Lab Exercise 2

## Focus

1. Input, Process, Output
2. Basic Python syntax
3. Data types
4. Simple calculations
5. Formatting output

Design and Code a Simple Program that Uses Variables and Performs Calculations

## Part A: Design a Solution

For this portion of the lab, you will design the solution to a simple program that uses sequential statements. Design a solution to the following problem:

Your cousin is visiting from England and it is getting very annoying for you to constantly convert US measures to metric measures. After all, only 95% of the world uses the metric system. Using your programming prowess, you decide to write him a program that will perform the necessary conversions. But first you will design a program that performs the following conversions:

a. Miles to kilometers – one mile = 1.6 kilometers
b. Fahrenheit to Celsius – the formula is C = (F - 32) * 5/9 where C is the Celcius temperature and F is the Fahrenheit temperature
c. Gallons to liters – one gallon = 3.9 liters
d. Pounds to kilograms – one pound = 0.45 kilograms
e. Inches to centimeters – one inch = 2.54 centimeters

When you design and code this program follow these directions:

1. You must prompt the user for input. As an example: You may say “Please tell me how many miles you want converted to kilometers.”
2. You will then store the input value in a variable.
3. You will perform the conversion in an arithmetic expression. As an example to convert from inches to centimeters you will multiply the inches by 2.54, which is the number of centimeters in an inch. You will then store the result of this multiplication in a variable, maybe named *cm*.
4. After the calculation and assignment is complete, you will print the results. As an example, if you are converting 3 inches to centimeters, your output may resemble the following:

   3 inches is equal to 7.62 centimeters

5. Desk check your design and ensure that it does what it is meant to do

## Part B: Code

Use the design you created in part A to write a complete and syntactically correct Python program. Use the IDLE programming environment if you are using Python with IDLE. Some of you may be using Komodo or some other Python IDE. Please save your file as

firstname_lastname_Lab2.py

where you will replace *firstname* and *lastname* with your actual first name and last name. Remember to use the extension .py. Run and test your program. Once you are sure it works. You will turn in the items listed in the next section.

## Turn In

All labs will be submitted in Blackboard. Once you are done with the lab, turn it in using the Lab 2 link.

For this lab you will turn in:

1. The conversion design file you saved in part A.
2. The Python code file you saved in part B