KivyMD

Andrés Rodríguez, Ivanov Yuri, Artem S. Bulgakov and KivyMD co

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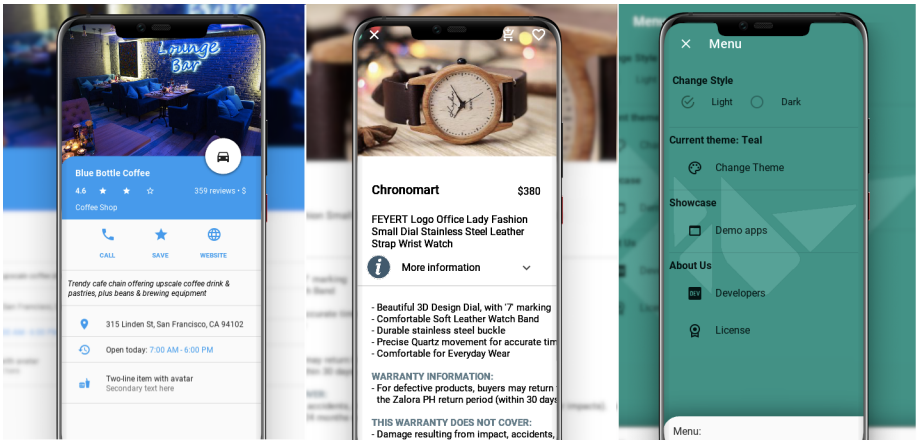
ONE

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 or application performance.

This library is a fork of the KivyMD project the author of which stopped supporting this project three years ago. We found the strength and brought this project to a new level. Currently we're in **alpha** status, so things are changing all the time and we cannot promise any kind of API stability. However it is safe to vendor now and make use of what's currently available.

Join the project! Just fork the project, branch out and submit a pull request when your patch is ready. If any changes are necessary, we'll guide you through the steps that need to be done via PR comments or access to your for may be requested to outright submit them. 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

You can install latest release version of *KivyMD* from *PyPI*:

```
python3 -m pip install kivymd
```

If you want to install development version from master branch, you should specify git HTTPS address:

```
# Master branch:
python3 -m pip install git+https://github.com/HeaTTheatR/KivyMD.git
# Specific branch:
python3 -m pip install git+https://github.com/HeaTTheatR/KivyMD.git@stable
# Specific tag:
python3 -m pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.100.2
# Specific commit:
python3 -m pip install git+https://github.com/HeaTTheatR/KivyMD.
↪git@f80d9c8b812d54a724db7eda30c4211d0ba764c2

# If you already has installed KivyMD::
python3 -m pip install --force-reinstall git+https://github.com/HeaTTheatR/KivyMD.git
```

Also you can install manually from sources. Just clone the project and run the `setup.py` script:

```
python3 ./setup.py install
```

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
```

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```
KV = """
<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: 0.9764705882352941, 0.9764705882352941, 0.9764705882352941, 1
        Rectangle:
            pos: self.pos
            size: self.size
"""


class RectangleFlatButton(TouchRippleBehavior, Button):
    primary_color = [
        0.12941176470588237,
        0.5882352941176471,
        0.9529411764705882,
        1
    ]

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

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```
                ripple_color=(0.8, 0.8, 0.8, 0.5),
            )
        )
        return screen


MainApp().run()
```

And the equivalent with *KivyMD*:

```
from kivy.uix.screenmanager import Screen

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


class MainApp(MDApp):
    def build(self):
        screen = Screen()
        screen.add_widget(
            MDRectangleFlatButton(
                text="Hello, World",
                pos_hint={"center_x": 0.5, "center_y": 0.5},
            )
        )
        return screen


MainApp().run()
```

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

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.

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:

```
from kivy.uix.screenmanager import Screen

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


class MainApp(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Green"  # "Purple", "Red"

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


MainApp().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:

```
from kivy.uix.screenmanager import Screen

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


class MainApp(MDApp):
    def build(self):
        self.theme_cls.primary_palette = "Green"  # "Purple", "Red"
        self.theme_cls.primary_hue = "200"  # "500"

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


MainApp().run()
```

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

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

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 in `rgba` format.

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 `rgba` format (in lighter color).

```
from kivy.lang import Builder

from kivymd.app import MDApp


KV = '''
Screen:

    MDRaisedButton:
        text: "primary_light"
        pos_hint: {"center_x": 0.5, "center_y": 0.7}
```

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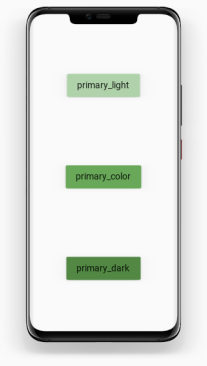
```
        md_bg_color: app.theme_cls.primary_light

    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 = "Green"
        return Builder.load_string(KV)


MainApp().run()
```



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

primary_dark

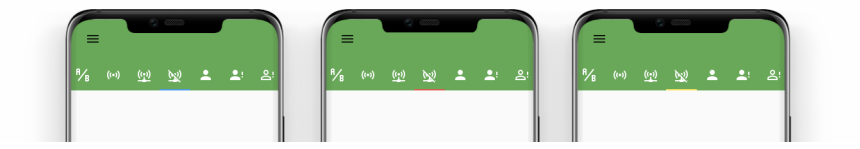
Colors of the current application color theme in rgba format (in darker color).

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...

The image below shows the color schemes with the values `self.theme_cls.accent_palette = 'Blue'`, `Red'` and `Yellow'`:



primary_hue 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.

theme_style
App theme style.

```
from kivy.uix.screenmanager import Screen

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


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

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


MainApp().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*.

```
KV = '''
<Box@BoxLayout>:
    bg: 0, 0, 0, 0

    canvas:
        Color:
            rgba: root.bg
        Rectangle:
            pos: self.pos
            size: self.size

BoxLayout:

    Box:
        bg: app.theme_cls.bg_light
    Box:
        bg: app.theme_cls.bg_normal
    Box:
        bg: app.theme_cls.bg_dark
    Box:
        bg: app.theme_cls.bg_darkest
'''

from kivy.lang import Builder

from kivymd.app import MDApp


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


MainApp().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.

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.

set_clearcolor

font_styles
Data of default font styles.

Add custom font:

```
KV = '''
Screen:

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

from kivy.core.text import LabelBase

from kivy.lang import Builder

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


class MainApp(MDApp):
    def build(self):
        LabelBase.register(
            name="JetBrainsMono",
            fn_regular="JetBrainsMono-Regular.ttf")

        theme_font_styles.append('JetBrainsMono')
        self.theme_cls.font_styles["JetBrainsMono"] = [
```

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```
            "JetBrainsMono",
            16,
            False,
            0.15,
        ]
        return Builder.load_string(KV)


MainApp().run()
```

font_styles is an DictProperty.

on_theme_style(*self*, *instance*, *value*)

set_clearcolor_by_theme_style(*self*, *theme_style*)

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.

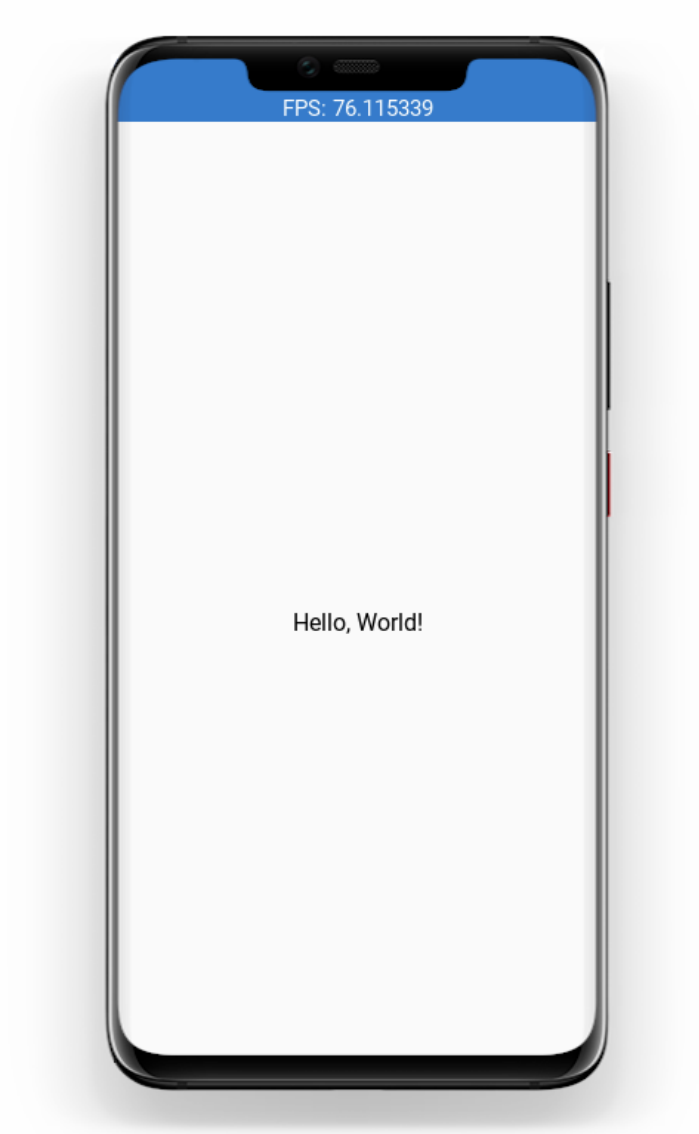
opposite_colors

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 = '''
Screen:

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

from kivy.lang import Builder

from kivymd.app import MDApp


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 module documentation for more information.

Events

***on_start*:** Fired when the application is being started (before the `runTouchApp()` call.

***on_stop*:** Fired when the application stops.

***on_pause*:** Fired when the application is paused by the OS.

***on_resume*:** Fired when the application is resumed from pause by the OS. Beware: you have no guarantee that this event will be fired after the *on_pause* event has been called.

Changed in version 1.7.0: Parameter *kv_file* added.

Changed in version 1.8.0: Parameters *kv_file* and *kv_directory* are now properties of App.

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`.

2.2.3 Color Definitions

See also:

Material Design spec, The color system

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.uix.boxlayout import BoxLayout
from kivy.utils import get_color_from_hex
from kivy.properties import ListProperty, StringProperty

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

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

    MDToolbar:
        title: app.title
```

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

    ScrollView:

        MDList:
            id: box


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

    canvas:
        Color:
            rgba: root.color
        Rectangle:
            size: self.size
            pos: self.pos

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


<Tab>:
'''

from kivy.factory import Factory
from kivymd.app import MDApp


class Tab(BoxLayout, MDTabsBase):
    pass


class ItemColor(BoxLayout):
    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(text=name_tab)
            self.screen.ids.android_tabs.add_widget(tab)
        return self.screen
```

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```
    def on_tab_switch(self, instance_tabs, instance_tab, instance_tabs_label, tab_
↪text):
        self.screen.ids.box.clear_widgets()
        for value_color in colors[tab_text]:
            self.screen.ids.box.add_widget(
                ItemColor(
                    color=get_color_from_hex(colors[tab_text][value_color]),
                    text=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**
Valid values for color palette selecting.

kivymd.color_definitions.**hue = ['50', '100', '200', '300', '400', '500', '600', '700', '80**
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

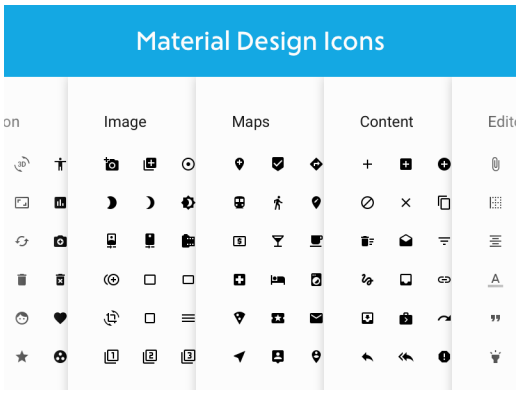
```
text_colors = {}
for p in palette:
    text_colors[p] = {}
    for h in hue:
        if h in light_colors[p]:
            text_colors[p][h] = "000000"
        else:
            text_colors[p][h] = "FFFFFF"
```

kivymd.color_definitions.**theme_colors = ['Primary', 'Secondary', 'Background', 'Surface',**
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 4.9.95

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>:

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

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

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```
            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'
'''
)


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()
```

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```
    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', 'Subtitle**

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 Spinner

Circular progress indicator in Google's Material Design.

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
Screen:
```

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```
    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()
```

API - kivymd.uix.spinner

class kivymd.uix.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.

determinate

determinate is a BooleanProperty and defaults to *False*.

determinate_time

determinate_time is a NumericProperty and defaults to *2*.

active

Use *active* to start or stop the spinner.

active is a BooleanProperty and defaults to *True*.

color

color is a ListProperty and defaults to `self.theme_cls.primary_color`.

on__rotation_angle(*self*, **args*)

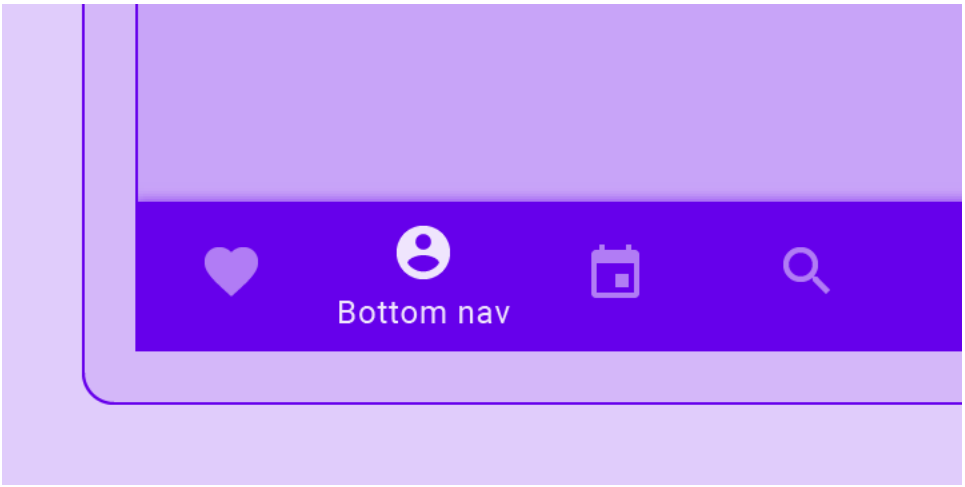
on_active(*self*, **args*)

2.3.2 Bottom Navigation

See also:

Material Design 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"
```

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```
            YourContent:

        Screen:
            name: "screen 2"

            YourContent:

        Screen:
            name: "screen 3"

            YourContent:
```

Example

```
from kivymd.app import MDApp
from kivy.lang import Builder


class Test(MDApp):

    def build(self):
        self.theme_cls.primary_palette = "Gray"
        return Builder.load_string(
            '''
BoxLayout:
    orientation:'vertical'

    MDToolbar:
        title: 'Bottom navigation'
        md_bg_color: .2, .2, .2, 1
        specific_text_color: 1, 1, 1, 1

    MDBottomNavigation:
        panel_color: .2, .2, .2, 1

        MDBottomNavigationItem:
            name: 'screen 1'
            text: 'Python'
            icon: 'language-python'

            MDLabel:
                text: 'Python'
                halign: 'center'

        MDBottomNavigationItem:
            name: 'screen 2'
            text: 'C++'
            icon: 'language-cpp'

            MDLabel:
                text: 'I programming of C++'
                halign: 'center'
```

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```
        MDBottomNavigationItem:
            name: 'screen 3'
            text: 'JS'
            icon: 'language-javascript'

            MDLabel:
                text: 'JS'
                halign: 'center'
'''
        )


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",
)
```

See also:

See `__events__`

```
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.

See also:

See Tab auto switch example

See full example

API - kivymd.uix.bottomnavigation

class kivymd.uix.bottomnavigation.**MDTab**(**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’*.

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.**MDBottomNavigationItem**(**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 *Nome*.

on_tab_press(*self*, **args*)

on_leave(*self*, **args*)

class kivymd.uix.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 ListProperty and defaults to *[]*.

tabs

class kivymd.uix.bottomnavigation.**MDBottomNavigation**(**kwargs)
A bottom navigation that is implemented by delegating all items to a ScreenManager.

first_widget
first_widget is an *MDBottomNavigationItem* and defaults to *Nome*.

tab_header
tab_header is an MDBottomNavigationHeader and defaults to *Nome*.

on_panel_color(*self*, *instance*, *value*)

switch_tab (*self*, *name_tab*)
Switching the tab by name.

on_resize (*self*, *instance=None*, *width=None*, *do_again=True*)

add_widget (*self*, *widget*, ***kwargs*)
Add tabs to the screen or the layout.

Parameters **widget** – The widget to add.

remove_widget (*self*, *widget*)
Remove tabs from the screen or the layout.

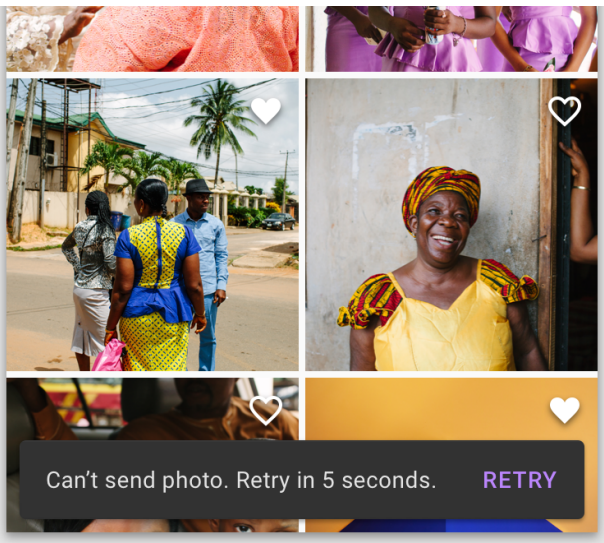
Parameters **widget** – The widget to remove.

2.3.3 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
```

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```
Screen:

    MDRaisedButton:
        text: "Create simple snackbar"
        on_release: Snackbar(text="This is a snackbar!").show()
        pos_hint: {"center_x": .5, "center_y": .5}
'''


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


Test().run()
```

Usage with button

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
#:import Snackbar kivymd.uix.snackbar.Snackbar


Screen:

    MDRaisedButton:
        text: "Create simple snackbar"
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: Snackbar(text="This is a snackbar", button_text="BUTTON", button_
↪callback=app.callback).show()

'''


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

    def callback(self, instance):
        from kivymd.toast import toast

        toast(instance.text)


Test().run()
```

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 = '''
Screen:

    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:
            anim = Animation(y=dp(10), d=.2)
            anim.start(self.screen.ids.button)
            Clock.unschedule(self.wait_interval)
            self._interval = 0
            self.snackbar = None

    def snackbar_show(self):
        if not self.snackbar:
            self.snackbar = Snackbar(text="This is a snackbar!")
            self.snackbar.show()
            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()
```

API - kivymd.uix.snackbar

class kivymd.uix.snackbar.**Snackbar**(***kwargs*)
Float layout class. See module documentation for more information.

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’*.

button_text
The text that will appear in the snackbar’s button.

Note: If this variable is None, the snackbar will have no button.

---

button_text is a StringProperty and defaults to ‘’.

button_callback
The callback that will be triggered when the snackbar’s button is pressed.

Note: If this variable is None, the snackbar will have no button.

---

button_callback is a ObjectProperty and defaults to *None*.

duration
The amount of time that the snackbar will stay on screen for.

duration is a NumericProperty and defaults to *3*.

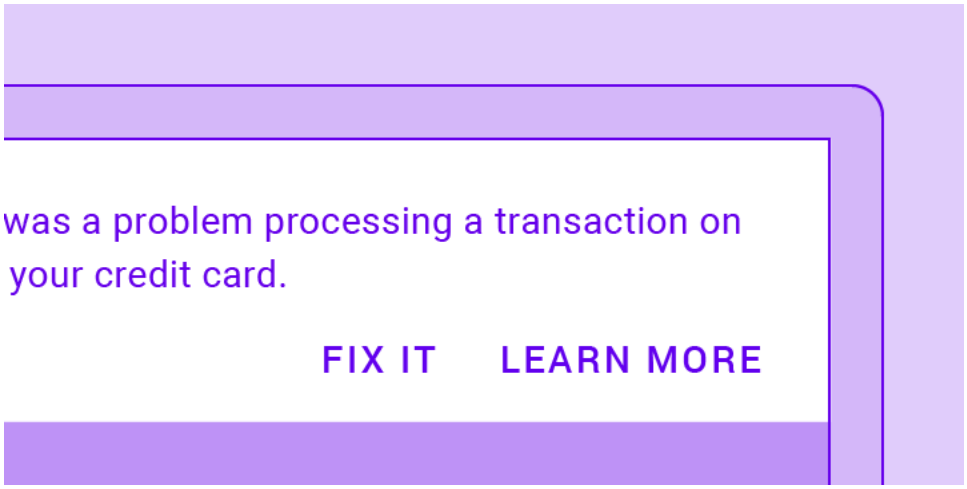
show(*self*)
Show the snackbar.

2.3.4 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

    MDToolbar:
        id: toolbar
        title: "Example Banners"
        elevation: 10
        pos_hint: {'top': 1}

    BoxLayout:
        id: screen
        orientation: "vertical"
        size_hint_y: None
        height: Window.height - toolbar.height

        OneLineListItem:
            text: "Banner without actions"
            on_release: banner.show()

        Widget:
''')
```

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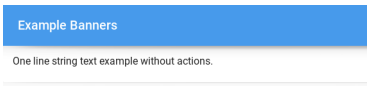
```
class Test(MDApp):
    def build(self):
        return Factory.ExampleBanner()


Test().run()
```

Banner type.

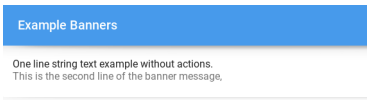
By default, the banner is of the type `'one-line'`:

```
MDBanner:
    text: ["One line string text example without actions."]
```



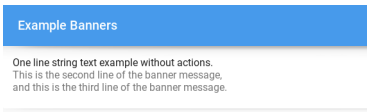
To use a two-line banner, specify the `'two-line'` *MDBanner.type* for the banner and pass the list of two lines to the *MDBanner.text* parameter:

```
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."]
```

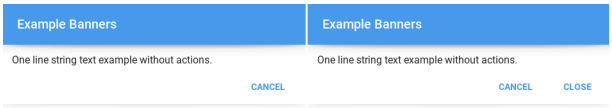


To add buttons to any type of banner, use the *MDBanner.left_action* and *MDBanner.right_action* parameters, which should take a list [‘Button name’, function]:

```
MDBanner:
    text: ["One line string text example without actions."]
    left_action: ["CANCEL", lambda x: None]
```

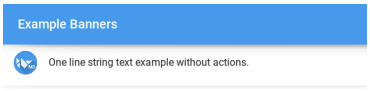
Or two buttons:

```
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_logo.png"
    text: ["One line string text example without actions."]
```



Note: See full example

API - kivymd.uix.banner

class kivymd.uix.banner.**MDBanner**(***kwargs*)

Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

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'*.

add_actions_buttons(*self*, *box*, *data*)

set_left_action(*self*)

set_right_action(*self*)

set_type_banner(*self*)

add_banner_to_container(*self*)

show(*self*)

animation_display_banner(*self*, *i*)

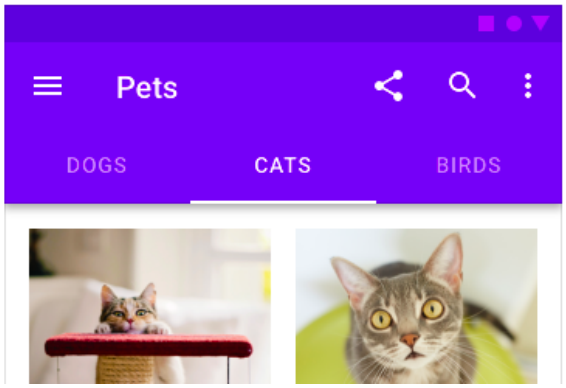
hide(*self*)

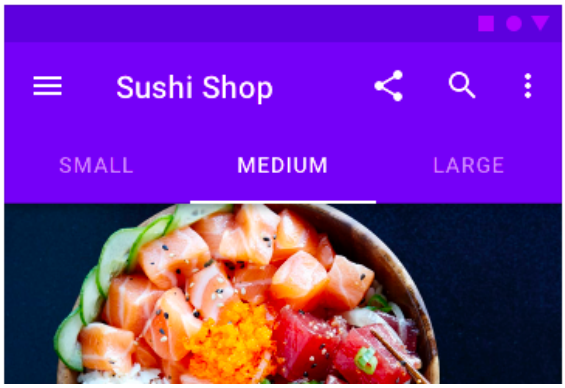
2.3.5 Tabs

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(FloatLayout, MDTabsBase):
    '''Class implementing content for a tab.'''
```

```
<Tab>:

    MDLabel:
        text: "Content"
        pos_hint: {"center_x": .5, "center_y": .5}
```

Tabs must be placed in the *MDTabs* container:

```
Root:

    MDTabs:

        Tab:
            text: "Tab 1"

        Tab:
            text: "Tab 1"

        ...
```

Example with tab icon

```
from kivy.lang import Builder
from kivy.uix.floatlayout import FloatLayout

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

KV = '''
BoxLayout:
    orientation: "vertical"

    MDToolbar:
        title: "Example Tabs"

    MDTabs:
        id: android_tabs
        on_tab_switch: app.on_tab_switch(*args)


<Tab>:

    MDIconButton:
        id: icon
        icon: app.icons[0]
        user_font_size: "48sp"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


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


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

    def build(self):
        return Builder.load_string(KV)

    def on_start(self):
        for name_tab in self.icons:
            self.root.ids.android_tabs.add_widget(Tab(text=name_tab))

    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 = [k for k, v in md_icons.items() if v == tab_text]
```

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```
        instance_tab.ids.icon.icon = count_icon[0]


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, then the name of the tab will be plain text, if found, the tab will look like the corresponding icon.

```
from kivy.lang import Builder
from kivy.uix.floatlayout import FloatLayout

from kivymd.app import MDApp
from kivymd.uix.tab import MDTabsBase

KV = '''
BoxLayout:
    orientation: "vertical"

    MDToolbar:
        title: "Example Tabs"

    MDTabs:
        id: android_tabs
        on_tab_switch: app.on_tab_switch(*args)


<Tab>:

    MDLabel:
        id: label
        text: "Tab 0"
        halign: "center"
'''


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


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

    def on_start(self):
        for i in range(20):
            self.root.ids.android_tabs.add_widget(Tab(text=f"Tab {i}"))

    def on_tab_switch(
```

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```
        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()
```

API - kivymd.uix.tab

class kivymd.uix.tab.**MDTabsBase**(***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.

text

It will be the label text of the tab.

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*.

on_text(*self*, *widget*, *text*)

class kivymd.uix.tab.**MDTabs**(***kwargs*)

You can use this class to create your own tabbed panel..

Events

on_tab_switch Called when switching tabs.

default_tab

Index of the default tab.

default_tab is an NumericProperty and defaults to *0*.

tab_bar_height

Height of the tab bar.

tab_bar_height is an NumericProperty and defaults to *‘48dp’*.

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’*.

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 False - tabs will not stretch to full screen.

allow_stretch is an BooleanProperty and defaults to *True*.

background_color
Background color of tabs in rgba format.

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

text_color_normal
Text color of the label when it is not selected.

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

text_color_active
Text color of the label when it is selected.

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

elevation
Tab value elevation.

See also:

Behaviors/Elevation

elevation is an NumericProperty and defaults to *0*.

color_indicator
Color indicator in rgba format.

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

callback
User callback. The method will be called when the on_ref_press event occurs in the MDTabsLabel class.

callback is an ObjectProperty and defaults to *None*.

on_tab_switch(*self*, **args*)
Called when switching tabs.

on_carousel_index(*self*, *carousel*, *index*)

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*)

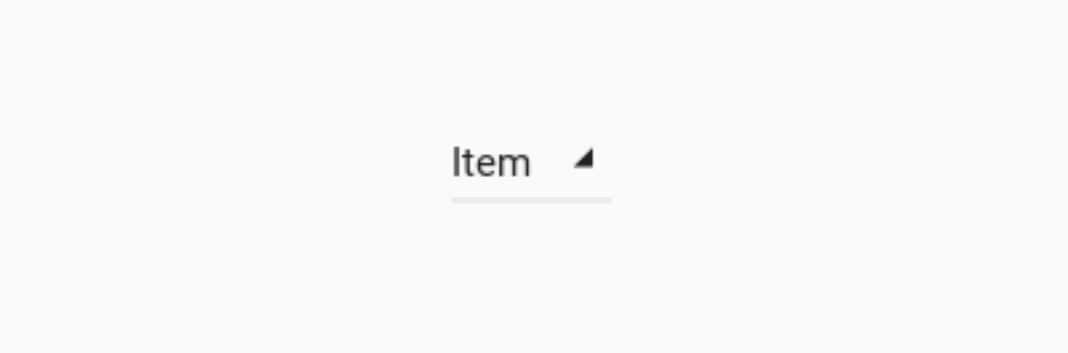
Remove a widget from the children of this widget.

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)
```

2.3.6 Dropdown Item



Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
Screen

    MDDropDownItem:
        id: drop_item
        pos_hint: {'center_x': .5, 'center_y': .5}
        text: 'Item'
```

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```
        on_release: self.set_item("New Item")
'''


class Test(MDApp):
    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

class kivymd.uix.dropdownitem.**MDDropDownItem**(***kwargs*)

Class implements a rectangular ripple effect.

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*, *value*)

set_item(*self*, *name_item*)

Sets new text for an item.

2.3.7 Pickers

Includes date, time and color picker

KivyMD provides the following classes for use:

- *MDTimePicker*
- *MDDatePicker*
- *MDThemePicker*

MDTimePicker

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.picker import MDTimePicker

KV = '''
FloatLayout:

    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):
        return Builder.load_string(KV)

    def show_time_picker(self):
        '''Open time picker dialog.'''

        time_dialog = MDTimePicker()
        time_dialog.open()


Test().run()
```

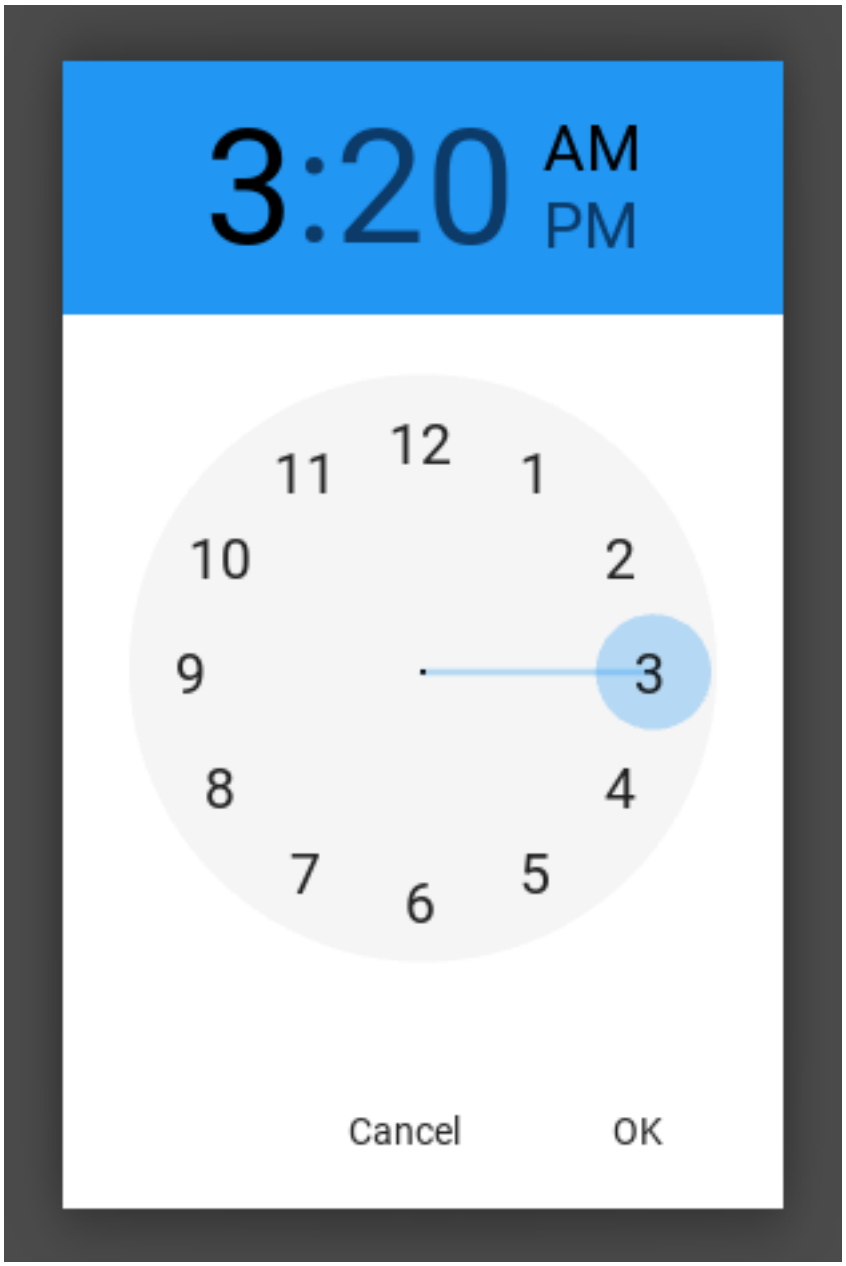
Binding method returning set time

```
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()
```



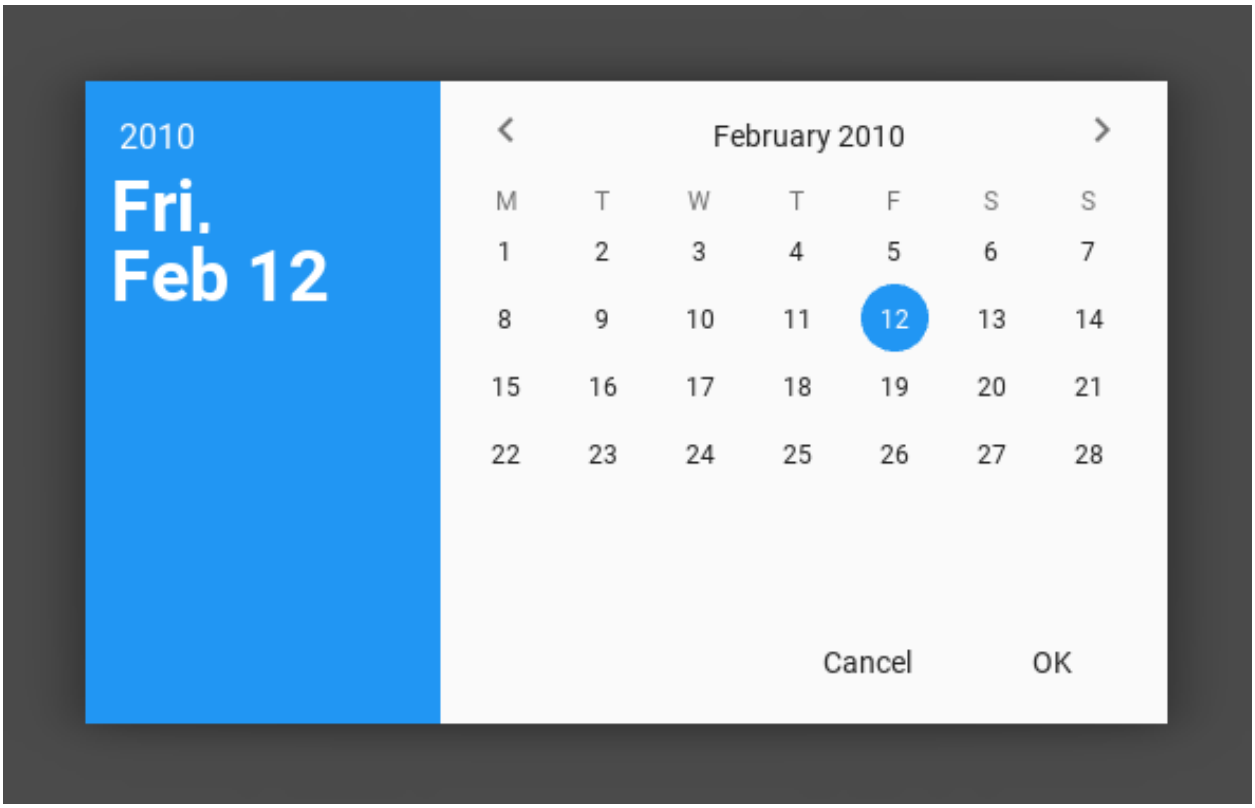
MDDatePicker

When creating an instance of the *MDDatePicker* class, you must pass as a parameter a method that will take one argument - a `datetime` object.

