CS 1213-01 Program #9
Fall 2018

Due: December 5 at class time.

Assignment

Write a program that computes semester averages and letter grades for this course. The program will input grade data from a file. The file will contain data for an entire class of students. For each student in the class, there will be four lines of data as follows:

1. The student's name. The last name will be first, then a comma, then the first name.
2. The quiz scores. There is an arbitrary number of quiz scores, but at least one. The scores are separated by space characters. Do not assume the students all have the same number of quiz scores.
3. The program scores. There is an arbitrary number of program scores, but at least one. The scores are separated by space characters. Do not assume the students all have the same number of program scores.
4. The exam scores. There are precisely three exam scores in this order: Exam #1, Exam #2, Final Exam. The exam scores are separated by spaces.

The program will input the data for each student, computing the student's semester average and letter grade. It will write the results of the computations to an output file. Use the weights and grading scale specified in the syllabus. The scores are weighted as follows:

- Quiz average 15%
- Project average ... 20%
- Exam #1 .... 20%
- Exam #2 .... 20%
- Final exam 25%

Your computations should drop the lowest quiz score, but only if there are at least two quizzes. Do not drop the lowest project score. To compute the letter grade, apply this grading scale to the semester average:

- 90 – 100 .... A
- 80 – <90 .... B
- 70 – <80 C
- 60 – <70 .... D
- 0 – <60 .... F

Input and Output Files

Prompt the user to enter the names of the input file and output file. Accompanying this handout is a sample input file and its companion output file. Your program must work correctly for an input file of arbitrary length.

Each line of the output file must contain the results for one student, including these items: the student's name, the semester average, and the letter grade. Use the format illustrated by the sample output file. The numbers must be aligned in columns as in the sample file.

More Implementation Requirements

Your program must include these functions:

- A function to compute the average of a list of numbers. The function must have two arguments: (1) the list of numbers and (2) a Boolean value indicating whether the lowest number should be dropped. If the second argument is *True*, the average must omit the lowest number *if* the list has at least two entries. If the second argument is *False*, the average must include all the numbers.

- A function to compute a letter grade, given a semester average. Unlike the actual grading for this course, give no special consideration to borderline cases. For example, a semester average of 89.995 should be awarded a grade of "B".

You may include other functions at your discretion. If you do, they must be well designed and well implemented according to the principles we have been studying.

Instructions for Turning in Your Project

I will not grade your project and you will receive a score of 0 if you do not comply with these instructions. You must turn in all materials by class time on the due date for them to be counted on time. Your submission is not complete—and I will not grade it—until you have turned in all the required materials. Anything that is not turned in by class time will be marked at least one day late and will receive a grading penalty as specified in the syllabus.

Turn in these things:

- Upload your Python program to Canvas.
- Turn in a hardcopy of your Python program at class time on the due date. Your hardcopy must match the electronic copy that you upload to Canvas.
- Turn in a printed, completed copy of the project form along with your hardcopy on the due date. There is a blank project form in *Handouts* on Canvas.