

## TKINTER

### 1. What is Tkinter?

Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, tkinter is the most commonly used method. It is a standard Python interface to the **Tk GUI toolkit** shipped with Python. Python with tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using tkinter is an easy task.

### 2. Why use Tkinter?

We use Tkinter for its following advantages:

- Tkinter is easy and fast to implement as compared to any other GUI toolkit.
- Tkinter is more flexible and stable.
- Tkinter is included in Python, so nothing extra need to download.
- Tkinter provides a simple syntax.
- Tkinter is really easy to understand and master.
- Tkinter provides three geometry managers: place, pack, and grid. That is much more powerful and easy to use.

Tkinter is an open-source Python Graphic User Interface (GUI) library well known for its simplicity. It comes pre-installed in Python, so you don't even need to think about installing it. These characteristics make it a strong position for beginners and intermediates to begin with. Tkinter cannot be used for larger-scale projects.

### 3. How to install Tkinter?

It comes pre-installed in Python. But in case, if you need to install Tkinter, go to your command prompt and type “**pip install tk**” or else, if you have anaconda installed in your system, just type in “**conda install tk**”. Once the installation is completed, go to your IDE (Jupyter, PyCharm etc.) and simply import it by typing: “**import tkinter as tk**”.

### 4. How to create a tkinter app?

To create a tkinter app:

1. Importing the module – tkinter
2. Create the main window (container)
3. Add any number of widgets to the main window
4. Apply the event Trigger on the widgets.

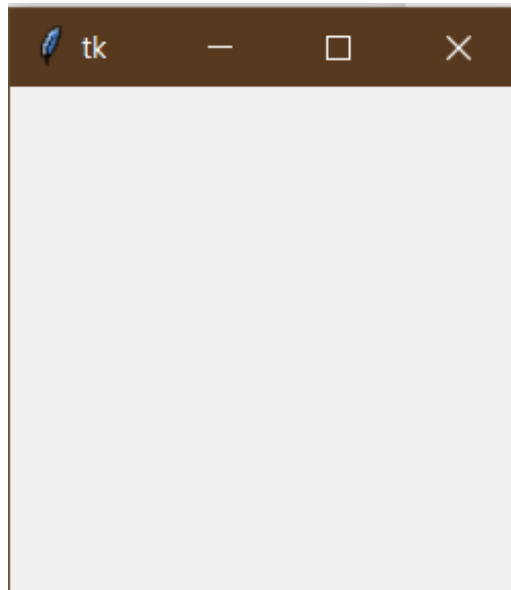
Importing tkinter is same as importing any other module in the Python code. Note that the name of the module in Python 2.x is 'Tkinter' and in Python 3.x it is 'tkinter'.

- i. **Tk(screenName=None, baseName=None, className='Tk', useTk=1):** To create a main window, tkinter offers a method 'Tk(screenName=None, baseName=None, className='Tk', useTk=1)'. To change the name of the window, you can change the className to the desired one. The basic code used to create the main window of the application is: m=tkinter.Tk() where m is the name of the main window object
- ii. **mainloop():** There is a method known by the name mainloop() is used when your application is ready to run. mainloop() is an infinite loop used to run the application, wait for an event to occur and process the event as long as the window is not closed. E.g., m.mainloop()

E.g.,

```
import tkinter
m = tkinter.Tk()
'''
widgets are added here
'''
m.mainloop()
```

OUTPUT:



- iii. **Alignmnet:** Tkinter also offers access to the geometric configuration of the widgets which can organize the widgets in the parent windows. There are mainly three geometry manager classes class.
  - a) **pack() method:** It organizes the widgets in blocks before placing in the parent widget.
  - b) **grid() method:** It organizes the widgets in grid (table-like structure) before placing in the parent widget.
  - c) **place() method:** It organizes the widgets by placing them on specific positions directed by the programmer.