```
def get_date(self, date):
    '''
    :type date: <class 'datetime.date'>
    '''

def show_date_picker(self):
    date_dialog = MDDatePicker(callback=self.get_date)
    date_dialog.open()
```

Open date dialog with the specified date

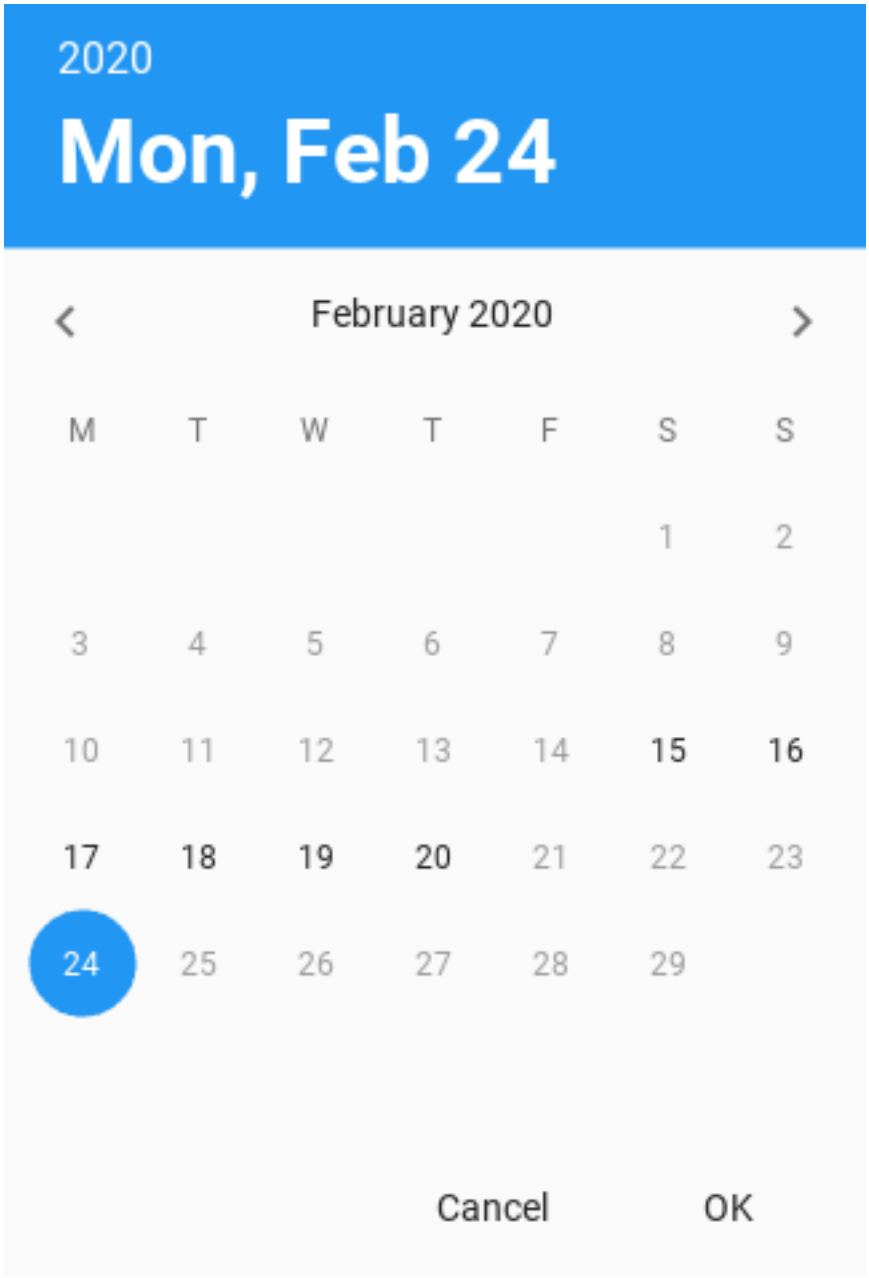
```
def show_date_picker(self):
    date_dialog = MDDatePicker(
        callback=self.get_date,
        year=2010,
        month=2,
        day=12,
    )
    date_dialog.open()
```



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):
    min_date = datetime.strptime("2020:02:15", '%Y:%m:%d').date()
    max_date = datetime.strptime("2020:02:20", '%Y:%m:%d').date()
    date_dialog = MDDatePicker(
        callback=self.get_date,
        min_date=min_date,
        max_date=max_date,
    )
    date_dialog.open()
```



MDThemePicker

```
def show_theme_picker(self):
    theme_dialog = MDThemePicker()
    theme_dialog.open()
```

API - kivymd.uix.picker

class kivymd.uix.picker.**MDDatePicker**(*callback*, *year=None*, *month=None*, *day=None*, *firstweekday=0*, *min_date=None*, *max_date=None*, ***kwargs*)

Float layout class. See module documentation for more information.

cal_list

cal_layout

sel_year

sel_month

sel_day

day

month

year

today

callback

background_color

ok_click(*self*)

fmt_lbl_date(*self*, *year*, *month*, *day*, *orientation*)

set_date(*self*, *year*, *month*, *day*)

set_selected_widget(*self*, *widget*)

set_month_day(*self*, *day*)

update_cal_matrix(*self*, *year*, *month*)

generate_cal_widgets(*self*)

change_month(*self*, *operation*)

class kivymd.uix.picker.**MDTimePicker**(***kwargs*)

Float layout class. See module documentation for more information.

time

Users method. Must take two parameters:

```
def get_time(self, instance, time):
    '''
    The method returns the set time.
```

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```
    :type instance: <kivymd.uix.picker.MDTimePicker object>
    :type time: <class 'datetime.time'>
    '''

    return time
```

time is an ObjectProperty and defaults to *None*.

set_time(*self*, *time*)
Sets user time.

close_cancel(*self*)

close_ok(*self*)

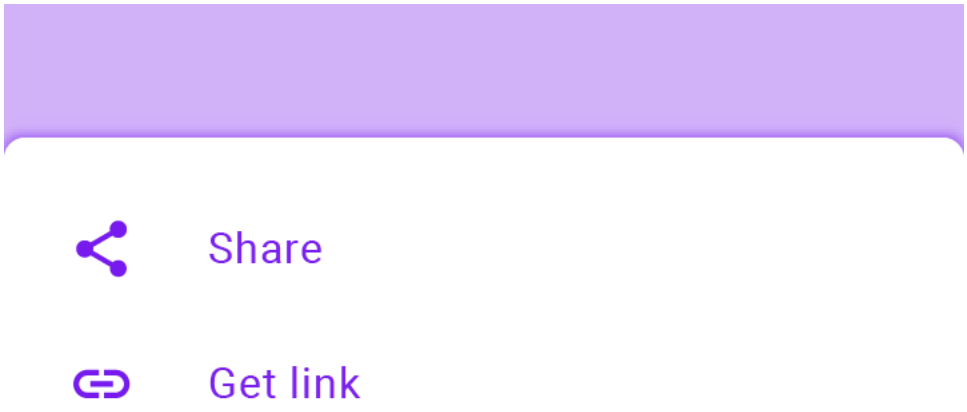
class kivymd.uix.picker.**MDThemePicker**(***kwargs*)
Float layout class. See module documentation for more information.

2.3.8 Bottom Sheet

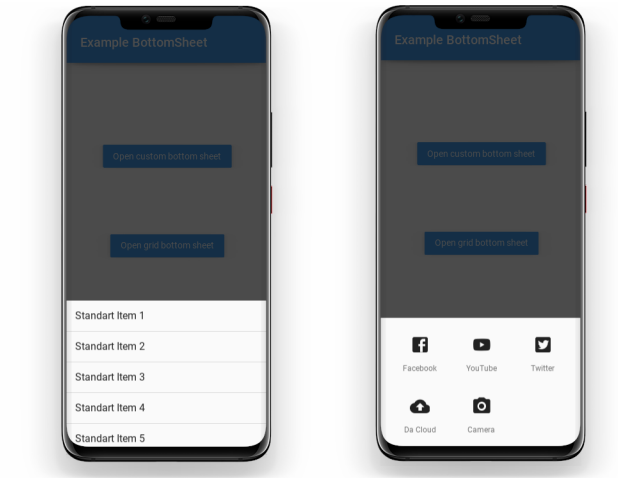
See also:

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 = '''
Screen:

    MDToolbar:
        title: "Example BottomSheet"
        pos_hint: {"top": 1}
        elevation: 10

    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}"
                ),
```

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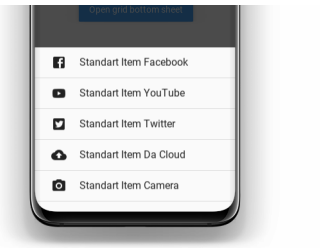
```
            )
        bottom_sheet_menu.open()


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 = '''
Screen:

    MDToolbar:
        title: 'Example BottomSheet'
        pos_hint: {"top": 1}
        elevation: 10

    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()
```

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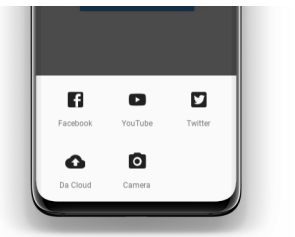
```
        data = {
            "Facebook": "facebook-box",
            "YouTube": "youtube",
            "Twitter": "twitter-box",
            "Da Cloud": "cloud-upload",
            "Camera": "camera",
        }
        for item in data.items():
            bottom_sheet_menu.add_item(
                item[0],
                lambda x, y=item[0]: self.callback_for_menu_items(y),
                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 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"

    MDToolbar:
        title: 'Custom bottom sheet:'

    ScrollView:

        MDGridLayout:
            cols: 1
```

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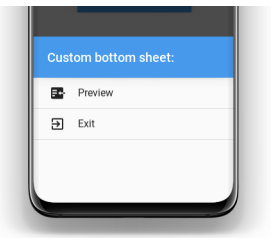
```
            adaptive_height: True

            ItemForCustomBottomSheet:
                icon: "page-previous"
                text: "Preview"

            ItemForCustomBottomSheet:
                icon: "exit-to-app"
                text: "Exit"


Screen:

    MDToolbar:
        title: 'Example BottomSheet'
        pos_hint: {"top": 1}
        elevation: 10

    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

class kivymd.uix.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*.

background

Private attribute.

duration_opening

The duration of the bottom sheet dialog opening animation.

duration_opening is an NumericProperty and defaults to *0.15*.

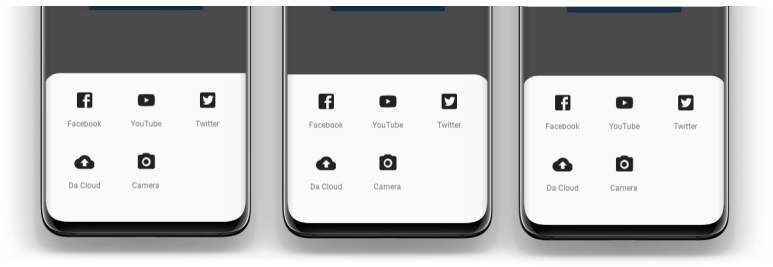
radius

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

To use animation of opening of dialogue of the bottom sheet or not.

animation is an BooleanProperty and defaults to *False*.

bg_color

Dialog background color in rgba format.

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

value_transparent
Background transparency value when opening a dialog.

value_transparent is an ListProperty and defaults to *[0, 0, 0, 0.8]*.

open(*self*, **largs*)
Show the view window from the attach_to widget. If set, it will attach to the nearest window. If the widget is not attached to any window, the view will attach to the global 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())
>>> slider = Slider()
>>> root.add_widget(slider)
```

on_dismiss(*self*)

resize_content_layout(*self*, *content*, *layout*, *interval=0*)

class kivymd.uix.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*.

screen
Custom content.

screen is an ObjectProperty and defaults to *None*.

class kivymd.uix.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*.

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_src** – which will be used as an icon to the left of the item;

class kivymd.uix.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 *'32sp'*.

class kivymd.uix.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*.

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;

2.3.9 Progress Bar

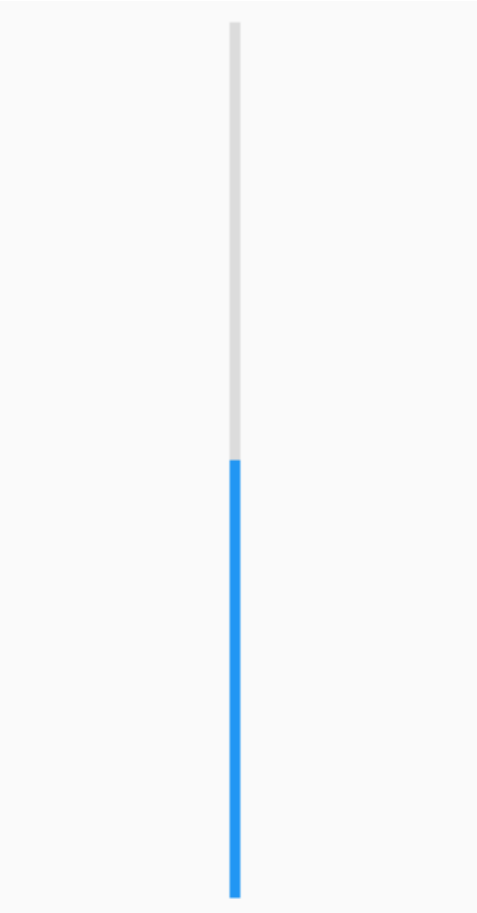
Progress indicators express an unspecified wait time or display the length of a process.

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
BoxLayout:
    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
```

API - kivymd.uix.progressbar

class kivymd.uix.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 rgba format.

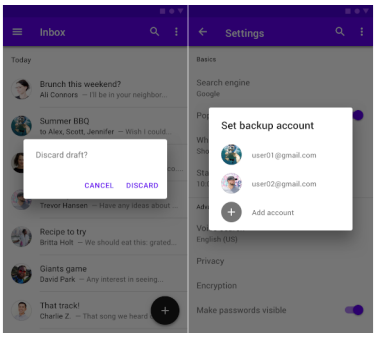
color is an OptionProperty and defaults to *[]*.

2.3.10 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 = '''
FloatLayout:

    MDFlatButton:
```

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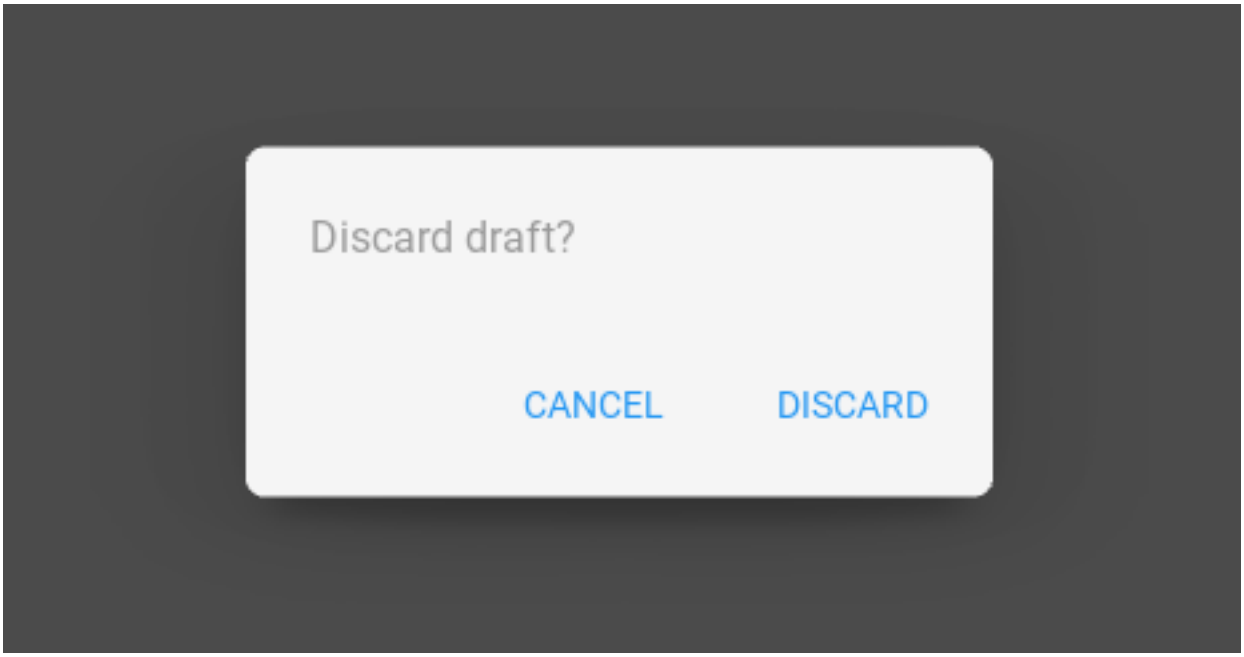
```
        text: "ALERT DIALOG"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_alert_dialog()
'''


class Example(MDApp):
    dialog = None

    def build(self):
        return Builder.load_string(KV)

    def show_alert_dialog(self):
        if not self.dialog:
            self.dialog = MDDialog(
                text="Discard draft?",
                buttons=[
                    MDFlatButton(
                        text="CANCEL", text_color=self.theme_cls.primary_color
                    ),
                    MDFlatButton(
                        text="DISCARD", text_color=self.theme_cls.primary_color
                    ),
                ],
            )
        self.dialog.open()


Example().run()
```



API - kivymd.uix.dialog

class kivymd.uix.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.

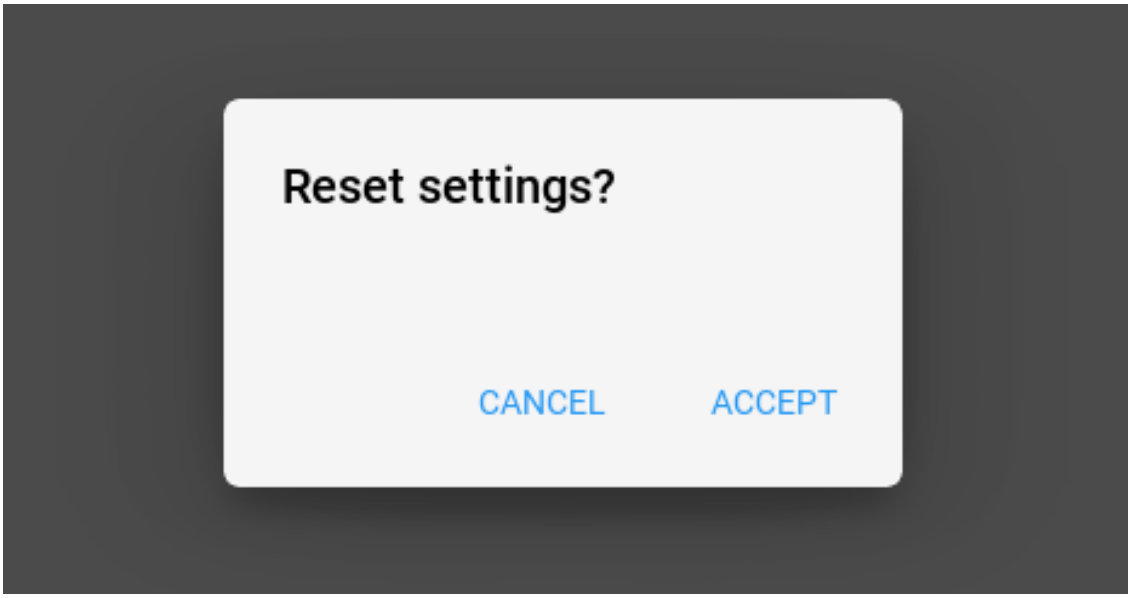
***on_dismiss*:** Fired when the ModalView is closed. If the callback returns True, the dismiss will be canceled.

Changed in version 1.11.0: Added events *on_pre_open* and *on_pre_dismiss*.

title

Title dialog.

```
self.dialog = MDDialog(
    title="Reset settings?",
    buttons=[
        MDFlatButton(
            text="CANCEL", text_color=self.theme_cls.primary_color
        ),
        MDFlatButton(
            text="ACCEPT", text_color=self.theme_cls.primary_color
        ),
    ],
)
```

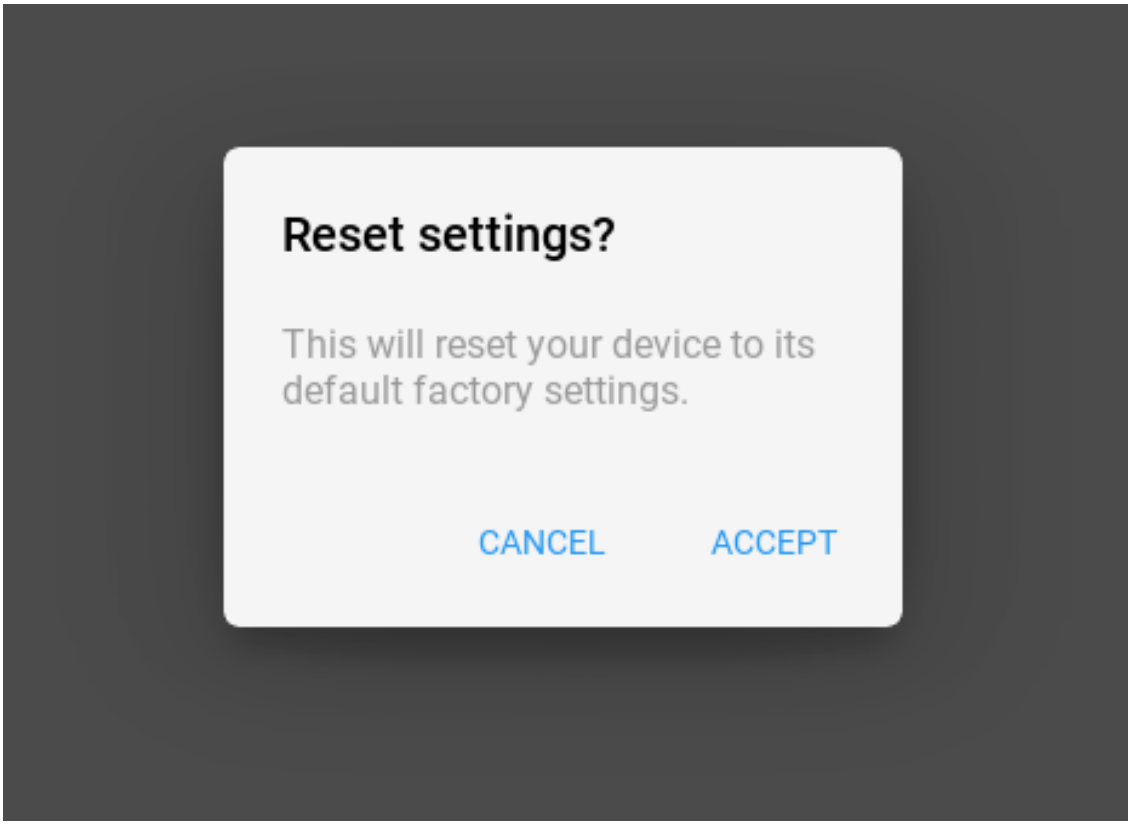


title is an StringProperty and defaults to ‘’.

text

Text dialog.

```
self.dialog = MDDialog(
    title="Reset settings?",
    text="This will reset your device to its default factory settings.",
    buttons=[
        MDFlatButton(
            text="CANCEL", text_color=self.theme_cls.primary_color
        ),
        MDFlatButton(
            text="ACCEPT", text_color=self.theme_cls.primary_color
        ),
    ],
)
```

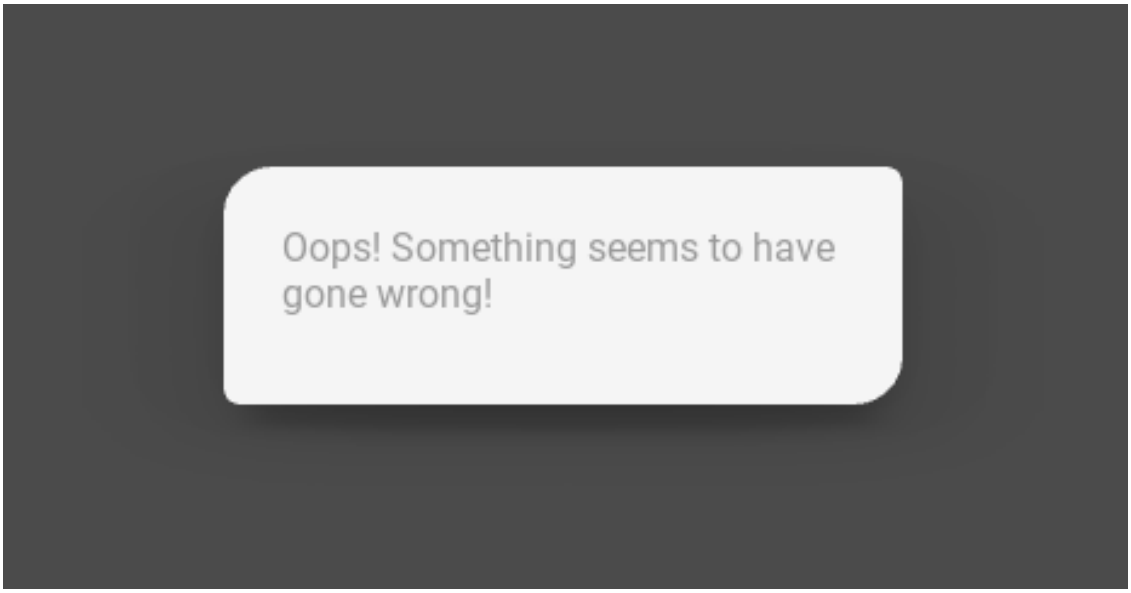


text is an `StringProperty` and defaults to ‘’.

radius

Dialog corners rounding value.

```
self.dialog = MDDialog(
    text="Oops! Something seems to have gone wrong!",
    radius=[20, 7, 20, 7],
)
```

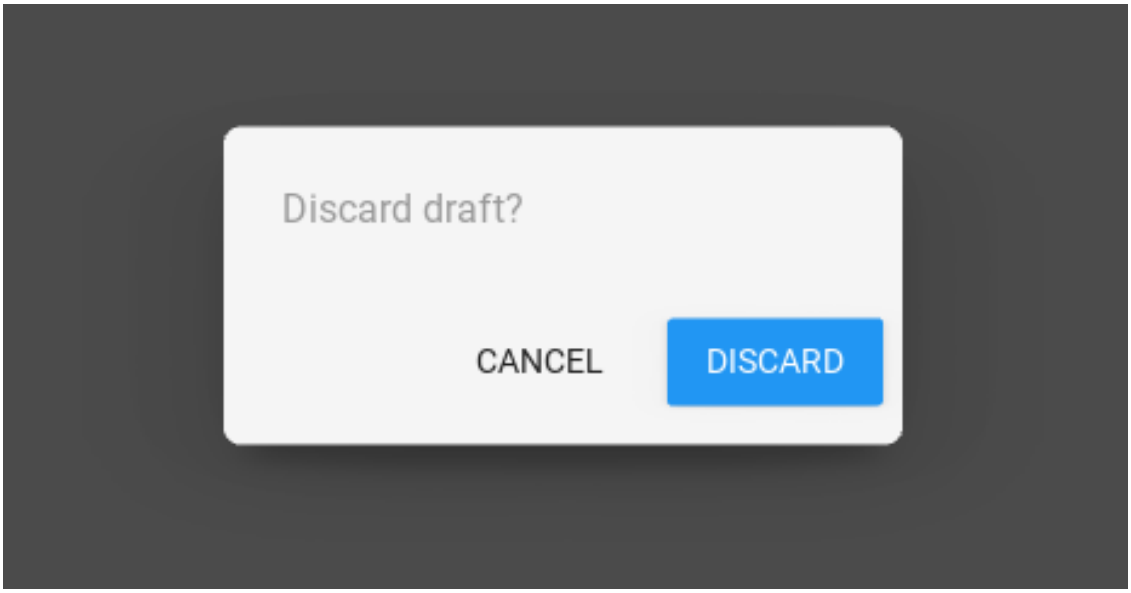


radius is an `ListProperty` and defaults to *[7, 7, 7, 7]*.

