0.

```
self.menu = MDDropdownMenu(
    elevation=4,
    ...,
)
```



elevation is an `NumericProperty` and defaults to *4*.

check_position_caller(*self*, *instance_window: WindowSDL*, *width: int*, *height: int*)

Called when the application root window is resized.

set_menu_properties(*self*, *interval: Union[int, float] = 0*)

Sets the size and position for the menu window.

ajust_radius(*self*, *interval: Union[int, float]*)

Adjusts the radius of the first and last items in the menu list according to the radius that is set for the menu.

adjust_position(*self*)

Returns value 'auto' for the menu position if the menu position is out of screen.

open(*self*)

Animate the opening of a menu window.

on_header_cls(*self*, *instance_dropdown_menu*, *instance_user_menu_header*)

Called when a value is set to the *header_cls* parameter.

on_touch_down(*self*, *touch*)

Receive a touch down event.

Parameters

***touch*: MotionEvent class**
Touch received. The touch is in parent coordinates. See relativelayout for a discussion on coordinate systems.

Returns
bool If True, the dispatching of the touch event will stop. If False, the event will continue to be dispatched to the rest of the widget tree.

on_touch_move(*self*, *touch*)

Receive a touch move event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

on_touch_up(*self*, *touch*)

Receive a touch up event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

on_dismiss(*self*)

Called when the menu is closed.

dismiss(*self*, **args*)

Closes the menu.

2.3.39 Spinner

See also:

Material Design spec, Menus

Circular progress indicator in Google's Material Design.

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDSpinner:
        size_hint: None, None
        size: dp(46), dp(46)
        pos_hint: {'center_x': .5, 'center_y': .5}
        active: True if check.active else False

    MDCheckbox:
        id: check
        size_hint: None, None
        size: dp(48), dp(48)
        pos_hint: {'center_x': .5, 'center_y': .4}
        active: True
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Spinner palette

```
MDSpinner:
    # The number of color values can be any.
    palette:
        [0.28627450980392155, 0.8431372549019608, 0.596078431372549, 1],            [0.
↪3568627450980392, 0.3215686274509804, 0.8666666666666667, 1],            [0.
↪8862745098039215, 0.36470588235294116, 0.592156862745098, 1],            [0.
↪8784313725490196, 0.9058823529411765, 0.40784313725490196, 1],
```

```
MDSpinner(
    size_hint=(None, None),
    size=(dp(46), dp(46)),
    pos_hint={'center_x': .5, 'center_y': .5},
    active=True,
    palette=[
```

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```
        [0.28627450980392155, 0.8431372549019608, 0.596078431372549, 1],
        [0.3568627450980392, 0.3215686274509804, 0.8666666666666667, 1],
        [0.8862745098039215, 0.36470588235294116, 0.592156862745098, 1],
        [0.8784313725490196, 0.9058823529411765, 0.40784313725490196, 1],
    ]
)
```

Determinate mode

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDSpinner:
        size_hint: None, None
        size: dp(48), dp(48)
        pos_hint: {'center_x': .5, 'center_y': .5}
        determinate: True
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

API - kivymd.uix.spinner.spinner

class kivymd.uix.spinner.spinner.**MDSpinner**(***kwargs*)

MDSpinner is an implementation of the circular progress indicator in *Google's Material Design*.

It can be used either as an indeterminate indicator that loops while the user waits for something to happen, or as a determinate indicator.

Set *determinate* to **True** to activate determinate mode, and *determinate_time* to set the duration of the animation.

Events

on_determinate_complete

The event is called at the end of the spinner loop in the *determinate* = *True* mode.

determinate

Determinate value.

determinate is a BooleanProperty and defaults to *False*.

determinate_time

Determinate time value.

determinate_time is a NumericProperty and defaults to *2*.

line_width

Progress line width of spinner.

line_width is a NumericProperty and defaults to *dp(2.25)*.

active

Use *active* to start or stop the spinner.

active is a BooleanProperty and defaults to *True*.

color

Spinner color in (r, g, b, a) or string format.

color is a ColorProperty and defaults to *[0, 0, 0, 0]*.

palette

A set of colors. Changes with each completed spinner cycle.

palette is a ListProperty and defaults to *[]*.

on__rotation_angle(*self*, **args*)

on_palette(*self*, *instance_spinner*, *palette_list: list*)

on_active(*self*, *instance_spinner*, *active_value: bool*)

on_determinate_complete(*self*, **args*)

The event is called at the end of the spinner loop in the *determinate = True* mode.

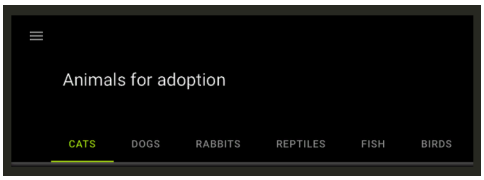
check_determinate(*self*, *interval: Union[float, int] = 0*)

2.3.40 Tabs

See also:

Material Design spec, Tabs

Tabs organize content across different screens, data sets, and other interactions.



Note: Module provides tabs in the form of icons or text.

Usage

To create a tab, you must create a new class that inherits from the *MDTabsBase* class and the *Kivy* container, in which you will create content for the tab.

```
class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''
```

```
<Tab>

    MDLabel:
        text: root.content_text
        pos_hint: {"center_x": .5, "center_y": .5}
```

All tabs must be contained inside a *MDTabs* widget:

```
Root:

    MDTabs:

        Tab:
            title: "Tab 1"
            content_text: f"This is an example text for {self.title}"

        Tab:
            title: "Tab 2"
            content_text: f"This is an example text for {self.title}"

        ...
```

Example with tab icon

Declarative KV and imperative python styles

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.tab import MDTabsBase
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.icon_definitions import md_icons

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "Example Tabs"
```

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```
    MDTabs:
        id: tabs
        on_tab_switch: app.on_tab_switch(*args)


<Tab>

    MDIconButton:
        id: icon
        icon: root.icon
        icon_size: "48sp"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    icons = list(md_icons.keys())[15:30]

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def on_start(self):
        for tab_name in self.icons:
            self.root.ids.tabs.add_widget(Tab(icon=tab_name))

    def on_tab_switch(
        self, instance_tabs, instance_tab, instance_tab_label, tab_text
    ):
        '''
        Called when switching tabs.

        :type instance_tabs: <kivymd.uix.tab.MDTabs object>;
        :param instance_tab: <__main__.Tab object>;
        :param instance_tab_label: <kivymd.uix.tab.MDTabsLabel object>;
        :param tab_text: text or name icon of tab;
        '''

        count_icon = instance_tab.icon  # get the tab icon
        print(f"Welcome to {count_icon}' tab'")


Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDIconButton
from kivymd.uix.tab import MDTabsBase, MDTabs
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.icon_definitions import md_icons
from kivymd.uix.toolbar import MDTopAppBar


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    icons = list(md_icons.keys())[15:30]

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDBoxLayout(
                MDTopAppBar(title="Example Tabs"),
                MDTabs(id="tabs"),
                orientation="vertical",
            )
        )

    def on_start(self):
        self.root.ids.tabs.bind(on_tab_switch=self.on_tab_switch)

        for tab_name in self.icons:
            self.root.ids.tabs.add_widget(
                Tab(
                    MDIconButton(
                        icon=tab_name,
                        icon_size="48sp",
                        pos_hint={"center_x": .5, "center_y": .5},
                    ),
                    icon=tab_name,
                )
            )

    def on_tab_switch(
        self, instance_tabs, instance_tab, instance_tab_label, tab_text
    ):
        '''
        Called when switching tabs.

        :type instance_tabs: <kivymd.uix.tab.MDTabs object>;
        :param instance_tab: <__main__.Tab object>;
        :param instance_tab_label: <kivymd.uix.tab.MDTabsLabel object>;
        :param tab_text: text or name icon of tab;
```

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```
        '''

        count_icon = instance_tab.icon  # get the tab icon
        print(f"Welcome to {count_icon}' tab'")


Example().run()
```

Example with tab text

Note: The *MDTabsBase* class has an icon parameter and, by default, tries to find the name of the icon in the file `kivymd/icon_definitions.py`.

If the name of the icon is not found, the class will send a message stating that the icon could not be found.

if the tab has no icon, title or tab_label_text, the class will raise a ValueError.

Declarative KV and imperative python styles

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.tab import MDTabsBase

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "Example Tabs"

    MDTabs:
        id: tabs
        on_tab_switch: app.on_tab_switch(*args)


<Tab>

    MDLabel:
        id: label
        text: "Tab 0"
        halign: "center"
'''


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''
```

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```
class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def on_start(self):
        for i in range(20):
            self.root.ids.tabs.add_widget(Tab(title=f"Tab {i}"))

    def on_tab_switch(
        self, instance_tabs, instance_tab, instance_tab_label, tab_text
    ):
        '''Called when switching tabs.

        :type instance_tabs: <kivymd.uix.tab.MDTabs object>;
        :param instance_tab: <__main__.Tab object>;
        :param instance_tab_label: <kivymd.uix.tab.MDTabsLabel object>;
        :param tab_text: text or name icon of tab;
        '''

        instance_tab.ids.label.text = tab_text


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.label import MDLabel
from kivymd.uix.tab import MDTabsBase, MDTabs
from kivymd.uix.toolbar import MDTopAppBar


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDBoxLayout(
                MDTopAppBar(title="Example Tabs"),
                MDTabs(id="tabs"),
                orientation="vertical",
            )
        )
```

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```
    def on_start(self):
        self.root.ids.tabs.bind(on_tab_switch=self.on_tab_switch)
        for i in range(20):
            self.root.ids.tabs.add_widget(
                Tab(
                    MDLabel(id="label", text="Tab 0", halign="center"),
                    title=f"Tab {i}",
                )
            )

    def on_tab_switch(
        self, instance_tabs, instance_tab, instance_tab_label, tab_text
    ):
        '''
        Called when switching tabs.

        :type instance_tabs: <kivymd.uix.tab.MDTabs object>;
        :param instance_tab: <__main__.Tab object>;
        :param instance_tab_label: <kivymd.uix.tab.MDTabsLabel object>;
        :param tab_text: text or name icon of tab;
        '''

        instance_tab.ids.label.text = tab_text


Example().run()
```

Example with tab icon and text

Declarative KV and imperative python styles

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.tab import MDTabsBase
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.icon_definitions import md_icons

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "Example Tabs"

    MDTabs:
        id: tabs
'''
```

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```
class Tab(MDFloatLayout, MDTabsBase):
    pass


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def on_start(self):
        for name_tab in list(md_icons.keys())[15:30]:
            self.root.ids.tabs.add_widget(Tab(icon=name_tab, title=name_tab))


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.tab import MDTabsBase, MDTabs
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.icon_definitions import md_icons
from kivymd.uix.toolbar import MDTopAppBar


class Tab(MDFloatLayout, MDTabsBase):
    pass


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDBoxLayout(
                MDTopAppBar(title="Example Tabs"),
                MDTabs(id="tabs"),
                orientation="vertical",
            )
        )

    def on_start(self):
        for name_tab in list(md_icons.keys())[15:30]:
            self.root.ids.tabs.add_widget(Tab(icon=name_tab, title=name_tab))


Example().run()
```

Dynamic tab management

Declarative KV and imperative python styles

```
from kivy.lang import Builder

from kivymd.uix.scrollview import MDScrollView
from kivymd.app import MDApp
from kivymd.uix.tab import MDTabsBase

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "Example Tabs"

    MDTabs:
        id: tabs


<Tab>

    MDList:

        MDBoxLayout:
            adaptive_height: True

            MDFlatButton:
                text: "ADD TAB"
                on_release: app.add_tab()

            MDFlatButton:
                text: "REMOVE LAST TAB"
                on_release: app.remove_tab()

            MDFlatButton:
                text: "GET TAB LIST"
                on_release: app.get_tab_list()
'''


class Tab(MDScrollView, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    index = 0

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)
```

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```
    def on_start(self):
        self.add_tab()

    def get_tab_list(self):
        '''Prints a list of tab objects.'''

        print(self.root.ids.tabs.get_tab_list())

    def add_tab(self):
        self.index += 1
        self.root.ids.tabs.add_widget(Tab(title=f"{self.index} tab"))

    def remove_tab(self):
        if self.index > 1:
            self.index -= 1
        self.root.ids.tabs.remove_widget(
            self.root.ids.tabs.get_tab_list()[-1]
        )


Example().run()
```

Declarative python style

```
from kivymd.uix.button import MDFlatButton
from kivymd.uix.list import MDList
from kivymd.uix.scrollview import MDScrollView
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.tab import MDTabsBase, MDTabs
from kivymd.uix.toolbar import MDTopAppBar


class Tab(MDScrollView, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    index = 0

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDBoxLayout(
                MDTopAppBar(title="Example Tabs"),
                MDTabs(id="tabs"),
                orientation="vertical",
            )
        )
```

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```
    def on_start(self):
        self.add_tab()

    def get_tab_list(self, *args):
        '''Prints a list of tab objects.'''

        print(self.root.ids.tabs.get_tab_list())

    def add_tab(self, *args):
        self.index += 1
        self.root.ids.tabs.add_widget(
            Tab(
                MDList(
                    MDBoxLayout(
                        MDFlatButton(
                            text="ADD TAB",
                            on_release=self.add_tab,
                        ),
                        MDFlatButton(
                            text="REMOVE LAST TAB",
                            on_release=self.remove_tab,
                        ),
                        MDFlatButton(
                            text="GET TAB LIST",
                            on_release=self.get_tab_list,
                        ),
                        adaptive_height=True,
                    ),
                ),
                title=f"{self.index} tab",
            )
        )

    def remove_tab(self, *args):
        if self.index > 1:
            self.index -= 1
        self.root.ids.tabs.remove_widget(
            self.root.ids.tabs.get_tab_list()[-1]
        )


Example().run()
```

Use on_ref_press method

You can use markup for the text of the tabs and use the `on_ref_press` method accordingly:

Declarative KV and imperative python styles

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.font_definitions import fonts
from kivymd.uix.tab import MDTabsBase
from kivymd.icon_definitions import md_icons

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "Example Tabs"

    MDTabs:
        id: tabs
        on_ref_press: app.on_ref_press(*args)


<Tab>

    MDIconButton:
        id: icon
        icon: app.icons[0]
        icon_size: "48sp"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    icons = list(md_icons.keys())[15:30]

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def on_start(self):
        for name_tab in self.icons:
            self.root.ids.tabs.add_widget(
                Tab(
                    title=f"[ref={name_tab}][font={fonts[-1]['fn_regular']}]{md_icons[
```

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```
↪'close']}[/font][/ref]  {name_tab}"
                )
            )

    def on_ref_press(
        self,
        instance_tabs,
        instance_tab_label,
        instance_tab,
        instance_tab_bar,
        instance_carousel,
    ):
        '''
        The method will be called when the ``on_ref_press`` event
        occurs when you, for example, use markup text for tabs.

        :param instance_tabs: <kivymd.uix.tab.MDTabs object>
        :param instance_tab_label: <kivymd.uix.tab.MDTabsLabel object>
        :param instance_tab: <__main__.Tab object>
        :param instance_tab_bar: <kivymd.uix.tab.MDTabsBar object>
        :param instance_carousel: <kivymd.uix.tab.MDTabsCarousel object>
        '''

        # Removes a tab by clicking on the close icon on the left.
        for instance_tab in instance_carousel.slides:
            if instance_tab.title == instance_tab_label.text:
                instance_tabs.remove_widget(instance_tab_label)
                break


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDIconButton
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.font_definitions import fonts
from kivymd.uix.tab import MDTabsBase, MDTabs
from kivymd.icon_definitions import md_icons
from kivymd.uix.toolbar import MDTopAppBar


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    icons = list(md_icons.keys())[15:30]

    def build(self):
```

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```
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDBoxLayout(
                MDTopAppBar(title="Example Tabs"),
                MDTabs(id="tabs"),
                orientation="vertical",
            )
        )

    def on_start(self):
        self.root.ids.tabs.bind(on_ref_press=self.on_ref_press)
        for name_tab in self.icons:
            self.root.ids.tabs.add_widget(
                Tab(
                    MDIconButton(
                        icon=self.icons[0],
                        icon_size="48sp",
                        pos_hint={"center_x": .5, "center_y": .5}
                    ),
                    title=(
                        f"[ref={name_tab}][font={fonts[-1]['fn_regular']}]"
                        f"{md_icons['close']}[/font][/ref]  {name_tab}"
                    ),
                )
            )

    def on_ref_press(
            self,
            instance_tabs,
            instance_tab_label,
            instance_tab,
            instance_tab_bar,
            instance_carousel,
    ):
        '''
        The method will be called when the ``on_ref_press`` event
        occurs when you, for example, use markup text for tabs.

        :param instance_tabs: <kivymd.uix.tab.MDTabs object>
        :param instance_tab_label: <kivymd.uix.tab.MDTabsLabel object>
        :param instance_tab: <__main__.Tab object>
        :param instance_tab_bar: <kivymd.uix.tab.MDTabsBar object>
        :param instance_carousel: <kivymd.uix.tab.MDTabsCarousel object>
        '''

        # Removes a tab by clicking on the close icon on the left.
        for instance_tab in instance_carousel.slides:
            if instance_tab.title == instance_tab_label.text:
                instance_tabs.remove_widget(instance_tab_label)
                break
```

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```
Example().run()
```

Switching the tab by name

Declarative KV and imperative python styles

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.icon_definitions import md_icons
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.tab import MDTabsBase

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "Example Tabs"

    MDTabs:
        id: tabs


<Tab>

    MDBoxLayout:
        orientation: "vertical"
        pos_hint: {"center_x": .5, "center_y": .5}
        adaptive_size: True
        spacing: dp(48)

        MDIconButton:
            id: icon
            icon: "arrow-right"
            icon_size: "48sp"
            on_release: app.switch_tab_by_name()

        MDIconButton:
            id: icon2
            icon: "page-next"
            icon_size: "48sp"
            on_release: app.switch_tab_by_object()
'''


class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''
```

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```
class Example(MDApp):
    icons = list(md_icons.keys())[15:30]

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        self.iter_list_names = iter(list(self.icons))
        return Builder.load_string(KV)

    def on_start(self):
        for name_tab in list(self.icons):
            self.root.ids.tabs.add_widget(Tab(tab_label_text=name_tab))
        self.iter_list_objects = iter(list(self.root.ids.tabs.get_tab_list()))

    def switch_tab_by_object(self):
        try:
            x = next(self.iter_list_objects)
            print(f"Switch slide by object, next element to show: [{x}]")
            self.root.ids.tabs.switch_tab(x)
        except StopIteration:
            # reset the iterator an begin again.
            self.iter_list_objects = iter(list(self.root.ids.tabs.get_tab_list()))
            self.switch_tab_by_object()

    def switch_tab_by_name(self):
        '''Switching the tab by name.'''

        try:
            x = next(self.iter_list_names)
            print(f"Switch slide by name, next element to show: [{x}]")
            self.root.ids.tabs.switch_tab(x)
        except StopIteration:
            # Reset the iterator an begin again.
            self.iter_list_names = iter(list(self.icons))
            self.switch_tab_by_name()


Example().run()
```

Declarative python style

```
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.icon_definitions import md_icons
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDIconButton
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.tab import MDTabsBase, MDTabs
from kivymd.uix.toolbar import MDTopAppBar
```

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```
class Tab(MDFloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''


class Example(MDApp):
    icons = list(md_icons.keys())[15:30]

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        self.iter_list_names = iter(list(self.icons))
        return (
            MDBoxLayout(
                MDTopAppBar(title="Example Tabs"),
                MDTabs(id="tabs"),
                orientation="vertical",
            )
        )

    def on_start(self):
        for name_tab in list(self.icons):
            self.root.ids.tabs.add_widget(
                Tab(
                    MDBoxLayout(
                        MDIconButton(
                            id="icon",
                            icon="arrow-right",
                            icon_size="48sp",
                            on_release=self.switch_tab_by_name,
                        ),
                        MDIconButton(
                            id="icon2",
                            icon="arrow-left",
                            icon_size="48sp",
                            on_release=self.switch_tab_by_object,
                        ),
                        orientation="vertical",
                        pos_hint={"center_x": .5, "center_y": .5},
                        adaptive_size=True,
                        spacing=dp(48),
                    ),
                    tab_label_text=name_tab,
                )
            )

        self.iter_list_objects = iter(list(self.root.ids.tabs.get_tab_list()))

    def switch_tab_by_object(self, *args):
        try:
            x = next(self.iter_list_objects)
```

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```
            print(f"Switch slide by object, next element to show: [{x}]")
            self.root.ids.tabs.switch_tab(x)
        except StopIteration:
            # reset the iterator an begin again.
            self.iter_list_objects = iter(
                list(self.root.ids.tabs.get_tab_list()))
            self.switch_tab_by_object()

    def switch_tab_by_name(self, *args):
        '''Switching the tab by name.'''

        try:
            x = next(self.iter_list_names)
            print(f"Switch slide by name, next element to show: [{x}]")
            self.root.ids.tabs.switch_tab(x)
        except StopIteration:
            # Reset the iterator an begin again.
            self.iter_list_names = iter(list(self.icons))
            self.switch_tab_by_name()


Example().run()
```

API - kivymd.uix.tab.tab

class kivymd.uix.tab.tab.**MDTabsBase**(**args*, ***kwargs*)

This class allow you to create a tab. You must create a new class that inherits from MDTabsBase. In this way you have total control over the views of your tabbed panel.

icon

This property will set the Tab's Label Icon.

icon is an StringProperty and defaults to ''.

title_icon_mode

This property sets the mode in wich the tab's title and icon are shown.

title_icon_mode is an OptionProperty and defaults to *'Lead'*.

title

This property will set the Name of the tab.

Note: As a side note.

All tabs have set *markup = True*. Thanks to this, you can use the kivy markup language to set a colorful and fully customizable tabs titles.

Warning: The material design requires that every title label is written in capital letters, because of this, the *string.upper()* will be applied to it's contents.

title is an StringProperty and defaults to ‘’.

title_is_capital

This value controls wether if the title property should be converted to capital letters.

title_is_capital is an BooleanProperty and defaults to *True*.

tab_label_text

This property is the actual title’s Label of the tab. use the property *icon* and *title* to set this property correctly.

This property is kept public for specific and backward compatibility purposes.

tab_label_text is an StringProperty and defaults to ‘’.

tab_label

It is the label object reference of the tab.

tab_label is an ObjectProperty and defaults to *None*.

tab_label_font_style

tab_label_font_style is an AliasProperty that behavies similar to an OptionProperty.

This property’s behavior allows the developer to use any new label style registered to the app.

This property will affect the Tab’s Title Label widget.

update_label_text(*self*, *instance_user_tab*, *text_tab: str*)

class kivymd.uix.tab.tab.**MDTabs**(**args*, ***kwargs*)

You can use this class to create your own tabbed panel.

Events

on_tab_switch
Called when switching tabs.

on_slide_progress
Called while the slide is scrolling.

on_ref_press
The method will be called when the `on_ref_press` event occurs when you, for example, use markup text for tabs.

tab_bar_height

Height of the tab bar.

tab_bar_height is an NumericProperty and defaults to *‘48dp’*.

tab_padding

Padding of the tab bar.

tab_padding is an ListProperty and defaults to *[0, 0, 0, 0]*.

tab_indicator_anim

Tab indicator animation. If you want use animation set it to `True`.

tab_indicator_anim is an BooleanProperty and defaults to *False*.

tab_indicator_height

Height of the tab indicator.

tab_indicator_height is an NumericProperty and defaults to *‘2dp’*.

tab_indicator_type

Type of tab indicator. Available options are: *'line'*, *'fill'*, *'round'*, *'line-rect'* and *'line-round'*.

tab_indicator_type is an OptionProperty and defaults to *'line'*.

tab_hint_x

This option affects the size of each child. if it's *True*, the size of each tab will be ignored and will use the size available by the container.

tab_hint_x is an BooleanProperty and defaults to *False*.

anim_duration

Duration of the slide animation.

anim_duration is an NumericProperty and defaults to *0.2*.

anim_threshold

Animation threshold allow you to change the tab indicator animation effect.

anim_threshold is an BoundedNumericProperty and defaults to *0.8*.

allow_stretch

If *True*, the tab will update dynamically (if *tab_hint_x* is *True*) to it's content width, and wrap any text if the widget is wider than *"360dp"*.

If *False*, the tab won't update to it's maximum texture width. this means that the *fixed_tab_label_width* will be used as the label width. this will wrap any text inside to fit the fixed value.

allow_stretch is an BooleanProperty and defaults to *True*.

fixed_tab_label_width

If *allow_stretch* is *False*, the class will set this value as the width to all the tabs title label.

fixed_tab_label_width is an NumericProperty and defaults to *140dp*.

background_color

Background color of tabs in (r, g, b, a) or string format.

background_color is an ColorProperty and defaults to *None*.

underline_color

Underline color of tabs in (r, g, b, a) or string format.

underline_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

text_color_normal

Text color in (r, g, b, a) or string format of the label when it is not selected.

text_color_normal is an ColorProperty and defaults to *None*.

text_color_active

Text color in (r, g, b, a) or string format of the label when it is selected.

text_color_active is an ColorProperty and defaults to *None*.

shadow_softness

See `kivymd.uix.behaviors.CommonElevationBehavior.shadow_softness` attribute.

New in version 1.1.0.

shadow_softness is an NumericProperty and defaults to *12*.

shadow_color

See `kivymd.uix.behaviors.CommonElevationBehavior.shadow_color` attribute.

New in version 1.1.0.

shadow_color is an `ColorProperty` and defaults to *[0, 0, 0, 0.6]*.

shadow_offset

See `kivymd.uix.behaviors.CommonElevationBehavior.shadow_offset` attribute.

New in version 1.1.0.

shadow_offset is an `ListProperty` and defaults to *[0, 0]*.

elevation

See `kivymd.uix.behaviors.CommonElevationBehavior.elevation` attribute.

elevation is an `NumericProperty` and defaults to *0*.

indicator_color

Color indicator in (r, g, b, a) or string format.

indicator_color is an `ColorProperty` and defaults to *None*.

lock_swiping

If True - disable switching tabs by swipe.

lock_swiping is an `BooleanProperty` and defaults to *False*.

font_name

Font name for tab text.

font_name is an `StringProperty` and defaults to *'Roboto'*.

ripple_duration

Ripple duration when long touching to tab.

ripple_duration is an `NumericProperty` and defaults to *2*.

no_ripple_effect

Whether to use the ripple effect when tapping on a tab.

no_ripple_effect is an `BooleanProperty` and defaults to *True*.

title_icon_mode

This property sets the mode in wich the tab's title and icon are shown.

title_icon_mode is an `OptionProperty` and defaults to *'Lead'*.

force_title_icon_mode

If this property is se to *True*, it will force the class to update every tab inside the scroll view to the current *title_icon_mode*

force_title_icon_mode is an `BooleanProperty` and defaults to *True*.

update_icon_color(*self*, *instance_theme_manager: ThemeManager*, *name_theme_style_name_palette: str*)

Called when the app's color scheme or style has changed (dark theme/light theme).

switch_tab(*self*, *name_tab: Union[MDTabsLabel, str]*, *search_by='text'*)

This method switch between tabs name_tab can be either a String or a *MDTabsBase*.

search_by will look up through the properties of every tab.

If the value doesnt match, it will raise a ValueError.

Search_by options:
text : will search by the raw text of the label (*tab_label_text*) icon : will search by the *icon* property
title : will search by the *title* property

`get_tab_list`(*self*)

Returns a list of `MDTabsLabel` objects.

`get_slides`(*self*)

Returns a list of user tab objects.

`get_current_tab`(*self*)

Returns current tab object.

New in version 1.0.0.

`add_widget`(*self*, *widget*, *index=0*, *canvas=None*)

Add a new widget as a child of this widget.

Parameters

***widget*: `Widget`**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

`remove_widget`(*self*, *widget*)

Remove a widget from the children of this widget.

Parameters

***widget*: `Widget`**
Widget to remove from our children list.

```
>>> from kivy.uix.button import Button
>>> root = Widget()
>>> button = Button()
>>> root.add_widget(button)
>>> root.remove_widget(button)
```

on_slide_progress(*self*, **args*)

This event is deployed every available frame while the tab is scrolling.

on_carousel_index(*self*, *instance_tabs_carousel*, *index: int*)

Called when the Tab index have changed.

This event is deployed by the built in carousel of the class.

on_ref_press(*self*, **args*)

This event will be launched every time the user press a markup enabled label with a link or reference inside.

on_tab_switch(*self*, *instance_tab*, *size: list*)

This event is launched every time the current tab is changed.

on_size(*self*, *instance_tab*, *size: list*)

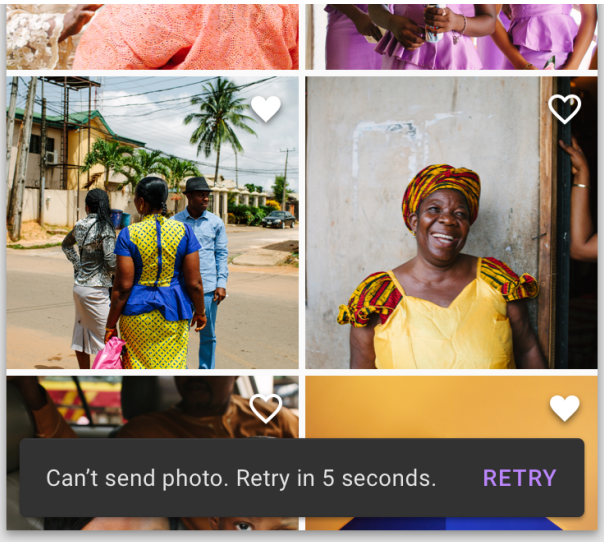
Called when the application screen is resized.

2.3.41 Snackbar

See also:

Material Design spec, Snackbars

Snackbars provide brief messages about app processes at the bottom of the screen.



Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
#:import Snackbar kivymd.uix.snackbar.Snackbar


MDScreen:

    MDRaisedButton:
        text: "Create simple snackbar"
        on_release: Snackbar(text="This is a snackbar!").open()
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Usage with snackbar_x, snackbar_y

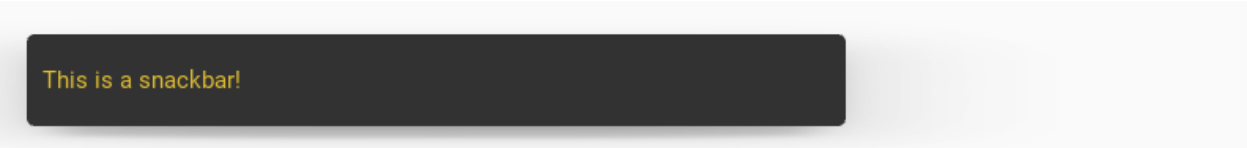
```
Snackbar(
    text="This is a snackbar!",
    snackbar_x="10dp",
    snackbar_y="10dp",
    size_hint_x=(
        Window.width - (dp(10) * 2)
    ) / Window.width
).open()
```

Control width

```
Snackbar(
    text="This is a snackbar!",
    snackbar_x="10dp",
    snackbar_y="10dp",
    size_hint_x=.5
).open()
```

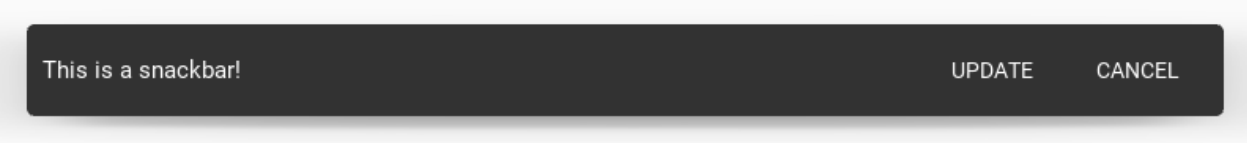
Custom text color

```
Snackbar(
    text="[color=#ddbb34]This is a snackbar![/color]",
    snackbar_y="10dp",
    snackbar_y="10dp",
    size_hint_x=.7
).open()
```



Usage with button

```
snackbar = Snackbar(
    text="This is a snackbar!",
    snackbar_x="10dp",
    snackbar_y="10dp",
)
snackbar.size_hint_x = (
    Window.width - (snackbar.snackbar_x * 2)
) / Window.width
snackbar.buttons = [
    MDFlatButton(
        text="UPDATE",
        text_color=(1, 1, 1, 1),
        on_release=snackbar.dismiss,
    ),
    MDFlatButton(
        text="CANCEL",
        text_color=(1, 1, 1, 1),
        on_release=snackbar.dismiss,
    ),
]
snackbar.open()
```



Using a button with custom color

```
Snackbar(
    ...
    bg_color=(0, 0, 1, 1),
).open()
```

Custom usage

```
from kivy.lang import Builder
from kivy.animation import Animation
from kivy.clock import Clock
from kivy.metrics import dp

from kivymd.app import MDApp
from kivymd.uix.snackbar import Snackbar


KV = '''
MDScreen:

    MDFloatingActionButton:
        id: button
        x: root.width - self.width - dp(10)
        y: dp(10)
        on_release: app.snackbar_show()
'''


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        self.snackbar = None
        self._interval = 0

    def build(self):
        return self.screen

    def wait_interval(self, interval):
        self._interval += interval
        if self._interval > self.snackbar.duration + 0.5:
            anim = Animation(y=dp(10), d=.2)
            anim.start(self.screen.ids.button)
            Clock.unschedule(self.wait_interval)
```

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```
            self._interval = 0
            self.snackbar = None

    def snackbar_show(self):
        if not self.snackbar:
            self.snackbar = Snackbar(text="This is a snackbar!")
            self.snackbar.open()
            anim = Animation(y=dp(72), d=.2)
            anim.bind(on_complete=lambda *args: Clock.schedule_interval(
                self.wait_interval, 0))
            anim.start(self.screen.ids.button)


Test().run()
```

Custom Snackbar

```
from kivy.lang import Builder
from kivy.core.window import Window
from kivy.properties import StringProperty, NumericProperty

from kivymd.app import MDApp
from kivymd.uix.button import MDFlatButton
from kivymd.uix.snackbar import BaseSnackbar

KV = '''
<CustomSnackbar>

    MDIconButton:
        pos_hint: {'center_y': .5}
        icon: root.icon
        opposite_colors: True

    MDLabel:
        id: text_bar
        size_hint_y: None
        height: self.texture_size[1]
        text: root.text
        font_size: root.font_size
        theme_text_color: 'Custom'
        text_color: 'ffffff'
        shorten: True
        shorten_from: 'right'
        pos_hint: {'center_y': .5}


MDScreen:

    MDRaisedButton:
```

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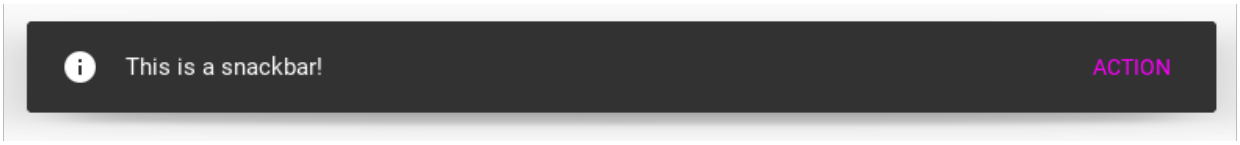
```
        text: "SHOW"
        pos_hint: {"center_x": .5, "center_y": .45}
        on_press: app.show()
'''


class CustomSnackbar(BaseSnackbar):
    text = StringProperty(None)
    icon = StringProperty(None)
    font_size = NumericProperty("15sp")


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def show(self):
        snackbar = CustomSnackbar(
            text="This is a snackbar!",
            icon="information",
            snackbar_x="10dp",
            snackbar_y="10dp",
            buttons=[MDFlatButton(text="ACTION", text_color=(1, 1, 1, 1))]
        )
        snackbar.size_hint_x = (
            Window.width - (snackbar.snackbar_x * 2)
        ) / Window.width
        snackbar.open()


Test().run()
```



API - kivymd.uix.snackbar.snackbar

class kivymd.uix.snackbar.snackbar.**BaseSnackbar**(***kwargs*)

Events

on_open
Called when a dialog is opened.

on_dismiss
When the front layer rises.

Abstract base class for all Snackbars. This class handles sizing, positioning, shape and events for Snackbars

All Snackbars will be made off of this *BaseSnackbar*.

BaseSnackbar will always try to fill the remainder of the screen with your Snackbar.

To make your Snackbar dynamic and symetric with snackbar_x.

Set size_hint_x like below:

```
size_hint_z = (
    Window.width - (snackbar_x * 2)
) / Window.width
```

duration

The amount of time that the snackbar will stay on screen for.

duration is a NumericProperty and defaults to *3*.

auto_dismiss

Whether to use automatic closing of the snackbar or not.

auto_dismiss is a BooleanProperty and defaults to *'True'*.

bg_color

Snackbar background color in (r, g, b, a) or string format.

bg_color is a ColorProperty and defaults to *None*.

buttons

Snackbar buttons.

buttons is a ListProperty and defaults to *'[]'*

radius

Snackbar radius.

radius is a ListProperty and defaults to *'[5, 5, 5, 5]'*

snackbar_animation_dir

Snackbar animation direction.

Available options are: *"Top"*, *"Bottom"*, *"Left"*, *"Right"*

snackbar_animation_dir is an OptionProperty and defaults to *'Bottom'*.

snackbar_x

The snackbar x position in the screen

snackbar_x is a NumericProperty and defaults to *0dp*.

snackbar_y

The snackbar x position in the screen

snackbar_y is a NumericProperty and defaults to *0dp*.

dismiss(*self*, **args*)

Dismiss the snackbar.

open(*self*)

Show the snackbar.

on_open(*self*, **args*)

Called when a dialog is opened.

on_dismiss(*self*, **args*)

Called when the dialog is closed.

on_buttons(*self*, *instance*, *value*)

class kivymd.uix.snackbar.snackbar.**Snackbar**(***kwargs*)

Snackbar inherits all its functionality from *BaseSnackbar*

text

The text that will appear in the snackbar.

text is a StringProperty and defaults to ‘’.

font_size

The font size of the text that will appear in the snackbar.

font_size is a NumericProperty and defaults to *’15sp’*.

2.3.42 FitImage

Feature to automatically crop a *Kivy* image to fit your layout Write by Benedikt Zwölfer

Referene - https://gist.github.com/benni12er/95a45eb168fc33a4fcd2d545af692dad

Example:

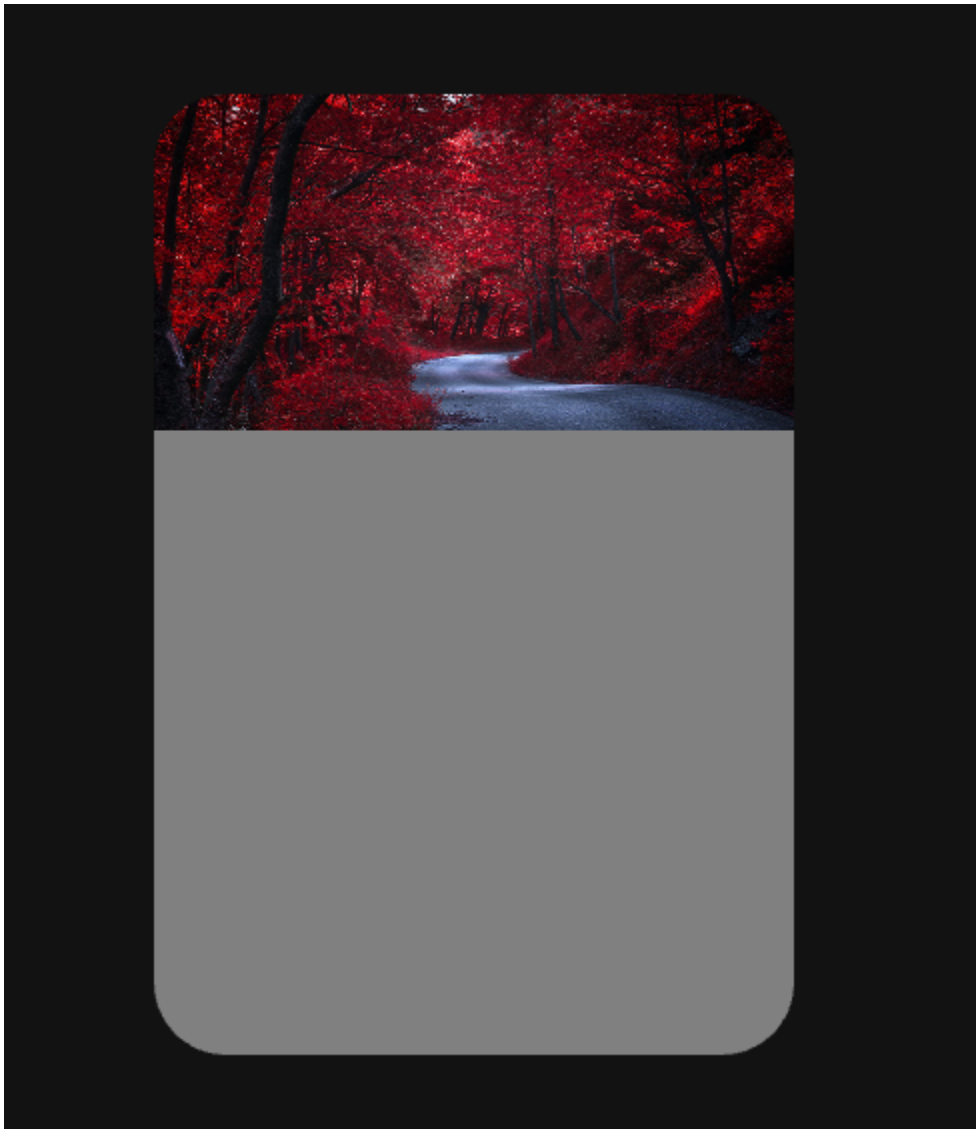
Declarative KV styles

```
MDBoxLayout:
    size_hint_y: None
    height: "200dp"
    orientation: 'vertical'

    FitImage:
        size_hint_y: 3
        source: 'images/img1.jpg'

    FitImage:
        size_hint_y: 1
        source: 'images/img2.jpg'
```

Declarative python styles

```
MDBoxLayout(
    FitImage(
        size_hint_y=.3,
        source='images/img1.jpg',
    ),
    FitImage(
        size_hint_y=.7,
        source='images/img2.jpg',
    ),
    size_hint_y=None,
    height="200dp",
    orientation='vertical',
)
```

Example with round corners:



Declarative KV styles

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDCard:
        radius: 36
        md_bg_color: "grey"
        pos_hint: {"center_x": .5, "center_y": .5}
        size_hint: .4, .8
```

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```
        FitImage:
            source: "bg.jpg"
            size_hint_y: .35
            pos_hint: {"top": 1}
            radius: 36, 36, 0, 0
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.card import MDCard
from kivymd.uix.fitimage import FitImage
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return (
            MDScreen(
                MDCard(
                    FitImage(
                        source="bg.jpg",
                        size_hint_y=0.35,
                        pos_hint={"top": 1},
                        radius=(36, 36, 0, 0),
                    ),
                    radius=36,
                    md_bg_color="grey",
                    pos_hint={"center_x": .5, "center_y": .5},
                    size_hint=(0.4, 0.8),
                ),
            )
        )


Example().run()
```

API - kivymd.uix.fitimage.fitimage

class kivymd.uix.fitimage.fitimage.**FitImage**(***kwargs*)

Box layout class.

For more information, see in the BoxLayout class documentation.

source

Filename/source of your image.

source is a StringProperty and defaults to None.

mipmap

Indicate if you want OpenGL mipmapping to be applied to the texture. Read Mipmapping for more information.

New in version 1.0.0.

mipmap is a BooleanProperty and defaults to *False*.

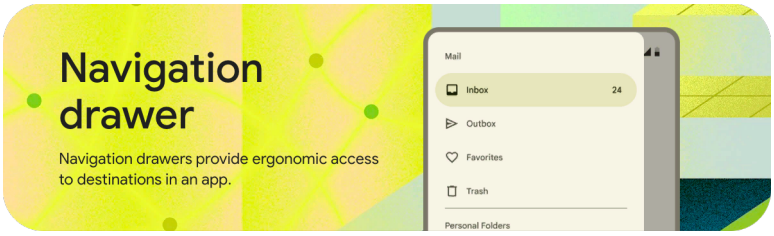
reload(*self*)

2.3.43 NavigationDrawer

See also:

Material Design 2 spec, Navigation drawer and Material Design 3 spec, Navigation drawer

Navigation drawers provide access to destinations in your app.



