

COMP B10 – INTRO TO PROGRAMMING METHODOLOGIES USING PYTHON

Assignment #4 (Conversion Program using functions)

Create the Python program that will allow users to repeatedly select the type of conversion to perform and then perform one of these conversions.

- Fahrenheit to Celsius
- Miles to Kilometers
- Pounds to Kilograms

Your program should be able to create a run that looks EXACTLY like the sample run.

Your program should perform the following:

1. Display a menu of conversions that can be done by the program as indicated in the sample run.
2. Ask the user which conversion to perform. Make sure to handle character case conversions.
3. If the user selects a valid option then perform the selected conversion and display the result, otherwise print an error message.
4. The formula for converting Fahrenheit to Celsius is: subtract 32 from the temperature in Fahrenheit. Divide the result by 1.8.
5. The formula for converting Miles to Kilometers is: divide Miles by 0.621371192237.
6. The formula for converting Pounds to Kilograms is: divide Pounds by 2.2.
7. Round and print all calculated answers to three decimal places.
8. Loop, displaying the menu and getting the users selection, until the user enters “Q” for the conversion to perform.
9. Terminate the program in the normal method.

Additional notes:

- You must use the program template for your program.
- You must create AT LEAST the following functions using the specified function names.
 - main – controls the sequence of events
 - getMenuSelection - displays the menu, gets the user’s selection and returns their selection
 - getValueToConvert – prompts the user for the value to convert (temperature in Fahrenheit, distance in miles, or weight in pounds) and then returns the floating point value the user enters
 - calculateCelsius – performs the temperature conversion and returns the result
 - calculateKilometers – performs the distance conversion and returns the result
 - calculateKilograms – performs the weight conversion and returns the result
 - printResult – prints the result line

- Upload a copy of your program's source code to Canvas AND turn in a printed copy of your source code to me. Do not include a cover page or a sample run.
 - Your messages and prompts must look EXACTLY like those in the sample runs. Duplicate all blank lines and spacing.
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Sample runs

```
-----  
CONVERSION PROGRAM  
-----  
  
T = Convert Fahrenheit to Celsius  
D = Convert Miles to Kilometers  
W = Convert Pounds to Kilograms  
  
Select conversion to perform ('T'emperature, 'D'istance, 'W'eight, or 'Q'uit)? t  
  
Please enter the temperature in fahrenheit: 212  
212.0 fahrenheit is 100.000 celsius.
```

```
-----  
CONVERSION PROGRAM  
-----  
  
T = Convert Fahrenheit to Celsius  
D = Convert Miles to Kilometers  
W = Convert Pounds to Kilograms  
  
Select conversion to perform ('T'emperature, 'D'istance, 'W'eight, or 'Q'uit)? D  
  
Please enter the distance in miles: 123  
123.0 miles is 197.949 kilometers.
```

```
-----  
CONVERSION PROGRAM  
-----  
  
T = Convert Fahrenheit to Celsius  
D = Convert Miles to Kilometers  
W = Convert Pounds to Kilograms  
  
Select conversion to perform ('T'emperature, 'D'istance, 'W'eight, or 'Q'uit)? w  
  
Please enter the weight in pounds: 100  
100.0 pounds is 45.455 kilograms.
```

CONVERSION PROGRAM

T = Convert Fahrenheit to Celsius
D = Convert Miles to Kilometers
W = Convert Pounds to Kilograms

Select conversion to perform ('T'emperature, 'D'istance, 'W'eight, or 'Q'uit)? z

Error - Invalid option selected. You may only enter T, D or W.

CONVERSION PROGRAM

T = Convert Fahrenheit to Celsius
D = Convert Miles to Kilometers
W = Convert Pounds to Kilograms

Select conversion to perform ('T'emperature, 'D'istance, 'W'eight, or 'Q'uit)? q

Run complete. Press the Enter key to exit.