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"),
    ],
)
```

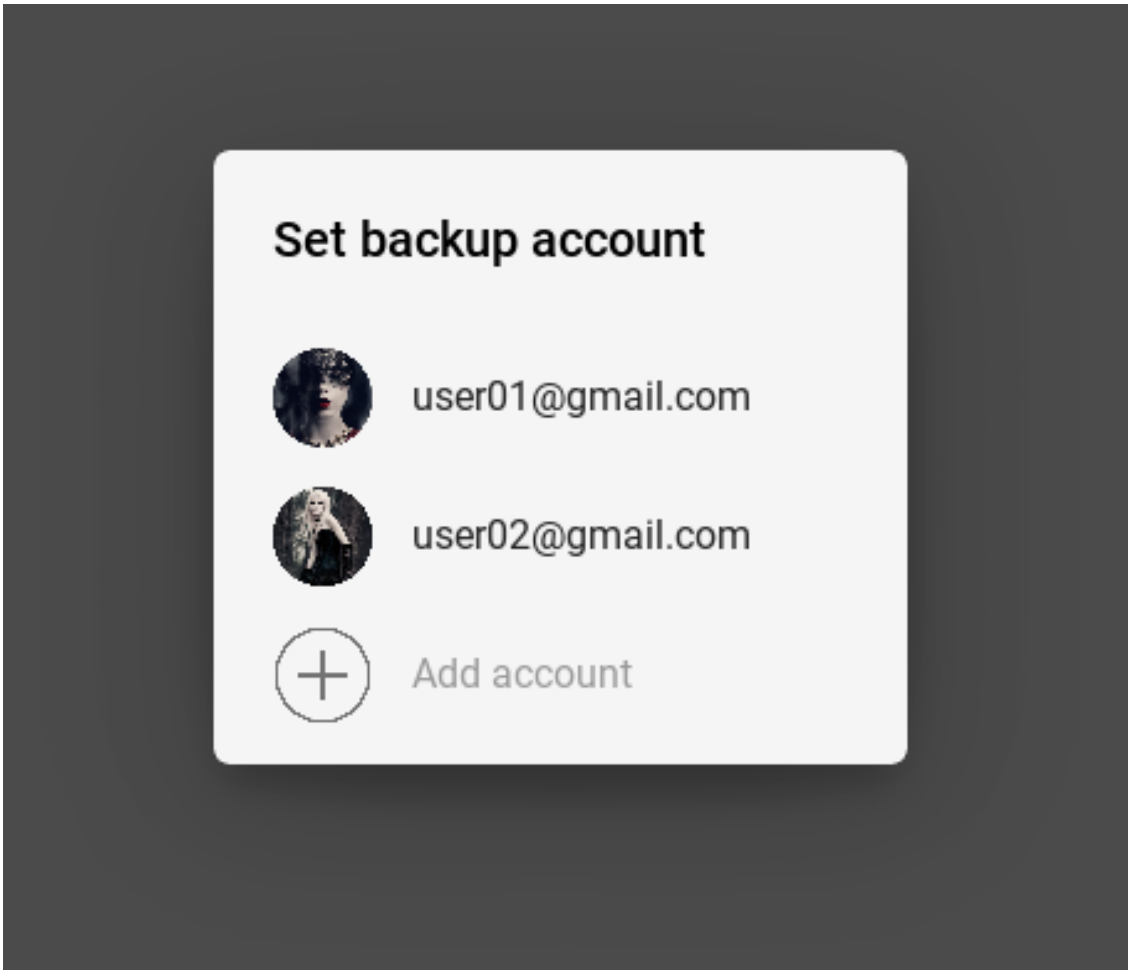


buttons is an `ListProperty` and defaults to *[]*.

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


FloatLayout:

    MDFlatButton:
        text: "ALERT DIALOG"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_simple_dialog()
'''


class Item(OneLineAvatarListItem):
    divider = None
    source = StringProperty()


class Example(MDApp):
    dialog = None

    def build(self):
        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="user-1.png"),
                    Item(text="user02@gmail.com", source="user-2.png"),
                    Item(text="Add account", source="add-icon.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 = '''
<ItemConfirm>
    on_release: root.set_icon(check)

    CheckboxRightWidget:
        id: check
        group: "check"


FloatLayout:

    MDFlatButton:
        text: "ALERT DIALOG"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: app.show_confirmation_dialog()
'''
```

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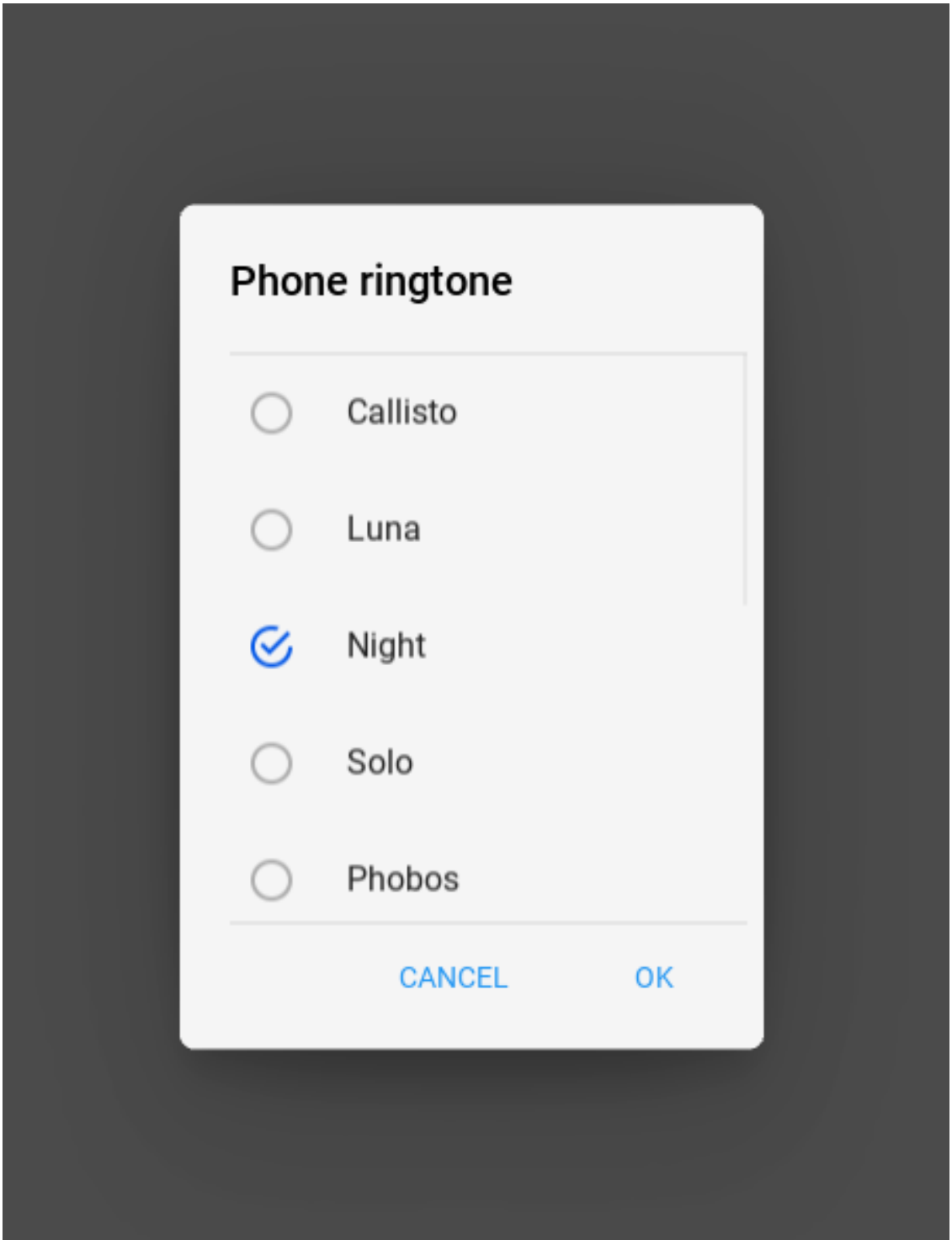
```
class ItemConfirm(OneLineAvatarIconListItem):
    divider = None

    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):
        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"),
                    ItemConfirm(text="Tic-tac"),
                ],
                buttons=[
                    MDFlatButton(
                        text="CANCEL", text_color=self.theme_cls.primary_color
                    ),
                    MDFlatButton(
                        text="OK", text_color=self.theme_cls.primary_color
                    ),
                ],
            )
        self.dialog.open()


Example().run()
```



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

type
Dialog type. Available option are *'alert'*, *'simple'*, *'confirmation'*, *'custom'*.

type is an `OptionProperty` and defaults to *'alert'*.

content_cls
Custom content class.

```
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"


FloatLayout:

    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):
        return Builder.load_string(KV)

    def show_confirmation_dialog(self):
        if not self.dialog:
            self.dialog = MDDialog(
                title="Address:",
                type="custom",
                content_cls=Content(),
                buttons=[
                    MDFlatButton(
                        text="CANCEL", text_color=self.theme_cls.primary_color
                    ),
                    MDFlatButton(
                        text="OK", text_color=self.theme_cls.primary_color
                    ),
                ],
            )
        self.dialog.open()
```

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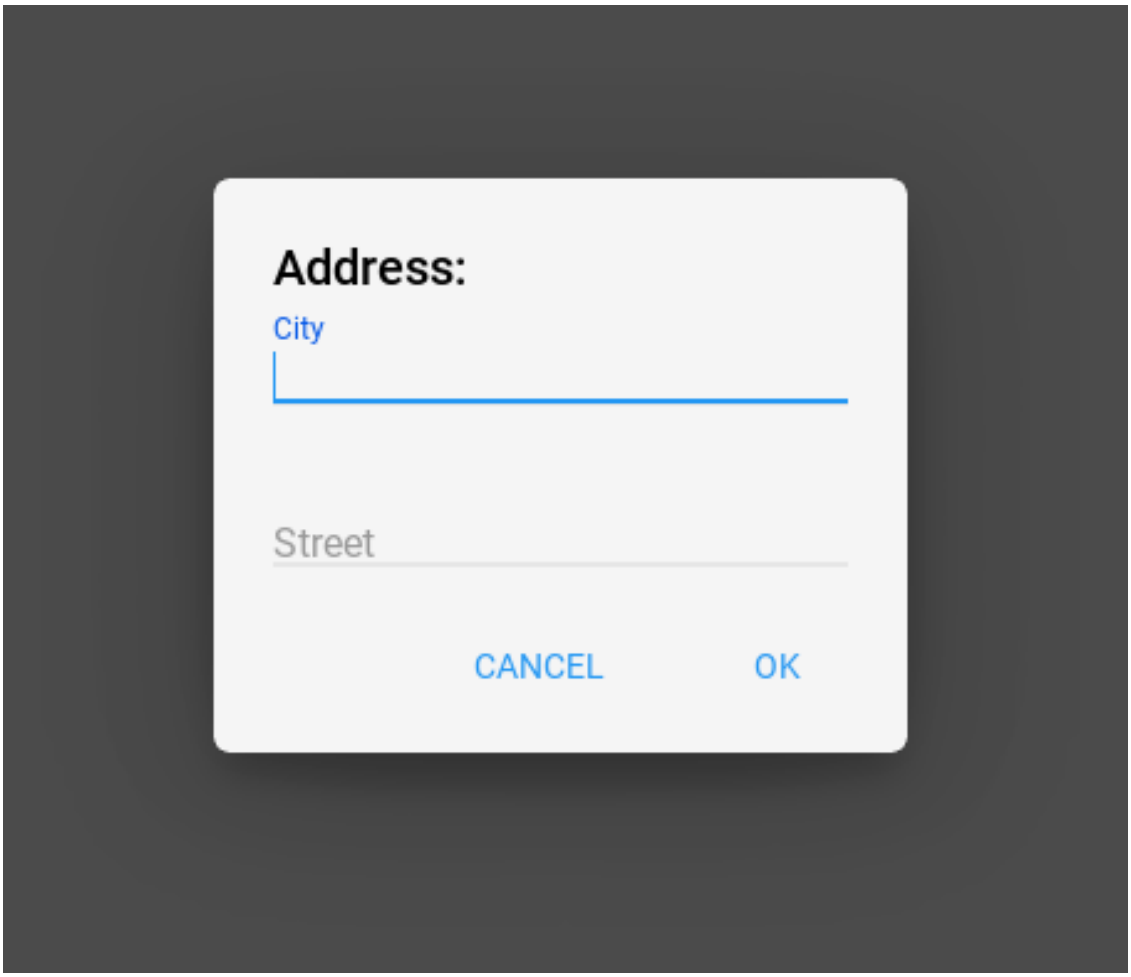
```
Example().run()
```



content_cls is an ObjectProperty and defaults to *'None'*.

on_open(*self*)

set_normal_height(*self*)

get_normal_height(*self*)

edit_padding_for_item(*self*, *instance_item*)

create_items(*self*)

create_buttons(*self*)

2.3.11 User Animation Card

Example

```
from kivymd.app import MDApp
from kivy.lang import Builder
from kivy.factory import Factory

from kivymd.toast import toast
from kivymd.theming import ThemeManager
from kivymd.uix.useranimationcard import MDUserAnimationCard
from kivymd.uix.button import MDIconButton
from kivymd.uix.list import ILeftBodyTouch

# Your content for a contact card.
Builder.load_string('''
#:import get_hex_from_color kivy.utils.get_hex_from_color


<TestAnimationCard@MDBoxLayout>
    orientation: 'vertical'
    padding: dp(10)
    spacing: dp(10)
    adaptive_height: True

    MDBoxLayout:
        adaptive_height: True

        Widget:
        MDRoundFlatButton:
            text: "Free call"
        Widget:
        MDRoundFlatButton:
            text: "Free message"
        Widget:

    OneLineIconListItem:
        text: "Video call"
        IconLeftSampleWidget:
            icon: 'camera-front-variant'

    TwoLineIconListItem:
        text: "Call Viber Out"
        secondary_text: "[color=%s]Advantageous rates for calls[/color]" % get_hex_
↪from_color(app.theme_cls.primary_color)
        IconLeftSampleWidget:
            icon: 'phone'

    TwoLineIconListItem:
        text: "Call over mobile network"
        secondary_text: "[color=%s]Operator's tariffs apply[/color]" % get_hex_from_
↪color(app.theme_cls.primary_color)
        IconLeftSampleWidget:
            icon: 'remote'
''')
```

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```
class IconLeftSampleWidget(ILeftBodyTouch, MDIconButton):
    pass


class Example(MDApp):
    title = "Example Animation Card"

    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.user_animation_card = None

    def build(self):
        def main_back_callback():
            toast('Close card')

        if not self.user_animation_card:
            self.user_animation_card = MDUserAnimationCard(
                user_name="Lion Lion",
                path_to_avatar="./assets/african-lion-951778_1280.jpg",
                callback=main_back_callback)
            self.user_animation_card.box_content.add_widget(
                Factory.TestAnimationCard())
        self.user_animation_card.open()


Example().run()
```

API - kivymd.uix.useranimationcard

class kivymd.uix.useranimationcard.**MDUserAnimationCard**(***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*.

user_name

path_to_avatar

box_content

callback

on_open(*self*)

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_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.

animation_to_bottom(*self*)

animation_to_top(*self*)

class kivymd.uix.useranimationcard.**UserAnimationCard**(***kwargs*)
Float layout class. See module documentation for more information.

user_name

path_to_avatar

class kivymd.uix.useranimationcard.**ModifiedToolbar**(***kwargs*)
Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the EventDispatcher. Event properties can now be used when contructing a simple class without subclassing Widget.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

left_action_items

title

on_left_action_items(*self*, *instance*, *value*)

update_action_bar(*self*, *action_bar*, *action_bar_items*)

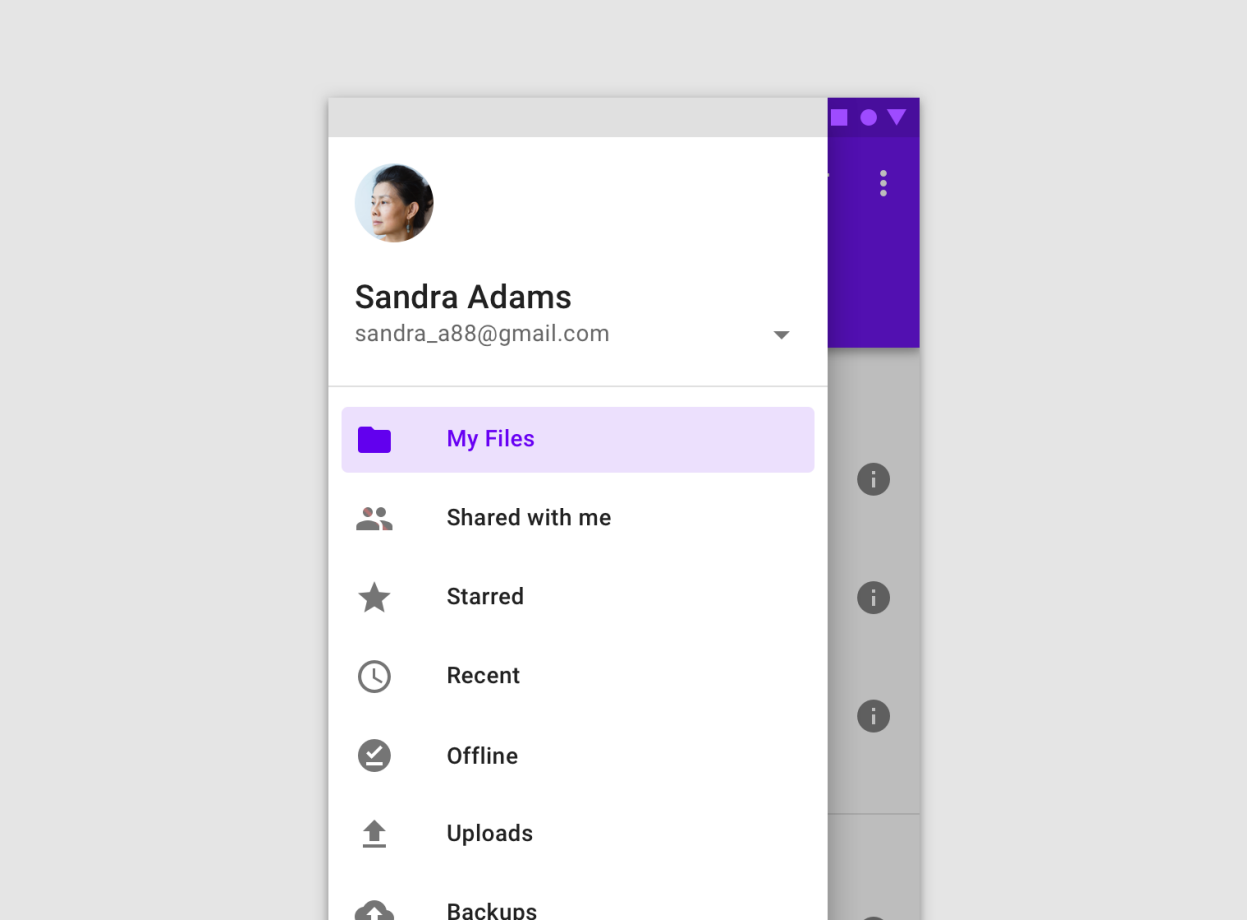
update_action_bar_text_colors(*self*, *instance*, *value*)

2.3.12 Navigation Drawer

See also:

Material Design 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:

```
Root:

    NavigationLayout:

        ScreenManager:

            Screen_1:

            Screen_2:

        MDNavigationDrawer:
            # This custom rule should implement what will be appear in your␣
↪MDNavigationDrawer
            ContentNavigationDrawer
```

A simple example:

```
from kivy.uix.boxlayout import BoxLayout

from kivymd.app import MDApp
from kivy.lang import Builder

KV = '''
Screen:

    NavigationLayout:

        ScreenManager:

            Screen:

                BoxLayout:
                    orientation: 'vertical'

                    MDToolbar:
                        title: "Navigation Drawer"
                        elevation: 10
                        left_action_items: [['menu', lambda x: nav_drawer.toggle_nav_
↪drawer()]]

                    Widget:


        MDNavigationDrawer:
            id: nav_drawer

            ContentNavigationDrawer:
'''


class ContentNavigationDrawer(BoxLayout):
    pass


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


TestNavigationDrawer().run()
```

Note: *MDNavigationDrawer* is an empty *MDCard* panel.

Let's extend the `ContentNavigationDrawer` class from the above example and create content for our *MDNavigationDrawer* panel:

```
# Menu item in the DrawerList list.
<ItemDrawer>:
    theme_text_color: "Custom"
```

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```
    on_release: self.parent.set_color_item(self)

    IconLeftWidget:
        id: icon
        icon: root.icon
        theme_text_color: "Custom"
        text_color: root.text_color
```

```
class ItemDrawer(OneLineIconListItem):
    icon = StringProperty()
```

Top of `ContentNavigationDrawer` and `DrawerList` for menu items:

```
<ContentNavigationDrawer>:
    orientation: "vertical"
    padding: "8dp"
    spacing: "8dp"

    AnchorLayout:
        anchor_x: "left"
        size_hint_y: None
        height: avatar.height

        Image:
            id: avatar
            size_hint: None, None
            size: "56dp", "56dp"
            source: "kivymd_logo.png"

    MDLabel:
        text: "KivyMD library"
        font_style: "Button"
        size_hint_y: None
        height: self.texture_size[1]

    MDLabel:
        text: "kivydevelopment@gmail.com"
        font_style: "Caption"
        size_hint_y: None
        height: self.texture_size[1]

    ScrollView:

        DrawerList:
            id: md_list
```

```
class ContentNavigationDrawer(BoxLayout):
    pass
```

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```
class DrawerList(ThemableBehavior, MDList):
    def set_color_item(self, instance_item):
        '''Called when tap on a menu item.'''

        # Set the color of the icon and text for the menu item.
        for item in self.children:
            if item.text_color == self.theme_cls.primary_color:
                item.text_color = self.theme_cls.text_color
                break
        instance_item.text_color = self.theme_cls.primary_color
```

Create a menu list for `ContentNavigationDrawer`:

```
def on_start(self):
    icons_item = {
        "folder": "My files",
        "account-multiple": "Shared with me",
        "star": "Starred",
        "history": "Recent",
        "checkbox-marked": "Shared with me",
        "upload": "Upload",
    }
    for icon_name in icons_item.keys():
        self.root.ids.content_drawer.ids.md_list.add_widget(
            ItemDrawer(icon=icon_name, text=icons_item[icon_name])
        )
```

Switching screens in the `ScreenManager` and using the common `MDToolbar`

```
from kivy.lang import Builder
from kivy.uix.boxlayout import BoxLayout
from kivy.properties import ObjectProperty

from kivymd.app import MDApp

KV = '''
<ContentNavigationDrawer>:

    ScrollView:
```

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```
        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"


Screen:

    MDToolbar:
        id: toolbar
        pos_hint: {"top": 1}
        elevation: 10
        title: "MDNavigationDrawer"
        left_action_items: [["menu", lambda x: nav_drawer.set_state("open")]]

    NavigationLayout:
        x: toolbar.height

        ScreenManager:
            id: screen_manager

            Screen:
                name: "scr 1"

                MDLabel:
                    text: "Screen 1"
                    halign: "center"

            Screen:
                name: "scr 2"

                MDLabel:
                    text: "Screen 2"
                    halign: "center"

        MDNavigationDrawer:
            id: nav_drawer

            ContentNavigationDrawer:
                screen_manager: screen_manager
                nav_drawer: nav_drawer
'''


class ContentNavigationDrawer(BoxLayout):
    screen_manager = ObjectProperty()
    nav_drawer = ObjectProperty()
```

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


TestNavigationDrawer().run()
```

See also:

Full example of Components-Navigation-Drawer

API - kivymd.uix.navigationdrawer

class kivymd.uix.navigationdrawer.**NavigationLayout**(***kwargs*)

Float layout class. See module documentation for more information.

add_scrim(*self*, *widget*)

update_scrim_rectangle(*self*, **args*)

add_widget(*self*, *widget*, *index=0*, *canvas=None*)

Only two layouts are allowed: `ScreenManager` and *`MDNavigationDrawer`*.

class kivymd.uix.navigationdrawer.**MDNavigationDrawer**(***kwargs*)

Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

anchor

Anchoring screen edge for drawer. Set it to *'right'* for right-to-left languages. Available options are: *'left'*, *'right'*.

`anchor` is a `OptionProperty` and defaults to *left*.

close_on_click
Close when click on scrim or keyboard escape.

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*.

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_color
Color for scrim. Alpha channel will be multiplied with _scrim_alpha. Set fourth channel to 0 if you want to disable scrim.

scrim_color is a ListProperty and defaults to *[0, 0, 0, 0.5]*.

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"*.

toggle_nav_drawer(*self*)

update_status(*self*, **_*)

get_dist_from_side(*self*, *x*)

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.

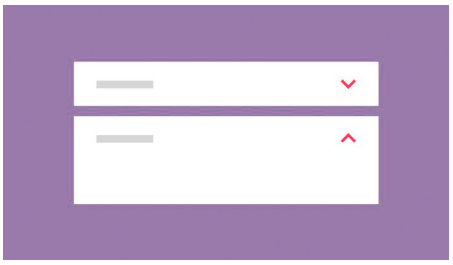
See *on_touch_down()* for more information.

2.3.13 Expansion Panel

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

```
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'


ScrollView:

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


class Content(MDBoxLayout):
    '''Custom content.'''
```

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```
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=f"{images_path}kivymd_logo.png",
                    content=Content(),
                    panel_cls=MDExpansionPanelThreeLine(
                        text="Text",
                        secondary_text="Secondary text",
                        tertiary_text="Tertiary text",
                    )
                )
            )


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`

class kivymd.uix.expansionpanel.**MDExpansionPanelOneLine**(***kwargs*)
Single line panel.

class kivymd.uix.expansionpanel.**MDExpansionPanelTwoLine**(***kwargs*)
Two-line panel.

class kivymd.uix.expansionpanel.**MDExpansionPanelThreeLine**(***kwargs*)
Three-line panel.

class kivymd.uix.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 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*)
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*)
Sets the chevron up.

close_panel(*self*, *instance_panel*)
Method closes the panel.

open_panel(*self*, **args*)
Method opens a panel.

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.

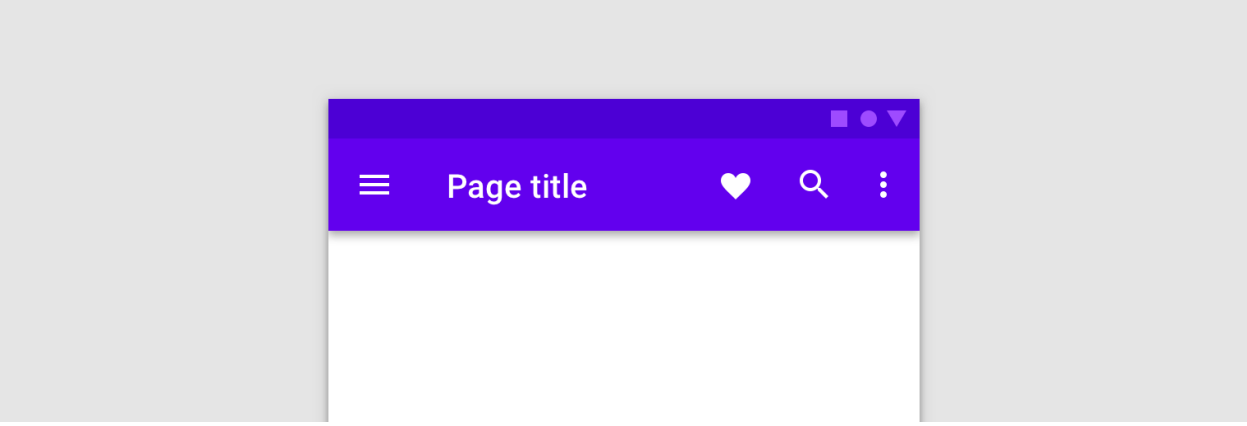
```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.14 Toolbar

See also:

Material Design spec, App bars: top

Material Design spec, App bars: bottom

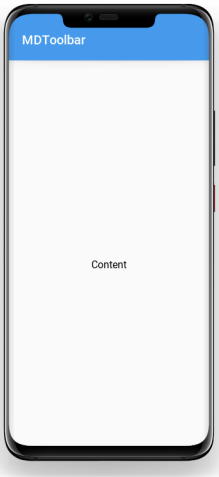


KivyMD provides the following toolbar positions for use:

- *Top*
- *Bottom*

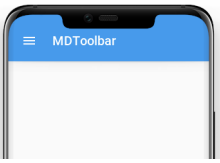
Top

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
BoxLayout:
    orientation: "vertical"

    MDToolbar:
        title: "MDToolbar"

    MDLabel:
        text: "Content"
        halign: "center"
'''


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


Test().run()
```



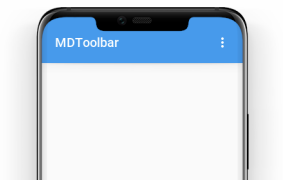
Add left menu

```
MDToolbar:
    title: "MDToolbar"
    left_action_items: [["menu", lambda x: app.callback()]]
```



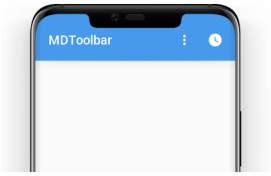
Add right menu

```
MDToolbar:
    title: "MDToolbar"
    right_action_items: [["dots-vertical", lambda x: app.callback()]]
```



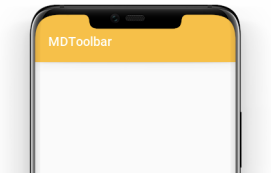
Add two item to the right menu

```
MDToolbar:
    title: "MDToolbar"
    right_action_items: [["dots-vertical", lambda x: app.callback_1()], ["clock",␣
↪lambda x: app.callback_2()]]
```



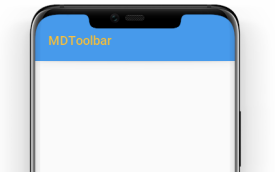
Change toolbar color

```
MDToolbar:
    title: "MDToolbar"
    md_bg_color: app.theme_cls.accent_color
```



Change toolbar text color

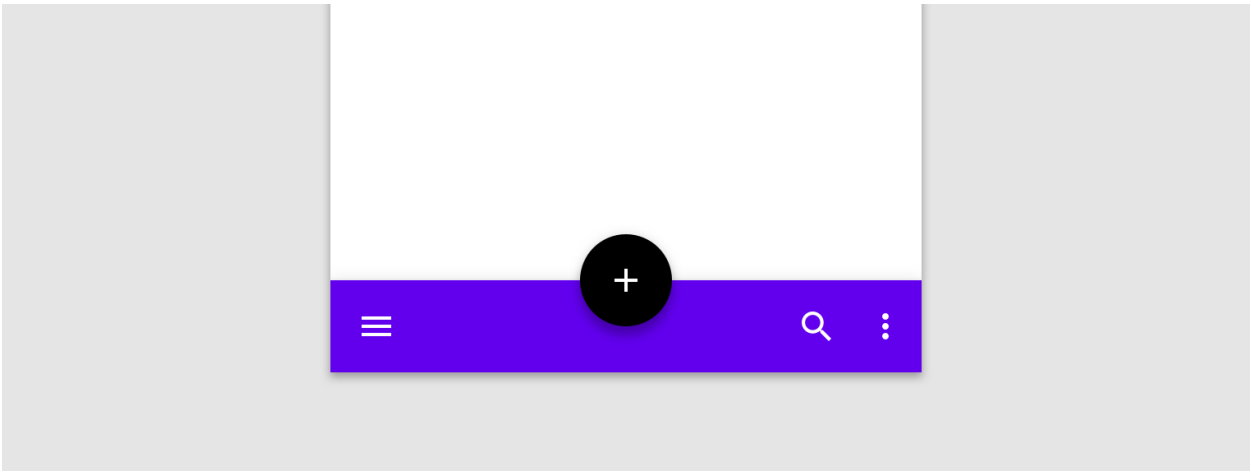
```
MDToolbar:
    title: "MDToolbar"
    specific_text_color: app.theme_cls.accent_color
```



Shadow elevation control

```
MDToolbar:
    title: "Elevation 10"
    elevation: 10
```

Bottom



Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
BoxLayout:

    # Will always be at the bottom of the screen.
    MDBottomAppBar:

        MDToolbar:
            title: "Title"
            icon: "git"
            type: "bottom"
            left_action_items: [["menu", lambda x: x]]
'''


class Test(MDApp):
```

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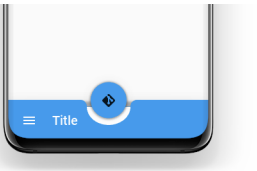
```
    def build(self):
        return Builder.load_string(KV)


Test().run()
```



Event on floating button

Event `on_action_button`:

```
MDBottomAppBar:

    MDToolbar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        on_action_button: app.callback(self.icon)
```

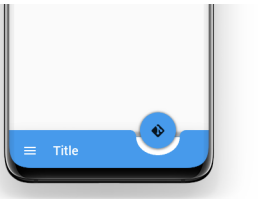
Floating button position

Mode:

- *'free-end'*
- *'free-center'*
- *'end'*
- *'center'*

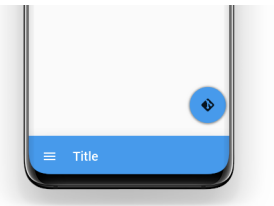
```
MDBottomAppBar:

    MDToolbar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        mode: "end"
```



```
MDBottomAppBar:

    MDToolbar:
        title: "Title"
        icon: "git"
        type: "bottom"
        left_action_items: [["menu", lambda x: x]]
        mode: "free-end"
```



See also:

Components-Bottom-App-Bar

API - kivymd.uix.toolbar

class kivymd.uix.toolbar.**MDActionBottomAppBarButton**(***kwargs*)
Abstract base class for all round buttons, bringing in the appropriate on-touch behavior

class kivymd.uix.toolbar.**MDToolbar**(***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:

```
left_action_items: [`'icon_name'`, callback]
```

where *'icon_name'* is a string that corresponds to an icon definition and `callback` is the function called on a touch release event.

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.

title is an `StringProperty` and defaults to *''*.

md_bg_color
Color toolbar.

md_bg_color is an `ListProperty` and defaults to *[0, 0, 0, 0]*.

anchor_title

mode
Floating button position. Onle for *MDBottomAppBar* class. Available options are: *'free-end'*, *'free-center'*, *'end'*, *'center'*.

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

round
Rounding the corners at the notch for a button. Onle for *MDBottomAppBar* class.

round is an NumericProperty and defaults to *'10dp'*.

icon
Floating button. Onle for *MDBottomAppBar* class.

icon is an StringProperty and defaults to *'android'*.

icon_color
Color action button. Onle for *MDBottomAppBar* class.

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

type
When using the *MDBottomAppBar* class, the parameter type must be set to *'bottom'*:

```
MDBottomAppBar:

    MDToolbar:
        type: "bottom"
```

Available options are: *'top'*, *'bottom'*.

type is an OptionProperty and defaults to *'top'*.

on_action_button(*self*, **args*)

on_md_bg_color(*self*, *instance*, *value*)

on_left_action_items(*self*, *instance*, *value*)

on_right_action_items(*self*, *instance*, *value*)

update_action_bar(*self*, *action_bar*, *action_bar_items*)

update_action_bar_text_colors(*self*, *instance*, *value*)

on_icon(*self*, *instance*, *value*)

on_icon_color(*self*, *instance*, *value*)

on_mode(*self*, *instance*, *value*)

remove_notch(*self*)

set_notch(*self*)

remove_shadow(*self*)

set_shadow(*self*, **args*)

class kivymd.uix.toolbar.**MDBottomAppBar**(***kwargs*)
Float layout class. See module documentation for more information.

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.