When using the class *MDNavigationDrawer* skeleton of your *KV* markup should look like this:

Anatomy

```
Root:

    MDNavigationLayout:

        MDScreenManager:

            Screen_1:

            Screen_2:
```

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```
        MDNavigationDrawer:

            # This custom rule should implement what will be appear in your
            # MDNavigationDrawer.
            ContentNavigationDrawer:
```

A simple example

Declarative KV styles

```
from kivy.lang import Builder

from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.app import MDApp

KV = '''
MDScreen:

    MDNavigationLayout:

        MDScreenManager:

            MDScreen:

                MDTopAppBar:
                    title: "Navigation Drawer"
                    elevation: 4
                    pos_hint: {"top": 1}
                    md_bg_color: "#e7e4c0"
                    specific_text_color: "#4a4939"
                    left_action_items:
                        [['menu', lambda x: nav_drawer.set_state("open")]]


        MDNavigationDrawer:
            id: nav_drawer
            radius: (0, 16, 16, 0)

            ContentNavigationDrawer:
'''


class ContentNavigationDrawer(MDBoxLayout):
    pass


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)
```

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```
Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.navigationdrawer import MDNavigationLayout, MDNavigationDrawer
from kivymd.uix.screen import MDScreen
from kivymd.uix.screenmanager import MDScreenManager
from kivymd.uix.toolbar import MDTopAppBar


class ContentNavigationDrawer(MDBoxLayout):
    pass


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return(
            MDScreen(
                MDNavigationLayout(
                    MDScreenManager(
                        MDScreen(
                            MDTopAppBar(
                                title="Navigation Drawer",
                                elevation=4,
                                pos_hint={"top": 1},
                                md_bg_color="#e7e4c0",
                                specific_text_color="#4a4939",
                                left_action_items=[
                                    ['menu', lambda x: self.nav_drawer_open()]
                                ],
                            )

                        )
                    ),
                    MDNavigationDrawer(
                        ContentNavigationDrawer(),
                        id="nav_drawer",
                        radius=(0, 16, 16, 0),
                    ),
                ),
            ),
        )

    def nav_drawer_open(self, *args):
        nav_drawer = self.root.children[0].ids.nav_drawer
        nav_drawer.set_state("open")
```

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```
Example().run()
```

Note: *MDNavigationDrawer* is an empty MDCard panel.

Standard content for the navigation bar

Declarative KV styles

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
<DrawerClickableItem@MDNavigationDrawerItem>
    focus_color: "#e7e4c0"
    text_color: "#4a4939"
    icon_color: "#4a4939"
    ripple_color: "#c5bdd2"
    selected_color: "#0c6c4d"


<DrawerLabelItem@MDNavigationDrawerItem>
    text_color: "#4a4939"
    icon_color: "#4a4939"
    focus_behavior: False
    selected_color: "#4a4939"
    _no_ripple_effect: True


MDScreen:

    MDNavigationLayout:

        MDScreenManager:

            MDScreen:

                MDTopAppBar:
                    title: "Navigation Drawer"
                    elevation: 4
                    pos_hint: {"top": 1}
                    md_bg_color: "#e7e4c0"
                    specific_text_color: "#4a4939"
                    left_action_items: [["menu", lambda x: nav_drawer.set_state("open")]]

        MDNavigationDrawer:
            id: nav_drawer
```

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```
            radius: (0, 16, 16, 0)

            MDNavigationDrawerMenu:

                MDNavigationDrawerHeader:
                    title: "Header title"
                    title_color: "#4a4939"
                    text: "Header text"
                    spacing: "4dp"
                    padding: "12dp", 0, 0, "56dp"

                MDNavigationDrawerLabel:
                    text: "Mail"

                DrawerClickableItem:
                    icon: "gmail"
                    right_text: "+99"
                    text_right_color: "#4a4939"
                    text: "Inbox"

                DrawerClickableItem:
                    icon: "send"
                    text: "Outbox"

                MDNavigationDrawerDivider:

                MDNavigationDrawerLabel:
                    text: "Labels"

                DrawerLabelItem:
                    icon: "information-outline"
                    text: "Label"

                DrawerLabelItem:
                    icon: "information-outline"
                    text: "Label"
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.navigationdrawer import (
    MDNavigationLayout,
```

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```
    MDNavigationDrawer,
    MDNavigationDrawerMenu,
    MDNavigationDrawerHeader,
    MDNavigationDrawerLabel,
    MDNavigationDrawerDivider,
    MDNavigationDrawerItem,
)
from kivymd.uix.screen import MDScreen
from kivymd.uix.screenmanager import MDScreenManager
from kivymd.uix.toolbar import MDTopAppBar


class BaseNavigationDrawerItem(MDNavigationDrawerItem):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.radius = 24
        self.text_color = "#4a4939"
        self.icon_color = "#4a4939"
        self.focus_color = "#e7e4c0"


class DrawerLabelItem(BaseNavigationDrawerItem):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.focus_behavior = False
        self._no_ripple_effect = True
        self.selected_color = "#4a4939"


class DrawerClickableItem(BaseNavigationDrawerItem):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.ripple_color = "#c5bdd2"
        self.selected_color = "#0c6c4d"


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return(
            MDScreen(
                MDNavigationLayout(
                    MDScreenManager(
                        MDScreen(
                            MDTopAppBar(
                                title="Navigation Drawer",
                                elevation=4,
                                pos_hint={"top": 1},
                                md_bg_color="#e7e4c0",
                                specific_text_color="#4a4939",
                                left_action_items=[
                                    ['menu', lambda x: self.nav_drawer_open()]
```

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```
                            ],
                        )

                    )
                ),
                MDNavigationDrawer(
                    MDNavigationDrawerMenu(
                        MDNavigationDrawerHeader(
                            title="Header title",
                            title_color="#4a4939",
                            text="Header text",
                            spacing="4dp",
                            padding=("12dp", 0, 0, "56dp"),
                        ),
                        MDNavigationDrawerLabel(
                            text="Mail",
                        ),
                        DrawerClickableItem(
                            icon="gmail",
                            right_text="+99",
                            text_right_color="#4a4939",
                            text="Inbox",
                        ),
                        DrawerClickableItem(
                            icon="send",
                            text="Outbox",
                        ),
                        MDNavigationDrawerDivider(),
                        MDNavigationDrawerLabel(
                            text="Labels",
                        ),
                        DrawerLabelItem(
                            icon="information-outline",
                            text="Label",
                        ),
                        DrawerLabelItem(
                            icon="information-outline",
                            text="Label",
                        ),
                    ),
                    id="nav_drawer",
                    radius=(0, 16, 16, 0),
                )
            )
        )
    )

def nav_drawer_open(self, *args):
    nav_drawer = self.root.children[0].ids.nav_drawer
    nav_drawer.set_state("open")
```

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```
Example().run()
```

Switching screens in the `ScreenManager` and using the common `MDTopAppBar`

Declarative KV styles

```
from kivy.lang import Builder
from kivy.properties import ObjectProperty

from kivymd.app import MDApp
from kivymd.uix.scrollview import MDScrollView

KV = '''
<ContentNavigationDrawer>

    MDList:

        OneLineListItem:
            text: "Screen 1"
            on_press:
                root.nav_drawer.set_state("close")
                root.screen_manager.current = "scr 1"

        OneLineListItem:
            text: "Screen 2"
            on_press:
                root.nav_drawer.set_state("close")
                root.screen_manager.current = "scr 2"


MDScreen:

    MDTopAppBar:
        pos_hint: {"top": 1}
        elevation: 4
        title: "MDNavigationDrawer"
        left_action_items: [["menu", lambda x: nav_drawer.set_state("open")]]

    MDNavigationLayout:

        MDScreenManager:
            id: screen_manager

            MDScreen:
                name: "scr 1"

                MDLabel:
                    text: "Screen 1"
                    halign: "center"
```

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```
            MDScreen:
                name: "scr 2"

                MDLabel:
                    text: "Screen 2"
                    halign: "center"

        MDNavigationDrawer:
            id: nav_drawer
            radius: (0, 16, 16, 0)

            ContentNavigationDrawer:
                screen_manager: screen_manager
                nav_drawer: nav_drawer
'''


class ContentNavigationDrawer(MDScrollView):
    screen_manager = ObjectProperty()
    nav_drawer = ObjectProperty()


class Example(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


Example().run()
```

Declarative python styles

```
from kivymd.app import MDApp
from kivymd.uix.label import MDLabel
from kivymd.uix.list import MDList, OneLineListItem
from kivymd.uix.navigationdrawer import MDNavigationLayout, MDNavigationDrawer
from kivymd.uix.screen import MDScreen
from kivymd.uix.screenmanager import MDScreenManager
from kivymd.uix.scrollview import MDScrollView
from kivymd.uix.toolbar import MDTopAppBar


class Example(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Orange"
        self.theme_cls.theme_style = "Dark"
        return (
            MDScreen(
                MDTopAppBar(
                    pos_hint={"top": 1},
```

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```
                    elevation=4,
                    title="MDNavigationDrawer",
                    left_action_items=[["menu", lambda x: self.nav_drawer_open()]],
                ),
                MDNavigationLayout(
                    MDScreenManager(
                        MDScreen(
                            MDLabel(
                                text="Screen 1",
                                halign="center",
                            ),
                            name="scr 1",
                        ),
                        MDScreen(
                            MDLabel(
                                text="Screen 2",
                                halign="center",
                            ),
                            name="scr 2",
                        ),
                        id="screen_manager",
                    ),
                    MDNavigationDrawer(
                        MDScrollView(
                            MDList(
                                OneLineListItem(
                                    text="Screen 1",
                                    on_press=self.switch_screen,
                                ),
                                OneLineListItem(
                                    text="Screen 2",
                                    on_press=self.switch_screen,
                                ),
                            ),
                        ),
                        id="nav_drawer",
                        radius=(0, 16, 16, 0),
                    ),
                    id="navigation_layout",
                )
            )
        )

    def switch_screen(self, instance_list_item: OneLineListItem):
        self.root.ids.navigation_layout.ids.screen_manager.current = {
            "Screen 1": "scr 1", "Screen 2": "scr 2"
        }[instance_list_item.text]
        self.root.children[0].ids.nav_drawer.set_state("close")

    def nav_drawer_open(self):
        nav_drawer = self.root.children[0].ids.nav_drawer
        nav_drawer.set_state("open")
```

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```
Example().run()
```

API - kivymd.uix.navigationdrawer.navigationdrawer

class kivymd.uix.navigationdrawer.navigationdrawer.**MDNavigationLayout**(**args*, ***kwargs*)

For more information, see in the *MDFloatLayout* class documentation.

update_pos(*self*, *instance_navigation_drawer*, *pos_x: float*)

add_scrim(*self*, *instance_manager: ScreenManager*)

update_scrim_rectangle(*self*, *instance_manager: ScreenManager*, *size: list*)

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Only two layouts are allowed: ScreenManager and *MDNavigationDrawer*.

class kivymd.uix.navigationdrawer.navigationdrawer.**MDNavigationDrawerLabel**(**args*, ***kwargs*)

Implements a label for a menu for *MDNavigationDrawer* class.

For more information, see in the *MDBoxLayout* class documentation.

New in version 1.0.0.

```
MDNavigationDrawer:

    MDNavigationDrawerMenu:

        MDNavigationDrawerLabel:
            text: "Mail"
```

text

Text label.

text is a StringProperty and defaults to ‘’.

padding

Padding between layout box and children: [padding_left, padding_top, padding_right, padding_bottom].

Padding also accepts a two argument form [padding_horizontal, padding_vertical] and a one argument form [padding].

padding is a VariableListProperty and defaults to *[‘20dp’, 0, 0, ‘8dp’]*.

class kivymd.uix.navigationdrawer.navigationdrawer.**MDNavigationDrawerDivider**(**args*, ***kwargs*)

Implements a divider for a menu for *MDNavigationDrawer* class.

For more information, see in the *MDBoxLayout* class documentation.

New in version 1.0.0.

```
MDNavigationDrawer:

    MDNavigationDrawerMenu:

        MDNavigationDrawerLabel:
            text: "Mail"
```

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```
        MDNavigationDrawerDivider:
```

padding

Padding between layout box and children: [padding_left, padding_top, padding_right, padding_bottom].

Padding also accepts a two argument form [padding_horizontal, padding_vertical] and a one argument form [padding].

padding is a VariableListProperty and defaults to *['20dp', '12dp', 0, '12dp']*.

color

Divider color in (r, g, b, a) or string format.

color is a ColorProperty and defaults to *None*.

class kivymd.uix.navigationdrawer.navigationdrawer.**MDNavigationDrawerHeader**(***kwargs*)

Implements a header for a menu for *MDNavigationDrawer* class.

For more information, see in the *MDBoxLayout* class documentation.

New in version 1.0.0.

```
MDNavigationDrawer:

    MDNavigationDrawerMenu:
```

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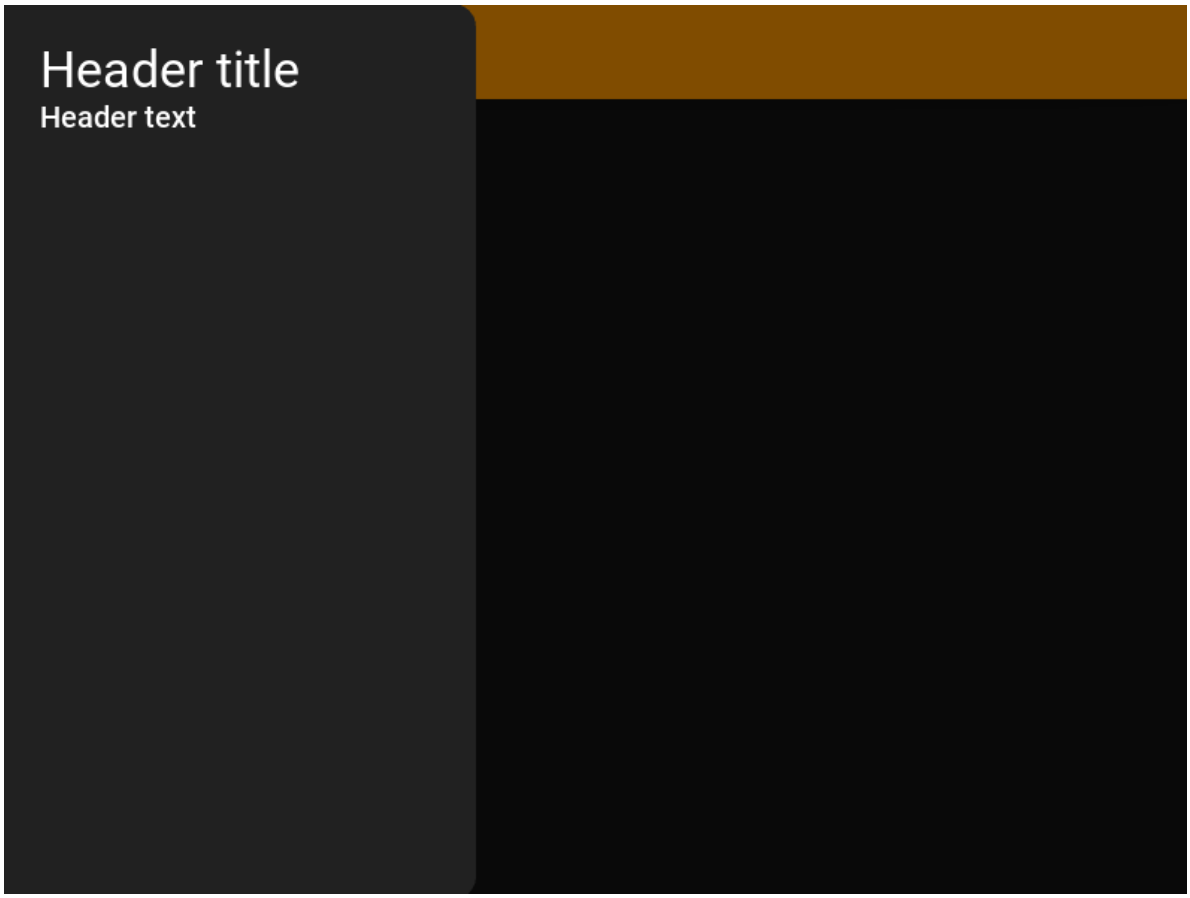
```
        MDNavigationDrawerHeader:
            title: "Header title"
            text: "Header text"
            spacing: "4dp"
            padding: "12dp", 0, 0, "56dp"
```



source

Image logo path.

```
MDNavigationDrawer:

    MDNavigationDrawerMenu:

        MDNavigationDrawerHeader:
            title: "Header title"
            text: "Header text"
            source: "logo.png"
            spacing: "4dp"
            padding: "12dp", 0, 0, "56dp"
```

source is a StringProperty and defaults to ‘’.

title

Title shown in the first line.

title is a StringProperty and defaults to ‘’.

title_halign

Title halign first line.

title_halign is a StringProperty and defaults to *‘left’*.

title_color

Title text color in (r, g, b, a) or string format.

title_color is a ColorProperty and defaults to *None*.

title_font_style

Title shown in the first line.

title_font_style is a StringProperty and defaults to *‘H4’*.

title_font_size

Title shown in the first line.

title_font_size is a StringProperty and defaults to *’34sp’*.

text

Text shown in the second line.

text is a StringProperty and defaults to ‘’.

text_halign

Text halign first line.

text_halign is a StringProperty and defaults to *'left'*.

text_color

Title text color in (r, g, b, a) or string format.

text_color is a ColorProperty and defaults to *None*.

text_font_style

Title shown in the first line.

text_font_style is a StringProperty and defaults to *'H6'*.

text_font_size

Title shown in the first line.

text_font_size is a StringProperty and defaults to *'20sp'*.

check_content(*self*, *interval: Union[int, float]*)

Removes widgets that the user has not added to the container.

class kivymd.uix.navigationdrawer.navigationdrawer.**MDNavigationDrawerItem**(**args*, ***kwargs*)

Implements an item for the *MDNavigationDrawer* menu list.

For more information, see in the OneLineAvatarIconListItem class documentation.

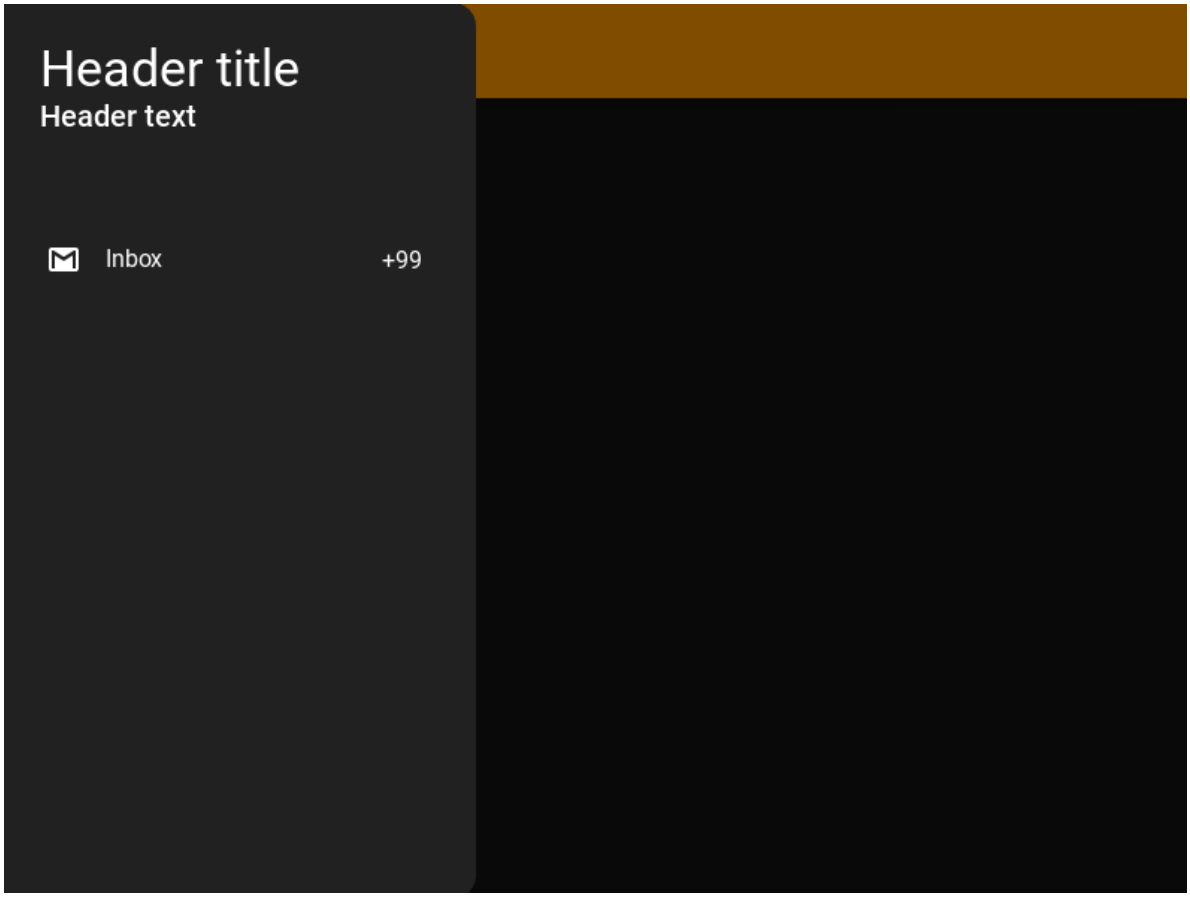
New in version 1.0.0.

```
MDNavigationDrawer:

    MDNavigationDrawerMenu:

        MDNavigationDrawerHeader:
            title: "Header title"
            text: "Header text"
            spacing: "4dp"
            padding: "12dp", 0, 0, "56dp"

        MDNavigationDrawerItem
            icon: "gmail"
            right_text: "+99"
            text: "Inbox"
```



selected

Is the item selected.

selected is a BooleanProperty and defaults to *False*.

icon

Icon item.

icon is a StringProperty and defaults to ‘’.

icon_color

Icon color in (r, g, b, a) or string format item.

icon_color is a ColorProperty and defaults to *None*.

selected_color

The color in (r, g, b, a) or string format of the icon and text of the selected item.

selected_color is a ColorProperty and defaults to *[0, 0, 0, 1]*.

right_text

Right text item.

right_text is a StringProperty and defaults to ‘’.

text_right_color

Right text color item in (r, g, b, a) or string format.

text_right_color is a ColorProperty and defaults to *None*.

class kivymd.uix.navigationdrawer.navigationdrawer.**MDNavigationDrawerMenu**(**args*, ***kwargs*)

Implements a scrollable list for menu items of the *MDNavigationDrawer* class.

For more information, see in the *MDScrollView* class documentation.

New in version 1.0.0.

```
MDNavigationDrawer:

    MDNavigationDrawerMenu:

        # Your menu items.
        ...
```

spacing

Spacing between children, in pixels.

spacing is a NumericProperty and defaults to *0*.

add_widget(*self*, *widget*, **args*, ***kwargs*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

reset_active_color(*self*, *item:* MDNavigationDrawerItem)

class kivymd.uix.navigationdrawer.navigationdrawer.**MDNavigationDrawer**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

type

Type of drawer. Modal type will be on top of screen. Standard type will be at left or right of screen. Also it automatically disables *close_on_click* and *enable_swiping* to prevent closing drawer for standard type.

For more information, see in the MDCard class documentation.

```
MDNavigationDrawer:
    type: "standard"
```

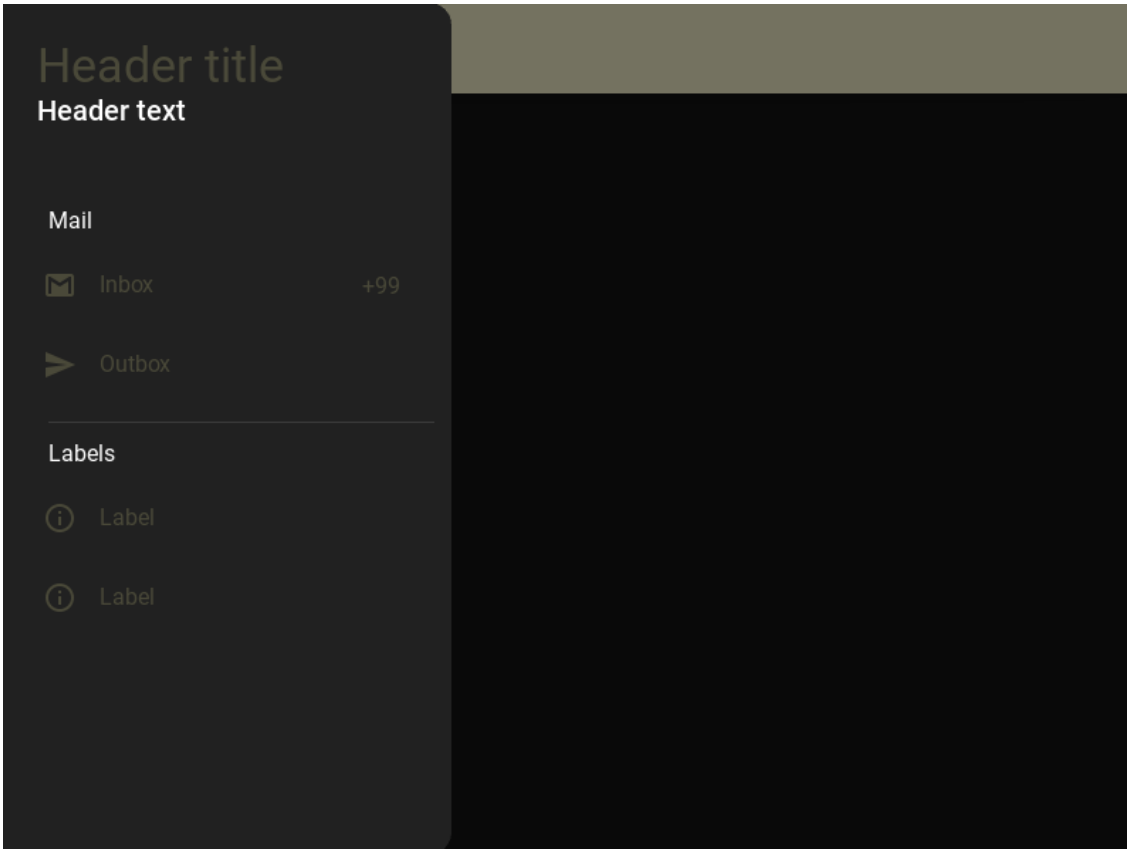
```
MDNavigationDrawer:
    type: "modal"
```

type is a `OptionProperty` and defaults to *'modal'*.

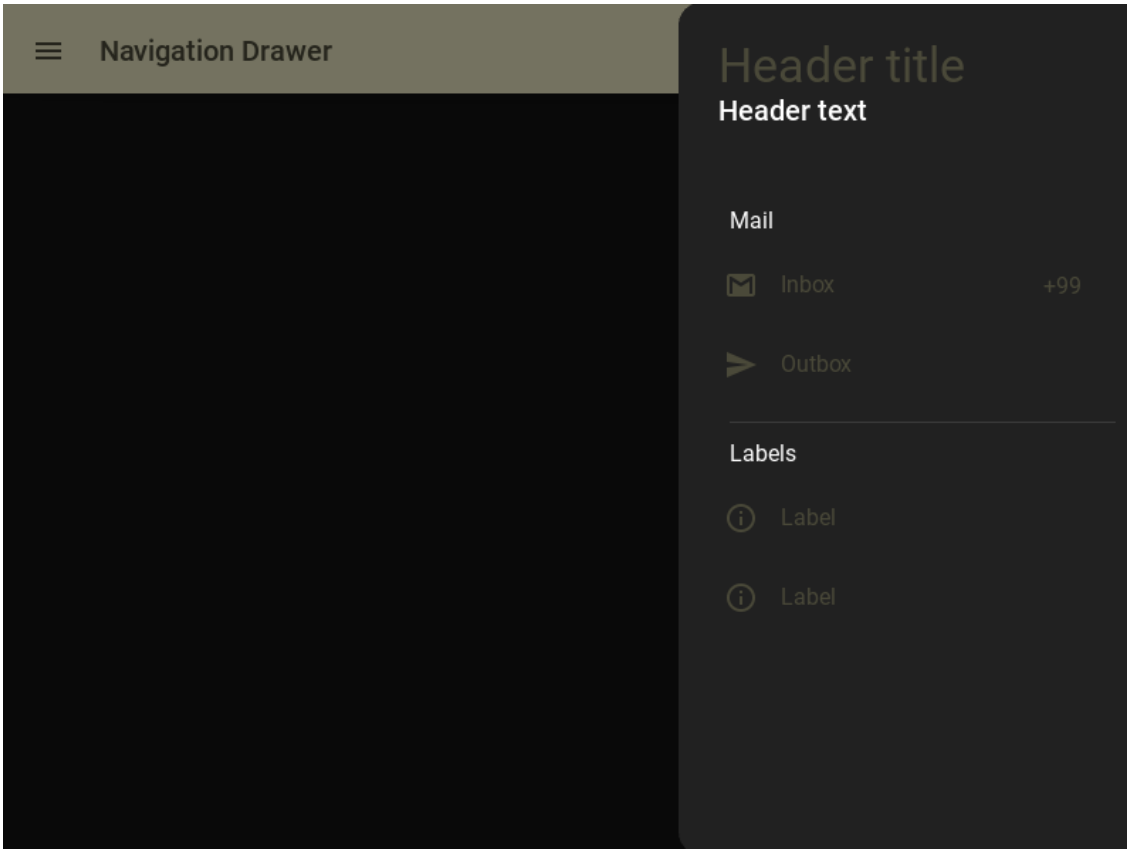
anchor

Anchoring screen edge for drawer. Set it to *'right'* for right-to-left languages. Available options are: *'left'*, *'right'*.

```
MDNavigationDrawer:
    anchor: "left"
```



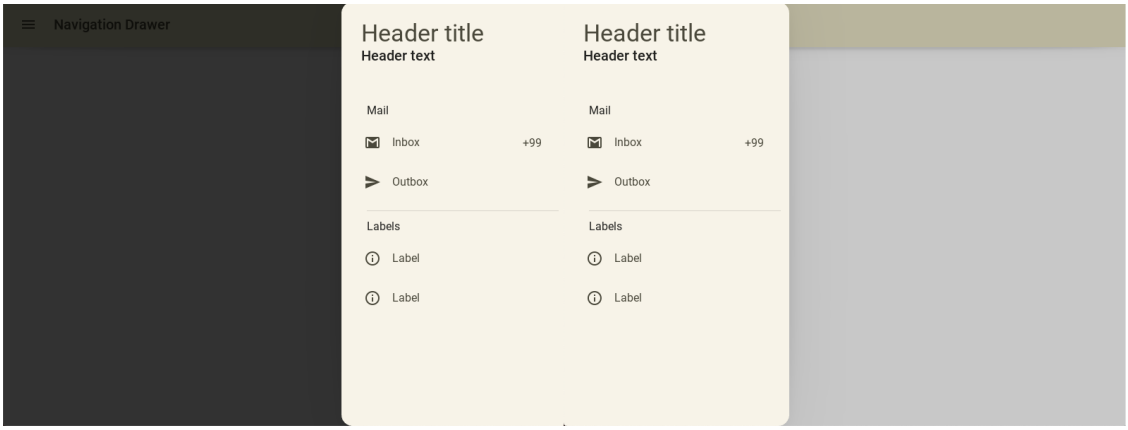

```
MDNavigationDrawer:
    anchor: "right"
```



anchor is a `OptionProperty` and defaults to *'left'*.

scrim_color

Color for scrim in (r, g, b, a) or string format. Alpha channel will be multiplied with `_scrim_alpha`. Set fourth channel to 0 if you want to disable scrim.




```
MDNavigationDrawer:
    scrim_color: 0, 0, 0, .8
    # scrim_color: 0, 0, 0, .2
```

scrim_color is a `ColorProperty` and defaults to *[0, 0, 0, 0.5]*.

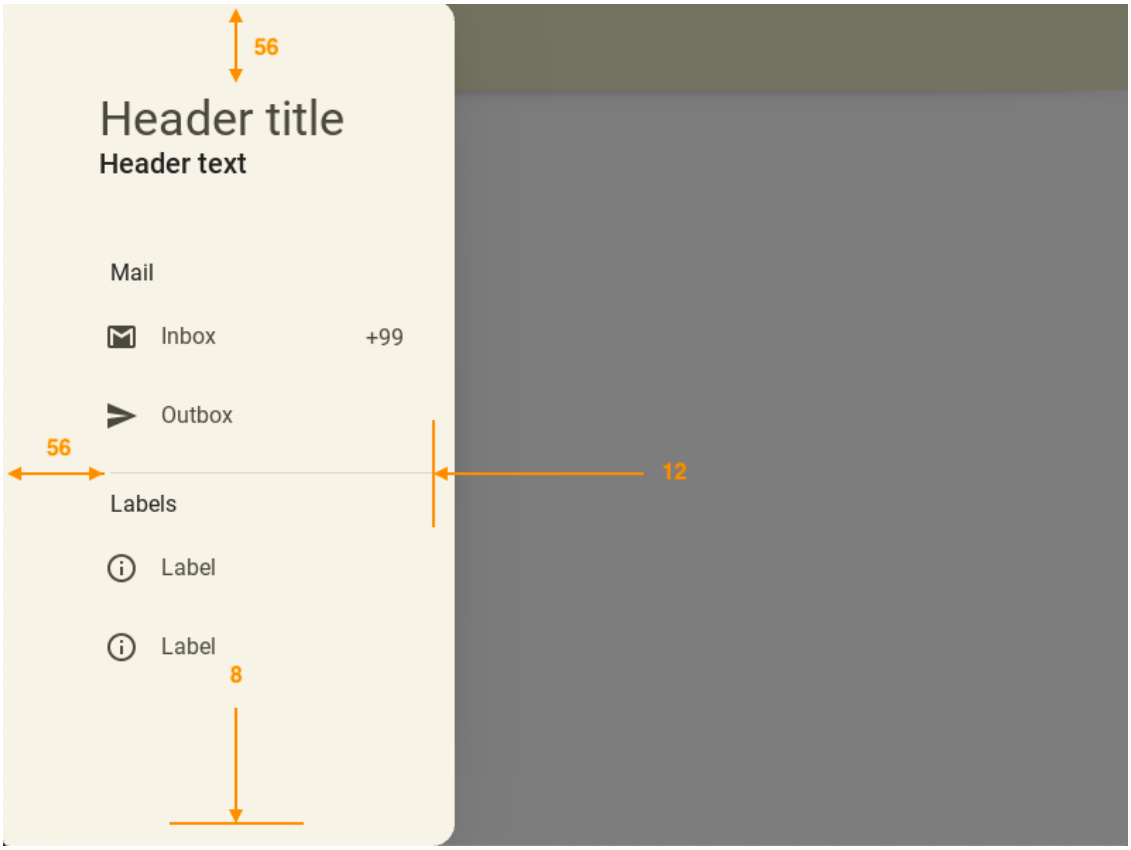
padding

Padding between layout box and children: [padding_left, padding_top, padding_right, padding_bottom].

Padding also accepts a two argument form [padding_horizontal, padding_vertical] and a one argument form [padding].

Changed in version 1.0.0.

```
MDNavigationDrawer:
    padding: 56, 56, 12, 16
```



padding is a VariableListProperty and defaults to '[16, 16, 12, 16]'.

close_on_click

Close when click on scrim or keyboard escape. It automatically sets to False for "standard" type.

close_on_click is a BooleanProperty and defaults to *True*.

state

Indicates if panel closed or opened. Sets after *status* change. Available options are: *'close'*, *'open'*.

state is a OptionProperty and defaults to *'close'*.

status

Detailed state. Sets before *state*. Bind to *state* instead of *status*. Available options are: *'closed'*, *'opening_with_swipe'*, *'opening_with_animation'*, *'opened'*, *'closing_with_swipe'*, *'closing_with_animation'*.

status is a OptionProperty and defaults to *'closed'*.

open_progress

Percent of visible part of side panel. The percent is specified as a floating point number in the range 0-1. 0.0 if panel is closed and 1.0 if panel is opened.

open_progress is a NumericProperty and defaults to *0.0*.

enable_swiping

Allow to open or close navigation drawer with swipe. It automatically sets to False for "standard" type.

enable_swiping is a BooleanProperty and defaults to *True*.

swipe_distance

The distance of the swipe with which the movement of navigation drawer begins.

swipe_distance is a NumericProperty and defaults to *10*.

swipe_edge_width

The size of the area in px inside which should start swipe to drag navigation drawer.

swipe_edge_width is a NumericProperty and defaults to *20*.

scrim_alpha_transition

The name of the animation transition type to use for changing `scrim_alpha`.

scrim_alpha_transition is a StringProperty and defaults to *'linear'*.

opening_transition

The name of the animation transition type to use when animating to the *state* *'open'*.

opening_transition is a StringProperty and defaults to *'out_cubic'*.

opening_time

The time taken for the panel to slide to the *state* *'open'*.

opening_time is a NumericProperty and defaults to *0.2*.

closing_transition

The name of the animation transition type to use when animating to the *state* 'close'.

closing_transition is a StringProperty and defaults to *'out_sine'*.

closing_time

The time taken for the panel to slide to the *state* *'close'*.

closing_time is a NumericProperty and defaults to *0.2*.

set_state(*self*, *new_state='toggle'*, *animation=True*)

Change state of the side panel. New_state can be one of *"toggle"*, *"open"* or *"close"*.

update_status(*self*, **_*)

get_dist_from_side(*self*, *x: float*)

on_touch_down(*self*, *touch*)

Receive a touch down event.

Parameters

***touch*: MotionEvent class**
Touch received. The touch is in parent coordinates. See relativelayout for a discussion on coordinate systems.

Returns
bool If True, the dispatching of the touch event will stop. If False, the event will continue to be dispatched to the rest of the widget tree.

on_touch_move(*self*, *touch*)

Receive a touch move event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

on_touch_up(*self*, *touch*)

Receive a touch up event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

on_radius(*self*, *instance_navigation_drawer*, *radius_value: list*)

on_type(*self*, *instance_navigation_drawer*, *drawer_type: str*)

2.3.44 TextField

See also:

Material Design spec, Text fields

Text fields let users enter and edit text.

KivyMD provides the following field classes for use:

- *MDTextField*
- *MDTextFieldRect*

Note: *MDTextField* inherited from `TextInput`. Therefore, most parameters and all events of the `TextInput` class are also available in the *MDTextField* class.

MDTextField

MDTextField can be with helper text and without.

Without helper text mode

```
MDTextField:
    hint_text: "No helper text"
```

Helper text mode on on_focus event

```
MDTextField:
    hint_text: "Helper text on focus"
    helper_text: "This will disappear when you click off"
    helper_text_mode: "on_focus"
```

Persistent helper text mode

```
MDTextField:
    hint_text: "Persistent helper text"
    helper_text: "Text is always here"
    helper_text_mode: "persistent"
```

Helper text mode *'on_error'*

To display an error in a text field when using the `helper_text_mode: "on_error"` parameter, set the *"error"* text field parameter to *True*:

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDTextField:
        id: text_field_error
        hint_text: "Helper text on error (press 'Enter')"
        helper_text: "There will always be a mistake"
        helper_text_mode: "on_error"
        pos_hint: {"center_x": .5, "center_y": .5}
        size_hint_x: .5
```

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```
'''


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        self.screen.ids.text_field_error.bind(
            on_text_validate=self.set_error_message,
            on_focus=self.set_error_message,
        )
        return self.screen

    def set_error_message(self, instance_textfield):
        self.screen.ids.text_field_error.error = True


Test().run()
```

Helper text mode *'on_error'* (with required)

```
MDTextField:
    hint_text: "required = True"
    text: "required = True"
    required: True
    helper_text_mode: "on_error"
    helper_text: "Enter text"
```

Text length control

```
MDTextField:
    hint_text: "Max text length = 5"
    max_text_length: 5
```

Multi line text

```
MDTextField:
    multiline: True
    hint_text: "Multi-line text"
```

Rectangle mode

```
MDTextField:
    hint_text: "Rectangle mode"
    mode: "rectangle"
```

Fill mode

```
MDTextField:
    hint_text: "Fill mode"
    mode: "fill"
```

Round mode

```
MDTextField:
    hint_text: "Round mode"
    mode: "round"
    max_text_length: 15
    helper_text: "Massage"
```

MDTextFieldRect

Note: *MDTextFieldRect* inherited from TextInput. You can use all parameters and attributes of the TextInput class in the *MDTextFieldRect* class.

```
MDTextFieldRect:
    size_hint: 1, None
    height: "30dp"
    background_color: app.theme_cls.bg_normal
```

Warning: While there is no way to change the color of the border.

Clickable icon for MDTextField

```
from kivy.lang import Builder
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.relativelayout import MDRelativeLayout

KV = '''
<ClickableTextFieldRound>:
    size_hint_y: None
    height: text_field.height

    MDTextField:
        id: text_field
        hint_text: root.hint_text
        text: root.text
        password: True
        icon_left: "key-variant"

    MDIconButton:
        icon: "eye-off"
        pos_hint: {"center_y": .5}
        pos: text_field.width - self.width + dp(8), 0
        theme_text_color: "Hint"
        on_release:
            self.icon = "eye" if self.icon == "eye-off" else "eye-off"
            text_field.password = False if text_field.password is True else True


MDScreen:

    ClickableTextFieldRound:
        size_hint_x: None
```

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```
        width: "300dp"
        hint_text: "Password"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class ClickableTextFieldRound(MDRelativeLayout):
    text = StringProperty()
    hint_text = StringProperty()
    # Here specify the required parameters for MDTextFieldRound:
    # [...]


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

See also:

See more information in the *MDTextFieldRect* class.

API - kivymd.uix.textfield.textfield

class kivymd.uix.textfield.textfield.**MDTextFieldRect**(***kwargs*)

TextInput class. See module documentation for more information.

Events

on_text_validate
Fired only in multiline=False mode when the user hits 'enter'. This will also unfocus the textinput.

on_double_tap
Fired when a double tap happens in the text input. The default behavior selects the text around the cursor position. More info at `on_double_tap()`.

on_triple_tap
Fired when a triple tap happens in the text input. The default behavior selects the line around the cursor position. More info at `on_triple_tap()`.

on_quad_touch
Fired when four fingers are touching the text input. The default behavior selects the whole text. More info at `on_quad_touch()`.

> **Warning:** When changing a `TextInput` property that requires re-drawing, e.g. modifying the `text`, the updates occur on the next clock cycle and not instantly. This might cause any changes to the `TextInput` that occur between the modification and the next cycle to be ignored, or to use previous values. For example, after a update to the `text`, changing the cursor in the same clock frame will move it using the previous text and

will likely end up in an incorrect position. The solution is to schedule any updates to occur on the next clock cycle using `schedule_once()`.

Note: Selection is cancelled when TextInput is focused. If you need to show selection when TextInput is focused, you should delay (use Clock.schedule) the call to the functions for selecting text (select_all, select_text).

Changed in version 1.10.0: *background_disabled_active* has been removed.

Changed in version 1.9.0: `TextInput` now inherits from `FocusBehavior`. `keyboard_mode`, `show_keyboard()`, `hide_keyboard()`, `focus()`, and `input_type` have been removed since they are now inherited from `FocusBehavior`.

Changed in version 1.7.0: *on_double_tap*, *on_triple_tap* and *on_quad_touch* events added.

Changed in version 2.1.0: `keyboard_suggestions` is now inherited from `FocusBehavior`.

line_anim

If True, then text field shows animated line when on focus.

line_anim is an `BooleanProperty` and defaults to *True*.

get_rect_instruction(*self*)

get_color_instruction(*self*)

anim_rect(*self*, *points*, *alpha*)

class kivymd.uix.textfield.textfield.**MDTextField**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

helper_text

Text for `helper_text` mode.

helper_text is an `StringProperty` and defaults to *''*.

helper_text_mode

Helper text mode. Available options are: *'on_error'*, *'persistent'*, *'on_focus'*.

helper_text_mode is an `OptionProperty` and defaults to *'none'*.

max_text_length

Maximum allowed value of characters in a text field.

max_text_length is an `NumericProperty` and defaults to *None*.

required

Required text. If True then the text field requires text.

required is an `BooleanProperty` and defaults to *False*.

mode

Text field mode. Available options are: *'line'*, *'rectangle'*, *'fill'*, *'round'*.

mode is an `OptionProperty` and defaults to *'line'*.

phone_mask

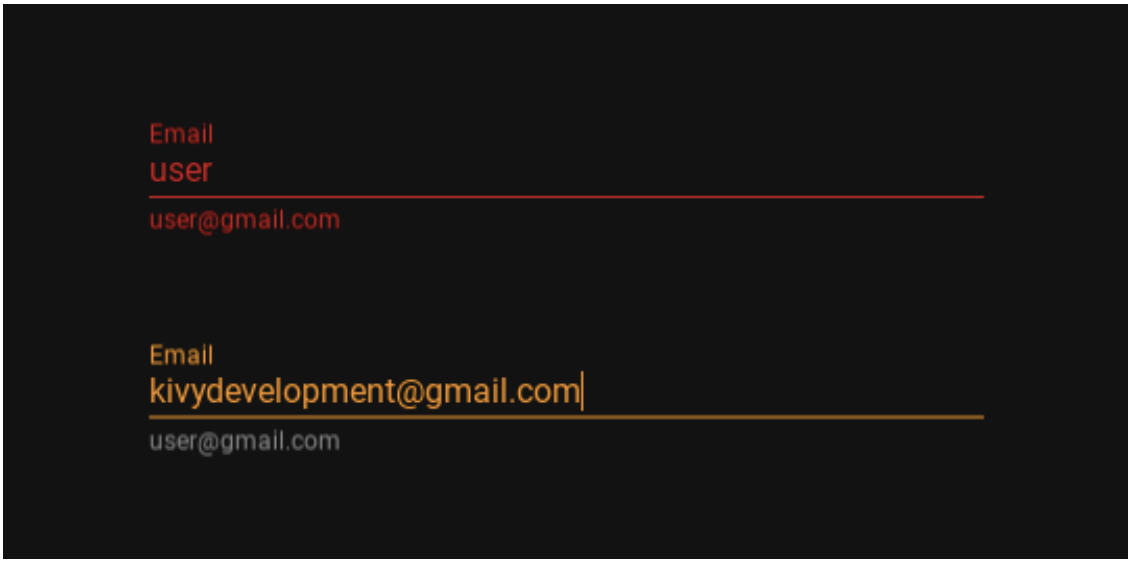
validator

The type of text field for entering Email, time, etc. Automatically sets the type of the text field as "error" if the user input does not match any of the set validation types. Available options are: *'date'*, *'email'*, *'time'*.

When using *'date'*, `date_format` must be defined.

New in version 1.1.0.

```
MDTextField:
    hint_text: "Email"
    helper_text: "user@gmail.com"
    validator: "email"
```



Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDBoxLayout:
        orientation: "vertical"
        spacing: "20dp"
        adaptive_height: True
        size_hint_x: .8
        pos_hint: {"center_x": .5, "center_y": .5}

        MDTextField:
            hint_text: "Date dd/mm/yyyy without limits"
            helper_text: "Enter a valid dd/mm/yyyy date"
            validator: "date"
            date_format: "dd/mm/yyyy"

        MDTextField:
```

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```
            hint_text: "Date mm/dd/yyyy without limits"
            helper_text: "Enter a valid mm/dd/yyyy date"
            validator: "date"
            date_format: "mm/dd/yyyy"

        MDTextField:
            hint_text: "Date yyyy/mm/dd without limits"
            helper_text: "Enter a valid yyyy/mm/dd date"
            validator: "date"
            date_format: "yyyy/mm/dd"

        MDTextField:
            hint_text: "Date dd/mm/yyyy in [01/01/1900, 01/01/2100] interval"
            helper_text: "Enter a valid dd/mm/yyyy date"
            validator: "date"
            date_format: "dd/mm/yyyy"
            date_interval: "01/01/1900", "01/01/2100"

        MDTextField:
            hint_text: "Date dd/mm/yyyy in [01/01/1900, None] interval"
            helper_text: "Enter a valid dd/mm/yyyy date"
            validator: "date"
            date_format: "dd/mm/yyyy"
            date_interval: "01/01/1900", None

        MDTextField:
            hint_text: "Date dd/mm/yyyy in [None, 01/01/2100] interval"
            helper_text: "Enter a valid dd/mm/yyyy date"
            validator: "date"
            date_format: "dd/mm/yyyy"
            date_interval: None, "01/01/2100"
'''


class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)


Test().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.screen import MDScreen
from kivymd.uix.textfield import MDTextField


class Test(MDApp):
```

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```
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDBoxLayout(
                    MDTextField(
                        hint_text="Date dd/mm/yyyy without limits",
                        helper_text="Enter a valid dd/mm/yyyy date",
                        validator="date",
                        date_format="dd/mm/yyyy",
                    ),
                    MDTextField(
                        hint_text="Date mm/dd/yyyy without limits",
                        helper_text="Enter a valid mm/dd/yyyy date",
                        validator="date",
                        date_format="mm/dd/yyyy",
                    ),
                    MDTextField(
                        hint_text="Date yyyy/mm/dd without limits",
                        helper_text="Enter a valid yyyy/mm/dd date",
                        validator="date",
                        date_format="yyyy/mm/dd",
                    ),
                    MDTextField(
                        hint_text="Date dd/mm/yyyy in [01/01/1900, 01/01/2100]␣
↪interval",
                        helper_text="Enter a valid dd/mm/yyyy date",
                        validator="date",
                        date_format="dd/mm/yyyy",
                        date_interval=["01/01/1900", "01/01/2100"],
                    ),
                    MDTextField(
                        hint_text="Date dd/mm/yyyy in [01/01/1900, None]␣
↪interval",
                        helper_text="Enter a valid dd/mm/yyyy date",
                        validator="date",
                        date_format="dd/mm/yyyy",
                        date_interval=["01/01/1900", None],
                    ),
                    MDTextField(
                        hint_text="Date dd/mm/yyyy in [None, 01/01/2100]␣
↪interval",
                        helper_text="Enter a valid dd/mm/yyyy date",
                        validator="date",
                        date_format="dd/mm/yyyy",
                        date_interval=[None, "01/01/2100"],
                    ),
                    orientation="vertical",
                    spacing="20dp",
                    adaptive_height=True,
                    size_hint_x=0.8,
```

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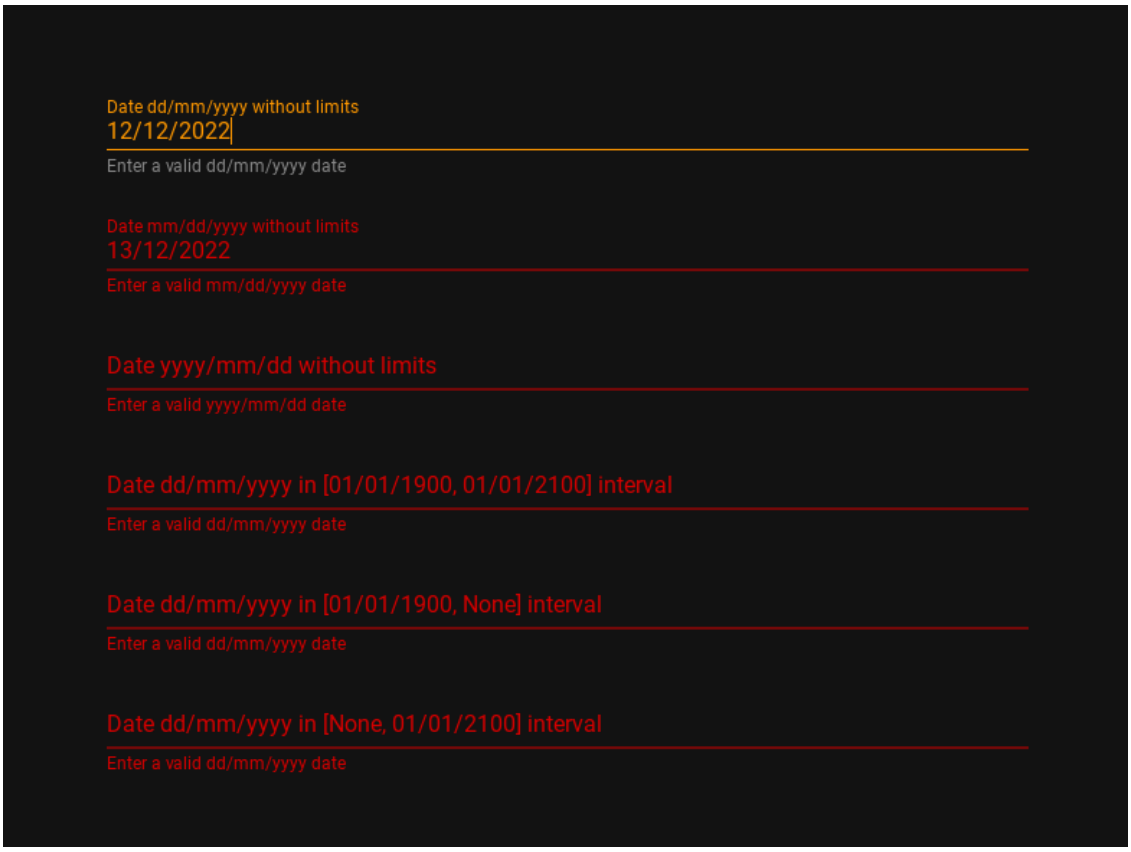
```
                    pos_hint={"center_x": 0.5, "center_y": 0.5},
                )
            )
        )


Test().run()
```

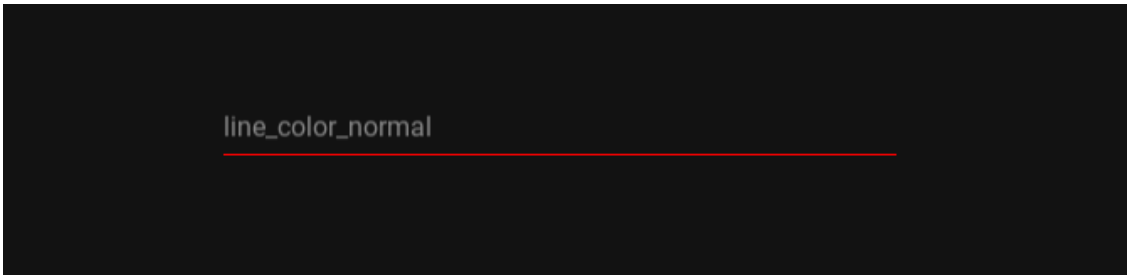


validator is an OptionProperty and defaults to *None*.

line_color_normal

Line color normal (static underline line) in (r, g, b, a) or string format.

