SDU

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Final project Converter

Author:Oryngaliyev Imangali
Examinator:Zhangir Rayev

Relevance of the project

Advantages of the Imperial System

1. Matches up with real objects
2. More convenient to measure long distances

Project goal

Making converter between measure systems by using GUI applications

Project tasks

1. To review major measure systems
2. To show relations between GUI and main python syntaxes
3. To consider main parts of code

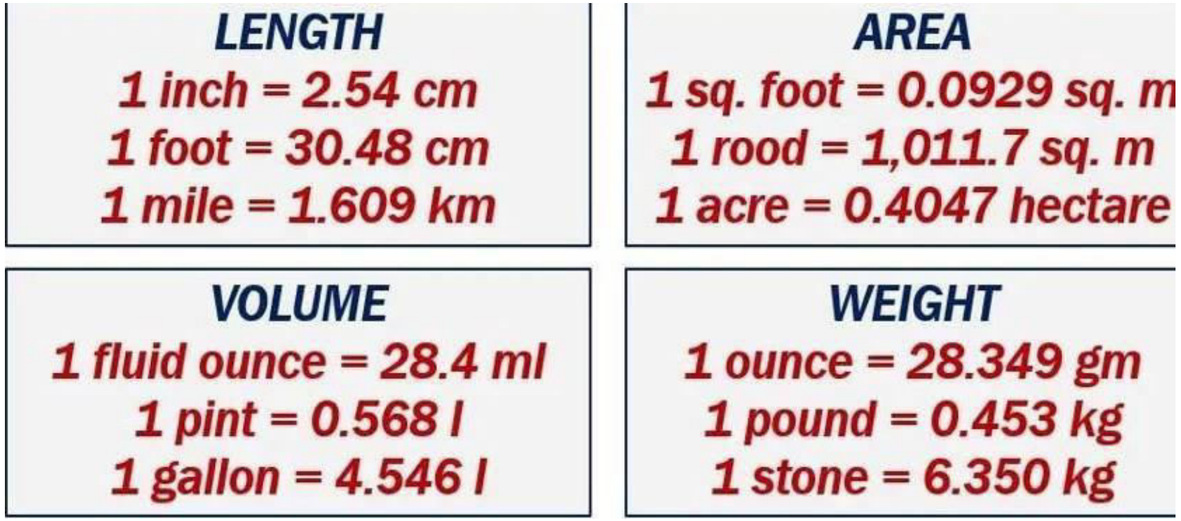
Introduction to the measuere systems

What is the SI system?

Based on the meter for length and kilogram for mass, the metric system was first adopted in France in 1795. The meter was developed by measuring one-ten-millionth of the quadrant of Earth's circumference running from the North Pole to the equator, through Paris. The new unit, equal to about thirty-nine inches, was called a meter, and all measurements were based upon it.

What Is the Imperial System?

The British Imperial System was the official system of weights and measures in the United Kingdom from 1824 until they adopted the metric system in 1965. The Imperial system standardized measurements for units like pound and foot that had different meanings in different places.



GUI for Python

1. PyQT5
2. Python Tkinter
3. PySide2
4. Kivy

The graphical user interface is a form of user interface that allows users to interact with electronic devices through graphical icons and audio indicator

Are you ready?

Let's Begin!

```
from tkinter import *
from tkinter.ttk import * #IMPORT THE PYTHON GUI TKINTER MODULE

window = Tk()              #A WINDOW IS AN INSTANCE OF TKINTER'S CLASS
window.title('CONVERTER FROM SI TO IMPERIAL SYSTEM')
window.geometry('500x350')
selected=IntVar()
my_num=IntVar() #PYTHON CLASSES

rad1=Radiobutton(window,text='1.Lenght',value=1,variable=selected)#MAIN OPTIONS FOR USER
rad2=Radiobutton(window,text='2.Mass and weight',value=2,variable=selected)
rad3=Radiobutton(window,text='3.Volume',value=3,variable=selected)
lbl=Label(window,text='Which kind of measure do you want to convert?',font=('Arial Bold',12)) #QUESTION LABEL

rad1.grid(row=0,column=0,sticky=W)                          #TKINTER WIDGETS
rad2.grid(row=1,column=0,sticky=W)
rad3.grid(row=2,column=0,sticky=W)
lbl.grid(row=4,column=0,sticky=W)#LOCATION OF THESE WIDGETS ON THE WINDOW
```

```
rad4=Radiobutton(window,variable=selected) #EMPTY RADIOBUTTONS WHICH ARE CONNECTED WITH USER'S CHOICE
rad5=Radiobutton(window,variable=selected)

rad4.grid(row=5,column=0,sticky=W) #AND THEIR PLACE
rad5.grid(row=6,column=0,sticky=W)

def clicked():       #THIS FUNCTION WILL ACTIVATE BY CLICKING BTN1 AND CONTAINS INFORMATION FROM PREVIOUS RADIOBUTTONS
    a=selected.get() #THIS VARIABLE TAKES VALUE OF RAD1,RAD2,RAD3
    if a==1:
        rad4.configure(text='1.from Meter to Mile',value=4) #EACH VALUE OF 'a' CONNECTED WITH 2 DATA FOR EACH MEASURE
        rad5.configure(text='2.from Meter to Inch',value=5)
        lb2=Label(window,text='Which kind of unit do you want to choose?',font=('Arial Bold',12)) #QUESTION LABEL
        lb2.grid(row=7,column=0,sticky=W)
    elif a==2:
        rad4.configure(text='1.from Kilogramm to Pound',value=6)
        rad5.configure(text='2.from Kilogramm to Ounce',value=7)
        lb2=Label(window,text='Which kind of unit do you want to choose?',font=('Arial Bold',12))
        lb2.grid(row=7,column=0,sticky=W)
    elif a==3:
        rad4.configure(text='1.from Liter to Gallon',value=8)
        rad5.configure(text='2.from Liter to Fluid Ounce',value=9)
        lb2=Label(window,text='Which kind of unit do you want to choose?',font=('Arial Bold',12))
        lb2.grid(row=7,column=0,sticky=W)

btn1=Button(window,text='Insert',command=clicked) #BUTTON WHICH IS CONNECTED WITH CLICKED DEF
btn1.grid(row=4,column=42)
```