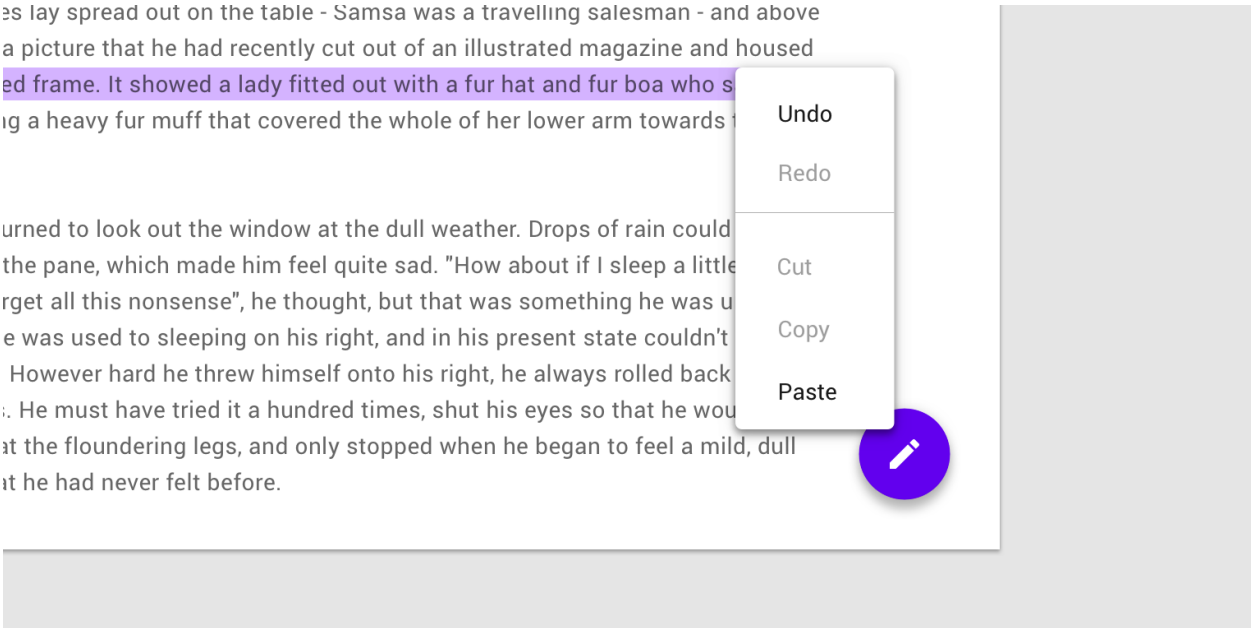
```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.15 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 = '''
Screen:

    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)
        self.screen = Builder.load_string(KV)
        menu_items = [{"icon": "git", "text": f"Item {i}"} for i in range(5)]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.button, items=menu_items, width_mult=4
        )

    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

You must create a new class that inherits from the *RightContent* class:

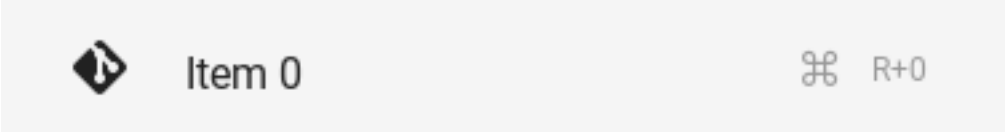
```
class RightContentCls(RightContent):
    pass
```

Now in the KV rule you can create your own elements that will be displayed in the menu item on the right:

```
<RightContentCls>
    disabled: True

    MDIconButton:
        icon: root.icon
        user_font_size: "16sp"
        pos_hint: {"center_y": .5}

    MDLabel:
        text: root.text
        font_style: "Caption"
        size_hint_x: None
        width: self.texture_size[0]
        text_size: None, None
```



Now create menu items as usual, but add the key `right_content_cls` whose value is the class `RightContentCls` that you created:

```
menu_items = [
    {
        "right_content_cls": RightContentCls(
            text=f"R+{i}", icon="apple-keyboard-command",
        ),
        "icon": "git",
        "text": f"Item {i}",
    }
    for i in range(5)
]
self.menu = MDDropdownMenu(
    caller=self.screen.ids.button, items=menu_items, width_mult=4
)
```

Full example

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu, RightContent

KV = '''
<RightContentCls>
    disabled: True

    MDIconButton:
        icon: root.icon
        user_font_size: "16sp"
        pos_hint: {"center_y": .5}

    MDLabel:
        text: root.text
        font_style: "Caption"
        size_hint_x: None
        width: self.texture_size[0]
        text_size: None, None


Screen:

    MDRaisedButton:
        id: button
        text: "PRESS ME"
        pos_hint: {"center_x": .5, "center_y": .5}
        on_release: app.menu.open()
'''


class RightContentCls(RightContent):
    pass


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        menu_items = [
            {
                "right_content_cls": RightContentCls(
                    text=f"R+{i}", icon="apple-keyboard-command",
                ),
                "icon": "git",
                "text": f"Item {i}",
            }
            for i in range(5)
        ]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.button, items=menu_items, width_mult=4
        )

    def build(self):
```

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```
        return self.screen


Test().run()
```

Menu with MDToolbar

Warning: The *MDDropdownMenu* does not work with the standard *MDToolbar*. You can use your own `CustomToolbar` and bind the menu window output to its elements.

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu
from kivymd.theming import ThemableBehavior
from kivymd.uix.behaviors import RectangularElevationBehavior
from kivymd.uix.boxlayout import MDBoxLayout

KV = '''
<CustomToolbar>:
    size_hint_y: None
    height: self.theme_cls.standard_increment
    padding: "5dp"
    spacing: "12dp"

    MDIconButton:
        id: button_1
        icon: "menu"
        pos_hint: {"center_y": .5}
        on_release: app.menu_1.open()

    MDLabel:
        text: "MDDropdownMenu"
        pos_hint: {"center_y": .5}
        size_hint_x: None
        width: self.texture_size[0]
        text_size: None, None
        font_style: 'H6'

    Widget:

    MDIconButton:
        id: button_2
        icon: "dots-vertical"
        pos_hint: {"center_y": .5}
        on_release: app.menu_2.open()


Screen:

    CustomToolbar:
        id: toolbar
```

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```
        elevation: 10
        pos_hint: {"top": 1}
'''


class CustomToolbar(
    ThemableBehavior, RectangularElevationBehavior, MDBoxLayout,
):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.md_bg_color = self.theme_cls.primary_color


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        self.menu_1 = self.create_menu(
            "Button menu", self.screen.ids.toolbar.ids.button_1
        )
        self.menu_2 = self.create_menu(
            "Button dots", self.screen.ids.toolbar.ids.button_2
        )

    def create_menu(self, text, instance):
        menu_items = [{"icon": "git", "text": text} for i in range(5)]
        return MDDropdownMenu(caller=instance, items=menu_items, width_mult=5)

    def build(self):
        return self.screen


Test().run()
```

Position menu

Bottom position

See also:

position

```
from kivy.clock import Clock
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu

KV = '''
Screen

    MDTextField:
        id: field
```

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```
        pos_hint: {'center_x': .5, 'center_y': .5}
        size_hint_x: None
        width: "200dp"
        hint_text: "Password"
        on_focus: if self.focus: app.menu.open()
'''


class Test(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        menu_items = [{"icon": "git", "text": f"Item {i}"} for i in range(5)]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.field,
            items=menu_items,
            position="bottom",
            callback=self.set_item,
            width_mult=4,
        )

    def set_item(self, instance):
        def set_item(interval):
            self.screen.ids.field.text = instance.text

        Clock.schedule_once(set_item, 0.5)

    def build(self):
        return self.screen


Test().run()
```

Center position

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.menu import MDDropdownMenu

KV = '''
Screen

    MDDropDownItem:
        id: drop_item
        pos_hint: {'center_x': .5, 'center_y': .5}
        text: 'Item 0'
        on_release: app.menu.open()
'''


class Test(MDApp):
    def __init__(self, **kwargs):
```

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```
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)
        menu_items = [{"icon": "git", "text": f"Item {i}"} for i in range(5)]
        self.menu = MDDropdownMenu(
            caller=self.screen.ids.drop_item,
            items=menu_items,
            position="center",
            callback=self.set_item,
            width_mult=4,
        )

    def set_item(self, instance):
        self.screen.ids.drop_item.set_item(instance.text)

    def build(self):
        return self.screen


Test().run()
```

API - kivymd.uix.menu

class kivymd.uix.menu.**RightContent**(***kwargs*)

Same as IRightBody, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect

text

icon

class kivymd.uix.menu.**MDMenuItem**(***kwargs*)

A one line list item.

icon

class kivymd.uix.menu.**MDDropdownMenu**(***kwargs*)

Float layout class. See module documentation for more information.

items

See data.

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.

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.

max_height is a NumericProperty and defaults to *0*.

border_margin
Margin between Window border and menu.

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'*.

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'*.

hor_growth is a OptionProperty and defaults to *None*.

background_color
Color of the background of the menu.

background_color is a ListProperty and defaults to *[]*.

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.

opening_time is a NumericProperty and defaults to *0.2*.

caller
The widget object that caller the menu window.

caller is a ObjectProperty and defaults to *None*.

callback
The method that will be called when you click menu items.

callback is a ObjectProperty and defaults to *None*.

position
Menu window position relative to parent element. Available options are: *'auto'*, *'center'*, *'bottom'*.

position is a OptionProperty and defaults to *'auto'*.

use_icon_item
Whether to use menu items with an icon on the left.

use_icon_item is a BooleanProperty and defaults to *True*.

check_position_caller(*self*, *instance*, *width*, *height*)

create_menu_items(*self*)
Creates menu items.

set_menu_properties(*self*, *interval*)
Sets the size and position for the menu window.

open(*self*)
Animate the opening of a menu window.

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*)

dismiss(*self*)

2.3.16 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
```

API - kivymd.uix.floatlayout

class kivymd.uix.floatlayout.**MDFloatLayout**(***kwargs*)
Float layout class. See module documentation for more information.

2.3.17 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
height: 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**(***kwargs*)
Grid layout class. See module documentation for more information.

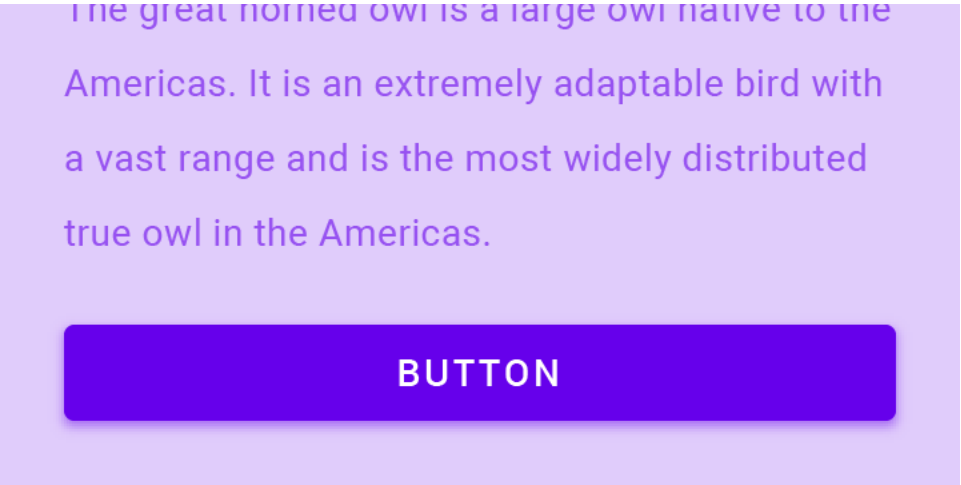
2.3.18 Button

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

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
Screen:

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


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


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: "data/logo/kivy-icon-256.png"
```

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

```
MDIconButton:
    icon: "android"
    user_font_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*:

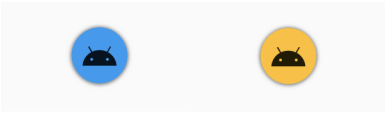
```
MDIconButton:
    icon: "android"
    theme_text_color: "Custom"
    text_color: app.theme_cls.primary_color
```

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
```



The length of the shadow is controlled by the `elevation_normal` parameter:

```
MDFloatingActionButton:
    icon: "android"
    elevation_normal: 12
```

MDFlatButton

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

```
MDFlatButton:
    text: "MDFLATBUTTON"
    text_color: 0, 0, 1, 1
```


Or use markup:

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

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"
```

Warning: You cannot use the `size_hint_x` parameter for *KivyMD* buttons (the width of the buttons is set automatically)!

However, if there is a need to increase the width of the button, you can use the parameter `increment_width`:

```
MDFlatButton:
    text: "MDFLATBUTTON"
    increment_width: "164dp"
```

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: 1, 0, 1, 1
```

MDRectangleFlatButton

Button parameters *MDRectangleFlatButton* are the same as button *MDRaisedButton*:

```
MDRectangleFlatButton:
    text: "MDRECTANGLEFLATBUTTON"
    text_color: 0, 0, 1, 1
    md_bg_color: 1, 1, 0, 1
```

Note: Note that the frame color will be the same as the text color.

MDRectangleFlatIconButton

Button parameters *MDRectangleFlatButton* are the same as button *MDRectangleFlatButton*:

```
MDRectangleFlatIconButton:
    icon: "android"
    text: "MDRECTANGLEFLATICONBUTTON"
    width: dp(280)
```

Warning: *MDRectangleFlatButton* does not stretch to match the text and is always `dp(150)`. But you should not set the width of the button using parameter `increment_width`. You should set the width instead using the `width` parameter.

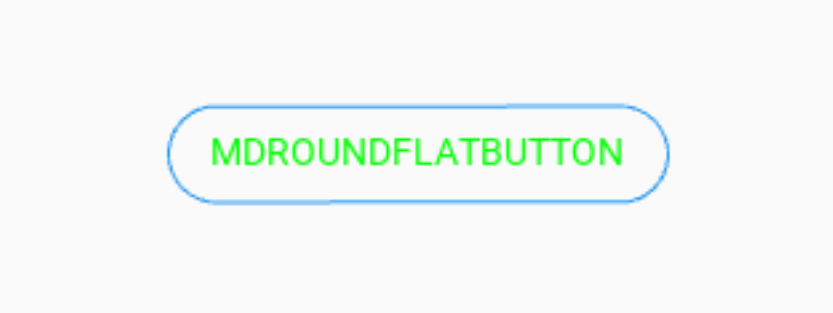
MDRoundFlatButton

Button parameters *MDRoundFlatButton* are the same as button *MDRectangleFlatButton*:

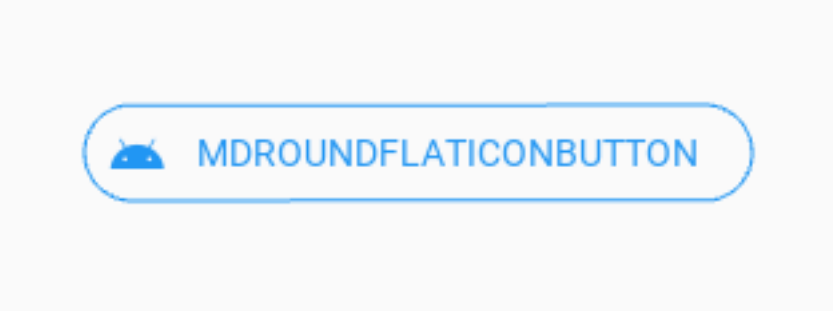
```
MDRoundFlatButton:
    text: "MDROUNDFLATBUTTON"
```

Warning: The border color does not change when using `text_color` parameter.

```
MDRoundFlatButton:
    text: "MDROUNDFLATBUTTON"
    text_color: 0, 1, 0, 1
```



MDRoundFlatIconButton



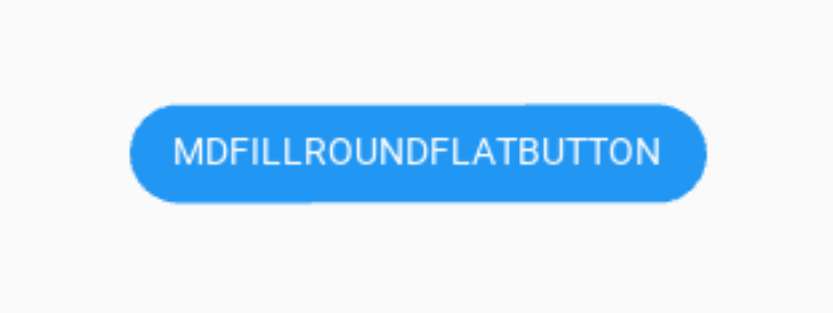
Button parameters *MDRoundFlatIconButton* are the same as button *MDRoundFlatButton*:

```
MDRoundFlatIconButton:
    icon: "android"
    text: "MDROUNDFLATICONBUTTON"
    width: dp(250)
```

Warning: The border color does not change when using `text_color` parameter.

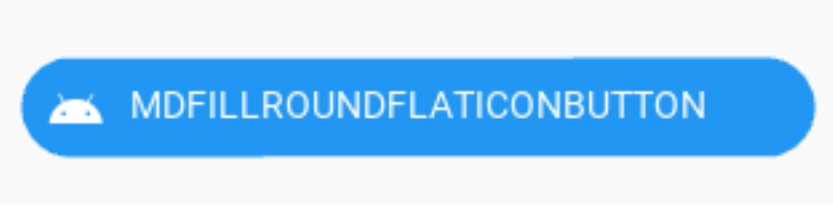
Warning: *MDRoundFlatIconButton* does not stretch to match the text and is always `dp(150)`. But you should not set the width of the button using parameter `increment_width`. You should set the width instead using the `width` parameter.

MDFillRoundFlatButton



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

MDFillRoundFlatIconButton



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

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

MDTextButton


```
MDTextButton:
    text: "MDTEXTBUTTON"
    custom_color: 0, 1, 0, 1
```

MDFloatingActionButtonSpeedDial

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

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
Screen:

    MDFloatingActionButtonSpeedDial:
        data: app.data
        rotation_root_button: True
'''


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

    def build(self):
        return Builder.load_string(KV)


Example().run()
```

Or without KV Language:

```
from kivy.uix.screenmanager import Screen

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


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

    def build(self):
        screen = Screen()
        speed_dial = MDFloatingActionButtonSpeedDial()
        speed_dial.data = self.data
        speed_dial.rotation_root_button = True
        screen.add_widget(speed_dial)
        return screen
```

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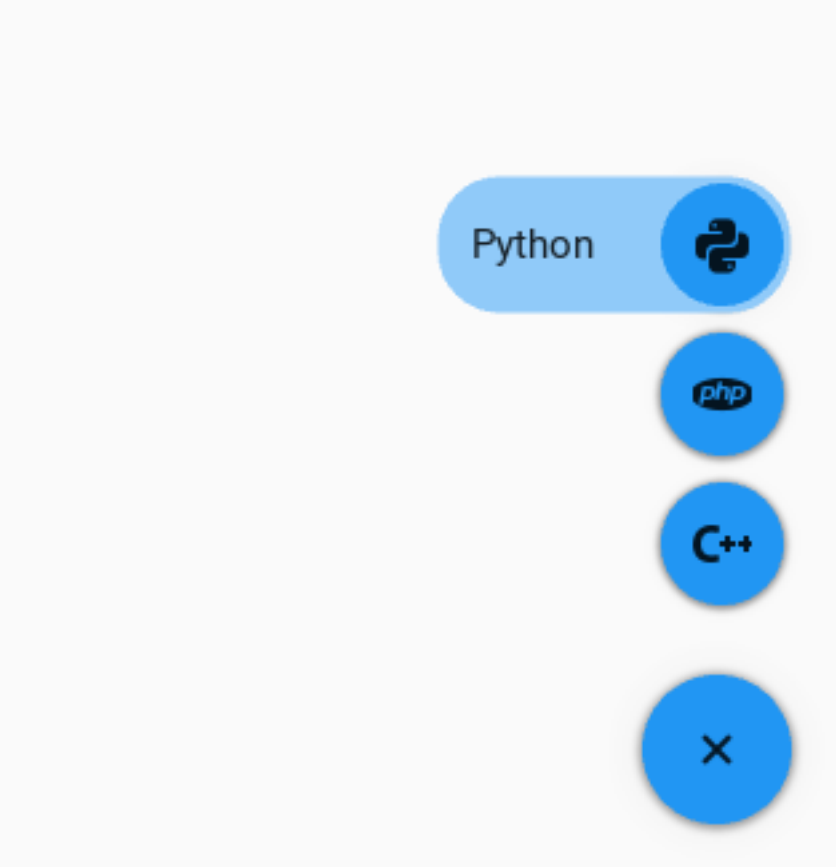
```
Example().run()
```

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:
    bg_hint_color: app.theme_cls.primary_light
```



See also:

See full example

API - kivymd.uix.button

class kivymd.uix.button.**MDIconButton**(***kwargs*)
Abstract base class for all round buttons, bringing in the appropriate on-touch behavior

icon
Button icon.

icon is an StringProperty and defaults to *'checkbox-blank-circle'*.

class kivymd.uix.button.**MDFlatButton**(***kwargs*)
Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

class kivymd.uix.button.**MDRaisedButton**(***kwargs*)
Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

class kivymd.uix.button.**MDFloatingActionButton**(***kwargs*)
Abstract base class for all round buttons, bringing in the appropriate on-touch behavior

icon
Button icon.

icon is an StringProperty and defaults to *'android'*.

background_palette
The name of the palette used for the background color of the button.

background_palette is an StringProperty and defaults to *'Accent'*.

class kivymd.uix.button.**MDRectangleFlatButton**(***kwargs*)
Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

class kivymd.uix.button.**MDRoundFlatButton**(***kwargs*)
Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

lay_canvas_instructions(*self*)

class kivymd.uix.button.**MDTextButton**(***kwargs*)
Button class, see module documentation for more information.

Changed in version 1.8.0: The behavior / logic of the button has been moved to ButtonBehaviors.

custom_color
Custom user button color if rgba format.

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

animation_label(*self*)

on_press(*self*, **args*)

class kivymd.uix.button.**MDFillRoundFlatButton**(***kwargs*)
Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

class kivymd.uix.button.**MDRectangleFlatIconButton**(***kwargs*)
Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

class kivymd.uix.button.**MDRoundFlatIconButton**(***kwargs*)

Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

class kivymd.uix.button.**MDFillRoundFlatIconButton**(***kwargs*)

Abstract base class for all rectangular buttons, bringing in the appropriate on-touch behavior. Also maintains the correct minimum width as stated in guidelines.

icon

Button icon.

icon is an StringProperty and defaults to *'android'*.

increment_width

Button extra width value.

increment_width is an NumericProperty and defaults to *'80dp'*.

class kivymd.uix.button.**MDFloatingActionButtonSpeedDial**(***kwargs*)

Events

on_open Called when a stack is opened.

on_close Called when a stack is closed.

icon

Root button icon name.

icon is a StringProperty and defaults to *'plus'*.

anchor

Stack anchor. Available options are: *'right'*.

anchor is a OptionProperty and defaults to *'right'*.

callback

Custom callback.

```
MDFloatingActionButtonSpeedDial:
    callback: app.callback
```

```
def callback(self, instance):
    print(instance.icon)
```

callback is a ObjectProperty and defaults to *None*.

label_text_color

Floating text color in rgba format.

label_text_color is a ListProperty and defaults to *[0, 0, 0, 1]*.

data

Must be a dictionary

```
{
    'name-icon': 'Text label',
    ...,
    ...,
}
```

right_pad
If *True*, the button will increase on the right side by 2.5 piesels if the *hint_animation* parameter equal to *True*.

False

True

right_pad is a BooleanProperty and defaults to *False*.

rotation_root_button
If True then the root button will rotate 45 degrees when the stack is opened.

rotation_root_button 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
Root button color in `rgba` format.

bg_color_root_button is a `ListProperty` and defaults to *[]*.

bg_color_stack_button
The color of the buttons in the stack `rgba` format.

bg_color_stack_button is a `ListProperty` and defaults to *[]*.

color_icon_stack_button
The color icon of the buttons in the stack `rgba` format.

color_icon_stack_button is a `ListProperty` and defaults to *[]*.

color_icon_root_button
The color icon of the root button `rgba` format.

color_icon_root_button is a `ListProperty` and defaults to *[]*.

bg_hint_color
Background color for the text of the buttons in the stack `rgba` format.

bg_hint_color is a `ListProperty` and defaults to *[]*.

hint_animation
Whether to use button extension animation to display text labels.

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

on_open(*self*, **args*)
Called when a stack is opened.

on_close(*self*, **args*)
Called when a stack is closed.

on_leave(*self*, *instance*)
Called when the mouse cursor goes outside the button of stack.

on_enter(*self*, *instance*)
Called when the mouse cursor is over a button from the stack.

on_data(*self*, *instance*, *value*)
Creates a stack of buttons.

on_icon(*self*, *instance*, *value*)

on_label_text_color(*self*, *instance*, *value*)

on_color_icon_stack_button(*self*, *instance*, *value*)

on_hint_animation(*self*, *instance*, *value*)

on_bg_hint_color(*self*, *instance*, *value*)

on_color_icon_root_button(*self*, *instance*, *value*)

on_bg_color_stack_button(*self*, *instance*, *value*)

on_bg_color_root_button(*self*, *instance*, *value*)

set_pos_labels(*self*, *widget*)
Sets the position of the floating labels.

set_pos_root_button(*self*, *instance*)
Sets the position of the root button.

set_pos_bottom_buttons (*self*, *instance*)
Sets the position of the bottom buttons in a stack.

open_stack (*self*, *instance*)
Opens a button stack.

do_animation_open_stack (*self*, *anim_data*)

close_stack (*self*)
Closes the button stack.

2.3.19 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**(***kwargs*)

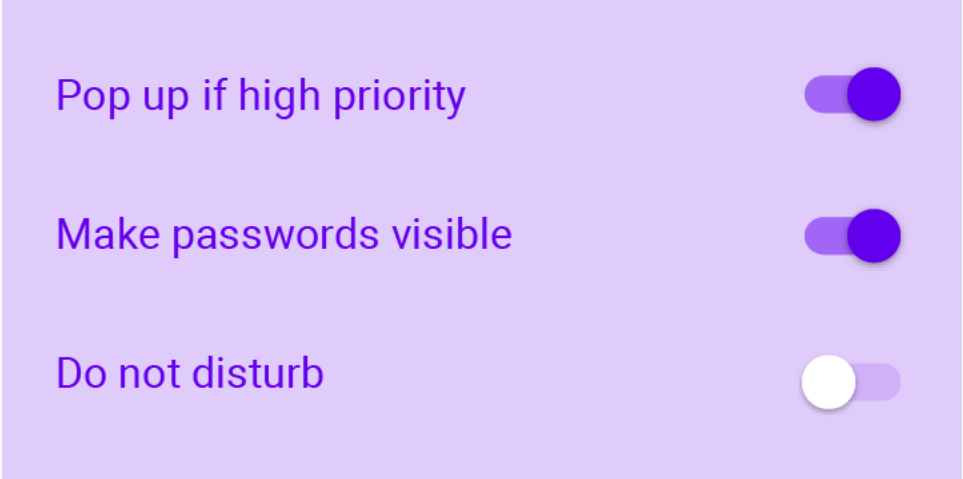
Box layout class. See module documentation for more information.

2.3.20 Selection Controls

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 = '''
FloatLayout:

    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

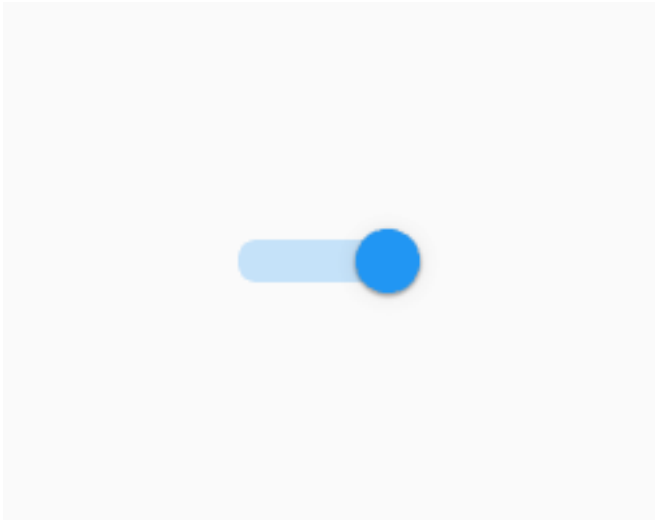
```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
<Check@MDCheckbox>:
    group: 'group'
    size_hint: None, None
    size: dp(48), dp(48)


FloatLayout:

    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 = '''
FloatLayout:

    MDSwitch:
        pos_hint: {'center_x': .5, 'center_y': .5}
'''


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


Test().run()
```

Note: For *MDCheckbox* 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*.

API - kivymd.uix.selectioncontrol

class kivymd.uix.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-outline'*.

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-outline'*.

selected_color

Selected color in rgba format.

selected_color is a ListProperty and defaults to *[]*.

unselected_color

Unelected color in rgba format.

unselected_color is a ListProperty and defaults to *[]*.

disabled_color

Disabled color in rgba format.

disabled_color is a ListProperty and defaults to *[]*.

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.**MDSwitch**(***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).

active
Indicates if the switch is active or inactive.

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

thumb_color
Get thumb color `rgba` format.

`thumb_color` is an `AliasProperty` and property is readonly.

thumb_color_disabled
Get thumb color disabled `rgba` format.

`thumb_color_disabled` is an `AliasProperty` and property is readonly.

thumb_color_down
Get thumb color down `rgba` format.

`thumb_color_down` is an `AliasProperty` and property is readonly.

on_size(*self*, **args*)

2.3.21 Context Menu

Example

```
from kivymd.app import MDApp
from kivy.lang import Builder

from kivymd.theming import ThemeManager

kv = '''
FloatLayout:

    MDContextMenu:
        menu: app.menu
        pos_hint: {'top': 1}
        on_enter: app.on_enter(*args)

        MDContextMenuItem:
            text: 'File'

        MDContextMenuItem:
            text: 'Edit'
'''


MENU = [
    [
        "File",
        [
            {"Item 1": []},
            {
                "Item 2": [
                    "Item 1",
```

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```
                    "Item 2",
                    "Separator",
                    ["language-python", "Item 3"],
                ]
            },
            "Separator",
            {"Item 3": []},
            {
                "Item 4": [
                    ["language-python", "Item 1"],
                    ["language-cpp", "Item 2"],
                    "Separator",
                    ["language-swift", "Item 3"],
                ]
            },
            "Separator",
            {"Item 5": []},
        ],
    ],

    [
        "Edit",
        [
            {"Item 1": []},
            ["language-swift", "Item 3"]
        ]
    ]

]


class Test(MDApp):
    context_menu = None
    menu = MENU

    def on_enter(self, instance):
        '''
        :type instance: <kivymd.context_menu.MDContextMenu object>

        '''

        print(instance.current_selected_menu.text)

    def build(self):
        root = Builder.load_string(kv)
        return root


Test().run()
```

API - kivymd.uix.context_menu

class kivymd.uix.context_menu.**MDContextDropdownMenu**(***kwargs*)
Float layout class. See module documentation for more information.

menu_item

display_menu(*self*, *caller*)

class kivymd.uix.context_menu.**BasedMenuItem**(***kwargs*)
List item for toolbar context menu.

text
Text of Item.

background_color
Background color of Item.

selected_color
Selected color of Item.

arrow_right
The path to the image of the right arrow.

color_text_item_menu_header
Header color for context menu items.

context_menu
<kivymd.context_menu.MDContextMenu object>.

name_item_menu
The currently selected context menu header item.

on_enter(*self*)
Fired when mouse enter the bbox of the widget.

on_leave(*self*)
Fired when the mouse exit the widget.

class kivymd.uix.context_menu.**MenuItem**(***kwargs*)
List item for toolbar context menu.

class kivymd.uix.context_menu.**MenuIconItem**(***kwargs*)
List item for toolbar context menu.

icon

icon_color

icon_size

class kivymd.uix.context_menu.**MDContextMenuItem**(***kwargs*)
An item inside the context menu header.

text
Text item

color_active
Color of the item when it is selected.

text_color
Color of the item.

on_enter(*self*)
Called when the mouse cursor hovers over one of the items in the header of the context menu.

diactivate_item(*self*)

class kivymd.uix.context_menu.**MDContextMenu**(***kwargs*)

MDContextMenu.

Events

on_enter Called when an item is selected in the context menu header

on_leave Called when the context menu is closed

menu

background_color_context_menu
Context menu background color.

selected_color_item_context_menu
The highlight color of the current item in the context menu.

background_color_menu_header
Header color for context menu items.

color_text_item_menu_header
Header color for context menu items.

icon_color
The color of the icons used for menu items.

icon_size
The size of the icons used for menu items.

separator_height
Line separator height.

context_menu_open = False
Open or close context menu.

context_submenu_open = False
Open or close context sub menu.

current_selected_menu
Object of the selected item in the context menu header.

current_selected_item =
Name of the selected item in the context menu.

sub_menu
Submenu object.

on_enter(*self*)
Called when an item is selected in the context menu header.

on_leave(*self*)
Called when the context menu is closed.

add_separator(*self*, *list_menu*)

add_icon_item(*self*, *list_menu*, *data*)

generates_context_submenu(*self*, *instance_menu_item*, *name_item_menu*, *text*)
Generates a sub menu.

generates_context_menu(*self*, *instance*, *name_item_menu*)
Generates a menu.

open(*self*, *instance*, *name_item_menu*)

open_menu (*self*, *instance*, *menu_list*)

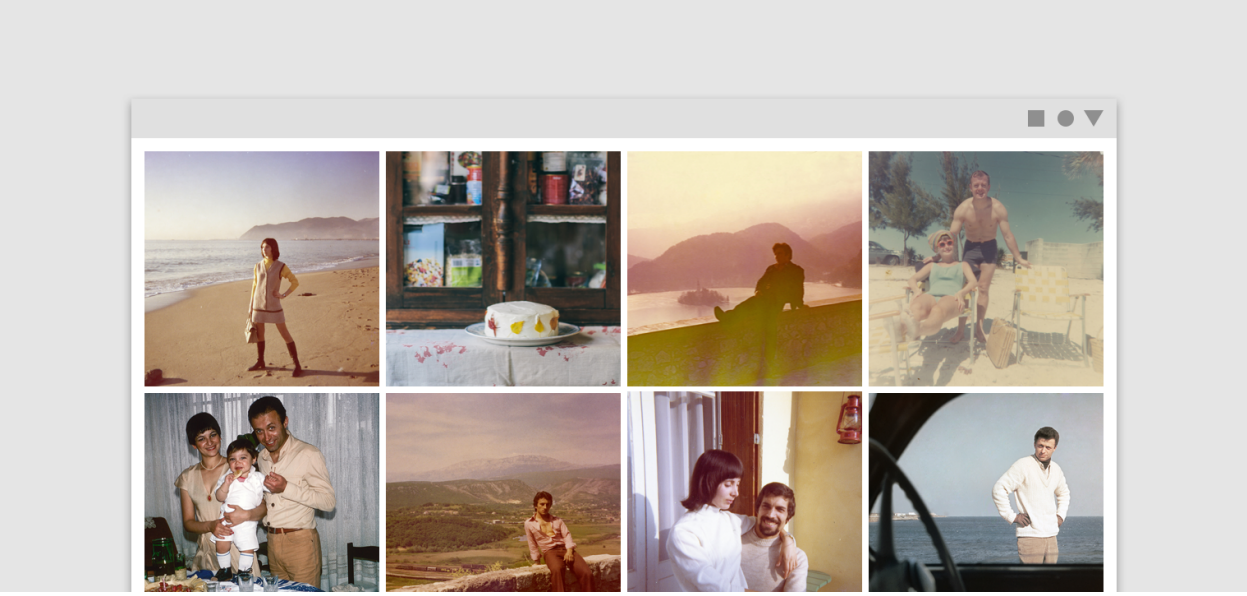
context_previous_menu_dismiss (*self*, **args*)
Called when closing the context menu.

2.3.22 Image List

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:

- *SmartTileWithStar*
- *SmartTileWithLabel*

SmartTileWithStar

```
from kivymd.app import MDApp
from kivy.lang import Builder

KV = '''
ScrollView:

    MDGridLayout:
        cols: 3
        row_default_height: (self.width - self.cols*self.spacing[0]) / self.cols
        row_force_default: True
        adaptive_height: True
        padding: dp(4), dp(4)
        spacing: dp(4)
```

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```
        SmartTileWithStar:
            stars: 5
            source: "cat-1.jpg"

        SmartTileWithStar:
            stars: 5
            source: "cat-2.jpg"

        SmartTileWithStar:
            stars: 5
            source: "cat-.jpg"
'''


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


MyApp().run()
```

SmartTileWithLabel

```
from kivymd.app import MDApp
from kivy.lang import Builder

KV = '''
ScrollView:

    MDGridLayout:
        cols: 3
        row_default_height: (self.width - self.cols*self.spacing[0]) / self.cols
        row_force_default: True
        adaptive_height: True
        padding: dp(4), dp(4)
        spacing: dp(4)

        SmartTileWithLabel:
            source: "cat-1.jpg"
            text: "[size=26]Cat 1[/size]\n[size=14]cat-1.jpg[/size]"

        SmartTileWithLabel:
            source: "cat-2.jpg"
            text: "[size=26]Cat 2[/size]\n[size=14]cat-2.jpg[/size]"
            tile_text_color: app.theme_cls.accent_color

        SmartTileWithLabel:
            source: "cat-3.jpg"
            text: "[size=26][color=#ffffff]Cat 3[/color][/size]\n[size=14]cat-3.jpg[/
↪size]"
            tile_text_color: app.theme_cls.accent_color
'''
```

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


MyApp().run()
```

API - kivymd.uix.imagelist

class kivymd.uix.imagelist.**Tile**(***kwargs*)
A simple tile. It does nothing special, just inherits the right behaviors to work as a building block.

class kivymd.uix.imagelist.**SmartTile**(***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.

box_color
Sets the color and opacity for the information box.

box_color is a ListProperty and defaults to *[0, 0, 0, 0.5]*.

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

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

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.

lines is a OptionProperty and defaults to *1*.

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

overlap is a BooleanProperty and defaults to *True*.

allow_stretch
See allow_stretch.

allow_stretch is a BooleanProperty and defaults to *True*.

anim_delay
See anim_delay.

anim_delay is a NumericProperty and defaults to *0.25*.

anim_loop
See anim_loop.

anim_loop is a NumericProperty and defaults to *0*.

keep_ratio
See keep_ratio.

keep_ratio is a BooleanProperty and defaults to *False*.

mipmap
See mipmap.

mipmap is a BooleanProperty and defaults to *False*.

source
Path to tile image. See source.

source is a StringProperty and defaults to *''*.

reload(*self*)

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.imagelist.**SmartTileWithLabel**(***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.

font_style
Tile font style.

font_style is a StringProperty and defaults to *'Caption'*.

tile_text_color
Tile text color in rgba format.

text is a StringProperty and defaults to ``.

text
Determines the text for the box *footer/header*.

text is a StringProperty and defaults to ''.

class kivymd.uix.imagelist.**Star**(***kwargs*)
Abstract base class for all round buttons, bringing in the appropriate on-touch behavior

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.

class kivymd.uix.imagelist.**SmartTileWithStar**(***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.

stars
Tile stars.

stars is a NumericProperty and defaults to *1*.

on_stars(*self*, **args*)

class kivymd.uix.imagelist.**IBoxOverlay**
An interface to specify widgets that belong to to the image overlay in the *SmartTile* widget when added as a child.

class kivymd.uix.imagelist.**IOverlay**
An interface to specify widgets that belong to to the image overlay in the *SmartTile* widget when added as a child.

2.3.23 Refresh Layout

Example

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

from kivymd.uix.button import MDIconButton
```