```
MDTextField:
    hint_text: "line_color_normal"
    line_color_normal: "red"
```



line_color_normal is an ColorProperty and defaults to *[0, 0, 0, 0]*.

line_color_focus

Line color focus (active underline line) in (r, g, b, a) or string format.

```
MDTextField:
    hint_text: "line_color_focus"
    line_color_focus: "red"
```

line_color_focus is an ColorProperty and defaults to *[0, 0, 0, 0]*.

line_anim

If True, then text field shows animated underline when on focus.

line_anim is an BooleanProperty and defaults to *True*.

error_color

Error color in (r, g, b, a) or string format for `required = True`.

error_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

fill_color_normal

Fill background color in (r, g, b, a) or string format in 'fill' mode when] text field is out of focus.

fill_color_normal is an ColorProperty and defaults to *[0, 0, 0, 0]*.

fill_color_focus

Fill background color in (r, g, b, a) or string format in 'fill' mode when the text field has focus.

fill_color_focus is an ColorProperty and defaults to *[0, 0, 0, 0]*.

active_line

Show active line or not.

active_line is an BooleanProperty and defaults to *True*.

error

If True, then the text field goes into `error` mode.

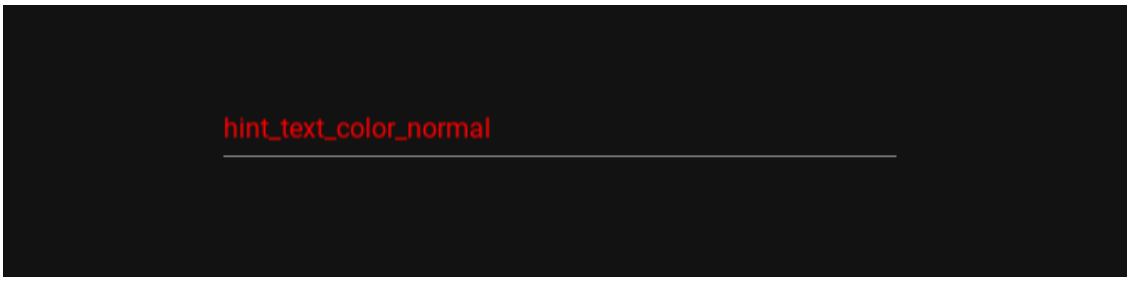
error is an BooleanProperty and defaults to *False*.

hint_text_color_normal

Hint text color in (r, g, b, a) or string format when text field is out of focus.

New in version 1.0.0.

```
MDTextField:
    hint_text: "hint_text_color_normal"
    hint_text_color_normal: "red"
```



hint_text_color_normal is an ColorProperty and defaults to *[0, 0, 0, 0]*.

hint_text_color_focus

Hint text color in (r, g, b, a) or string format when the text field has focus.

New in version 1.0.0.

```
MDTextField:
    hint_text: "hint_text_color_focus"
    hint_text_color_focus: "red"
```

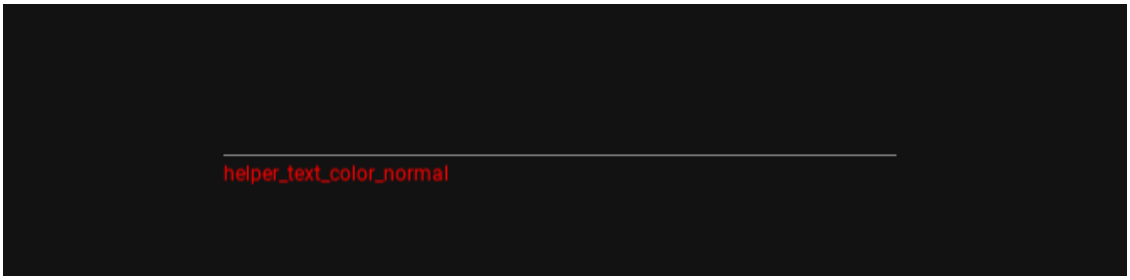
hint_text_color_focus is an ColorProperty and defaults to *[0, 0, 0, 0]*.

helper_text_color_normal

Helper text color in (r, g, b, a) or string format when text field is out of focus.

New in version 1.0.0.

```
MDTextField:
    helper_text: "helper_text_color_normal"
    helper_text_mode: "persistent"
    helper_text_color_normal: "red"
```



helper_text_color_normal is an ColorProperty and defaults to *[0, 0, 0, 0]*.

helper_text_color_focus

Helper text color in (r, g, b, a) or string format when the text field has focus.

New in version 1.0.0.

```
MDTextField:
    helper_text: "helper_text_color_focus"
```

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```
    helper_text_mode: "persistent"
    helper_text_color_focus: "red"
```

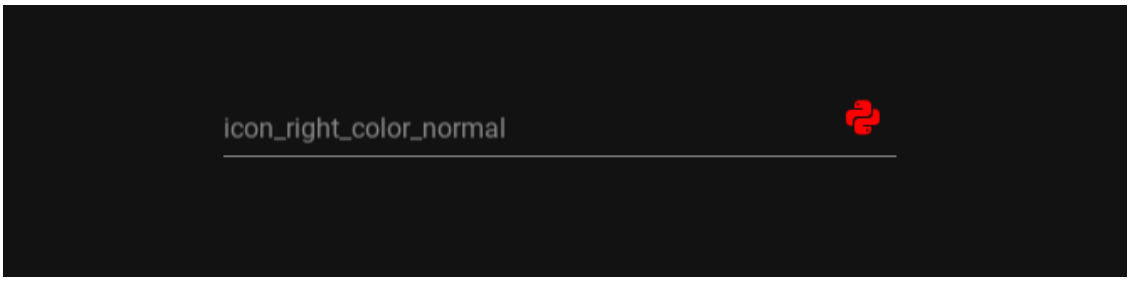
helper_text_color_focus is an ColorProperty and defaults to *[0, 0, 0, 0]*.

icon_right_color_normal

Color in (r, g, b, a) or string format of right icon when text field is out of focus.

New in version 1.0.0.

```
MDTextField:
    icon_right: "language-python"
    hint_text: "icon_right_color_normal"
    icon_right_color_normal: "red"
```



icon_right_color_normal is an ColorProperty and defaults to *[0, 0, 0, 0]*.

icon_right_color_focus

Color in (r, g, b, a) or string format of right icon when the text field has focus.

New in version 1.0.0.

```
MDTextField:
    icon_right: "language-python"
    hint_text: "icon_right_color_focus"
    icon_right_color_focus: "red"
```

icon_right_color_focus is an ColorProperty and defaults to *[0, 0, 0, 0]*.

icon_left_color_normal

Color in (r, g, b, a) or string format of right icon when text field is out of focus.

New in version 1.0.0.

icon_left_color_normal is an ColorProperty and defaults to *[0, 0, 0, 0]*.

icon_left_color_focus

Color in (r, g, b, a) or string format of right icon when the text field has focus.

New in version 1.0.0.

icon_left_color_focus is an ColorProperty and defaults to *[0, 0, 0, 0]*.

max_length_text_color

Text color in (r, g, b, a) or string format of the maximum length of characters to be input.

New in version 1.0.0.

```
MDTextField:
    hint_text: "max_length_text_color"
    max_length_text_color: "red"
    max_text_length: 5
```

max_length_text_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

icon_right

Right icon texture.

Note: It's just a texture. It has no press/touch events.

---

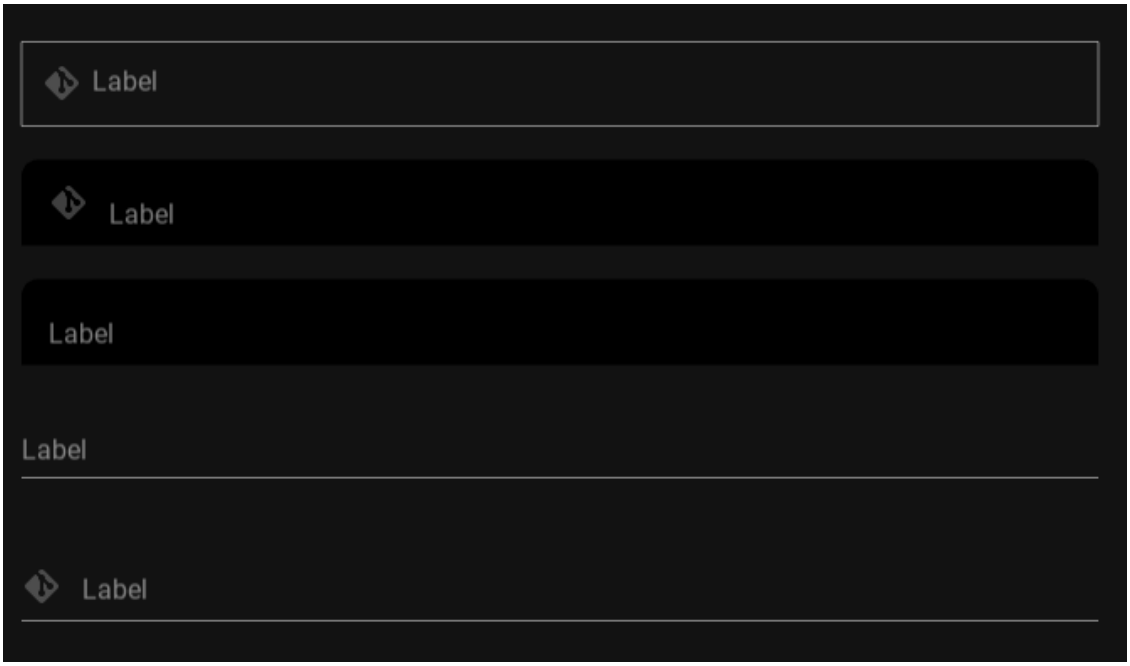
icon_right is an StringProperty and defaults to ''.

icon_left

Left icon texture.

New in version 1.0.0.

Note: It's just a texture. It has no press/touch events. Also note that you cannot use the left and right icons at the same time yet.



icon_left is an StringProperty and defaults to ''.

text_color_normal

Text color in (r, g, b, a) or string format when text field is out of focus.

New in version 1.0.0.

```
MDTextField:
    hint_text: "text_color_normal"
    text_color_normal: "red"
```

text_color_normal is an ColorProperty and defaults to *[0, 0, 0, 0]*.

text_color_focus

Text color in (r, g, b, a) or string format when text field has focus.

New in version 1.0.0.

```
MDTextField:
    hint_text: "text_color_focus"
    text_color_focus: "red"
```

text_color_focus is an ColorProperty and defaults to *[0, 0, 0, 0]*.

font_size

Font size of the text in pixels.

font_size is a NumericProperty and defaults to *'16sp'*.

max_height

Maximum height of the text box when *multiline* = *True*.

```
MDTextField:
    size_hint_x: .5
    hint_text: "multiline=True"
    max_height: "200dp"
    mode: "fill"
    fill_color: 0, 0, 0, .4
    multiline: True
    pos_hint: {"center_x": .5, "center_y": .5}
```

max_height is a NumericProperty and defaults to *0*.

radius

The corner radius for a text field in *fill* mode.

radius is a ListProperty and defaults to *[10, 10, 0, 0]*.

font_name_helper_text

Font name for helper text.

font_name_helper_text is an StringProperty and defaults to *'Roboto'*.

font_name_hint_text

Font name for hint text.

font_name_hint_text is an StringProperty and defaults to *'Roboto'*.

font_name_max_length

Font name for max text length.

font_name_max_length is an StringProperty and defaults to *'Roboto'*.

cancel_all_animations_on_double_click(*self*)

Cancels the animations of the text field when double-clicking on the text field.

set_colors_to_updated(*self*, *interval: Union[float, int]*)

set_default_colors(*self*, *interval: Union[float, int]*, *updated: bool = False*)

Sets the default text field colors when initializing a text field object. Also called when the application palette changes.

Parameters

updated – If *True* - the color theme of the application has been changed. Updating the meanings of the colors.

set_notch_rectangle(*self*, *joining: bool = False*)

Animates a notch for the hint text in the rectangle of the text field of type *rectangle*.

set_active_underline_width(*self*, *width: Union[float, int]*)

Animates the width of the active underline line.

set_static_underline_color(*self*, *color: list*)

Animates the color of a static underline line.

set_active_underline_color(*self*, *color: list*)

Animates the fill color for 'fill' mode.

set_fill_color(*self*, *color: list*)

Animates the color of the hint text.

set_helper_text_color(*self*, *color: list*)

Animates the color of the hint text.

set_max_length_text_color(*self*, *color: list*)

Animates the color of the max length text.

set_icon_right_color(*self*, *color: list*)

Animates the color of the icon right.

set_icon_left_color(*self*, *color: list*)

Animates the color of the icon left.

set_hint_text_color(*self*, *focus: bool*, *error: bool = False*)

Animates the color of the hint text.

set_pos_hint_text(*self*, *y: float*, *x: float = 12*)

Animates the x-axis width and y-axis height of the hint text.

set_hint_text_font_size(*self*, *font_size: float*)

Animates the font size of the hint text.

set_max_text_length(*self*)

Called when text is entered into a text field.

check_text(*self*, *interval: Union[float, int]*)

set_text(*self*, *instance_text_field*, *text: str*)

Called when text is entered into a text field.

set_x_pos(*self*)

set_objects_labels(*self*)

Creates labels objects for the parameters`helper_text`,`hint_text`, etc.

on_helper_text(*self*, *instance_text_field*, *helper_text: str*)

on_focus(*self*, *instance_text_field*, *focus: bool*)

on_icon_left(*self*, *instance_text_field*, *icon_name: str*)

on_icon_right(*self*, *instance_text_field*, *icon_name: str*)

on_disabled(*self*, *instance_text_field*, *disabled_value: bool*)

on_error(*self*, *instance_text_field*, *error: bool*)

Changes the primary colors of the text box to match the *error* value (text field is in an error state or not).

on_hint_text(*self*, *instance_text_field*, *hint_text: str*)

on_width(*self*, *instance_text_field*, *width: float*)

Called when the application window is resized.

on_height(*self*, *instance_text_field*, *value_height: float*)

on_text_color_normal(*self*, *instance_text_field*, *color: Union[list, str]*)

on_hint_text_color_normal(*self*, *instance_text_field*, *color: Union[list, str]*)

on_helper_text_color_normal(*self*, *instance_text_field*, *color: Union[list, str]*)

on_icon_right_color_normal(*self*, *instance_text_field*, *color: Union[list, str]*)

on_line_color_normal(*self*, *instance_text_field*, *color: Union[list, str]*)

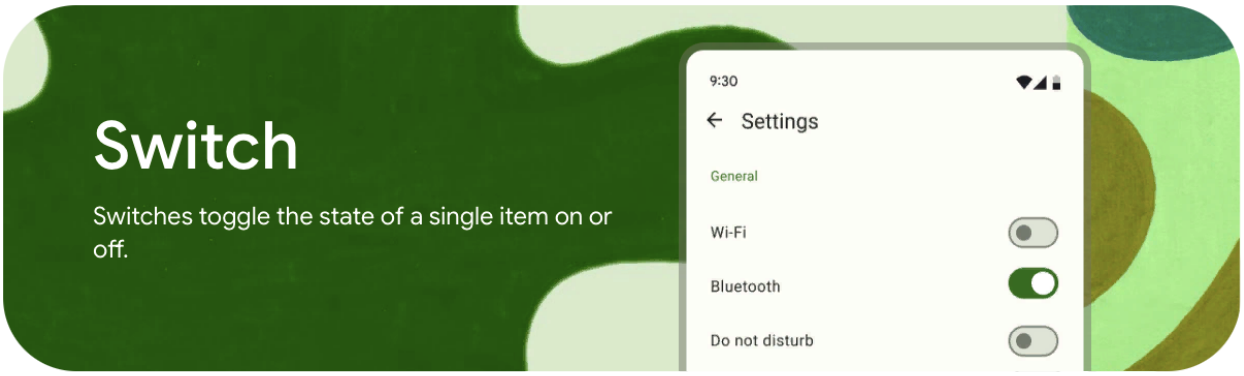
on_max_length_text_color(*self*, *instance_text_field*, *color: Union[list, str]*)

2.3.45 SelectionControls

See also:

Material Design spec, Selection controls

Selection controls allow the user to select options.



KivyMD provides the following selection controls classes for use:

- *MDCheckbox*
- *MDSwitch*

MDCheckbox

```
from kivy.lang import Builder

from kivymd.app import MDApp


KV = '''
MDFloatLayout:

    MDCheckbox:
        size_hint: None, None
        size: "48dp", "48dp"
        pos_hint: {'center_x': .5, 'center_y': .5}
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Note: Be sure to specify the size of the checkbox. By default, it is `(dp(48), dp(48))`, but the ripple effect takes up all the available space.

Control state

```
MDCheckbox:
    on_active: app.on_checkbox_active(*args)
```

```
def on_checkbox_active(self, checkbox, value):
    if value:
        print('The checkbox', checkbox, 'is active', 'and', checkbox.state, 'state')
    else:
        print('The checkbox', checkbox, 'is inactive', 'and', checkbox.state, 'state')
```

MDCheckbox with group

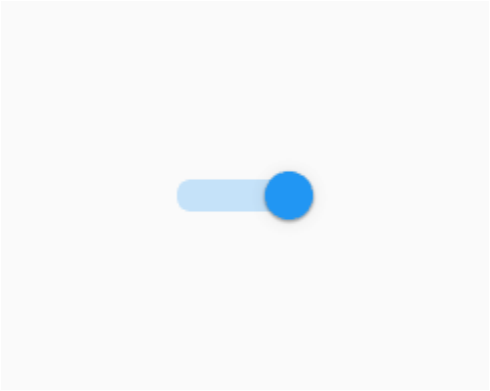
```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
<Check@MDCheckbox>:
    group: 'group'
    size_hint: None, None
    size: dp(48), dp(48)


MDFloatLayout:

    Check:
        active: True
        pos_hint: {'center_x': .4, 'center_y': .5}

    Check:
        pos_hint: {'center_x': .6, 'center_y': .5}
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

MDSwitch

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDFloatLayout:

    MDSwitch:
        pos_hint: {'center_x': .5, 'center_y': .5}
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Note: For *MDSwitch* size is not required. By default it is `(dp(36), dp(48))`, but you can increase the width if you want.

```
MDSwitch:
    width: dp(64)
```



Note: Control state of *MDSwitch* same way as in *MDCheckbox*.

MDSwitch in M3 style

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDSwitch:
        pos_hint: {'center_x': .5, 'center_y': .5}
        active: True
'''


class Test(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        return Builder.load_string(KV)


Test().run()
```

API - kivymd.uix.selectioncontrol.selectioncontrol

class kivymd.uix.selectioncontrol.selectioncontrol.**MDCheckbox**(***kwargs*)

Class implements a circular ripple effect.

active

Indicates if the checkbox is active or inactive.

active is a BooleanProperty and defaults to *False*.

checkbox_icon_normal

Background icon of the checkbox used for the default graphical representation when the checkbox is not pressed.

checkbox_icon_normal is a StringProperty and defaults to *'checkbox-blank-outline'*.

checkbox_icon_down

Background icon of the checkbox used for the default graphical representation when the checkbox is pressed.

checkbox_icon_down is a StringProperty and defaults to *'checkbox-marked'*.

radio_icon_normal

Background icon (when using the `group` option) of the checkbox used for the default graphical representation when the checkbox is not pressed.

radio_icon_normal is a StringProperty and defaults to *'checkbox-blank-circle-outline'*.

radio_icon_down

Background icon (when using the `group` option) of the checkbox used for the default graphical representation when the checkbox is pressed.

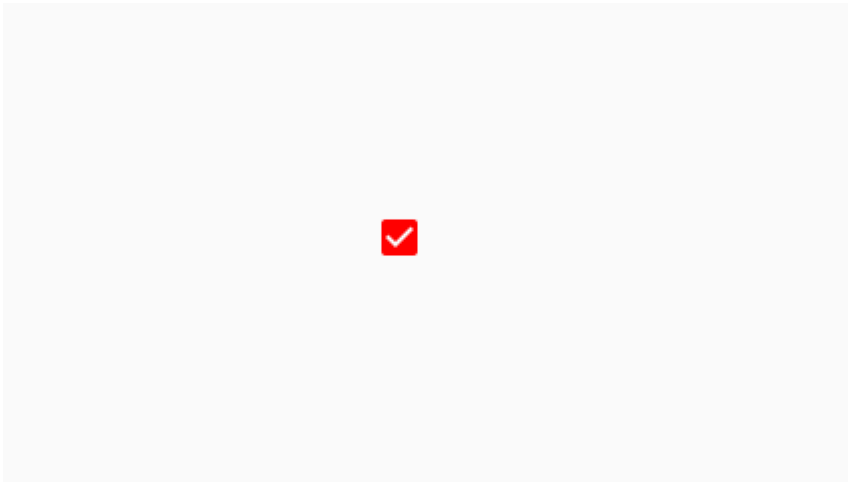
radio_icon_down is a StringProperty and defaults to *'checkbox-marked-circle'*.

color_active

Color in (r, g, b, a) or string format when the checkbox is in the active state.

New in version 1.0.0.

```
MDCheckbox:
    color_active: "red"
```



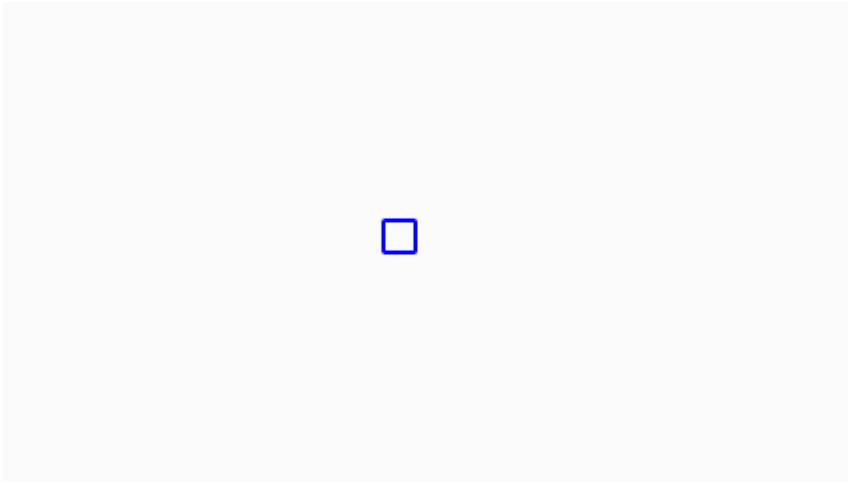
color_active is a ColorProperty and defaults to *None*.

color_inactive

Color in (r, g, b, a) or string format when the checkbox is in the inactive state.

New in version 1.0.0.

```
MDCheckbox:
    color_inactive: "blue"
```

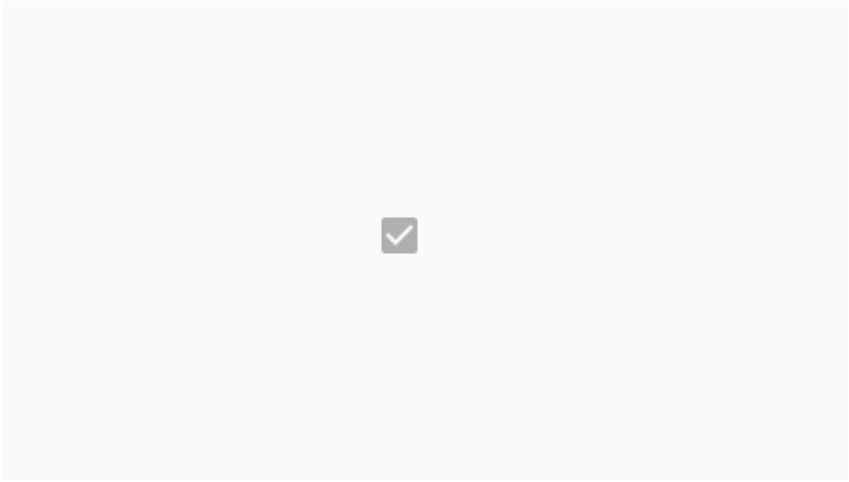


color_inactive is a ColorProperty and defaults to *None*.

disabled_color

Color in (r, g, b, a) or string format when the checkbox is in the disabled state.

```
MDCheckbox:
    disabled_color: "lightgrey"
    disabled: True
    active: True
```



disabled_color is a ColorProperty and defaults to *None*.

selected_color

Color in (r, g, b, a) or string format when the checkbox is in the active state.

Deprecated since version 1.0.0: Use *color_active* instead.

selected_color is a ColorProperty and defaults to *None*.

unselected_color

Color in (r, g, b, a) or string format when the checkbox is in the inactive state.

Deprecated since version 1.0.0: Use *color_inactive* instead.

unselected_color is a ColorProperty and defaults to *None*.

update_primary_color(*self*, *instance*, *value*)

update_icon(*self*, **args*)

update_color(*self*, **args*)

on_state(*self*, **args*)

on_active(*self*, **args*)

class kivymd.uix.selectioncontrol.selectioncontrol.**MDSwitch**(***kwargs*)

Float layout class. See module documentation for more information.

active

Indicates if the switch is active or inactive.

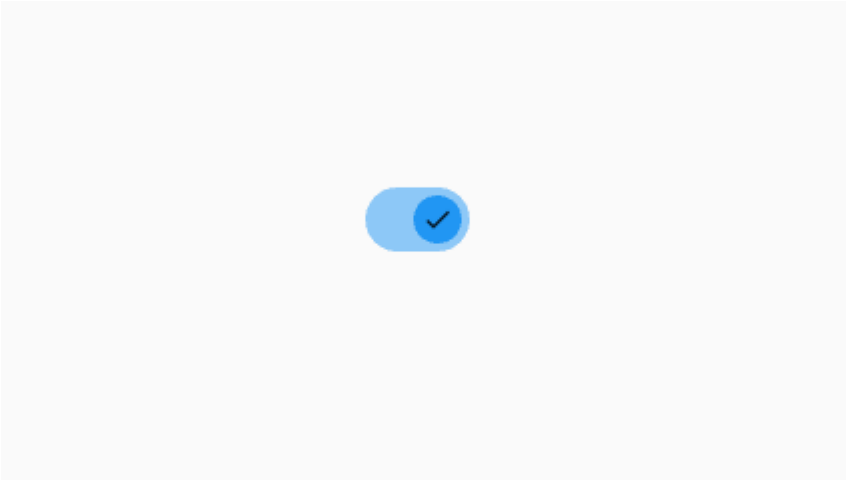
active is a BooleanProperty and defaults to *False*.

icon_active

Thumb icon when the switch is in the active state (only M3 style).

New in version 1.0.0.

```
MDSwitch:
    active: True
    icon_active: "check"
```



icon_active is a StringProperty and defaults to ‘’.

icon_inactive

Thumb icon when the switch is in an inactive state (only M3 style).

New in version 1.0.0.

```
MDSwitch:
    icon_inactive: "close"
```

icon_inactive is a StringProperty and defaults to ‘’.

icon_active_color

Thumb icon color in (r, g, b, a) or string format when the switch is in the active state (only M3 style).

New in version 1.0.0.

```
MDSwitch:
    active: True
```

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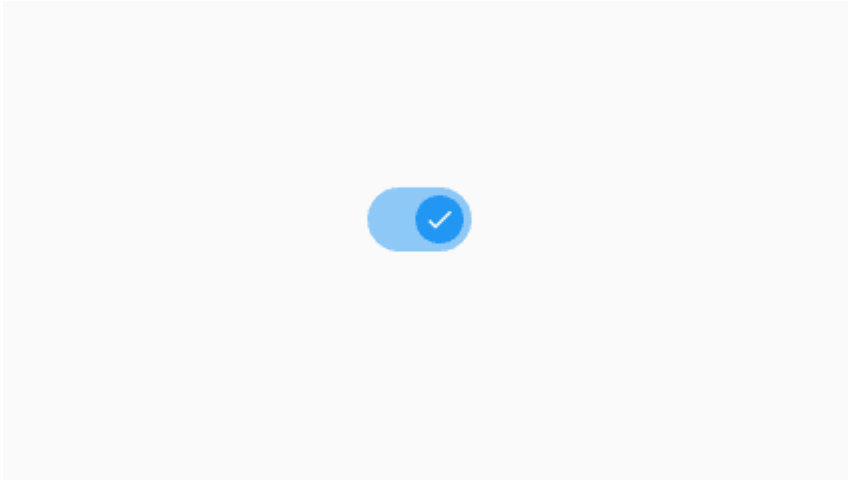
```
    icon_active: "check"
    icon_active_color: "white"
```



icon_active_color is a ColorProperty and defaults to *None*.

icon_inactive_color

Thumb icon color in (r, g, b, a) or string format when the switch is in an inactive state (only M3 style).

New in version 1.0.0.

```
MDSwitch:
    icon_inactive: "close"
    icon_inactive_color: "grey"
```

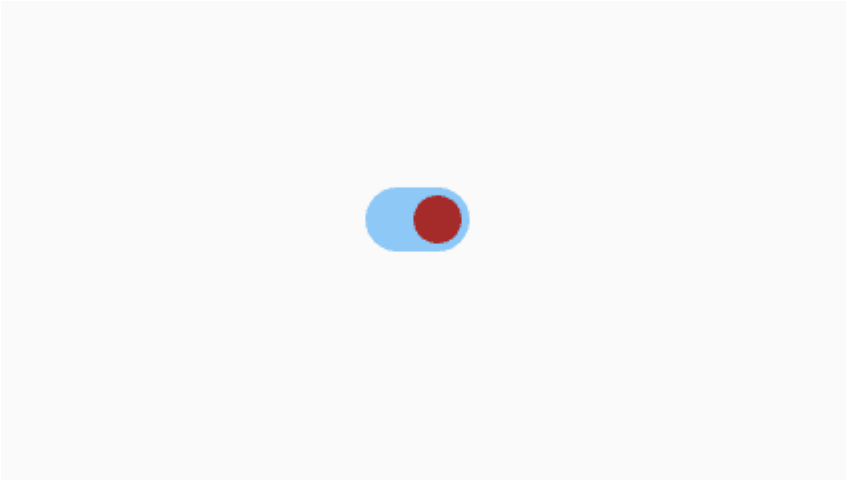
icon_inactive_color is a ColorProperty and defaults to *None*.

thumb_color_active

The color in (r, g, b, a) or string format of the thumb when the switch is active.

New in version 1.0.0.

```
MDSwitch:
    active: True
    thumb_color_active: "brown"
```



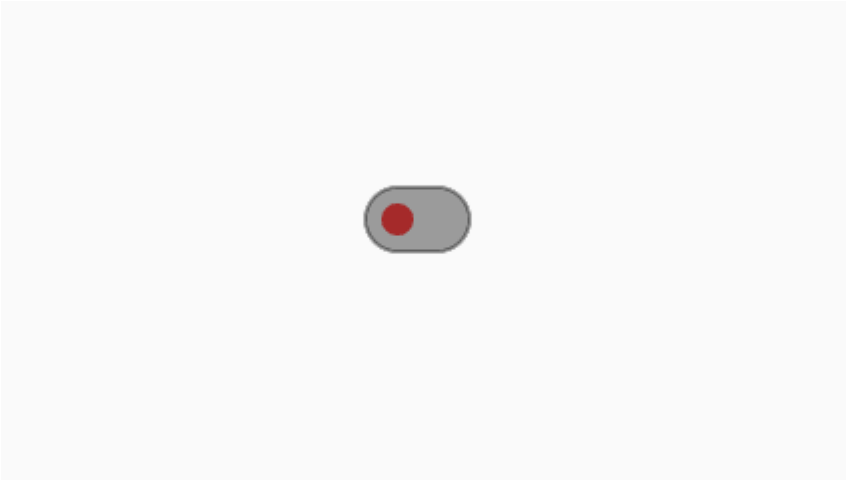
thumb_color_active is an ColorProperty and default to *None*.

thumb_color_inactive

The color in (r, g, b, a) or string format of the thumb when the switch is inactive.

New in version 1.0.0.

```
MDSwitch:
    thumb_color_inactive: "brown"
```

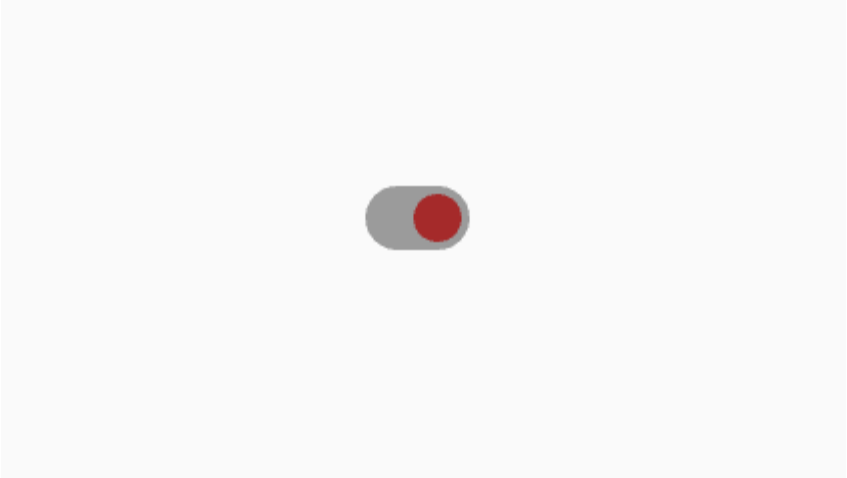


thumb_color_inactive is an ColorProperty and default to *None*.

thumb_color_disabled

The color in (r, g, b, a) or string format of the thumb when the switch is in the disabled state.

```
MDSwitch:
    active: True
    thumb_color_disabled: "brown"
    disabled: True
```

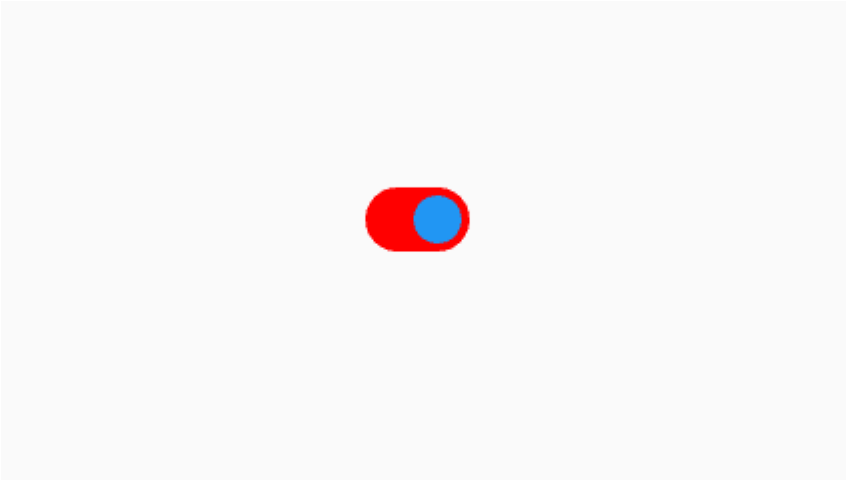


thumb_color_disabled is an ColorProperty and default to *None*.

track_color_active

The color in (r, g, b, a) or string format of the track when the switch is active.

```
MDSwitch:
    active: True
    track_color_active: "red"
```



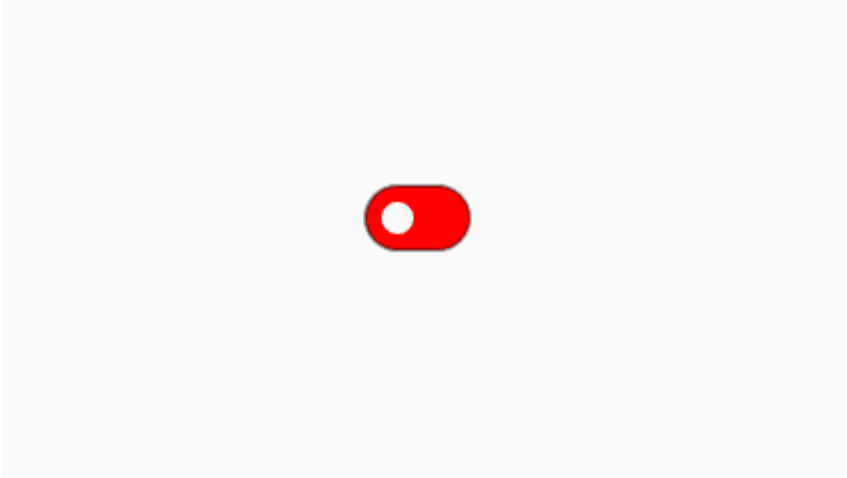
track_color_active is an ColorProperty and default to *None*.

track_color_inactive

The color in (r, g, b, a) or string format of the track when the switch is inactive.

New in version 1.0.0.

```
MDSwitch:
    track_color_inactive: "red"
```



track_color_inactive is an ColorProperty and default to *None*.

track_color_disabled

The color in (r, g, b, a) or string format of the track when the switch is in the disabled state.

```
MDSwitch:
    track_color_disabled: "lightgrey"
    disabled: True
```

track_color_disabled is an ColorProperty and default to *None*.

set_icon(*self*, *instance_switch*, *icon_value: str*)

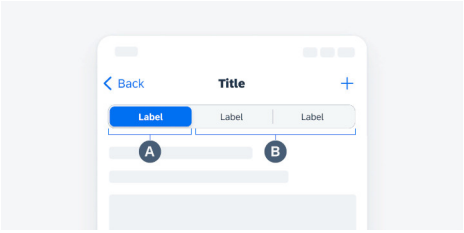
on_active(*self*, *instance_switch*, *active_value: bool*)

on_thumb_down(*self*)

Called at the on_touch_down event of the Thumb object. Indicates the state of the switch "on/off" by an animation of increasing the size of the thumb.

2.3.46 SegmentedControl

New in version 1.0.0.



Usage

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp


KV = '''
MDScreen:

    MDSegmentedControl:
        pos_hint: {"center_x": .5, "center_y": .5}

        MDSegmentedControlItem:
            text: "Male"

        MDSegmentedControlItem:
            text: "Female"

        MDSegmentedControlItem:
            text: "All"
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.screen import MDScreen
from kivymd.uix.segmentedcontrol import (
```

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```
    MDSegmentedControl, MDSegmentedControlItem
)


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDSegmentedControl(
                    MDSegmentedControlItem(
                        text="Male"
                    ),
                    MDSegmentedControlItem(
                        text="Female"
                    ),
                    MDSegmentedControlItem(
                        text="All"
                    ),
                    pos_hint={"center_x": 0.5, "center_y": 0.5}
                )
            )
        )


Example().run()
```

Events

```
MDSegmentedControl:
    on_active: app.on_active(*args)
```

```
def on_active(
    self,
    segmented_control: MDSegmentedControl,
    segmented_item: MDSegmentedControlItem,
) -> None:
    '''Called when the segment is activated.'''
```

API - kivymd.uix.segmentedcontrol.segmentedcontrol

class kivymd.uix.segmentedcontrol.segmentedcontrol.**MDSegmentedControlItem**(***kwargs*)

Implements a label to place on the `SegmentPanel` panel.

See `MDLabel` class documentation for more information.

class kivymd.uix.segmentedcontrol.segmentedcontrol.**MDSegmentedControl**(**args*, ***kwargs*)

Implements a segmented control panel.

Relative layout class. For more information, see in the `RelativeLayout` class documentation.

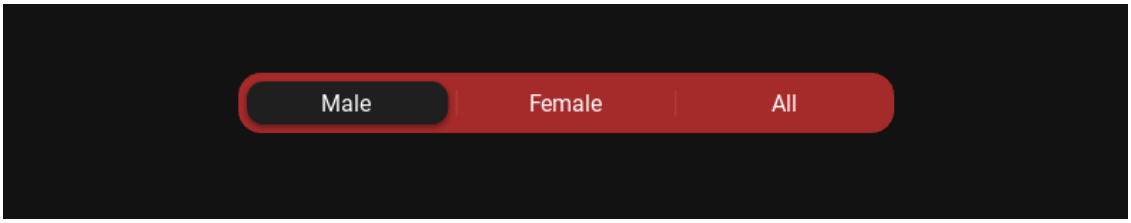
Events

on_active
Called when the segment is activated.

md_bg_color

Background color of the segment panel in (r, g, b, a) or string format.

```
MDSegmentedControl:
    md_bg_color: "brown"
```

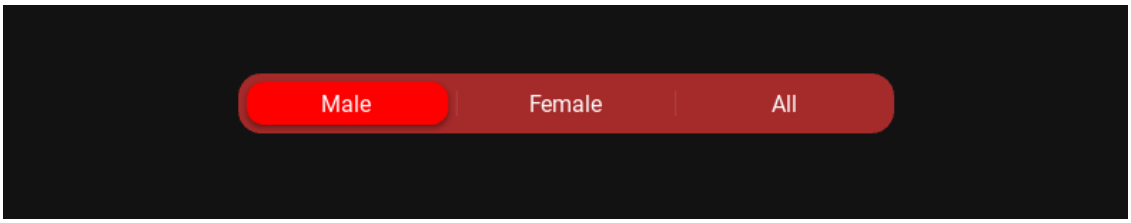


md_bg_color is an `ColorProperty` and defaults to *[0, 0, 0, 0]*.

segment_color

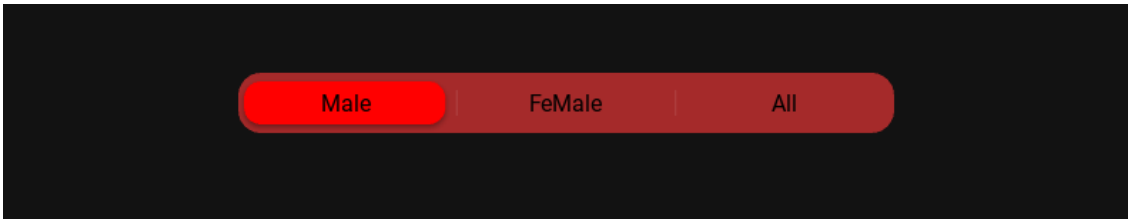
Color of the active segment in (r, g, b, a) or string format.

```
MDSegmentedControl:
    md_bg_color: "brown"
    segment_color: "red"
```




```
MDSegmentedControl:
    md_bg_color: "brown"
    segment_color: "red"

    MDSegmentedControlItem:
        text: "[color=fff]Male[/color]"
```

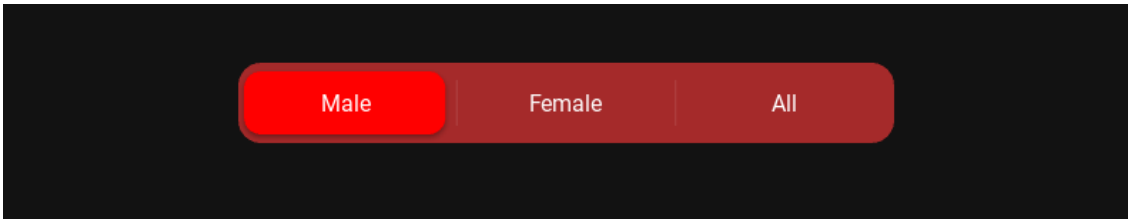


segment_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

segment_panel_height

Height of the segment panel.

```
MDSegmentedControl:
    segment_panel_height: "56dp"
```

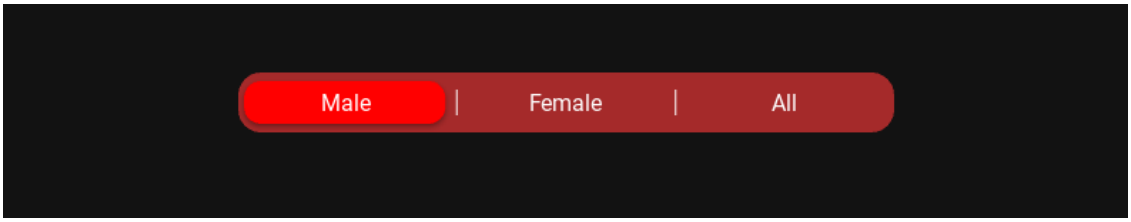


segment_panel_height is an NumericProperty and defaults to *'42dp'*.

separator_color

The color of the separator between the segments in (r, g, b, a) or string format.

