

Programming Assignment 2  
(Due date/time: Thursday, Feb 10<sup>th</sup>, 11:59 PM.)

Programs to Write (Three Independent Java Projects):

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Programs to Write (Three Independent Java Projects (30 points)):

**Project 1: [10 Points]**

Write a full Java program called **FinalGrade** that finds the value of grade from the following formula.

$\text{grade} = \text{midTerm1} + \text{midTerm2} + \text{finalExam} + \text{assignments}$ .

Each part will weight as following from total weight

$\text{midTerm1} = 15\%$

$\text{midTerm2} = 15\%$

$\text{finalExam} = 20\%$

$\text{assignments} = 50\%$

**Hint:** The valid value of midTerm1 is (0 to 15). So, think about the rest of the required values.

After the program prints the value of the grade, the user will be asked if she/he wants to repeat the process and calculate another **FinalGrade** using the same formula. That is, the program continues until the user chooses to exit the program.

**Note:**

**Scale** 0% 60% 70% 73% 78% 80% 83% 88% 90% 93%

**Grade** F D C- C C+ B- B B+ A- A

1. use the standard grade map.

2. Make to verify entered data.

For example, you can use this senior at the run time to give a clue to the user on how to deal with your program

The dialog during run time:

Please enter the value of midTerm1: User should enter the expected value

Do the same thing with the other variables.

In terms of the result that the program will deliver to the user (It is based on the total grade that calculated from  $grade = midTerm1 + midTerm2 + finalExam + assignments$  )

For example, if the grade is 95 the program should print **Total= 95 and the Grade is A** on the console (Screen)

Then the program should ask the user if he/she wants to calculate another grade.

Do you want to execute again? [Y/N]

Y

Please enter the value of midTerm1: 10

Do the same thing with the other variables.

Total= 75 and the Grade is B

Do you want to execute again? [Y/N]

N

Goodbye!

## Project 2: [10 Points]

Write a complete Java program called **MyFactorial** that finds the factorial of a positive integer Y. Such that Y is entered by the User.

$$Y! = Y * (Y-1) * (Y-2) * \dots * 3 * 2 * 1$$

## Project 3: [10 Points]. Mathematical Function.

Write a Java program that determines and displays the values of a single variable mathematical function for a set of values over any specified interval [a-b].

Example: You want to know the values of the following function for x between a=4 and b=15:

$$y = 7x^2 + 4x - 4$$

**Dialog:**

Please enter values of a and b ---> 4    15

The result on the screen should be like this

x value	y value
-----	-----
4	124
5	191
6	272
.	.
.	.
13	1231
14	1424
15	1631

**Prompt Grading and feedback:**

CS145, Spring 2022

- Do not wait until the last minute to start working on your assignment.
- Treat it as a real-life project in an industry that needs to be completed within a deadline.
- Please submit your work via Canvas. No submission via email.
- You will be always welcome to visit me during my office hours or virtual meetings via teams.

*Sincerely,*

*Dr. El-magrous*