**Lab Exercise 7**

**Focus**

1. Lists

2. List functions

3. Two-Dimensional Lists

4. Tuples

**Part A: Building something new**

For this portion of the lab design the solution in the following manner:

1. Create a table using a two-dimensional array that stores a Fahrenheit temperate and the equivalent Celsius temperature. Use the following range of Fahrenheit temperatures

-10 through 100 in increments of 10, thus the temperatures will be

-10, 0, 10, 20, 30, 40, 50 …and so on

1. Display the contents of the list.
2. Similarly create tables/lists for the following (starting at 0 through 100 in increments of 10
   1. Miles to kilometers
   2. Gallons to liters
   3. Pounds to kilograms
   4. Inches to centimeters
3. Display the contents of each list

Save the program as firstname\_lastname\_Lab7a.py where you will replace firstname and lastname with your actual first and last name.

**Part B: Write Something New!**

Write a complete and syntactically correct Python program to solve the following problem:

Write a program for use by professors at Austin Community College that allows them to read in student names. The program must be written in accordance with the following specifications:

1. You must use function and pass the list in and out of the function.
2. The input must be interactive from the keyboard. You will take input for 12 students.
3. You will input the student’s name and insert/append each name in a list named “students”.
4. Sort the list in alphabetical order.
5. Sort the list again in reverse order.
6. Append the instructor’s name on the list.
7. Insert your own name at the beginning of the list.
8. Write the list to a file named “names.txt”
9. Display the contents of the file named :”names.txt”
10. Convert the list to a Tuple.

Use the IDLE programming environment.

Please save your file as firstname\_lastname\_Lab6b.py where you will replace firstname and lstname with your actual first name and lst name. Remember to use the extension .py.

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Run and test your program for all conditions. Once you are sure it works you will turn in the items listed in the next section.

**Turn In**

All labs will be graded in Blackboard. Once you are done with the lab turn it in to the Lab 6 link.

For this lab you will turn into Blackboard the following THREE items:

1. The Python *code file* you saved in part A

2. The Python code file you saved in part B and the “names.txt” file created in part B