Challenge
Working With Arrays

Oak Bridge School Management System

Educators at Oak Bridge School have to deal with a lot of paperwork and manual processes. At times, the high volume makes it difficult for them to maintain records of students' results, attendance reports, etc. Recently, the exams and evaluation of the answer scripts of their high school students have got over. The teachers need the support of the technical team to automate the grading process. They have to create teams and assign tasks to each team.
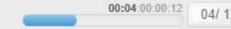
CHALLENGE

Challenge Statement

- The total and average marks for the students of grade 9 must be calculated.

- The students are evaluated on only 3 core subjects,

  - Math

  - Science

  - English

- The test will be taken for 100 marks, and the student needs to score a minimum of 35 marks to pass the test.

Responsibilities of the Evaluation Team

- This team needs to evaluate the results and grades of the students.

- In order to do this, the calculations below need to be made on the data entered:

  - Calculate the total marks of each student.

  - Calculate the average total marks of each student.

Tasks

- **Task 1**

  - Write all the logic for the program inside the `OakBridgeSchool` class provided.

  - Write the logic to calculate the total marks of the students inside the below method

  ```
  public int[] calculateTotalMarks(int [] math,int science[],int[] social)
  ```

  - The `calculateTotalMarks` method takes the Arrays of individual subject mark of the students and returns an integer array that consists of the total marks of each student in the class.

- **Task 2**

  - Write the logic to calculate the average marks of the students inside the below method

  ```
  public int[] calculateTotalAverageMarksForEachStudent(int [] totalMarks, int noOfSubjects)
  ```

  - The `calculateTotalAverageMarksForEachStudent` method takes the total marks of each student and the number of subjects on which they will be evaluated and returns the average mark of each student in an integer Array.

Responsibilities of the Analysis Team

- This team needs to assess the average marks per subject of the entire class of students.

- In order to do this, the calculations below need to be made on the data entered:

  - Calculate the average math marks of the entire class.

  - Calculate the average science marks of the entire class.

  - Calculate the average English marks of the entire class.

Tasks (cont'd)

- **Task 1**

  - Write the logic to calculate the average science mark inside the below method.

    ```
    public int calculateAverageScienceMarks (int[] science)
    ```

- **Task 2**

  - Write the logic to calculate the average english mark inside the below method.

    ```
    public int calculateAverageEnglishMarks (int[] english))
    ```

- **Task 3**

  - Write the logic to calculate the average math mark inside the below method.

    ```
    public int calculateAverageMathMarks (int[] math)
    ```

Tasks (cont'd)

In the main method

- Declare and initialize values to the math, science, English integer Arrays

```
int [] math = {88, 89, 100, 70, 60, 80, 35, 3, 25, 56};
int [] science = {80, 83, 99, 67, 56, 84, 38, 9, 32, 65};
int [] english = {90, 98, 100, 65, 54, 82, 40, 13, 45, 67};
```

- Declare and initialize values to a string Array that holds the student names

```
String[] studentNames = {"Michelle","Kate","Ann","Tina","Tom","Sam","Ria","Pam","Leena","Leo"};
```

- Declare and initialize values to an integer array that holds the roll numbers

```
int [] rollNos = {102,109,101,103,104,108,110,105,106,107};
```

- Create an object of the class OakBridgeSchool

```
OakBridgeSchool oakBridgeSchool = new OakBridgeSchool();
```

Tasks (cont'd)

- Call the method `calculateTotalMarks` and store the value returned in an integer variable.

- Call the method `calculateTotalAverageMarksForEachStudent` and store the value returned in an integer variable.

- Display the student's name, roll number, total marks and average marks for all the students as shown below

```
--------------------------------------------------------
Student Name :: Michelle || Roll Number :: 102

--------------------------------------------------------

The Total Marks    - 264/300
The Average Marks - 88

--------------------------------------------------------
```

- Display the average science, math and English marks scored by the entire grade 9

```
Average Science marks scored by the class is : 61
Average Math marks scored by the class is    : 60
Average English marks scored by the class is : 65
```