```
MDSegmentedControl:
    md_bg_color: "brown"
    segment_color: "red"
    separator_color: "white"
```

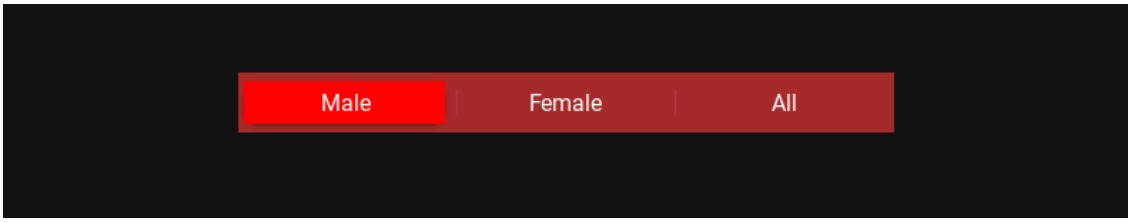


separator_color is an ColorProperty and defaults to *None*.

radius

Radius of the segment panel.

```
MDSegmentedControl:
    radius: 0
```



radius is an VariableListProperty and defaults to *[16, 16, 16, 16]*.

segment_switching_transition

Name of the animation type for the switch segment.

segment_switching_transition is a StringProperty and defaults to *'in_cubic'*.

segment_switching_duration

Name of the animation type for the switch segment.

segment_switching_duration is a NumericProperty and defaults to *0.2*.

current_active_segment

The current active element of the *MDSegmentedControlItem* class.

current_active_segment is a ObjectProperty and defaults to *None*.

set_default_colors(*self*, **args*)

Sets the colors of the panel and the switch if the colors are not set by the user.

animation_segment_switch(*self*, *widget:* MDSegmentedControlItem)

Animates the movement of the switch.

update_segment_panel_width(*self*, *widget:* MDSegmentedControlItem)

Sets the width of the panel for the elements of the *MDSegmentedControlItem* class.

update_separator_color(*self*, *widget:* MDSeparator)

Updates the color of the separators between segments.

add_widget(*self*, *widget*, **args*, ***kwargs*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

on_active(*self*, **args*)

Called when the segment is activated.

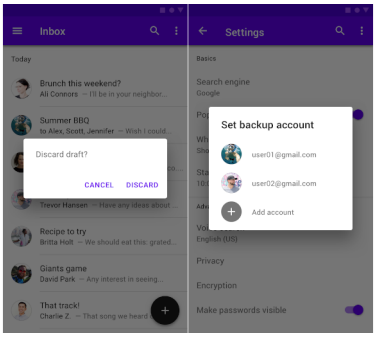
on_press_segment(*self*, *widget:* MDSegmentedControlItem, *touch*)

2.3.47 Dialog

See also:

Material Design spec, Dialogs

Dialogs inform users about a task and can contain critical information, require decisions, or involve multiple tasks.



Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.button import MDFlatButton
from kivymd.uix.dialog import MDDialog

KV = '''
MDFloatLayout:

    MDFlatButton:
        text: "ALERT DIALOG"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_alert_dialog()
'''


class Example(MDApp):
    dialog = None

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)
```

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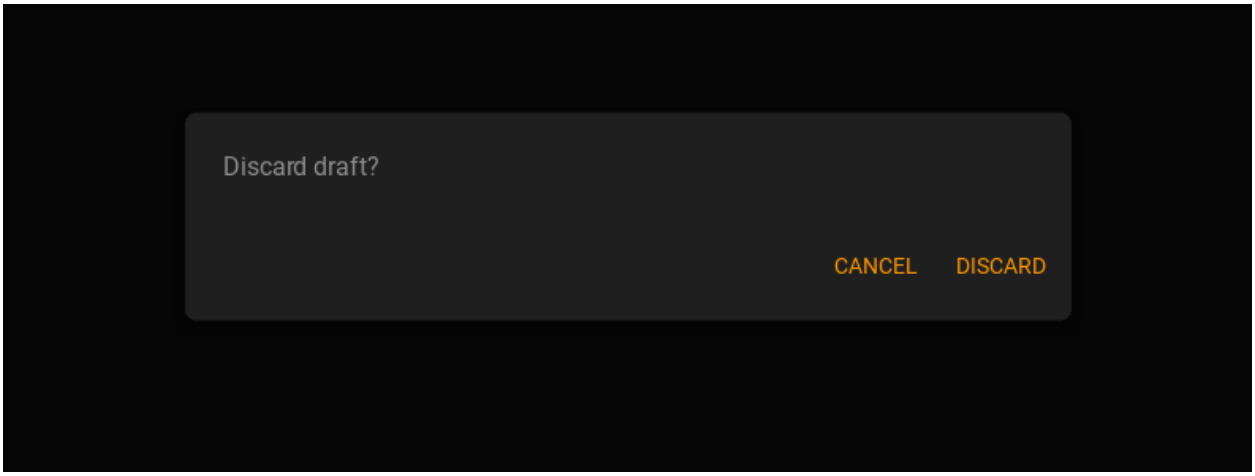
```
    def show_alert_dialog(self):
        if not self.dialog:
            self.dialog = MDDialog(
                text="Discard draft?",
                buttons=[
                    MDFlatButton(
                        text="CANCEL",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                    MDFlatButton(
                        text="DISCARD",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                ],
            )
        self.dialog.open()


Example().run()
```



API - kivymd.uix.dialog.dialog

class kivymd.uix.dialog.dialog.**BaseDialog**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

on_dismiss:
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

elevation

See *kivymd.uix.behaviors.elevation.CommonElevationBehavior.elevation* attribute for more information.

New in version 1.1.0.

elevation is an NumericProperty and defaults to *3*.

shadow_softness

See *kivymd.uix.behaviors.elevation.CommonElevationBehavior.shadow_softness* attribute for more information.

New in version 1.1.0.

shadow_softness is an NumericProperty and defaults to *24*.

shadow_offset

See *kivymd.uix.behaviors.elevation.CommonElevationBehavior.shadow_offset* attribute for more information.

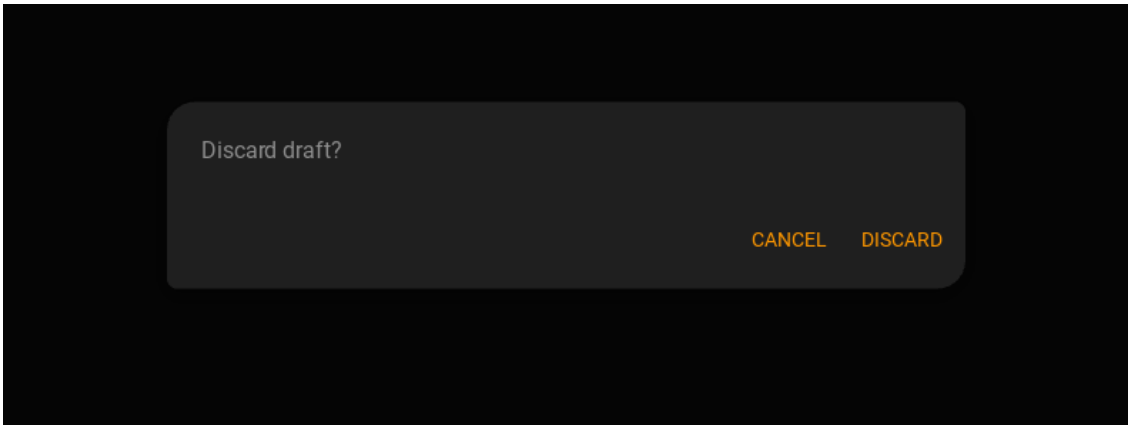
New in version 1.1.0.

shadow_offset is an ListProperty and defaults to *[0, 4]*.

radius

Dialog corners rounding value.

```
[...]
    self.dialog = MDDialog(
        text="Oops! Something seems to have gone wrong!",
        radius=[20, 7, 20, 7],
    )
    [...]
```



radius is an ListProperty and defaults to *[7, 7, 7, 7]*.

class kivymd.uix.dialog.dialog.**MDDialog**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

***on_dismiss*:**
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

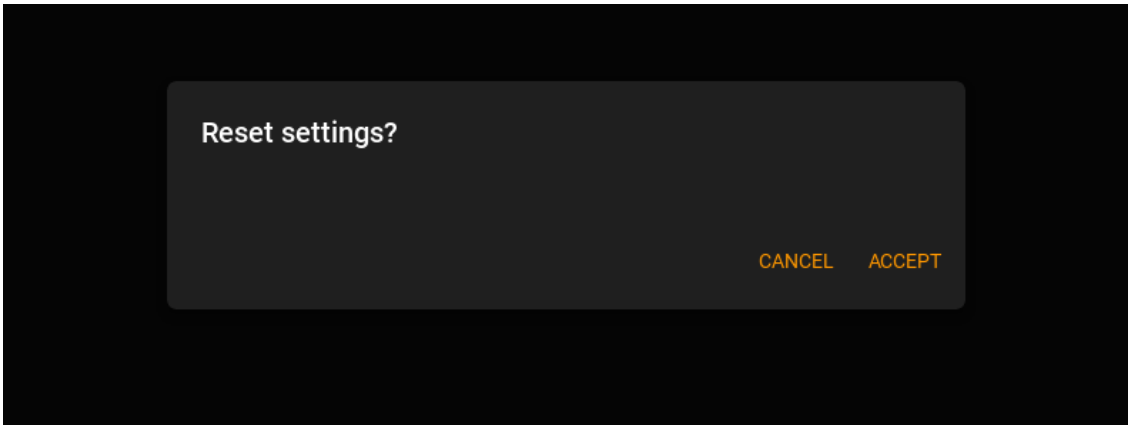
Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

title

Title dialog.

```
[...]
    self.dialog = MDDialog(
        title="Reset settings?",
        buttons=[
            MDFlatButton(
                text="CANCEL",
                theme_text_color="Custom",
                text_color=self.theme_cls.primary_color,
            ),
            MDFlatButton(
                text="ACCEPT",
                theme_text_color="Custom",
                text_color=self.theme_cls.primary_color,
            ),
        ],
    )
    [...]
```

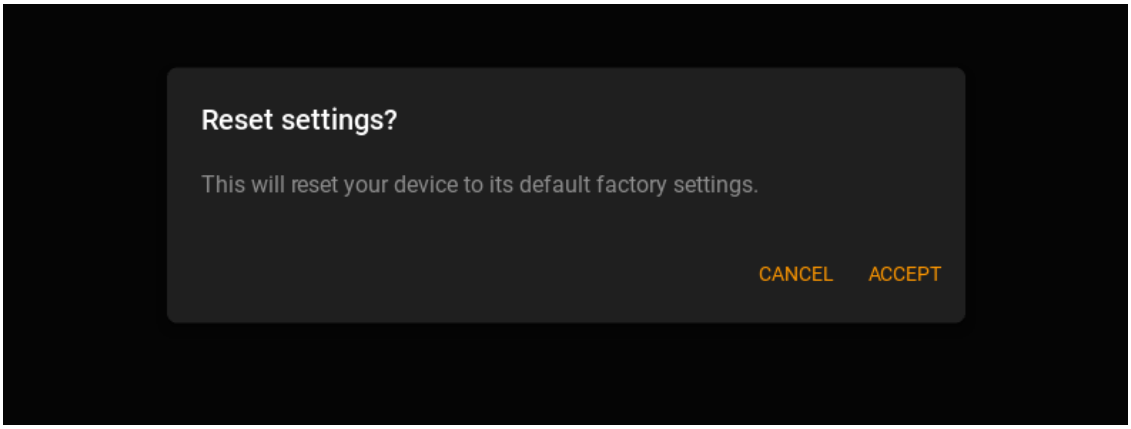


title is an StringProperty and defaults to ‘’.

text

Text dialog.

```
[...]
    self.dialog = MDDialog(
        title="Reset settings?",
        text="This will reset your device to its default factory settings.",
        buttons=[
            MDFlatButton(
                text="CANCEL",
                theme_text_color="Custom",
                text_color=self.theme_cls.primary_color,
            ),
            MDFlatButton(
                text="ACCEPT",
                theme_text_color="Custom",
                text_color=self.theme_cls.primary_color,
            ),
        ],
    )
    [...]
```

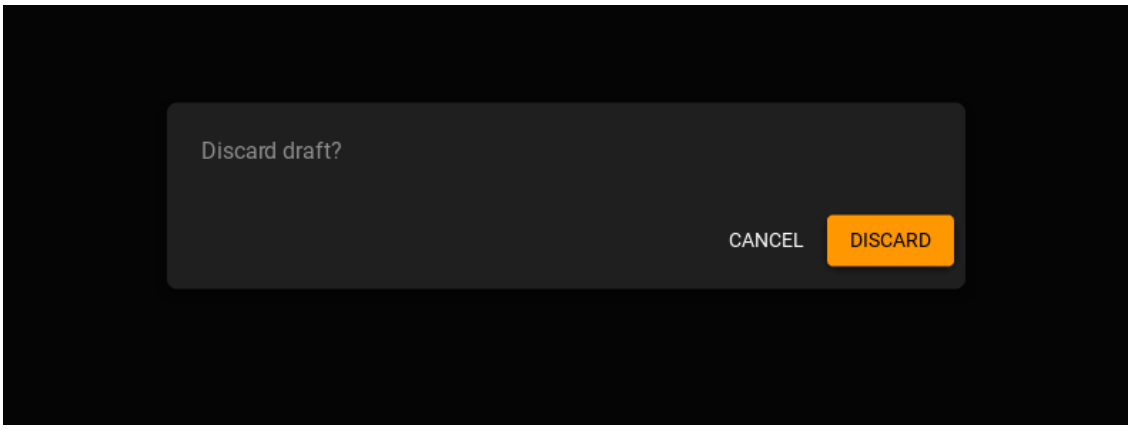


text is an StringProperty and defaults to ‘’.

buttons

List of button objects for dialog. Objects must be inherited from `BaseButton` class.

```
[...]
    self.dialog = MDDialog(
        text="Discard draft?",
        buttons=[
            MDFlatButton(text="CANCEL"), MDRaisedButton(text="DISCARD"),
        ],
    )
    [...]
```



buttons is an `ListProperty` and defaults to *[]*.

items

List of items objects for dialog. Objects must be inherited from `BaseListItem` class.

```
from kivy.lang import Builder
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.dialog import MDDialog
from kivymd.uix.list import OneLineAvatarListItem

KV = '''
<Item>

    ImageLeftWidget:
        source: root.source


MDFloatLayout:

    MDFlatButton:
        text: "ALERT DIALOG"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_simple_dialog()
'''
```

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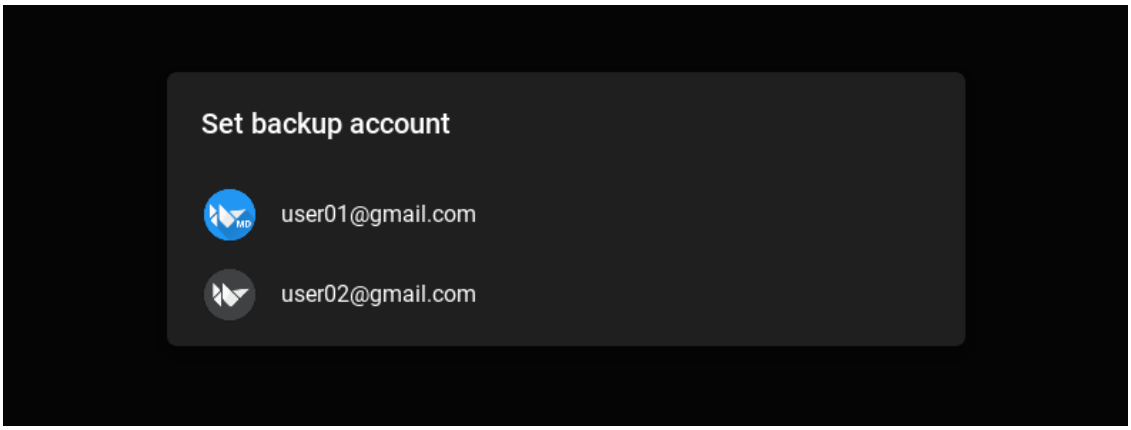
```
class Item(OneLineAvatarListItem):
    divider = None
    source = StringProperty()


class Example(MDApp):
    dialog = None

def build(self):
    self.theme_cls.theme_style = "Dark"
    self.theme_cls.primary_palette = "Orange"
    return Builder.load_string(KV)

def show_simple_dialog(self):
    if not self.dialog:
        self.dialog = MDDialog(
            title="Set backup account",
            type="simple",
            items=[
                Item(text="user01@gmail.com", source="kivymd/images/logo/kivymd-
↪icon-128.png"),
                Item(text="user02@gmail.com", source="data/logo/kivy-icon-128.
↪png"),
            ],
        )
    self.dialog.open()


Example().run()
```




```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.button import MDFlatButton
from kivymd.uix.dialog import MDDialog
from kivymd.uix.list import OneLineAvatarIconListItem

KV = '''
```

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```
<ItemConfirm>
    on_release: root.set_icon(check)

    CheckboxLeftWidget:
        id: check
        group: "check"


MDFloatLayout:

    MDFlatButton:
        text: "ALERT DIALOG"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_confirmation_dialog()
'''


class ItemConfirm(OneLineAvatarIconListItem):
    divider = None

    def set_icon(self, instance_check):
        instance_check.active = True
        check_list = instance_check.get_widgets(instance_check.group)
        for check in check_list:
            if check != instance_check:
                check.active = False


class Example(MDApp):
    dialog = None

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def show_confirmation_dialog(self):
        if not self.dialog:
            self.dialog = MDDialog(
                title="Phone ringtone",
                type="confirmation",
                items=[
                    ItemConfirm(text="Callisto"),
                    ItemConfirm(text="Luna"),
                    ItemConfirm(text="Night"),
                    ItemConfirm(text="Solo"),
                    ItemConfirm(text="Phobos"),
                    ItemConfirm(text="Diamond"),
                    ItemConfirm(text="Sirena"),
                    ItemConfirm(text="Red music"),
                    ItemConfirm(text="Allergio"),
                    ItemConfirm(text="Magic"),
```

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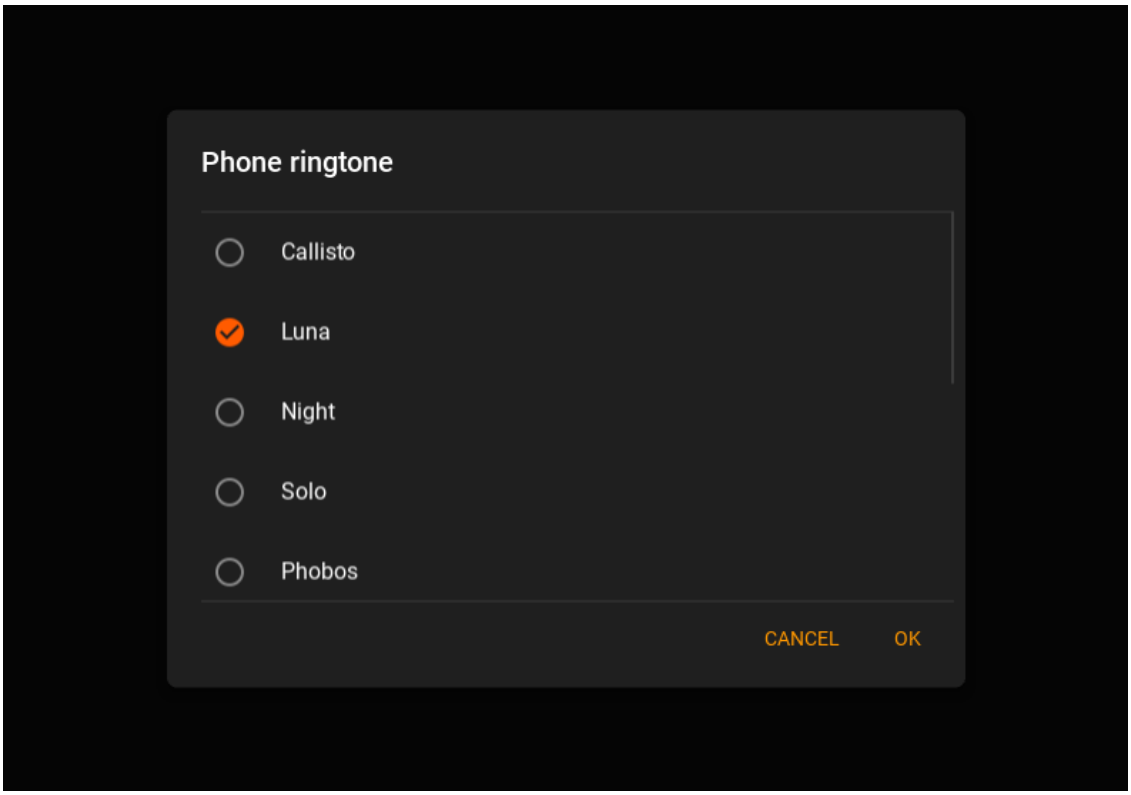
```
                    ItemConfirm(text="Tic-tac"),
                ],
                buttons=[
                    MDFlatButton(
                        text="CANCEL",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                    MDFlatButton(
                        text="OK",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                ],
            )
        self.dialog.open()


Example().run()
```



items is an ListProperty and defaults to *[]*.

width_offset

Dialog offset from device width.

width_offset is an NumericProperty and defaults to *dp(48)*.

type

Dialog type. Available option are *'alert'*, *'simple'*, *'confirmation'*, *'custom'*.

type is an OptionProperty and defaults to *'alert'*.

content_cls

Custom content class.

Declarative KV style

```
from kivy.lang import Builder
from kivy.uix.boxlayout import BoxLayout

from kivymd.app import MDApp
from kivymd.uix.button import MDFlatButton
from kivymd.uix.dialog import MDDialog

KV = '''
<Content>
    orientation: "vertical"
    spacing: "12dp"
    size_hint_y: None
    height: "120dp"

    MDTextField:
        hint_text: "City"

    MDTextField:
        hint_text: "Street"


MDFloatLayout:

    MDFlatButton:
        text: "ALERT DIALOG"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_confirmation_dialog()
'''


class Content(BoxLayout):
    pass


class Example(MDApp):
    dialog = None

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def show_confirmation_dialog(self):
        if not self.dialog:
            self.dialog = MDDialog(
                title="Address:",
                type="custom",
```

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```
                content_cls=Content(),
                buttons=[
                    MDFlatButton(
                        text="CANCEL",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                    MDFlatButton(
                        text="OK",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                ],
            )
        self.dialog.open()


Example().run()
```

Declarative Python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDFlatButton
from kivymd.uix.dialog import MDDialog
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.textfield import MDTextField


class Example(MDApp):
    dialog = None

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDFloatLayout(
                MDFlatButton(
                    text="ALERT DIALOG",
                    pos_hint={'center_x': 0.5, 'center_y': 0.5},
                    on_release=self.show_confirmation_dialog,
                )
            )
        )

    def show_confirmation_dialog(self, *args):
        if not self.dialog:
            self.dialog = MDDialog(
                title="Address:",
                type="custom",
                content_cls=MDBoxLayout(
                    MDTextField(
```

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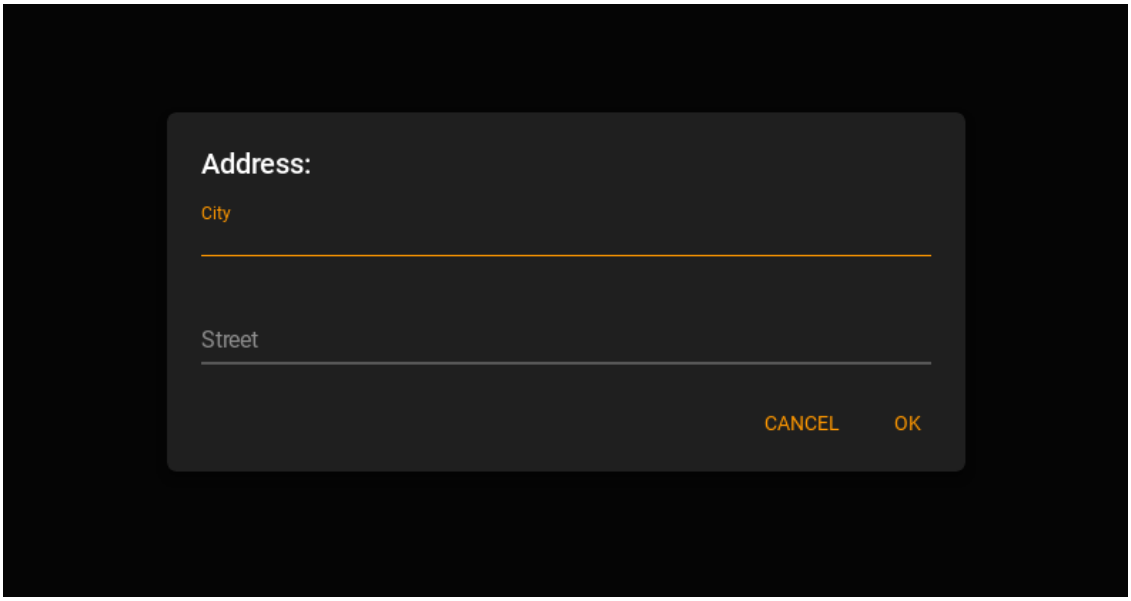
```
                        hint_text="City",
                    ),
                    MDTextField(
                        hint_text="Street",
                    ),
                    orientation="vertical",
                    spacing="12dp",
                    size_hint_y=None,
                    height="120dp",
                ),
                buttons=[
                    MDFlatButton(
                        text="CANCEL",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                    MDFlatButton(
                        text="OK",
                        theme_text_color="Custom",
                        text_color=self.theme_cls.primary_color,
                    ),
                ],
            )
        self.dialog.open()


Example().run()
```



content_cls is an ObjectProperty and defaults to *'None'*.

md_bg_color

Background color in the (r, g, b, a) or string format.

md_bg_color is an ColorProperty and defaults to *None*.

update_width(*self*, **args*)

update_height(*self*, **args*)

update_items(*self*, *items: list*)

on_open(*self*)

default open event handler.

get_normal_height(*self*)

edit_padding_for_item(*self*, *instance_item*)

create_items(*self*)

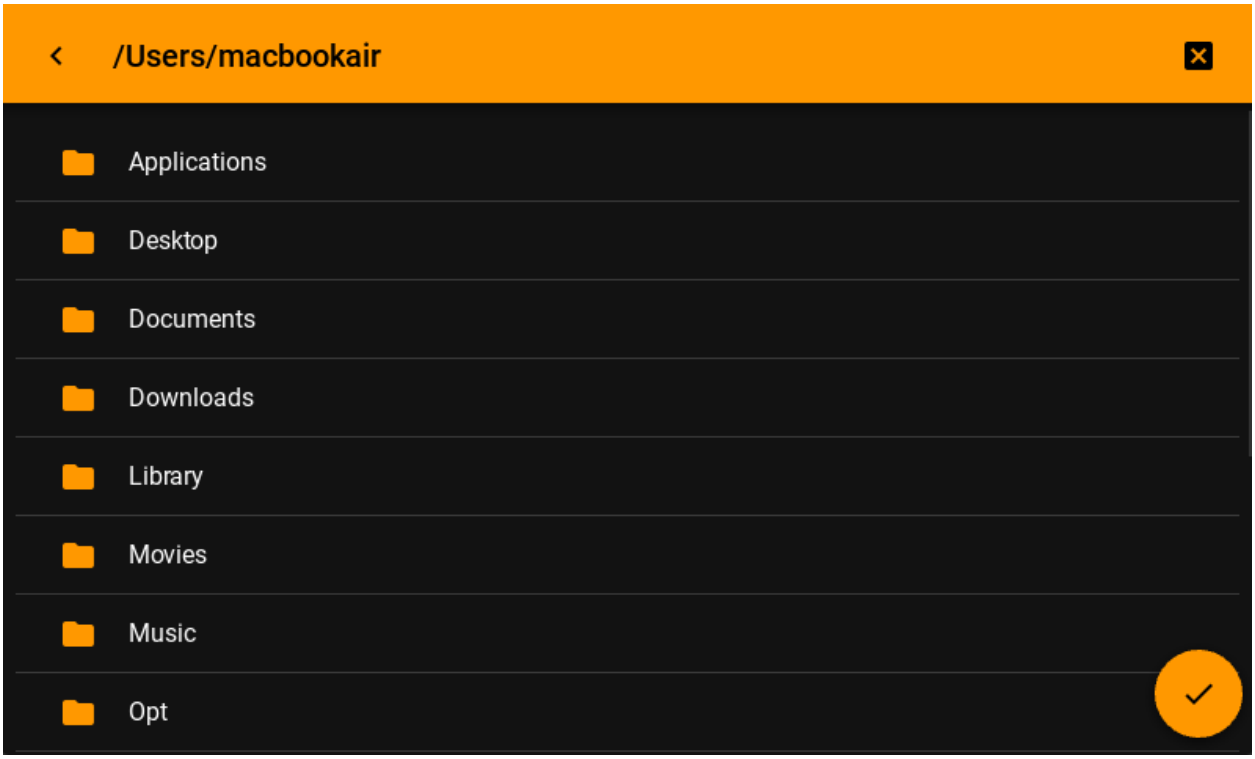
create_buttons(*self*)

2.3.48 FileManager

A simple manager for selecting directories and files.

Usage

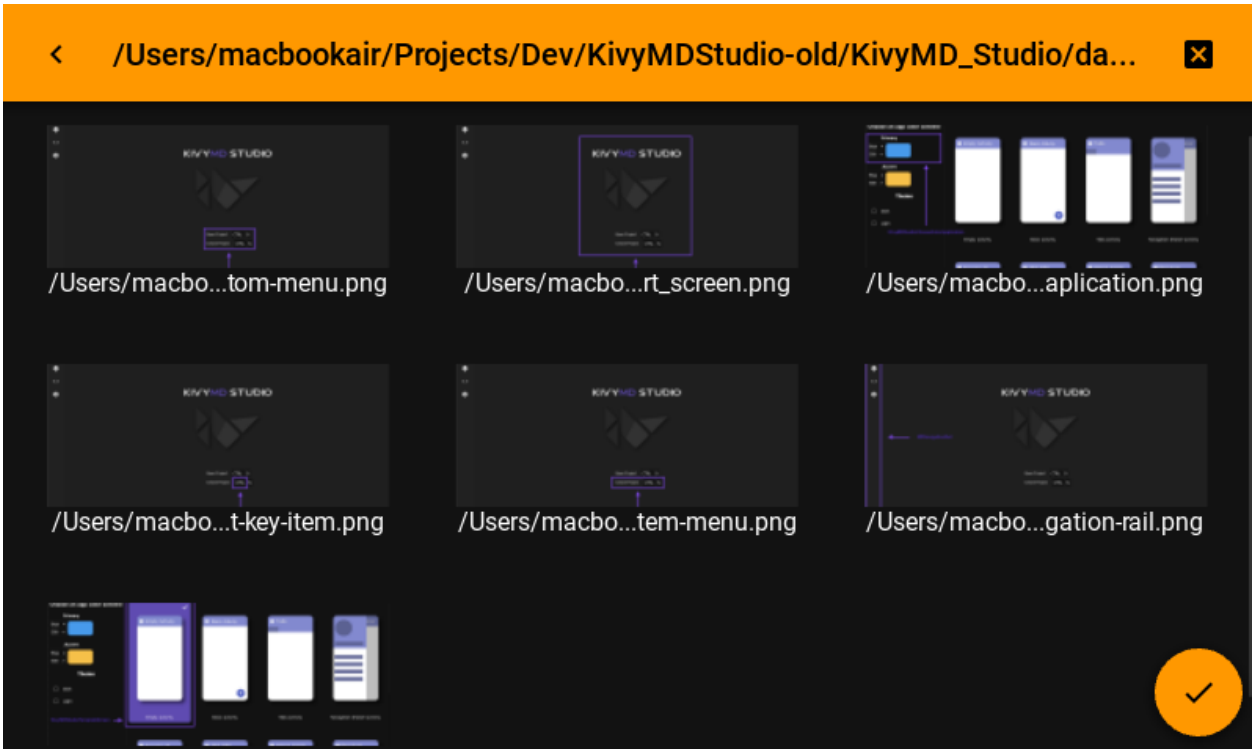
```
path = os.path.expanduser("~")  # path to the directory that will be opened in the file␣
↪manager
file_manager = MDFileManager(
    exit_manager=self.exit_manager,  # function called when the user reaches directory␣
↪tree root
    select_path=self.select_path,  # function called when selecting a file/directory
)
file_manager.show(path)
```



Warning: Be careful! To use the *'/'* path on Android devices, you need special permissions. Therefore, you are likely to get an error.

Or with `preview` mode:

```
file_manager = MDFileManager(
    exit_manager=self.exit_manager,
    select_path=self.select_path,
    preview=True,
)
```



Warning: The *preview* mode is intended only for viewing images and will not display other types of files.

Example

```
import os

from kivy.core.window import Window
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.filemanager import MDFileManager
from kivymd.toast import toast


KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "MDFileManager"
        left_action_items: [["menu", lambda x: None]]
        elevation: 3

    MDFloatLayout:

        MDRoundFlatIconButton:
```

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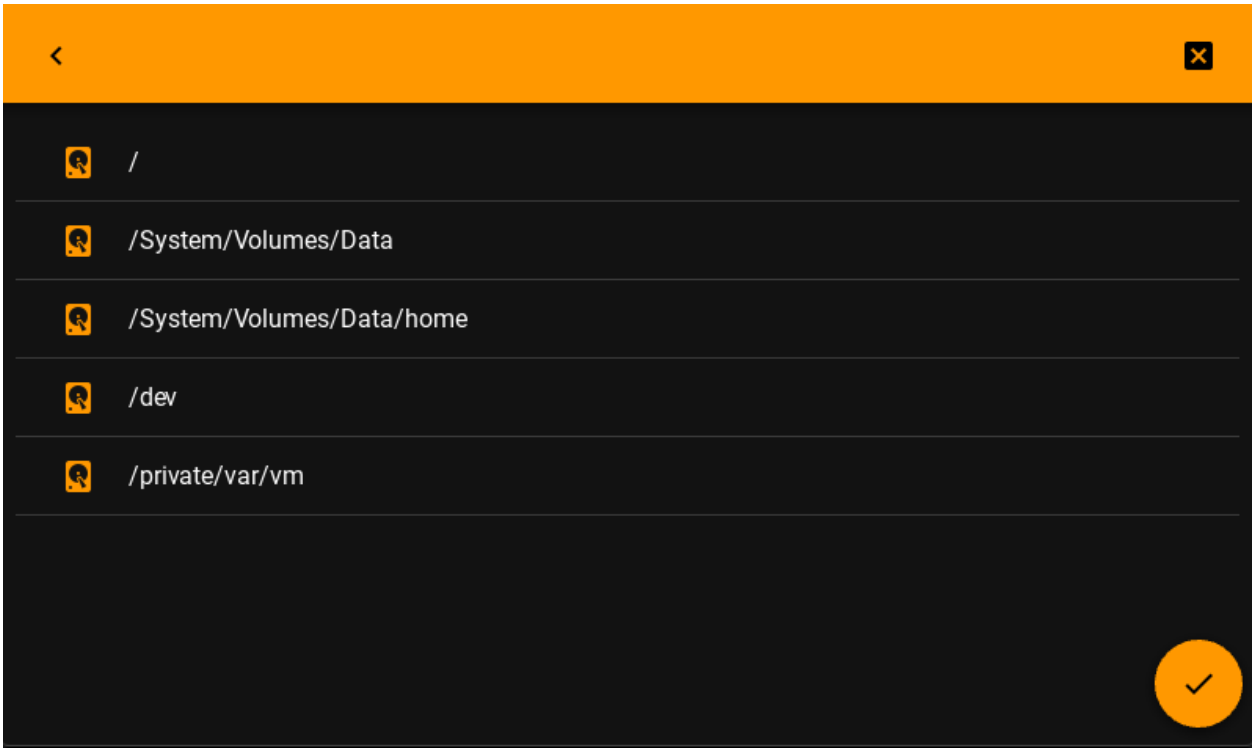
```
            text: "Open manager"
            icon: "folder"
            pos_hint: {"center_x": .5, "center_y": .5}
            on_release: app.file_manager_open()
'''


class Example(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        Window.bind(on_keyboard=self.events)
        self.manager_open = False
        self.file_manager = MDFileManager(
            exit_manager=self.exit_manager, select_path=self.select_path
        )

    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)

    def file_manager_open(self):
        self.file_manager.show(os.path.expanduser("~"))  # output manager to the screen
        self.manager_open = True

    def select_path(self, path: str):
        '''
        It will be called when you click on the file name
        or the catalog selection button.

        :param path: path to the selected directory or file;
        '''

        self.exit_manager()
        toast(path)

    def exit_manager(self, *args):
        '''Called when the user reaches the root of the directory tree.'''

        self.manager_open = False
        self.file_manager.close()

    def events(self, instance, keyboard, keycode, text, modifiers):
        '''Called when buttons are pressed on the mobile device.'''

        if keyboard in (1001, 27):
            if self.manager_open:
                self.file_manager.back()
        return True


Example().run()
```

New in version 1.0.0.

Added a feature that allows you to show the available disks first, then the files contained in them. Works correctly on: *Windows*, *Linux*, *OSX*, *Android*. Not tested on *iOS*.

```
def file_manager_open(self):
    self.file_manager.show_disks()
```



API - kivymd.uix.filemanager.filemanager

class kivymd.uix.filemanager.filemanager.**MDFileManager**(**args*, ***kwargs*)

Implements a modal dialog with a file manager.

For more information, see in the *MDRelativeLayout* class documentation.

Events

***on_pre_open*:**
Called before the MDFileManager is opened.

***on_open*:**
Called when the MDFileManager is opened.

***on_pre_dismiss*:**
Called before the MDFileManager is closed.

***on_dismiss*:**
Called when the MDFileManager is closed.

icon

Icon that will be used on the directory selection button.

Deprecated since version 1.1.0: Use *icon_selection_button* instead.

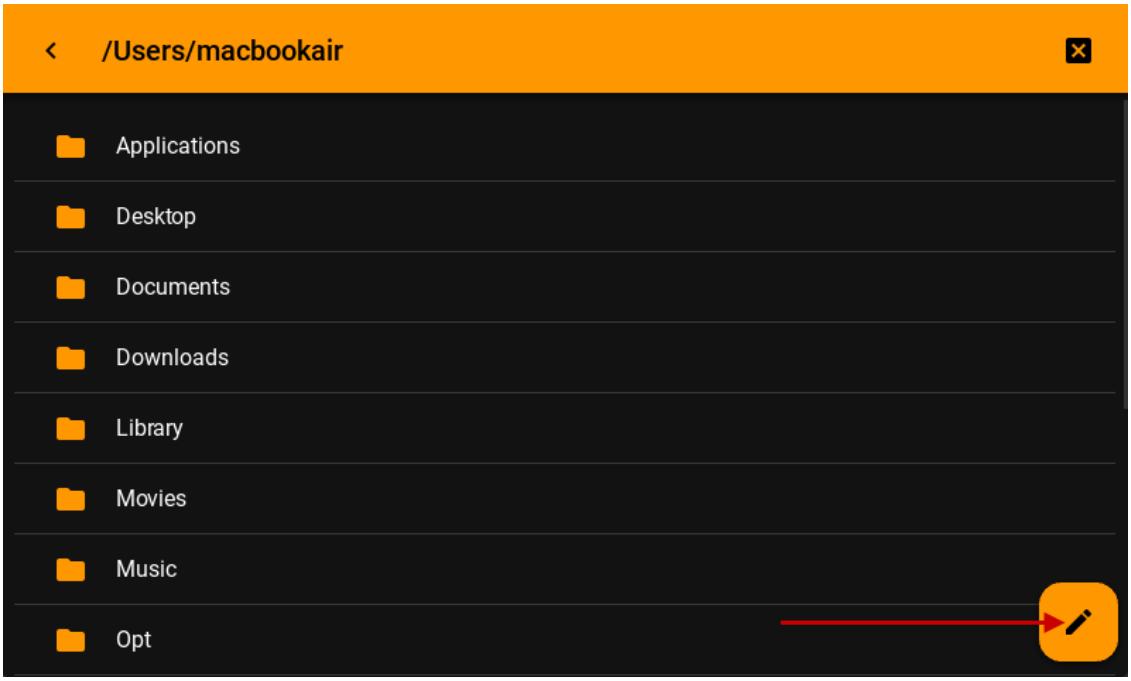
icon is an StringProperty and defaults to *check*.

icon_selection_button

Icon that will be used on the directory selection button.

New in version 1.1.0.

```
MDFileManager(
    ...
    icon_selection_button="pencil",
)
```



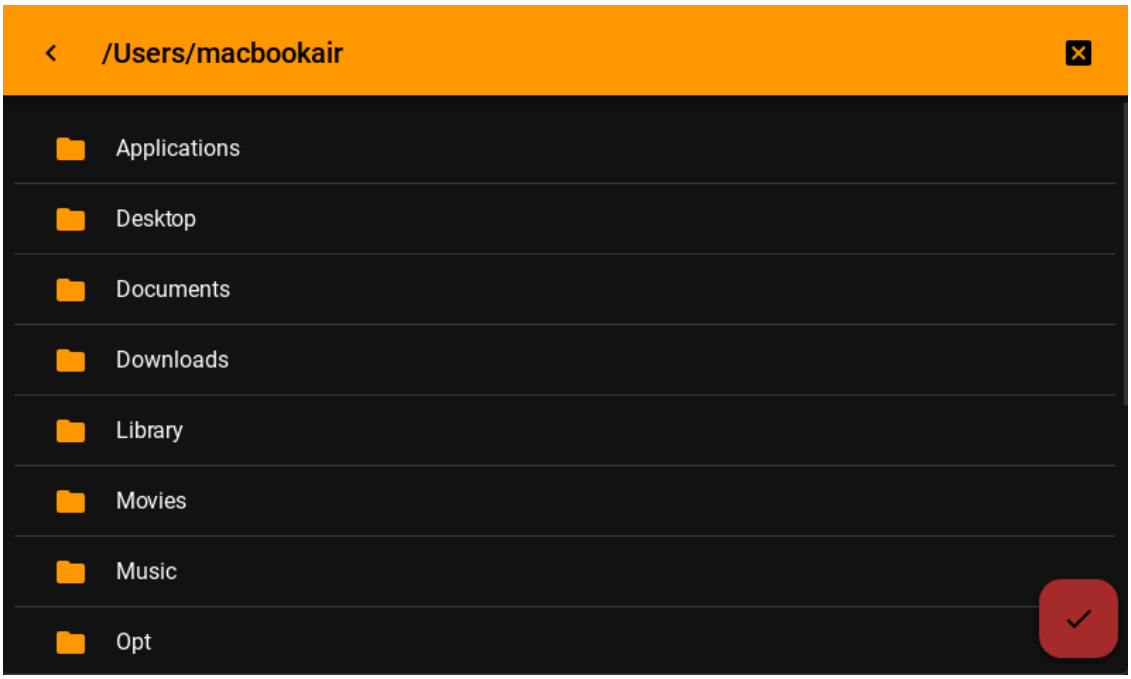
icon_selection_button is an StringProperty and defaults to *check*.

background_color_selection_button

Background color in (r, g, b, a) or string format of the current directory/path selection button.

New in version 1.1.0.

```
MDFileManager(
    ...
    background_color_selection_button="brown",
)
```



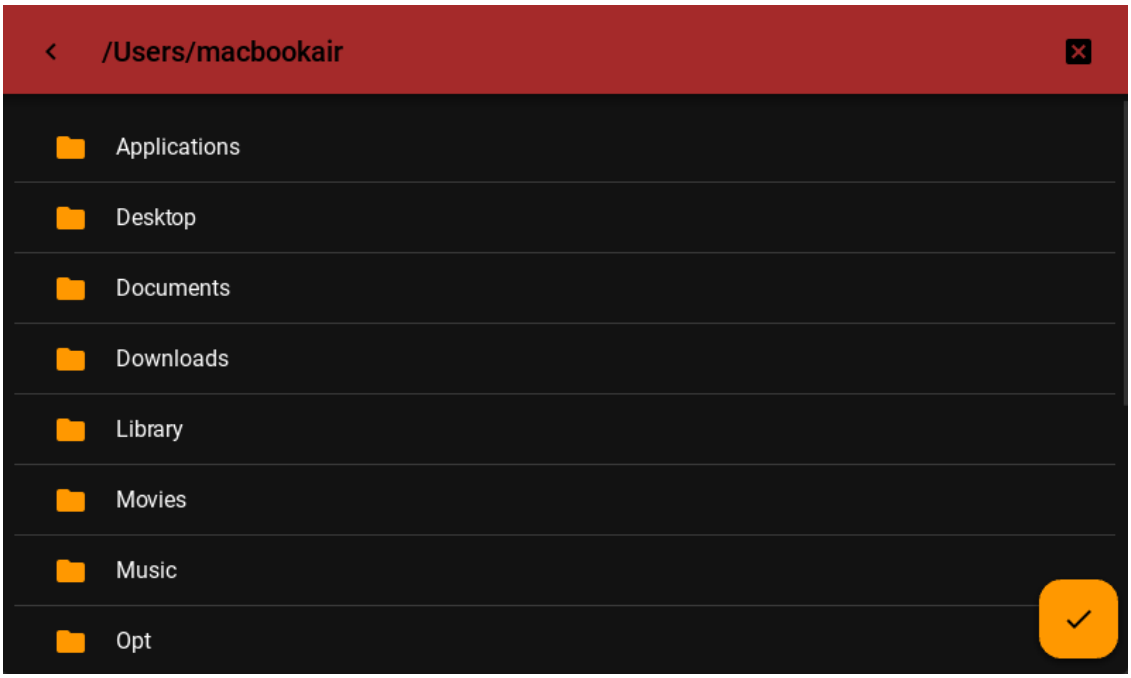
background_color_selection_button is an ColorProperty and defaults to *None*.

background_color_toolbar

Background color in (r, g, b, a) or string format of the file manager toolbar.

New in version 1.1.0.