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```
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@FloatLayout>

    BoxLayout:
        orientation: 'vertical'

        MDToolbar:
            title: app.title
            md_bg_color: app.theme_cls.primary_color
            background_palette: 'Primary'
            elevation: 10
            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
```

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```
    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.'''

        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

class kivymd.uix.refreshlayout.**MDScrollViewRefreshLayout**(***kargs*)

ScrollView class. See module documentation for more information.

Events

on_scroll_start Generic event fired when scrolling starts from touch.

on_scroll_move Generic event fired when scrolling move from touch.

on_scroll_stop Generic event fired when scrolling stops from touch.

Changed in version 1.9.0: *on_scroll_start*, *on_scroll_move* and *on_scroll_stop* events are now dispatched when scrolling to handle nested ScrollViews.

Changed in version 1.7.0: *auto_scroll*, *scroll_friction*, *scroll_moves*, *scroll_stoptime' has been deprecated, use :attr:`effect_cls* instead.

root_layout

The spinner will be attached to this layout.

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*)

class kivymd.uix.refreshlayout.**RefreshSpinner**(***kwargs*)

Float layout class. See module documentation for more information.

spinner_color

start_anim_spinner(*self*)

hide_anim_spinner(*self*)

set_spinner(*self*, **args*)

2.3.24 Text Field

See also:

Material Design spec, Text fields

Text fields let users enter and edit text.

KivyMD provides the following field classes for use:

- *MDTextField*
- *MDTextFieldRound*
- *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 = '''
BoxLayout:
    padding: "10dp"

    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_y": .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.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"
    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"
```

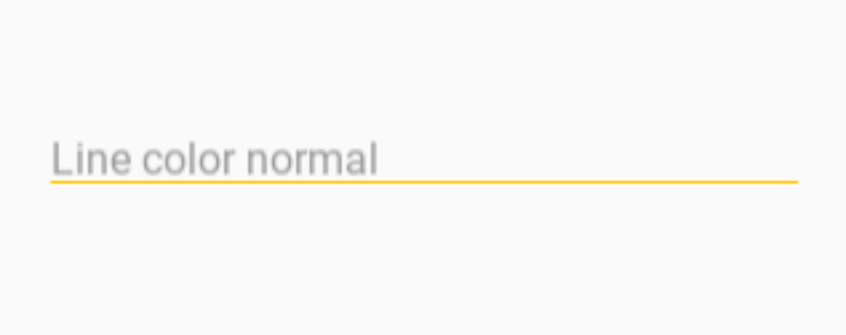
Color mode

```
MDTextField:
    hint_text: "color_mode = 'accent'"
    color_mode: 'accent'
```

Available options are *'primary'*, *'accent'* or *'custom*'.

```
MDTextField:
    hint_text: "color_mode = 'custom'"
    color_mode: 'custom'
    helper_text_mode: "on_focus"
    helper_text: "Color is defined by 'line_color_focus' property"
    line_color_focus: 1, 0, 1, 1
```

```
MDTextField:
    hint_text: "Line color normal"
    line_color_normal: app.theme_cls.accent_color
```



Rectangle mode

```
MDTextField:
    hint_text: "Rectangle mode"
    mode: "rectangle"
```

Fill mode

```
MDTextField:
    hint_text: "Fill mode"
    mode: "fill"
    fill_color: 0, 0, 0, .4
```

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"
```

Warning: While there is no way to change the color of the border.

MDTextFieldRound

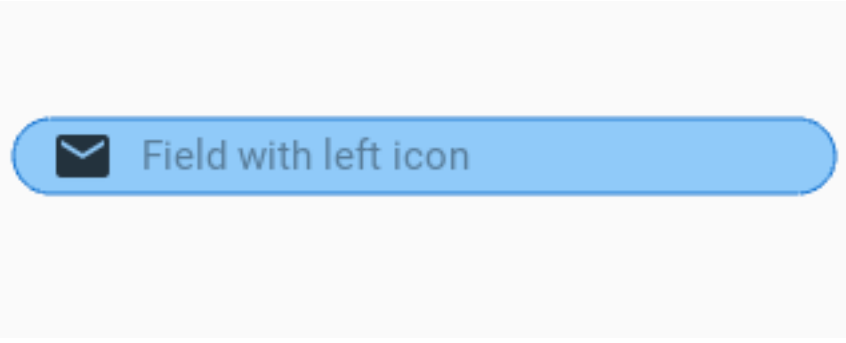
Without icon

```
MDTextFieldRound:
    hint_text: 'Empty field'
```

With left icon

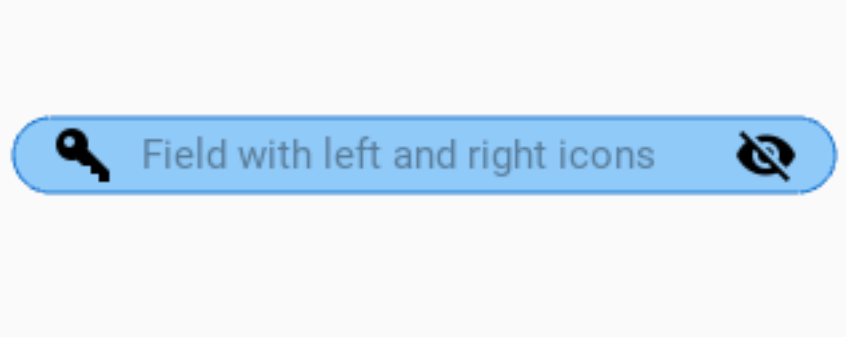
Warning: The icons in the *MDTextFieldRound* are static. You cannot bind events to them.

```
MDTextFieldRound:
    icon_left: "email"
    hint_text: "Field with left icon"
```



With left and right icons

```
MDTextFieldRound:
    icon_left: 'key-variant'
    icon_right: 'eye-off'
    hint_text: 'Field with left and right icons'
```



Control background color

```
MDTextFieldRound:
    icon_left: 'key-variant'
    normal_color: app.theme_cls.accent_color
```

```
MDTextFieldRound:
    icon_left: 'key-variant'
    normal_color: app.theme_cls.accent_color
    color_active: 1, 0, 0, 1
```

With right icon

Note: The icon on the right is available for use in all text fields.

```
MDTextField:
    hint_text: "Name"
    mode: "fill"
    fill_color: 0, 0, 0, .4
    icon_right: "arrow-down-drop-circle-outline"
    icon_right_color: app.theme_cls.primary_color
```

```
MDTextField:
    hint_text: "Name"
    icon_right: "arrow-down-drop-circle-outline"
    icon_right_color: app.theme_cls.primary_color
```


```
MDTextField:
    hint_text: "Name"
    mode: "rectangle"
    icon_right: "arrow-down-drop-circle-outline"
    icon_right_color: app.theme_cls.primary_color
```

See also:

See more information in the *MDTextFieldRect* class.

API - kivymd.uix.textfield

class kivymd.uix.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.

anim_rect(*self*, *points*, *alpha*)

class kivymd.uix.textfield.**MDTextField**(***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.

helper_text

Text for `helper_text` mode.

helper_text is an `StringProperty` and defaults to *'This field is required'*.

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*.

color_mode
Color text mode. Available options are: *'primary'*, *'accent'*, *'custom'*.

color_mode is an OptionProperty and defaults to *'primary'*.

mode
Text field mode. Available options are: *'line'*, *'rectangle'*, *'fill'*.

mode is an OptionProperty and defaults to *'line'*.

line_color_normal
Line color normal in rgba format.

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

line_color_focus
Line color focus in rgba format.

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

error_color
Error color in rgba format for required = True.

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

fill_color
The background color of the fill in rgba format when the mode parameter is "fill".

fill_color is an ListProperty 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*.

current_hint_text_color
hint_text text color.

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

icon_right
Right icon.

icon_right is an StringProperty and defaults to *''*.

icon_right_color
Color of right icon in rgba format.

icon_right_color is an ListProperty and defaults to *[0, 0, 0, 1]*.

on_icon_right(*self*, *instance*, *value*)

on_icon_right_color(*self*, *instance*, *value*)

on_width(*self*, *instance*, *width*)

on_focus(*self*, **args*)

on_text(*self*, *instance*, *text*)

on_text_validate(*self*)

on_color_mode(*self*, *instance*, *mode*)

on_line_color_focus(*self*, **args*)

class kivymd.uix.textfield.**MDTextFieldRound**(***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.

icon_left
Left icon.

icon_left is an `StringProperty` and defaults to ''.

icon_left_color
Color of left icon in `rgba` format.

icon_left_color is an `ListProperty` and defaults to *[0, 0, 0, 1]*.

icon_right
Right icon.

icon_right is an `StringProperty` and defaults to ''.

icon_right_color
Color of right icon.

icon_right_color is an ListProperty and defaults to *[0, 0, 0, 1]*.

line_color
Field line color.

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

normal_color
Field color if *focus* is *False*.

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

color_active
Field color if *focus* is *True*.

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

on_focus (*self*, *instance*, *value*)

on_icon_left (*self*, *instance*, *value*)

on_icon_left_color (*self*, *instance*, *value*)

on_icon_right (*self*, *instance*, *value*)

on_icon_right_color (*self*, *instance*, *value*)

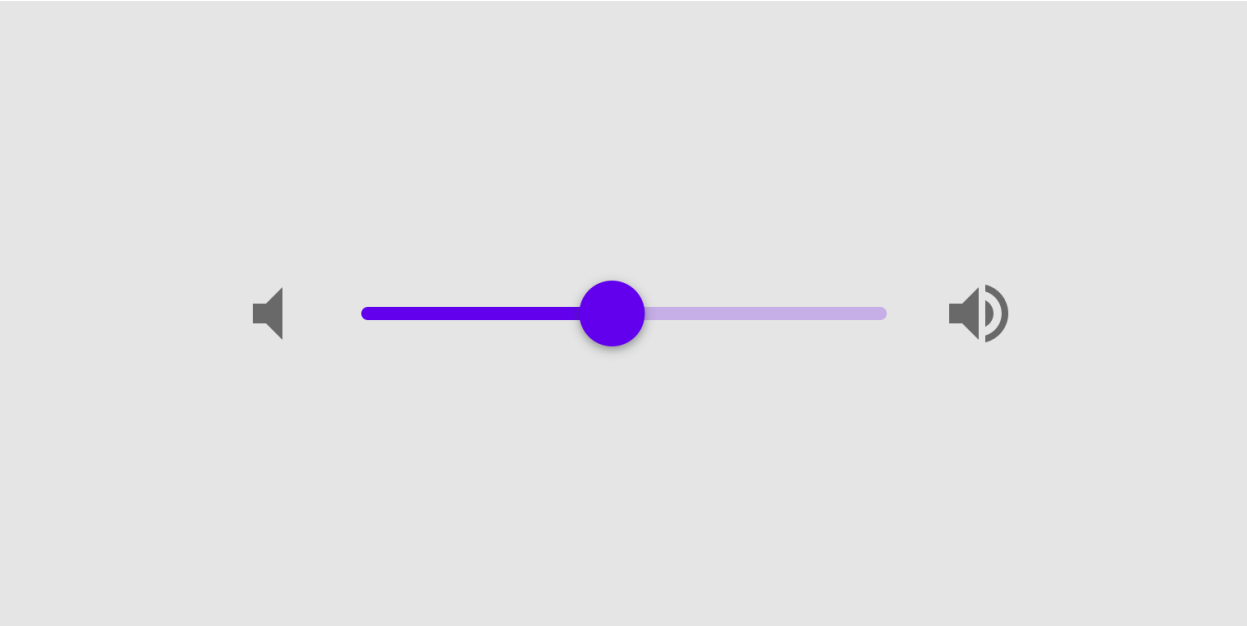
on_color_active (*self*, *instance*, *value*)

2.3.25 Slider

See also:

Material Design spec, Sliders

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



With value hint

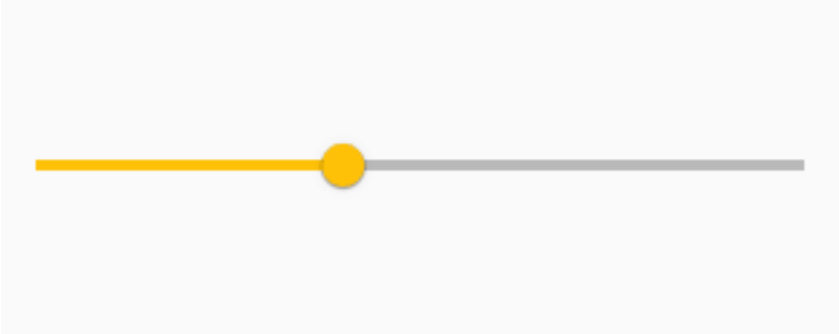
```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
Screen

    MDSlider:
        min: 0
        max: 100
        value: 40
'''


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


Test().run()
```

Without value hint

```
MDSlider:
    min: 0
    max: 100
    value: 40
    hint: False
```

Without custom color

```
MDSlider:
    min: 0
    max: 100
    value: 40
    hint: False
    humb_color_down: app.theme_cls.accent_color
```



API - kivymd.uix.slider

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

Class for creating a Slider widget.

Check module documentation for more details.

active

If the slider is clicked.

active is an BooleanProperty and defaults to *False*.

hint

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

hint is an BooleanProperty and defaults to *True*.

show_off

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

show_off is an BooleanProperty and defaults to *True*.

thumb_color

Current color slider in rgba format.

thumb_color is an AliasProperty that returns the value of the current color slider, property is readonly.

thumb_color_down

Color slider in rgba format.

thumb_color_down is an AliasProperty that returns and set the value of color slider.

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.

2.3.26 Progress Loader

Progressbar downloads files from the server.

Example

```
import os

from kivymd.app import MDApp
from kivy.lang import Builder
from kivy.factory import Factory

from kivymd.uix.progressloader import MDProgressLoader
from kivymd.theming import ThemeManager
from kivymd.toast import toast


Builder.load_string('''
<Root@BoxLayout>
    orientation: 'vertical'
    spacing: dp(5)

    MDToolbar:
        id: toolbar
        title: 'MD Progress Loader'
        left_action_items: [['menu', lambda x: None]]
        elevation: 10
        md_bg_color: app.theme_cls.primary_color

    FloatLayout:
        id: box

        MDRoundFlatIconButton:
            text: "Download file"
            icon: "download"
            pos_hint: {'center_x': .5, 'center_y': .6}
            on_release: app.show_example_download_file()
''')


class Test(MDApp):

    def build(self):
        self.main_widget = Factory.Root()
        return self.main_widget

    def set_chevron_back_screen(self):
```

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```
        '''Sets the return chevron to the previous screen in ToolBar.'''

        self.main_widget.ids.toolbar.right_action_items = []

    def download_progress_hide(self, instance_progress, value):
        '''Hides progress progress.'''

        self.main_widget.ids.toolbar.right_action_items =                [['download',
                lambda x: self.download_progress_show(instance_progress)]]

    def download_progress_show(self, instance_progress):
        self.set_chevron_back_screen()
        instance_progress.open()
        instance_progress.animation_progress_from_fade()

    def show_example_download_file(self):
        link = 'https://www.python.org/ftp/python/3.5.1/python-3.5.1-embed-win32.zip'
        progress = MDProgressLoader(
            url_on_image=link,
            path_to_file=os.path.join(self.directory, 'python-3.5.1.zip'),
            download_complete=self.download_complete,
            download_hide=self.download_progress_hide
        )
        progress.start(self.main_widget.ids.box)

    def download_complete(self):
        self.set_chevron_back_screen()
        toast('Done')


Test().run()
```

API - kivymd.uix.progressloader

class kivymd.uix.progressloader.**MDProgressLoader**(***kwargs*)

Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

path_to_file
The path to which the uploaded file will be saved.

url_on_image
Link to uploaded file.

label_downloading_text
Default text before downloading.

downloading_text
Signature of the downloaded file.

download_complete
Function, called after a successful file upload.

download_hide
Function that is called when the download window is closed.

download_flag
If True - the download process is in progress.

request
UrlRequest object.

start (*self*, *root_instance*)

open (*self*)

draw_progress (*self*, *percent*)

Parameters **percent** (*int;*) – loading percentage;

animation_progress_to_fade (*self*, *interval*)

animation_progress_from_fade (*self*)

retrieve_progress_load (*self*, *url*, *path*)

Parameters

- **url** (*str;*) – link to content;
- **path** (*str;*) – path to save content;

update_progress (*self*, *request*, *current_size*, *total_size*)

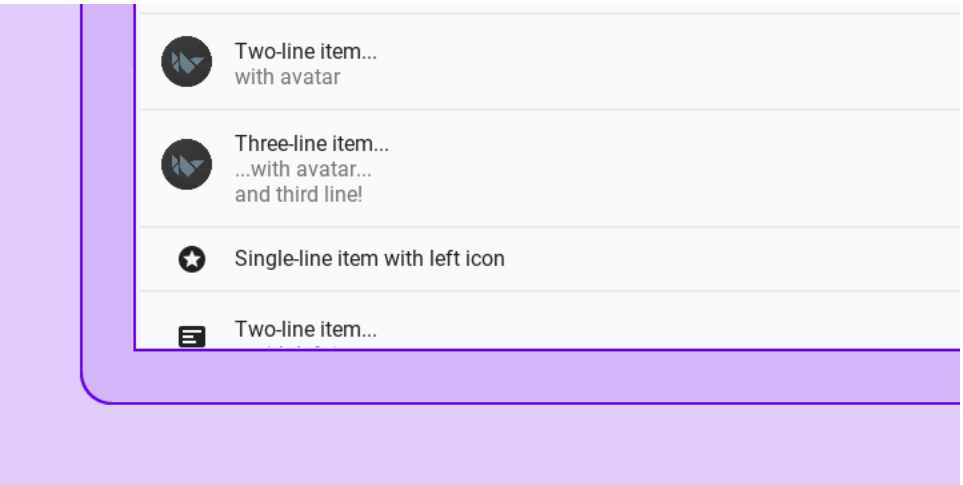
on_success (*self*, *request*, *result*)

2.3.27 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.

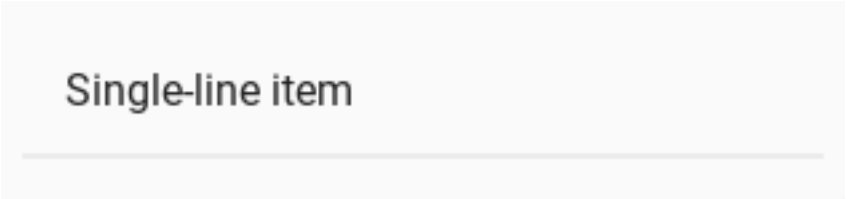
- *OneLineAvatarIconListItem*
- *TwoLineAvatarIconListItem*
- *ThreeLineAvatarIconListItem*

Usage

```
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.list import OneLineListItem

KV = '''
ScrollView:

    MDList:
        id: container
'''


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()
```

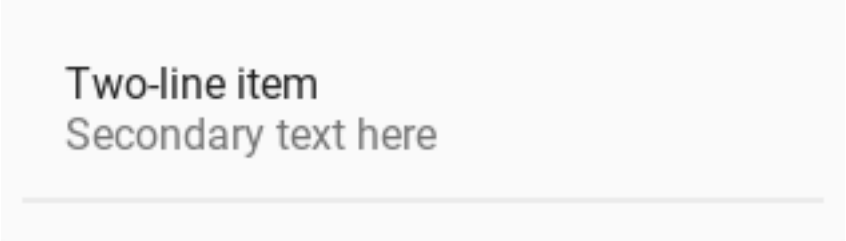
OneLineListItem

```
OneLineListItem:
    text: "Single-line item"
```



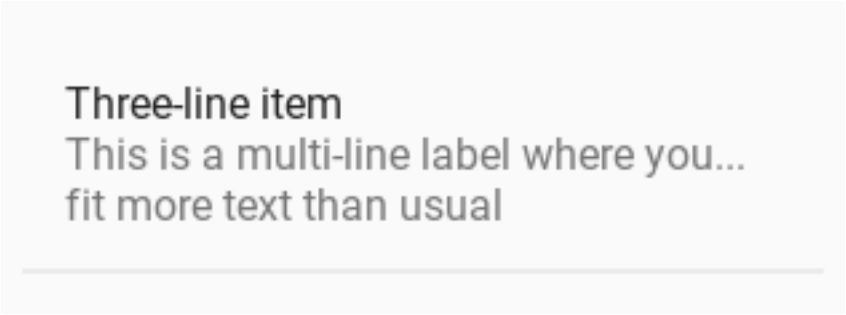
TwoLineListItem

```
TwoLineListItem:
    text: "Two-line item"
    secondary_text: "Secondary text here"
```



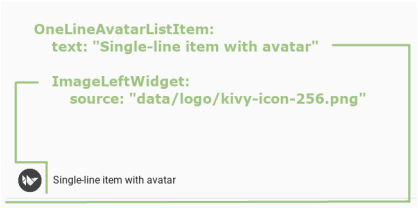
ThreeLineListItem

```
ThreeLineListItem:
    text: "Three-line item"
    secondary_text: "This is a multi-line label where you can"
    tertiary_text: "fit more text than usual"
```



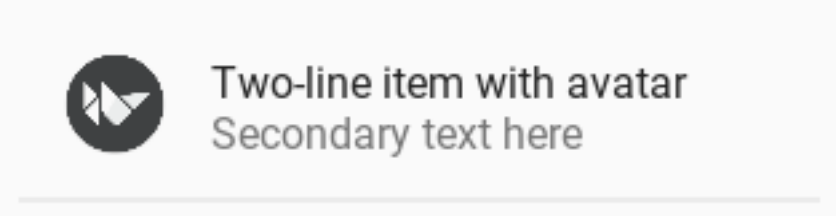
OneLineAvatarListItem

```
OneLineAvatarListItem:
    text: "Single-line item with avatar"

    ImageLeftWidget:
        source: "data/logo/kivy-icon-256.png"
```



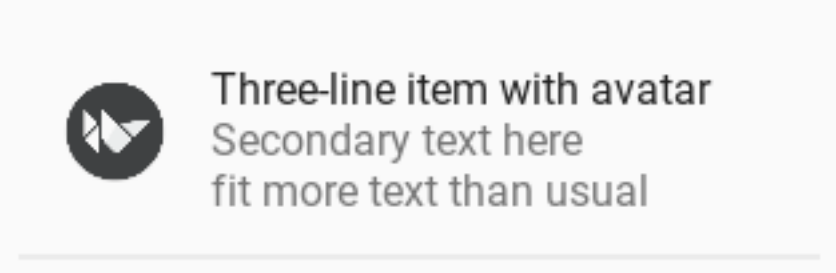
TwoLineAvatarListItem

```
TwoLineAvatarListItem:
    text: "Two-line item with avatar"
    secondary_text: "Secondary text here"

    ImageLeftWidget:
        source: "data/logo/kivy-icon-256.png"
```



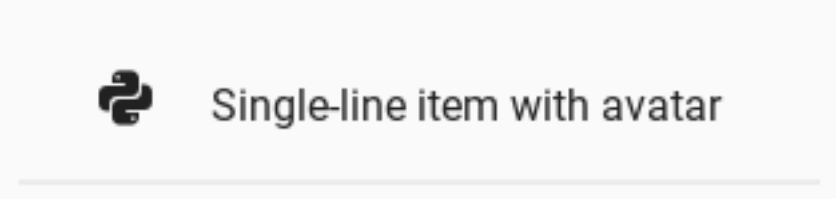
ThreeLineAvatarListItem

```
ThreeLineAvatarListItem:
    text: "Three-line item with avatar"
    secondary_text: "Secondary text here"
    tertiary_text: "fit more text than usual"

    ImageLeftWidget:
        source: "data/logo/kivy-icon-256.png"
```



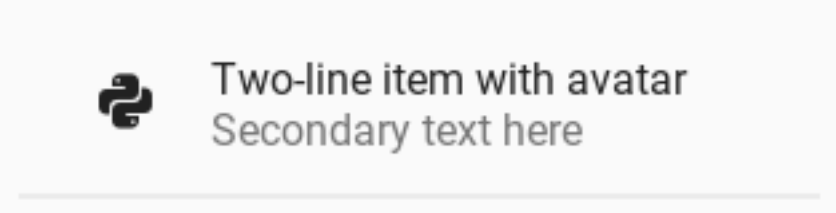
OneLineIconListItem

```
OneLineAvatarListItem:
    text: "Single-line item with avatar"

    IconLeftWidget:
        icon: "language-python"
```



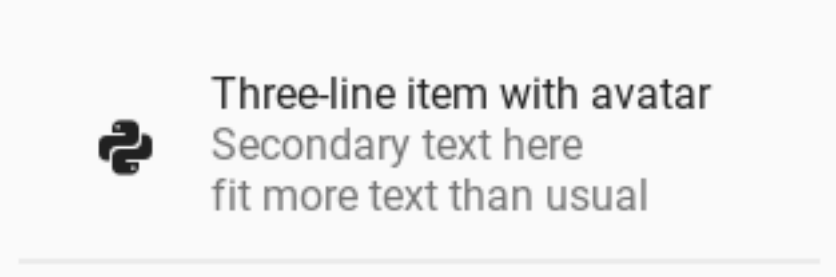
TwoLineIconListItem

```
TwoLineIconListItem:
    text: "Two-line item with avatar"
    secondary_text: "Secondary text here"

    IconLeftWidget:
        icon: "language-python"
```



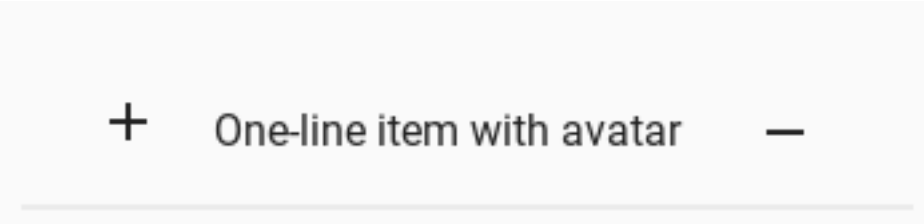
ThreeLineIconListItem

```
ThreeLineIconListItem:
    text: "Three-line item with avatar"
    secondary_text: "Secondary text here"
    tertiary_text: "fit more text than usual"

    IconLeftWidget:
        icon: "language-python"
```



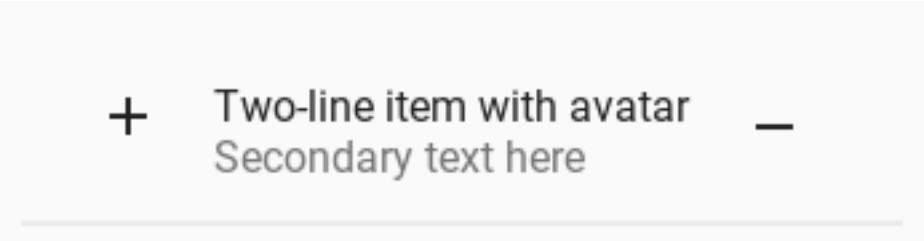
OneLineAvatarIconListItem

```
OneLineAvatarIconListItem:
    text: "One-line item with avatar"

    IconLeftWidget:
        icon: "plus"

    IconRightWidget:
        icon: "minus"
```



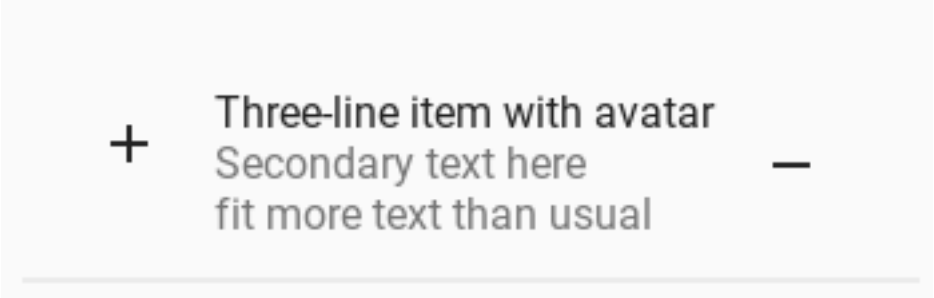
TwoLineAvatarIconListItem

```
TwoLineAvatarIconListItem:
    text: "Two-line item with avatar"
    secondary_text: "Secondary text here"

    IconLeftWidget:
        icon: "plus"

    IconRightWidget:
        icon: "minus"
```



ThreeLineAvatarIconListItem

```
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"
```



Custom list item

```
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:
        icon: root.icon

    RightCheckbox:


BoxLayout:

    ScrollView:

        MDList:
            id: scroll
'''


class ListItemWithCheckbox(OneLineAvatarIconListItem):
    '''Custom list item.'''

    icon = StringProperty("android")


class RightCheckbox(IRightBodyTouch, MDCheckbox):
    '''Custom right container.'''


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

    def on_start(self):
        icons = list(md_icons.keys())
```

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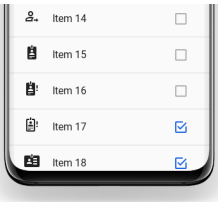
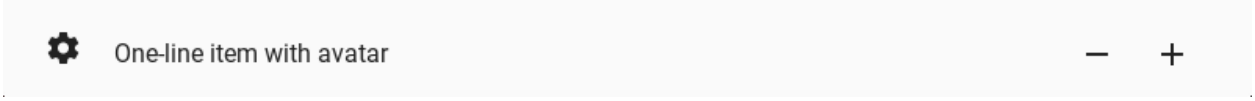
```
        for i in range(30):
            self.root.ids.scroll.add_widget(
                ListItemWithCheckbox(text=f"Item {i}", icon=icons[i])
            )


MainApp().run()
```




```
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

    IconLeftWidget:
        icon: "settings"

    Container:
        id: container

        MDIconButton:
            icon: "minus"

        MDIconButton:
            icon: "plus"
'''


class Container(IRightBodyTouch, MDBoxLayout):
    adaptive_width = True


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


MainApp().run()
```



API - kivymd.uix.list

class kivymd.uix.list.**MDList**(**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.

