Cot 3011 Project 4 --- Chapters 7 --- Arrays

<u>Due</u>: Friday February 25 before 5 PM late. (Late submissions before 5 PM February 26.)

Objective:
Write a C program that assists an instructor in reporting student results for a course. The instructor will supply the student ID's and exam scores to the program and the program will display a report summarizing performance for the course. The report should include the following information:

> 1. An easy to read table with the results for each student:
>> student ID, 3 exam scores, exam average, letter grade.
> 2. Summary data for the entire class including:
>> an average for each exam, overall average for all exams and GPA for the class.

Specification:
1. Assume that a course has exactly three exams and a maximum of 10 students.
2. Student ID's should be integers.
3. Exam scores should be type double.
4. The instructor will enter a negative student ID to indicate all data has been entered.
5. Should the instructor enter 10 valid students, do not ask for more. (the arrays are full)
6. Valid exam scores will be 0.0 to 100.0. If the user enters an invalid score, print an appropriate message and have them re-enter the score.
7. The grading scale for the class will be: (89.5 for 'A', 79.5 for 'B', 69.5 for 'C', 59.5 for 'D', below 59.5 is 'F')
8. When displaying scores always round to two decimal places.
9. Display headers above each column of the table.
10. All columns in the results table should line up vertically.
11. The results table should be sorted in descending order by exam average. (highest average to lowest average)
12. All data should be entered by the instructor before any results are displayed.
13. NO FUNCTIONS allowed in the project except "main".

Sample Run:

```
Enter the student ID - (negative to stop) --   11
Enter the score for student 11 for exam 1   --   77.7
Enter the score for student 11 for exam 2   --   88.8
Enter the score for student 11 for exam 3   --   99.9

Enter the student ID - (negative to stop) --   18
Enter the score for student 18 for exam 1   --   70
Enter the score for student 18 for exam 2   --   65
Enter the score for student 18 for exam 3   --   103
Invalid score - please redo --   72.22

Enter the student ID - (negative to stop) --   4
Enter the score for student 4 for exam 1   --   97.889
Enter the score for student 4 for exam 2   --   96.888
Enter the score for student 4 for exam 3   --   95.499

Enter the student ID - (negative to stop) --   13
```

```
Enter the score for student 13 for exam 1  --   55
Enter the score for student 13 for exam 2  --   56
Enter the score for student 13 for exam 3  --   57

Enter the student ID - (negative to stop) --   -1

  ID     Exam 1   Exam 2   Exam 3  Average  Grade
 ----    ------   ------   ------  -------  -----
   4     97.89    96.89    95.50   96.76     A
  11     77.70    88.80    99.90   88.80     B
  18     70.00    65.00    72.22   69.07     D
  13     55.00    56.00    57.00   56.00     F


S U M M A R Y   R E P O R T
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Exam 1 average    75.15
Exam 2 average    76.67
Exam 3 average    81.15
Overal average    77.66
Class GPA          2.00
```

[Run1.txt](Run1.txt)

[Run2.txt](Run2.txt)

[Run3.txt](Run3.txt)

Style/Format
Be sure to include appropriate documentation.
Be sure to format your code as discussed in class. For example, curly braces should line up and all blocks of code should be indented.

Project Submission:
Submit your project using the eLearning dropbox. Notice that there is a dropbox for late submissions.
For this project simply submit the file containing your source code (.c).