Lab Exercise 7

Focus

1. Lists
2. List functions
3. Two-Dimensional Lists
4. Tuples

This lab maps to learning objectives 1 through 4 in Competency Module Seven - Write a Working Program that Uses and Manipulates Both One and Two-Dimensional Lists, and uses Tuples

Part A: Building upon an Existing Solution

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

1. Create a table using a two-dimensional list that stores a Fahrenheit temperature 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. **(LO 1, 2, 3)**

2. Display the contents of the list. **(LO 2)**
3. Similarly create tables/lists for:
     a. Miles to kilometers
     b. Gallons to liters
     c. Pounds to kilograms
     d. Inches to centimeters
   Starting at 0 through 100 in increments of 10
4. 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 Professor Polanco at Austin Community College that allows him to read in student names.   The program must be written in accordance with the following specs:

1. You must use functions 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 students' name and insert/append each name in a list named *students*. **(LO 1,2)**
4. Sort the list in alphabetical order. **(LO 2)**
5. Sort the list again in reverse order. **(LO 2)**
6. Append the instructor's name on to the list. **(LO 2)**
7. Insert your own name at the beginning of the list. **(LO 2)**
8. Write the list to a file. **(LO 2)**
9. Display the contents of the file named *names.txt*.
10. Convert the list to a Tuple. **(LO 2, 5)**

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_Lab7b.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 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 7

link. Please read the How To Submit instructions if you have any questions or contact the instructor / academic coach.

For this lab you will turn into Blackboard:

1. The Python *code file(s)* you saved in part A
2. The Python code file you saved in part B and the names.txt file created in part B