Chapter 6: GUI Programming

**1. Explain GUI programming (Tkinter) with steps**

Python provides various options for developing graphical user interfaces (GUIs). Most important are listed below.

* Tkinter − Tkinter is the Python interface to the Tk GUI toolkit shipped with Python. We would look this option in this chapter.
* wxPython − This is an open-source Python interface for wxWindows http://wxpython.org.
* JPython − JPython is a Python port for Java which gives Python scripts seamless access to Java class libraries on the local machine http://www.jython.org.

There are many other interfaces available, which you can find them on the net.

**Tkinter Programming**

Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications. Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit.

Creating a GUI application using Tkinter is an easy task. All you need to do is perform the following steps −

1. Import the Tkinter module.
2. Create the GUI application main window.
3. Add one or more of the above-mentioned widgets to the GUI application.
4. Enter the main event loop to take action against each event triggered by the user.

Example

import Tkinter

top = Tkinter.Tk()

# Code to add widgets will go here...

top.mainloop()

**2. Explain different layout or Geometry Management**

All Tkinter widgets have access to specific geometry management methods, which have the purpose of organizing widgets throughout the parent widget area. Tkinter exposes the following geometry manager classes: pack, grid, and place.

pack() − This geometry manager organizes widgets in blocks before placing them in the parent widget.

grid() − This geometry manager organizes widgets in a table-like structure in the parent widget.

place() − This geometry manager organizes widgets by placing them in a specific position in the parent widget.

**3.** **Write a program to demonstrate different drawings.**

from tkinter import \*

root=Tk()

c=Canvas(root,bg='blue',height=700,width=1200,cursor='pencil')

l=c.create\_line(10,10,50,50,width=4,fill='white')

r=c.create\_rectangle(500,200,700,600,width=2,fill='gray',outline='black',activefill='green')

o=c.create\_oval(100,100,400,300,width=3,fill='yellow',outline='red',activefill='green')

p=c.create\_polygon(10,10,200,200,300,200,width=3,fill='green',outline='black',smooth=0,activefill='blue')

a=c.create\_arc(500,100,800,300,width=3,start=90,extent=180,outline='red',style='arc')

f=('Times',40,'bold italic underline')

t=c.create\_text(500,100,text='Thadomal',font=f,fill='gold',activefill='black')

c.pack()

root.mainloop()

**4. Write a program to demonstrate use of different widgets used in python**

from tkinter import \*

root=Tk()

l1=Label(root,text='Username',width=20,height=2)

l2=Label(root,text='Password',width=20,height=2)

l3=Label(root,text='Favourite Subject',width=20,height=2)

l4=Label(root,text='Gender',width=20,height=2)

e1=Entry(root,width=20)

e2=Entry(root,width=20,show='\*')

c1=Checkbutton(root,text='CP')

c2=Checkbutton(root,text='JAVA')

c3=Checkbutton(root,text='Python')

var=IntVar()

r1=Radiobutton(root,text='Male',variable=var,value=1)

r2=Radiobutton(root,text='Female',variable=var,value=2)

b=Button(root,text='SHOW',width=15,height=2)

l1.grid(row=0,column=0)

e1.grid(row=0,column=1)

l2.grid(row=1,column=0)

e2.grid(row=1,column=1)

l3.grid(row=2,column=0)

c1.grid(row=2,column=1)

c2.grid(row=2,column=2)

c3.grid(row=2,column=3)

l4.grid(row=3,column=0)

r1.grid(row=3,column=1)

r2.grid(row=3,column=2)

b.grid(row=4,column=0)

root.mainloop()

**5. Write a program to demonstrate use of different widgets with event handling**

from tkinter import \*

from tkinter import messagebox

root=Tk()

f=Frame(root,height=400,width=500)

f.pack()

def hellocallback():

s1=e1.get()

s2=e2.get()

if s1=='SSS' and s2=='VCP':

messagebox.showinfo('Welcome','Successful Login...')

else:

messagebox.showerror('Error','Invalid User...')

l1=Label(f,text='Username',width=20,height=2)

l2=Label(f,text='Password',width=20,height=2)

l3=Label(f,text='Address',width=20,height=2)

l4=Label(f,text='Favourite Subject',width=20,height=2)

l5=Label(f,text='Gender',width=20,height=2)

e1=Entry(f,width=20)

e2=Entry(f,width=20,show='\*')

t=Text(f,width=20,height=5)

c1=Checkbutton(f,text='CP')

c2=Checkbutton(f,text='JAVA')

c3=Checkbutton(f,text='Python')

var=IntVar()

r1=Radiobutton(f,text='Male',variable=var,value=1)

r2=Radiobutton(f,text='Female',variable=var,value=2)

b=Button(f,text='Login',width=15,height=2,command=hellocallback)

l1.grid(row=0,column=0)

e1.grid(row=0,column=1)

l2.grid(row=1,column=0)

e2.grid(row=1,column=1)

l3.grid(row=2,column=0)

t.grid(row=2,column=1)

l4.grid(row=3,column=0)

c1.grid(row=3,column=1)

c2.grid(row=3,column=2)

c3.grid(row=3,column=3)

l5.grid(row=4,column=0)

r1.grid(row=4,column=1)

r2.grid(row=4,column=2)

b.grid(row=5,column=0)

root.mainloop()