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)
```

class kivymd.uix.list.**BaseListItem**(**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 rgba format used if *theme_text_color* is set to *'Custom'*.

text_color is a ListProperty and defaults to *None*.

font_style
Text font style. See kivymd.font_definitions.py.

font_style is a OptionProperty and defaults to *'Subtitle1'*.

theme_text_color
Theme text color in rgba format for 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 rgba format used for secondary text if *secondary_theme_text_color* is set to *'Custom'*.

secondary_text_color is a ListProperty and defaults to *None*.

tertiary_text_color
Text color in rgba format used for tertiary text if *secondary_theme_text_color* is set to 'Custom'.

tertiary_text_color is a ListProperty and defaults to *None*.

secondary_theme_text_color
Theme text color for secondary text.

secondary_theme_text_color is a StringProperty and defaults to *'Secondary'*.

tertiary_theme_text_color
Theme text color for tertiary text.

tertiary_theme_text_color is a StringProperty and defaults to *'Secondary'*.

secondary_font_style
Font style for secondary line. See kivymd.font_definitions.py.

secondary_font_style is a OptionProperty and defaults to *'Body1'*.

tertiary_font_style
Font style for tertiary line. See kivymd.font_definitions.py.

tertiary_font_style is a OptionProperty and defaults to *'Body1'*.

divider
Divider mode. Available options are: *'Full'*, *'Inset'* and default to *'Full'*.

tertiary_font_style is a OptionProperty and defaults to *'Body1'*.

bg_color
Background color for menu item.

bg_color is a ListProperty and defaults to *[]*.

class kivymd.uix.list.**ILeftBody**
Pseudo-interface for widgets that go in the left container for ListItems that support it.

Implements nothing and requires no implementation, for annotation only.

class kivymd.uix.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.**IRightBody**
Pseudo-interface for widgets that go in the right container for ListItems that support it.

Implements nothing and requires no implementation, for annotation only.

class kivymd.uix.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.**ContainerSupport**
Overrides `add_widget` in a `ListItem` to include support for `I*Body` widgets when the appropiate containers are present.

add_widget(*self*, *widget*, *index=0*)

remove_widget(*self*, *widget*)

on_touch_down(*self*, *touch*)

on_touch_move(*self*, *touch*, **args*)

on_touch_up(*self*, *touch*)

propagate_touch_to_touchable_widgets(*self*, *touch*, *touch_event*, **args*)

class kivymd.uix.list.**OneLineListItem**(***kwargs*)
A one line list item.

class kivymd.uix.list.**TwoLineListItem**(***kwargs*)
A two line list item.

class kivymd.uix.list.**ThreeLineListItem**(***kwargs*)
A three line list item.

class kivymd.uix.list.**OneLineAvatarListItem**(***kwargs*)
Overrides `add_widget` in a `ListItem` to include support for `I*Body` widgets when the appropiate containers are present.

class kivymd.uix.list.**TwoLineAvatarListItem**(***kwargs*)
Overrides `add_widget` in a `ListItem` to include support for `I*Body` widgets when the appropiate containers are present.

class kivymd.uix.list.**ThreeLineAvatarListItem**(***kwargs*)
Overrides `add_widget` in a `ListItem` to include support for `I*Body` widgets when the appropiate containers are present.

class kivymd.uix.list.**OneLineIconListItem**(***kwargs*)
Overrides `add_widget` in a `ListItem` to include support for `I*Body` widgets when the appropiate containers are present.

class kivymd.uix.list.**TwoLineIconListItem**(***kwargs*)
Overrides `add_widget` in a `ListItem` to include support for `I*Body` widgets when the appropiate containers are present.

class kivymd.uix.list.**ThreeLineIconListItem**(***kwargs*)
Overrides `add_widget` in a `ListItem` to include support for `I*Body` widgets when the appropiate containers are present.

class kivymd.uix.list.**OneLineRightIconListItem**(***kwargs*)
Overrides add_widget in a ListItem to include support for I*Body widgets when the appropiate containers are present.

class kivymd.uix.list.**TwoLineRightIconListItem**(***kwargs*)
Overrides add_widget in a ListItem to include support for I*Body widgets when the appropiate containers are present.

class kivymd.uix.list.**ThreeLineRightIconListItem**(***kwargs*)
Overrides add_widget in a ListItem to include support for I*Body widgets when the appropiate containers are present.

class kivymd.uix.list.**OneLineAvatarIconListItem**(***kwargs*)
Overrides add_widget in a ListItem to include support for I*Body widgets when the appropiate containers are present.

class kivymd.uix.list.**TwoLineAvatarIconListItem**(***kwargs*)
Overrides add_widget in a ListItem to include support for I*Body widgets when the appropiate containers are present.

class kivymd.uix.list.**ThreeLineAvatarIconListItem**(***kwargs*)
Overrides add_widget in a ListItem to include support for I*Body widgets when the appropiate containers are present.

class kivymd.uix.list.**ImageLeftWidget**(***kwargs*)
Pseudo-interface for widgets that go in the left container for ListItems that support it.

Implements nothing and requires no implementation, for annotation only.

class kivymd.uix.list.**ImageRightWidget**(***kwargs*)
Same as *IRightBody*, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect

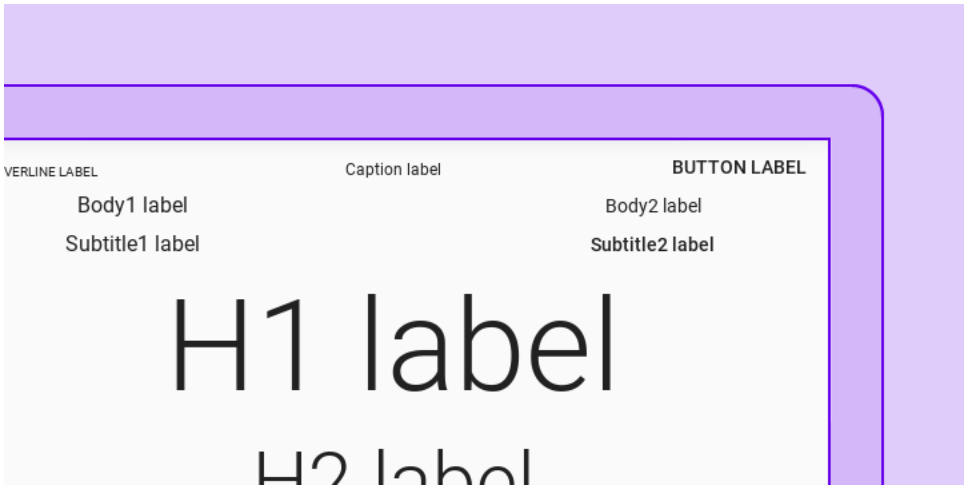
class kivymd.uix.list.**IconRightWidget**(***kwargs*)
Same as *IRightBody*, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect

class kivymd.uix.list.**IconLeftWidget**(***kwargs*)
Same as *ILeftBody*, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect.

class kivymd.uix.list.**CheckboxRightWidget**(***kwargs*)
Same as *ILeftBody*, but allows the widget to receive touch events instead of triggering the ListItem's ripple effect.

2.3.28 Label

The `MDLabel` widget is for rendering text.

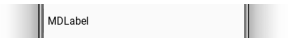


- *MDLabel*
- *MDIcon*

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 = '''
Screen:

    BoxLayout:
        orientation: "vertical"

        MDToolbar:
            title: "MDLabel"

        MDLabel:
            text: "MDLabel"
'''


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


Test().run()
```



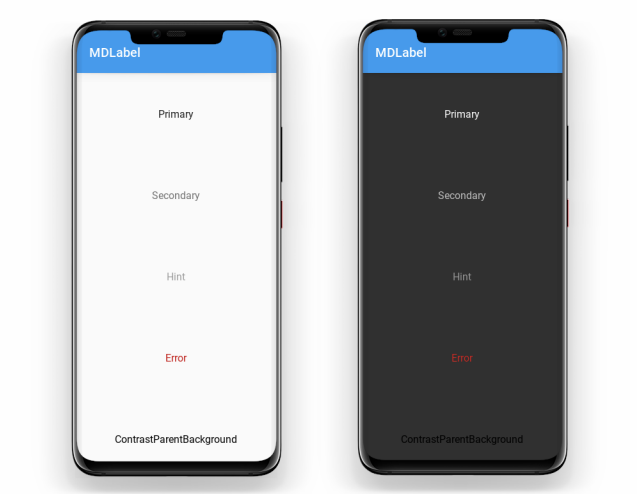
Note: See `halign` and `valign` attributes of the `Label` class

```
MDLabel:
    text: "MDLabel"
    halign: "center"
```

`MDLabel` color:

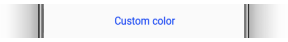
MDLabel provides standard color themes for label color management:

```
from kivy.lang import Builder

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

KV = '''
Screen:

    BoxLayout:
        id: box
        orientation: "vertical"

        MDToolbar:
            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 = '''
Screen:

    BoxLayout:
        orientation: "vertical"

        MDToolbar:
            title: "MDLabel"

        ScrollView:

            MDList:
                id: box
'''


class Test(MDApp):
    def build(self):
        screen = Builder.load_string(KV)
```

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```
        # 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:
    halign: "center"
    icon: "language-python"
```

API - kivymd.uix.label

class kivymd.uix.label.**MDLabel**(***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.

font_style

Label font style.

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

font_style is an `OptionProperty` 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 rgba format.

text_color is an ListProperty and defaults to *None*.

parent_background

can_capitalize

update_font_style(*self*, **args*)

on_theme_text_color(*self*, *instance*, *value*)

on_text_color(*self*, **args*)

on_opposite_colors(*self*, *instance*, *value*)

class kivymd.uix.label.**MDIcon**(***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.

icon
Label icon name.

icon is an StringProperty and defaults to *'android'*.

source
Path to icon.

source is an StringProperty and defaults to *None*.

2.3.29 Card

See also:

Material Design spec, Cards

Cards contain content and actions about a single subject.

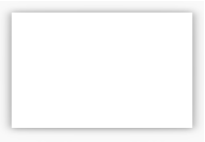
KivyMD provides the following card classes for use:

- *MDCard*
- *MDCardSwipe*

Note: *MDCard* inherited from BoxLayout. You can use all parameters and attributes of the BoxLayout class in the *MDCard* class.

MDCard

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
Screen:

    MDCard:
        size_hint: None, None
        size: "280dp", "180dp"
        pos_hint: {"center_x": .5, "center_y": .5}
'''


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


TestCard().run()
```



Add content to card:

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
Screen:

    MDCard:
        orientation: "vertical"
        padding: "8dp"
        size_hint: None, None
        size: "280dp", "180dp"
        pos_hint: {"center_x": .5, "center_y": .5}

        MDLabel:
            text: "Title"
            theme_text_color: "Secondary"
            size_hint_y: None
            height: self.texture_size[1]

        MDSeparator:
            height: "1dp"

        MDLabel:
```

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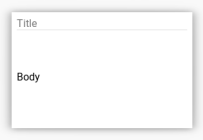
```
            text: "Body"
'''


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


TestCard().run()
```



MDCardSwipe

To create a card with *swipe-to-delete* behavior, you must create a new class that inherits from the *MDCardSwipe* class:

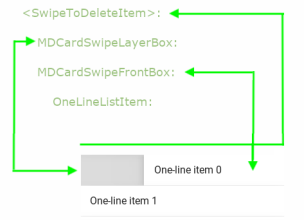
```
<SwipeToDeleteItem>:
    size_hint_y: None
    height: content.height

    MDCardSwipeLayerBox:

    MDCardSwipeFrontBox:

        OneLineListItem:
            id: content
            text: root.text
            _no_ripple_effect: True
```

```
class SwipeToDeleteItem(MDCardSwipe):
    text = StringProperty()
```



End full code

```
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:
        # Content under the card.

    MDCardSwipeFrontBox:

        # Content of card.
        OneLineListItem:
            id: content
            text: root.text
            _no_ripple_effect: True


Screen:

    BoxLayout:
        orientation: "vertical"
        spacing: "10dp"

        MDToolbar:
            elevation: 10
            title: "MDCardSwipe"

        ScrollView:

            MDList:
                id: md_list
                padding: 0
'''


class SwipeToDeleteItem(MDCardSwipe):
    '''Card with `swipe-to-delete` behavior.'''

    text = StringProperty()


class TestCard(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)

    def build(self):
        return self.screen
```

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```
    def on_start(self):
        '''Creates a list of cards.'''

        for i in range(20):
            self.screen.ids.md_list.add_widget(
                SwipeToDeleteItem(text=f"One-line item {i}")
            )


TestCard().run()
```

Binding a swipe to one of the sides of the screen

```
<SwipeToDeleteItem>:
    # By default, the parameter is "left"
    anchor: "right"
```

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:

```
<SwipeToDeleteItem>:
    on_swipe_complete: app.on_swipe_complete(root)
```

```
def on_swipe_complete(self, instance):
    self.screen.ids.md_list.remove_widget(instance)
```

End full code

```
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
    type_swipe: "auto"
    on_swipe_complete: app.on_swipe_complete(root)

    MDCardSwipeLayerBox:

    MDCardSwipeFrontBox:

        OneLineListItem:
            id: content
            text: root.text
            _no_ripple_effect: True


Screen:

    BoxLayout:
        orientation: "vertical"
        spacing: "10dp"

        MDToolbar:
            elevation: 10
            title: "MDCardSwipe"

        ScrollView:

            MDList:
                id: md_list
                padding: 0
'''


class SwipeToDeleteItem(MDCardSwipe):
    text = StringProperty()


class TestCard(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        self.screen = Builder.load_string(KV)

    def build(self):
        return self.screen

    def on_swipe_complete(self, instance):
        self.screen.ids.md_list.remove_widget(instance)
```

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```
    def on_start(self):
        for i in range(20):
            self.screen.ids.md_list.add_widget(
                SwipeToDeleteItem(text=f"One-line item {i}")
            )


TestCard().run()
```

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

```
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
```

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```
Screen:

    BoxLayout:
        orientation: "vertical"
        spacing: "10dp"

        MDToolbar:
            elevation: 10
            title: "MDCardSwipe"

        ScrollView:

            MDList:
                id: md_list
                padding: 0
'''


class SwipeToDeleteItem(MDCardSwipe):
    text = StringProperty()


class TestCard(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)
        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}")
            )


TestCard().run()
```

Focus behavior

```
MDCard:
    focus_behavior: True
```

Ripple behavior

```
MDCard:
    ripple_behavior: True
```

End full code

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
<StarButton@MDIconButton>
    icon: "star"
    on_release: self.icon = "star-outline" if self.icon == "star" else "star"


Screen:

    MDCard:
        orientation: "vertical"
        size_hint: .5, None
        height: box_top.height + box_bottom.height
        focus_behavior: True
        ripple_behavior: True
        pos_hint: {"center_x": .5, "center_y": .5}

        MDBoxLayout:
            id: box_top
            spacing: "20dp"
            adaptive_height: True

            FitImage:
                source: "/Users/macbookair/album.jpeg"
                size_hint: .3, None
                height: text_box.height

            MDBoxLayout:
                id: text_box
                orientation: "vertical"
                adaptive_height: True
                spacing: "10dp"
                padding: 0, "10dp", "10dp", "10dp"
```

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```
                MDLabel:
                    text: "Ride the Lightning"
                    theme_text_color: "Primary"
                    font_style: "H5"
                    bold: True
                    size_hint_y: None
                    height: self.texture_size[1]

                MDLabel:
                    text: "July 27, 1984"
                    size_hint_y: None
                    height: self.texture_size[1]
                    theme_text_color: "Primary"

        MDSeparator:

        MDBoxLayout:
            id: box_bottom
            adaptive_height: True
            padding: "10dp", 0, 0, 0

            MDLabel:
                text: "Rate this album"
                size_hint_y: None
                height: self.texture_size[1]
                pos_hint: {"center_y": .5}
                theme_text_color: "Primary"

            StarButton:
            StarButton:
            StarButton:
            StarButton:
            StarButton:
'''


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


Test().run()
```

API - kivymd.uix.card

class kivymd.uix.card.**MDSeparator**(***kwargs*)

A separator line.

color

Separator color in `rgba` format.

color is a `ListProperty` and defaults to *[]*.

on_orientation(*self*, **args*)

class kivymd.uix.card.**MDCard**(***kwargs*)

Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

border_radius

Card border radius.

border_radius is a `NumericProperty` and defaults to *'3dp'*.

background

Background image path.

background is a `StringProperty` and defaults to *''*.

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*.

class kivymd.uix.card.**MDCardSwipe**(***kw*)

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'*.

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 *10*.

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*, *value*)

on_open_progress(*self*, *instance*, *value*)

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*)

class kivymd.uix.card.**MDCardSwipeFrontBox**(***kwargs*)
Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

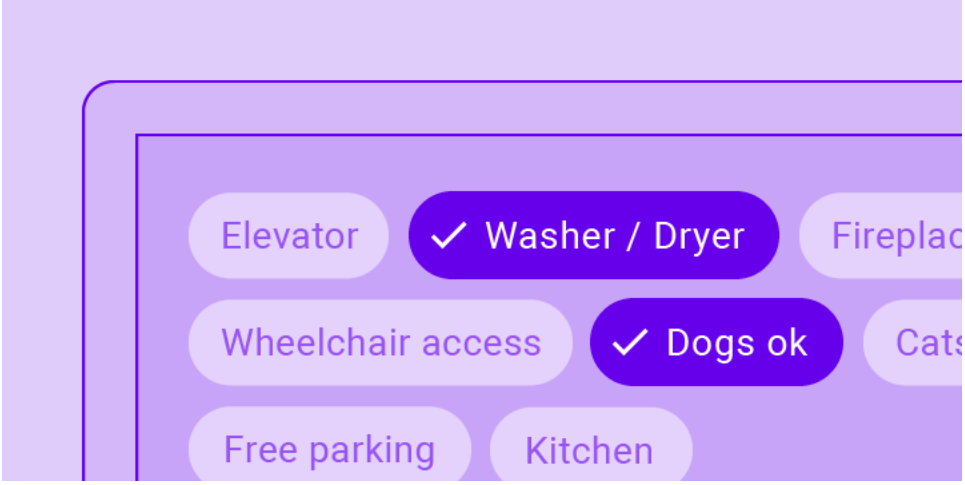
class kivymd.uix.card.**MDCardSwipeLayerBox**(***kwargs*)
Box layout class. See module documentation for more information.

2.3.30 Chip

See also:

Material Design spec, Chips

Chips are compact elements that represent an input, attribute, or action.

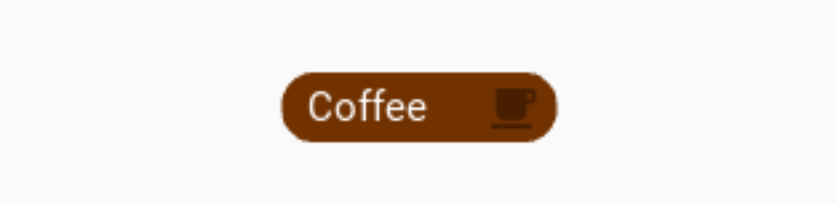


Usage

```
MDChip:
    label: 'Coffee'
    color: .4470588235118, .1960787254902, 0, 1
    icon: 'coffee'
    callback: app.callback_for_menu_items
```

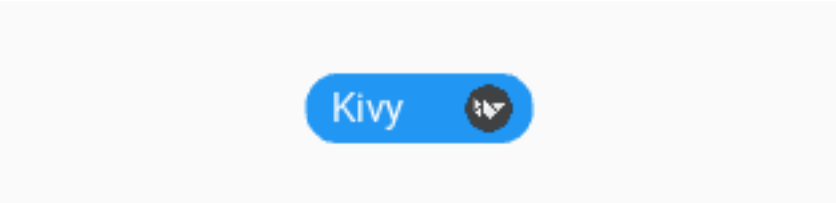
The user function takes two arguments - the object and the text of the chip:

```
def callback_for_menu_items(self, instance, value):
    print(instance, value)
```



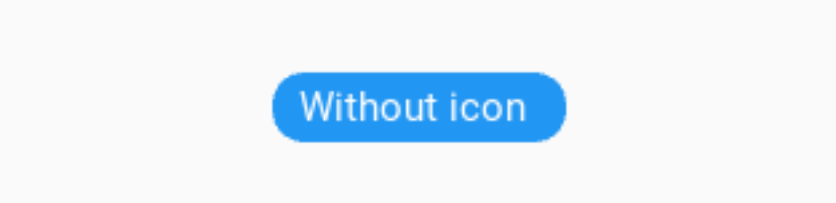
Use custom icon

```
MDChip:
    label: 'Kivy'
    icon: 'data/logo/kivy-icon-256.png'
```



Use without icon

```
MDChip:
    label: 'Without icon'
    icon: ''
```



Chips with check

```
MDChip:
    label: 'Check with icon'
    icon: 'city'
    check: True
```

Choose chip

```
MDChooseChip:

    MDChip:
        label: 'Earth'
        icon: 'earth'
        selected_chip_color: .21176470535294, .098039627451, 1, 1

    MDChip:
        label: 'Face'
        icon: 'face'
        selected_chip_color: .21176470535294, .098039627451, 1, 1

    MDChip:
```

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```
        label: 'Facebook'
        icon: 'facebook'
        selected_chip_color: .21176470535294, .098039627451, 1, 1
```

Note: See full example

API - kivymd.uix.chip

class kivymd.uix.chip.**MDChip**(***kwargs*)

Box layout class. See module documentation for more information.

label

Chip text.

label is an StringProperty and defaults to ‘’.

icon

Chip icon.

icon is an StringProperty and defaults to *‘checkbox-blank-circle’*.

color

Chip color in rgba format.

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

check

If True, a checkmark is added to the left when touch to the chip.

check is an BooleanProperty and defaults to *False*.

callback

Custom method.

callback is an ObjectProperty and defaults to *None*.

radius

Corner radius values.

radius is an NumericProperty and defaults to *‘12dp’*.

selected_chip_color

The color of the chip that is currently selected in rgba format.

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

on_icon(*self*, *instance*, *value*)

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.

class kivymd.uix.chip.**MDChooseChip**(***kwargs*)

Stack layout class. See module documentation for more information.

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.

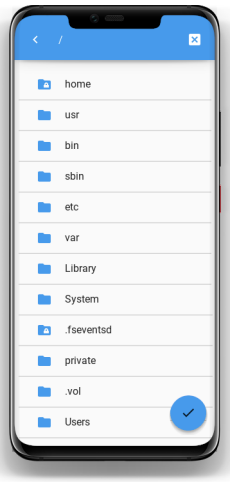
```
>>> from kivy.uix.button import Button
>>> from kivy.uix.slider import Slider
>>> root = Widget()
>>> root.add_widget(Button())
>>> slider = Slider()
>>> root.add_widget(slider)
```

2.3.31 File Manager

A simple manager for selecting directories and files.

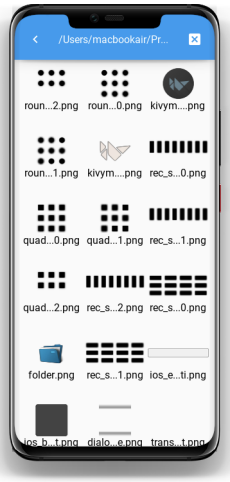
Usage

```
path = '/'  # 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)
```



Or with `previous` mode:

```
file_manager = MDFileManager(
    exit_manager=self.exit_manager,
    select_path=self.select_path,
    previous=True,
)
```



Example

```
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 = '''
BoxLayout:
    orientation: 'vertical'
```

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```
    MDToolbar:
        title: "MDFileManager"
        left_action_items: [['menu', lambda x: None]]
        elevation: 10

    FloatLayout:

        MDRoundFlatIconButton:
            text: "Open manager"
            icon: "folder"
            pos_hint: {'center_x': .5, 'center_y': .6}
            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,
            previous=True,
        )

    def build(self):
        return Builder.load_string(KV)

    def file_manager_open(self):
        self.file_manager.show('/')  # output manager to the screen
        self.manager_open = True

    def select_path(self, path):
        '''It will be called when you click on the file name
        or the catalog selection button.

        :type path: str;
        :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
```

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

API - kivymd.uix.filemanager

class kivymd.uix.filemanager.**MDFileManager**(***kwargs*)
Float layout class. See module documentation for more information.

icon
The icon that will be used on the directory selection button.

icon is an StringProperty and defaults to *check*.

icon_folder
The icon that will be used for folder icons when using `previous = True`.

icon is an StringProperty and defaults to *check*.

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 'dirs' 'files' - display only directories or only files. By default, it displays and folders, and files. Available options are: *'all'*, *'files'*.

search is an OptionProperty and defaults to *all*.

current_path
Current directory.

current_path is an StringProperty and defaults to */*.

use_access
Show access to files and directories.

use_access is an BooleanProperty and defaults to *True*.

previous
Shows only image previews.

previous is an BooleanProperty and defaults to *False*.

show(*self*, *path*)
Forms the body of a directory tree.

Parameters **path** – The path to the directory that will be opened in the file manager.

count_ext(*self*, *path*)

get_access_string (*self*, *path*)

get_content (*self*, *path*)
Returns a list of the type [[Folder List], [file list]].

close (*self*)
Closes the file manager window.

select_dir_or_file (*self*, *path*)
Called by tap on the name of the directory or file.

back (*self*)
Returning to the branch down in the directory tree.

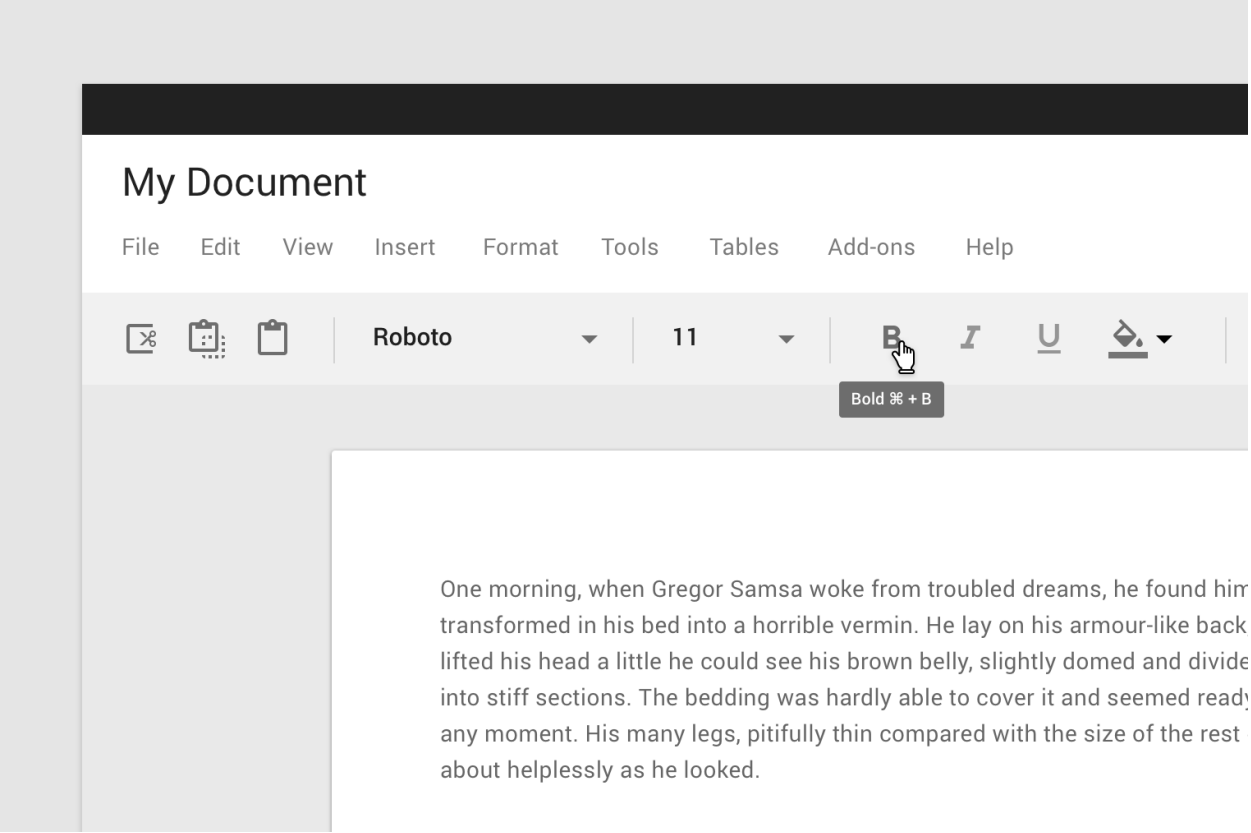
select_directory_on_press_button (*self*, **args*)
Called when a click on a floating button.

2.3.32 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 classes.

```
from kivy.lang import Builder

from kivymd.app import MDApp

KV = '''
<TooltipMDIconButton@MDIconButton+MDTooltip>


Screen:

    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

class kivymd.uix.tooltip.**MDTooltip**(***kwargs*)

Events

on_enter Fired when mouse enter the bbox of the widget.

on_leave Fired when the mouse exit the widget.

tooltip_bg_color

Tooltip background color in `rgba` format.

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

tooltip_text_color
Tooltip text color in `rgba` format.

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

tooltip_text
Tooltip text.

tooltip_text is an `StringProperty` and defaults to ‘’.

delete_clock(*self*, *widget*, *touch*, **args*)

adjust_tooltip_position(*self*, *x*, *y*)
Returns the coordinates of the tooltip that fit into the borders of the screen.

display_tooltip(*self*, *interval*)

animation_tooltip_show(*self*, *interval*)

remove_tooltip(*self*, **args*)

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.

class kivymd.uix.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*.

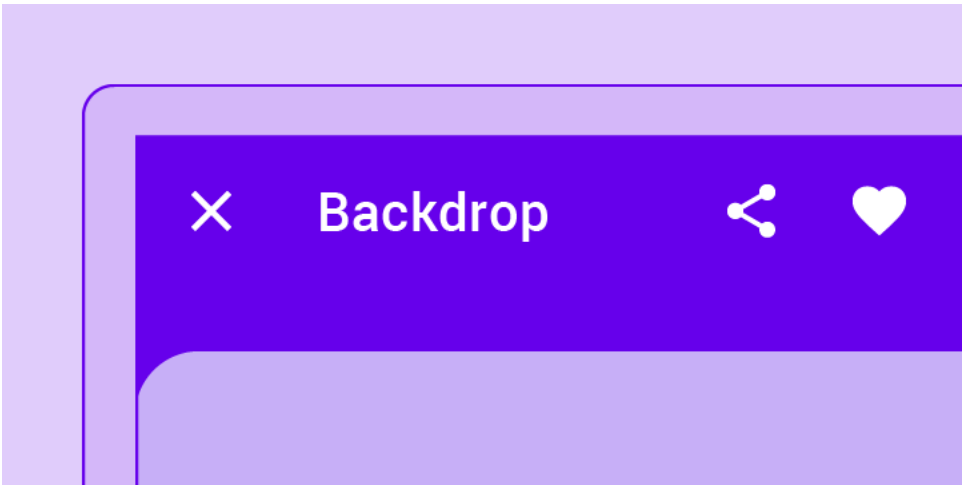
tooltip_text
See *tooltip_text*.

2.3.33 Backdrop

See also:

Material Design spec, Backdrop

Skeleton layout for using `MDBackdrop`:



Usage

```
<Root>:

    MDBackdrop:

        MDBackdropBackLayer:

            ContentForBackdropBackLayer:

        MDBackdropFrontLayer:

             ContentForBackdropFrontLayer:
```

Example

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

from kivymd.app import MDApp

# Your layouts.
Builder.load_string(
    '''
#:import Window kivy.core.window.Window
#:import IconLeftWidget kivymd.uix.list.IconLeftWidget
#:import images_path kivymd.images_path


<ItemBackdropFrontLayer@TwoLineAvatarListItem>
    icon: "android"

    IconLeftWidget:
        icon: root.icon
```

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```
<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: f"{images_path}/kivymd_logo.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"
        header_text: "Menu:"

        MDBackdropBackLayer:
            MyBackdropBackLayer:
                id: backlayer

        MDBackdropFrontLayer:
            MyBackdropFrontLayer:
                backdrop: backdrop
'''
)


class ExampleBackdrop(Screen):
    pass


class TestBackdrop(MDApp):
    def __init__(self, **kwargs):
        super().__init__(**kwargs)

    def build(self):
        return ExampleBackdrop()


TestBackdrop().run()
```

Note: See full example

API - kivymd.uix.backdrop

class kivymd.uix.backdrop.**MDBackdrop**(***kwargs*)

Events

on_open When the front layer drops.

on_close When the front layer rises.

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.MDToolbar* in back layer. For more information, see the *kivymd.uix.toolbar.MDToolbar* 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.MDToolbar.title* parameter.

title is an StringProperty and defaults to *''*.

background_color
Background color of back layer.

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

radius
The value of the rounding radius of the upper left corner of the front layer.

radius is an NumericProperty and defaults to *25*.

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'*.

on_open(*self*)
When the front layer drops.

on_close(*self*)
When the front layer rises.

on_left_action_items(*self*, *instance*, *value*)

on_header(*self*, *instance*, *value*)

open(*self*, *open_up_to=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.

animtion_icon_menu(*self*)

animtion_icon_close(*self*, *instance_animation*, *instance_icon_menu*)

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.**MDBackdropToolbar**(***kwargs*)

Events

on_action_button Method for the button used for the MDBottomAppBar class.

class kivymd.uix.backdrop.**MDBackdropFrontLayer**(***kwargs*)
Box layout class. See module documentation for more information.

class kivymd.uix.backdrop.**MDBackdropBackLayer**(***kwargs*)
Box layout class. See module documentation for more information.

2.3.34 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
height: 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**(***kwargs*)
Stack layout class. See module documentation for more information.

2.3.35 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**(***kw*)
Screen is an element intended to be used with a `ScreenManager`. Check module documentation for more information.

Events

***on_pre_enter*:** () Event fired when the screen is about to be used: the entering animation is started.

***on_enter*:** () Event fired when the screen is displayed: the entering animation is complete.

***on_pre_leave*:** () Event fired when the screen is about to be removed: the leaving animation is started.

***on_leave*:** () Event fired when the screen is removed: the leaving animation is finished.

Changed in version 1.6.0: Events *on_pre_enter*, *on_enter*, *on_pre_leave* and *on_leave* were added.

2.3.36 DataTables

See also:

Material Design spec, DataTables

Data tables display sets of data across rows and columns.

Warning: Data tables are still far from perfect. Errors are possible and we hope you inform us about them.

API - `kivymd.uix.datatables`

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

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


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

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```
            size_hint=(0.9, 0.6),
            use_pagination=True,
            check=True,
            column_data=[
                ("No.", dp(30)),
                ("Column 1", dp(30)),
                ("Column 2", dp(30)),
                ("Column 3", dp(30)),
                ("Column 4", dp(30)),
                ("Column 5", dp(30)),
            ],
            row_data=[
                (f"{i + 1}", "2.23", "3.65", "44.1", "0.45", "62.5")
                for i in range(50)
            ],
        )
        self.data_tables.bind(on_row_press=self.on_row_press)
        self.data_tables.bind(on_check_press=self.on_check_press)

    def on_start(self):
        self.data_tables.open()

    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)


Example().run()
```

column_data

Data for header columns.

```
from kivy.metrics import dp

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


class Example(MDApp):
    def build(self):
        self.data_tables = MDDataTable(
            size_hint=(0.9, 0.6),
            # name column, width column
            column_data=[
                ("Column 1", dp(30)),
                ("Column 2", dp(30)),
                ("Column 3", dp(30)),
                ("Column 4", dp(30)),
                ("Column 5", dp(30)),
                ("Column 6", dp(30)),
```

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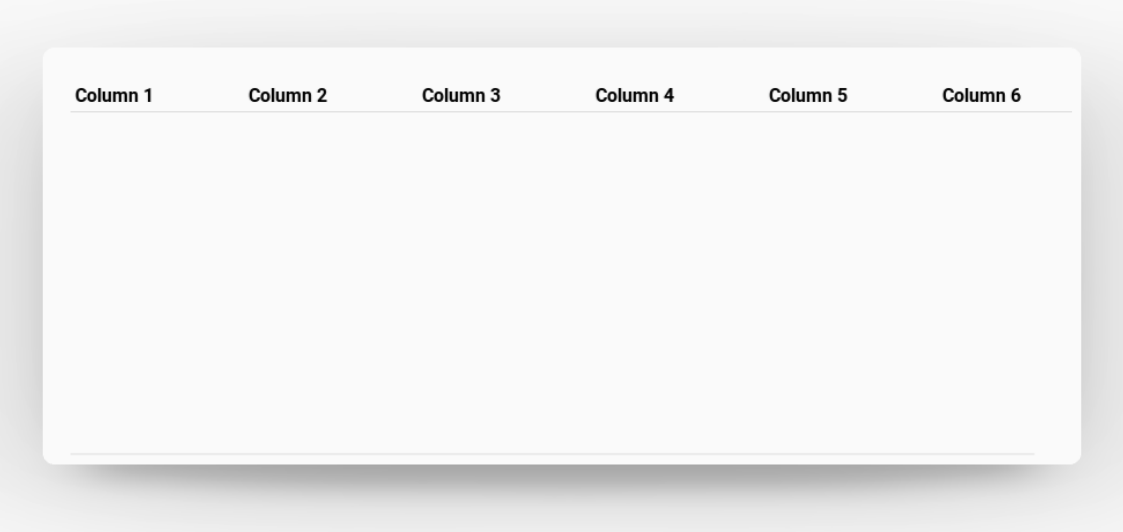
```
            ],
        )

    def on_start(self):
        self.data_tables.open()


Example().run()
```



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

row_data

Data for rows.

```
from kivy.metrics import dp

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


class Example(MDApp):
    def build(self):
        self.data_tables = MDDataTable(
            size_hint=(0.9, 0.6),
            column_data=[
                ("Column 1", dp(30)),
                ("Column 2", dp(30)),
                ("Column 3", dp(30)),
                ("Column 4", dp(30)),
                ("Column 5", dp(30)),
                ("Column 6", dp(30)),
            ],
            row_data=[
                # The number of elements must match the length
                # of the `column_data` list.
                ("1", "2", "3", "4", "5", "6"),
                ("1", "2", "3", "4", "5", "6"),
            ],
```

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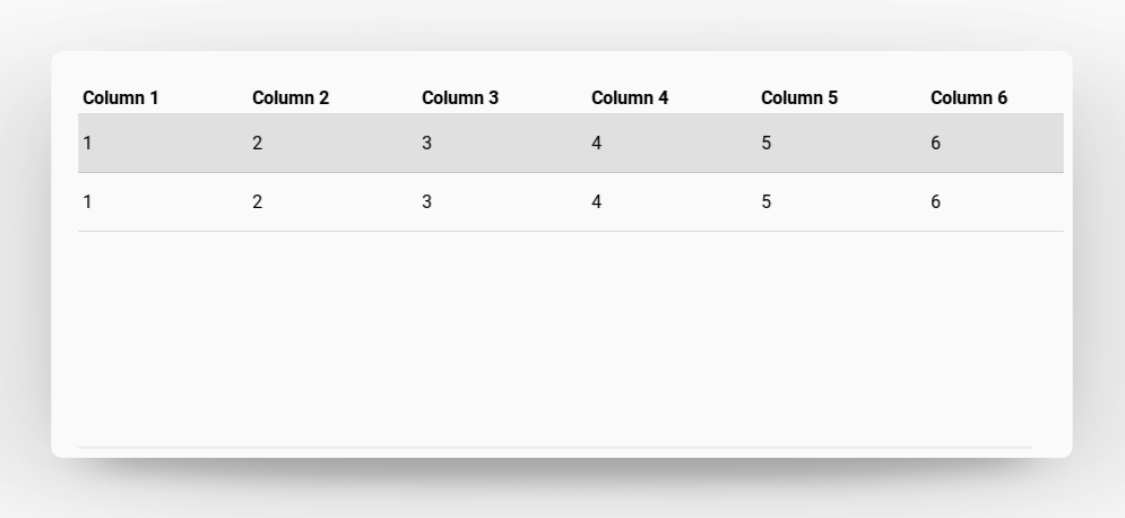
```
        )

    def on_start(self):
        self.data_tables.open()


Example().run()
```



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

sort
Whether to display buttons for sorting table items.

sort is an BooleanProperty and defaults to *False*.

