**Lab Exercise 6**

**Focus**

1. Batch input and output with files

2. Exception handling

**Part A: Building upon an Existing Solution**

For this portion of the lab, **you will reuse the program you wrote in Lab 5A Part 2 A.** Redesign this solution in the following manner:

1. Create a menu and ask the user which of the following conversions they wish to perform::
   1. Miles to kilometer
   2. Gallons to liters
   3. Pounds to kilograms
   4. Inches to centimeters
   5. 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 the exception.
3. Once the user has choses a menu item he program should:
   1. Ask the user for a value to convert. Refer to the input validations in Lab 4. Your program must raise an exception, and handle the exception, if an input error occurs.
   2. 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”.
   3. Repeat steps a and b 10 times (in a loop)..
4. Save the program as firstname\_lastname\_Lab6a.py where you will replace first name 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’ averages grade in his class. The program must be written in accordance with the following specifications:

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 average grade cannot be below zero or above 100. Your program must raise and handle an exception should this occur..
   1. The exception should cause the program to return and prompt for a new grade..
3. Write all output to a file named “grades.txt”
4. Close the output file.
5. Open the file “grades.txt” for input
6. Your program will raise and handle an exception if the file is not found.
   1. Your instructor will test this aspect by changing the file name and look for your exception code (your exception should cause the program to ask for the correct file name).
7. Read all the records from the file and display them..

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 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