##weightproject.py

##This program will convert weight in pounds to grams, kilograms and ounces using graphical interface.

##Author: Abdul Alim

##Dated: April 28, 2019

Problem Analysis: the weight in pounds needed to be converted in various weight units.

Program Specification: This program will convert the weight from pounds to grams, kilograms, and ounces by performing the following process:

Input: On the displayed screen the user will put the value of weight in pounds.

Process: By using the proper converting units and mathematical calculations the program will calculate the weight from pounds and converted it into grams, kilograms and ounces.

Output: The converted weights in various units will be displayed on the screen.

Design: the program will be created by following the steps describe bellow:

Print an introduction

Draw a graphical interface for input and output by using graphical windows.

Get the value of the weight in pounds from user on the interface

Wait for the user to click on “convert”

Convert the value into various weight units by mathematical calculations

Display the converted weight in grams, kilograms , and ounces on the interface

If negative number or any other letter or characters enter the interface will not perform and displayed invalid input.

Close the interface to finish.

Implementation: I translated the design into the python programming language to solve the problem by providing the result of it. The programming algorithms will be as followed:

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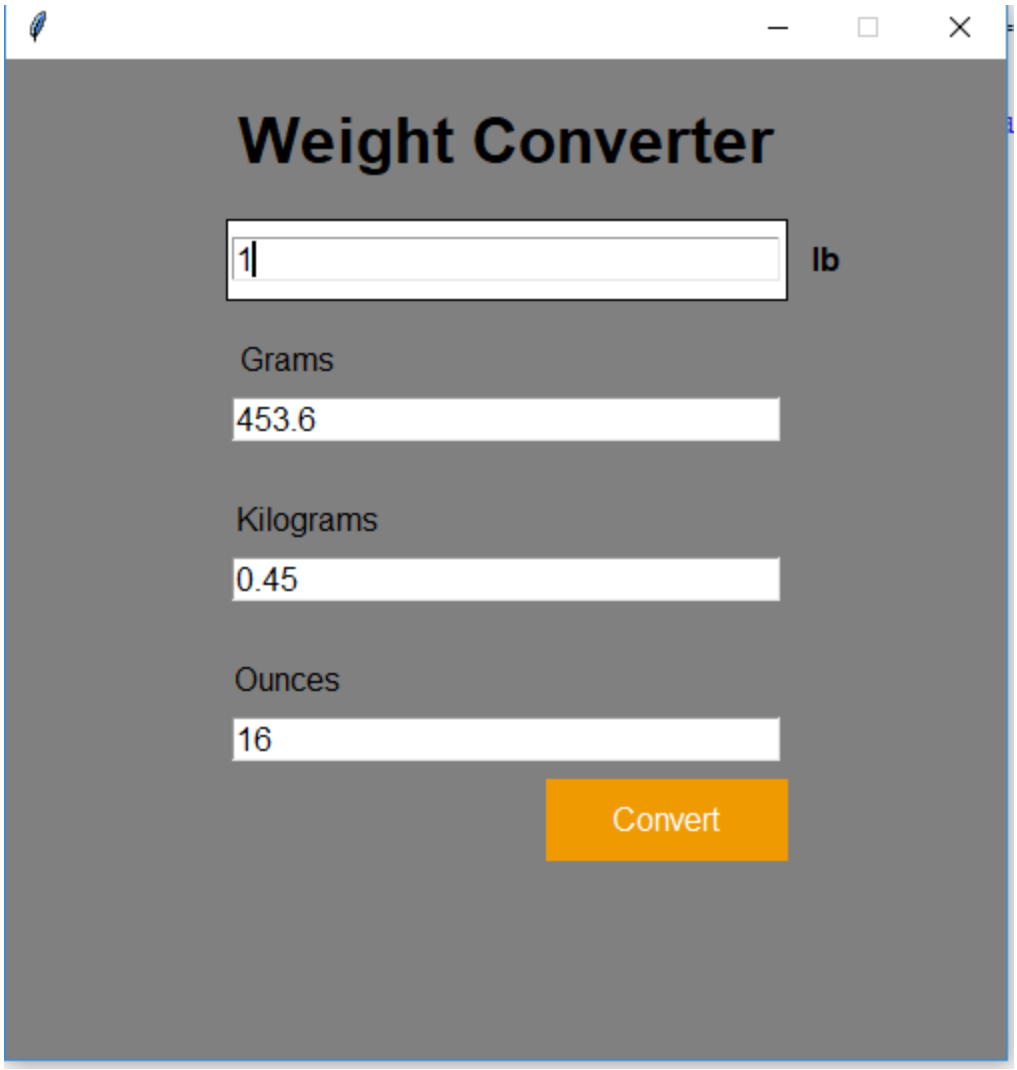
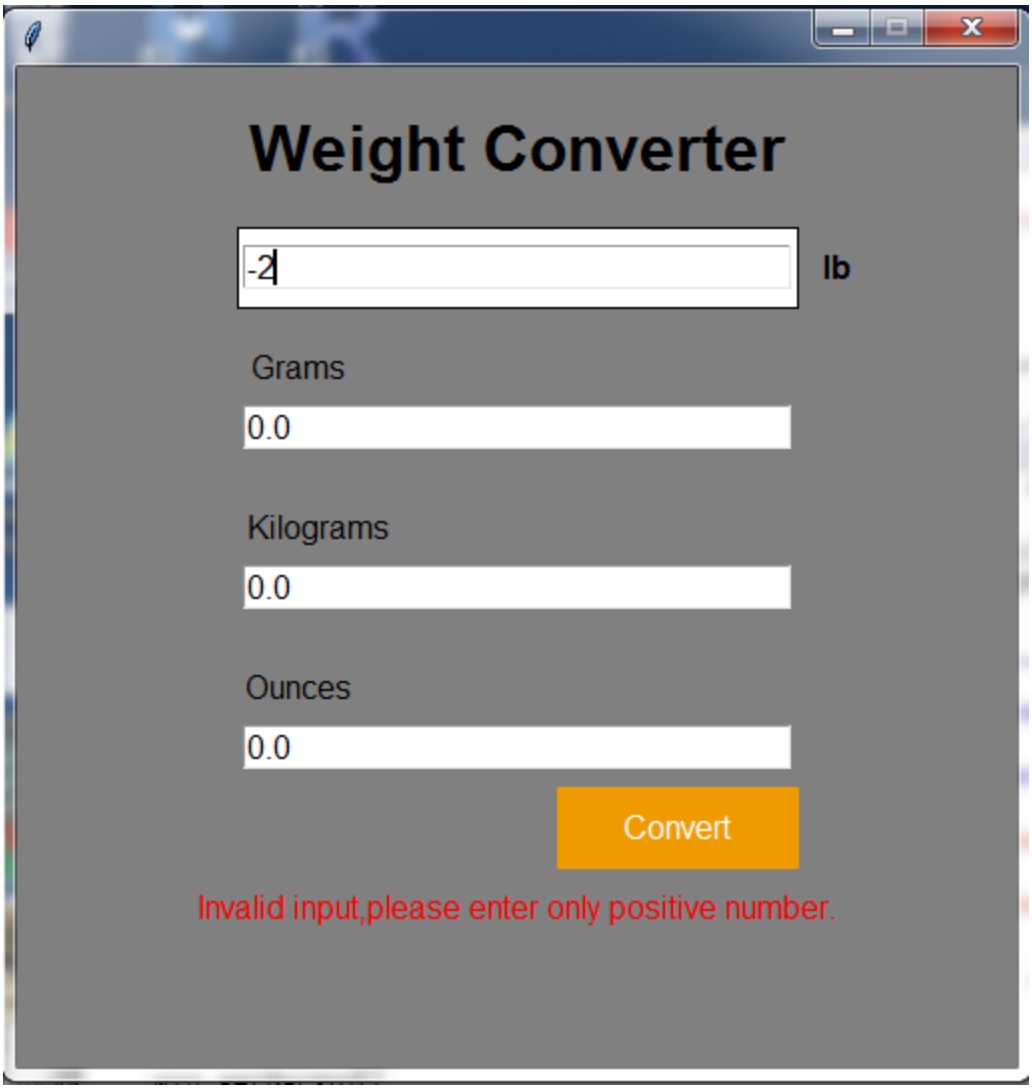
```
from graphics import *


def convertGrams(pounds):
    if pounds >= 0:
        totalgrms = float(pounds * 453.6)
        return totalgrms
    else:
        print("Invalid input, please enter only the positive number on entry.")


def convertKilograms(pounds):
    if pounds >= 0:
        totalkilo = float(pounds * 0.4536)
        return totalkilo


def convertOunces(pounds):
    if pounds >= 0:
        totalouns = float(pounds * 16)
        return totalouns


def main():
    print("_____Welcome_____\n")
    print("This program will convert the weight from pounds to grams, kilograms and ounces\n")
