

Java Lab 3: GradeBook – Part 1

Read instructions carefully! Following instructions is part of the grade for this lab. Please do not hesitate to ask any of the team members for clarifications. This lab is **due at 4pm on Friday, June 10th**. Solutions will be made available upon completion of the lab.

0. Create a new project named **lab3**. Create a new class called GradeBook. Add a main method to GradeBook. You should put the code required to complete all the subsequent parts of this lab in the main method. Separate each question's output with a separator like "-----";
1. A class of students received scores of 82.4, 72.6, 90, 96.8, and 86.1. Declare and initialize an array of doubles named `scores` to store these values.
2. (1 points) Write a loop to display the contents of `scores`. Make sure that your printout is readable with spaces or commas between each grade. For example:

```
The scores are: 82.4 72.6 90.0 96.8 86.1
```
3. (2 point) Compute the average and maximum scores and display it to the user. If the average grade is 85.58, and the maximum is 96.8 the output should be:

```
Average score: 85.58 Maximum score: 96.8"
```
4. (3 points) A grade of 90 or above is an A, 80 or above is a B, 70 or above is a C, 60 or above is a D, and anything lower is an F. Write a loop to print out each student's letter grade. The output should be of the form:

```
Letter grades: B C A A B
```
5. (4 points) Write code to output a histogram plot of the grade distribution using the letter 'X' to represent each person receiving that grade. For example, if there were three A's, four B's, two C's, no D's and one F, your code output should be:

```
A: XXX  
B: XXXX  
C: XX  
D:  
F: X
```
6. (Extra Credit) Write a loop to sort and display the contents of `scores` in decreasing order. Your code should work regardless of the size of `scores` or its contents. The output should be of the form:

```
The sorted order is: 96.8 90.0 86.1 82.4 72.6
```
7. **CheckOff:** Compile your code. Demonstrate an execution of your code and your source code to a staff member. Be prepared to answer questions about your source code.

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EC.S01 Internet Technology in Local and Global Communities
Spring 2005-Summer 2005

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