CIS 5357 Spring 2020
Programming Assignment # 3
(20 points)
Due Date: By 11:59 pm on Friday, September 18, 2020

Introduction:

You are asked to design a program to determine letter grade for students enrolled in a class. For each class, the number of students enrolled as well as number of exams used to determine the letter grade can vary from class to class. Therefore, your program should be designed to be general enough to handle any number of classes, any number of students in each class, and any number of exams in each class.

You will use Python 3.8.x and Jupyter Notebook to implement your Python program to determine student's letter grade.

The instructor expects individual effort on this assignment. This assignment is NOT a group project. Collaboration of any type is not sanctioned and will be treated per the Academic Dishonesty policy as stated in the course syllabus. Each submission will be closely examined for plagiarism.

Requirements for Program Submission:

1. Your Jupyter notebook should be named ***YourName-Assignment-3***. The notebook must have an extension of .ipynb e.g. **MayurMehta-Assignment-3.ipynb.**
2. Use markdown cells to include:
   a. your first and last name as heading level 2 in the very first cell of the notebook. In the same cell, include the creation date of the assignment using level 3 heading style.
   b. In the second cell of the notebook, include a level 3 heading for Program Name (e.g. Grade Determination) and Use level 4 heading to state the objective of the program
3. Save the source code for the entire program in its own single cell.
4. Use appropriate comments to document each segment of the program – input, process, output
5. Execute the program using test data provided later in the specifications so that the output of the program is displayed below program.
6. Upload your program into the Assignments section of Canvas **BEFORE *11:59 pm on Friday, September 18, 2020*** using the following process:
   a. Log into canvas and access course site
   b. Click on the Assignments section in the course navigation menu.
   c. Click on Assignment 3 link
   d. Click on 'Submit Assignment' button on the right side of the Assignment 3 page
   e. Choose the file to submit from your disk, check the original work statement and then click on Submit/Upload.
7. The assignment is considered late and will not be accepted once the due deadline has passed.

Program Specifications:

1. The number of classes for which student information is to be entered is not known. The program should prompt the user to enter data for a class until the user indicates to stop data entry by typing in "N" in response to the prompt
2. For each class:
   a. The program should prompt the user for the number of students enrolled, and
   b. the number of exams to be used for computing the average score.
3. For each student enrolled in the class:
   a. the program will request student's name and score for each exam. Since the number of exams for which scores need to be collected may vary per class, you cannot use an individual input statement for each exam. You will need to rely on an iteration structure to prompt the user to enter the score do so.
   b. Each entered score must be between 0.00 and 100.00. It may not necessarily be an integer value. In other words, exam score value of type 80.5 or 70.7 is a possibility.
   c. The program should check for the validity of the exam score. Each entered score must be in the range indicated in step b above. The program should inform the user of invalid data entry and keep on prompting the user for that exam score until the user enters the correct score. In brief, the program should not move to the next step until a valid score is entered for each exam.
   d. Accumulate each exam score as it is collected into a total score.
   e. Compute the average score by dividing the total score by the number of exam scores collected.
   f. Remember, that average score cannot less than zero or greater than 100.00. If this happens for a student being processed because the user entered scores greater than 100, your program should display a message of "Invalid Data Entry" and set the letter grade to "Letter grade cannot be determined." See the example out shown later.
   g. Determine the letter grade to be assigned by using the following criteria:

If the average score is		Assign letter grade
Greater than or Equal to	Less Than	
0.00	60.00	F
60.00	68.00	D
68.00	78.00	C
78.00	88.00	B
88.00	100.00	A

   h. Designate a clear section for printing output so that user can tell which part of output presented is generated from data entry prompts and which part displays the actual results.
   i. Print student's name, score for each exam, average score and letter grade assigned in the following format. Leave a blank line between each student's output.

j. Please use the following test data to test your program's correctness:

Class Number: 1

Student Name: M. Ramirez
Exam Number 1: 80
Exam Number 2: 81
Exam Number 3: 82.5

Student Name: Mark Hamill
Exam Number 1: 120 (correct value should be 20)
Exam Number 2: 78.8
Exam Number 3: 92.7

Class Number: 2

Student Name: Janet Moore
Exam Number 1: 78
Exam Number 2: 68.5

Student Name: Kenya Jackson
Exam Number 1: 120 (correct value should be 100)
Exam Number 2: 101 (correct value should be 95)
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4. You will submit your working program with the output displayed as shown on the next page:

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Please enter number of students in class # 1: 2

Please enter number of exams in class # 1: 3
Please enter full name (First, Last) of student # 1: M. Ramirez
Please enter grade for exam # 1:  80
Please enter grade for exam # 2:  81
Please enter grade for exam # 3:  82.5

------------ Results--------------------
Student Name:                M. Ramirez
Total of 3 exams:            243.5
Number of Exams - Class # 1:   3
Average grade:               81.17
Letter Grade Assigned:         B

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Please enter full name (First, Last) of student # 2: Mark Hamill
Please enter grade for exam # 1:  120
Invalid Data Entry. Score must be between 0.00 and 100.00
Please enter grade for exam # 1:  20
Please enter grade for exam # 2:  79.8
Please enter grade for exam # 3:  92.7
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------------ Results---------------------
Student Name:                Mark Hamill
Total of 3 exams:            192.5
Number of Exams - Class # 1:   3
Average grade:               64.17
Letter Grade Assigned:         D

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Do you wish to continue with next class (Y or N)?Y
Please enter number of students in class # 2: 2
Please enter number of exams in class # 2: 2
Please enter full name (First, Last) of student # 1: Janet Moore
Please enter grade for exam # 1:  78
Please enter grade for exam # 2:  68.5

------------ Results---------------------
Student Name:                Janet Moore
Total of 2 exams:            146.5
Number of Exams - Class # 2:   2
Average grade:               73.25
Letter Grade Assigned:         C

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Please enter full name (First, Last) of student # 2: Kenya Jackson
Please enter grade for exam # 1:  120
Invalid Data Entry. Score must be between 0.00 and 100.00
Please enter grade for exam # 1:  100
Please enter grade for exam # 2:  101
Invalid Data Entry. Score must be between 0.00 and 100.00
Please enter grade for exam # 2:  95

------------ Results---------------------
Student Name:                Kenya Jackson
Total of 2 exams:            195.0
Number of Exams - Class # 2:   2
Average grade:               97.50
Letter Grade Assigned:         A

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Do you wish to continue with next class (Y or N)?N
Program Terminated by User. End of Program
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