Tkinter Label

Summary: in this tutorial, you'll learn about Tkinter `Label` widget and how to use it to display a text or image on the screen.

Introduction to Tkinter Label widget

Tkinter `Label` widget is used to display a text or image on the screen. To use a `Label` widget, you use the following general syntax:

```
label = ttk.Label(container, **options)
```

The `Label` widget has many options that allow you to customize its appearance:

Options	Meaning
anchor	When the text and/or image are smaller than the width, the anchor option determines where to position them `tk.W`, `tk.CENTER` or `tk.E` for left, center, and right alignment respectively.
background	Set the background color for the label

Options	Meaning
borderwidth	Add a border around the label.
class_	Specify a custom widget class name for changing the label's appearance.
compound	Specify how to display both text and image on the Label.
cursor	Specify the mouse cursor's appearance when the mouse is over the widget.
font	Specify the font style for displaying text
foreground	Specify the color of the text
image	Specify an image or images to show in addition to text or instead of text.
justify	If the text contains newline characters, the `justify` option specifies how each line is positioned horizontally. The valid values are `tk.LEFT` (left-justify), `tk.CENTER` (center), and `tk.RIGHT` (right-justify).
padding	Add more space around the label.
relief	Use this option to create an effect for the Label .e.g, flat, raised, sunken, groove, and ridge.
style	Specify the custom widget style.
takefocus	is a boolean value that specifies whether the label is visited during focus traversal. It defaults to False which doesn't get focus.
text	Specify a string of text to show in the widget
textvariable	A StringVar instance that holds the text value of the widget. It overrides the text option if both textvariable and text are available.
underline	Specify the position of the letter that should be underlined e.g, underline = 0 would underline the letter `E` in the `text='Exit'`
width	Specify the number of characters to show

Options	Meaning
wraplength	Chop the text into the lines which less than the length specified by the `wraplength` option.

The following shows a skeleton program that we'll use to illustrate various options of the `Label` widget:

```
import tkinter as tk
from tkinter import ttk

root = tk.Tk()
root.geometry('300x200')
root.resizable(False, False)
root.title('Label Widget Demo')

# show the label here

root.mainloop()
```

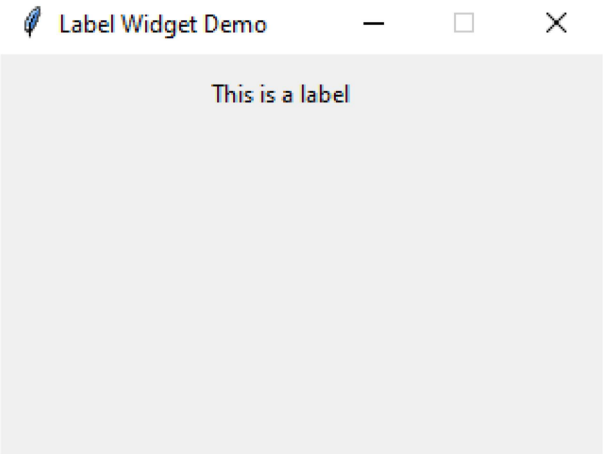
Displaying a regular label

The following program shows how to display a regular label on the root window:

```
import tkinter as tk
from tkinter.ttk import Label

root = tk.Tk()
root.geometry('300x200')
root.resizable(False, False)
root.title('Label Widget Demo')

# show a label
label = Label(root, text='This is a label')
label.pack(ipadx=10, ipady=10)
```

```
root.mainloop()
```

Output:



How it works.

- First, import `Label` class from the `tkinter.ttk` module.
- Second, create the root window and set its properties including size, resizeable, and title.
- Third, create a new instance of the Label widget, set its container to the root window, and assign a literal string to its `text` property.

Setting a specific font for the Label

To set a particular font for a label, you pass the `font` keyword argument (https://www.pythontutorial.net/python-basics/python-keyword-arguments/) to the `Label` constructor like this:

```
font = ('font name', font_size)
```

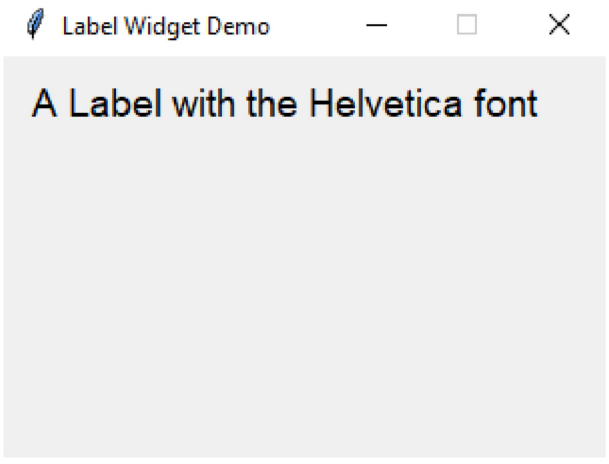
The `font` keyword argument is a tuple (https://www.pythontutorial.net/python-basics/python-tuples/) that contains font name and size. For example:

```
font=("Helvetica", 14)
```

