GUI Programming Using TKINTER

Example 1. Simple GUI

```
from tkinter import * # Import all definitions from tkinter

window = Tk()          # Create a window
label = Label(window, text = "Welcome to Python")# Create a label
button = Button(window, text = "Click Me")        # Create a button
label.pack()                                      # Place the label in the window
button.pack()                                     # Place the button in the wind.

window.mainloop()                                 # Create an event loop
```

Example 2. Process Button Event

```
from tkinter import *

def processOK():
    print("Ok button is clicked")

def processCancel():
    print("Cancle button is clicek")

window = Tk()

btnOK = Button(window, text = "OK", fg = "red", command = processOK)
btnCancel = Button(window, text = "Cancel", fg = "yellow",
                   command = processCancel)

btnOK.pack()
btnCancel.pack()

window.mainloop()
```

Example 3. Process Button – alternative code

```
from tkinter import *

class ProcessButtonEvent:
    def __init__(self):
        window = Tk()
        btnOK = Button(window, text = "OK", fg = "red",
                       command = self.processOK)
        btnCancel = Button(window, text = "Cancel", fg = "yellow",
                           command = self.processCancel)
        btnOK.pack()
        btnCancel.pack()

        window.mainloop()

    def processOK(self):
        print("Ok button is clicked")

    def processCancel(self):
        print("Cancle button is clicek")

ProcessButtonEvent()
```

Example 4. Widgets Demo

```python
from tkinter import *

class WidgetsDemo:
    def __init__(self):
        window = Tk()
        window.title("Widgets Demo")  # Set a title
        frame1 = Frame(window)        # Create a frame
        frame1.pack()
        self.v1 = IntVar()

        cbtBold = Checkbutton(frame1, text = "Bold",   # Create a check button
                              variable = self.v1,
                              command = self.processCheckbutton)
        self.v2 = IntVar()
        rbRed = Radiobutton(frame1, text = "Red", bg = "red",
                            variable = self.v2, value = 1,
                            command = self.processRadiobutton)
        rbYellow = Radiobutton(frame1, text = "Red", bg = "yellow",
                               variable = self.v2, value = 2,
                               command = self.processRadiobutton)
        cbtBold.grid(row = 1, column = 1)     # Grid manager
        rbRed.grid(row = 1, column = 2)
        rbYellow.grid(row = 1, column = 3)

        frame2 = Frame(window)
        frame2.pack()
        label = Label(frame2, text = "Enter your name: ")
        self.name = StringVar()
        entryName = Entry(frame2, textvariable = self.name)   # Create entry
        btGetName = Button(frame2, text = "Get Name",
                           command = self.processButton)
        message = Message(frame2, text = "It is a widgets demo") #Create message
        label.grid(row = 1, column = 1)
        entryName.grid(row = 1, column = 2)
        btGetName.grid(row = 1, column = 3)
        message.grid(row = 1, column = 4)

        text = Text(window)   # Create text
        text.pack()
        text.insert(END, "Tip\nThe best way to learn Tkinter is to read ")
        text.insert(END, "these carefully designed examples and use them ")
        text.insert(END, "to create your applications.")

        window.mainloop()

    def processCheckbutton(self):
        print("check button is " + ("checked " if self.v1.get() == 1
                                    else "unchecked"))  # Check button status

    def processRadiobutton(self):
        print(("Red" if self.v2.get() == 1 else "Yellow") # Radio button status
              + "is selected ")

    def processButton(self):
        print("Your name is " + self.name.get())

WidgetsDemo()
```

Example 5. Change Label Demo

```python
from tkinter import *

class ChangeLabelDemo:
    def __init__(self):
        window = Tk()
        window.title("Change Lebel Demo")

        frame1 = Frame(window)
        frame1.pack()
        self.lbl = Label(frame1, text = "Programming is fun")
        self.lbl.pack()

        frame2 = Frame(window)
        frame2.pack()
        label = Label(frame2, text = "Enter text: ")
        self.msg = StringVar()
        entry = Entry(frame2, textvariable = self.msg)

        btChangeText = Button(frame2, text = "Change Text",
                    command = self.processButton)

        self.v1 = StringVar()

        rbRed = Radiobutton(frame2, text = "Red", bg = "red",
                            variable = self.v1, value = 'R',
                            command = self.processRadiobutton)
        rbYellow = Radiobutton(frame2, text = "Yellow", bg = "yellow",
                            variable = self.v1, value = 'Y',
                            command = self.processRadiobutton)
        label.grid(row = 1, column = 1)
        entry.grid(row = 1, column = 2)
        btChangeText.grid(row = 1, column = 3)
        rbRed.grid(row = 1, column = 4)
        rbYellow.grid(row = 1, column = 5)

        window.mainloop()

    def processRadiobutton(self):
        if self.v1.get() == 'R':
            self.lbl["fg"] = "red"
        elif self.v1.get() == "Y":
            self.lbl["fg"] = "yellow"

    def processButton(self):
        self.lbl["text"] = self.msg.get()

ChangeLabelDemo()
```

