**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 –

* Import the ***Tkinter*** module.
* Create the GUI application ‘main window’.
* Add one or more of the widgets to the GUI application.
* Enter the main event loop to take action against each event triggered by the user.

NOTE: It's not possible to hand over a regular Python variable to a widget through a variable or text-variable option. The only kinds of variables for which this works are variables that are subclassed from a class called Variable, defined in the Tkinter module. They are declared like this:

* x = StringVar() # Holds a string; default value ""
* x = IntVar() # Holds an integer; default value 0
* x = DoubleVar() # Holds a float; default value 0.0
* x = BooleanVar() # Holds a boolean, returns 0 for False and 1 for True

To read the current value of such a variable, call the method get(). The value of such a variable can be changed with the set() method.

Example

import tkinter # note that module name has changed from Tkinter in Python 2 to tkinter in Python 3

top = tkinter.Tk()

# Code to add widgets will go here...

top.mainloop()

Button In Tkinter:

from tkinter import \*

from tkinter import messagebox

top = Tk()

top.geometry("100x100")

def helloCallBack():

msg = messagebox.showinfo( "Hello Python", "Hello World")

B = Button(top, text = "Hello", command = helloCallBack)

B.place(x = 50,y = 50)

top.mainloop()

# Tkinter Canvas

from tkinter import \*

from tkinter import messagebox

top = Tk()

C = Canvas(top, bg = "blue", height = 250, width = 300)

coord = 10, 50, 240, 210

arc = C.create\_arc(coord, start = 0, extent = 180, fill = "red")

line = C.create\_line(10,10,200,200,fill = 'white')

C.pack()

top.mainloop()

# Tkinter Checkbutton

from tkinter import \*

import tkinter

top = Tk()

CheckVar1 = IntVar()

CheckVar2 = IntVar()

C1 = Checkbutton(top, text = "Music", variable = CheckVar1, \

onvalue = 1, offvalue = 0, height=5, \

width = 20, )

C2 = Checkbutton(top, text = "Video", variable = CheckVar2, \

onvalue = 1, offvalue = 0, height=5, \

width = 20)

C1.pack()

C2.pack()

top.mainloop()

# Tkinter Entry

from tkinter import \*

top = Tk()

L1 = Label(top, text = "User Name")

L1.pack( side = LEFT)

E1 = Entry(top, bd = 5)

E1.pack(side = RIGHT)

top.mainloop()

# Tkinter Frame

from tkinter import \*

root = Tk()

frame = Frame(root)

frame.pack()

bottomframe = Frame(root)

bottomframe.pack( side = BOTTOM )

redbutton = Button(frame, text = "Red", fg = "red")

redbutton.pack( side = LEFT)

greenbutton = Button(frame, text = "Brown", fg="brown")

greenbutton.pack( side = LEFT )

bluebutton = Button(frame, text = "Blue", fg = "blue")

bluebutton.pack( side = LEFT )

blackbutton = Button(bottomframe, text = "Black", fg = "black")

blackbutton.pack( side = BOTTOM)

root.mainloop()

# Label

from tkinter import \*

root = Tk()

var = StringVar()

label = Label( root, textvariable = var, relief = RAISED )

var.set("Iam a Label...")

label.pack()

root.mainloop()

# Listbox

from tkinter import \*

import tkinter

top = Tk()

Lb1 = Listbox(top)

Lb1.insert(1, "Python")

Lb1.insert(2, "Perl")

Lb1.insert(3, "C")

Lb1.insert(4, "PHP")

Lb1.insert(5, "JSP")

Lb1.insert(6, "Ruby")

Lb1.pack()

top.mainloop()

# Connect to MySQL DB using tkinter module

import tkinter as tk

import mysql.connector

from tkinter import \*

def getDetails():

    user = Username.get()

    passw = password.get()

    print(f"The name entered by you is {user} {passw}")

    logintodb(user, passw)

def logintodb(user, passw):

    # If password is enetered by the

    # user

    if passw:

        db = mysql.connector.connect(host ="localhost",

                                    user = user,

                                    password = passw,

                                    db ="mydb1")

        cursor = db.cursor()

    # If no password is enetered by the

    # user

    else:

        print("Username and password unmatched...")

    # A Table in the database

    savequery = "show databases"

    try:

        cursor.execute(savequery)

        myresult = cursor.fetchall()

        # Printing the result of the

        # query

        for x in myresult:

            print(x)

        print("Query Executed successfully")

    except:

        db.rollback()

        print("Error occured")

top = tk.Tk()

top.geometry("300x300")

top.title("DBMS Login Page")

# Defining the first row

lblfrstrow = tk.Label(top, text ="Username -", )

lblfrstrow.place(x = 50, y = 20)

Username = tk.Entry(top, width = 35)

Username.place(x = 150, y = 20, width = 100)

lblsecrow = tk.Label(top, text ="Password -")

lblsecrow.place(x = 50, y = 50)

password = tk.Entry(top, width = 35)

password.place(x = 150, y = 50, width = 100)

submitbtn = tk.Button(top, text ="Login",

                    bg ='blue', command = getDetails)

submitbtn.place(x = 150, y = 135, width = 55)

top.mainloop()