The following example shows a label with the `Helvetica` font:

```
import tkinter as tk
from tkinter import ttk


root = tk.Tk()
root.geometry('300x200')
root.resizable(False, False)
root.title('Label Widget Demo')

# label with a specific font
label = ttk.Label(
    root,
    text='A Label with the Helvetica font',
    font=("Helvetica", 14))

label.pack(ipadx=10, ipady=10)

root.mainloop()
```

Output:



Displaying an image

To use a `Label` widget to display an image, you follow these steps:

First, create a PhotoImage (https://www.pythontutorial.net/tkinter/tkinter-photoimage/) widget by passing the path to the photo to the `PhotoImage` constructor:

```
photo = tk.PhotoImage(file='./assets/python.png')
```

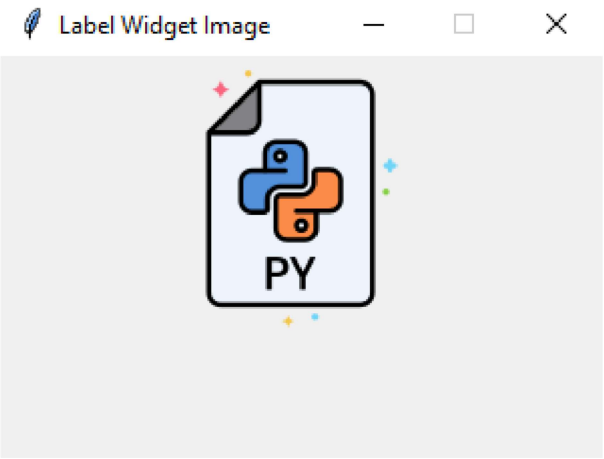
Second, assign the `PhotoImage` object to the `image` option of the `Label` widget:

```
Label(..., image=photo)
```

The following example shows how to use a `Label` widget to display an image:

```
import tkinter as tk
from tkinter import ttk

# create the root window
root = tk.Tk()
root.geometry('300x200')
root.resizable(False, False)
root.title('Label Widget Image')

# display an image label
photo = tk.PhotoImage(file='./assets/python.png')
image_label = ttk.Label(
    root,
    image=photo,
    padding=5
)
image_label.pack()

root.mainloop()
```

Output:



Note that the image file is located at the `/assets/` folder.

To display both text and image, you'll use the `text` attribute and `compound` option.

The `compound` option specifies the position of the image relative to the text. Its valid values are:

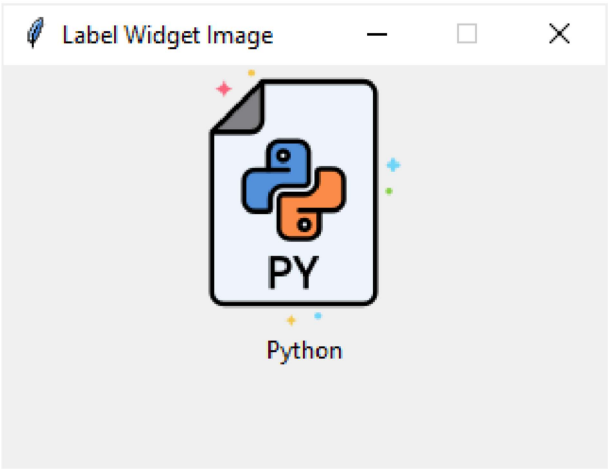
Compound	Effect
`'top'`	Display the image above the text.
`'bottom'`	Display the image below the text.
`'left'`	Display the image to the left of the text.
`'right'`	Display the image to the right of the text.
`'none'`	Display the image if there's one, otherwise display the text. The compound option defaults to `'none'`.
`'text'`	Display the text, not the image
`'image'`	Display the image, not the text.

The following program shows how to display both text and image on a label:

```
import tkinter as tk
from tkinter import ttk

# create the root window
root = tk.Tk()
```

```
root.geometry('300x200')
root.resizable(False, False)
root.title('Label Widget Image')

# display an image label
photo = tk.PhotoImage(file='./assets/python.png')
image_label = ttk.Label(
    root,
    image=photo,
    text='Python',
    compound='top'
)
image_label.pack()

root.mainloop()
```

Output:



Summary

- Use the Label widget to display a text or an image or both.