Lab Exercise 6

Focus

1. Batch input and output with files
2. Exception handling

This lab maps to learning objectives 1 through 5 in Competency Six: Write a working program that uses input and output files as well as exception handling.

Part A: Building upon an Existing Solution

For this portion of the lab, ***you will reuse the program you wrote in Lab5 Part 2 A***. Redesign the solution in the following manner:

1. Create a menu and ask the user which of the following conversions they wish to perform:
    a. Miles to kilometers
    b. Gallons to liters
    c. Pounds to kilograms
    d. Inches to centimeters
    e. Fahrenheit to Celsius

2. Your program must raise an exception if the user chooses any item not on the menu presented. Along with raising an exception, write the code to handle this exception. **(LO 5)**
3. Once the user has chosen a menu item the program should:
    a. Ask the user for a value to convert. Refer to the input validations in Lab 4. Your program must raise and exception, and handle the exception, if an input errors occurs. **(LO 5)**
    b. Perform the conversion and write the original value, the original unit, the converted

value, and the converted unit to an output file named conversions.txt. **(LO 1, 3)**

c. Repeat steps a and b 10 times (in a loop).

4. Save the program as firstname_lastname_Lab6a.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 keep a record of the students' average grade in his class. The program must be written in accordance with the following specs:

1. The input must be interactive from the keyboard. You will take input for 12 students.
2. You will input the students' name and an average grade. The student cannot enter an average below zero or above 100. Your program must raise and handle an exception should this occur. **(LO 5)**
   a. The exception should cause the program to return and get a new grade
3. Write all output to a file named grades.txt **(LO 1, 3, 4)**
4. Close the output file. **(LO 3, 4)**
5. Open the file grades.txt for input. **(LO 2)**
6. Your program will raise and handle an exception if the file is not found. **(LO 5)**
   a. I will test this aspect by changing the file name and looking for your exception code (your exception should cause program to ask for correct file name).
7. Read all the records from the file and display them. **(LO 2)**

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_Lab6b.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 6 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 *codefile(s)*you saved in part A and the conversions.txt file created in part A
2. The Python code file you saved in part B and the grades.txt file created in part B