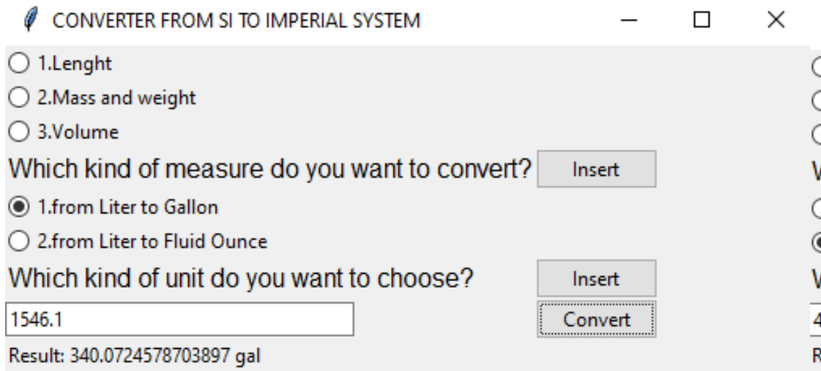
```
lb3=Label(window) #LABEL WHICH SAVE AND SHOW RESULT
lb3.grid(row=9,column=0,sticky=W)

def clicked2():     #THIS FUNCTION WILL ACTIVATE BY CLICKING BTN2 and BT3 AND CONTAINS INFORMATION FROM RAD4 AND RAD5
    b=selected.get()#THIS VARIABLE TAKES VALUE OF RAD4 and RAD5
    if b==4:        #BY THE USER'S CHOICE IF-ELIF-ELSE OPERATORS WILL CHECK
        ent_box=Entry(window,width=35,textvariable=my_num) #ENTRY WIDGET SAVE AND GIVE USER'S TEXTED DATA TO THE FORMULAS
        ent_box.grid(row=8,column=0,sticky=W)
        x=my_num.get() #VALUE WHICH TAKES USER'S DATA
        res=x/1609.34  #FORMULA TO COMPUTE RESULT
        lb3.configure(text='Result:'+' '+str(res)+' '+'mi') #UPDATED RESULT ROW WITH MEANING AND UNITY OF MEASURE



btn2=Button(window,text='Insert',command=clicked2)
btn2.grid(row=7,column=42)
                                                    #BUTTONS WHICH ARE CONNECTED WITH CLICKED2 DEF
btn3=Button(window,text='Convert',command=clicked2)
btn3.grid(row=8,column=42)

window.mainloop() #A METHOD ON THE MAIN WINDOW WHICH WE EXECUTE WHEN WE WANT TO RUN OUR APPLICATION
```

