NED University of Engineering and Technology
Department of Computer and Information Systems Engineering

Fall Semester 2020

FE Batch 2020

CS-115 Computer Programming

Online Lecture 12b (Week 10)

Graphical User Interface (GUI)

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Previously . . .

- Graphical User Interface (GUI)
  - Basics

This Session . . .

- Graphical User Interface (GUI)
  - Event Driven Programming

Event Based Widgets

- These are widgets that respond to mouse clicks and keyboard inputs by users.
- This is called event driven programming.
- An event-handler function is associated with such widgets.
- Buttons, entry boxes, checkboxes, etc. are examples of such widgets.

The Button Widget

- Some action can be associated with clicking of the button widget.

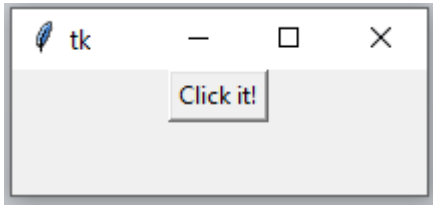
```
b= Button(MASTER,options)
```

Example 1: Create a button called 'Click it!'; upon clicking it print 'Hello!!' on the shell.

```
from tkinter import Tk,Button

def func():
    print('Hello!!')

r=Tk()
b=Button(r,text='Click it!',command=func)
b.pack()
r.mainloop()
```



Output
Hello!!

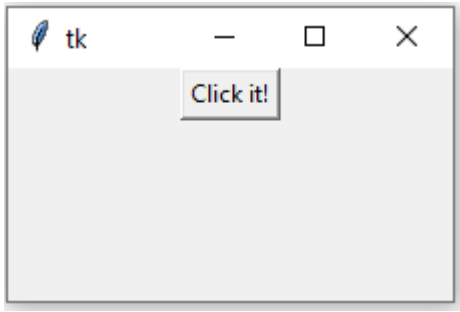
The Button Widget

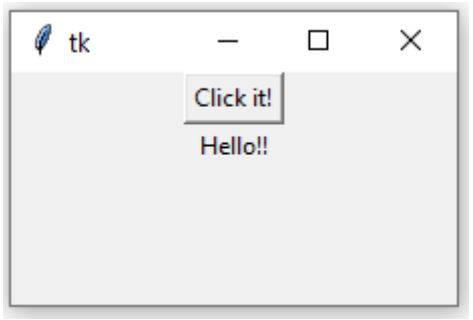
Example 2: Create a button called 'Click it!'; upon clicking it print 'Hello!!' in the GUI main window.

```
from tkinter import Tk,Label,Button

def func():
    l=Label(r,text='Hello!!')
    l.pack()

r=Tk()
b=Button(r,text='Click it!',command=func)
b.pack()
r.mainloop()
```





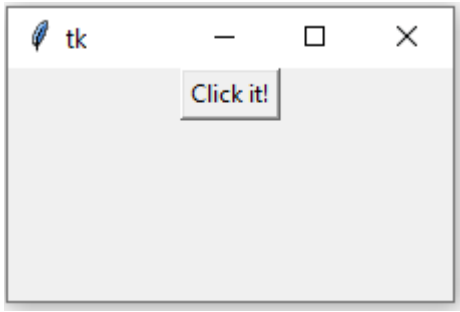
The Button Widget

Example 3: Create a button called 'Click it!'; upon clicking it print 'Hello!!' in a separate message window.

```
from tkinter import Tk,Label,Button
from tkinter.messagebox import showinfo

def func():
    showinfo(message='Hello!!')

r=Tk()
b=Button(r,text='Click it!',command=func)
b.pack()
r.mainloop()
```

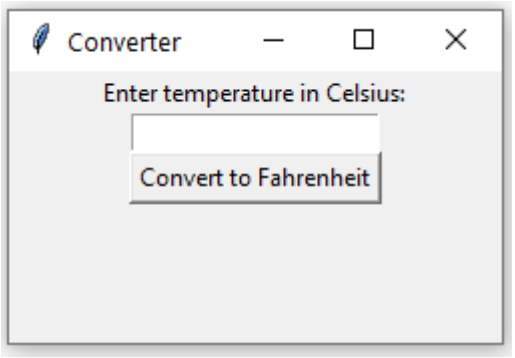


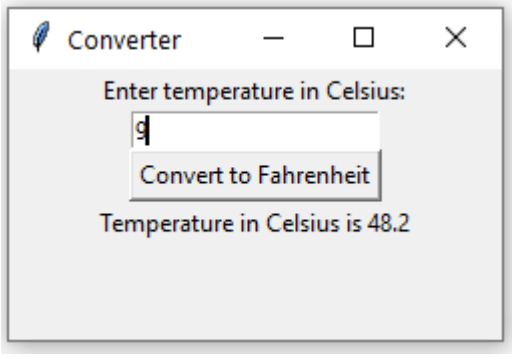
The `Entry` Widget

- The entry widget allows single line input from user.

```
b= Entry(MASTER,options)
```

Example 4: Create a GUI based Celsius to Fahrenheit converter.





The Entry Widget

Example 4: Create a GUI based Celsius to Fahrenheit converter.

```
from tkinter import Tk,Label,Button,Entry
def converter():
    fah=int(e.get())*9/5+32
    l=Label(r,text='Temperature in Fahrenheit is '+str(fah))
    l.pack()

r=Tk()
r.title('Converter')
l=Label(r,text='Enter temperature in Celsius:')
l.pack()
e=Entry(r)
e.pack()
b=Button(r,text='Convert to Fahrenheit',command=converter)
b.pack()
r.mainloop()
```

Task for You

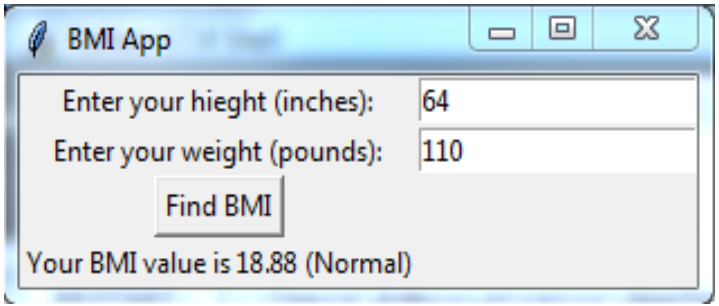
Implement function BMI that takes as input a person's height (in inches) and weight (in pounds) and computes the person's Body Mass Index (BMI) as follows:

$$< bmi\_value >= \frac{weight * 703}{height^2}$$

Your functions should return a string msg as follows:

If bmi < 18.5, msg= "Your bmi is <bmi_value> (Underweight) "
If bmi >= 18.5 and <25, msg= "Your bmi is <bmi_value> (Normal) "
If bmi > 25, msg= "Your bmi is <bmi_value> (Overweight) "

Now code a GUI application that allows users to compute their body mass index (BMI), using the function BMI implemented before. Your GUI should look as shown below:



Thank you!