```
MDFileManager(
    ...
    background_color_toolbar="brown",
)
```

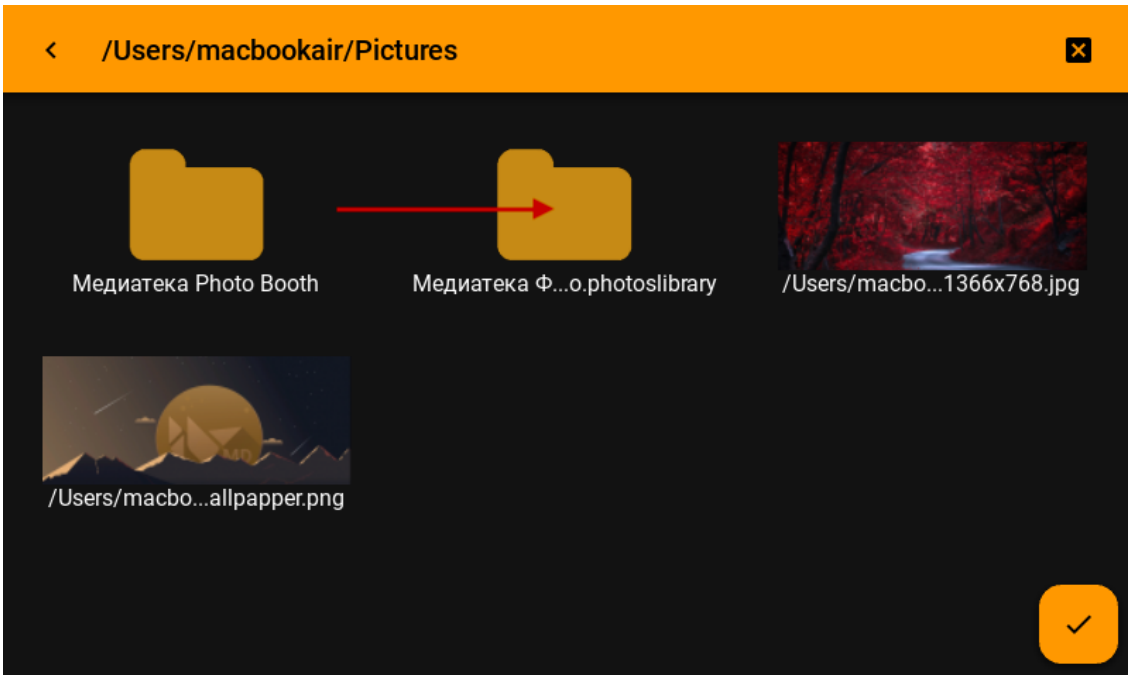


background_color_toolbar is an ColorProperty and defaults to *None*.

icon_folder

Icon that will be used for folder icons when using `preview = True`.

```
MDFileManager(
    ...
    preview=True,
    icon_folder="path/to/icon.png",
)
```



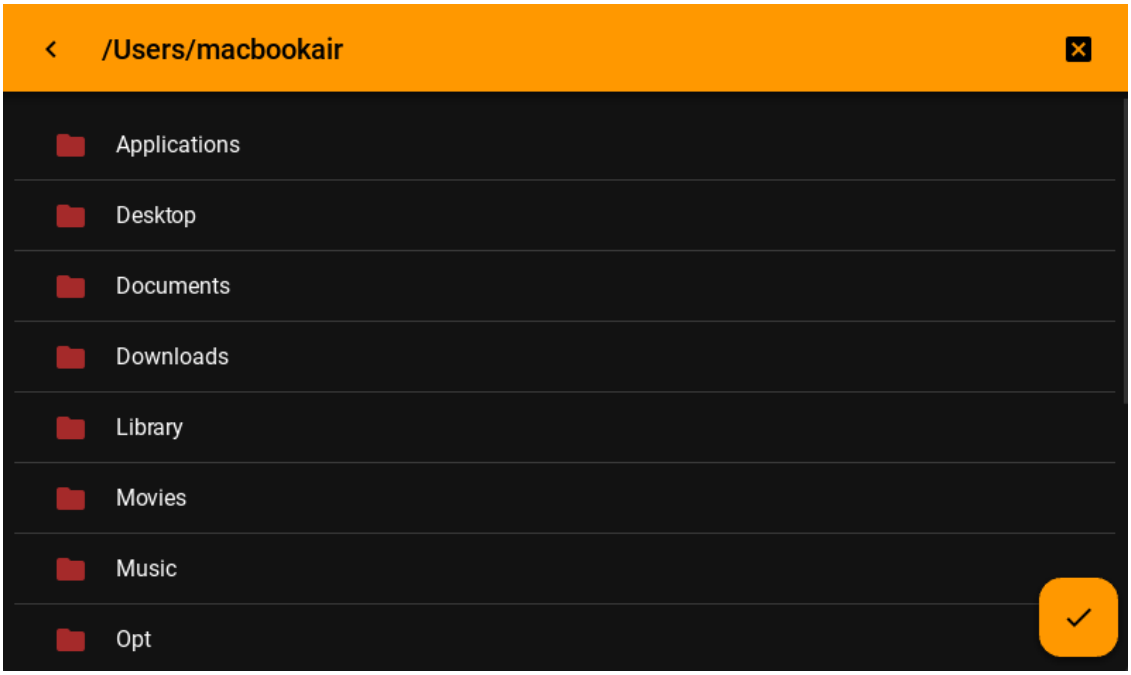
icon is an StringProperty and defaults to *check*.

icon_color

Color in (r, g, b, a) or string format of the folder icon when the *preview* property is set to False.

New in version 1.1.0.

```
MDFileManager(
    ...
    preview=False,
    icon_color="brown",
)
```



icon_color is an ColorProperty and defaults to *None*.

exit_manager

Function called when the user reaches directory tree root.

exit_manager is an ObjectProperty and defaults to *lambda x: None*.

select_path

Function, called when selecting a file/directory.

select_path is an ObjectProperty and defaults to *lambda x: None*.

ext

List of file extensions to be displayed in the manager. For example, *['.py', '.kv']* - will filter out all files, except python scripts and Kv Language.

ext is an ListProperty and defaults to *[]*.

search

It can take the values 'all' 'dirs' 'files' - display only directories or only files or both them. By default, it displays folders, and files. Available options are: *'all'*, *'dirs'*, *'files'*.

search is an OptionProperty and defaults to *all*.

current_path

Current directory.

current_path is an StringProperty and defaults to *os.path.expanduser("~")*.

use_access

Show access to files and directories.

use_access is an BooleanProperty and defaults to *True*.

preview

Shows only image previews.

preview is an BooleanProperty and defaults to *False*.

show_hidden_files

Shows hidden files.

show_hidden_files is an BooleanProperty and defaults to *False*.

sort_by

It can take the values 'nothing' 'name' 'date' 'size' 'type' - sorts files by option. By default, sort by name. Available options are: *'nothing'*, *'name'*, *'date'*, *'size'*, *'type'*.

sort_by is an OptionProperty and defaults to *name*.

sort_by_desc

Sort by descending.

sort_by_desc is an BooleanProperty and defaults to *False*.

selector

It can take the values 'any' 'file' 'folder' 'multi' By default, any. Available options are: *'any'*, *'file'*, *'folder'*, *'multi'*.

selector is an OptionProperty and defaults to *any*.

selection

Contains the list of files that are currently selected.

selection is a read-only ListProperty and defaults to *[]*.

selection_button

The instance of the directory/path selection button.

New in version 1.1.0.

selection_button is a read-only ObjectProperty and defaults to *None*.

show_disks(*self*)

show(*self*, *path: str*)

Forms the body of a directory tree.

Parameters
path – The path to the directory that will be opened in the file manager.

get_access_string(*self*, *path: str*)

get_content(*self*)

Returns a list of the type [[Folder List], [file list]].

close(*self*)

Closes the file manager window.

select_dir_or_file(*self*, *path: str*, *widget: Union[BodyManagerWithPreview, Factory.BodyManager]*)

Called by tap on the name of the directory or file.

back(*self*)

Returning to the branch down in the directory tree.

select_directory_on_press_button(*self*, **args*)

Called when a click on a floating button.

on_icon(*self*, *instance_file_manager*, *icon_name: str*)

Called when the *icon* property is changed.

on_background_color_toolbar(*self*, *instance_file_manager*, *color: Union[str, list]*)

Called when the `background_color_toolbar` property is changed.

on_pre_open(*self*, **args*)

Default pre-open event handler.

New in version 1.1.0.

on_open(*self*, **args*)

Default open event handler.

New in version 1.1.0.

on_pre_dismiss(*self*, **args*)

Default pre-dismiss event handler.

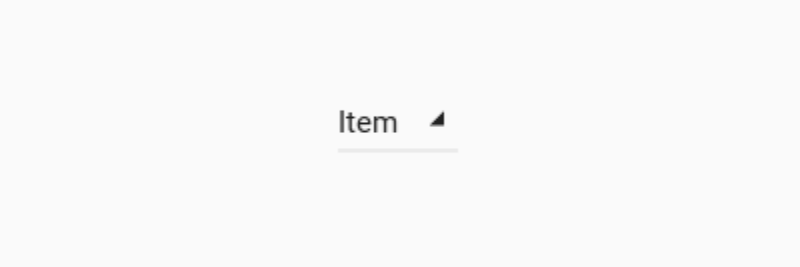
New in version 1.1.0.

on_dismiss(*self*, **args*)

Default dismiss event handler.

New in version 1.1.0.

2.3.49 DropdownItem



Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen

    MDDropDownItem:
        id: drop_item
        pos_hint: {'center_x': .5, 'center_y': .5}
        text: 'Item'
        on_release: print("Press item")
'''


class Test(MDApp):
```

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```
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)

    def build(self):
        return self.screen


Test().run()
```

See also:

Work with the class MDDropdownMenu see here

API - kivymd.uix.dropdownitem.dropdownitem

class kivymd.uix.dropdownitem.dropdownitem.**MDDropDownItem**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

text

Text item.

text is a StringProperty and defaults to ‘’.

current_item

Current name item.

current_item is a StringProperty and defaults to ‘’.

font_size

Item font size.

font_size is a NumericProperty and defaults to *’16sp’*.

on_text(*self*, *instance_drop_down_item*, *text_item: str*)

set_item(*self*, *name_item: str*)

Sets new text for an item.

2.3.50 Transition

A set of classes for implementing transitions between application screens.

New in version 1.0.0.

Changing transitions

You have multiple transitions available by default, such as:

- *MDFadeSlideTransition*
  state one: the new screen closes the previous screen by lifting from the bottom of the screen and changing from transparent to non-transparent;

  state two: the current screen goes down to the bottom of the screen, passing from a non-transparent state to a transparent one, thus opening the previous screen;

Note: You cannot control the direction of a slide using the direction attribute.

API - kivymd.uix.transition.transition

class kivymd.uix.transition.transition.**MDTransitionBase**

TransitionBase is used to animate 2 screens within the *MDScreenManager*.

For more information, see in the TransitionBase class documentation.

start(*self*, *instance_screen_manager:* MDScreenManager)

(internal) Starts the transition. This is automatically called by the ScreenManager.

animated_hero_in(*self*)

Animates the flight of heroes from screen **A** to screen **B**.

animated_hero_out(*self*)

Animates the flight of heroes from screen **B** to screen **A**.

on_complete(*self*)

Override method. See :attr:`kivy.uix.screenmanager.TransitionBase.on_complete'.

class kivymd.uix.transition.transition.**MDSwapTransition**(***kwargs*)

Swap transition that looks like iOS transition when a new window appears on the screen.

class kivymd.uix.transition.transition.**MDSlideTransition**

Slide Transition, can be used to show a new screen from any direction: left, right, up or down.

class kivymd.uix.transition.transition.**MDFadeSlideTransition**

Slide Transition, can be used to show a new screen from any direction: left, right, up or down.

start(*self*, *instance_screen_manager:* MDScreenManager)

(internal) Starts the transition. This is automatically called by the ScreenManager.

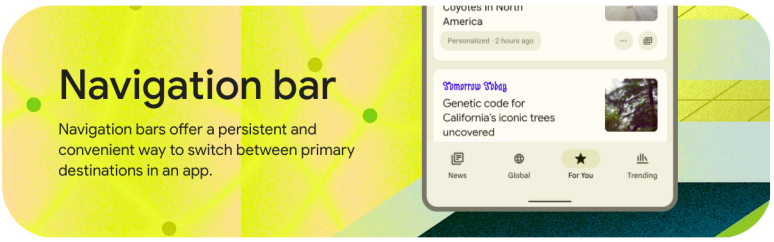
on_progress(*self*, *progression: float*)

2.3.51 BottomNavigation

See also:

Material Design 2 spec, Bottom navigation and Material Design 3 spec, Bottom navigation

Bottom navigation bars allow movement between primary destinations in an app:



Usage

```
<Root>

    MDBottomNavigation:

        MDBottomNavigationItem:
            name: "screen 1"

            YourContent:

        MDBottomNavigationItem:
            name: "screen 2"

            YourContent:

        MDBottomNavigationItem:
            name: "screen 3"

            YourContent:
```

For ease of understanding, this code works like this:

```
<Root>

    ScreenManager:

        Screen:
            name: "screen 1"

            YourContent:

        Screen:
```

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```
            name: "screen 2"

            YourContent:

        Screen:
            name: "screen 3"

            YourContent:
```

Example

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp


class Test(MDApp):

    def build(self):
        self.theme_cls.material_style = "M3"
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(
            '''
MDScreen:

    MDBottomNavigation:
        #panel_color: "#eeeaea"
        selected_color_background: "orange"
        text_color_active: "lightgrey"

        MDBottomNavigationItem:
            name: 'screen 1'
            text: 'Mail'
            icon: 'gmail'
            badge_icon: "numeric-10"

            MDLabel:
                text: 'Mail'
                halign: 'center'

        MDBottomNavigationItem:
            name: 'screen 2'
            text: 'Twitter'
            icon: 'twitter'
            badge_icon: "numeric-5"

            MDLabel:
                text: 'Twitter'
                halign: 'center'
```

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```
        MDBottomNavigationItem:
            name: 'screen 3'
            text: 'LinkedIN'
            icon: 'linkedin'

            MDLabel:
                text: 'LinkedIN'
                halign: 'center'
'''
        )


Test().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.bottomnavigation import MDBottomNavigation, MDBottomNavigationItem
from kivymd.uix.label import MDLabel
from kivymd.uix.screen import MDScreen


class Test(MDApp):
    def build(self):
        self.theme_cls.material_style = "M3"
        self.theme_cls.theme_style = "Dark"
        return (
            MDScreen(
                MDBottomNavigation(
                    MDBottomNavigationItem(
                        MDLabel(
                            text='Mail',
                            halign='center',
                        ),
                        name='screen 1',
                        text='Mail',
                        icon='gmail',
                        badge_icon="numeric-10",
                    ),
                    MDBottomNavigationItem(
                        MDLabel(
                            text='Twitter',
                            halign='center',
                        ),
                        name='screen 1',
                        text='Twitter',
                        icon='twitter',
                        badge_icon="numeric-10",
                    ),
                    MDBottomNavigationItem(
                        MDLabel(
```

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```
                            text='LinkedIN',
                            halign='center',
                        ),
                        name='screen 1',
                        text='LinkedIN',
                        icon='linkedin',
                        badge_icon="numeric-10",
                    ),
                    selected_color_background="orange",
                    text_color_active="lightgrey",
                )
            )
        )


Test().run()
```

`MDBottomNavigationItem` provides the following events for use:

```
__events__ = (
    "on_tab_touch_down",
    "on_tab_touch_move",
    "on_tab_touch_up",
    "on_tab_press",
    "on_tab_release",
)
```

```
Root:

    MDBottomNavigation:

        MDBottomNavigationItem:
            on_tab_touch_down: print("on_tab_touch_down")
            on_tab_touch_move: print("on_tab_touch_move")
            on_tab_touch_up: print("on_tab_touch_up")
            on_tab_press: print("on_tab_press")
            on_tab_release: print("on_tab_release")

            YourContent:
```

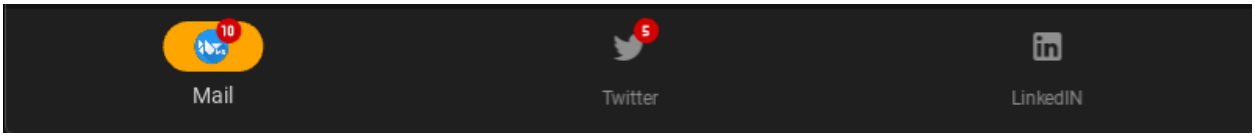
How to automatically switch a tab?

Use method *switch_tab* which takes as argument the name of the tab you want to switch to.

Use custom icon

```
MDBottomNavigation:

    MDBottomNavigationItem:
        icon: "icon.png"
```



API - kivymd.uix.bottomnavigation.bottomnavigation

class kivymd.uix.bottomnavigation.bottomnavigation.**MDTab**(**args*, ***kwargs*)

A tab is simply a screen with meta information that defines the content that goes in the tab header.

text

Tab header text.

text is an StringProperty and defaults to ‘’.

icon

Tab header icon.

icon is an StringProperty and defaults to *‘checkbox-blank-circle’*.

badge_icon

Tab header badge icon.

New in version 1.0.0.

badge_icon is an StringProperty and defaults to ‘’.

on_tab_touch_down(*self*, **args*)

on_tab_touch_move(*self*, **args*)

on_tab_touch_up(*self*, **args*)

on_tab_press(*self*, **args*)

on_tab_release(*self*, **args*)

class kivymd.uix.bottomnavigation.bottomnavigation.**MDBottomNavigationItem**(**args*, ***kwargs*)

A tab is simply a screen with meta information that defines the content that goes in the tab header.

header

header is an MDBottomNavigationHeader and defaults to *None*.

animate_header(*self*, *bottom_navigation_object*, *bottom_navigation_header_object*)

on_tab_press(*self*, **args*)

Called when clicking on a panel item.

on_disabled(*self*, *instance_bottom_navigation_item*, *disabled_value: bool*)

on_leave(*self*, **args*)

class kivymd.uix.bottomnavigation.bottomnavigation.**TabbedPanelBase**(***kwargs*)

A class that contains all variables a `TabPannel` must have. It is here so I (zingballyhoo) don't get mad about the `TabbedPannels` not being DRY.

current

Current tab name.

current is an `StringProperty` and defaults to *None*.

previous_tab

previous_tab is an *MDTab* and defaults to *None*.

panel_color

Panel color of bottom navigation.

panel_color is an `ColorProperty` and defaults to *None*.

tabs

class kivymd.uix.bottomnavigation.bottomnavigation.**MDBottomNavigation**(**args*, ***kwargs*)

A bottom navigation that is implemented by delegating all items to a `ScreenManager`.

Events

on_switch_tabs
Called when switching tabs. Returns the object of the tab to be opened.

New in version 1.0.0.

transition

Transition animation of bottom navigation screen manager.

New in version 1.1.0.

transition is an `ObjectProperty` and defaults to *FadeTransition*.

transition_duration

Duration animation of bottom navigation screen manager.

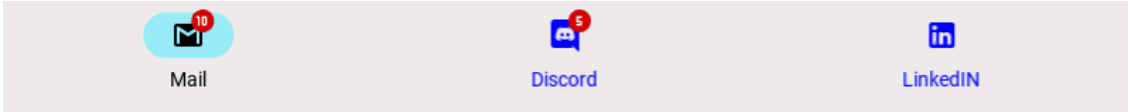
New in version 1.1.0.

transition_duration is an `NumericProperty` and defaults to *0.2*.

text_color_normal

Text color of the label when it is not selected.

```
MDBottomNavigation:
    text_color_normal: 1, 0, 1, 1
```

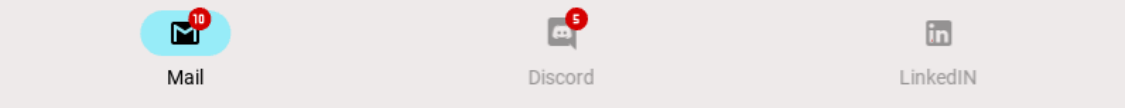


text_color_normal is an `ColorProperty` and defaults to *[1, 1, 1, 1]*.

text_color_active

Text color of the label when it is selected.

```
MDBottomNavigation:
    text_color_active: 0, 0, 0, 1
```

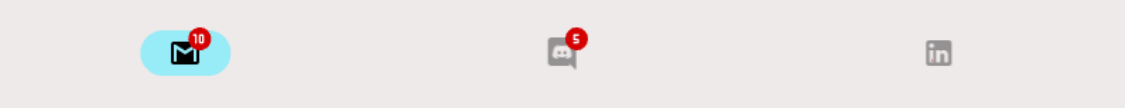


text_color_active is an ColorProperty and defaults to *[1, 1, 1, 1]*.

use_text

Use text for *MDBottomNavigationItem* or not. If True, the *MDBottomNavigation* panel height will be reduced by the text height.

New in version 1.0.0.



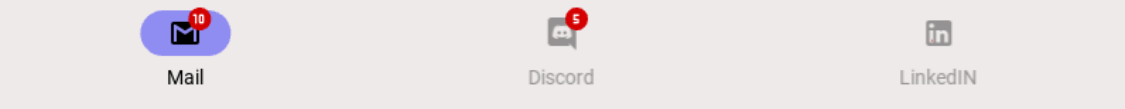
use_text is an BooleanProperty and defaults to *True*.

selected_color_background

The background color of the highlighted item when using Material Design v3.

New in version 1.0.0.

```
MDBottomNavigation:
    selected_color_background: 0, 0, 1, .4
```



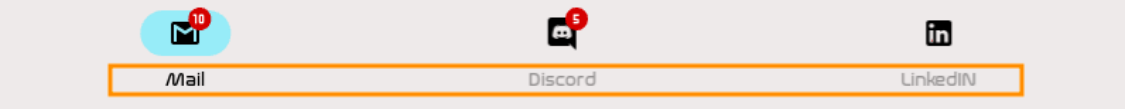
selected_color_background is an ColorProperty and defaults to *None*.

font_name

Font name of the label.

New in version 1.0.0.

```
MDBottomNavigation:
    font_name: "path/to/font.ttf"
```



font_name is an StringProperty and defaults to *'Roboto'*.

first_widget

first_widget is an *MDBottomNavigationItem* and defaults to *None*.

tab_header

tab_header is an MDBottomNavigationHeader and defaults to *None*.

set_bars_color

If *True* the background color of the navigation bar will be set automatically according to the current color of the toolbar.

New in version 1.0.0.

set_bars_color is an BooleanProperty and defaults to *False*.

widget_index

set_status_bar_color(*self*, *interval: Union[int, float]*)

switch_tab(*self*, *name_tab*)

Switching the tab by name.

refresh_tabs(*self*, **args*)

Refresh all tabs.

on_font_name(*self*, *instance_bottom_navigation*, *font_name: str*)

on_selected_color_background(*self*, *instance_bottom_navigation*, *color: list*)

on_use_text(*self*, *instance_bottom_navigation*, *use_text_value: bool*)

on_text_color_normal(*self*, *instance_bottom_navigation*, *color: list*)

on_text_color_active(*self*, *instance_bottom_navigation*, *color: list*)

on_switch_tabs(*self*, *bottom_navigation_item*, *name_tab: str*)

Called when switching tabs. Returns the object of the tab to be opened.

on_size(*self*, **args*)

on_resize(*self*, *instance: Union[WindowSDL, None] = None*, *width: Union[int, None] = None*, *do_again: bool = True*)

Called when the application window is resized.

add_widget(*self*, *widget*, ***kwargs*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

remove_widget(*self*, *widget*)

Remove a widget from the children of this widget.

Parameters

***widget*: Widget**
Widget to remove from our children list.

```
>>> from kivy.uix.button import Button
>>> root = Widget()
>>> button = Button()
>>> root.add_widget(button)
>>> root.remove_widget(button)
```

2.3.52 Swiper

Usage

```
MDSwiper:

    MDSwiperItem:

    MDSwiperItem:

    MDSwiperItem:
```

Example

```
from kivymd.app import MDApp
from kivy.lang.builder import Builder

kv = '''
<MySwiper@MDSwiperItem>

    FitImage:
        source: "guitar.png"
        radius: [20,]

MDScreen:
```

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```
    MDTopAppBar:
        id: toolbar
        title: "MDSwiper"
        elevation: 4
        pos_hint: {"top": 1}

    MDSwiper:
        size_hint_y: None
        height: root.height - toolbar.height - dp(40)
        y: root.height - self.height - toolbar.height - dp(20)

        MySwiper:

        MySwiper:

        MySwiper:

        MySwiper:

        MySwiper:
'''


class Main(MDApp):
    def build(self):
        return Builder.load_string(kv)

Main().run()
```

Warning: The width of *MDSwiperItem* is adjusted automatically. Consider changing that by `width_mult`.

Warning: The width of *MDSwiper* is automatically adjusted according to the width of the window.

`MDSwiper` provides the following events for use:

```
__events__ = (
    "on_swipe",
    "on_pre_swipe",
    "on_overswipe_right",
    "on_overswipe_left",
    "on_swipe_left",
    "on_swipe_right"
)
```

```
MDSwiper:
    on_swipe: print("on_swipe")
    on_pre_swipe: print("on_pre_swipe")
    on_overswipe_right: print("on_overswipe_right")
    on_overswipe_left: print("on_overswipe_left")
    on_swipe_left: print("on_swipe_left")
    on_swipe_right: print("on_swipe_right")
```

Example

```
from kivy.lang.builder import Builder

from kivymd.app import MDApp

kv = '''
<MagicButton@MagicBehavior+MDIconButton>


<MySwiper@MDSwiperItem>

    RelativeLayout:

        FitImage:
            source: "guitar.png"
            radius: [20,]

        MDBoxLayout:
            adaptive_height: True
            spacing: "12dp"

            MagicButton:
                id: icon
                icon: "weather-sunny"
                user_font_size: "56sp"
                opposite_colors: True

            MDLabel:
                text: "MDLabel"
                font_style: "H5"
                size_hint_y: None
                height: self.texture_size[1]
                pos_hint: {"center_y": .5}
                opposite_colors: True


MDScreen:

    MDTopAppBar:
        id: toolbar
        title: "MDSwiper"
        elevation: 4
```

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```
        pos_hint: {"top": 1}

    MDSwiper:
        size_hint_y: None
        height: root.height - toolbar.height - dp(40)
        y: root.height - self.height - toolbar.height - dp(20)
        on_swipe: self.get_current_item().ids.icon.shake()

        MySwiper:

        MySwiper:

        MySwiper:

        MySwiper:

        MySwiper:
'''


class Main(MDApp):
    def build(self):
        return Builder.load_string(kv)


Main().run()
```

How to automatically switch a SwiperItem?

Use method *set_current* which takes the index of *MDSwiperItem* as argument.

Example

```
MDSwiper:
    id: swiper

    MDSwiperItem: # First widget with index 0

    MDSwiperItem: # Second widget with index 1

MDRaisedButton:
    text: "Go to Second"
    on_release: swiper.set_current(1)
```

API - kivymd.uix.swiper.swiper

class kivymd.uix.swiper.swiper.**MDSwiperItem**(**args*, ***kwargs*)

MDSwiperItem is a BoxLayout but it's size is adjusted automatically.

class kivymd.uix.swiper.swiper.**MDSwiper**(**args*, ***kwargs*)

ScrollView class. For more information, see in the ScrollView class documentation.

items_spacing

The space between each *MDSwiperItem*.

items_spacing is an NumericProperty and defaults to *20dp*.

transition_duration

Duration of switching between *MDSwiperItem*.

transition_duration is an NumericProperty and defaults to *0.2*.

size_duration

Duration of changing the size of *MDSwiperItem*.

transition_duration is an NumericProperty and defaults to *0.2*.

size_transition

The type of animation used for changing the size of *MDSwiperItem*.

size_transition is an StringProperty and defaults to *out_quad*.

swipe_transition

The type of animation used for swiping.

swipe_transition is an StringProperty and defaults to *out_quad*.

swipe_distance

Distance to move before swiping the *MDSwiperItem*.

swipe_distance is an NumericProperty and defaults to *70dp*.

width_mult

This number is multiplied by *items_spacing* x2 and then subtracted from the width of window to specify the width of *MDSwiperItem*. So by decreasing the *width_mult* the width of *MDSwiperItem* increases and vice versa.

width_mult is an NumericProperty and defaults to *3*.

swipe_on_scroll

Wheter to swipe on mouse wheel scrolling or not.

swipe_on_scroll is an BooleanProperty and defaults to *True*.

add_widget(*self*, *widget*, *index=0*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling

widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

remove_widget(*self*, *widget*)

Remove a widget from the children of this widget.

Parameters

***widget*: Widget**
Widget to remove from our children list.

```
>>> from kivy.uix.button import Button
>>> root = Widget()
>>> button = Button()
>>> root.add_widget(button)
>>> root.remove_widget(button)
```

set_current(*self*, *index*)

Switch to given *MDSwiperItem* index.

get_current_index(*self*)

Returns the current *MDSwiperItem* index.

get_current_item(*self*)

Returns the current *MDSwiperItem* instance.

get_items(*self*)

Returns the list of *MDSwiperItem* children.

Note: Use *get_items()* to get the list of children instead of *MDSwiper.children*.

on_swipe(*self*)

on_pre_swipe(*self*)

on_overswipe_right(*self*)

on_overswipe_left(*self*)

on_swipe_left(*self*)

on_swipe_right(*self*)

swipe_left(*self*)

swipe_right(*self*)

on_scroll_start(*self*, *touch*, *check_children=True*)

on_touch_down(*self*, *touch*)

Receive a touch down event.

Parameters

***touch*: MotionEvent class**
Touch received. The touch is in parent coordinates. See relativelayout for a discussion on coordinate systems.

Returns
bool If True, the dispatching of the touch event will stop. If False, the event will continue to be dispatched to the rest of the widget tree.

on_touch_up(*self*, *touch*)

Receive a touch up event. The touch is in parent coordinates.

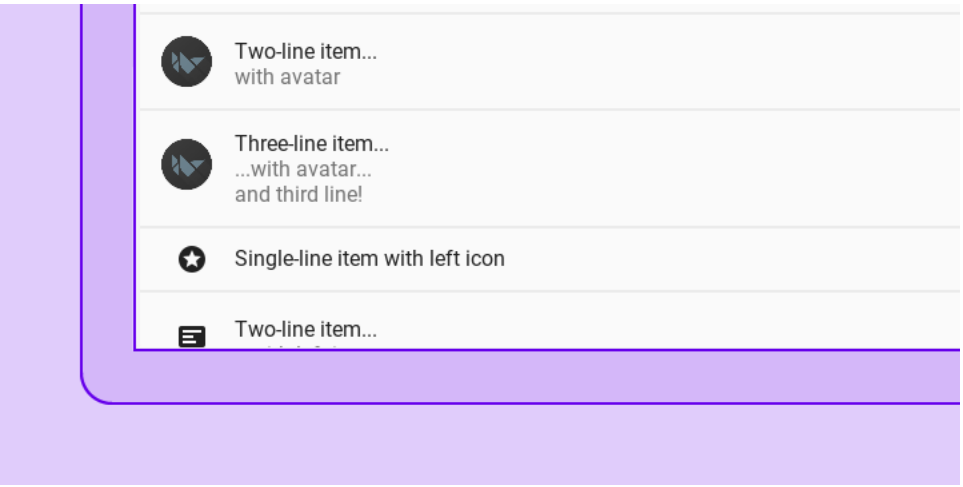
See *on_touch_down()* for more information.

2.3.53 List

See also:

Material Design spec, Lists

Lists are continuous, vertical indexes of text or images.



The class *MDList* in combination with a *BaseListItem* like *OneLineListItem* will create a list that expands as items are added to it, working nicely with *Kivy's* ScrollView.

Due to the variety in sizes and controls in the *Material Design spec*, this module suffers from a certain level of complexity to keep the widgets compliant, flexible and performant.

For this *KivyMD* provides list items that try to cover the most common usecases, when those are insufficient, there's a base class called `BaseListItem` which you can use to create your own list items. This documentation will only cover the provided ones, for custom implementations please refer to this module's source code.

KivyMD provides the following list items classes for use:

Text only ListItems

- *OneLineListItem*
- *TwoLineListItem*
- *ThreeLineListItem*

ListItems with widget containers

These widgets will take other widgets that inherit from `ILeftBody`, `ILeftBodyTouch`, `IRightBody` or `IRightBodyTouch` and put them in their corresponding container.

As the name implies, `ILeftBody` and `IRightBody` will signal that the widget goes into the left or right container, respectively.

`ILeftBodyTouch` and `IRightBodyTouch` do the same thing, except these widgets will also receive touch events that occur within their surfaces.

KivyMD provides base classes such as `ImageLeftWidget`, `ImageRightWidget`, `IconRightWidget`, `IconLeftWidget`, based on the above classes.

Allows the use of items with custom widgets on the left.

- *OneLineAvatarListItem*
- *TwoLineAvatarListItem*
- *ThreeLineAvatarListItem*
- *OneLineIconListItem*
- *TwoLineIconListItem*
- *ThreeLineIconListItem*

It allows the use of elements with custom widgets on the left and the right.

- *OneLineAvatarIconListItem*
- *TwoLineAvatarIconListItem*
- *ThreeLineAvatarIconListItem*
- *OneLineRightIconListItem*
- *TwoLineRightIconListItem*
- *ThreeLineRightIconListItem*

Usage

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.list import OneLineListItem

KV = '''
MDScrollView:

    MDList:
        id: container
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)

    def on_start(self):
        for i in range(20):
            self.root.ids.container.add_widget(
                OneLineListItem(text=f"Single-line item {i}")
            )

Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.list import OneLineListItem


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return (
            MDScrollView(
                MDList(
                    id="container"
                )
            )
        )

    def on_start(self):
        for i in range(20):
            self.root.ids.container.add_widget(
                OneLineListItem(text=f"Single-line item {i}")
            )
```

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```
Example().run()
```

Events of List

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScrollView:

    MDList:

        OneLineAvatarIconListItem:
            on_release: print("Click!")

            IconLeftWidget:
                icon: "github"

        OneLineAvatarIconListItem:
            on_release: print("Click 2!")

            IconLeftWidget:
                icon: "gitlab"
'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.scrollview import MDScrollView
from kivymd.uix.list import MDList, OneLineAvatarIconListItem, IconLeftWidget


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return (
            MDScrollView(
```

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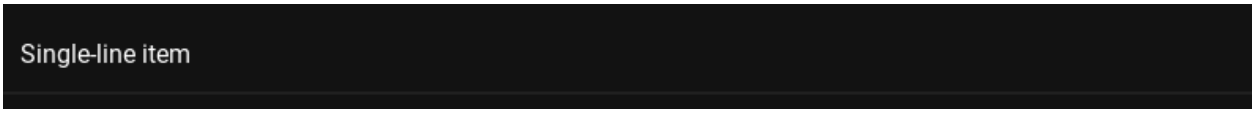
```
                MDList(
                    OneLineAvatarIconListItem(
                        IconLeftWidget(
                            icon="github"
                        ),
                        on_release=lambda x: print("Click!")
                    ),
                    OneLineAvatarIconListItem(
                        IconLeftWidget(
                            icon="gitlab"
                        ),
                        on_release=lambda x: print("Click 2!")
                    ),
                )
            )
        )


Example().run()
```

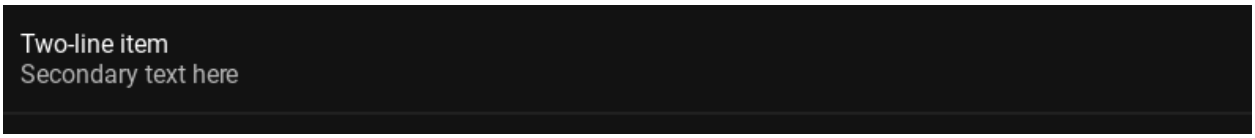
OneLineListItem

```
OneLineListItem:
    text: "Single-line item"
```



TwoLineListItem

```
TwoLineListItem:
    text: "Two-line item"
    secondary_text: "Secondary text here"
```



ThreeLineListItem

```
ThreeLineListItem:
    text: "Three-line item"
    secondary_text: "This is a multi-line label where you can"
    tertiary_text: "fit more text than usual"
```

OneLineAvatarListItem

Declarative KV style

```
OneLineAvatarListItem:
    text: "Single-line item with avatar"

    ImageLeftWidget:
        source: "kivymd/images/logo/kivymd-icon-256.png"
```

Declarative python style

```
OneLineAvatarListItem(
    ImageLeftWidget(
        source="kivymd/images/logo/kivymd-icon-256.png"
    ),
    text="Single-line item with avatar",
)
```

TwoLineAvatarListItem

Declarative KV style

```
TwoLineAvatarListItem:
    text: "Two-line item with avatar"
    secondary_text: "Secondary text here"

    ImageLeftWidget:
        source: "kivymd/images/logo/kivymd-icon-256.png"
```

Declarative python style

```
OneLineAvatarListItem(
    ImageLeftWidget(
```

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```
        source="kivymd/images/logo/kivymd-icon-256.png"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here",
)
```

ThreeLineAvatarListItem

Declarative KV style

```
ThreeLineAvatarListItem:
    text: "Three-line item with avatar"
    secondary_text: "Secondary text here"
    tertiary_text: "fit more text than usual"

    ImageLeftWidget:
        source: "kivymd/images/logo/kivymd-icon-256.png"
```

Declarative python style

```
OneLineAvatarListItem(
    ImageLeftWidget(
        source="kivymd/images/logo/kivymd-icon-256.png"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here",
    tertiary_text: "fit more text than usual"
)
```

OneLineRightIconListItem

Declarative KV style

```
OneLineRightIconListItem:
    text: "Single-line item with avatar"

    ImageRightWidget:
        source: "kivymd/images/logo/kivymd-icon-256.png"
```

Declarative python style

```
OneLineRightIconListItem(
    ImageRightWidget(
        source="kivymd/images/logo/kivymd-icon-256.png"
    ),
    text="Single-line item with avatar",
)
```

TwoLineRightIconListItem

Declarative KV style

```
TwoLineRightIconListItem:
    text: "Single-line item with avatar"
    secondary_text: "Secondary text here"

    ImageRightWidget:
        source: "kivymd/images/logo/kivymd-icon-256.png"
```

Declarative python style

```
TwoLineRightIconListItem(
    ImageRightWidget(
        source="kivymd/images/logo/kivymd-icon-256.png"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here",
)
```

ThreeLineRightIconListItem

Declarative KV style

```
ThreeLineRightIconListItem:
    text: "Single-line item with avatar"
    secondary_text: "Secondary text here"
    tertiary_text: "fit more text than usual"

    ImageRightWidget:
        source: "kivymd/images/logo/kivymd-icon-256.png"
```

Declarative python style

```
ThreeLineRightIconListItem(
    ImageRightWidget(
        source="kivymd/images/logo/kivymd-icon-256.png"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here",
    tertiary_text: "fit more text than usual",
)
```

OneLineIconListItem

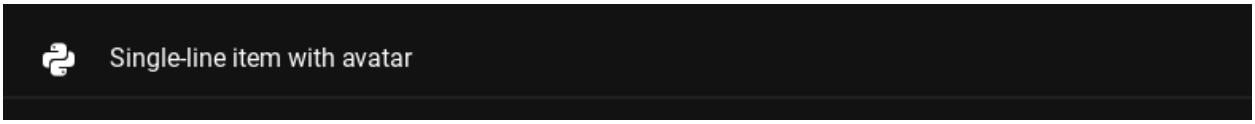
Declarative KV style

```
OneLineIconListItem:
    text: "Single-line item with avatar"

    IconLeftWidget:
        icon: "language-python"
```

Declarative python style

```
OneLineIconListItem(
    IconLeftWidget(
        icon="language-python"
    ),
    text="Single-line item with avatar"
)
```



TwoLineIconListItem

Declarative KV style

```
TwoLineIconListItem:
    text: "Two-line item with avatar"
    secondary_text: "Secondary text here"

    IconLeftWidget:
        icon: "language-python"
```

Declarative python style

```
TwoLineIconListItem(
    IconLeftWidget(
        icon="language-python"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here"
)
```

ThreeLineIconListItem

Declarative KV style

```
ThreeLineIconListItem:
    text: "Three-line item with avatar"
    secondary_text: "Secondary text here"
    tertiary_text: "fit more text than usual"

    IconLeftWidget:
        icon: "language-python"
```

Declarative python style

```
ThreeLineIconListItem(
    IconLeftWidget(
        icon="language-python"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here",
    tertiary_text: "fit more text than usual",
)
```

OneLineAvatarIconListItem

Declarative KV style

```
OneLineAvatarIconListItem:
    text: "One-line item with avatar"

    IconLeftWidget:
        icon: "plus"
```

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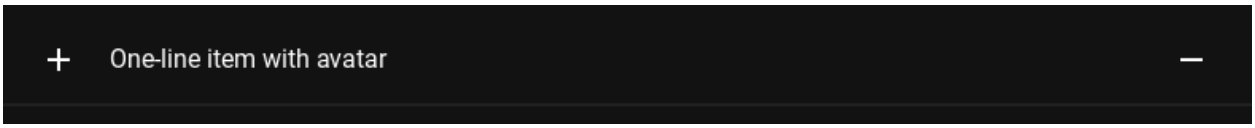
```
    IconRightWidget:
        icon: "minus"
```

Declarative python style

```
OneLineAvatarIconListItem(
    IconLeftWidget(
        icon="plus"
    ),
    IconRightWidget(
        icon="minus"
    ),
    text="Single-line item with avatar",
)
```



TwoLineAvatarIconListItem

Declarative KV style

```
TwoLineAvatarIconListItem:
    text: "Two-line item with avatar"
    secondary_text: "Secondary text here"

    IconLeftWidget:
        icon: "plus"

    IconRightWidget:
        icon: "minus"
```

Declarative python style

```
TwoLineAvatarIconListItem(
    IconLeftWidget(
        icon="plus"
    ),
    IconRightWidget(
        icon="minus"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here",
)
```

ThreeLineAvatarIconListItem

Declarative KV style

```
ThreeLineAvatarIconListItem:
    text: "Three-line item with avatar"
    secondary_text: "Secondary text here"
    tertiary_text: "fit more text than usual"

    IconLeftWidget:
        icon: "plus"

    IconRightWidget:
        icon: "minus"
```

Declarative python style

```
ThreeLineAvatarIconListItem(
    IconLeftWidget(
        icon="plus"
    ),
    IconRightWidget(
        icon="minus"
    ),
    text="Single-line item with avatar",
    secondary_text: "Secondary text here",
    tertiary_text: "fit more text than usual",
)
```

Custom list item

Declarative KV style

```
from kivy.lang import Builder
from kivy.properties import StringProperty

from kivymd.app import MDApp
from kivymd.uix.list import IRightBodyTouch, OneLineAvatarIconListItem
from kivymd.uix.selectioncontrol import MDCheckbox
from kivymd.icon_definitions import md_icons


KV = '''
<ListItemWithCheckbox>:

    IconLeftWidget:
```

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```
        icon: root.icon

    RightCheckbox:


MDScrollView:

    MDList:
        id: scroll
'''


class ListItemWithCheckbox(OneLineAvatarIconListItem):
    '''Custom list item.'''

    icon = StringProperty("android")


class RightCheckbox(IRightBodyTouch, MDCheckbox):
    '''Custom right container.'''


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)

    def on_start(self):
        icons = list(md_icons.keys())
        for i in range(30):
            self.root.ids.scroll.add_widget(
                ListItemWithCheckbox(text=f"Item {i}", icon=icons[i])
            )


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.list import IRightBodyTouch, OneLineAvatarIconListItem
from kivymd.uix.selectioncontrol import MDCheckbox
from kivymd.uix.scrollview import MDScrollView
from kivymd.uix.list import MDList
from kivymd.icon_definitions import md_icons


class RightCheckbox(IRightBodyTouch, MDCheckbox):
    '''Custom right container.'''


class Example(MDApp):
```

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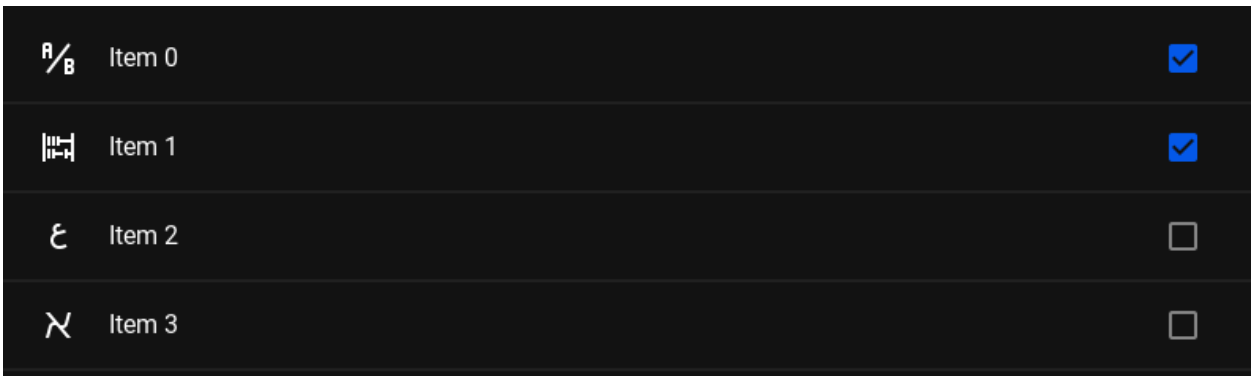
```
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return (
            MDScrollView(
                MDList(
                    id="scroll"
                )
            )
        )

    def on_start(self):
        icons = list(md_icons.keys())
        for i in range(30):
            self.root.ids.scroll.add_widget(
                OneLineAvatarIconListItem(
                    IconLeftWidget(
                        icon=icons[i]
                    ),
                    RightCheckbox(),
                    text=f"Item {i}",
                )
            )


Example().run()
```



Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.list import IRightBodyTouch

KV = '''
OneLineAvatarIconListItem:
    text: "One-line item with avatar"
    on_size:
        self.ids._right_container.width = container.width
        self.ids._right_container.x = container.width
```

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```
    IconLeftWidget:
        icon: "cog"

    YourContainer:
        id: container

        MDIconButton:
            icon: "minus"

        MDIconButton:
            icon: "plus"
'''


class YourContainer(IRightBodyTouch, MDBoxLayout):
    adaptive_width = True


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.list import IRightBodyTouch
from kivymd.uix.button import MDIconButton
from kivymd.uix.list import OneLineAvatarIconListItem, IconLeftWidget


class YourContainer(IRightBodyTouch, MDBoxLayout):
    adaptive_width = True


class Example(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return (
            OneLineAvatarIconListItem(
                IconLeftWidget(
                    icon="cog"
                ),
                YourContainer(
                    MDIconButton(
                        icon="minus"
                    ),
```

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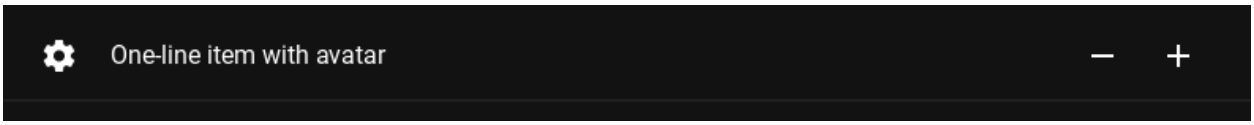
```
                    MDIconButton(
                        icon="plus"
                    ),
                    id="container"
                ),
                text="One-line item with avatar"
            )
        )

    def on_start(self):
        container = self.root.ids.container
        self.root.ids._right_container.width = container.width
        container.x = container.width


Example().run()
```



Behavior

When using the *AvatarListItem* and *IconListItem* classes, when an icon is clicked, the event of this icon is triggered:

Declarative KV style

```
OneLineIconListItem:
    text: "Single-line item with icon"

    IconLeftWidget:
        icon: "language-python"
```

Declarative python style

```
OneLineIconListItem(
    IconLeftWidget(
        icon="language-python"
    ),
    text="Single-line item with avatar",
)
```

You can disable the icon event using the *WithoutTouch* classes:

Declarative KV style

```
OneLineIconListItem:
    text: "Single-line item with icon"

    IconLeftWidgetWithoutTouch:
        icon: "language-python"
```

Declarative python style

```
OneLineIconListItem(
    IconLeftWidgetWithoutTouch(
        icon="language-python"
    ),
    text="Single-line item with avatar",
)
```

API - kivymd.uix.list.list

class kivymd.uix.list.list.**MDList**(**args*, ***kwargs*)

ListItem container. Best used in conjunction with a `kivy.uix.ScrollView`.

