CSE 215: Programming Language II
Sec – 2 & 3, Faculty: SvA
Programming Assignment # 1, Marks: 100
Deadline: 26.02.2018

Instruction:

1. Use A4 sized papers
2. Answer everything using a pen. Pencil is not allowed.
3. Write your answers on both sides of the papers. If you leave any side then you will be penalized.
4. Use a separate paper on top of your answer script that must include course name, section number, current semester, your name, your ID, Homework number. Use the format provided in the forum.

Problem Statement

Suppose that you need to develop a computer program using Java to maintain all sorts of students' records for your CSE215 class. The course management will be as follows:

- A maximum of 35 students in a class.
- A particular student's name, ID, his total score and finally his/her grade should be saved.

The following methods should work as mentioned:

- **`void main(String[] args):`** Complete the code as directed by the comments inside. **(20 points)**
- **`void input(String[] studentNames, int[] studentID)`**: This method should take as an input two empty arrays and fill them up after taking inputs from user. **(5 points)**
- **`void updateScore(double[] scores, double totalExamScore):`** This method should take as an input a double variable that is the total score of any particular exam. Inside the method, you should be able to input score of students for any particular exam after verifying that the score is valid based on the **`totalExamScore`.** **(10 points)**
- **`double maxScore(double[] scores):`** This method should take an array of double values and return the maximum double value among them. **(5 points)**
- **`char calculateGrade(double score, double[] gradeScale):`** This method takes the score as double value and an array that contains the threshold values for each letter grades. According to the **`gradeScale`** array's scores, calculate the grade output it. **(10 points)**

- **`int[] sort(int[] studentID):`** This method takes an integer array that contains the students' IDs and create another integer array that stores the index values of the array after sorting the input array in ascending order. **(10 points)**
- **`int[] sort(double scores):`** This method takes a double array that contains the students' scores and create another integer array that stores the index values of the array after sorting the input array in ascending order. **(10 points)**

Complete the code in **`CourseManagement.java`** that has been given to you and answer the following questions based on your analysis of the work.

1. There are two methods, both named as 'sort'. Which object-oriented feature allowed you to do that? Describe briefly. **(5 points)**
2. Here information of the students is stored into separate arrays and everything is maintained according to the index number only. What could be a challenge if you want to modify any information of a student or add/remove a student from the class record? **(5 points)**
3. In the code in **`CourseManagement.java`** three ways have been adopted for inserting comments. How are they different? **(5 points)**
4. The initial version of **`CourseManagement.java`** contains 4 errors. What type of errors are these? Explain briefly why these errors occurred and how you can remove them. **(5 points)**
5. There are **10 points** for coding style.

Note: You have to follow the standard threshold scores for each grade as per NSU's grading policy while taking input for **`double[] gradeScale.`**

Submission

- Theoretical questions (1-4) need to be submitted at the beginning of theory classes of each section on **26th February, 2018**.
- The **`CourseManagement.java`** file need to be emailed to silvia.ahmed@northsouth.edu with the subject line: "[CSE215] Programming Assignment 1 submission". Please make sure you use these specific words for correct filtering. In the body of the email include your full name, ID, and Section number. The deadline for submitting this **11:59 PM on 25 February**, 2018.