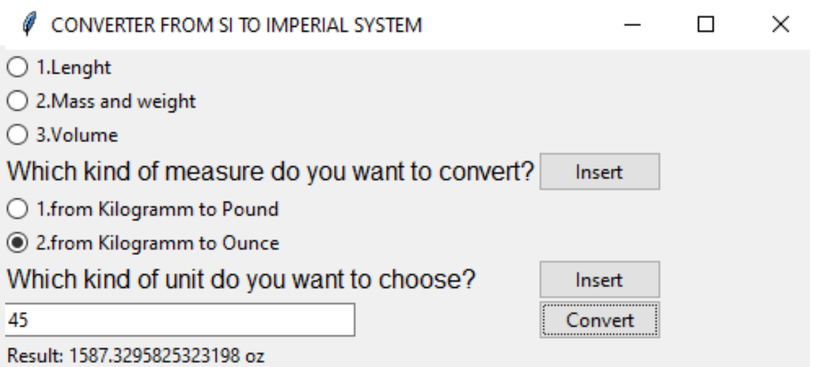
```
elif b==5:
    ent_box=Entry(window,width=35,textvariable=my_num)
    ent_box.grid(row=8,column=0,sticky=W)
    x=my_num.get()
    res=x/0.0254
    lb3.configure(text='Result:'+' '+str(res)+' '+'in')
elif b==6:
    ent_box=Entry(window,width=35,textvariable=my_num)
    ent_box.grid(row=8,column=0,sticky=W)
    x=my_num.get()
    res=x/0.453592
    lb3.configure(text='Result:'+' '+str(res)+' '+'lb')
elif b==7:
    ent_box=Entry(window,width=35,textvariable=my_num)
    ent_box.grid(row=8,column=0,sticky=W)
    x=my_num.get()
    res=x/0.0283495
    lb3.configure(text='Result:'+' '+str(res)+' '+'oz')
elif b==8:
    ent_box=Entry(window,width=35,textvariable=my_num)
    ent_box.grid(row=8,column=0,sticky=W)
    x=my_num.get()
    res=x/4.54609
    lb3.configure(text='Result:'+' '+str(res)+' '+'gal')
else:
    ent_box=Entry(window,width=35,textvariable=my_num)
    ent_box.grid(row=8,column=0,sticky=W)
    x=my_num.get()
    res=x/0.0295735
    lb3.configure(text='Result:'+' '+str(res)+' '+'fl oz')
```

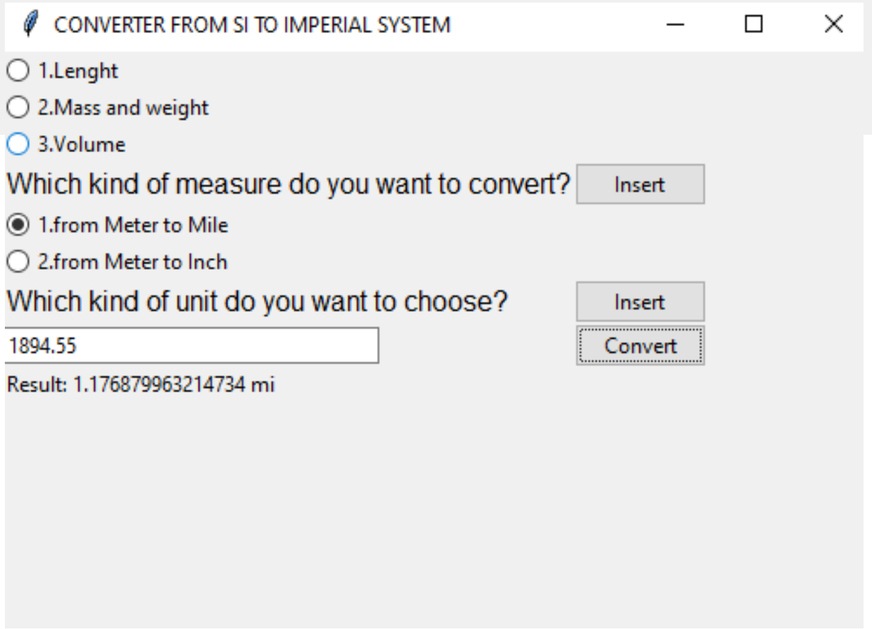
Code structure

1. GUI(Tkinter) base syntax
2. Functions
3. If,elif,else operators
4. Mathematical calculations

Result


CONVERTER FROM SI TO IMPERIAL SYSTEM
1.Lenght
2.Mass and weight
3.Volume
Which kind of measure do you want to convert?
Insert
1.from Liter to Gallon
2.from Liter to Fluid Ounce
Which kind of unit do you want to choose?
Insert
1546.1
Convert
Result: 340.0724578703897 gal


CONVERTER FROM SI TO IMPERIAL SYSTEM
1.Lenght
2.Mass and weight
3.Volume
Which kind of measure do you want to convert?
Insert
1.from Kilogramm to Pound
2.from Kilogramm to Ounce
Which kind of unit do you want to choose?
Insert
45
Convert
Result: 1587.3295825323198 oz


CONVERTER FROM SI TO IMPERIAL SYSTEM
1.Lenght
2.Mass and weight
3.Volume
Which kind of measure do you want to convert?
Insert
1.from Meter to Mile
2.from Meter to Inch
Which kind of unit do you want to choose?
Insert
1894.55
Convert
Result: 1.176879963214734 mi

Thank you

Have a great day ahead.