



Challenge Implement Sorting on Arrays

Oak Bridge School Management System

Educational institutions are often burdened with huge paperwork and manual processes. They generally find it difficult to maintain student records, results, attendance reports, etc. The faculty and administration at the Oak Bridge School have conducted exams for their high school students and have recently completed the evaluation of the answer scripts.

With the help of a technical team, the teachers need to put a system in place to automate the grading process. Teams are formed, and they have assigned a task to each team.

CHALLENGE



Challenge Statement

- The grades for ninth grade students must be calculated.
- The students are evaluated on only 3 core subjects, math, science, English.
- Students must score a minimum of 35 out of 100 points to pass the test.
- The grade calculation must follow the below criteria
- `marks is >= 90 the grade is 'A'`
- `if marks is >= 80 and <=89 the grade is 'B'`
- `if marks is >= 70 and <= 79 the grade is 'C'`
- `if marks is >= 60 and <=69 the grade is 'D'`
- `if marks is <=59 the grade is 'F'`

Responsibilities of the Evaluation Team

- This team needs to evaluate the results and grades of the students.
- To do this, the calculations below need to be made on the data entered:
 - Calculate the grades of each student in math.
 - Calculate the grades of each student in science.
 - Calculate the grades of each student in English.

Tasks

- Write all the logic for the program inside the `OakBridgeSchool` class provided.
- Write the logic to calculate the grades for each subject of the students in the below methods.

```
public char findGradeInMath(int math)
```

```
public char findGradeInScience(int science)
```

```
public char findGradeInEnglish(int english)
```

- The method takes the student scores and returns a character representing the grade scored in the subject.
- Write a method to display the grades and the details of the student

```
displayDetails(int totalMark, int averageMark, char mathGrade, char scienceGrade,  
               char englishGrade, String studentName, int rollNo )
```


Tasks (cont'd)

- In the main method
 - Call the methods
`findGradeInMath`,
`findGradeInScience`,
`findGradeInEnglish` and
 - Display the grades of students in each subject as shown along with the student's name, roll number total score, and average scores by calling the `displayDetails` method.

```
+++++
Grading And Evaluation
+++++
-----
Student Name           Roll Number
-----
Michelle                102
The total marks scored   : 258
The average marks scored : 86
-----

Grade in Math      : B
Grade in Science   : B
Grade in English   : A
-----
```

Sample Output

Responsibilities of the Report Generation Team

- This team collects the data from the evaluation and statistics team to summarize the results.
- In order to give a structured report, the team must
 - Sort the total scores in ascending order:
 - Display the sorted scores
 - Display the highest scorer first

Tasks (cont'd)

- Write the logic to sort the total scores of students inside the below method.

```
public int[] sortByTotalMarks(int[] totalMarks)
```

- Use insertion sort to write the logic for sorting the total scores provided.


```
+++++
Report
+++++
The total marks of the class in sorted order
299
270
258
246
202
188
170
113
102
25
```

Sample Output

Tasks (cont'd)

- In the main method
 - Call the `sortByTotalMarks` method.
 - Display scores from highest to lowest, as shown

Execute the test cases provided in the test folder.