    print('\nNote:"To close the program please enter any letter or negetive number."')
    win = GraphWin("",500,500)
    win.setBackground('gray')
```

```
heading = Text(Point(250,40),"Weight Converter")
heading.setFace('arial')
heading.setSize(24)
heading.setStyle('bold')
heading.draw(win)



Text(Point(140,150),"Grams").draw(win)
grams = Entry(Point(250,180),30)
grams.setFill('white')
grams.setText("0.0")
grams.draw(win)

Text(Point(150,230),"Kilograms").draw(win)
kilogrms = Entry(Point(250,260),30)
kilogrms.setFill('white')
kilogrms.setText("0.0")
kilogrms.draw(win)

Text(Point(140,310),"Ounces").draw(win)
ounces = Entry(Point(250,340),30)
ounces.setFill('white')
ounces.setText("0.0")
ounces.draw(win)
```

```
    lbs = Text(Point(410,100),"lb")
    lbs.setStyle('bold')
    lbs.draw(win)

    rect1 = Rectangle(Point(110,120), Point(390,80))
    rect1.setFill('white')
    rect1.draw(win)

    rect = Rectangle(Point(270,400), Point(390,360))
    rect.setFill('orange2')
    rect.setOutline('orange2')
    rect.draw(win)

    button = Text(Point(330,380),"Convert")
    button.setTextColor('white')
    button.draw(win)

    input1 = Entry(Point(250,100),30)
    input1.setFill('white')
    input1.draw(win)

    while True:
        '''I:enter weight in pounds; P: convert the weight into grams, kilograms and ounces; O: the converted weight in grams, kilograms, and ounces'''
```

```
    win.getMouse()
    pounds = eval(input1.getText())

    if pounds <= 0:
       invalid = Text(Point(250,420),"Invalid input,please enter only positive number.")
       invalid.setSize(14)
       invalid.setTextColor('red')
       invalid.draw(win)
    else:
       totalgrms = convertGrams(pounds)
       totalkilo = convertKilograms(pounds)
       totalouns = convertOunces(pounds)

    grams.setText(round(totalgrms, 2))
    kilogrms.setText(round(totalkilo, 2))
    ounces.setText(round(totalouns,2))


main()
```


Weight Converter
1
lb
Grams
453.6
Kilograms
0.45
Ounces
16
Convert



Testing/Debugging: I check the program and identified it is working properly.

Maintenance: for the outstanding services the program required updated with evolving needs.

Github: https://github.com/alim967/CIS166Spring2019.git

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