Example 5. Currency Converter

```python
from tkinter import*
Options=['euro','dollar','lek','pound']

master=Tk()
master.geometry('600x300')
```

```python
master.title('Currency converter')

lbl1=Label(bg='lightblue')
lbl1.place(x=0,y=0,width=300,height=600)
lbl2=Label(bg='lightgreen')
lbl2.place(x=300,y=0,width=300,height=600)

variable=StringVar(master)
variable.set('Choose currency')
w=OptionMenu(master,variable,'euro','dollar','lek','pound')#ose['euro',
'dollar','lek','pound']
w.pack()
w.place(x=20,y=80,width=130,height=30)
variable2=StringVar(master)
variable2.set('Choose currency')
s=OptionMenu(master,variable2,'euro','dollar','lek','pound')
s.pack()
s.place(x=450, y=80,width=130,height=30)

ent1=Entry()
ent1.place(x=20,y=130,width=130,height=30)
lbl3=Label(bg='white',anchor=W)
lbl3.place(x=450,y=130,width=130,height=30)

def Convert():
    x=0
    menu1=variable.get()
    menu2=variable2.get()
    entry=ent1.get()
    entry=float(entry)
    if(menu1=='euro' and menu2=='dollar'):
        x=entry*1.13
    elif(menu1=='euro' and menu2=='lek'):
        x=entry*132.15
    elif(menu1=='euro' and menu2=='pound'):
        x=entry*0.88
    elif(menu1=='dollar' and menu2=='euro'):
        x=entry*0.88
    elif(menu1=='dollar' and menu2=='lek'):
        x=entry*116.78
    elif(menu1=='dollar' and menu2=='pound'):
        x=entry*0.77
    elif(menu1=='lek' and menu2=='euro'):
        x=entry*0.0075
    elif(menu1=='lek' and menu2=='dollar'):
        x=entry*0.0086
    elif(menu1=='lek' and menu2=='pound'):
        x=entry*0.0066
    elif(menu1=='pound' and menu2=='euro'):
        x=entry*1.14
    elif(menu1=='pound' and menu2=='dollar'):
        x=entry*1.29
    elif(menu1=='pound' and menu2=='lek'):
        x=entry*150.98
    lbl3.config(text=str(x))

btn1=Button(text='Convert',font=('Arial',20,'bold'),bg='green',command=Convert)
btn1.place(x=235,y=180,width=130,height=50)

lblC=Label(text='Currency Convertor',bg='white',font=('Arial',22,'bold'))
lblC.place(x=160,y=10,width=280,height=40)
```

```
mainloop()
```

Example 6. Temperature Converter

```
from tkinter import *

def convert_fahr():
    words = fbtext.get()
    ftemp = float(words)
    celbox.delete(0, END)
    celbox.insert(0, '%.2f' % (tocel(ftemp)))
    kelbox.delete(0, END)
    kelbox.insert(0, '%.2f' % (tokel(tocel(ftemp))))
    return

def convert_cel():
    words = cbtext.get()
    ctemp = float(words)
    fahrbox.delete(0, END)
    fahrbox.insert(0, '%.2f' % (tofahr(ctemp)))
    kelbox.delete(0, END)
    kelbox.insert(0, '%.2f' % (tokel(ctemp)))

def convert_kel():
    words = kbtext.get()
    ktemp = float(words)
    fahrbox.delete(0, END)
    fahrbox.insert(0, '%.2f' % (tofahr(ktoc(ktemp))))
    celbox.delete(0, END)
    celbox.insert(0, '%.2f' % (ktoc(ktemp)))

def tocel(fahr):
    return (fahr-32) * 5.0 / 9.0

def tofahr(cel):
    return cel * 9.0 / 5.0 + 32

def ktoc(kel):
    return kel - 273.15

def tokel(cel):
    return cel + 273.15

app = Tk()
app.title('Temperature converter')

fahrlabel = Label(app, text = 'Fahrenheit')
fahrlabel.grid(row = 0, column = 0, padx = 5, pady = 5, sticky = E)
cellabel = Label(app, text = 'Celsius')
cellabel.grid(row = 1, column = 0, padx = 5, pady = 5, sticky = E)

kellabel = Label(app, text = 'Kelvin')
kellabel.grid(row = 2, column = 0, padx = 5, pady = 5, sticky = E)

fbtext = StringVar()
fbtext.set('')
fahrbox = Entry(app, textvariable=fbtext)
fahrbox.grid(row = 0, column = 1, padx = 5, pady = 5)

cbtext = StringVar()
```

```
cbtext.set('')
celbox = Entry(app, textvariable=cbtext)
celbox.grid(row = 1, column = 1, padx = 5, pady = 5)

kbtext = StringVar()
kbtext.set('')
kelbox = Entry(app, textvariable=kbtext)
kelbox.grid(row = 2, column = 1, padx = 5, pady = 5)

fgobutton = Button(app, text = 'Go', command = convert_fahr)
fgobutton.grid(row = 0, column = 2, padx = 5, pady = 5, sticky = N+S+E+W)

cgobutton = Button(app, text = 'Go', command = convert_cel)
cgobutton.grid(row = 1, column = 2, padx = 5, pady = 5, sticky = N+S+E+W)

kgobutton = Button(app, text = 'Go', command = convert_kel)
kgobutton.grid(row = 2, column = 2, padx = 5, pady = 5, sticky = N+S+E+W)

exitbutton = Button(app, text = 'Exit', command = quit)
exitbutton.grid(row = 3, column = 0, padx = 5, pady = 5, sticky = N+S+E+W,
columnspan = 3)

app.mainloop()
```

Example 7. Sinus graph

```
from tkinter import *
from math import sin

app = Tk()

w = 500
h = 500
arr = Canvas(app, width=w, height=h, background="white")
arr.grid()

arr.create_line(0, h/2, 0, -h/2, arrow=LAST)
arr.create_line(-w/2, 0, w/2, 0, arrow=LAST)

punktid = []
for x in range(w // -2, w // 2):
    scale = 30
    punktid.append(x)
    y = sin(x / scale)
    punktid.append(y * scale)
arr.create_line(punktid, fill="red")
arr.move(ALL, w/2, h/2)
app.mainloop()
```