## 5. What are widgets?

Tkinter in Python comes with a lot of good widgets. *Widgets* are standard graphical user interface (GUI) elements, like different kinds of buttons and menus. Most of the Tkinter widgets are given here.

**5.1. Button:** To add a button in your application, this widget is used.

The general syntax is:

```
w = Button(master, option = value)
```

#master is the parameter used to represent the parent window.

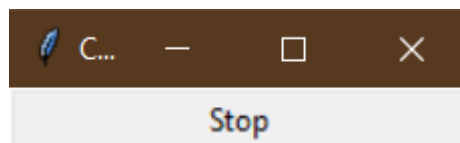
There are number of options which are used to change the format of the Buttons. Number of options can be passed as parameters separated by commas. Some of them are listed below.

- a) **activebackground:** to set the background color when button is under the cursor.
- b) **activeforeground:** to set the foreground color when button is under the cursor.
- c) **bg:** to set the normal background color.
- d) **command:** to call a function.
- e) **font:** to set the font on the button label.
- f) **image:** to set the image on the button.
- g) **width:** to set the width of the button.
- h) **height:** to set the height of the button.

E.g.,

```
import tkinter as tk
r = tk.Tk()
r.title('Counting Seconds')
button = tk.Button(r, text='Stop', width=25, command=r.destroy)
button.pack()
r.mainloop()
```

OUTPUT :



**5.2. Entry:** It is used to input the single line text entry from the user.. For multi-line text input, Text widget is used.

The general syntax is:

```
w = Entry(master, option = value)
```

#master is the parameter used to represent the parent window.

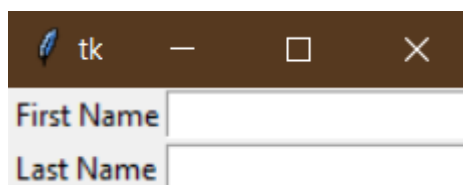
There are number of options which are used to change the format of the widget. Number of options can be passed as parameters separated by commas. Some of them are listed below.

- a) **bd:** to set the border width in pixels.
- b) **bg:** to set the normal background color.
- c) **cursor:** to set the cursor used.
- d) **command:** to call a function.
- e) **highlightcolor:** to set the color shown in the focus highlight.
- f) **width:** to set the width of the button.
- g) **height:** to set the height of the button.

E.g.,

```
from tkinter import *
master = Tk()
Label(master, text='First Name').grid(row=0)
Label(master, text='Last Name').grid(row=1)
e1 = Entry(master)
e2 = Entry(master)
e1.grid(row=0, column=1)
e2.grid(row=1, column=1)
mainloop()
```

OUTPUT :



**5.3. Label:** It refers to the display box where you can put any text or image which can be updated any time as per the code.

The general syntax is:

`w = Label(master, option = value)`

master is the parameter used to represent the parent window.

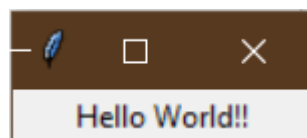
There are number of options which are used to change the format of the widget. Number of options can be passed as parameters separated by commas. Some of them are listed below.

- a) **bg:** to set the normal background color.
- b) **command:** to call a function.
- c) **font:** to set the font on the button label.
- d) **image:** to set the image on the button.
- e) **width:** to set the width of the button.
- f) **height:** to set the height of the button.

E.g.,

```
from tkinter import *  
root = Tk()  
w = Label(root, text='GeeksForGeeks.org!')  
w.pack()  
root.mainloop()
```

OUTPUT :



... Happy Learning ! ...

References :

<https://www.geeksforgeeks.org/python-gui-tkinter/>

<https://www.dummies.com/programming/python/using-tkinter-widgets-in-python/>

<https://docs.python.org/3/library/tk.html>

Youtube Channel Link For more details :

<https://www.youtube.com/watch?v=yQSEXcf6s2I&list=PLCC34OHNcOtoC6GglhF3ncJ5rLwQrLGnV>