Python tkinter

- **Tkinter** is **GUI** library for Python.
- It is used to create graphical user interface for **desktop application.**

Steps to creater GUI Window

- import the tkinter module in python program.
- Create the GUI main window.
- Add the widgets like labels, buttons etc. to the GUI window.
- Call the main loop so that the actions can take place on the user's computer screen.

```
#importing tkinter
import tkinter
#creating object
top = tkinter.Tk()
# Code to add widgets will go here...
#calling mainloop
top.mainloop()
```

Output

Set Dimension of GUI Window

```
import tkinter
top = tkinter.Tk()
#setting dimension of window
top.geometry("325x200")
top.mainloop()
```

Set title and background color of GUI Window

```
import tkinter
top = tkinter.Tk()
#setting dimension of window
top.geometry("325x200")
#setting title of window
top.title("Easy")
#setting background color
top['bg']="#51E1DC"
top.mainloop()
```

Label

- The Label widget is used to provide a caption for other widgets.
- It can be used as a heading.
- It can also contain images.

Syntax:

```
lbl = Label ( master, option1,option2, ... )
```

Here master is parent window and option can be used as a key-value pairs. Examples of options are text,bg,image,height etc.

```
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x250")
top['bg']="#51E1DC"
# creating label
uname = Label(top, text="This is a label").place(x=30, y=50)
top.mainloop()
```

Here x is distance from left and y is distance from top.

Output

Button

❖ Button widget is used to provide different kinds of buttons in application.

Syntax:

```
btn = Button ( master, option1,option2, ... )
```

❖ Here master is parent window and option can be used as a key-value pairs.

❖ Examples of options are text,bg,image,height etc.

```
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x150")
top['bg']="#51E1DC"
# creating button
btn = Button(top, text="Click Me").pack()
top.mainloop()
```

Output

Button with userdefined position

```
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x150")
top['bg']="#51E1DC"
#here x is distance from left
#and y is distance from top
btn1 = Button(top, text="Click Me").place(x=50,y=30)
top.mainloop()
```

Output

Call Function on Button click

```
from tkinter import messagebox
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x150")
top['bg']="#51E1DC"
#creating function
def myfun():
    messagebox.showinfo("Title","You clicked on button")
btn1 = Button(top, text="Click Me",command=myfun).pack()
top.mainloop()
```

Output

Entry

- Entry is used to create single line textbox which is used to take accept a value from the user.

Syntax:

```
ent = Entry ( master, option1,option2, ... )
```

- *Here master is parent window and option can be used as a key-value pairs.*
- *Examples of options are bg,font,width etc.*

```
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x150")
top['bg']="#51E1DC"
label = Label(top, text="First Number",).place(x=50,y=50)
#create text box
ent=Entry(top).place(x=150,y=50)
top.mainloop()
```

Output

Add two numbers

```
from tkinter import  messagebox
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x180")
top['bg']="#51E1DC"
#defining function
def add():
    f=firstNum.get()
    s=secondNum.get()
    messagebox.showinfo("Sum",(f+s))
#declaring variables
firstNum=IntVar()
secondNum=IntVar()
#create labels
Label(top, text="First Number",width="13").place(x=50,y=50)
Label(top, text="Second Number",width="13").place(x=50,y=90)
#create text boxes
Entry(top,textvariable=firstNum).place(x=150,y=50)
Entry(top,textvariable=secondNum).place(x=150,y=90)
#create button
Button(top,text="Add",width="5",bg="orange",command=add).place(x=100,y=120)
top.mainloop()
```

Output

Checkbutton

- Checkbutton is used to create checkbox in python.
- It is mainly used for selection purpose.

Syntax:

```
chk = Checkbutton ( master, option1,option2, ... )
```

- Here master is parent window and option can be used as a key-value pairs.
- Examples of options are bg,font,width etc.

```
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x180")
top['bg']="#51E1DC"
#create check boxes
Checkbutton(top,text="Apple",width="15",onvalue=1,offvalue=0).place(x=10,y=20)
Checkbutton(top,text="Orange",width="15",onvalue=1,offvalue=0).place(x=10,y=50)
Checkbutton(top,text="Cherry",width="15",onvalue=1,offvalue=0).place(x=10,y=80)
top.mainloop()
```

Output

Print Selected Checkboxes Text

```
from tkinter import  messagebox
from tkinter import *
top = Tk()
#window dimension
top.geometry("300x180")
top['bg']="#51E1DC"
def fun():
    str=""
    if chk1.get()==1:
        str=str+ " Apple "
    if chk2.get()==1:
        str=str+" Orange "
    if chk3.get()==1:
        str = str + " Cherry "
    messagebox.showinfo("Result",str+" selected")
chk1=IntVar()
chk2=IntVar()
chk3=IntVar()
#create check boxes
Checkbutton(top,text="Apple",variable=chk1,width="15",onvalue=1,offvalue=0).pla
ce(x=10,y=20)
Checkbutton(top,text="Orange",variable=chk2,width="15",onvalue=1,offvalue=0).pl
ace(x=10,y=50)
Checkbutton(top,text="Cherry",variable=chk3,width="15",onvalue=1,offvalue=0).pl
ace(x=10,y=80)
Button(top,text="CLICK",command=fun).place(x=15,y=110)
top.mainloop()
```

Output

TKinter Canvas

- Canvas is used to create graphical layout on which we can draw rectangle,arc,oval etc and we can also place text,widgets or frames on it.

Syntax:

```
c = Canvas ( master, option1,option2, ... )
```

- Here master is parent window and option can be used as a key-value pairs.
- Examples of options are bg,font,width,height etc.

```
from tkinter import *
top = Tk()
top.geometry("200x150")
top['bg']="#51E1DC"
c = Canvas(top, bg="#51E1DC", height="200", width=200)
#create arc
arc = c.create_arc((50, 20, 150, 120), start=315, extent=270, fill="yellow")
#create rectangle
arc=c.create_rectangle((50, 120, 150, 140), fill="red")
c.pack()
top.mainloop()
```

Output