When adding (or removing) a widget, it will resize itself to fit its children, plus top and bottom paddings as described by the *MD* spec.

class kivymd.uix.list.list.**BaseListItem**(**args*, ***kwargs*)

Base class to all ListItems. Not supposed to be instantiated on its own.

text

Text shown in the first line.

text is a StringProperty and defaults to *''*.

text_color

Text color in (r, g, b, a) or string format used if *theme_text_color* is set to *'Custom'*.

text_color is a ColorProperty and defaults to *None*.

font_style

Text font style. See font-definitions for more information.

font_style is a StringProperty and defaults to *'Subtitle1'*.

theme_text_color

The name of the color scheme for for the primary text.

theme_text_color is a StringProperty and defaults to *'Primary'*.

secondary_text

Text shown in the second line.

secondary_text is a StringProperty and defaults to *''*.

tertiary_text

The text is displayed on the third line.

tertiary_text is a StringProperty and defaults to *''*.

secondary_text_color

Text color in (r, g, b, a) or string format used for secondary text if *secondary_theme_text_color* is set to *'Custom'*.

secondary_text_color is a ColorProperty and defaults to *None*.

tertiary_text_color

Text color in (r, g, b, a) or string format used for tertiary text if *tertiary_theme_text_color* is set to 'Custom'.

tertiary_text_color is a ColorProperty and defaults to *None*.

secondary_theme_text_color

The name of the color scheme for for the secondary text.

secondary_theme_text_color is a StringProperty and defaults to *'Secondary'*.

tertiary_theme_text_color

The name of the color scheme for for the tertiary text.

tertiary_theme_text_color is a StringProperty and defaults to *'Secondary'*.

secondary_font_style

Font style for secondary line. See font-definitions for more information.

secondary_font_style is a StringProperty and defaults to *'Body1'*.

tertiary_font_style

Font style for tertiary line. See font-definitions for more information.

tertiary_font_style is a StringProperty and defaults to *'Body1'*.

divider

Divider mode. Available options are: *'Full'*, *'Inset'* and default to *'Full'*.

divider is a OptionProperty and defaults to *'Full'*.

divider_color

Divider color in (r, g, b, a) or string format.

New in version 1.0.0.

divider_color is a ColorProperty and defaults to *None*.

bg_color

Background color for list item in (r, g, b, a) or string format.

bg_color is a ColorProperty and defaults to *None*.

radius

Canvas radius.

```
# Top left corner slice.
MDBoxLayout:
    md_bg_color: app.theme_cls.primary_color
    radius: [25, 0, 0, 0]
```

radius is an VariableListProperty and defaults to *[0, 0, 0, 0]*.

on_touch_down(*self*, *touch*)

Receive a touch down event.

Parameters

***touch*: MotionEvent class**
Touch received. The touch is in parent coordinates. See relativelayout for a discussion on coordinate systems.

Returns

bool If True, the dispatching of the touch event will stop. If False, the event will continue to be dispatched to the rest of the widget tree.

on_touch_move(*self*, *touch*, **args*)

Receive a touch move event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

on_touch_up(*self*, *touch*)

Receive a touch up event. The touch is in parent coordinates.

See *on_touch_down()* for more information.

propagate_touch_to_touchable_widgets(*self*, *touch*, *touch_event*, **args*)

add_widget(*self*, *widget*)

Add a new widget as a child of this widget.

Parameters

***widget*: Widget**
Widget to add to our list of children.

***index*: int, defaults to 0**
Index to insert the widget in the list. Notice that the default of 0 means the widget is inserted at the beginning of the list and will thus be drawn on top of other sibling widgets. For a full discussion of the index and widget hierarchy, please see the Widgets Programming Guide.

New in version 1.0.5.

***canvas*: str, defaults to None**
Canvas to add widget's canvas to. Can be 'before', 'after' or None for the default canvas.

New in version 1.9.0.

```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

remove_widget(*self*, *widget*)

Remove a widget from the children of this widget.

Parameters

***widget*: Widget**
Widget to remove from our children list.

```
>>> from kivy.uix.button import Button
>>> root = Widget()
>>> button = Button()
>>> root.add_widget(button)
>>> root.remove_widget(button)
```

class kivymd.uix.list.list.**ILeftBodyTouch**

Same as `ILeftBody`, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect.

class kivymd.uix.list.list.**IRightBodyTouch**

Same as `IRightBody`, but allows the widget to receive touch events instead of triggering the `ListItem`'s ripple effect

class kivymd.uix.list.list.**OneLineListItem**(**args*, ***kwargs*)

A one line list item.

class kivymd.uix.list.list.**TwoLineListItem**(***kwargs*)

A two line list item.

class kivymd.uix.list.list.**ThreeLineListItem**(**args*, ***kwargs*)

A three line list item.

class kivymd.uix.list.list.**OneLineAvatarListItem**(**args*, ***kwargs*)

Base class to all ListItems. Not supposed to be instantiated on its own.

class kivymd.uix.list.list.**TwoLineAvatarListItem**(**args*, ***kwargs*)

Base class to all ListItems. Not supposed to be instantiated on its own.

class kivymd.uix.list.list.**ThreeLineAvatarListItem**(**args*, ***kwargs*)

A three line list item.

class kivymd.uix.list.list.**OneLineIconListItem**(**args*, ***kwargs*)

A one line list item.

class kivymd.uix.list.list.**TwoLineIconListItem**(**args*, ***kwargs*)

A one line list item.

class kivymd.uix.list.list.**ThreeLineIconListItem**(**args*, ***kwargs*)

A three line list item.

class kivymd.uix.list.list.**OneLineRightIconListItem**(**args*, ***kwargs*)

A one line list item.

class kivymd.uix.list.list.**TwoLineRightIconListItem**(***kwargs*)

A one line list item.

class kivymd.uix.list.list.**ThreeLineRightIconListItem**(***kwargs*)

A three line list item.

class kivymd.uix.list.list.**OneLineAvatarIconListItem**(**args*, ***kwargs*)

Base class to all ListItems. Not supposed to be instantiated on its own.

class kivymd.uix.list.list.**TwoLineAvatarIconListItem**(**args*, ***kwargs*)

Base class to all ListItems. Not supposed to be instantiated on its own.

class kivymd.uix.list.list.**ThreeLineAvatarIconListItem**(**args*, ***kwargs*)

A three line list item.

class kivymd.uix.list.list.**ImageLeftWidget**(***kwargs*)

Class implements a circular ripple effect.

class kivymd.uix.list.list.**ImageLeftWidgetWithoutTouch**(***kwargs*)

New in version 1.0.0.

class kivymd.uix.list.list.**ImageRightWidget**(***kwargs*)

Class implements a circular ripple effect.

class kivymd.uix.list.list.**ImageRightWidgetWithoutTouch**(***kwargs*)

New in version 1.0.0.

class kivymd.uix.list.list.**IconRightWidget**(**args*, ***kwargs*)

Same as `IRightBody`, but allows the widget to receive touch events instead of triggering the `ListItem`'s ripple effect

pos_hint

class kivymd.uix.list.list.**IconRightWidgetWithoutTouch**(**args*, ***kwargs*)

New in version 1.0.0.

pos_hint

class kivymd.uix.list.list.**IconLeftWidget**(**args*, ***kwargs*)

Same as `ILeftBody`, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect.

pos_hint

class kivymd.uix.list.list.**IconLeftWidgetWithoutTouch**(**args*, ***kwargs*)

New in version 1.0.0.

pos_hint

class kivymd.uix.list.list.**CheckboxLeftWidget**(***kwargs*)

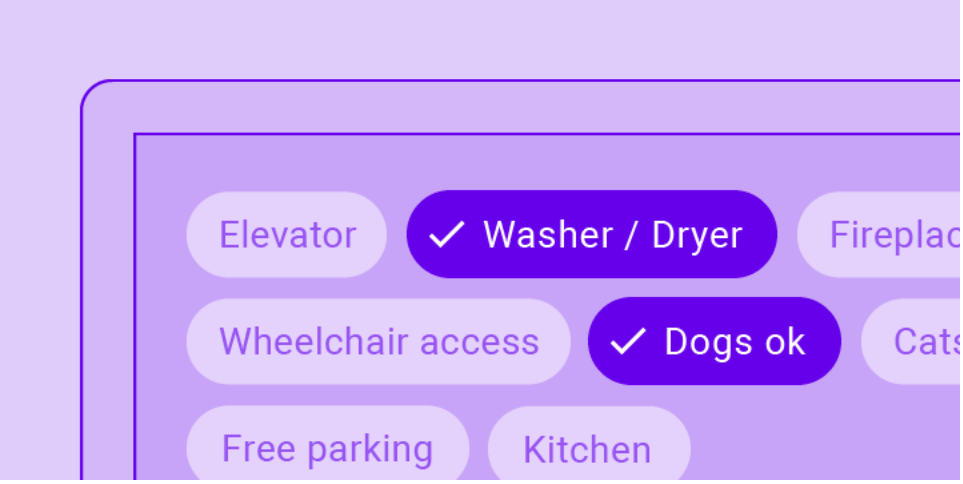
Same as `ILeftBody`, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect.

2.3.54 Chip

See also:

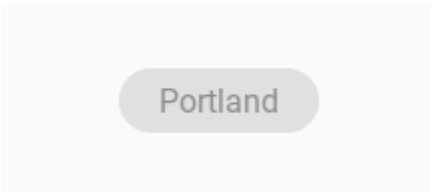
Material Design spec, Chips

Chips are compact elements that represent an input, attribute, or action.



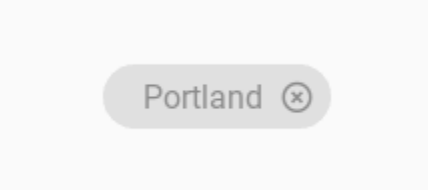
Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDChip:
        text: "Portland"
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.on_release_chip(self)
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def on_release_chip(self, instance_check):
        print(instance_check)


Test().run()
```



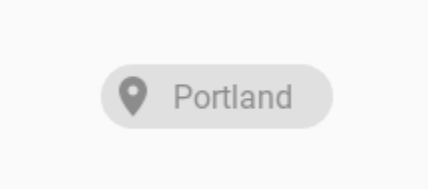
Use with right icon

```
MDChip:
    text: "Portland"
    icon_right: "close-circle-outline"
```



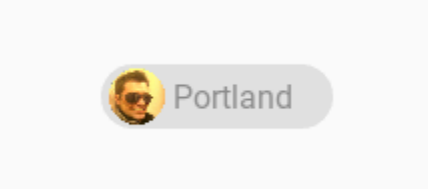
Use with left icon

```
MDChip:
    text: "Portland"
    icon_left: "map-marker"
```



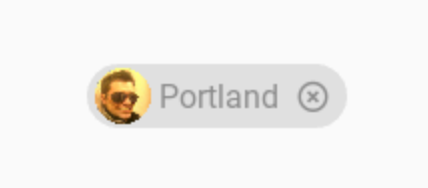
Use with custom left icon

```
MDChip:
    text: "Portland"
    icon_left: "avatar.png"
```



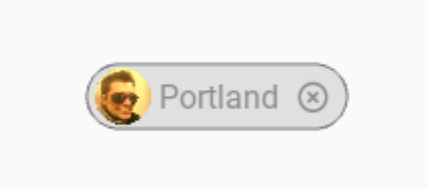
Use with left and right icon

```
MDChip:
    text: "Portland"
    icon_left: "avatar.png"
    icon_right: "close-circle-outline"
```



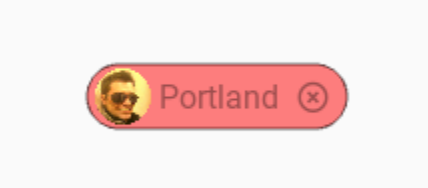
Use with outline

```
MDChip:
    text: "Portland"
    icon_left: "avatar.png"
    icon_right: "close-circle-outline"
    line_color: app.theme_cls.disabled_hint_text_color
```



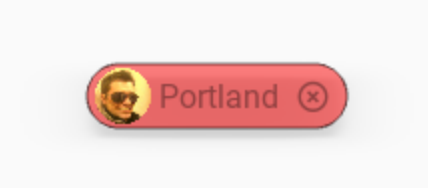
Use with custom color

```
MDChip:
    text: "Portland"
    icon_left: "avatar.png"
    icon_right: "close-circle-outline"
    line_color: app.theme_cls.disabled_hint_text_color
    md_bg_color: 1, 0, 0, .5
```



Use with elevation

```
MDChip:
    text: "Portland"
    icon_left: "avatar.png"
    icon_right: "close-circle-outline"
    line_color: app.theme_cls.disabled_hint_text_color
    md_bg_color: 1, 0, 0, .5
    elevation: 4
```



Behavior

Long press on the chip, it will be marked. When you click on the marked chip, the mark will be removed:

Examples

Multiple choose

Selecting a single choice chip automatically deselects all other chips in the set.

```
from kivy.animation import Animation
from kivy.lang import Builder

from kivymd.uix.screen import MDScreen
from kivymd.uix.chip import MDChip
from kivymd.app import MDApp

KV = '''
<MyScreen>

    MDBoxLayout:
        orientation: "vertical"
        adaptive_size: True
        spacing: "12dp"
        padding: "56dp"
        pos_hint: {"center_x": .5, "center_y": .5}

        MDLabel:
            text: "Multiple choice"
            bold: True
            font_style: "H5"
            adaptive_size: True

        MDBoxLayout:
            id: chip_box
            adaptive_size: True
            spacing: "8dp"

            MyChip:
                text: "Elevator"
                on_press: if self.active: root.removes_marks_all_chips()

            MyChip:
```

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```
                text: "Washer / Dryer"
                on_press: if self.active: root.removes_marks_all_chips()

            MyChip:
                text: "Fireplace"
                on_press: if self.active: root.removes_marks_all_chips()


ScreenManager:

    MyScreen:
'''


class MyChip(MDChip):
    icon_check_color = (0, 0, 0, 1)
    text_color = (0, 0, 0, 0.5)
    _no_ripple_effect = True

    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.bind(active=self.set_chip_bg_color)
        self.bind(active=self.set_chip_text_color)

    def set_chip_bg_color(self, instance_chip, active_value: int):
        '''
        Will be called every time the chip is activated/deactivated.
        Sets the background color of the chip.
        '''

        self.md_bg_color = (
            (0, 0, 0, 0.4)
            if active_value
            else (
                self.theme_cls.bg_darkest
                if self.theme_cls.theme_style == "Light"
                else (
                    self.theme_cls.bg_light
                    if not self.disabled
                    else self.theme_cls.disabled_hint_text_color
                )
            )
        )

    def set_chip_text_color(self, instance_chip, active_value: int):
        Animation(
            color=(0, 0, 0, 1) if active_value else (0, 0, 0, 0.5), d=0.2
        ).start(self.ids.label)


class MyScreen(MDScreen):
    def removes_marks_all_chips(self):
```

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```
        for instance_chip in self.ids.chip_box.children:
            if instance_chip.active:
                instance_chip.active = False


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

Only choose

Only one chip will be selected.

```
KV = '''
<MyScreen>

    [...]

        MDBoxLayout:
            id: chip_box
            adaptive_size: True
            spacing: "8dp"

            MyChip:
                text: "Elevator"
                on_active: if self.active: root.removes_marks_all_chips(self)

            MyChip:
                text: "Washer / Dryer"
                on_active: if self.active: root.removes_marks_all_chips(self)

            MyChip:
                text: "Fireplace"
                on_active: if self.active: root.removes_marks_all_chips(self)


[...]
'''


class MyScreen(MDScreen):
    def removes_marks_all_chips(self, selected_instance_chip):
        for instance_chip in self.ids.chip_box.children:
            if instance_chip != selected_instance_chip:
                instance_chip.active = False
```

API - kivymd.uix.chip.chip

class kivymd.uix.chip.chip.**MDChip**(***kwargs*)

Box layout class.

For more information, see in the BoxLayout class documentation.

text

Chip text.

text is an StringProperty and defaults to ‘’.

icon_left

Chip left icon.

New in version 1.0.0.

icon_left is an StringProperty and defaults to ‘’.

icon_right

Chip right icon.

New in version 1.0.0.

icon_right is an StringProperty and defaults to ‘’.

text_color

Chip’s text color in (r, g, b, a) or string format.

text_color is an ColorProperty and defaults to *None*.

icon_right_color

Chip’s right icon color in (r, g, b, a) or string format.

New in version 1.0.0.

icon_right_color is an ColorProperty and defaults to *None*.

icon_left_color

Chip’s left icon color in (r, g, b, a) or string format.

New in version 1.0.0.

icon_left_color is an ColorProperty and defaults to *None*.

icon_check_color

Chip’s check icon color in (r, g, b, a) or string format.

New in version 1.0.0.

icon_check_color is an ColorProperty and defaults to *None*.

active

Whether the check is marked or not.

New in version 1.0.0.

active is an BooleanProperty and defaults to *False*.

on_long_touch(*self*, **args*)

Called when the widget is pressed for a long time.

on_active(*self*, *instance_check*, *active_value: bool*)

do_animation_check(*self*, *md_bg_color: list*, *scale_value: int*)

on_press(*self*, **args*)

2.4 Controllers

2.4.1 WindowController

New in version 1.0.0.

Modules and classes that implement useful methods for getting information about the state of the current application window.

Controlling the resizing direction of the application window

```
# When resizing the application window, the direction of change will be
# printed - 'left' or 'right'.

from kivymd.app import MDApp
from kivymd.uix.controllers import WindowController
from kivymd.uix.screen import MDScreen


class MyScreen(MDScreen, WindowController):
    def on_width(self, *args):
        print(self.get_window_width_resizing_direction())


class Test(MDApp):
    def build(self):
        return MyScreen()


Test().run()
```

API - kivymd.uix.controllers.windowcontroller

class kivymd.uix.controllers.windowcontroller.**WindowController**

on_size(*self*, *instance*, *size: list*)

Called when the application screen size changes.

get_real_device_type(*self*)

Returns the device type - 'mobile', 'tablet' or 'desktop'.

get_window_width_resizing_direction(*self*)

Return window width resizing direction - 'left' or 'right'.

2.5 Behaviors

2.5.1 Touch

Provides easy access to events.

The following events are available:

- on_long_touch
- on_double_tap
- on_triple_tap

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors import TouchBehavior
from kivymd.uix.button import MDRaisedButton

KV = '''
Screen:

    MyButton:
        text: "PRESS ME"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class MyButton(MDRaisedButton, TouchBehavior):
    def on_long_touch(self, *args):
        print("<on_long_touch> event")

    def on_double_tap(self, *args):
        print("<on_double_tap> event")

    def on_triple_tap(self, *args):
        print("<on_triple_tap> event")


class MainApp(MDApp):
    def build(self):
        return Builder.load_string(KV)


MainApp().run()
```

API - kivymd.uix.behaviors.touch_behavior

class kivymd.uix.behaviors.touch_behavior.**TouchBehavior**(***kwargs*)

duration_long_touch

Time for a long touch.

duration_long_touch is an NumericProperty and defaults to *0.4*.

create_clock(*self*, *widget*, *touch*, **args*)

delete_clock(*self*, *widget*, *touch*, **args*)

on_long_touch(*self*, *touch*, **args*)

Called when the widget is pressed for a long time.

on_double_tap(*self*, *touch*, **args*)

Called by double clicking on the widget.

on_triple_tap(*self*, *touch*, **args*)

Called by triple clicking on the widget.

2.5.2 Scale

New in version 1.1.0.

Base class for controlling the scale of the widget.

Note: See kivy.graphics.Rotate for more information.

Kivy

```
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.properties import NumericProperty
from kivy.uix.button import Button
from kivy.app import App


KV = '''
Screen:

    ScaleButton:
        size_hint: .5, .5
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.change_scale(self)

        canvas.before:
            PushMatrix
            Scale:
```

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```
                x: self.scale_value_x
                y: self.scale_value_y
                z: self.scale_value_x
                origin: self.center
        canvas.after:
            PopMatrix
'''


class ScaleButton(Button):
    scale_value_x = NumericProperty(1)
    scale_value_y = NumericProperty(1)
    scale_value_z = NumericProperty(1)


class Test(App):
    def build(self):
        return Builder.load_string(KV)

    def change_scale(self, instance_button: Button) -> None:
        Animation(
            scale_value_x=0.5,
            scale_value_y=0.5,
            scale_value_z=0.5,
            d=0.3,
        ).start(instance_button)


Test().run()
```

KivyMD

```
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import ScaleBehavior
from kivymd.uix.boxlayout import MDBoxLayout

KV = '''
MDScreen:

    ScaleBox:
        size_hint: .5, .5
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.change_scale(self)
        md_bg_color: "red"
'''
```

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```
class ScaleBox(ButtonBehavior, ScaleBehavior, MDBoxLayout):
    pass


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def change_scale(self, instance_button: ScaleBox) -> None:
        Animation(
            scale_value_x=0.5,
            scale_value_y=0.5,
            scale_value_z=0.5,
            d=0.3,
        ).start(instance_button)


Test().run()
```

API - kivymd.uix.behaviors.scale_behavior

class kivymd.uix.behaviors.scale_behavior.**ScaleBehavior**

Base class for controlling the scale of the widget.

scale_value_x

X-axis value.

scale_value_x is an NumericProperty and defaults to *1*.

scale_value_y

Y-axis value.

scale_value_y is an NumericProperty and defaults to *1*.

scale_value_z

Z-axis value.

scale_value_z is an NumericProperty and defaults to *1*.

2.5.3 ToggleButton

This behavior must always be inherited after the button's Widget class since it works with the inherited properties of the button class.

example:

```
class MyToggleButtonWidget(MDFlatButton, MDToggleButton):
    # [...]
    pass
```

Declarative KV style

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors.toggle_behavior import MDToggleButton
from kivymd.uix.button import MDFlatButton

KV = '''
MDScreen:

    MDBoxLayout:
        adaptive_size: True
        spacing: "12dp"
        pos_hint: {"center_x": .5, "center_y": .5}

        MyToggleButton:
            text: "Show ads"
            group: "x"

        MyToggleButton:
            text: "Do not show ads"
            group: "x"

        MyToggleButton:
            text: "Does not matter"
            group: "x"
'''


class MyToggleButton(MDFlatButton, MDToggleButton):
    def __init__(self, *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.background_down = self.theme_cls.primary_color


class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return Builder.load_string(KV)


Test().run()
```

Declarative python style

```
from kivymd.app import MDApp
from kivymd.uix.behaviors.toggle_behavior import MDToggleButton
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDFlatButton
from kivymd.uix.screen import MDScreen


class MyToggleButton(MDFlatButton, MDToggleButton):
```

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```
    def __init__(self, *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.background_down = self.theme_cls.primary_color


class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        self.theme_cls.primary_palette = "Orange"
        return (
            MDScreen(
                MDBoxLayout(
                    MyToggleButton(
                        text="Show ads",
                        group="x",
                    ),
                    MyToggleButton(
                        text="Do not show ads",
                        group="x",
                    ),
                    MyToggleButton(
                        text="Does not matter",
                        group="x",
                    ),
                    adaptive_size=True,
                    spacing="12dp",
                    pos_hint={"center_x": .5, "center_y": .5},
                ),
            )
        )


Test().run()
```

You can inherit the `MyToggleButton` class only from the following classes

- MDRaisedButton
- MDFlatButton
- MDRectangleFlatButton
- MDRectangleFlatIconButton
- MDRoundFlatButton
- MDRoundFlatIconButton
- MDFillRoundFlatButton
- MDFillRoundFlatIconButton

API - kivymd.uix.behaviors.toggle_behavior

class kivymd.uix.behaviors.toggle_behavior.**MDToggleButton**(***kwargs*)

This mixin class provides togglebutton behavior. Please see the togglebutton behaviors module documentation for more information.

New in version 1.8.0.

background_normal

Color of the button in rgba format for the 'normal' state.

background_normal is a ColorProperty and is defaults to *None*.

background_down

Color of the button in rgba format for the 'down' state.

background_down is a ColorProperty and is defaults to *None*.

font_color_normal

Color of the font's button in rgba format for the 'normal' state.

font_color_normal is a ColorProperty and is defaults to *None*.

font_color_down

Color of the font's button in rgba format for the 'down' state.

font_color_down is a ColorProperty and is defaults to *[1, 1, 1, 1]*.

2.5.4 Hover

Changing when the mouse is on the widget and the widget is visible.

To apply hover behavior, you must create a new class that is inherited from the widget to which you apply the behavior and from the *HoverBehavior* class.

In *KV file*:

```
<HoverItem@MDBoxLayout+ThemableBehavior+HoverBehavior>
```

In *python file*:

```
class HoverItem(MDBoxLayout, ThemableBehavior, HoverBehavior):
    '''Custom item implementing hover behavior.'''
```

After creating a class, you must define two methods for it: *HoverBehavior.on_enter* and *HoverBehavior.on_leave*, which will be automatically called when the mouse cursor is over the widget and when the mouse cursor goes beyond the widget.

Note: *HoverBehavior* will by default check to see if the current Widget is visible (i.e. not covered by a modal or popup and not a part of a Relative Layout, MDTab or Carousel that is not currently visible etc) and will only issue events if the widget is visible.

To get the legacy behavior that the events are always triggered, you can set *detect_visible* on the Widget to *False*.

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors import HoverBehavior
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.theming import ThemableBehavior

KV = '''
Screen

    MDBoxLayout:
        id: box
        pos_hint: {'center_x': .5, 'center_y': .5}
        size_hint: .8, .8
        md_bg_color: app.theme_cls.bg_darkest
'''


class HoverItem(MDBoxLayout, ThemableBehavior, HoverBehavior):
    '''Custom item implementing hover behavior.'''

    def on_enter(self, *args):
        '''The method will be called when the mouse cursor
        is within the borders of the current widget.'''

        self.md_bg_color = (1, 1, 1, 1)

    def on_leave(self, *args):
        '''The method will be called when the mouse cursor goes beyond
        the borders of the current widget.'''

        self.md_bg_color = self.theme_cls.bg_darkest


class Test(MDApp):
    def build(self):
        self.screen = Builder.load_string(KV)
        for i in range(5):
            self.screen.ids.box.add_widget(HoverItem())
        return self.screen


Test().run()
```

API - kivymd.uix.behaviors.hover_behavior

class kivymd.uix.behaviors.hover_behavior.**HoverBehavior**(***kwargs*)

Events

on_enter
Called when mouse enters the bbox of the widget AND the widget is visible

on_leave
Called when the mouse exits the widget AND the widget is visible

hovering

True, if the mouse cursor is within the borders of the widget.

Note that this is set and cleared even if the widget is not visible

hover is a BooleanProperty and defaults to *False*.

hover_visible

True if hovering is True AND is the current widget is visible

hover_visible is a BooleanProperty and defaults to *False*.

enter_point

Holds the last position where the mouse pointer crossed into the Widget if the Widget is visible and is currently in a hovering state

enter_point is a ObjectProperty and defaults to *None*.

detect_visible

Should this widget perform the visibility check?

detect_visible is a BooleanProperty and defaults to *True*.

on_mouse_update(*self*, **args*)

on_enter(*self*)

Called when mouse enters the bbox of the widget AND the widget is visible.

on_leave(*self*)

Called when the mouse exits the widget AND the widget is visible.

2.5.5 Stencil

New in version 1.1.0.

Base class for controlling the stencil instructions of the widget.

Note: See Stencil instructions for more information.

Kivy

```
from kivy.lang import Builder
from kivy.app import App

KV = '''
Carousel:

    Button:
        size_hint: .9, .8
        pos_hint: {"center_x": .5, "center_y": .5}

        canvas.before:
            StencilPush
            RoundedRectangle:
                pos: root.pos
                size: root.size
            StencilUse
        canvas.after:
            StencilUnUse
            RoundedRectangle:
                pos: root.pos
                size: root.size
            StencilPop
'''


class Test(App):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

KivyMD

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors import StencilBehavior
from kivymd.uix.fitimage import FitImage

KV = '''
#:import os os
#:import images_path kivymd.images_path


MDCarousel:

    StencilImage:
        size_hint: .9, .8
```

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```
        pos_hint: {"center_x": .5, "center_y": .5}
        source: os.path.join(images_path, "logo", "kivymd-icon-512.png")
'''


class StencilImage(FitImage, StencilBehavior):
    pass


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```

API - kivymd.uix.behaviors.stencil_behavior

class kivymd.uix.behaviors.stencil_behavior.**StencilBehavior**

Base class for controlling the stencil instructions of the widget.

radius

Canvas radius.

New in version 1.0.0.

```
# Top left corner slice.
MDWidget:
    radius: [25, 0, 0, 0]
```

radius is an VariableListProperty and defaults to *[0, 0, 0, 0]*.

2.5.6 Declarative

New in version 1.0.0.

As you already know, the Kivy framework provides the best/simplest/modern UI creation tool that allows you to separate the logic of your application from the description of the properties of widgets/GUI components. This tool is named KV Language.

But in addition to creating a user interface using the KV Language Kivy allows you to create user interface elements directly in the Python code. And if you've ever created a user interface in Python code, you know how ugly it looks. Even in the simplest user interface design, which was created using Python code it is impossible to trace the widget tree, because in Python code you build the user interface in an imperative style.

Imperative style

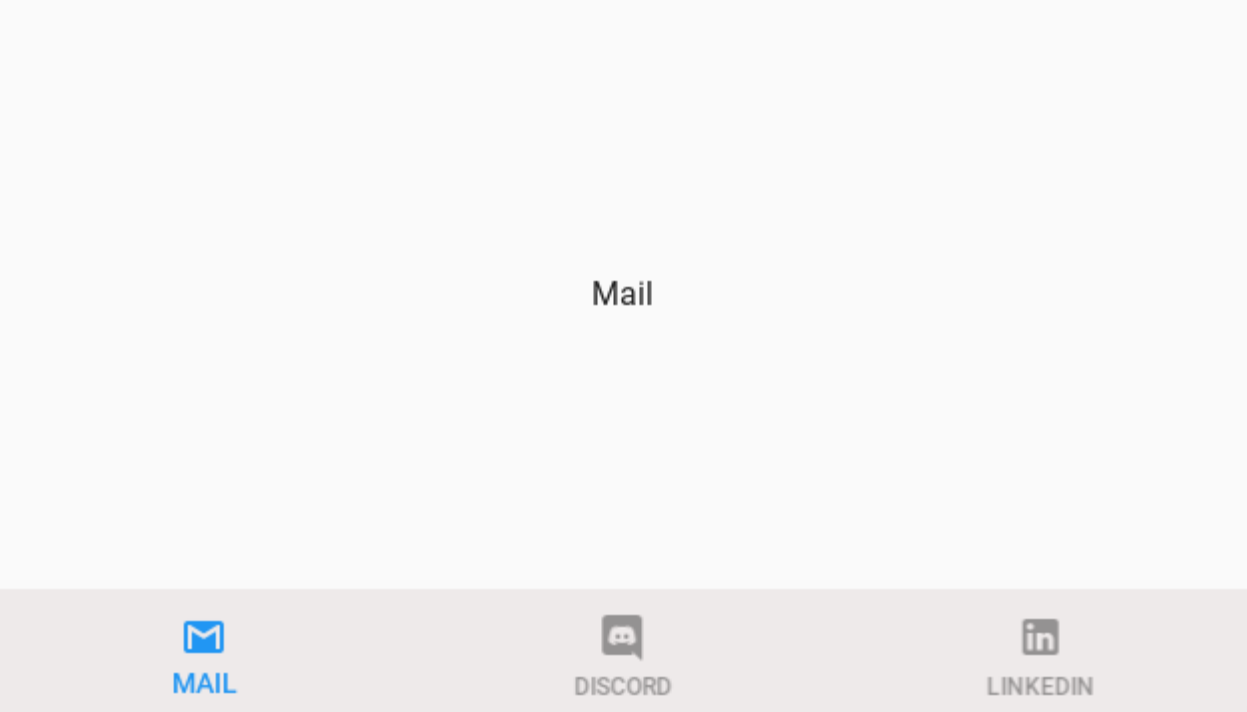
```
from kivymd.app import MDApp
from kivymd.uix.bottomnavigation import MDBottomNavigation, MDBottomNavigationItem
from kivymd.uix.label import MDLabel
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        screen = MDScreen()
        bottom_navigation = MDBottomNavigation(
            panel_color="#eeeaea",
            selected_color_background="#97ecf8",
            text_color_active="white",
        )

        data = {
            "screen 1": {"text": "Mail", "icon": "gmail"},
            "screen 2": {"text": "Discord", "icon": "discord"},
            "screen 3": {"text": "LinkedIN", "icon": "linkedin"},
        }
        for key in data.keys():
            text = data[key]["text"]
            navigation_item = MDBottomNavigationItem(
                name=key, text=text, icon=data[key]["icon"]
            )
            navigation_item.add_widget(MDLabel(text=text, halign="center"))
            bottom_navigation.add_widget(navigation_item)

        screen.add_widget(bottom_navigation)
        return screen


Example().run()
```



Take a look at the above code example. This is a very simple UI. But looking at this code, you will not be able to figure the widget tree and understand which UI this code implements. This is named imperative programming style, which is used in Kivy.

Now let's see how the same code is implemented using the KV language, which uses a declarative style of describing widget properties.

Declarative style with KV language

```
from kivy.lang import Builder

from kivymd.app import MDApp


class Test(MDApp):
    def build(self):
        return Builder.load_string(
            '''
MDScreen:

    MDBottomNavigation:
        panel_color: "#eeeaea"
        selected_color_background: "#97ecf8"
        text_color_active: "white"

        MDBottomNavigationItem:
            name: "screen 1"
            text: "Mail"
            icon: "gmail"
```

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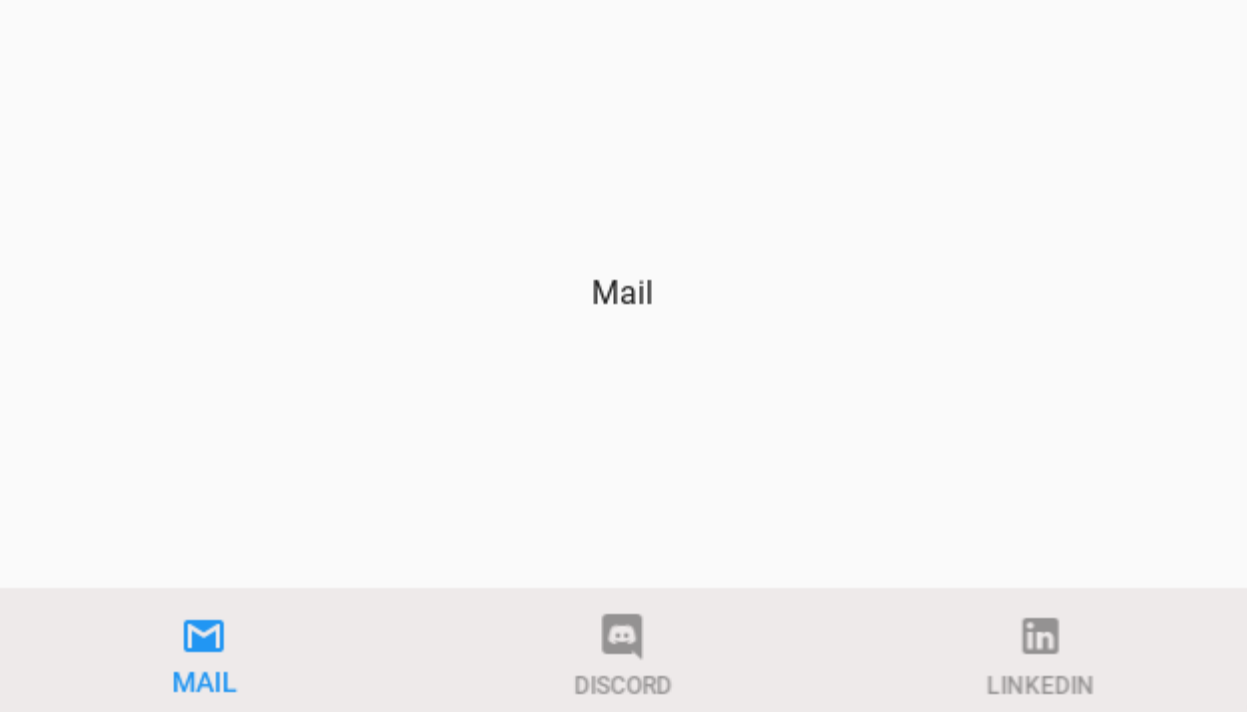
```
            MDLabel:
                text: "Mail"
                halign: "center"

        MDBottomNavigationItem:
            name: "screen 2"
            text: "Discord"
            icon: "discord"

            MDLabel:
                text: "Discord"
                halign: "center"

        MDBottomNavigationItem:
            name: "screen 3"
            text: "LinkedIN"
            icon: "linkedin"

            MDLabel:
                text: "LinkedIN"
                halign: "center"
'''
        )


Test().run()
```



Looking at this code, we can now clearly see the widget tree and their properties. We can quickly navigate through the components of the screen and quickly change/add new properties/widgets. This is named declarative UI creation style.

But now the KivyMD library allows you to write Python code in a declarative style. Just as it is implemented in Flutter/Jetpack Compose/SwiftUI.

Declarative style with Python code

```
from kivymd.app import MDApp
from kivymd.uix.bottomnavigation import MDBottomNavigation, MDBottomNavigationItem
from kivymd.uix.label import MDLabel
from kivymd.uix.screen import MDScreen


class Example(MDApp):
    def build(self):
        return (
            MDScreen(
                MDBottomNavigation(
                    MDBottomNavigationItem(
                        MDLabel(
                            text="Mail",
                            halign="center",
                        ),
                        name="screen 1",
                        text="Mail",
                        icon="gmail",
                    ),
                    MDBottomNavigationItem(
                        MDLabel(
                            text="Discord",
                            halign="center",
                        ),
                        name="screen 2",
                        text="Discord",
                        icon="discord",
                    ),
                    MDBottomNavigationItem(
                        MDLabel(
                            text="LinkedIN",
                            halign="center",
                        ),
                        name="screen 3",
                        text="LinkedIN",
                        icon="linkedin",
                    ),
                    panel_color="#eeeaea",
                    selected_color_background="#97ecf8",
                    text_color_active="white",
                )
            )
        )


Example().run()
```

Note: The KivyMD library does not support creating Kivy widgets in Python code in a declarative style.

But you can still use the declarative style of creating Kivy widgets in Python code. To do this, you need to create a new class that will be inherited from the Kivy widget and the *DeclarativeBehavior* class:

```
from kivy.uix.boxlayout import BoxLayout
from kivy.uix.button import Button

from kivymd.app import MDApp
from kivymd.uix.behaviors import DeclarativeBehavior


class DeclarativeStyleBoxLayout(DeclarativeBehavior, BoxLayout):
    pass


class Example(MDApp):
    def build(self):
        return (
            DeclarativeStyleBoxLayout(
                Button(),
                Button(),
                orientation="vertical",
            )
        )


Example().run()
```

Get objects by identifiers

In the declarative style in Python code, the ids parameter of the specified widget will return only the id of the child widget/container, ignoring other ids. Therefore, to get objects by identifiers in declarative style in Python code, you must specify all the container ids in which the widget is nested until you get to the desired id:

```
from kivymd.app import MDApp
from kivymd.uix.boxlayout import MDBoxLayout
from kivymd.uix.button import MDRaisedButton
from kivymd.uix.floatlayout import MDFloatLayout


class Example(MDApp):
    def build(self):
        return (
            MDBoxLayout(
                MDFloatLayout(
                    MDRaisedButton(
                        id="button_1",
                        text="Button 1",
                        pos_hint={"center_x": 0.5, "center_y": 0.5},
                    ),
```

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```
                    id="box_container_1",
                ),
                MDBoxLayout(
                    MDFloatLayout(
                        MDRaisedButton(
                            id="button_2",
                            text="Button 2",
                            pos_hint={"center_x": 0.5, "center_y": 0.5},
                        ),
                        id="float_container",
                    ),
                    id="box_container_2",
                )
            )
        )

    def on_start(self):
        # {
        #     'box_container_1': <kivymd.uix.floatlayout.MDFloatLayout>,
        #     'box_container_2': <kivymd.uix.boxlayout.MDBoxLayout object>
        # }
        print(self.root.ids)

        # <kivymd.uix.button.button.MDRaisedButton>
        print(self.root.ids.box_container_2.ids.float_container.ids.button_2)


Example().run()
```

Yes, this is not a very good solution, but I think it will be fixed soon.

Warning: Declarative programming style in Python code in the KivyMD library is an experimental feature. Therefore, if you receive errors, do not hesitate to create new issue in the KivyMD repository.

API - kivymd.uix.behaviors.declarative_behavior

class kivymd.uix.behaviors.declarative_behavior.**DeclarativeBehavior**(**args*, ***kwargs*)

Implements the creation and addition of child widgets as declarative programming style.

id

Widget ID.

id is an StringProperty and defaults to ‘’.

2.5.7 Background Color

Note: The following classes are intended for in-house use of the library.

API - kivymd.uix.behaviors.backgroundcolor_behavior

class kivymd.uix.behaviors.backgroundcolor_behavior.**BackgroundColorBehavior**(***kwarg*)

background

Background image path.

background is a StringProperty and defaults to *None*.

radius

Canvas radius.

```
# Top left corner slice.
MDBoxLayout:
    md_bg_color: app.theme_cls.primary_color
    radius: [25, 0, 0, 0]
```

radius is an VariableListProperty and defaults to *[0, 0, 0, 0]*.

md_bg_color

The background color of the widget (Widget) that will be inherited from the *BackgroundColorBehavior* class.

For example:

```
Widget:
    canvas:
        Color:
            rgba: 0, 1, 1, 1
        Rectangle:
            size: self.size
            pos: self.pos
```

similar to code:

```
<MyWidget@BackgroundColorBehavior>
    md_bg_color: 0, 1, 1, 1
```

md_bg_color is an ColorProperty and defaults to *[1, 1, 1, 0]*.

line_color

If a custom value is specified for the *line_color parameter*, the border of the specified color will be used to border the widget:

```
MDBoxLayout:
    size_hint: .5, .2
    md_bg_color: 0, 1, 1, .5
```

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```
    line_color: 0, 0, 1, 1
    radius: [24, ]
```

New in version 0.104.2.

line_color is an ColorProperty and defaults to *[0, 0, 0, 0]*.

line_width

Border of the specified width will be used to border the widget.

New in version 1.0.0.

line_width is an NumericProperty and defaults to *1*.

angle

background_origin

on_md_bg_color(*self*, *instance_md_widget*, *color: Union[list, str]*)

update_background_origin(*self*, *instance_md_widget*, *pos: List[float]*)

class kivymd.uix.behaviors.backgroundcolor_behavior.**SpecificBackgroundColorBehavior**(***kwargs*)

background_palette

See *kivymd.color_definitions.palette*.

background_palette is an OptionProperty and defaults to *'Primary'*.

background_hue

See *kivymd.color_definitions.hue*.

background_hue is an OptionProperty and defaults to *'500'*.

specific_text_color

specific_text_color is an ColorProperty and defaults to *[0, 0, 0, 0.87]*.

specific_secondary_text_color

specific_secondary_text_color`is an :class:`~kivy.properties.ColorProperty and defaults to *[0, 0, 0, 0.87]*.

2.5.8 Ripple

Classes implements a circular and rectangular ripple effects.

To create a widget with ircular ripple effect, you must create a new class that inherits from the *CircularRippleBehavior* class.

For example, let's create an image button with a circular ripple effect:

```
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior
from kivy.uix.image import Image
```

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```
from kivymd.app import MDApp
from kivymd.uix.behaviors import CircularRippleBehavior

KV = '''
MDScreen:

    CircularRippleButton:
        source: "data/logo/kivy-icon-256.png"
        size_hint: None, None
        size: "250dp", "250dp"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class CircularRippleButton(CircularRippleBehavior, ButtonBehavior, Image):
    def __init__(self, **kwargs):
        self.ripple_scale = 0.85
        super().__init__(**kwargs)


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

To create a widget with rectangular ripple effect, you must create a new class that inherits from the *RectangularRippleBehavior* class:

```
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import RectangularRippleBehavior, BackgroundColorBehavior

KV = '''
MDScreen:

    RectangularRippleButton:
        size_hint: None, None
        size: "250dp", "50dp"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


class RectangularRippleButton(
    RectangularRippleBehavior, ButtonBehavior, BackgroundColorBehavior
):
    md_bg_color = [0, 0, 1, 1]
```

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```
class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

API - kivymd.uix.behaviors.ripple_behavior

class kivymd.uix.behaviors.ripple_behavior.**CommonRipple**

Base class for ripple effect.

ripple_rad_default

The starting value of the radius of the ripple effect.

```
CircularRippleButton:
    ripple_rad_default: 100
```

ripple_rad_default is an NumericProperty and defaults to *1*.

ripple_color

Ripple color in (r, g, b, a) format.

```
CircularRippleButton:
    ripple_color: app.theme_cls.primary_color
```

ripple_color is an ColorProperty and defaults to *None*.

ripple_alpha

Alpha channel values for ripple effect.

```
CircularRippleButton:
    ripple_alpha: .9
    ripple_color: app.theme_cls.primary_color
```

ripple_alpha is an NumericProperty and defaults to *0.5*.

ripple_scale

Ripple effect scale.

```
CircularRippleButton:
    ripple_scale: .5
```

```
CircularRippleButton:
    ripple_scale: 1
```

ripple_scale is an NumericProperty and defaults to *None*.

ripple_duration_in_fast

Ripple duration when touching to widget.

```
CircularRippleButton:
    ripple_duration_in_fast: .1
```

ripple_duration_in_fast is an NumericProperty and defaults to *0.3*.

ripple_duration_in_slow

Ripple duration when long touching to widget.

```
CircularRippleButton:
    ripple_duration_in_slow: 5
```

ripple_duration_in_slow is an NumericProperty and defaults to *2*.

ripple_duration_out

The duration of the disappearance of the wave effect.

```
CircularRippleButton:
    ripple_duration_out: 5
```

ripple_duration_out is an NumericProperty and defaults to *0.3*.

ripple_canvas_after

The ripple effect is drawn above/below the content.

New in version 1.0.0.