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


class Example(MDApp):
    def build(self):
        self.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)),
                ("Column 3", dp(30)),
                ("Column 4", dp(30)),
```

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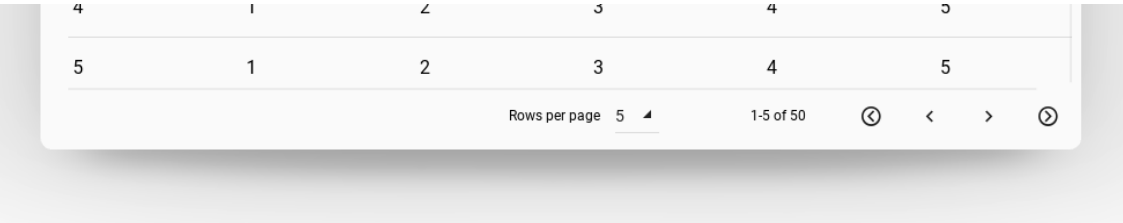
```
                ("Column 5", dp(30)),
            ],
            row_data=[
                (f"{i + 1}", "1", "2", "3", "4", "5") for i in range(50)
            ],
        )

    def on_start(self):
        self.data_tables.open()


Example().run()
```



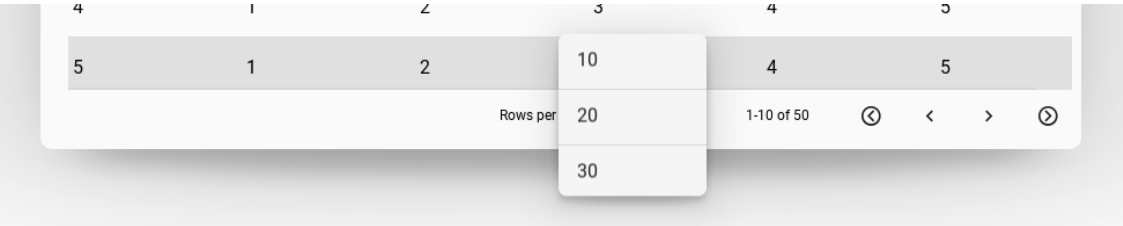
use_pagination is an BooleanProperty and defaults to *False*.

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

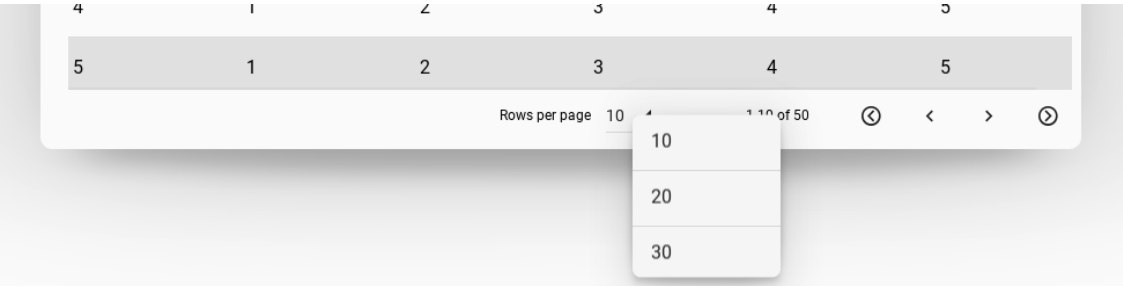
rows_num is an NumericProperty and defaults to *10*.

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

Center



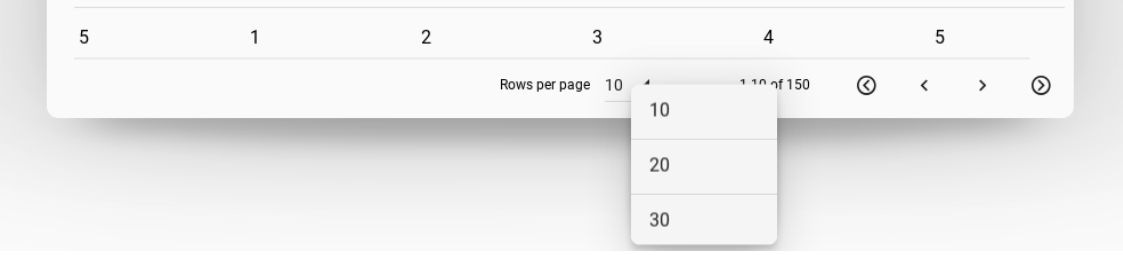
Auto



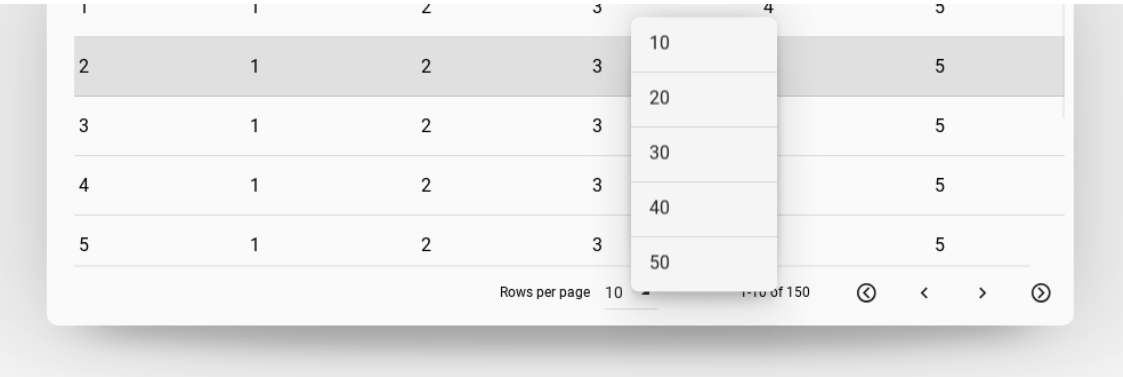
pagination_menu_pos is an OptionProperty and defaults to *'center'*.

pagination_menu_height
Menu height for selecting the number of displayed rows.

140dp



240dp



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

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

background_color is a ListProperty and defaults to [0, 0, 0, .7].

on_row_press(*self*, **args*)
Called when a table row is clicked.

on_check_press(*self*, **args*)
Called when the check box in the table row is checked.

create_pagination_menu(*self*, *interval*)

2.3.37 TapTargetView

See also:

TapTargetView, GitHub

TapTargetView, Material archive

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

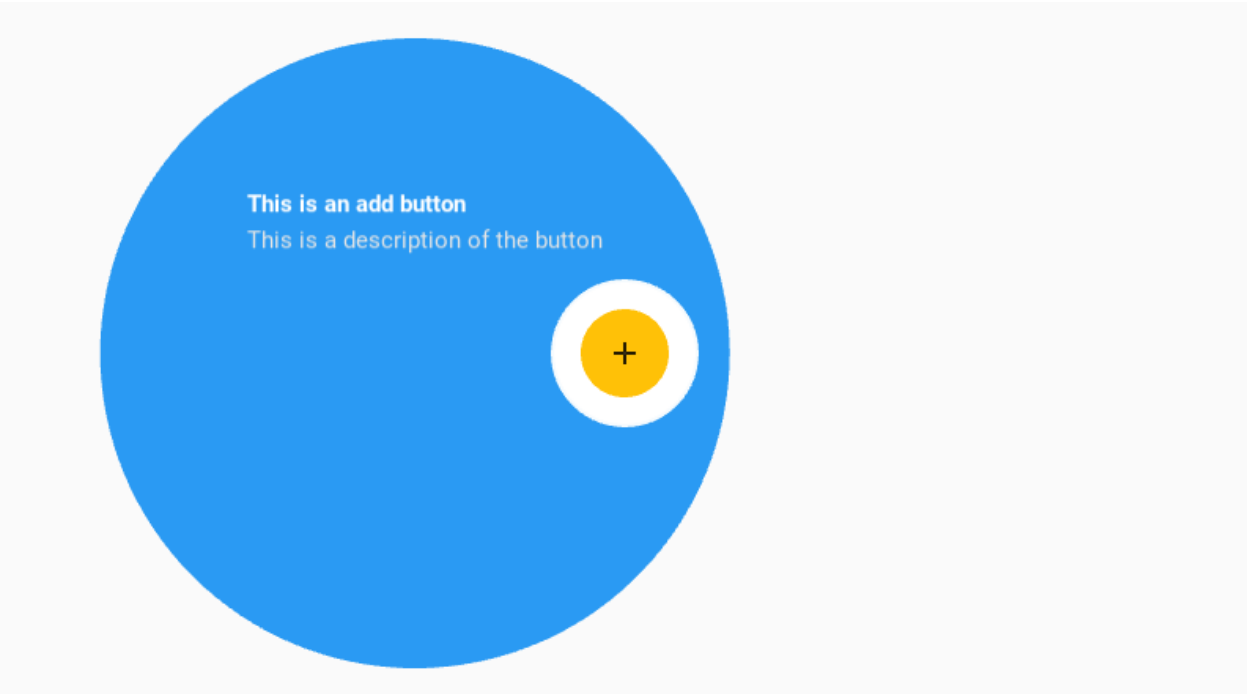
Usage

```
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()
```

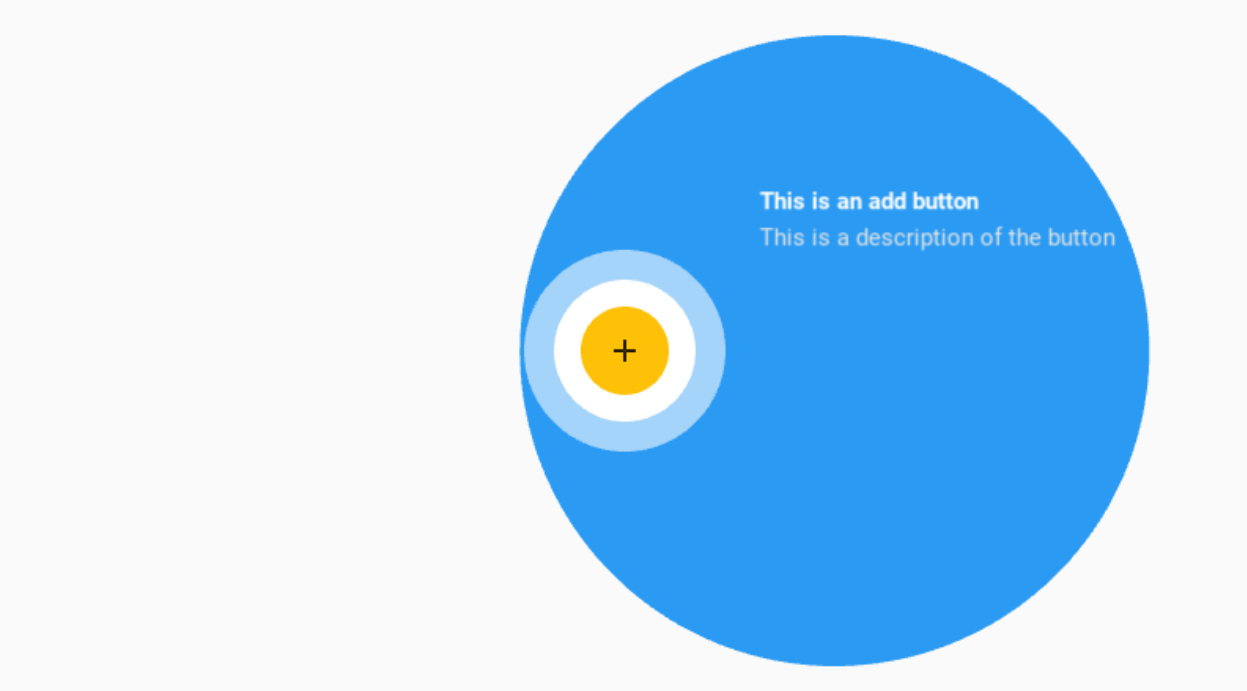
Widget position

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

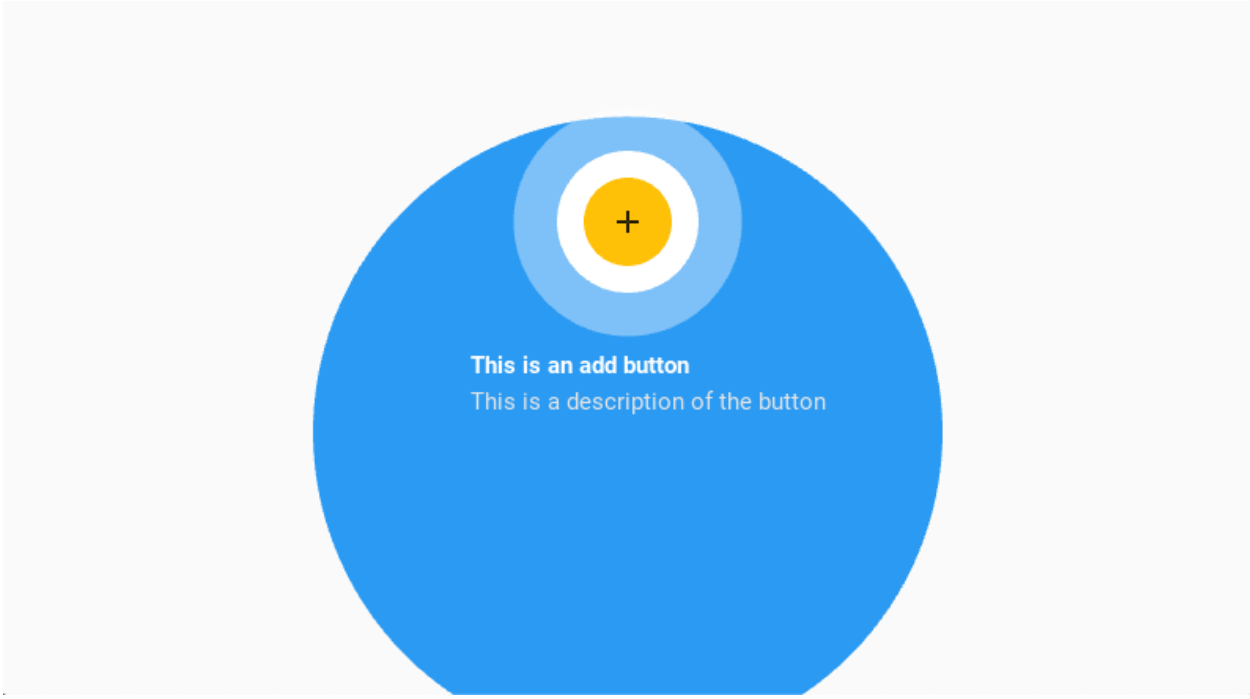
```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="right",
)
```



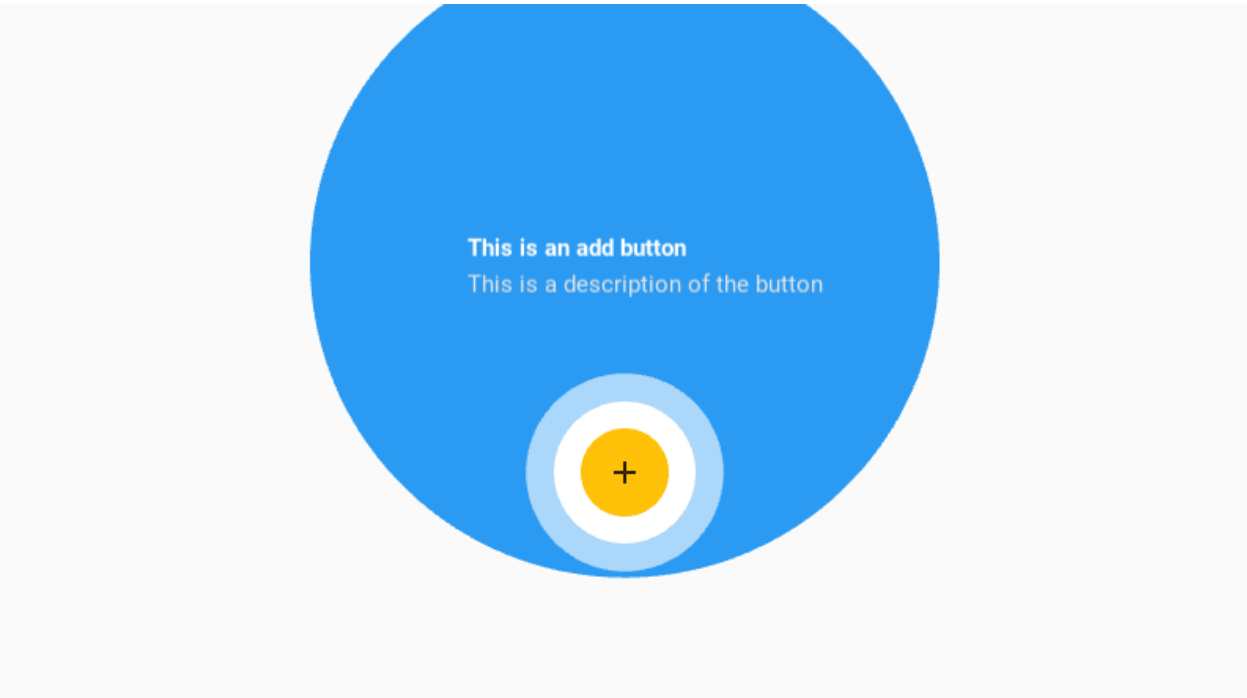

```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="left",
)
```



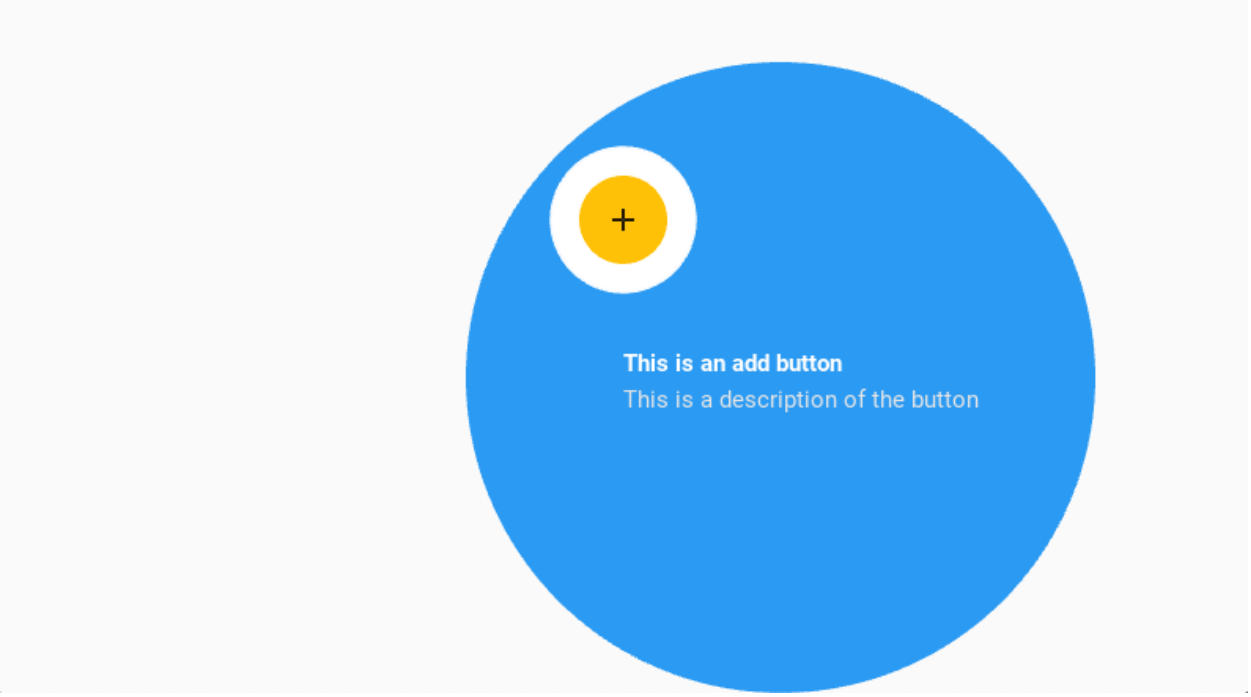

```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="top",
)
```



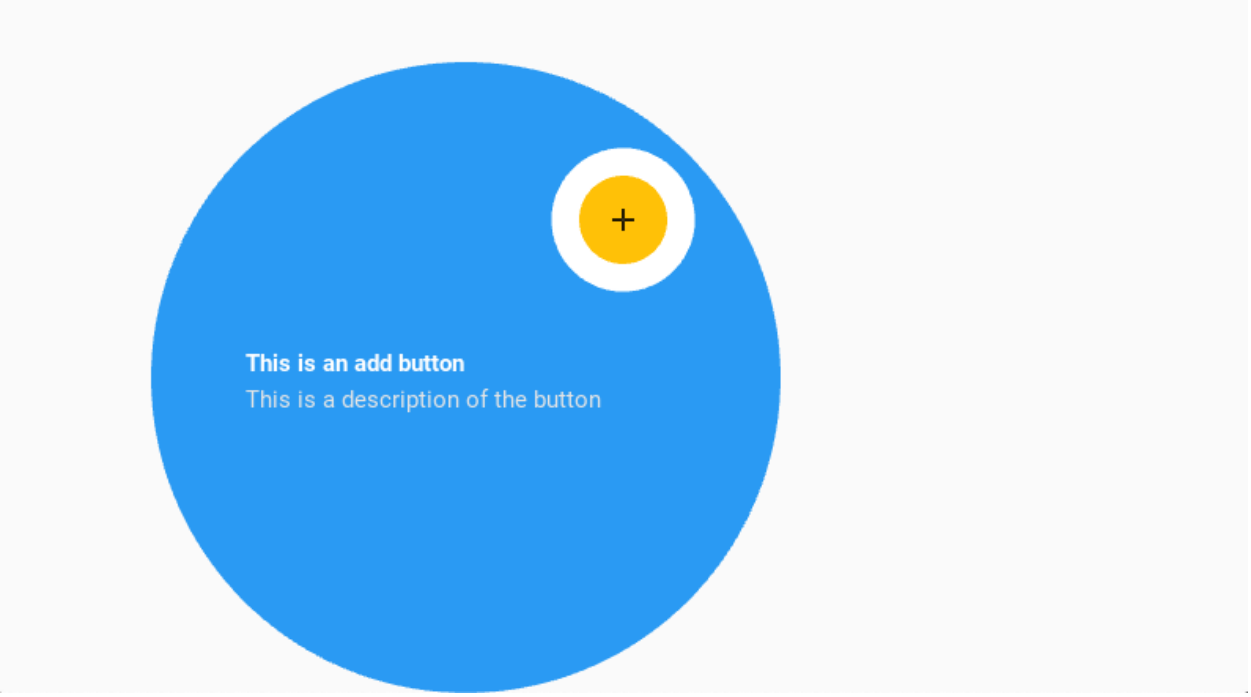

```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="bottom",
)
```



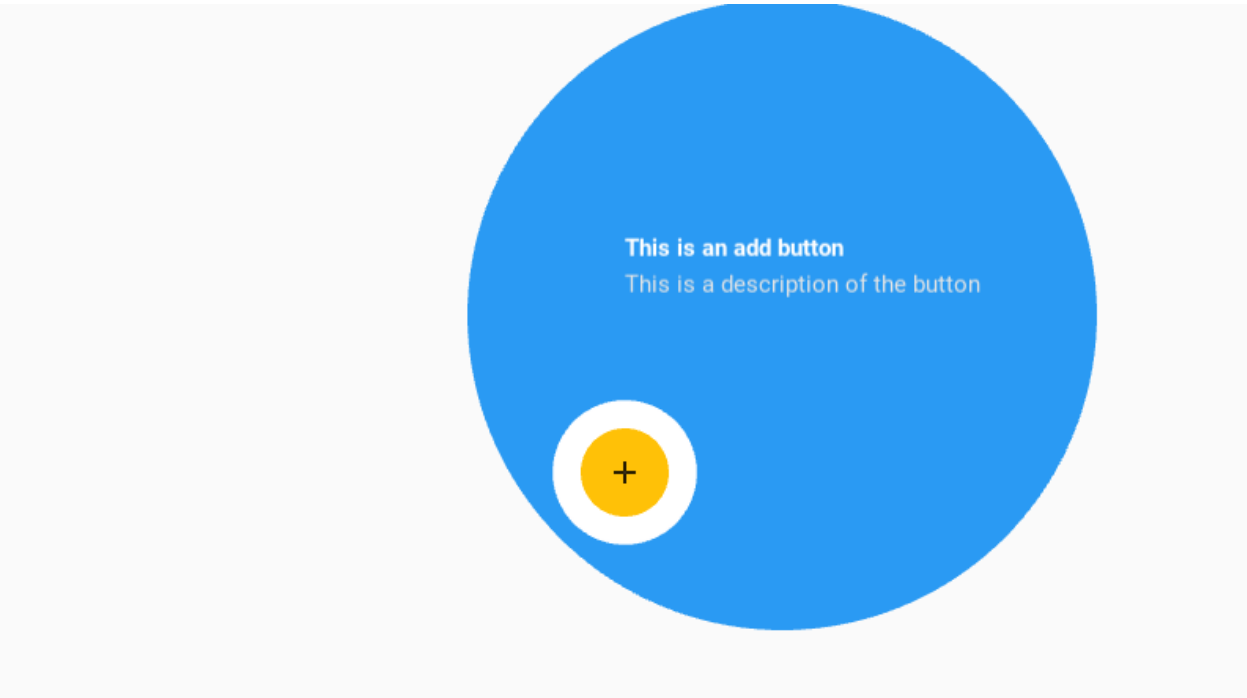

```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="left_top",
)
```



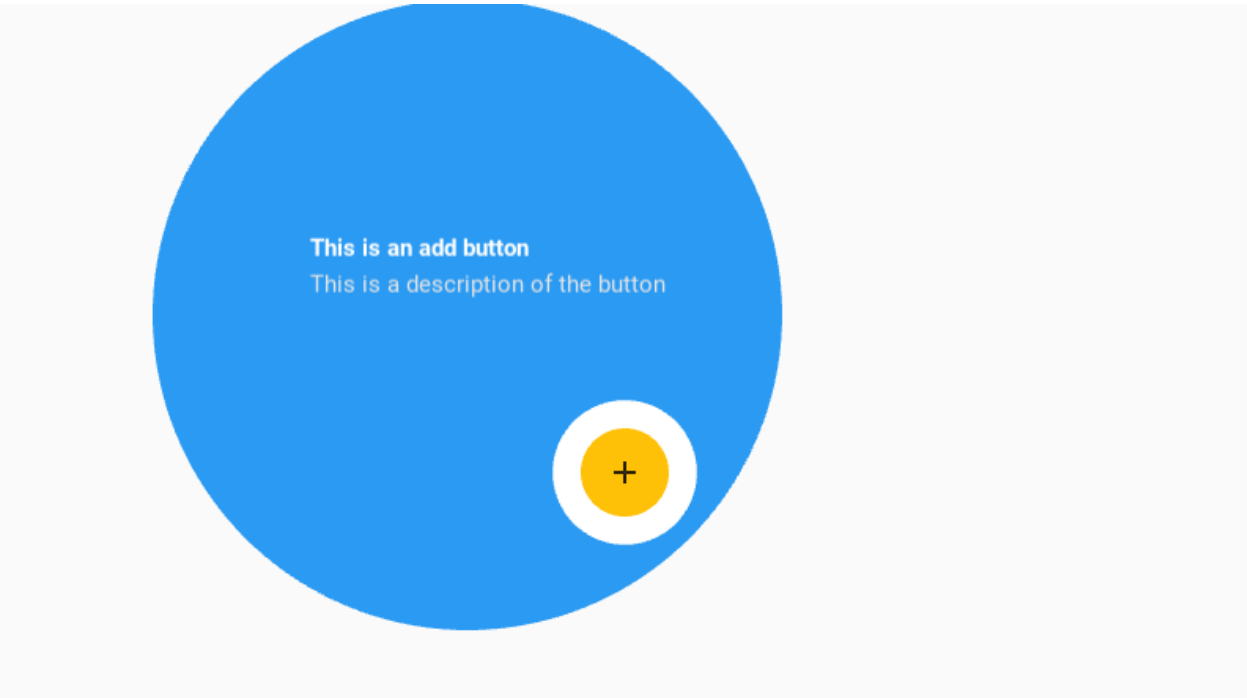

```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="right_top",
)
```




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

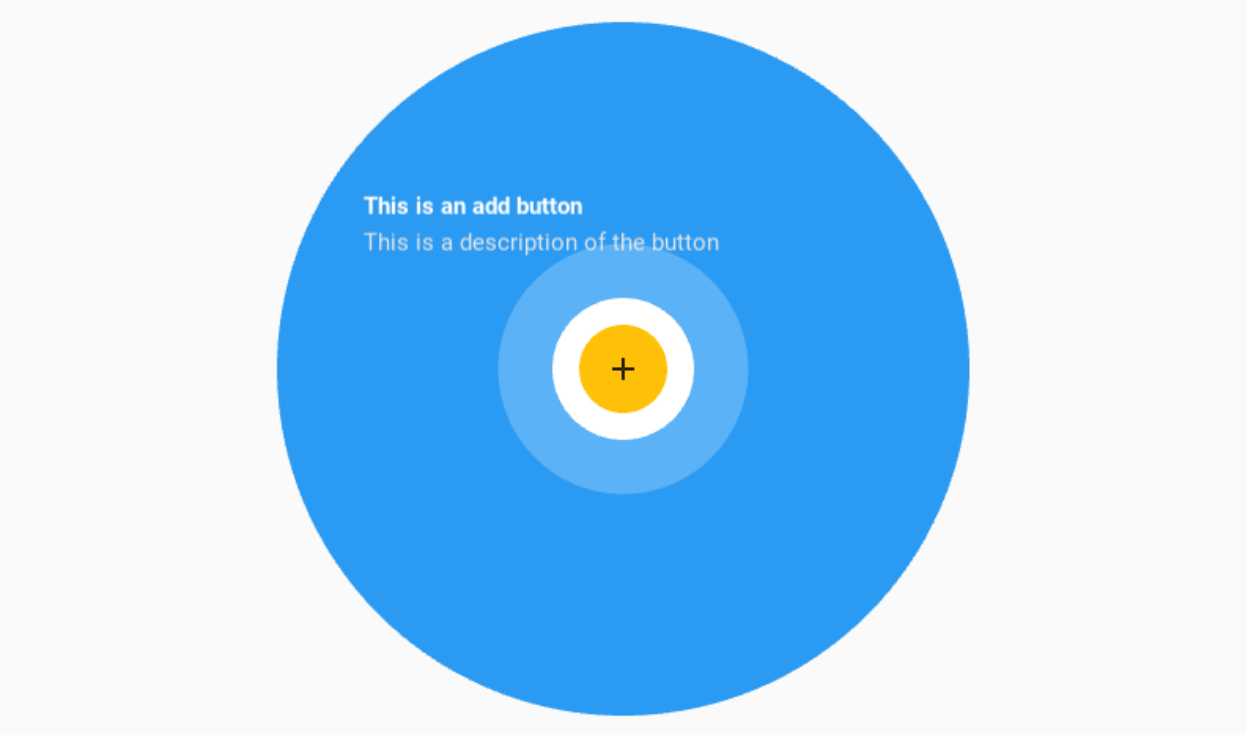



```
self.tap_target_view = MDTapTargetView(
    ...
    widget_position="right_bottom",
)
```



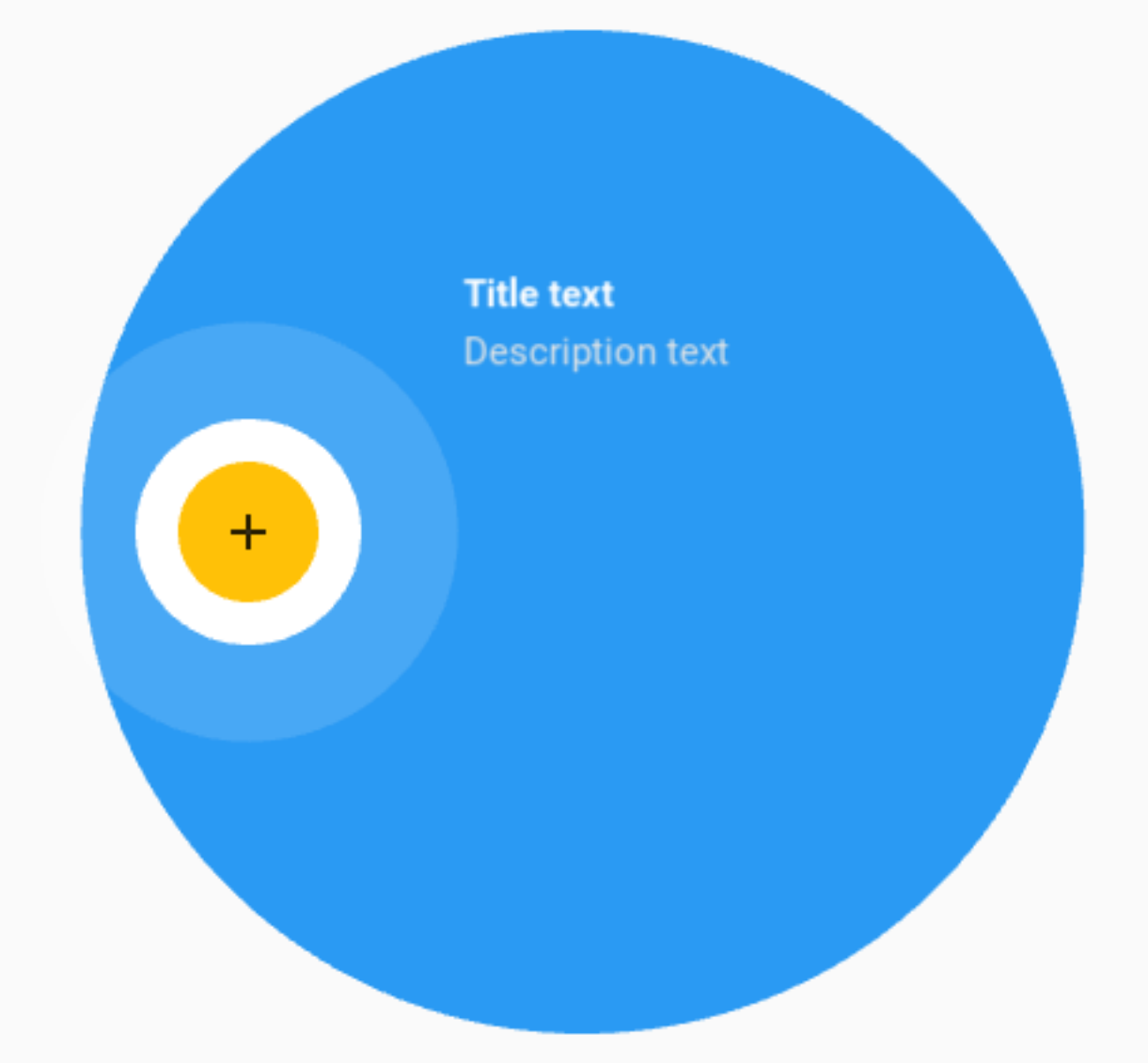
If you use `the widget_position = "center"` parameter then you must definitely specify the *title_position*.

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

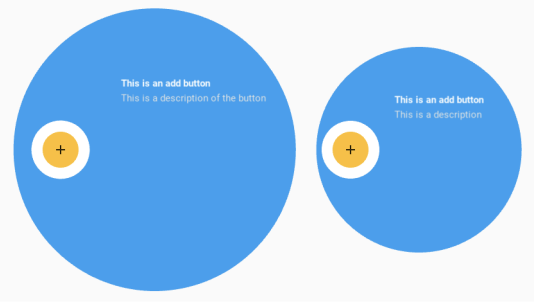
widget

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.

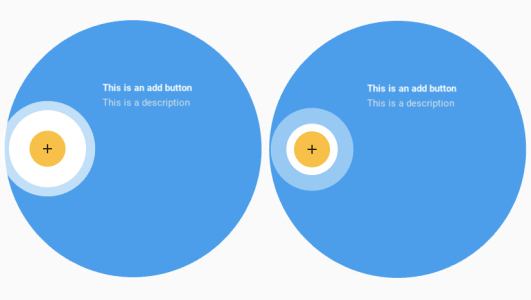
```
self.tap_target_view = MDTapTargetView(
    ...
    outer_circle_color=(1, 0, 0)
)
```

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*.

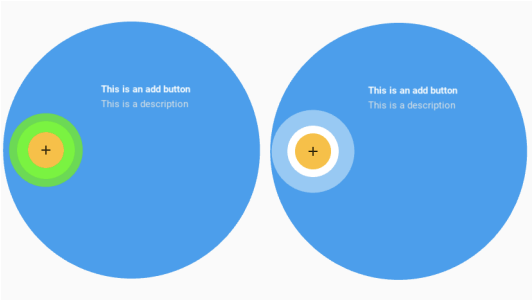
target_radius
Radius for target circle.



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'*.

stop(*self*, **args*)
Starts widget close animation.

start(*self*, **args*)
Starts widget opening 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*)

2.4 Behaviors

2.4.1 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")
```

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```
    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.

