**PAF- KARACHI INSTITUTE OF ECONOMICS & TECHNOLOGY**
**College of Engineering**

(Software Engineering)

# Artificial Intelligence

**Semester: 6th Spring 2022** **Date of Experiment:**_____

**Student name: Rehan Abu Hashir** **Faculty Signature:** _____

**Student ID: 10673**

| Lab07 | **GUI Programming Using Tkinter in Python** | | |
|---|---|---|---|
| | | | |
| PLOs | PLO1 – Engineering Knowledge | Bloom's Taxonomy | C1 – Recall |
| | PLO5 – Modern Tool Usage | | C3 - Apply |
| | PLO8 – Ethics | | P2 – Set |

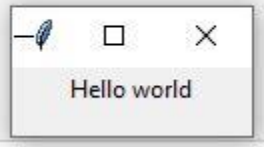
LAB TASK PERFORMANCE

| CLO's | Aspects of Assessments | Excellent (75-100%) | Average (50-75%) | Poor (<50%) | Marks |
|---|---|---|---|---|---|
| CLO1 10% | **Recall** The associated concepts of Programming Language. | Complete understanding of Programming / actively participate during lecture. | Complete understanding of Programming / less actively participate during lecture. | Student lacks clear understanding of concepts of Programming / Unable to read and interpret it. | |
| CLO5 80% | **Tools Utilization** Apply and discover different basic level functions Python GUI Tkinter. | Accurately implement the functions of Python GUI Tkinter and obtain the correct output as per requirement/ given tasks. | Implement the functions of Python GUI Tkinter with minor errors that will lead to a slightly different output as per given in a task. | Not able to implement the functions of Python GUI Tkinter and don't understand how required output and task is achieved. | |
| CLO7 10% | **Lab Safety** Properly handle lab infrastructure/safety precautions | Properly handle lab equipment & obey safety measures. | Moderate level lab handling and safety measurements | Minor or no safety measurements has been considered. | |
| | | | | **Total Marks: 10** | |

**Lab Tasks:**

**Task # 01:** Run all the above sample codes and also make changes on it by yourself and observe the output.

```
In [*]: import tkinter as tk
        root = tk.Tk()

        label = tk.Label(root, text = "Hello world")
        label.pack()

        root.mainloop()
```




```
In [*]: import tkinter as tk
        root = tk.Tk()

        l1 = tkinter.Label(root, text="PAF KIET", font = "arial 50 bold")
        root.geometry('350x200')
        l1.grid (column=0, row=0)
        root.mainloop()
```

```
In [ ]:
```

In [*]:
```
import tkinter as tk
root = tk.Tk()

l1 = tkinter.Label(root, text="PAF KIET", font = "arial 50 bold")
root.geometry('350x200')
l1.grid (column=0, row=0)

bt=tkinter.Button (root, text="Enter")
bt.grid (column=1, row=0)

root.mainloop()
```

In [ ]:


n [*]:
```
import tkinter as tk
root = tk.Tk()

l1 = tkinter.Label(root, text="PAF KIET", font = "arial 50 bold")
root.geometry('350x200')
l1.grid (column=0, row=0)

bt = tkinter.Button (root, text="Enter", bg="black", fg="white")
bt.grid (column=1, row=0)


root.mainloop()
```

n [ ]:

In [*]:
```
import tkinter as tk
root = tk.Tk()

l1 = tkinter.Label(root, text="PAF KIET", font = "arial 16 bo
root.geometry('350x200')
l1.grid (column=0, row=0)

def clicked():
    l1.configure (text="Button was clicked!!")
bt = tkinter.Button (root, text="Enter", command=clicked)
bt.grid (column=1, row=0)

root.mainloop()
```

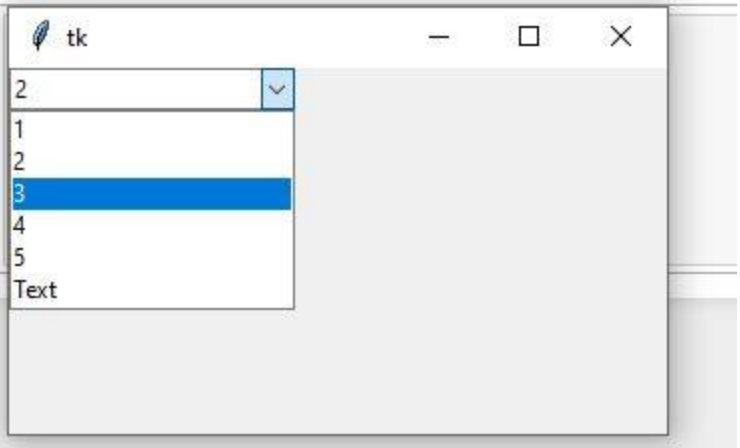
In [ ]:


In [*]:
```
from tkinter import messagebox
import tkinter as tk
root = tk.Tk()

txt = tk.Entry(root, width =10)
txt.grid(column=0, row=0)
def clicked():
    messagebox.showinfo("Alert", "Welcome to "+txt.get())
bt = tk.Button (root, text="Enter", command = clicked)
bt.grid(column=1, row=0)

root.mainloop()
```

In [ ]:

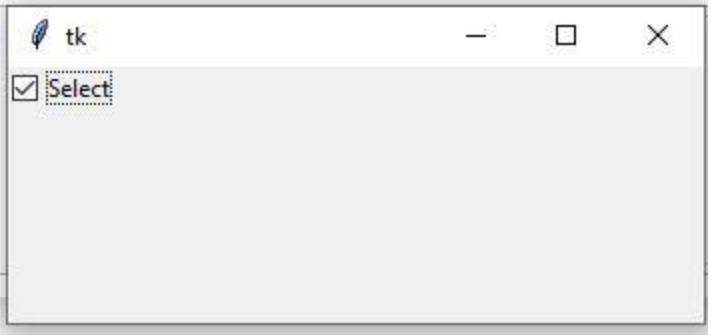
In [*]:
```
import tkinter as tk
from tkinter.ttk import *
root = tk.Tk()

combo = Combobox(root)
combo['values']=(1,2,3,4,5,"Text")
combo.current(3)
combo.grid(column=0, row=0)

root.mainloop()
```

In [ ]:



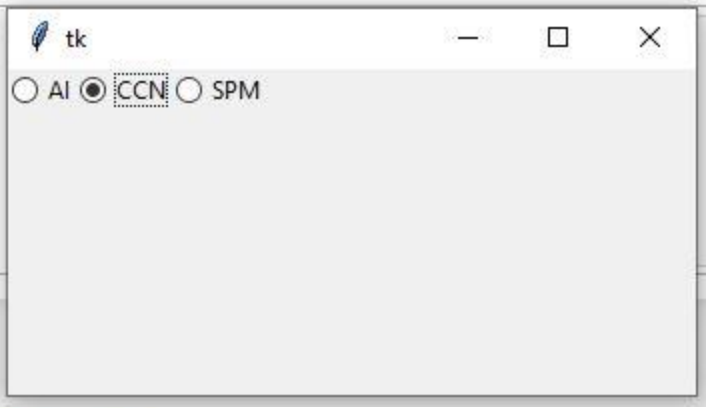

In [*]:
```
import tkinter as tk
from tkinter.ttk import *
root = tk.Tk()

chk_state = BooleanVar()
chk_state.set (True)
chk = Checkbutton(root, text="Select", var=chk_state)
chk.grid(column=0, row=0)

root.mainloop()
```

In [ ]:



In [*]:
```
import tkinter as tk
from tkinter.ttk import *
root = tk.Tk()

rad1 = Radiobutton (root, text="AI", value=1)
rad2 = Radiobutton (root, text="CCN", value=2)
rad3 = Radiobutton (root, text="SPM", value=3)
rad1.grid(column=0, row=0)
rad2.grid(column=1, row=0)
rad3.grid(column=2, row=0)

root.mainloop()
```

In [ ]:




]:
```
import tkinter as tk
from tkinter import*
root = tk.Tk()

spin = Spinbox(root, from_=0, to=100, width=5)
spin.grid()

root.mainloop()
```

]:

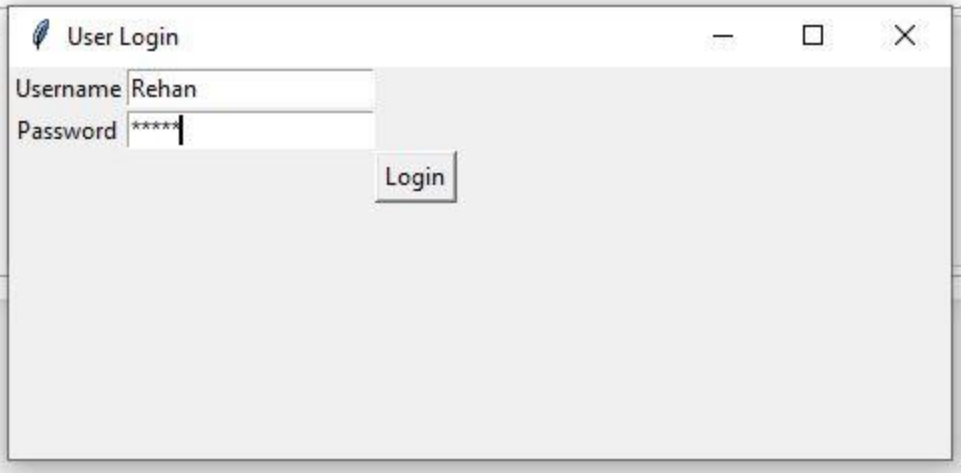
In [*]:
```
import tkinter as tk
root = tk.Tk()

top_frame = tkinter.Frame(root).pack()
bottom_frame = tkinter.Frame(root).pack(side ="bottom")

btn1 = tkinter.Button(top_frame, text="Button1", fg="red").pack()
btn2 = tkinter.Button(top_frame, text="Button2", fg="green").pack()
btn3 = tkinter.Button(bottom_frame, text="Button3", fg="purple").pack(side="left")
btn4 = tkinter.Button(bottom_frame, text="Button4", fg="orange").pack(side="left")

root.mainloop()
```

In [ ]:

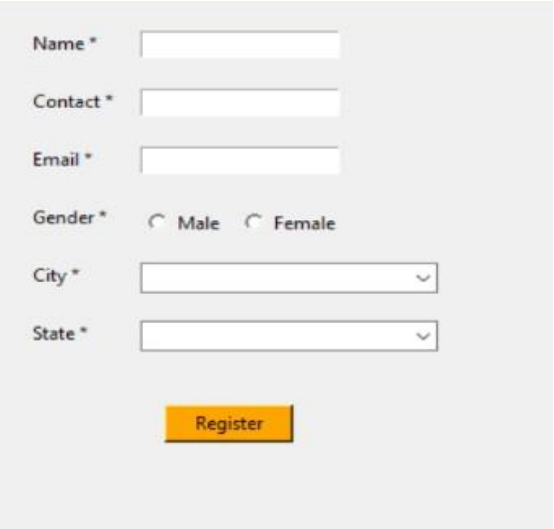

In [*]:
```
import tkinter as tk
root = tk.Tk()
root.title("User Login")

def Clicked():
    print("username entered :" , username.get())
    print("password entered :" , password.get())
tkinter.Label(root, text="Username").grid(row=0)
username=StringVar()
tkinter.Entry(root, textvariable=username).grid(row=0, column=1)

tkinter.Label(root, text="Password").grid(row=1)
password=StringVar()
tkinter.Entry(root, textvariable=password,show='*').grid(row=1, column=1)

tkinter.Button(root, text="Login",command=Clicked).grid(row=4, column=3)

root.mainloop()
```

```
username entered : Rehan
password entered : 54123
```

In [ ]:

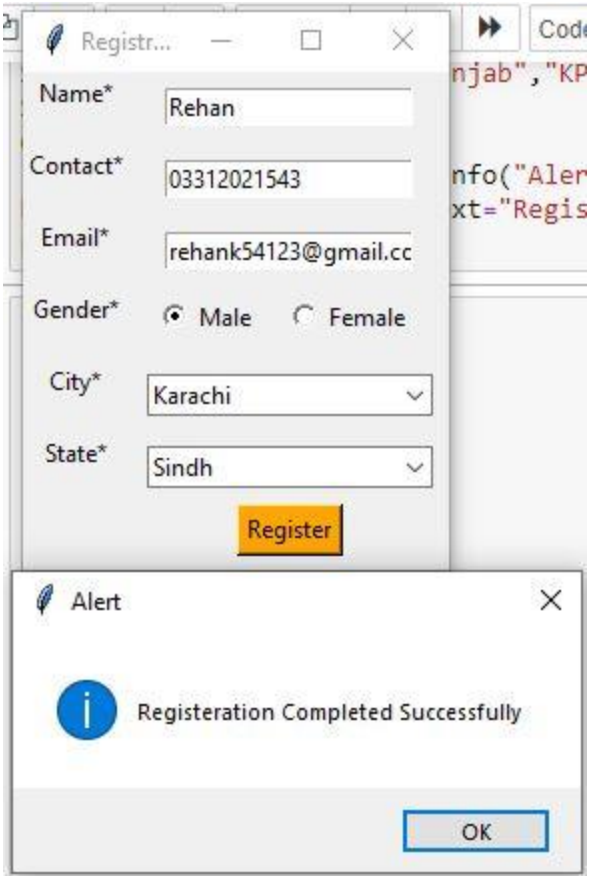


**Task # 02:** Develop the Registration form Like below Format,



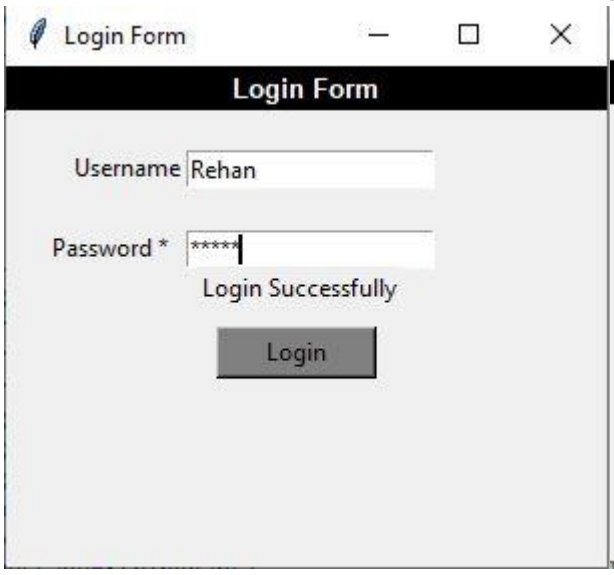

When you clicked on **Register** its pop up the message box **Registration Completed Successfully.**

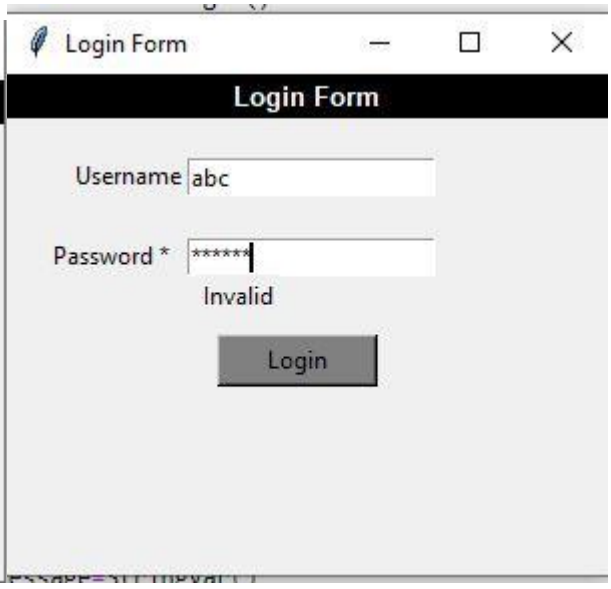
```
In [29]: import tkinter
         from tkinter import *
         from tkinter import messagebox
         root = tk.Tk()
         root.title("Registration Form")
         tkinter.Label(root, text="Name*   \n").grid(row=0)
         Name=StringVar()
         tkinter.Entry(root, textvariable=Name).grid(row=0, column=1)
         tkinter.Label(root, text="Contact*   \n").grid(row=1)
         Contact=StringVar()
         tkinter.Entry(root, textvariable=Contact).grid(row=1, column=1)
         tkinter.Label(root, text="Email*   \n").grid(row=2)
         Email=StringVar()
         tkinter.Entry(root, textvariable=Email).grid(row=2, column=1)
         tkinter.Label(root, text="Gender*   \n").grid(row=3)
         G1=Radiobutton(root, text="Male", value=1)
         G2=Radiobutton(root, text="Female", value=2)
         G1.place(x=65, y=110)
         G2.place(x=130, y=110)
         tkinter.Label(root, text="City*   \n").grid(row=4)
         City = Combobox(root)
         City['values']=("Karachi","Lahore","Peshawar","Quetta")
         City.grid(column=1, row=4)
         tkinter.Label(root, text="State*   \n").grid(row=5)
         State = Combobox(root)
         State['values']=("Sindh","Punjab","KPK","Baluchistan")
         State.grid(column=1, row=5)
         def Clicked():
             tkinter.messagebox.showinfo("Alert", "Registeration Completed Successfully")
         bt = tkinter.Button(root, text="Register", bg="orange", command=Clicked).grid(row=6, column=1)
         root.mainloop()
```




**Task # 03:** Apply Validation on Example 1 code, set the specific username and password to the program, if the user apply the wrong username and password then it should pops up the message box Successful or Unsuccessful login.