```
MDIconButton:
    ripple_canvas_after: True
    icon: "android"
    ripple_alpha: .8
    ripple_color: app.theme_cls.primary_color
    icon_size: "100sp"
```

```
MDIconButton:
    ripple_canvas_after: False
    icon: "android"
    ripple_alpha: .8
    ripple_color: app.theme_cls.primary_color
    icon_size: "100sp"
```

ripple_canvas_after is an BooleanProperty and defaults to *True*.

ripple_func_in

Type of animation for ripple in effect.

ripple_func_in is an StringProperty and defaults to *'out_quad'*.

ripple_func_out

Type of animation for ripple out effect.

ripple_func_out is an StringProperty and defaults to *'ripple_func_out'*.

abstract lay_canvas_instructions(*self*)

start_ripple(*self*)

finish_ripple(*self*)

fade_out(*self*, **args*)

anim_complete(*self*, **args*)

on_touch_down(*self*, *touch*)

call_ripple_animation_methods(*self*, *touch*)

on_touch_move(*self*, *touch*, **args*)

on_touch_up(*self*, *touch*)

class kivymd.uix.behaviors.ripple_behavior.**RectangularRippleBehavior**

Class implements a rectangular ripple effect.

ripple_scale

See *ripple_scale*.

ripple_scale is an NumericProperty and defaults to *2.75*.

lay_canvas_instructions(*self*)

class kivymd.uix.behaviors.ripple_behavior.**CircularRippleBehavior**

Class implements a circular ripple effect.

ripple_scale

See *ripple_scale*.

ripple_scale is an NumericProperty and defaults to *1*.

lay_canvas_instructions(*self*)

2.5.9 Magic

Magical effects for buttons.

Warning: Magic effects do not work correctly with *KivyMD* buttons!

To apply magic effects, you must create a new class that is inherited from the widget to which you apply the effect and from the *MagicBehavior* class.

In *KV file*:

```
<MagicButton@MagicBehavior+MDRectangleFlatButton>
```

In *python file*:

```
class MagicButton(MagicBehavior, MDRectangleFlatButton):
    pass
```

The MagicBehavior class provides five effects:

- *MagicBehavior.wobble*
- *MagicBehavior.grow*
- *MagicBehavior.shake*
- *MagicBehavior.twist*
- *MagicBehavior.shrink*

Example:

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
<MagicButton@MagicBehavior+MDRectangleFlatButton>


MDFloatLayout:

    MagicButton:
        text: "WOBBLE EFFECT"
        on_release: self.wobble()
        pos_hint: {"center_x": .5, "center_y": .3}

    MagicButton:
        text: "GROW EFFECT"
        on_release: self.grow()
        pos_hint: {"center_x": .5, "center_y": .4}
```

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```
    MagicButton:
        text: "SHAKE EFFECT"
        on_release: self.shake()
        pos_hint: {"center_x": .5, "center_y": .5}

    MagicButton:
        text: "TWIST EFFECT"
        on_release: self.twist()
        pos_hint: {"center_x": .5, "center_y": .6}

    MagicButton:
        text: "SHRINK EFFECT"
        on_release: self.shrink()
        pos_hint: {"center_x": .5, "center_y": .7}
'''


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

API - kivymd.uix.behaviors.magic_behavior

class kivymd.uix.behaviors.magic_behavior.**MagicBehavior**

magic_speed

Animation playback speed.

magic_speed is a NumericProperty and defaults to *1*.

grow(*self*)

Grow effect animation.

shake(*self*)

Shake effect animation.

wobble(*self*)

Wobble effect animation.

twist(*self*)

Twist effect animation.

shrink(*self*)

Shrink effect animation.

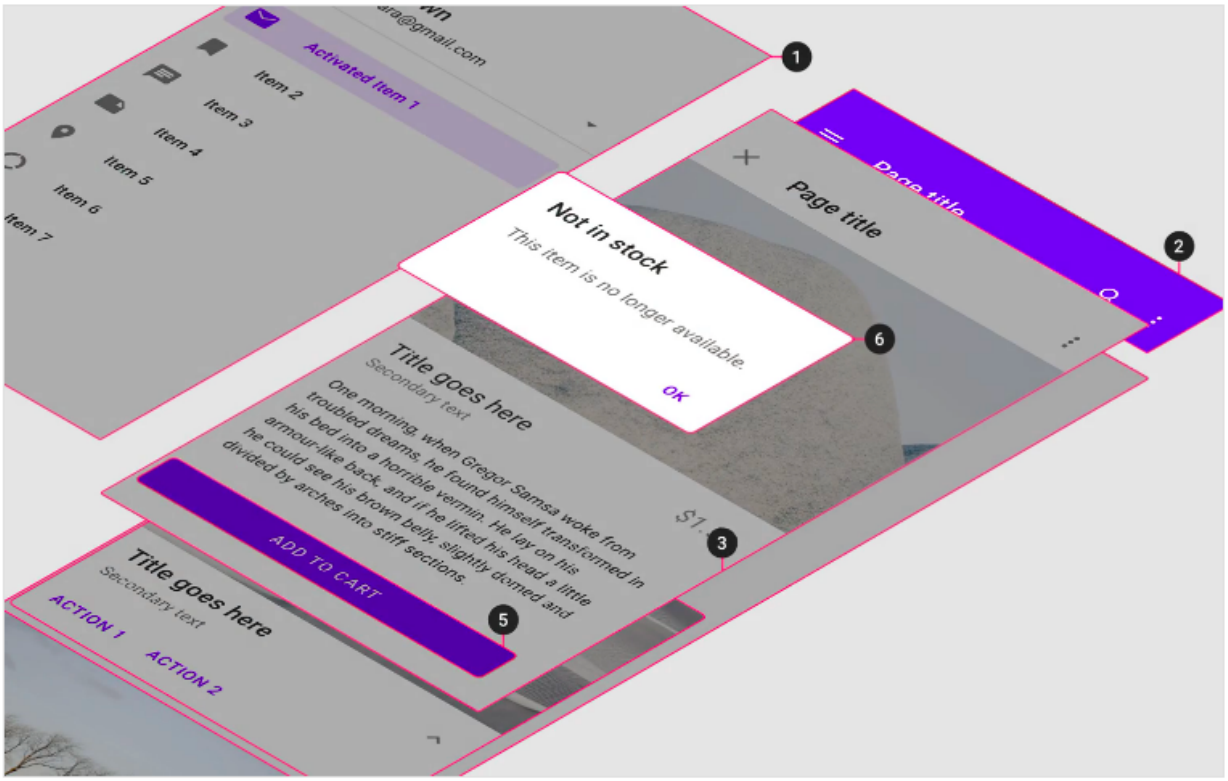
on_touch_up(*self*, **args*)

2.5.10 Elevation

See also:

Material Design spec, Elevation

Elevation is the relative distance between two surfaces along the z-axis.



To create an elevation effect, use the *CommonElevationBehavior* class. For example, let's create a button with a rectangular elevation effect:

Declarative style with KV

```
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import (
    RectangularRippleBehavior,
    BackgroundColorBehavior,
    CommonElevationBehavior,
)

KV = '''
<RectangularElevationButton>
    size_hint: None, None
```

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```
    size: "250dp", "50dp"


MDScreen:

    # With elevation effect
    RectangularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .6}
        elevation: 4.5
        shadow_offset: 0, 6

    # Without elevation effect
    RectangularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .4}
'''


class RectangularElevationButton(
    RectangularRippleBehavior,
    CommonElevationBehavior,
    ButtonBehavior,
    BackgroundColorBehavior,
):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.md_bg_color = "red"


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import (
    RectangularRippleBehavior,
    BackgroundColorBehavior,
    CommonElevationBehavior,
)
from kivymd.uix.screen import MDScreen


class RectangularElevationButton(
    RectangularRippleBehavior,
    CommonElevationBehavior,
    ButtonBehavior,
```

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```
    BackgroundColorBehavior,
):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.md_bg_color = "red"
        self.size_hint = (None, None)
        self.size = ("250dp", "50dp")


class Example(MDApp):
    def build(self):
        return (
            MDScreen(
                RectangularElevationButton(
                    pos_hint={"center_x": .5, "center_y": .6},
                    elevation=4.5,
                    shadow_offset=(0, 6),
                ),
                RectangularElevationButton(
                    pos_hint={"center_x": .5, "center_y": .4},
                ),
            )
        )


Example().run()
```

Warning: If before the KivyMD 1.1.0 library version you used the elevation property with an average value of *12* for the shadow, then starting with the KivyMD 1.1.0 library version, the average value of the elevation property will be somewhere *4*.

Similarly, create a circular button:

Declarative style with KV

```
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior
```

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```
from kivymd.app import MDApp
from kivymd.uix.behaviors import CircularRippleBehavior, CommonElevationBehavior
from kivymd.uix.floatlayout import MDFloatLayout

KV = '''
<CircularElevationButton>
    size_hint: None, None
    size: "100dp", "100dp"
    radius: self.size[0] / 2
    shadow_radius: self.radius[0]
    md_bg_color: "red"

    MDIcon:
        icon: "hand-heart"
        halign: "center"
        valign: "center"
        pos_hint: {"center_x": .5, "center_y": .5}
        size: root.size
        pos: root.pos
        font_size: root.size[0] * .6
        theme_text_color: "Custom"
        text_color: "white"


MDScreen:

    CircularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .6}
        elevation: 4
'''


class CircularElevationButton(
    CommonElevationBehavior,
    CircularRippleBehavior,
    ButtonBehavior,
    MDFloatLayout,
):
    pass


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivy.metrics import dp
from kivy.uix.behaviors import ButtonBehavior
```

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```
from kivymd.app import MDApp
from kivymd.uix.behaviors import CircularRippleBehavior, CommonElevationBehavior
from kivymd.uix.floatlayout import MDFloatLayout
from kivymd.uix.label import MDIcon
from kivymd.uix.screen import MDScreen


class CircularElevationButton(
    CommonElevationBehavior,
    CircularRippleBehavior,
    ButtonBehavior,
    MDFloatLayout,
):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.size_hint = (None, None)
        self.size = (dp(100), dp(100))
        self.radius = dp(100) / 2
        self.shadow_radius = dp(100) / 2
        self.md_bg_color = "red"
        self.add_widget(
            MDIcon(
                icon="hand-heart",
                halign="center",
                valign="center",
                pos_hint={"center_x": .5, "center_y": .5},
                size=self.size,
                theme_text_color="Custom",
                text_color="white",
                font_size=self.size[0] * 0.6,
            )
        )


class Example(MDApp):
    def build(self):
        return (
            MDScreen(
                CircularElevationButton(
                    pos_hint={"center_x": .5, "center_y": .5},
                    elevation=4,
                )
            )
        )


Example().run()
```

Animating the elevation

Declarative style with KV

```
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import CommonElevationBehavior, RectangularRippleBehavior
from kivymd.uix.widget import MDWidget

KV = '''
MDScreen:

    ElevatedWidget:
        pos_hint: {'center_x': .5, 'center_y': .5}
        size_hint: None, None
        size: 100, 100
        md_bg_color: 0, 0, 1, 1
        elevation: 4
        radius: 18
'''


class ElevatedWidget(
    CommonElevationBehavior,
    RectangularRippleBehavior,
    ButtonBehavior,
    MDWidget,
):
    _elev = 0  # previous elevation value

    def on_press(self, *args):
        if not self._elev:
            self._elev = self.elevation
        Animation(elevation=self.elevation + 2, d=0.4).start(self)

    def on_release(self, *args):
```

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```
        Animation.cancel_all(self, "elevation")
        Animation(elevation=self._elev, d=0.1).start(self)


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

Declarative python style

```
from kivy.animation import Animation
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import CommonElevationBehavior, RectangularRippleBehavior
from kivymd.uix.screen import MDScreen
from kivymd.uix.widget import MDWidget


class ElevatedWidget(
    CommonElevationBehavior,
    RectangularRippleBehavior,
    ButtonBehavior,
    MDWidget,
):
    _elev = 0  # previous elevation value

    def on_press(self, *args):
        if not self._elev:
            self._elev = self.elevation
        Animation(elevation=self.elevation + 2, d=0.4).start(self)

    def on_release(self, *args):
        Animation.cancel_all(self, "elevation")
        Animation(elevation=self._elev, d=0.1).start(self)


class Example(MDApp):
    def build(self):
        return (
            MDScreen(
                ElevatedWidget(
                    pos_hint={'center_x': .5, 'center_y': .5},
                    size_hint=(None, None),
                    size=(100, 100),
                    md_bg_color="blue",
                    elevation=4,
                    radius=18,
                )
```

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```
            )
        )


Example().run()
```

API - kivymd.uix.behaviors.elevation

class kivymd.uix.behaviors.elevation.**CommonElevationBehavior**(***kwargs*)

Common base class for rectangular and circular elevation behavior.

elevation

Elevation of the widget.

elevation is an BoundedNumericProperty and defaults to *0*.

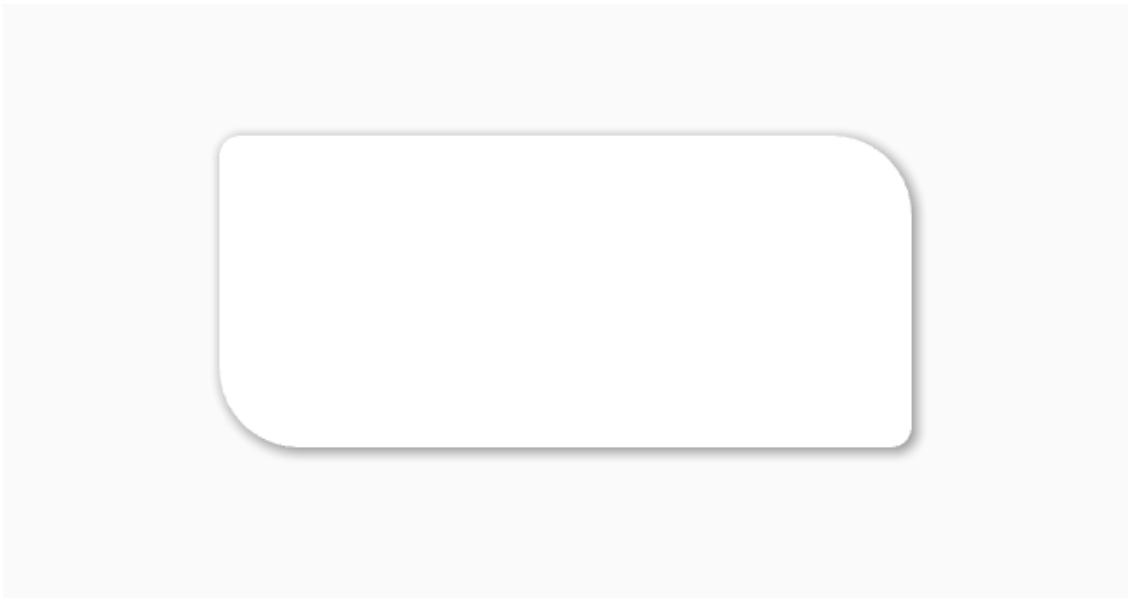
shadow_radius

Radius of the corners of the shadow.

New in version 1.1.0.

You don't have to use this parameter. The radius of the elevation effect is calculated automatically one way or another based on the radius of the parent widget, for example:

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
MDScreen:

    MDCard:
        radius: 12, 46, 12, 46
        size_hint: .5, .3
        pos_hint: {"center_x": .5, "center_y": .5}
        elevation: 4
        shadow_softness: 8
        shadow_offset: (-2, 2)
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)


Test().run()
```



Note: However, if you want to use this parameter, remember that the angle values for the radius of the Kivy widgets and the radius for the shader are different.

```
shadow_radius = ['top-right', 'bot-right', 'top-left', 'bot-left']
kivy_radius = ['top-left', 'top-right', 'bottom-right', 'bottom-left']
```

shadow_radius is an VariableListProperty and defaults to *[0, 0, 0, 0]*.

shadow_softness

Softness of the shadow.

New in version 1.1.0.

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors import BackgroundColorBehavior,␣
↪CommonElevationBehavior

KV = '''
<RectangularElevationButton>
    size_hint: None, None
    size: "250dp", "50dp"


MDScreen:

    RectangularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .6}
        elevation: 6
        shadow_softness: 6

    RectangularElevationButton:
```

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```
        pos_hint: {"center_x": .5, "center_y": .4}
        elevation: 6
        shadow_softness: 12
'''


class RectangularElevationButton(CommonElevationBehavior,␣
↪BackgroundColorBehavior):
    md_bg_color = [0, 0, 1, 1]


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)


Example().run()
```

shadow_softness is an NumericProperty and defaults to *12*.

shadow_softness_size

The value of the softness of the shadow.

New in version 1.1.0.

Since we can't properly adjust the *shadow_softness* value and the *elevation* value, we added the *shadow_softness_size* attribute to control the shadow size.

```
MDCard:
    elevation: 4
    shadow_radius: 8
```

But if we need to increase the elevation value:

```
MDCard:
    elevation: 8
    shadow_radius: 16
```

... we will get a sharp dark shadow:

To soften the shadow, we need to use the *shadow_softness* value:

```
MDCard:
    elevation: 8
    shadow_radius: 16
    shadow_softness: 24
```

But this is still not the result we expected. But it's still not the result we expected. And if we keep increasing the value of *shadow_softness*, then we won't be able to change the result much:

We need to use the *shadow_softness_size* value if we have increased the *elevation* value and want to get the smoothness of the shadow:

```
MDCard:
    elevation: 8
    shadow_radius: 24
    shadow_softness: 56
    shadow_softness_size: 3.5
```

shadow_softness_size is an NumericProperty and defaults to *2*.

shadow_offset

Offset of the shadow.

New in version 1.1.0.

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors import BackgroundColorBehavior,␣
↪CommonElevationBehavior

KV = '''
<RectangularElevationButton>
    size_hint: None, None
    size: "100dp", "100dp"


MDScreen:

    RectangularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .5}
        elevation: 6
        shadow_radius: 18
        shadow_softness: 24
        shadow_offset: 12, 12
'''


class RectangularElevationButton(CommonElevationBehavior,␣
↪BackgroundColorBehavior):
    md_bg_color = [0, 0, 1, 1]


class Example(MDApp):
    def build(self):
        return Builder.load_string(KV)
```

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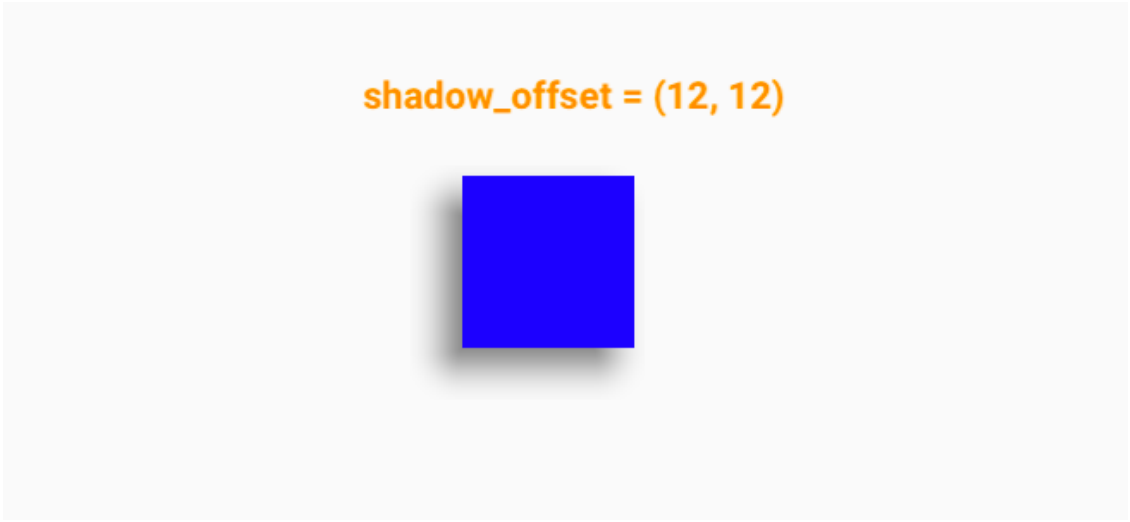
```
Example().run()
```




```
RectangularElevationButton:
    shadow_offset: -12, 12
```


```
RectangularElevationButton:
    shadow_offset: -12, -12
```


```
RectangularElevationButton:
    shadow_offset: 12, -12
```

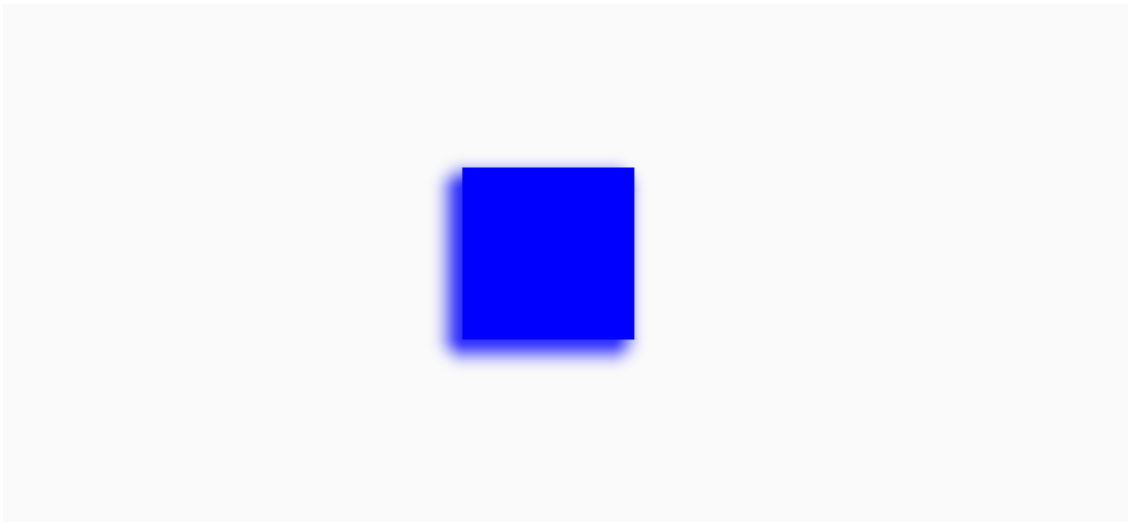
shadow_offset is an ListProperty and defaults to *(0, 2)*.

shadow_color

Offset of the shadow.

New in version 1.1.0.

```
RectangularElevationButton:
    shadow_color: 0, 0, 1, .8
```



shadow_color is an ColorProperty and defaults to *[0.4, 0.4, 0.4, 0.8]*.

widget_pos

get_shader_string(*self*)

set_shader_string(*self*, **args*)

update_resolution(*self*)

on_shadow_color(*self*, *instance*, *value*)

on_shadow_radius(*self*, *instance*, *value*)

on_shadow_softness(*self*, *instance*, *value*)

on_elevation(*self*, *instance*, *value*)

on_shadow_offset(*self*, *instance*, *value*)

on_pos(*self*, **args*)

on_size(*self*, **args*)

on_opacity(*self*, *instance*, *value: int | float*)

Adjusts the transparency of the shadow according to the transparency of the widget.

on_radius(*self*, *instance*, *value*)

on_disabled(*self*, *instance*, *value*)

hide_elevation(*self*, *hide: bool*)

class kivymd.uix.behaviors.elevation.**RectangularElevationBehavior**(***kwargs*)

Deprecated since version 1.1.0.

Use *CommonElevationBehavior* class instead.

class kivymd.uix.behaviors.elevation.**CircularElevationBehavior**(***kwargs*)

Deprecated since version 1.1.0.

Use *CommonElevationBehavior* class instead.

class kivymd.uix.behaviors.elevation.**RoundedRectangularElevationBehavior**(***kwargs*)

Deprecated since version 1.1.0.

Use *CommonElevationBehavior* class instead.

class kivymd.uix.behaviors.elevation.**FakeRectangularElevationBehavior**(***kwargs*)

Deprecated since version 1.1.0.

Use *CommonElevationBehavior* class instead.

class kivymd.uix.behaviors.elevation.**FakeCircularElevationBehavior**(***kwargs*)

Deprecated since version 1.1.0.

Use *CommonElevationBehavior* class instead.

2.5.11 Rotate

New in version 1.1.0.

Base class for controlling the rotate of the widget.

Note: See kivy.graphics.Rotate for more information.

Kivy

```
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.app import App
from kivy.properties import NumericProperty
from kivy.uix.button import Button

KV = '''
Screen:

    RotateButton:
        size_hint: .5, .5
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.change_rotate(self)

        canvas.before:
            PushMatrix
            Rotate:
                angle: self.rotate_value_angle
                axis: 0, 0, 1
                origin: self.center
        canvas.after:
            PopMatrix
'''
```

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```
class RotateButton(Button):
    rotate_value_angle = NumericProperty(0)


class Test(App):
    def build(self):
        return Builder.load_string(KV)

    def change_rotate(self, instance_button: Button) -> None:
        Animation(rotate_value_angle=45, d=0.3).start(instance_button)


Test().run()
```

KivyMD

```
from kivy.animation import Animation
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import RotateBehavior
from kivymd.uix.boxlayout import MDBoxLayout

KV = '''
MDScreen:

    RotateBox:
        size_hint: .5, .5
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.change_rotate(self)
        md_bg_color: "red"
'''


class RotateBox(ButtonBehavior, RotateBehavior, MDBoxLayout):
    pass


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def change_rotate(self, instance_button: RotateBox) -> None:
        Animation(rotate_value_angle=45, d=0.3).start(instance_button)


Test().run()
```

API - kivymd.uix.behaviors.rotate_behavior

class kivymd.uix.behaviors.rotate_behavior.**RotateBehavior**

Base class for controlling the rotate of the widget.

rotate_value_angle

Property for getting/setting the angle of the rotation.

rotate_value_angle is an NumericProperty and defaults to *0*.

rotate_value_axis

Property for getting/setting the axis of the rotation.

rotate_value_axis is an ListProperty and defaults to *(0, 0, 1)*.

2.5.12 Focus

Changing the background color when the mouse is on the widget.

To apply focus behavior, you must create a new class that is inherited from the widget to which you apply the behavior and from the *FocusBehavior* class.

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.behaviors import RectangularElevationBehavior, FocusBehavior
from kivymd.uix.boxlayout import MDBoxLayout

KV = '''
MDScreen:
    md_bg_color: 1, 1, 1, 1

    FocusWidget:
        size_hint: .5, .3
        pos_hint: {"center_x": .5, "center_y": .5}
        md_bg_color: app.theme_cls.bg_light

        MDLabel:
            text: "Label"
            theme_text_color: "Primary"
            pos_hint: {"center_y": .5}
            halign: "center"
'''


class FocusWidget(MDBoxLayout, RectangularElevationBehavior, FocusBehavior):
    pass
```

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```
class Test(MDApp):
    def build(self):
        self.theme_cls.theme_style = "Dark"
        return Builder.load_string(KV)


Test().run()
```

Color change at focus/defocus

```
FocusWidget:
    focus_color: 1, 0, 1, 1
    unfocus_color: 0, 0, 1, 1
```

API - kivymd.uix.behaviors.focus_behavior

class kivymd.uix.behaviors.focus_behavior.**FocusBehavior**(***kwargs*)

Events

on_enter
Called when mouse enters the bbox of the widget AND the widget is visible

on_leave
Called when the mouse exits the widget AND the widget is visible

focus_behavior
Using focus when hovering over a widget.

focus_behavior is a BooleanProperty and defaults to *False*.

focus_color
The color of the widget when the mouse enters the bbox of the widget.

focus_color is a ColorProperty and defaults to *None*.

unfocus_color
The color of the widget when the mouse exits the bbox widget.

unfocus_color is a ColorProperty and defaults to *None*.

on_enter(*self*)
Called when mouse enter the bbox of the widget.

on_leave(*self*)
Called when the mouse exit the widget.

2.6 Effects

2.6.1 StiffScrollEffect

An Effect to be used with ScrollView to prevent scrolling beyond the bounds, but politely.

A ScrollView constructed with StiffScrollEffect, eg. ScrollView(effect_cls=StiffScrollEffect), will get harder to scroll as you get nearer to its edges. You can scroll all the way to the edge if you want to, but it will take more finger-movement than usual.

Unlike DampedScrollEffect, it is impossible to overscroll with StiffScrollEffect. That means you cannot push the contents of the ScrollView far enough to see what's beneath them. This is appropriate if the ScrollView contains, eg., a background image, like a desktop wallpaper. Overscrolling may give the impression that there is some reason to overscroll, even if just to take a peek beneath, and that impression may be misleading.

StiffScrollEffect was written by Zachary Spector. His other stuff is at: https://github.com/LogicalDash/ He can be reached, and possibly hired, at: zacharyspector@gmail.com

API - kivymd.effects.stiffscroll.stiffscroll

class kivymd.effects.stiffscroll.stiffscroll.**StiffScrollEffect**(***kwargs*)

Kinetic effect class. See module documentation for more information.

drag_threshold

Minimum distance to travel before the movement is considered as a drag.

drag_threshold is an NumericProperty and defaults to *'20sp'*.

min

Minimum boundary to stop the scrolling at.

min is an NumericProperty and defaults to *0*.

max

Maximum boundary to stop the scrolling at.

max is an NumericProperty and defaults to *0*.

max_friction

How hard should it be to scroll, at the worst?

max_friction is an NumericProperty and defaults to *1*.

body

Proportion of the range in which you can scroll unimpeded.

body is an NumericProperty and defaults to *0.7*.

scroll

Computed value for scrolling

scroll is an NumericProperty and defaults to *0.0*.

transition_min

The AnimationTransition function to use when adjusting the friction near the minimum end of the effect.

transition_min is an ObjectProperty and defaults to kivy.animation.AnimationTransition.

transition_max

The AnimationTransition function to use when adjusting the friction near the maximum end of the effect.

transition_max is an ObjectProperty and defaults to kivy.animation.AnimationTransition.

target_widget

The widget to apply the effect to.

target_widget is an ObjectProperty and defaults to None.

displacement

The absolute distance moved in either direction.

displacement is an NumericProperty and defaults to *0*.

update_velocity(*self*, *dt*)

Before actually updating my velocity, meddle with `self.friction` to make it appropriate to where I'm at, currently.

on_value(*self*, **args*)

Prevent moving beyond my bounds, and update `self.scroll`

start(*self*, *val*, *t=None*)

Start movement with `self.friction` = `self.base_friction`

update(*self*, *val*, *t=None*)

Reduce the impact of whatever change has been made to me, in proportion with my current friction.

stop(*self*, *val*, *t=None*)

Work out whether I've been flung.

2.6.2 FadingEdgeEffect

New in version 1.0.0.

The *FadingEdgeEffect* class implements a fade effect for *KivyMD* widgets:

```
from kivy.lang import Builder
from kivy.uix.scrollview import ScrollView

from kivymd.app import MDApp
from kivymd.effects.fadingedge.fadingedge import FadingEdgeEffect
from kivymd.uix.list import OneLineListItem

KV = '''
MDScreen:

    FadeScrollView:
        fade_height: self.height / 2
        fade_color: root.md_bg_color

        MDList:
            id: container
'''
```

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```
class FadeScrollView(FadingEdgeEffect, ScrollView):
    pass


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
        for i in range(20):
            self.root.ids.container.add_widget(
                OneLineListItem(text=f"Single-line item {i}")
            )


Test().run()
```

Note: Use the same color value for the fade_color parameter as for the parent widget.

API - kivymd.effects.fadingedge.fadingedge

class kivymd.effects.fadingedge.fadingedge.**FadingEdgeEffect**(***kwargs*)

The class implements the fade effect.

New in version 1.0.0.

fade_color

Fade color.

fade_color is an ColorProperty and defaults to *None*.

fade_height

Fade height.

fade_height is an ColorProperty and defaults to *0*.

edge_top

Display fade edge top.

edge_top is an BooleanProperty and defaults to *True*.

edge_bottom

Display fade edge bottom.

edge_bottom is an BooleanProperty and defaults to *True*.

set_fade(*self*, *interval: Union[int, float]*)

Draws a bottom and top fade border on the canvas.

update_canvas(*self*, *instance_fadind_edge_effect*, *size: list[int, int]*, *rectangle_top: Rectangle*, *rectangle_bottom: Rectangle*, *index: int*)

Updates the position and size of the fade border on the canvas. Called when the application screen is resized.

2.6.3 RouletteScrollEffect

This is a subclass of `kivy.effects.ScrollEffect` that simulates the motion of a roulette, or a notched wheel (think Wheel of Fortune). It is primarily designed for emulating the effect of the iOS and android date pickers.

Usage

Here's an example of using *RouletteScrollEffect* for a `kivy.uix.scrollview.ScrollView`:

```
from kivy.uix.gridlayout import GridLayout
from kivy.uix.button import Button
from kivy.uix.scrollview import ScrollView

# Preparing a `GridLayout` inside a `ScrollView`.
layout = GridLayout(cols=1, padding=10, size_hint=(None, None), width=500)
layout.bind(minimum_height=layout.setter('height'))

for i in range(30):
    btn = Button(text=str(i), size=(480, 40), size_hint=(None, None))
    layout.add_widget(btn)

root = ScrollView(
    size_hint=(None, None),
    size=(500, 320),
    pos_hint={'center_x': .5, 'center_y': .5},
    do_scroll_x=False,
    )
root.add_widget(layout)

# Preparation complete. Now add the new scroll effect.
root.effect_y = RouletteScrollEffect(anchor=20, interval=40)
runTouchApp(root)
```

Here the `ScrollView` scrolls through a series of buttons with height 40. We then attached a *RouletteScrollEffect* with interval 40, corresponding to the button heights. This allows the scrolling to stop at the same offset no matter where it stops. The *RouletteScrollEffect.anchor* adjusts this offset.

Customizations

Other settings that can be played with include:

RouletteScrollEffect.pull_duration, *RouletteScrollEffect.coasting_alpha*, *RouletteScrollEffect.pull_back_velocity*, and *RouletteScrollEffect.terminal_velocity*.

See their module documentations for details.

RouletteScrollEffect has one event `on_coasted_to_stop` that is fired when the roulette stops, "making a selection". It can be listened to for handling or cleaning up choice making.

API - kivymd.effects.roulettescroll.roulettescroll

class kivymd.effects.roulettescroll.roulettescroll.**RouletteScrollEffect**(***kwargs*)

This is a subclass of `kivy.effects.ScrollEffect` that simulates the motion of a roulette, or a notched wheel (think Wheel of Fortune). It is primarily designed for emulating the effect of the iOS and android date pickers.

New in version 0.104.2.

drag_threshold

Overrides `ScrollEffect.drag_threshold` to abolish drag threshold.

> **Note:** If using this with a `Roulette` or other `Tickline` subclasses, what matters is `Tickline.drag_threshold`, which is passed to this attribute in the end.

drag_threshold is an NumericProperty and defaults to *0*.

min

max

interval

The interval of the values of the "roulette".

interval is an NumericProperty and defaults to *50*.

anchor

One of the valid stopping values.

anchor is an NumericProperty and defaults to *0*.

pull_duration

When movement slows around a stopping value, an animation is used to pull it toward the nearest value. *pull_duration* is the duration used for such an animation.

pull_duration is an NumericProperty and defaults to *0.2*.

coasting_alpha

When within *coasting_alpha* * *interval* of the next notch and velocity is below *terminal_velocity*, coasting begins and will end on the next notch.

coasting_alpha is an NumericProperty and defaults to *0.5*.

pull_back_velocity

The velocity below which the scroll value will be drawn to the *nearest* notch instead of the *next* notch in the direction travelled.

pull_back_velocity is an NumericProperty and defaults to *50sp*.

terminal_velocity

If velocity falls between *pull_back_velocity* and `terminal velocity` then the movement will start to coast to the next coming stopping value.

terminal_velocity is computed from a set formula given *interval*, *coasting_alpha*, *pull_duration*, and `friction`. Setting *terminal_velocity* has the effect of setting *pull_duration*.

get_term_vel(*self*)

set_term_vel(*self*, *val*)

start(*self*, *val*, *t=None*)

Start the movement.

Parameters

***val*: float or int**
Value of the movement

***t*: float, defaults to None**
Time when the movement happen. If no time is set, it will use time.time()

on_notch(*self*, **args*)

nearest_notch(*self*, **args*)

next_notch(*self*, **args*)

near_notch(*self*, *d=0.01*)

near_next_notch(*self*, *d=None*)

update_velocity(*self*, *dt*)

(internal) Update the velocity according to the frametime and friction.

on_coasted_to_stop(*self*, **args*)

This event fires when the roulette has stopped, *making a selection*.

2.7 Templates

2.7.1 RotateWidget

Deprecated since version 1.0.0.

Note: *RotateWidget* class has been deprecated. Please use RotateBahavior class instead.

API - kivymd.uix.templates.rotatewidget.rotatewidget

class kivymd.uix.templates.rotatewidget.rotatewidget.**RotateWidget**(***kwargs*)

Deprecated since version 1.1.0.

Use *RotateBehavior* class instead.

2.7.2 ScaleWidget

Deprecated since version 1.1.0.

Base class for controlling the scale of the widget.

Note: *ScaleWidget* class has been deprecated. Please use ScaleBehavior class instead.

API - kivymd.uix.templates.scalewidget.scalewidget

class kivymd.uix.templates.scalewidget.scalewidget.**ScaleWidget**(***kwargs*)

Deprecated since version 1.1.0.

Use *ScaleBehavior* class instead.

2.7.3 StencilWidget

Deprecated since version 1.1.0.

Base class for controlling the stencil instructions of the widget.

Note: *StencilWidget* class has been deprecated. Please use StencilBehavior class instead.

API - kivymd.uix.templates.stencilwidget.stencilwidget

class kivymd.uix.templates.stencilwidget.stencilwidget.**StencilWidget**(***kwargs*)

Deprecated since version 1.1.0.

Use `StencilBehavior` class instead.

2.8 Changelog

2.8.1 1.1.0

See on GitHub: tag 1.1.0 | compare 1.0.2/1.1.0

```
pip install kivymd==1.1.0
```

- Bug fixes and other minor improvements.
- Add closing_interval parameter to MDCardSwipe class.
- Add implementation of elevation behavior on shaders.
- Add validator property to MDTextField class: the type of text field for entering Email, time, etc. Automatically sets the type of the text field as *error* if the user input does not match any of the set validation types.

- Add theme_style_switch_animation property to animate the colors of the application when switching the color scheme of the application *('Dark/light')*.
- Add theme_style_switch_animation_duration property to duration of the animation of switching the color scheme of the application *("Dark/ light")*.
- Fix memory leak when dynamically adding and removing *KivyMD* widgets.
- Fix MDBottomNavigation slide transition direction.
- Add a default value for the icon attribute of MDApp class.
- Add new properties to MDFileManager class:
  - icon_selection_button - icon that will be used on the directory selection button;
  - background_color_selection_button - background color of the current directory/path selection button;
  - background_color_toolbar - background color of the file manager toolbar;
  - icon_color - color of the folder icon when the *preview* property is set to False;
- Add binds to MDFloatingActionButtonSpeedDial individual buttons;
- Add functionality for using multiple heroes.
- Add shadow_softness_size attribute (value of the softness of the shadow) to CommonElevationBehavior class.
- Optimize of MDDatePicker widget.

2.8.2 1.0.2

See on GitHub: tag 1.0.2 | compare 1.0.1/1.0.2

```
pip install kivymd==1.0.2
```

- Bug fixes and other minor improvements.
- Added a button to copy the code to the documentation.
- Added the feature to view code examples of documentation in imperative and declarative styles.
- Added console scripts for developer tools.

2.8.3 1.0.1

See on GitHub: tag 1.0.1 | compare 1.0.0/1.0.1

```
pip install kivymd==1.0.1
```

- Bug fixes and other minor improvements.
- Fix https://github.com/kivymd/KivyMD/issues/1305.

2.8.4 1.0.0

See on GitHub: tag 1.0.0 | compare 0.104.2/1.0.0

```
pip install kivymd==1.0.0
```

- Bug fixes and other minor improvements.
- Added *ImageLeftWidgetWithoutTouch*, *ImageRightWidgetWithoutTouch*, *IconRightWidgetWithoutTouch*, *IconLeftWidgetWithoutTouch* classes to *kivymd/uix/list.py* module;
- Added MDStepper component;
- Added a feature, show_disks to the MDFileManager class, that allows you to display the disks and folders contained in them;
- Added animation_tooltip_dismiss function and on_dismiss event to MDTooltip class;
- Added MDColorPicker component;
- Added new transition package - a set of classes for implementing transitions between application screens;
- Now all modules from the uix directory are packages;
- Type hints have been added to the source code of the KivyMD library;
- Added divider_color attribute to BaseListItem class;
- Added load_all_kv_files method to MDApp class;
- Added Templates package - base classes for controlling the scale, rotation of the widget, etc.;
- Added kivymd/tools/patterns package - scripts for creating projects with design patterns;
- *FitImage* widget move from *kivymd.utils* to *kivymd.uix.fitimage*;
- Added background_color_header, background_color_cell, background_color_selected_cell, added methods for adding/removing rows to a common table to MDDataTable widget;
- Added method for update rows to MDDataTable class;
- Delete *kivymd/utils/hot_reload_viewer.py*;
- Added kivymd/tools/hotreload package;
- Added *top* value to position parameter of MDDropdownMenu class;
- Added get_current_tab method to MDTabs class;
- Added the feature to automatically create a virtual environment when creating a project using the kivymd.tools.patterns.create_project tool;
- Added the feature to use the left_icon for MDTextField text fields;
- The design and behavior of the MDChip widget is close to the material design spec;
- Added the feature to set the thickness of the MDProgressBar class;
- Added localization support when creating a project using the create_project tool;
- Added support *Material Design v3*;
- Added support badge icon to MDIcon class;
- Added the feature to use a radius for the *BaseListItem* class;
- MDFloatingActionButton class configured according to M3 style;
- Ripple animation for round buttons customized to material design standards;

- Fix *Warning, too much iteration done before the next frame* for button classes;
- Added FadingEdgeEffect class
- Added MDSliverAppBar widget;
- Added the feature to use custom icons and font name for the MDBottomNavigation class;
- Rename *MDToolbarr* to MDTopAppBar class;
- The overflow behavior from the *ActionBar* class of the *Kivy* framework has been added to the *MDTopAppBar* class;
- Add *shift_right* and *shift_right* attributes to MDTooltip class;
- Fixed the size of the MDIconButton icon when changing icon_size on mobile devices;
- Add new MDSegmentedControl widget;
- Add *on_release/on_press* events to MDSmartTile class;
- Add *mipmap* property to FitImage class;
- Added the feature to use Hero animation;
- Added MDResponsiveLayout layout;
- Added add_view utility;
- Added the feature to create widgets in declarative programming style;

2.8.5 0.104.2

See on GitHub: tag 0.104.2 | compare 0.104.1/0.104.2

```
pip install kivymd==0.104.2
```

- Bug fixes and other minor improvements.
- Add *HotReloadViewer* class
- Added features to *Snackbar* class: use padding, set custom button color, elevation
- Add *MDToggleButton* class
- Change to *Material Design Baseline* dark theme spec
- Fix *ReferenceError: weakly-referenced object no longer exists* when start demo application
- Changed the default value for the *theme_text_color* parameter in the *BaseButton* class (to the value *"Primary"*)
- Fix setting of the *text_color_normal* and *text_color_active* parameters - earlier their values did not affect anything
- Fixed the length of the right edge of the border in relation to the hint text when the *MDTextField* is in the *rectangle* mode
- Add *get_tab_list* method to *MDTabs* class
- Add hover behavior when using *MDDropdownMenu* class
- Added the feature to use the *FitImage* component to download images from the network
- The *elevation* value for *RectangularElevationBehavior* and *CircularElevationBehavior* classes after pressing was always set to *2* - fixed
- Methods that implement the ripple effect have always been called twice - fixed

- The *SmartTile* class now uses the *FitImage* class to display images instead of the *Image* class
- Removed dependency on *PIL* library
- Add *hint_bg_color*, *hint_text_color*, *hint_radius* attributes to *MDSlider* class
- Delete *progressloader.py*
- Delete *context_menu.py*
- Added the feature to control the properties of menu items during creation in *MDDropdownMenu* class
- Added the feature to change the number of buttons after creating the *MDFloatingActionButtonSpeedDial* object
- Added the feature to set the *font_name* property for the *MDTabsLabel* class
- Add *MDCarousel* class
- Delete *kivymd/uix/useranimationcard.py*
- Added usage types for *MDNavigationDrawer* class: *modal/standard*
- Added stencil instructions to the *FitImage* class canvas
- Added *on_ref_press* and *switch_tab* methods to *MDTabs* class
- Added *on_release* method for menu item events instead of callback method to *MDDropdownMenu* class
- Added *palette* attribute - the feature to change the color of the *MDSpinner* when changing rotation cycles
- Added the feature to change the border color of the *MDRectangleFlatIconButton* class
- Add *MDRelativeLayout* class
- Added the feature to use radius for *MDNavigationDrawer* corners
- Removed *UserAnimationCard* class
- Added feature to set background color for *MDDialog* class
- Added *MDNavigationRail* component
- Added *MDSwiper* component
- Added ripple effect to *MDTabs* class
- Added the feature to set toast positions on an *Android* device
- Added of tooltips to *MDToolbar* icons
- Fixed *MDBottomAppBar* notch transparency
- Updated *MDDatePicker* class to material design specification.
- Updated *MDTimePicker* class to material design specification.
- Elevation behavior redesign to comply with the material design specification.
- Removed the *vendor* package.
- Added the feature to use a class instance (*Kivy* or *KivyMD* widget), which will be added to the *MDDropdownMenu* class menu header.

2.8.6 0.104.1

See on GitHub: tag 0.104.1 | compare 0.104.0/0.104.1

```
pip install kivymd==0.104.1
```

- Bug fixes and other minor improvements.
- Added *MDGridLayout* and *MDBoxLayout* classes
- Add *TouchBehavior* class
- Add *radius* parameter to *BackgroundColorBehavior* class
- Add *MDScreen* class
- Add *MDFloatLayout* class
- Added a *MDTextField* with *fill* mode
- Added a shadow, increased speed of opening, added the feature to control the position of the *MDDropdownMenu* class
- The *MDDropDownItem* class is now a regular element, such as a button
- Added the ability to use the texture of the icon on the right in any *MDTextField* classes
- Added the feature to use ripple and focus behavior in *MDCard* class
- *MDDialogs* class redesigned to meet material design requirements
- Added *MDDataTable* class

2.8.7 0.104.0

See on GitHub: tag 0.104.0 | compare 0.103.0/0.104.0

```
pip install kivymd==0.104.0
```

- Fixed bug in `kivymd.uix.expansionpanel.MDExpansionPanel` if, with the panel open, without closing it, try to open another panel, then the chevron of the first panel remained open.
- The `kivymd.uix.textfield.MDTextFieldRound` class is now directly inherited from the `kivy.uix.textinput.TextInput` class.
- Removed `kivymd.uix.textfield.MDTextFieldClear` class.
- `kivymd.uix.navigationdrawer.NavigationLayout` allowed to add `kivymd.uix.toolbar.MDToolbar` class.
- Added feature to control range of dates to be active in `kivymd.uix.picker.MDDatePicker` class.
- Updated `kivymd.uix.navigationdrawer.MDNavigationDrawer` realization.
- Removed `kivymd.uix.card.MDCardPost` class.
- Added `kivymd.uix.card.MDCardSwipe` class.
- Added *switch_tab* method for switching tabs to `kivymd.uix.bottomnavigation.MDBottomNavigation` class.
- Added feature to use panel type in the `kivymd.uix.expansionpanel.MDExpansionPanel` class: `kivymd.uix.expansionpanel.MDExpansionPanelOneLine`, `kivymd.uix.expansionpanel.MDExpansionPanelTwoLine` or `kivymd.uix.expansionpanel.MDExpansionPanelThreeLine`.

- Fixed panel opening animation in the `kivymd.uix.expansionpanel.MDExpansionPanel` class.
- Delete *kivymd.uix.managerswiper.py*
- Add *MDFloatingActionButtonSpeedDial* class
- Added the feature to create text on tabs using markup, thereby triggering the *on_ref_press* event in the *MDTabsLabel* class
- Added *color_indicator* attribute to set custom indicator color in the *MDTabs* class
- Added the feature to change the background color of menu items in the *BaseListItem* class
- Add *MDTapTargetView* class

2.8.8 0.103.0

See on GitHub: tag 0.103.0 | compare 0.102.1/0.103.0

```
pip install kivymd==0.103.0
```

- Fix *MDSwitch* size according to *material design* guides
- Fix MDSwitch's thumb position when size changes
- Fix position of the icon relative to the right edge of the *MDChip* class on mobile devices
- Updated *MDBottomAppBar* class.
- Updated *navigationdrawer.py*
- Added *on_tab_switch* method that is called when switching tabs (*MDTabs* class)
- Added *FpsMonitor* class
- Added *fitimage.py* - feature to automatically crop a *Kivy* image to fit your layout
- Added animation when changing the action button position mode in *MDBottomAppBar* class
- Delete *fanscreenmanager.py*
- Bug fixes and other minor improvements.

2.8.9 0.102.1

See on GitHub: tag 0.102.1 | compare 0.102.0/0.102.1

```
pip install kivymd==0.102.1
```

- Implemented the ability [Backdrop](https://material.io/components/backdrop)
- Added *MDApp* class. Now app object should be inherited from *kivymd.app.MDApp*.
- Added *MDRoundImageButton* class.
- Added *MDTooltip* class.
- Added *MDBanner* class.
- Added hook for *PyInstaller* (add *hookspath=[kivymd.hooks_path]*).
- Added examples of *spec* files for building [Kitchen Sink demo](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink).

- Added some features to *MDProgressLoader*.
- Added feature to preview the current value of *MDSlider*.
- Added feature to use custom screens for dialog in *MDBottomSheet* class.
- Removed *MDPopupScreen*.
- Added [*studies*](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink/studies) directory for demos in Material Design.
- Bug fixes and other minor improvements.

2.8.10 0.102.0

See on GitHub: tag 0.102.0 | compare 0.101.8/0.102.0

```
pip install kivymd==0.102.0
```

- Moved *kivymd.behaviors* to *kivymd.uix.behaviors*.
- Updated [Iconic font](https://github.com/Templarian/MaterialDesign-Webfont) (v4.5.95).
- Added *blank* icon to *icon_definitions*.
- Bug fixes and other minor improvements.

2.8.11 0.101.8

See on GitHub: tag 0.101.8 | compare 0.101.7/0.101.8

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.8.zip
```

- Added *uix* and *behaviors* folder to *package_data*.