2.4.2 Hover

Changing when the mouse is on the widget.

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*:

```
<MenuItem@MDLabel+HoverBehavior>
```

In *python file*:

```
class MenuItem(MDLabel, HoverBehavior):
    '''Custom menu 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.

```
from kivy.factory import Factory
from kivy.lang import Builder

from kivymd.app import MDApp
from kivymd.uix.label import MDLabel
from kivymd.uix.behaviors import HoverBehavior

Builder.load_string('''
#:import MDDropdownMenu kivymd.uix.menu.MDDropdownMenu


<HoverBehaviorExample@Screen>

    MDRaisedButton:
        text: "Open menu"
        pos_hint: {'center_x': .5, 'center_y': .5}
        on_release: MDDropdownMenu(items=app.menu_items, width_mult=4).open(self)
''')


class MenuItem(MDLabel, HoverBehavior):
    '''Custom menu 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.text_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.text_color = [0, 0, 0, 1]


class Test(MDApp):
    menu_items = []

    def build(self):
        self.menu_items = [
            {
                "viewclass": "MenuItem",
                "text": "Example item %d" % i,
                "theme_text_color": "Custom",
                "text_color": [0, 0, 0, 1],
                "halign": "center",
            }
            for i in range(5)
        ]
        return Factory.HoverBehaviorExample()


Test().run()
```

API - kivymd.uix.behaviors.hover_behavior

class kivymd.uix.behaviors.hover_behavior.**HoverBehavior**(***kwargs*)

Events

on_enter Fired when mouse enter the bbox of the widget.

on_leave Fired when the mouse exit the widget.

hovered
True, if the mouse cursor is within the borders of the widget.

hovered is an BooleanProperty and defaults to *False*.

border_point
Contains the last relevant point received by the Hoverable. This can be used in *on_enter* or *on_leave* in order to know where was dispatched the event.

border_point is an ObjectProperty and defaults to *None*.

on_mouse_pos(*self*, **args*)

on_enter(*self*)
Fired when mouse enter the bbox of the widget.

on_leave(*self*)
Fired when the mouse exit the widget.

2.4.3 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"
```

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```
            pos_hint: {"center_y": .5}
            halign: "center"
'''


class FocusWidget(MDBoxLayout, RectangularElevationBehavior, FocusBehavior):
    pass


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 Fired when mouse enter the bbox of the widget.

on_leave Fired when the mouse exit the widget.

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 ListProperty and defaults to *[]*.

unfocus_color
The color of the widget when the mouse exits the bbox widget.

unfocus_color is a ListProperty and defaults to *[]*.

on_enter(*self*)
Fired when mouse enter the bbox of the widget.

on_leave(*self*)
Fired when the mouse exit the widget.

2.4.4 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

from kivymd.app import MDApp
from kivymd.uix.behaviors import CircularRippleBehavior

KV = '''
#:import images_path kivymd.images_path


Screen:

    CircularRippleButton:
        source: f"{images_path}/kivymd_logo.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):
        self.theme_cls.theme_style = "Dark"
        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 = '''
Screen:

```

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```
    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]


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


Example().run()
```

API - kivymd.uix.behaviors.ripplebehavior

class kivymd.uix.behaviors.ripplebehavior.**CommonRipple**

Base class for ripple effect.

ripple_rad_default

Default value of the ripple effect radius.

ripple_rad_default is an NumericProperty and defaults to *1*.

ripple_color

Ripple color in `rgba` format.

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

ripple_alpha

Alpha channel values for ripple effect.

ripple_alpha is an NumericProperty and defaults to *0.5*.

ripple_scale

Ripple effect scale.

ripple_scale is an NumericProperty and defaults to *None*.

ripple_duration_in_fast

Ripple duration when touching to widget.

ripple_duration_in_fast is an NumericProperty and defaults to *0.3*.

ripple_duration_in_slow

Ripple duration when long touching to widget.

ripple_duration_in_slow is an NumericProperty and defaults to *2*.

ripple_duration_out
The duration of the disappearance of the wave effect.

ripple_duration_out is an NumericProperty and defaults to *0.3*.

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_in is an StringProperty and defaults to *'ripple_func_out'*.

on_touch_down(*self*, *touch*)

abstract lay_canvas_instructions(*self*)

on_touch_move(*self*, *touch*, **args*)

on_touch_up(*self*, *touch*)

start_ripple(*self*)

finish_ripple(*self*)

fade_out(*self*, **args*)

anim_complete(*self*, **args*)

class kivymd.uix.behaviors.ripplebehavior.**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.ripplebehavior.**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*)

2.4.5 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 kivymd.app import MDApp
from kivy.lang import Builder

KV = '''
#:import MagicBehavior kivymd.uix.behaviors.MagicBehavior


<MagicButton@MagicBehavior+MDRectangleFlatButton>


FloatLayout:

    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}

    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}
'''
```

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```
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**

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.

2.4.6 Background Color

Note: The following classes are intended for in-house use of the library.

API - kivymd.uix.behaviors.backgroundcolorbehavior

class kivymd.uix.behaviors.backgroundcolorbehavior.**BackgroundColorBehavior**(***kwargs*)
Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

r

The value of `red` in the `rgba` palette.

r is an `BoundedNumericProperty` and defaults to *1.0*.

g

The value of `green` in the `rgba` palette.

g is an `BoundedNumericProperty` and defaults to *1.0*.

b

The value of `blue` in the `rgba` palette.

b is an `BoundedNumericProperty` and defaults to *1.0*.

a

The value of `alpha channel` in the `rgba` palette.

a is an `BoundedNumericProperty` and defaults to *0.0*.

radius

Canvas radius.

```
# Top left corner slice.
MDBoxLayout:
    md_bg_color: app.theme_cls.primary_color
    radius: [25, 0, 0, 0]
```

radius is an `ListProperty` 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 `ReferenceListProperty` and defaults to *r*, *g*, *b*, *a*.

class kivymd.uix.behaviors.backgroundcolorbehavior.**SpecificBackgroundColorBehavior**(***kwargs*)

Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

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 `ListProperty` and defaults to *[0, 0, 0, 0.87]*.

specific_secondary_text_color

specific_secondary_text_color`is an :class:`~kivy.properties.ListProperty and defaults to *[0, 0, 0, 0.87]*.

2.4.7 Elevation

Classes implements a circular and rectangular elevation effects.

To create a widget with rectangular or circular elevation effect, you must create a new class that inherits from the *RectangularElevationBehavior* or *CircularElevationBehavior* class.

For example, let's create an button with a rectangular elevation effect:

```
from kivy.lang import Builder
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
```

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```
from kivymd.uix.behaviors import (
    RectangularRippleBehavior,
    BackgroundColorBehavior,
    RectangularElevationBehavior,
)

KV = '''
<RectangularElevationButton>:
    size_hint: None, None
    size: "250dp", "50dp"


Screen:

    # With elevation effect
    RectangularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .6}
        elevation: 11

    # Without elevation effect
    RectangularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .4}
'''


class RectangularElevationButton(
    RectangularRippleBehavior,
    RectangularElevationBehavior,
    ButtonBehavior,
    BackgroundColorBehavior,
):
    md_bg_color = [0, 0, 1, 1]


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


Example().run()
```

Similarly, create a button with a circular elevation effect:

```
from kivy.lang import Builder
from kivy.uix.image import Image
from kivy.uix.behaviors import ButtonBehavior

from kivymd.app import MDApp
from kivymd.uix.behaviors import (
    CircularRippleBehavior,
    CircularElevationBehavior,
)

KV = '''
#:import images_path kivymd.images_path
```

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```
<CircularElevationButton>:
    size_hint: None, None
    size: "100dp", "100dp"
    source: f"{images_path}/kivymd_logo.png"


Screen:

    # With elevation effect
    CircularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .6}
        elevation: 5

    # Without elevation effect
    CircularElevationButton:
        pos_hint: {"center_x": .5, "center_y": .4}
        elevation: 0
'''


class CircularElevationButton(
    CircularRippleBehavior,
    CircularElevationBehavior,
    ButtonBehavior,
    Image,
):
    md_bg_color = [0, 0, 1, 1]


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


Example().run()
```

API - kivymd.uix.behaviors.elevation

class kivymd.uix.behaviors.elevation.**CommonElevationBehavior**(***kwargs*)

elevation

Elevation value.

elevation is an AliasProperty that returns the value for *elevation*.

class kivymd.uix.behaviors.elevation.**RectangularElevationBehavior**(***kwargs*)

class kivymd.uix.behaviors.elevation.**CircularElevationBehavior**(***kwargs*)

2.5 Change Log

2.5.1 v0.104.1

See on GitHub: tag 0.104.1 | compare 0.103.0/master

```
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

2.5.2 v0.104.0

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

2.5.3 v0.103.0

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.

2.5.4 v0.102.1

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/HeaTTheatR/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/HeaTTheatR/KivyMD/tree/master/demos/kitchen_sink/studies) directory for demos in Material Design.
- Bug fixes and other minor improvements.

2.5.5 v0.102.0

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.

2.5.6 v0.101.8

See on GitHub: tag 0.101.8 | compare 0.101.7/0.101.8

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.8
```

- Added *uix* and *behaviors* folder to *package_data*.

2.5.7 v0.101.7

See on GitHub: tag 0.101.7 | compare 0.101.6/0.101.7

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.7
```

- Fixed colors and position of the buttons in the *Buttons* demo screen ([Kitchen Sink demo](https://github.com/HeaTTheatR/KivyMD/tree/master/demos/kitchen_sink)).
- Displaying percent of loading kv-files ([Kitchen Sink demo](https://github.com/HeaTTheatR/KivyMD/tree/master/demos/kitchen_sink)).

2.5.8 v0.101.6

See on GitHub: tag 0.101.6 | compare 0.101.5/0.101.6

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.6
```

- Fixed *NameError: name 'MDThemePicker' is not defined*.

2.5.9 v0.101.5

See on GitHub: tag 0.101.5 | compare 0.101.4/0.101.5

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.5
```

- Added feature to see source code of current example ([Kitchen Sink demo](https://github.com/HeaTTheatR/KivyMD/tree/master/demos/kitchen_sink)).
- Added names of authors of this fork ([Kitchen Sink demo](https://github.com/HeaTTheatR/KivyMD/tree/master/demos/kitchen_sink)).
- Bug fixes and other minor improvements.

2.5.10 v0.101.4

See on GitHub: tag 0.101.4 | compare 0.101.3/0.101.4

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.4
```

- Bug fixes and other minor improvements.

2.5.11 v0.101.3

See on GitHub: tag 0.101.3 | compare 0.101.2/0.101.3

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.3
```

- Bug fixes and other minor improvements.

2.5.12 v0.101.2

See on GitHub: tag 0.101.2 | compare 0.101.1/0.101.2

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.2
```

- Bug fixes and other minor improvements.

2.5.13 v0.101.1

See on GitHub: tag 0.101.1 | compare 0.101.0/0.101.1

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.1
```

- Bug fixes and other minor improvements.

2.5.14 v0.101.0

See on GitHub: tag 0.101.0 | compare 0.100.2/0.101.0

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.101.0
```

- 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/HeaTTheatR/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/HeaTTheatR/KivyMD/tree/master/demos/kitchen_sink).
- Bug fixes and other minor improvements.

2.5.15 v0.100.2

See on GitHub: tag 0.100.2 | compare 0.100.1/0.100.2

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.100.2
```

- [Black](https://github.com/psf/black) formatting.

2.5.16 v0.100.1

See on GitHub: tag 0.100.1 | compare 0.100.0/0.100.1

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.100.1
```

- *MDUserAnimationCard* uses *Image* instead of *AsyncImage*.

2.5.17 v0.100.0

See on GitHub: tag 0.100.0 | compare 0.99.99/0.100.0

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.100.0
```

- Added feature to change color for *MDStackFloatingButtons*.

2.5.18 v0.99.99.01

See on GitHub: tag 0.99.99.01 | compare 0.99.98/0.99.99.01

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.99.01
```

- Fixed *MDNavigationDrawer.use_logo*.

2.5.19 v0.99.99

See on GitHub: tag 0.99.99 | compare 0.99.99.01/0.99.99

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.99
```

- Added *icon_color* property for *NavigationDrawerIconButton*.

2.5.20 v0.99.98

See on GitHub: tag 0.99.98 | compare 0.99.97/0.99.98

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.98
```

- Added *MDFillRoundFlatIconButton* class.

2.5.21 v0.99.97

See on GitHub: tag 0.99.97 | compare 0.99.96/0.99.97

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.97
```

- Fixed *Spinner* animation.

2.5.22 v0.99.96

See on GitHub: tag 0.99.96 | compare 0.99.95/0.99.96

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.96
```

- Added *asynckivy* module by [Nattōsai Mitō](https://github.com/gottadiveintopython/asynckivy).

2.5.23 v0.99.95

See on GitHub: tag 0.99.95 | compare 0.99.94/0.99.95

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.95
```

- 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/HeaTTheatR/KivyMD/tree/master/demos/kitchen_sink).

2.5.24 v0.99.94

See on GitHub: tag 0.99.94 | compare 0.99.93/0.99.94

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.94
```

- 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.

2.5.25 v0.99.93

See on GitHub: tag 0.99.93 | compare 0.99.92/0.99.93

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.93
```

- Updated [Iconic font](https://github.com/Templarian/MaterialDesign-Webfont) (v3.6.95).

2.5.26 v0.99.92

See on GitHub: tag 0.99.92 | compare 0.99.91/0.99.92

```
pip install git+https://github.com/HeaTTheatR/KivyMD.git@0.99.92
```

- Removed automatic change of text field length in *MDTextFieldRound* class.

2.6 About

2.6.1 License

Refer to LICENSE.

```
The MIT License (MIT)

Copyright (c) 2015 Andrés Rodríguez and KivyMD contributors - KivyMD library up to␣
↪version 0.1.2
Copyright (c) 2020 Andrés Rodríguez, Ivanov Yuri, Artem S. Bulgakov and KivyMD␣
↪contributors - KivyMD library version 0.1.3 and higher

Other libraries used in the project:

Copyright (c) 2010-2020 Kivy Team and other contributors
Copyright (c) 2013 Brian Knapp - Androidoast library
Copyright (c) 2014 LogicalDash - stiffscroll library
Copyright (c) 2015 Davide Depau - circularTimePicker, circleLayout libraries
Copyright (c) 2015 Kivy Garden - tabs module
Copyright (c) 2020 Nattōsai Mitō - asynckivy module
Copyright (c) 2020 tshirtman - magic_behavior module
Copyright (c) 2020 shashi278 - taptargetview module
Copyright (c) 2020 Benedikt Zwölfer - fitimage module
Hoverable Behaviour (changing when the mouse is on the widget by O. Poyen, License:␣
↪LGPL) - hover_behavior module

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LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
```
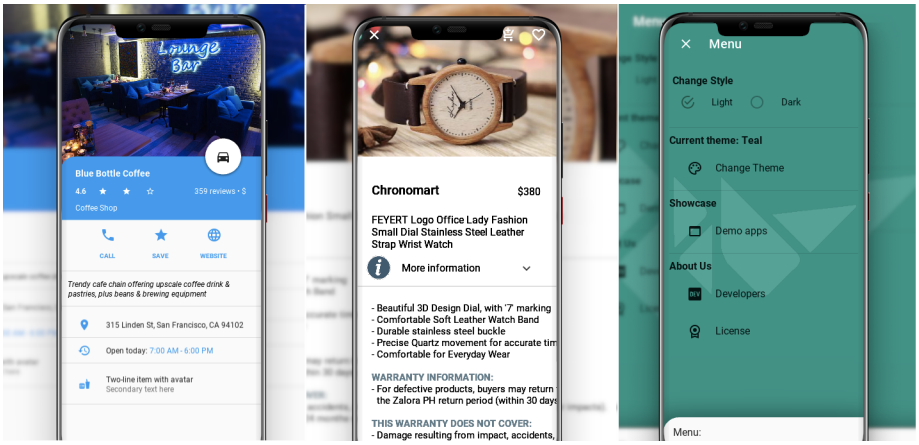

2.7 KivyMD



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 or application performance.

This library is a fork of the KivyMD project the author of which stopped supporting this project three years ago. We found the strength and brought this project to a new level. Currently we're in **alpha** status, so things are changing all the time and we cannot promise any kind of API stability. However it is safe to vendor now and make use of what's currently available.

Join the project! Just fork the project, branch out and submit a pull request when your patch is ready. If any changes are necessary, we'll guide you through the steps that need to be done via PR comments or access to your for may be requested to outright submit them. 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.

2.7.1 API - `kivymd`

`kivymd.`**`path`**
: Path to KivyMD package directory.

`kivymd.`**`fonts_path`**
: Path to fonts directory.

`kivymd.`**`images_path`**
: Path to images directory.

2.7.2 Submodules

Register KivyMD widgets to use without import

Register KivyMD widgets to use without import

API - kivymd.factory_registers

kivymd.factory_registers.**r**

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**

Stiff Scroll Effect

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.stiffscroll

class kivymd.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.

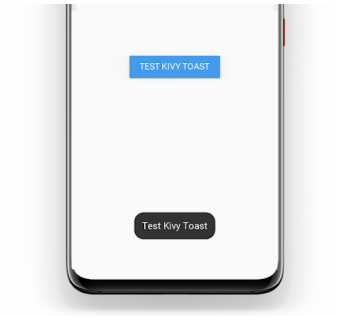
stop (*self*, *val*, *t=None*)
Work out whether I've been flung.

kivymd.toast

API - kivymd.toast

Submodules

Toast for Android device



API - kivymd.toast.androidtoast

Submodules

AndroidToast

Native implementation of toast for Android devices.

```
from kivymd.app import MDApp
# 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 kivymd.toast import toast

KV = '''
BoxLayout:
    orientation:'vertical'

    MDToolbar:
        id: toolbar
        title: 'Test Toast'
        md_bg_color: app.theme_cls.primary_color
```

(continues on next page)

(continued from previous page)

```
        left_action_items: [['menu', lambda x: '']]

    FloatLayout:

        MDRaisedButton:
            text: 'TEST KIVY TOAST'
            on_release: app.show_toast()
            pos_hint: {'center_x': .5, 'center_y': .5}

'''


class Test(MDApp):
    def show_toast(self):
        '''Displays a toast on the screen.'''

        toast('Test Kivy Toast')

    def build(self):
        return Builder.load_string(KV)

Test().run()
```

API - kivymd.toast.androidtoast.androidtoast

kivymd.toast.androidtoast.androidtoast.**Toast**

kivymd.toast.androidtoast.androidtoast.**context**

kivymd.toast.androidtoast.androidtoast.**toast**(*text*, *length_long=False*)

Displays a toast.

Length_long The amount of time (in seconds) that the toast is visible on the screen.

kivymd.toast.kivytoast

API - kivymd.toast.kivytoast

Submodules

KivyToast

Implementation of toasts for desktop.

```
from kivymd.app import MDApp
from kivymd.toast import toast

KV = '''
BoxLayout:
    orientation:'vertical'

    MDToolbar:
```

(continues on next page)

(continued from previous page)

```
        id: toolbar
        title: 'Test Toast'
        md_bg_color: app.theme_cls.primary_color
        left_action_items: [['menu', lambda x: '']]

    FloatLayout:

        MDRaisedButton:
            text: 'TEST KIVY TOAST'
            on_release: app.show_toast()
            pos_hint: {'center_x': .5, 'center_y': .5}

'''


class Test(MDApp):
    def show_toast(self):
        '''Displays a toast on the screen.'''

        toast('Test Kivy Toast')

    def build(self):
        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*.

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*, *texture_size*)

toast(*self*, *text_toast*)

on_open(*self*)

fade_in(*self*)

fade_out(*self*, *interval*)

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.

kivymd.toast.kivytoast.kivytoast.**toast**(*text: str*, *duration=2.5*)
Displays a toast.

Duration The amount of time (in seconds) that the toast is visible on the screen.

kivymd.tools

API - kivymd.tools

Submodules

Tool for updating Iconic font

Downloads archive from https://github.com/Templarian/MaterialDesign-Webfont and updates font file with icon_definitions.

API - kivymd.tools.update_icons

kivymd.tools.update_icons.**font_path = ../fonts/materialdesignicons-webfont.ttf**

kivymd.tools.update_icons.**icon_definitions_path = ../icon_definitions.py**

kivymd.tools.update_icons.**font_version = master**

kivymd.tools.update_icons.**url**

kivymd.tools.update_icons.**temp_path**

kivymd.tools.update_icons.**temp_repo_path**

kivymd.tools.update_icons.**temp_font_path**

kivymd.tools.update_icons.**temp_preview_path**

kivymd.tools.update_icons.**re_icons_json**

kivymd.tools.update_icons.**re_additional_icons**

kivymd.tools.update_icons.**re_version**

kivymd.tools.update_icons.**re_quote_keys**

kivymd.tools.update_icons.**re_icon_definitions**

kivymd.tools.update_icons.**re_version_in_file**

kivymd.tools.update_icons.**download_file**(*url*, *path*)

kivymd.tools.update_icons.**unzip_archive**(*archive_path*, *dir_path*)

kivymd.tools.update_icons.**get_icons_list**()

kivymd.tools.update_icons.**make_icon_definitions**(*icons*)

kivymd.tools.update_icons.**export_icon_definitions**(*icon_definitions*, *version*)

kivymd.tools.update_icons.**main**()

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",
    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.**datas = [None, None]**

Submodules

kivymd.tools.packaging.pyinstaller.hook-kivymd

API - kivymd.tools.packaging.pyinstaller.hook-kivymd

kivymd.tools.release

API - kivymd.tools.release

Submodules

Script Before release

Run this script before release (before deploying).

What this script does:

- Undo all local changes in repository
- Update version in __init__.py, README
- Black files
- Rename file “unreleased.rst” to version, add to index.rst
- Commit “Version . . . ”
- Create tag
- Add “unreleased.rst” to Change Log, add to index.rst
- Commit
- Git push

API - kivymd.tools.release.make_release

kivymd.tools.release.make_release.**command**(*cmd: list*)

kivymd.tools.release.make_release.**get_previous_version**()
Returns latest tag in git.

kivymd.tools.release.make_release.**git_clean**()
Clean git repository from untracked and changed files.

kivymd.tools.release.make_release.**git_commit**(*message: str*, *allow_error: bool = False*)
Make commit.

kivymd.tools.release.make_release.**git_tag**(*name: str*)
Create tag.

kivymd.tools.release.make_release.**git_push**(*branches_to_push: list*)
Push all changes.

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*)
Change version in *kivymd/__init__.py*.

kivymd.tools.release.make_release.**update_readme**(*previous_version*, *version*)
Change version in README.

kivymd.tools.release.make_release.**move_changelog**(*index_file*, *unreleased_file*, *previous_version*, *version_file*, *version*)

kivymd.tools.release.make_release.**create_unreleased_changelog**(*index_file*, *unreleased_file*, *previous_version*)

kivymd.tools.release.make_release.**main**()

kivymd.uix

API - kivymd.uix

class kivymd.uix.**MDAdaptiveWidget**(***kwargs*)
Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

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*, *instance*, *value*)

on_adaptive_width (*self*, *instance*, *value*)

on_adaptive_size (*self*, *instance*, *value*)

Submodules

Behaviors

Modules and classes implementing various behaviors for buttons etc.

API - kivymd.uix.behaviors

Submodules

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*)

Crop Image

API - kivymd.utils.cropimage

kivymd.utils.cropimage.**crop_image**(*cutting_size*, *path_to_image*, *path_to_save_crop_image*, *corner=0*, *blur=0*, *corner_mode='all'*)

Call functions of cropping/blurring/rounding image.

cutting_size: size to which the image will be cropped; path_to_image: path to origin image; path_to_save_crop_image: path to new image; corner: value of rounding corners; blur: blur value; corner_mode: 'all'/'top'/'bottom' - indicates which corners to round out;

kivymd.utils.cropimage.**add_blur**(*im*, *mode*)

kivymd.utils.cropimage.**add_corners**(*im*, *corner*, *corner_mode*)

kivymd.utils.cropimage.**prepare_mask**(*size*, *antialias=2*)

kivymd.utils.cropimage.**crop_round_image**(*cutting_size*, *path_to_image*, *path_to_new_image*)

Fit Image

Feature to automatically crop a *Kivy* image to fit your layout Write by Benedikt Zwölfer

Referene - https://gist.github.com/benni12er/95a45eb168fc33a4fcd2d545af692dad

Example:

BoxLayout: size_hint_y: None height: dp(200) orientation: 'vertical'

FitImage: size_hint_y: 3 source: 'images/img1.jpg'

FitImage: size_hint_y: 1 source: 'images/img2.jpg'

API - kivymd.utils.fitimage

class kivymd.utils.fitimage.**FitImage**(***kwargs*)
Box layout class. See module documentation for more information.

source

class kivymd.utils.fitimage.**Container**(*source*, ***kwargs*)
Widget class. See module documentation for more information.

Events

on_touch_down*: *(touch,) Fired when a new touch event occurs. *touch* is the touch object.

on_touch_move*: *(touch,) Fired when an existing touch moves. *touch* is the touch object.

on_touch_up*: *(touch,) Fired when an existing touch disappears. *touch* is the touch object.

on_kv_post*: *(base_widget,) Fired after all the kv rules associated with the widget and all other widgets that are in any of those rules have had all their kv rules applied. *base_widget* is the base-most widget whose instantiation triggered the kv rules (i.e. the widget instantiated from Python, e.g. `MyWidget()`).

Changed in version 1.11.0.

Warning: Adding a *__del__* method to a class derived from Widget with Python prior to 3.4 will disable automatic garbage collection for instances of that class. This is because the Widget class creates reference cycles, thereby preventing garbage collection.

Changed in version 1.0.9: Everything related to event properties has been moved to the `EventDispatcher`. Event properties can now be used when contructing a simple class without subclassing `Widget`.

Changed in version 1.5.0: The constructor now accepts on_* arguments to automatically bind callbacks to properties or events, as in the Kv language.

adjust_size(*self*, **args*)

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.vendor

API - kivymd.vendor

Submodules

CircularLayout

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

size_hint

size_hint_x is used as an angle-quota hint (widget with higher size_hint_x will be farther from each other, and vice versa), while size_hint_y is used as a widget size hint (widgets with a higher size hint will be bigger).size_hint_x cannot be None.

Widgets are all squares, unless you set size_hint_y to None (in that case you'll be able to specify your own size), and their size is the difference between the outer and the inner circle's radii. To make the widgets bigger you can just decrease inner_radius_hint.

API - kivymd.vendor.circleLayout

Circular Date & Time Picker for Kivy

(currently only time, date coming soon)

Based on [CircularLayout](https://github.com/kivy-garden/garden.circularlayout). The main aim is to provide a date and time selector similar to the one found in Android KitKat+.

Simple usage

Import the widget with

```
from kivy.garden.circulardatetimepicker import CircularTimePicker
```

then use it! That's it!

```
c = CircularTimePicker()
c.bind(time=self.set_time)
root.add_widget(c)
```

in Kv language:

```
<TimeChooserPopup@Popup>:
    BoxLayout:
        orientation: "vertical"

        CircularTimePicker
```

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```
        Button:
            text: "Dismiss"
            size_hint_y: None
            height: "40dp"
            on_release: root.dismiss()
```

API - kivymd.vendor.circularTimePicker

kivymd.vendor.circularTimePicker.**xrange**(*first=None*, *second=None*, *third=None*)

kivymd.vendor.circularTimePicker.**map_number**(*x*, *in_min*, *in_max*, *out_min*, *out_max*)

kivymd.vendor.circularTimePicker.**rgb_to_hex**(**color*)

class kivymd.vendor.circularTimePicker.**Number**(***kwargs*)

The class used to show the numbers in the selector.

size_factor

Font size scale.

size_factor is a NumericProperty and defaults to 0.5.

class kivymd.vendor.circularTimePicker.**CircularNumberPicker**(***kw*)

A circular number picker based on CircularLayout. A selector will help you pick a number. You can also set *multiples_of* to make it show only some numbers and use the space in between for the other numbers.

min

The first value of the range.

min is a NumericProperty and defaults to 0.

max

The last value of the range. Note that it behaves like xrange, so the actual last displayed value will be *max* - 1.

max is a NumericProperty and defaults to 0.

range

Packs *min* and *max* into a list for convenience. See their documentation for further information.

range is a ReferenceListProperty.

multiples_of

Only show numbers that are multiples of this number. The other numbers will be selectable, but won't have their own label.

multiples_of is a NumericProperty and defaults to 1.

selector_color

Color of the number selector. RGB.

selector_color is a ListProperty and defaults to [.337, .439, .490] (material green).

color

Color of the number labels and of the center dot. RGB.

color is a ListProperty and defaults to [1, 1, 1] (white).

selector_alpha

Alpha value for the transparent parts of the selector.

selector_alpha is a BoundedNumericProperty and defaults to 0.3 (min=0, max=1).

selected
Currently selected number.

selected is a NumericProperty and defaults to *min*.

number_size_factor
Font size scale factor for the *Number*.

number_size_factor is a NumericProperty and defaults to 0.5.

number_format_string
String that will be formatted with the selected number as the first argument. Can be anything supported by str.format() (es. "{:02d}").

number_format_string is a StringProperty and defaults to "{}".

scale
Canvas scale factor. Used in *CircularTimePicker* transitions.

scale is a NumericProperty and defaults to 1.

items

shown_items

dot_is_none(*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_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_selected(*self*, **a*)

pos_for_number(*self*, *n*)
Returns the center x, y coordinates for a given number.

number_at_pos(*self*, *x*, *y*)
Returns the number at a given x, y position. The number is found using the widget's center as a starting point for angle calculations.

Not thoroughly tested, may yield wrong results.

class kivymd.vendor.circularTimePicker.**CircularMinutePicker**(***kw*)
CircularNumberPicker implementation for minutes.

class kivymd.vendor.circularTimePicker.**CircularHourPicker**(***kw*)
CircularNumberPicker implementation for hours.

class kivymd.vendor.circularTimePicker.**CircularTimePicker**(***kw*)

Widget that makes use of *CircularHourPicker* and *CircularMinutePicker* to create a user-friendly, animated time picker like the one seen on Android.

See module documentation for more details.

primary_dark

hours

The hours, in military format (0-23).

hours is a NumericProperty and defaults to 0 (12am).

minutes

The minutes.

minutes is a NumericProperty and defaults to 0.

time_list

Packs *hours* and *minutes* in a list for convenience.

time_list is a ReferenceListProperty.

time_format

String that will be formatted with the time and shown in the time label. Can be anything supported by str.format(). Make sure you don't remove the refs. See the default for the arguments passed to format. *time_format* is a StringProperty and defaults to "[color={hours_color}][ref=hours]{hours}[/ref][/color]:[color={minutes_color}][ref=minutes] {minutes:02d}[/ref][/color]".

ampm_format

String that will be formatted and shown in the AM/PM label. Can be anything supported by str.format(). Make sure you don't remove the refs. See the default for the arguments passed to format.

ampm_format is a StringProperty and defaults to "[color={am_color}][ref=am]AM[/ref][/color]

[color={pm_color}][ref=pm]PM[/ref][/color]".

picker

Currently shown time picker. Can be one of "minutes", "hours".

picker is a OptionProperty and defaults to "hours".

selector_color

Color of the number selector and of the highlighted text. RGB.

selector_color is a ListProperty and defaults to [.337, .439, .490] (material green).

color

Color of the number labels and of the center dot. RGB.

color is a ListProperty and defaults to [1, 1, 1] (white).

selector_alpha

Alpha value for the transparent parts of the selector.

selector_alpha is a BoundedNumericProperty and defaults to 0.3 (min=0, max=1).

time

Selected time as a datetime.time object.

time is an AliasProperty.

time_text

ampm_text

set_time(*self*, *dt*)

on_ref_press(*self*, *ign*, *ref*)

on_selected(*self*, **a*)

on_time_list(*self*, **a*)

on_ampm(*self*, **a*)

is_animating(*self*, **args*)

is_not_animating(*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.

kivymd.vendor.circularTimePicker.**c**

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