n [*]:
```
import tkinter as tk
from tkinter import *
root = tk.Tk()
def login():
    uname=username.get()
    pwd=password.get()
    if uname=='' or pwd=='':
        message.set("Fill The Form Completely")
    else:
      if uname=="Rehan" and pwd=="54123":
       message.set("Login Successfully")
      else:
       message.set("Invalid")
def Loginform():
    global root
    root=Tk()
    root.title("Login Form")
    root.geometry("300x250")
    global  message;
    global username
    global password
    username = StringVar()
    password = StringVar()
    message=StringVar()
    Label(root,width="300", text="Login Form", bg="black",fg="white",font="arial 10 bold").pack()
    Label(root, text="Username * ").place(x=30,y=40)
    Entry(root, textvariable=username).place(x=90,y=42)
    Label(root, text="Password * ").place(x=20,y=80)
    Entry(root, textvariable=password ,show="*").place(x=90,y=82)
    Label(root, text="",textvariable=message).place(x=95,y=100)
    Button(root, text="Login", width=10, height=1, bg="Grey",command=login).place(x=105,y=130)
root.mainloop()
Loginform()
```



**Home Task:**

Develop a GUI based Simple Calculator. The design of the **GUI** select by your own choice.

```
button6 = Button(gui, text=' 6 ', fg='white', bg='black',
                 command=lambda: press(6), height=1, width=7)
button6.grid(row=3, column=2)
button7 = Button(gui, text=' 7 ', fg='white', bg='black',
                 command=lambda: press(7), height=1, width=7)
button7.grid(row=4, column=0)
button8 = Button(gui, text=' 8 ', fg='white', bg='black',
                 command=lambda: press(8), height=1, width=7)
button8.grid(row=4, column=1)
button9 = Button(gui, text=' 9 ', fg='white', bg='black',
                 command=lambda: press(9), height=1, width=7)
button9.grid(row=4, column=2)
button0 = Button(gui, text=' 0 ', fg='white', bg='black',
                 command=lambda: press(0), height=1, width=7)
button0.grid(row=5, column=0)
plus = Button(gui, text=' + ', fg='white', bg='black',
              command=lambda: press("+"), height=1, width=7)
plus.grid(row=2, column=3)
minus = Button(gui, text=' - ', fg='white', bg='black',
              command=lambda: press("-"), height=1, width=7)
minus.grid(row=3, column=3)
multiply = Button(gui, text=' * ', fg='white', bg='black',
                 command=lambda: press("*"), height=1, width=7)
multiply.grid(row=4, column=3)
divide = Button(gui, text=' / ', fg='white', bg='black',
                 command=lambda: press("/"), height=1, width=7)
divide.grid(row=5, column=3)
equal = Button(gui, text=' = ', fg='white', bg='black',
              command=equalpress, height=1, width=7)
equal.grid(row=5, column=2)
clear = Button(gui, text='Clear', fg='white', bg='black',
        command=clear, height=1, width=7)
clear.grid(row=5, column='1')
gui.mainloop()
```

```
from tkinter import *
expression = ""

def press(num):
    global expression
    expression = expression + str(num)
    equation.set(expression)
def equalpress():
    try:
        global expression
        total = str(eval(expression))
        equation.set(total)
        expression = ""
    except:
        equation.set(" error ")
        expression = ""
def clear():
    global expression
    expression = ""
    equation.set("")
if __name__ == "__main__":
    gui = Tk()
    gui.configure(background="grey")
    gui.title("Simple Calculator")
    gui.geometry("270x150")
    equation = StringVar()
    expression_field = Entry(gui, textvariable=equation)
    expression_field.grid(columnspan=4, ipadx=70)
    button1 = Button(gui, text=' 1 ', fg='white', bg='black',
                     command=lambda: press(1), height=1, width=7)
    button1.grid(row=2, column=0)
    button2 = Button(gui, text=' 2 ', fg='white', bg='black',
                     command=lambda: press(2), height=1, width=7)
    button2.grid(row=2, column=1)
    button3 = Button(gui, text=' 3 ', fg='white', bg='black',
                     command=lambda: press(3), height=1, width=7)
    button3.grid(row=2, column=2)
    button4 = Button(gui, text=' 4 ', fg='white', bg='black',
                     command=lambda: press(4), height=1, width=7)
    button4.grid(row=3, column=0)
    button5 = Button(gui, text=' 5 ', fg='white', bg='black',
                     command=lambda: press(5), height=1, width=7)
    button5.grid(row=3, column=1)
    button6 = Button(gui, text=' 6 ', fg='white', bg='black',
```