2.8.12 0.101.7

See on GitHub: tag 0.101.7 | compare 0.101.6/0.101.7

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.7.zip
```

- Fixed colors and position of the buttons in the *Buttons* demo screen ([Kitchen Sink demo](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink)).
- Displaying percent of loading kv-files ([Kitchen Sink demo](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink)).

2.8.13 0.101.6

See on GitHub: tag 0.101.6 | compare 0.101.5/0.101.6

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.6.zip
```

- Fixed *NameError: name 'MDThemePicker' is not defined*.

2.8.14 0.101.5

See on GitHub: tag 0.101.5 | compare 0.101.4/0.101.5

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.5.zip
```

- Added feature to see source code of current example ([Kitchen Sink demo](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink)).
- Added names of authors of this fork ([Kitchen Sink demo](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink)).
- Bug fixes and other minor improvements.

2.8.15 0.101.4

See on GitHub: tag 0.101.4 | compare 0.101.3/0.101.4

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.4.zip
```

- Bug fixes and other minor improvements.

2.8.16 0.101.3

See on GitHub: tag 0.101.3 | compare 0.101.2/0.101.3

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.3.zip
```

- Bug fixes and other minor improvements.

2.8.17 0.101.2

See on GitHub: tag 0.101.2 | compare 0.101.1/0.101.2

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.2.zip
```

- Bug fixes and other minor improvements.

2.8.18 0.101.1

See on GitHub: tag 0.101.1 | compare 0.101.0/0.101.1

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.1.zip
```

- Bug fixes and other minor improvements.

2.8.19 0.101.0

See on GitHub: tag 0.101.0 | compare 0.100.2/0.101.0

```
pip install https://github.com/kivymd/KivyMD/archive/0.101.0.zip
```

- Added *MDContextMenu* class.
- Added *MDExpansionPanel* class.
- Removed *MDAccordion* and *MDAccordionListItem*. Use *MDExpansionPanel* instead.
- Added *HoverBehavior* class by [Olivier POYEN](https://gist.github.com/opqopq/15c707dc4cffc2b6455f).
- Added markup support for buttons.
- Added *duration* property to *Toast*.
- Added *TextInput*'s events and properties to *MDTextFieldRound*.
- Added feature to resize text field
- Added color property to *MDSeparator* class
- Added [tool](https://github.com/kivymd/KivyMD/blob/master/kivymd/tools/update_icons.py) for updating [Iconic font](https://github.com/Templarian/MaterialDesign-Webfont).
- Updated [Iconic font](https://github.com/Templarian/MaterialDesign-Webfont) (v4.3.95).
- Added new examples for [Kitchen Sink demo](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink).
- Bug fixes and other minor improvements.

2.8.20 0.100.2

See on GitHub: tag 0.100.2 | compare 0.100.1/0.100.2

```
pip install https://github.com/kivymd/KivyMD/archive/0.100.2.zip
```

- [Black](https://github.com/psf/black) formatting.

2.8.21 0.100.1

See on GitHub: tag 0.100.1 | compare 0.100.0/0.100.1

```
pip install https://github.com/kivymd/KivyMD/archive/0.100.1.zip
```

- *MDUserAnimationCard* uses *Image* instead of *AsyncImage*.

2.8.22 0.100.0

See on GitHub: tag 0.100.0 | compare 0.99.99/0.100.0

```
pip install https://github.com/kivymd/KivyMD/archive/0.100.0.zip
```

- Added feature to change color for *MDStackFloatingButtons*.

2.8.23 0.99.99.01

See on GitHub: tag 0.99.99.01 | compare 0.99.98/0.99.99.01

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.99.01.zip
```

- Fixed *MDNavigationDrawer.use_logo*.

2.8.24 0.99.99

See on GitHub: tag 0.99.99 | compare 0.99.99.01/0.99.99

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.99.zip
```

- Added *icon_color* property for *NavigationDrawerIconButton*.

2.8.25 0.99.98

See on GitHub: tag 0.99.98 | compare 0.99.97/0.99.98

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.98.zip
```

- Added *MDFillRoundFlatIconButton* class.

2.8.26 0.99.97

See on GitHub: tag 0.99.97 | compare 0.99.96/0.99.97

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.97.zip
```

- Fixed *Spinner* animation.

2.8.27 0.99.96

See on GitHub: tag 0.99.96 | compare 0.99.95/0.99.96

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.96.zip
```

- Added *asynckivy* module by [Nattōsai Mitō](https://github.com/gottadiveintopython/asynckivy).

2.8.28 0.99.95

See on GitHub: tag 0.99.95 | compare 0.99.94/0.99.95

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.95.zip
```

- Added function to create a round image in *kivymd/utils/cropimage.py* module.
- Added *MDCustomRoundIconButton* class.
- Added demo application [Account Page](https://www.youtube.com/watch?v=dfUOwqtYoYg) for [Kitchen Sink demo](https://github.com/kivymd/KivyMD/tree/master/demos/kitchen_sink).

2.8.29 0.99.94

See on GitHub: tag 0.99.94 | compare 0.99.93/0.99.94

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.94.zip
```

- Added *_no_ripple_effect* property to *BaseListItem* class.
- Added check to use *ripple effect* in *RectangularRippleBehavior* class.
- [Disabled](https://www.youtube.com/watch?v=P_9oSx0Pz_U) using *ripple effect* in *MDAccordionListItem* class.

2.8.30 0.99.93

See on GitHub: tag 0.99.93 | compare 0.99.92/0.99.93

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.93.zip
```

- Updated [Iconic font](https://github.com/Templarian/MaterialDesign-Webfont) (v3.6.95).

2.8.31 0.99.92

See on GitHub: tag 0.99.92 | compare 0.99.91/0.99.92

```
pip install https://github.com/kivymd/KivyMD/archive/0.99.92.zip
```

- Removed automatic change of text field length in *MDTextFieldRound* class.

2.9 About

2.9.1 License

Refer to LICENSE.

```
MIT License

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↪version 0.1.2
Copyright (c) 2022 KivyMD Team and other contributors - KivyMD library version 0.1.3 and␣
↪higher

Other libraries used in the project:

Copyright (c) 2010-2022 Kivy Team and other contributors
Copyright (c) 2022 Brian Knapp - Androidoast library
Copyright (c) 2022 LogicalDash - stiffscroll library
Copyright (c) 2022 Kivy Garden - tabs module
Copyright (c) 2022 Nattōsai Mitō - asynckivy module
Copyright (c) 2022 tshirtman - magic_behavior module
Copyright (c) 2022 shashi278 - taptargetview module
Copyright (c) 2022 Benedikt Zwölfer - fitimage module

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```
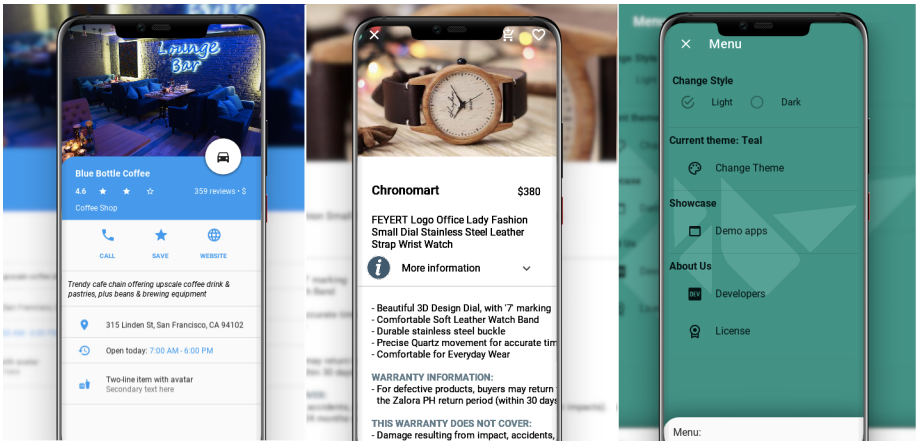

2.10 KivyMD



Is a collection of Material Design compliant widgets for use with, Kivy cross-platform graphical framework a framework for cross-platform, touch-enabled graphical applications. The project's goal is to approximate Google's Material Design spec as close as possible without sacrificing ease of use.

This library is a fork of the KivyMD project. We found the strength and brought this project to a new level.

If you wish to become a project developer (permission to create branches on the project without forking for easier collaboration), have at least one PR approved and ask for it. If you contribute regularly to the project the role may be offered to you without asking too.

2.10.1 API - `kivymd`

`kivymd.release = True`

`kivymd.path`

Path to KivyMD package directory.

`kivymd.fonts_path`

Path to fonts directory.

`kivymd.images_path`

Path to images directory.

`kivymd.uix_path`

Path to uix directory.

`kivymd.glsl_path`

Path to glsl directory.

2.10.2 Submodules

Register KivyMD widgets to use without import.

Register KivyMD widgets to use without import.

API - kivymd.factory_registers

kivymd.factory_registers.**register**

Material Resources

API - kivymd.material_resources

kivymd.material_resources.**dp**

kivymd.material_resources.**DEVICE_IOS**

kivymd.material_resources.**DEVICE_TYPE = desktop**

kivymd.material_resources.**MAX_NAV_DRAWER_WIDTH**

kivymd.material_resources.**TOUCH_TARGET_HEIGHT**

Theming Dynamic Text

Two implementations. The first is based on color brightness obtained from- https://www.w3.org/TR/AERT#color-contrast The second is based on relative luminance calculation for sRGB obtained from- https://www.w3.org/TR/2008/REC-WCAG20-20081211/#relativeluminancedef and contrast ratio calculation obtained from- https://www.w3.org/TR/2008/REC-WCAG20-20081211/#contrast-ratiodef

Preliminary testing suggests color brightness more closely matches the *Material Design spec* suggested text colors, but the alternative implementation is both newer and the current 'correct' recommendation, so is included here as an option.

API - kivymd.theming_dynamic_text

kivymd.theming_dynamic_text.**get_contrast_text_color**(*color*, *use_color_brightness=True*)

kivymd.theming_dynamic_text.**color**

Effects

API - kivymd.effects

Submodules

kivymd.effects.fadingedge

API - kivymd.effects.fadingedge

Submodules

kivymd.effects.roulettescroll

API - kivymd.effects.roulettescroll

Submodules

kivymd.effects.stiffscroll

API - kivymd.effects.stiffscroll

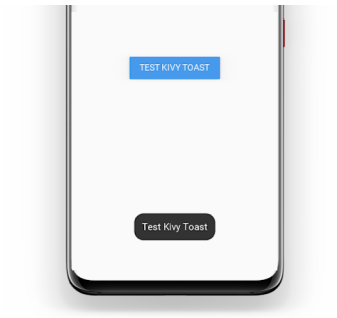
Submodules

kivymd.toast

API - kivymd.toast

Submodules

Toast for Android device



API - kivymd.toast.androidtoast

Submodules

AndroidToast

Native implementation of toast for Android devices.

```
# Will be automatically used native implementation of the toast
# if your application is running on an Android device.
# Otherwise, will be used toast implementation
# from the kivymd/toast/kivytoast package.

from kivy.lang import Builder
from kivy.uix.screenmanager import ScreenManager

from kivymd.toast import toast
from kivymd.app import MDApp

KV = '''
MDScreen:

     MDFlatButton:
         text: "My Toast"
         pos_hint:{"center_x": .5, "center_y": .5}
         on_press: app.show_toast()
'''


class Test(MDApp):
    def build(self):
        return Builder.load_string(KV)

    def show_toast(self):
        toast("Hello World", True, 80, 200, 0)


Test().run()
```

API - kivymd.toast.androidtoast.androidtoast

kivymd.toast.androidtoast.androidtoast.**toast**(*text*, *length_long=False*, *gravity=0*, *y=0*, *x=0*)

Displays a toast.

Parameters

- **length_long** – the amount of time (in seconds) that the toast is visible on the screen;
- **text** – text to be displayed in the toast;

- **short_duration** – duration of the toast, if *True* the toast will last 2.3s but if it is *False* the toast will last 3.9s;
- **gravity** – refers to the toast position, if it is 80 the toast will be shown below, if it is 40 the toast will be displayed above;
- **y** – refers to the vertical position of the toast;
- **x** – refers to the horizontal position of the toast;

Important: if only the text value is specified and the value of the *gravity*, *y*, *x* parameters is not specified, their values will be 0 which means that the toast will be shown in the center.

kivymd.toast.kivytoast

API - kivymd.toast.kivytoast

Submodules

KivyToast

Implementation of toasts for desktop.

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.toast import toast

KV = '''
MDScreen:

    MDTopAppBar:
        title: 'Test Toast'
        pos_hint: {'top': 1}
        left_action_items: [['menu', lambda x: x]]

    MDRaisedButton:
        text: 'TEST KIVY TOAST'
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_toast()
'''


class Test(MDApp):
    def show_toast(self):
        '''Displays a toast on the screen.'''

        toast('Test Kivy Toast')

    def build(self):
```

(continues on next page)

(continued from previous page)

```
        return Builder.load_string(KV)

Test().run()
```

API - kivymd.toast.kivytoast.kivytoast

class kivymd.toast.kivytoast.kivytoast.**Toast**(***kwargs*)

ModalView class. See module documentation for more information.

Events

***on_pre_open*:**
Fired before the ModalView is opened. When this event is fired ModalView is not yet added to window.

***on_open*:**
Fired when the ModalView is opened.

***on_pre_dismiss*:**
Fired before the ModalView is closed.

***on_dismiss*:**
Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

Changed in version 2.0.0: Added property 'overlay_color'.

Changed in version 2.1.0: Marked *attach_to* property as deprecated.

duration

The amount of time (in seconds) that the toast is visible on the screen.

duration is an NumericProperty and defaults to *2.5*.

label_check_texture_size(*self*, *instance_label: Label*, *texture_size: List[int]*)

Resizes the text if the text texture is larger than the screen size. Sets the size of the toast according to the texture size of the toast text.

toast(*self*, *text_toast: str*)

Displays a toast.

on_open(*self*)

Default open event handler.

fade_in(*self*)

Animation of opening toast on the screen.

fade_out(*self*, **args*)

Animation of hiding toast on the screen.

on_touch_down(*self*, *touch*)

touch down event handler.

kivymd.toast.kivytoast.kivytoast.**toast**(*text: str = ''*, *background: list = None*, *duration: float = 2.5*) → None

Displays a toast.

Parameters

- **text** – text to be displayed in the toast;
- **duration** – the amount of time (in seconds) that the toast is visible on the screen
- **background** – toast background color in rgba format;

kivymd.tools

API - kivymd.tools

Submodules

kivymd.tools.argument_parser

API - kivymd.tools.argument_parser

class kivymd.tools.argument_parser.**ArgumentParserWithHelp**(*prog=None*, *usage=None*, *description=None*, *epilog=None*, *parents=[]*, *formatter_class=HelpFormatter*, *prefix_chars='-'*, *fromfile_prefix_chars=None*, *argument_default=None*, *conflict_handler='error'*, *add_help=True*, *allow_abbrev=True*, *exit_on_error=True*)

Object for parsing command line strings into Python objects.

Keyword Arguments:

- **prog – The name of the program (default:**
  os.path.basename(sys.argv[0]))
- usage – A usage message (default: auto-generated from arguments)
- description – A description of what the program does
- epilog – Text following the argument descriptions
- parents – Parsers whose arguments should be copied into this one
- formatter_class – HelpFormatter class for printing help messages
- prefix_chars – Characters that prefix optional arguments
- **fromfile_prefix_chars – Characters that prefix files containing**
  additional arguments
- argument_default – The default value for all arguments
- conflict_handler – String indicating how to handle conflicts
- add_help – Add a -h/-help option

- allow_abbrev – Allow long options to be abbreviated unambiguously
- **exit_on_error – Determines whether or not ArgumentParser exits with** error info when an error occurs

parse_args(*self*, *args=None*, *namespace=None*)

error(*self*, *message*)

error(message: string)

Prints a usage message incorporating the message to stderr and exits.

If you override this in a subclass, it should not return – it should either exit or raise an exception.

format_help(*self*)

kivymd.tools.hotreload

API - kivymd.tools.hotreload

Submodules

HotReload

New in version 1.0.0.

Hot reload tool - is a fork of the project https://github.com/tito/kaki

Note: Since the project is not developing, we decided to include it in the KivvMD library and hope that the further development of the hot reload tool in the KivyMD project will develop faster.

This library enhance Kivy frameworks with opiniated features such as:

- Auto reloading kv or py (watchdog required, limited to some uses cases);
- Idle detection support;
- Foreground lock (Windows OS only);

Usage

Note: See create project with hot reload for more information.

TODO

- Add automatic reloading of Python classes;
- Add save application state on reloading;

FIXME

- On Windows, hot reloading of Python files may not work;

API - kivymd.tools.hotreload.app

kivymd.tools.hotreload.app.**original_argv**

kivymd.tools.hotreload.app.**monotonic**

kivymd.tools.hotreload.app.**PY3 = True**

class kivymd.tools.hotreload.app.**ExceptionClass**

Base handler that catches exceptions in `runTouchApp()`. You can subclass and extend it as follows:

```
class E(ExceptionHandler):
    def handle_exception(self, inst):
        Logger.exception('Exception caught by ExceptionHandler')
        return ExceptionManager.PASS

ExceptionManager.add_handler(E())
```

Then, all exceptions will be set to PASS, and logged to the console!

handle_exception(*self*, *inst*)

Called by `ExceptionManagerBase` to handle a exception.

Defaults to returning `ExceptionManager.RAISE` that re-raises the exception. Return `ExceptionManager.PASS` to indicate that the exception was handled and should be ignored.

This may be called multiple times with the same exception, if `ExceptionManager.RAISE` is returned as the exception bubbles through multiple kivy exception handling levels.

class kivymd.tools.hotreload.app.**MDApp**(***kwargs*)

HotReload Application class.

DEBUG

Control either we activate debugging in the app or not. Defaults depend if 'DEBUG' exists in os.environ.

DEBUG is a BooleanProperty.

FOREGROUND_LOCK

If *True* it will require the foreground lock on windows.

FOREGROUND_LOCK is a BooleanProperty and defaults to *False*.

KV_FILES

List of KV files under management for auto reloader.

KV_FILES is a ListProperty and defaults to *[]*.

KV_DIRS

List of managed KV directories for autoloader.

KV_DIRS is a ListProperty and defaults to *[]*.

AUTORELOADER_PATHS

List of path to watch for auto reloading.

AUTORELOADER_PATHS is a ListProperty and defaults to *([(".", {"recursive": True})]*.

AUTORELOADER_IGNORE_PATTERNS

List of extensions to ignore.

AUTORELOADER_IGNORE_PATTERNS is a ListProperty and defaults to *['*.pyc', '*__pycache__*']*.

CLASSES

Factory classes managed by hotreload.

CLASSES is a DictProperty and defaults to *{}*.

IDLE_DETECTION

Idle detection (if True, event on_idle/on_wakeup will be fired). Rearming idle can also be done with *rearm_idle()*.

IDLE_DETECTION is a BooleanProperty and defaults to *False*.

IDLE_TIMEOUT

Default idle timeout.

IDLE_TIMEOUT is a NumericProperty and defaults to *60*.

RAISE_ERROR

Raise error. When the *DEBUG* is activated, it will raise any error instead of showing it on the screen. If you still want to show the error when not in *DEBUG*, put this to *False*.

RAISE_ERROR is a BooleanProperty and defaults to *True*.

build(*self*)

Initializes the application; it will be called only once. If this method returns a widget (tree), it will be used as the root widget and added to the window.

Returns

None or a root Widget instance if no self.root exists.

get_root(*self*)

Return a root widget, that will contains your application. It should not be your application widget itself, as it may be destroyed and recreated from scratch when reloading.

By default, it returns a RelativeLayout, but it could be a Viewport.

get_root_path(*self*)

Return the root file path.

abstract build_app(*self*, *first=False*)

Must return your application widget.

If *first* is set, it means that will be your first time ever that the application is built. Act according to it.

unload_app_dependencies(*self*)

Called when all the application dependencies must be unloaded. Usually happen before a reload

load_app_dependencies(*self*)

Load all the application dependencies. This is called before rebuild.

rebuild(*self*, **args*, ***kwargs*)

set_error(*self*, *exc*, *tb=None*)

bind_key(*self*, *key*, *callback*)

Bind a key (keycode) to a callback (cannot be unbind).

property appname(*self*)

Return the name of the application class.

enable_autoreload(*self*)

Enable autoreload manually. It is activated automatically if "DEBUG" exists in environ. It requires the *watchdog* module.

prepare_foreground_lock(*self*)

Try forcing app to front permanently to avoid windows pop ups and notifications etc.app.

Requires fake full screen and borderless.

Note: This function is called automatically if *FOREGROUND_LOCK* is set

---

set_widget(*self*, *wid*)

Clear the root container, and set the new approot widget to *wid*.

apply_state(*self*, *state*)

Whatever the current state is, reapply the current state.

install_idle(*self*, *timeout=60*)

Install the idle detector. Default timeout is 60s. Once installed, it will check every second if the idle timer expired. The timer can be rearm using *rearm_idle()*.

rearm_idle(*self*, **args*)

Rearm the idle timer.

patch_builder(*self*)

on_idle(*self*, **args*)

Event fired when the application enter the idle mode.

on_wakeup(*self*, **args*)

Event fired when the application leaves idle mode.

kivymd.tools.packaging

API - kivymd.tools.packaging

Submodules

PyInstaller hooks

Add `hookspath=[kivymd.hooks_path]` to your .spec file.

Example of .spec file

```
# -*- mode: python ; coding: utf-8 -*-

import sys
import os

from kivy_deps import sdl2, glew

from kivymd import hooks_path as kivymd_hooks_path

path = os.path.abspath(".")

a = Analysis(
    ["main.py"],
    pathex=[path],
    hookspath=[kivymd_hooks_path],
    win_no_prefer_redirects=False,
    win_private_assemblies=False,
    cipher=None,
    noarchive=False,
)
pyz = PYZ(a.pure, a.zipped_data, cipher=None)

exe = EXE(
    pyz,
    a.scripts,
    a.binaries,
    a.zipfiles,
    a.datas,
    *[Tree(p) for p in (sdl2.dep_bins + glew.dep_bins)],
    debug=False,
    strip=False,
    upx=True,
    name="app_name",
```

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```
    console=True,
)
```

API - kivymd.tools.packaging.pyinstaller

kivymd.tools.packaging.pyinstaller.**hooks_path**

Path to hook directory to use with PyInstaller. See *kivymd.tools.packaging.pyinstaller* for more information.

kivymd.tools.packaging.pyinstaller.**get_hook_dirs**()

kivymd.tools.packaging.pyinstaller.**get_pyinstaller_tests**()

Submodules

PyInstaller hook for KivyMD

Adds fonts, images and KV files to package.

All modules from uix directory are added by Kivy hook.

API - kivymd.tools.packaging.pyinstaller.hook-kivymd

kivymd.tools.packaging.pyinstaller.hook-kivymd.**datas = [None, None, None]**

kivymd.tools.patterns

API - kivymd.tools.patterns

Submodules

The script creates a new View package

The script creates a new View package in an existing project with an MVC template created using the create_project utility.

New in version 1.0.0.

See also:

Utility create_project

Use a clean architecture for your applications.

To add a new view to an existing project that was created using the *create_project* utility, use the following command:

```
kivymd.add_view \
    name_pattern \
    path_to_project \
    name_view
```

Example command:

```
kivymd.add_view \
    MVC \
    /Users/macbookair/Projects \
    NewScreen
```

You can also add new views with responsive behavior to an existing project:

```
kivymd.add_view \
    MVC \
    /Users/macbookair/Projects \
    NewScreen \
    --use_responsive yes
```

For more information about adaptive design, see here.

API - kivymd.tools.patterns.add_view

kivymd.tools.patterns.add_view.**main**()

The function of adding a new view to the project.

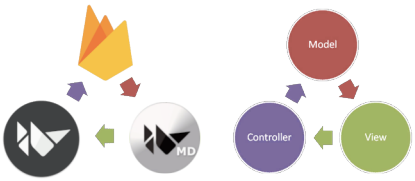
Script creates a project with the MVC pattern

New in version 1.0.0.

See also:

MVC pattern

Use a clean architecture for your applications.



Use a clean architecture for your applications. KivyMD allows you to quickly create a project template with the MVC pattern. So far, this is the only pattern that this utility offers. You can also include database support in your project. At the moment, support for the Firebase database (the basic implementation of the real time database) and RestDB (the full implementation) is available.

Project creation

Template command:

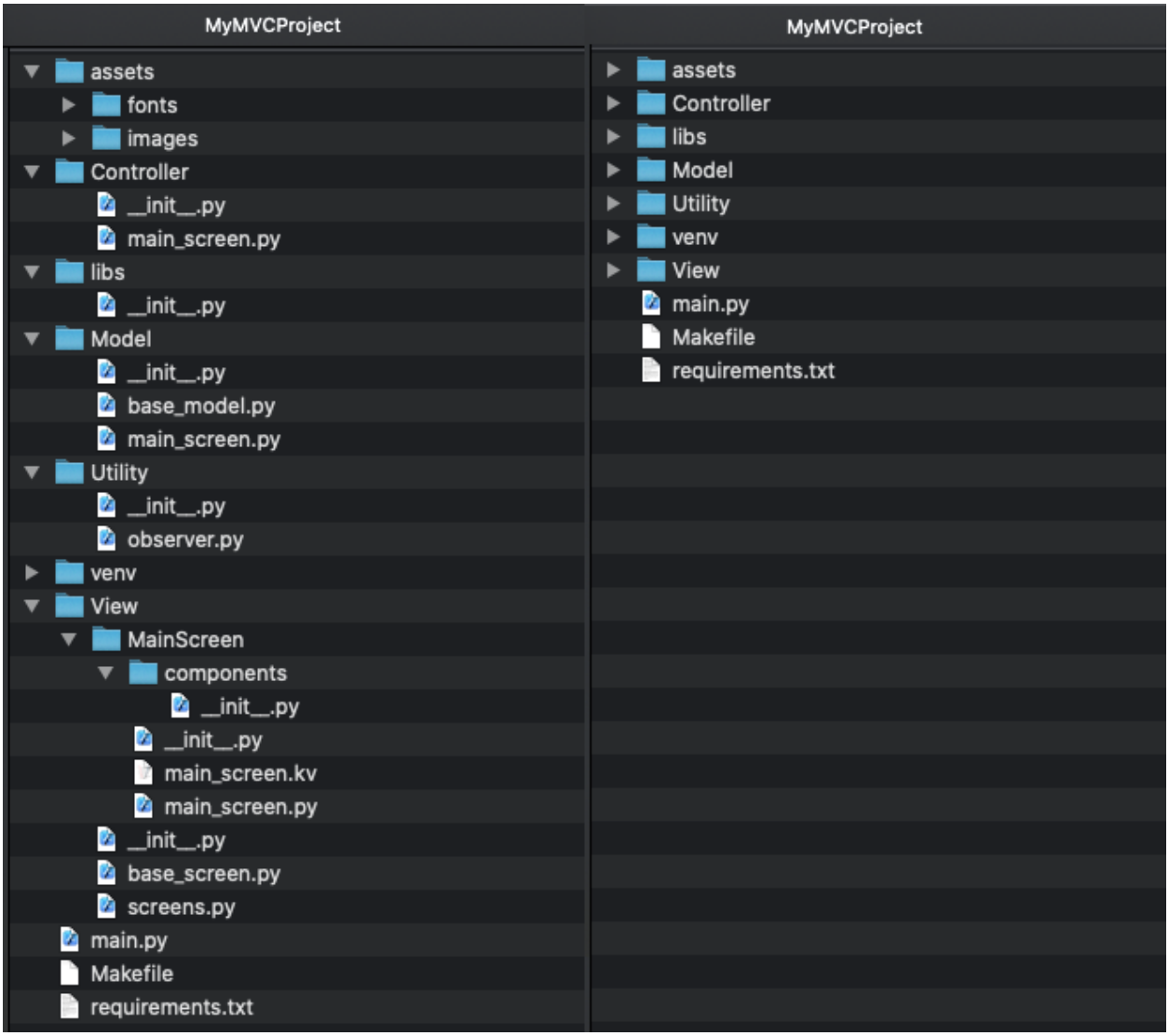
```
kivymd.create_project \
    name_pattern \
    path_to_project \
    name_project \
    python_version \
    kivy_version
```

Example command:

```
kivymd.create_project \
    MVC \
    /Users/macbookair/Projects \
    MyMVCProject \
    python3.10 \
    2.1.0
```

This command will by default create a project with an MVC pattern. Also, the project will create a virtual environment with Python 3.10, Kivy version 2.1.0 and KivyMD master version.

Note: Please note that the Python version you specified must be installed on your computer.



Creating a project using a database

Note: Note that in the following command, you can use one of two database names: 'firebase' or 'restdb'.

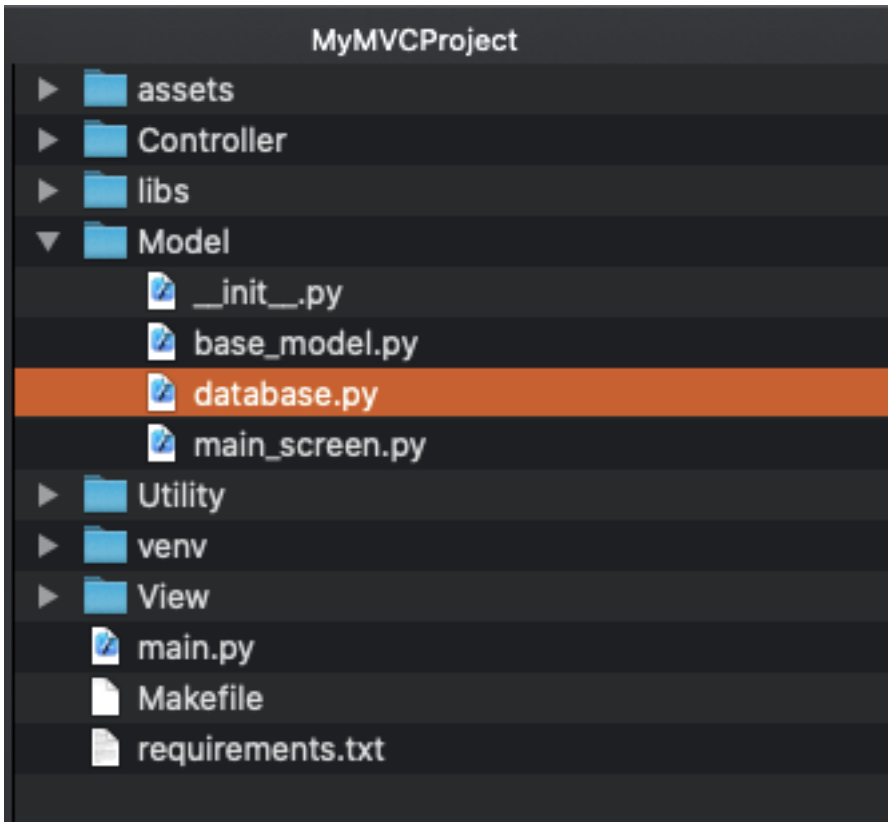
Template command:

```
kivymd.create_project \
    name_pattern \
    path_to_project \
    name_project \
    python_version \
    kivy_version \
    --name_database
```

Example command:

```
kivymd.create_project \
    MVC \
    /Users/macbookair/Projects \
    MyMVCProject \
    python3.10 \
    2.1.0 \
    --name_database restdb
```

This command will create a project with an MVC template by default. The project will also create a virtual environment with Python 3.10, Kivy version 2.1.0, KivyMD master version and a wrapper for working with the database restdb.io.




```
class DataBase:
    def __init__(self):
        database_url = "https://restdbio-5498.restdb.io"
        api_key = "7ce258d66f919d3a891d1166558765f0b4dbd"
```

Note: Please note that *database.py* the shell in the *DataBase* class uses the *database_url* and *api_key* parameters on the test database (works only in read mode), so you should use your data for the database.

Create project with hot reload

Template command:

```
kivymd.create_project \
    name_pattern \
    path_to_project \
    name_project \
    python_version \
    kivy_version \
    --use_hotreload
```

Example command:

```
kivymd.create_project \
    MVC \
    /Users/macbookair/Projects \
    MyMVCProject \
    python3.10 \
    2.1.0 \
    --use_hotreload yes
```

After creating the project, open the file *main.py*, there is a lot of useful information. Also, the necessary information is in other modules of the project in the form of comments. So do not forget to look at the source files of the created project.

Create project with responsive view

When creating a project, you can specify which views should use responsive behavior. To do this, specify the name of the view/views in the *–use_responsive* argument:

Template command:

```
kivymd.create_project \
    name_pattern \
    path_to_project \
    name_project \
    python_version \
    kivy_version \
    --name_screen FirstScreen SecondScreen ThirdScreen \
    --use_responsive FirstScreen SecondScreen
```

The *FirstScreen* and *SecondScreen* views will be created with an responsive architecture. For more detailed information about using the adaptive view, see the MDResponsiveLayout widget.

Others command line arguments

Required Arguments

- **pattern**
  - the name of the pattern with which the project will be created
- **directory**
  - directory in which the project will be created
- **name**
  - project name
- **python_version**
  - the version of Python (specify as *python3.9* or *python3.8*) with
  - which the virtual environment will be created
- **kivy_version**
  - version of Kivy (specify as *2.1.0* or *master*) that will be used in the project

Optional arguments

- **name_screen**
  - the name of the class which be used when creating the project pattern

When you need to create an application template with multiple screens, use multiple values separated by a space for the *name_screen* parameter, for example, as shown below:

Template command:

```
kivymd.create_project \
    name_pattern \
    path_to_project \
    name_project \
    python_version \
    kivy_version \
    --name_screen FirstScreen SecondScreen ThirdScreen
```

- **name_database**
  - provides a basic template for working with the 'firebase' library
  - or a complete implementation for working with a database 'restdb.io'
- **use_hotreload**
  - creates a hot reload entry point to the application
- **use_localization**
  - creates application localization files
- **use_responsive**
  - the name/names of the views to be used by the responsive UI

Warning: On Windows, hot reloading of Python files may not work. But, for example, there is no such problem in macOS. If you fix this, please report it to the KivyMD community.

API - kivymd.tools.patterns.create_project

kivymd.tools.patterns.create_project.**main**()

Project creation function.

kivymd.tools.patterns.MVC

API - kivymd.tools.patterns.MVC

Submodules

kivymd.tools.patterns.MVC.Model

API - kivymd.tools.patterns.MVC.Model

Submodules

kivymd.tools.patterns.MVC.Model.database_firebase

API - kivymd.tools.patterns.MVC.Model.database_firebase

kivymd.tools.patterns.MVC.Model.database_firebase.**get_connect**(*func*, *host='8.8.8.8'*, *port=53*, *timeout=3*)

Checks for an active Internet connection.

class kivymd.tools.patterns.MVC.Model.database_firebase.**DataBase**

Your methods for working with the database should be implemented in this class.

name = Firebase

get_data_from_collection(*self*, *name_collection: str*)

Returns data of the selected collection from the database.

Restdb.io API Wrapper

This package is an API Wrapper for the website restdb.io, which allows for online databases.

API - kivymd.tools.patterns.MVC.Model.database_restdb

kivymd.tools.patterns.MVC.Model.database_restdb.**get_connect**(*func*, *host='8.8.8.8'*, *port=53*, *timeout=3*)

Checks for an active Internet connection.

class kivymd.tools.patterns.MVC.Model.database_restdb.**DataBase**

name = RestDB

upload_file(*self*, *path_to_file: str*)

Uploads a file to the database. You can upload a file to the database only from a paid account.

get_data_from_collection(*self*, *collection_address: str*)

Returns data of the selected collection from the database.

delete_doc_from_collection(*self*, *collection_address: str*)

Delete data of the selected collection from the database.

Parameters
collection_address – "database_url/id_collection".

add_doc_to_collection(*self*, *data: dict*, *collection_address: str*)

Add collection to the database.

edit_data(*self*, *collection: dict*, *collection_address: str*, *collection_id: str*)

Modifies data in a collection of data in a database.

kivymd.tools.patterns.MVC.libs

API - kivymd.tools.patterns.MVC.libs

Submodules

kivymd.tools.patterns.MVC.libs.translation

API - kivymd.tools.patterns.MVC.libs.translation

class kivymd.tools.patterns.MVC.libs.translation.**Translation**(*defaultlang*, *domian*, *resource_dir*)

Original source - https://github.com/tito/kivy-gettext-example.

observers = []

fbind(*self*, *name*, *func*, *args*, ***kwargs*)

funbind(*self*, *name*, *func*, *args*, ***kwargs*)

switch_lang(*self*, *lang*)

kivymd.tools.release

API - kivymd.tools.release

Submodules

kivymd.tools.release.git_commands

API - kivymd.tools.release.git_commands

kivymd.tools.release.git_commands.**command**(*cmd: list*, *capture_output: bool = False*) → str

Run system command.

kivymd.tools.release.git_commands.**get_previous_version**() → str

Returns latest tag in git.

kivymd.tools.release.git_commands.**git_clean**(*ask: bool = True*)

Clean git repository from untracked and changed files.

kivymd.tools.release.git_commands.**git_commit**(*message: str*, *allow_error: bool = False*, *add_files: list = None*)

Make commit.

kivymd.tools.release.git_commands.**git_tag**(*name: str*)

Create tag.

kivymd.tools.release.git_commands.**git_push**(*branches_to_push: list*, *ask: bool = True*, *push: bool = False*)

Push all changes.

Script to make release

Run this script before release (before deploying).

What this script does:

- Undo all local changes in repository
- Update version in *__init__.py*, *README.md*
- Format files
- Rename file “unreleased.rst” to version, add to index.rst
- Commit “Version …”
- Create tag
- Add *unreleased.rst* to Changelog, add to *index.rst*
- Commit
- Git push

API - kivymd.tools.release.make_release

kivymd.tools.release.make_release.**run_pre_commit**()

Run pre-commit.

kivymd.tools.release.make_release.**replace_in_file**(*pattern*, *repl*, *file*)

Replace one *pattern* match to *repl* in file *file*.

kivymd.tools.release.make_release.**update_init_py**(*version*, *is_release*, *test: bool = False*)

Change version in *kivymd/__init__.py*.

kivymd.tools.release.make_release.**update_readme**(*previous_version*, *version*, *test: bool = False*)

Change version in *README.md*.

kivymd.tools.release.make_release.**move_changelog**(*index_file*, *unreleased_file*, *previous_version*, *version_file*, *version*, *test: bool = False*)

Edit unreleased.rst and rename to <version>.rst.

kivymd.tools.release.make_release.**create_unreleased_changelog**(*index_file*, *unreleased_file*, *version*, *ask: bool = True*, *test: bool = False*)

Create unreleased.rst by template.

kivymd.tools.release.make_release.**main**()

kivymd.tools.release.make_release.**create_argument_parser**()

Tool for updating Iconic font

Downloads archive from https://github.com/Templarian/MaterialDesign-Webfont and updates font file with icon_definitions.

API - kivymd.tools.release.update_icons

kivymd.tools.release.update_icons.**kivymd_path**

kivymd.tools.release.update_icons.**font_path**

kivymd.tools.release.update_icons.**icon_definitions_path**

kivymd.tools.release.update_icons.**font_version = master**

kivymd.tools.release.update_icons.**url**

kivymd.tools.release.update_icons.**temp_path**

kivymd.tools.release.update_icons.**temp_repo_path**

kivymd.tools.release.update_icons.**temp_font_path**

kivymd.tools.release.update_icons.**temp_preview_path**

kivymd.tools.release.update_icons.**re_icons_json**

kivymd.tools.release.update_icons.**re_additional_icons**

kivymd.tools.release.update_icons.**re_version**

kivymd.tools.release.update_icons.**re_quote_keys**

kivymd.tools.release.update_icons.**re_icon_definitions**

kivymd.tools.release.update_icons.**re_version_in_file**

kivymd.tools.release.update_icons.**download_file**(*url*, *path*)

kivymd.tools.release.update_icons.**unzip_archive**(*archive_path*, *dir_path*)

kivymd.tools.release.update_icons.**get_icons_list**()

kivymd.tools.release.update_icons.**make_icon_definitions**(*icons*)

kivymd.tools.release.update_icons.**export_icon_definitions**(*icon_definitions*, *version*)

kivymd.tools.release.update_icons.**update_icons**(*make_commit: bool = False*)

kivymd.tools.release.update_icons.**main**()

kivymd.uix

API - kivymd.uix

class kivymd.uix.**MDAdaptiveWidget**(***kwargs*)

adaptive_height

If *True*, the following properties will be applied to the widget:

```
size_hint_y: None
height: self.minimum_height
```

adaptive_height is an BooleanProperty and defaults to *False*.

adaptive_width

If *True*, the following properties will be applied to the widget:

```
size_hint_x: None
width: self.minimum_width
```

adaptive_width is an BooleanProperty and defaults to *False*.

adaptive_size

If *True*, the following properties will be applied to the widget:

```
size_hint: None, None
size: self.minimum_size
```

adaptive_size is an BooleanProperty and defaults to *False*.

on_adaptive_height(*self*, *md_widget*, *value: bool*)

on_adaptive_width(*self*, *md_widget*, *value: bool*)

on_adaptive_size(*self*, *md_widget*, *value: bool*)

Submodules

kivymd.uix.backdrop

API - kivymd.uix.backdrop

Submodules

kivymd.uix.banner

API - kivymd.uix.banner

Submodules

Behaviors

Modules and classes implementing various behaviors for buttons etc.

API - kivymd.uix.behaviors

Submodules

kivymd.uix.bottomnavigation

API - kivymd.uix.bottomnavigation

Submodules

kivymd.uix.bottomsheet

API - kivymd.uix.bottomsheet

Submodules

kivymd.uix.button

API - kivymd.uix.button

Submodules

kivymd.uix.card

API - kivymd.uix.card

Submodules

kivymd.uix.chip

API - kivymd.uix.chip

Submodules

Controllers

New in version 1.0.0.

Modules and classes that implement useful methods for getting information about the state of the current application window.

API - kivymd.uix.controllers

Submodules

kivymd.uix.datatables

API - kivymd.uix.datatables

Submodules

kivymd.uix.dialog

API - kivymd.uix.dialog

Submodules

kivymd.uix.dropdownitem

API - kivymd.uix.dropdownitem

Submodules

kivymd.uix.expansionpanel

API - kivymd.uix.expansionpanel

Submodules

kivymd.uix.filemanager

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API - kivymd.uix.fitimage

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kivymd.uix.swiper

API - kivymd.uix.swiper

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kivymd.uix.tab

API - kivymd.uix.tab

Submodules

Templates

Base classes for controlling the scale, rotation of the widget, etc.

API - kivymd.uix.templates

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kivymd.uix.templates.rotatewidget

API - kivymd.uix.templates.rotatewidget

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kivymd.uix.templates.scalewidget

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kivymd.uix.transition

API - kivymd.uix.transition

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kivymd.utils

API - kivymd.utils

Submodules

asynckivy

GitHub -
https://github.com/gottadiveintopython

GitHub Gist -
https://gist.github.com/gottadiveintopython/5f4a775849f9277081c396de65dc57c1

API - kivymd.utils.asynckivy

kivymd.utils.asynckivy.**start**(*coro*)

kivymd.utils.asynckivy.**sleep**(*duration*)

class kivymd.utils.asynckivy.**event**(*ed*, *name*)

bind(*self*, *step_coro*)

callback(*self*, **args*, ***kwargs*)

Monitor module

The Monitor module is a toolbar that shows the activity of your current application :

- FPS

API - kivymd.utils.fpsmonitor

class kivymd.utils.fpsmonitor.**FpsMonitor**(***kwargs*)

Label class, see module documentation for more information.

Events

on_ref_press
Fired when the user clicks on a word referenced with a `[ref]` tag in a text markup.

updated_interval

FPS refresh rate.

start(*self*)

update_fps(*self*, **args*)

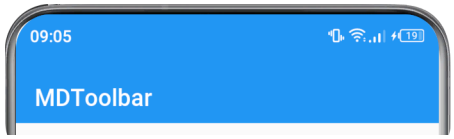
kivymd.utils.set_bars_colors

API - kivymd.utils.set_bars_colors

kivymd.utils.set_bars_colors.**set_bars_colors**(*status_bar_color: Union[None, list]*, *navigation_bar_color: Union[None, list]*, *icons_color: str = 'Light'*)

Sets the color of the status of the StatusBar and NavigationBar.

Warning: Works only on Android devices.




```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.utils.set_bars_colors import set_bars_colors

KV = '''
MDBoxLayout:
    orientation: "vertical"

    MDTopAppBar:
        title: "MDTopAppBar"

    MDBottomNavigation:
        panel_color: app.theme_cls.primary_color
        text_color_active: .2, .2, .2, 1
        text_color_normal: .9, .9, .9, 1
        use_text: False
```

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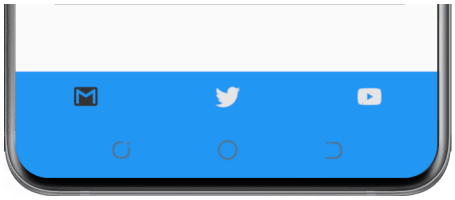
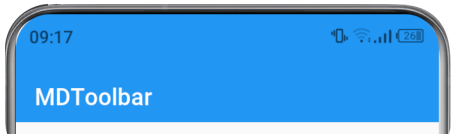
```
        MDBottomNavigationItem:
            icon: 'gmail'

        MDBottomNavigationItem:
            icon: 'twitter'

        MDBottomNavigationItem:
            icon: 'youtube'
'''


class Test(MDApp):
    def build(self):
        self.set_bars_colors()
        return Builder.load_string(KV)

    def set_bars_colors(self):
        set_bars_colors(
            self.theme_cls.primary_color,  # status bar color
            self.theme_cls.primary_color,  # navigation bar color
            "Light",                       # icons color of status bar
        )


Test().run()
```



Dark icon mode

```
def set_bars_colors(self):
    set_bars_colors(
        self.theme_cls.primary_color,  # status bar color
        self.theme_cls.primary_color,  # navigation bar color
        "Dark",                        # icons color of status bar
    )
```



New in version 1.0.0.

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