

Java Week 2:

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USN: 1BM23SC006

Question: Develop a Java program to create a class Student with members usn, name, an array credits and an array marks. Include methods to accept and display details and a method to calculate SGPA of a student.

Code:

```
import java.util.Scanner;
```

```
class Subject {
```

```
    int subjectMarks;
```

```
    int credits;
```

```
    int grade;
```

```
    void calculateGrade() {
```

```
        if (subjectMarks >= 90) {
```

```
            grade = 10;
```

```
        } else if (subjectMarks >= 80) {
```

```
            grade = 9;
```

```
        } else if (subjectMarks >= 70) {
```

```
            grade = 8;
```

```
        } else if (subjectMarks >= 60) {
```

```
            grade = 7;
```

```
        } else if (subjectMarks >= 50) {
```

```
            grade = 6;
```

```
        } else if (subjectMarks >= 40) {
```

```
            grade = 5;
```

```
    } else {  
        grade = 0; // Fail  
    }  
}  
}
```

```
class Student {  
    String usn;  
    String name;  
    double SGPA;  
    Subject[] subjects = new Subject[8];  
    Scanner scanner = new Scanner(System.in);
```

```
    Student() {  
        for (int i = 0; i < 8; i++) {  
            subjects[i] = new Subject();  
        }  
    }  
}
```

```
    void getStudentDetails() {  
        System.out.print("Enter the USN: ");  
        usn = scanner.next();  
        System.out.print("Enter the Name: ");  
        name = scanner.next();  
    }
```

```
    void getMarks() {  
        for (int i = 0; i < 8; i++) {  
            System.out.print("Enter marks for subject " + (i + 1) + ": ");  
            subjects[i].subjectMarks = scanner.nextInt();  
            System.out.print("Enter credits for subject " + (i + 1) + ": ");
```

```
        subjects[i].credits = scanner.nextInt();
        subjects[i].calculateGrade();
    }
}
```

```
void computeSGPA() {
    double effectiveScore = 0;
    int totalCredits = 0;

    for (int i = 0; i < 8; i++) {
        effectiveScore += (subjects[i].grade * subjects[i].credits);
        totalCredits += subjects[i].credits;
    }
    SGPA = (totalCredits > 0) ? (effectiveScore / totalCredits) : 0;
}
```

```
void display() {
    System.out.println("USN: " + usn);
    System.out.println("Name: " + name);
    System.out.println("SGPA: " + SGPA);
}
}
```

```
public class StudDetails {
    public static void main(String[] args) {
        System.out.println("aaryan prakash");
        Student[] students = new Student[3];

        for (int j = 0; j < 3; j++) {
            System.out.println("Enter the details for student " + (j + 1) + ":");
            students[j] = new Student();
        }
    }
}
```

```
        students[j].getStudentDetails();
        students[j].getMarks();
        students[j].computeSGPA();
    }

    for (int i=0;i<3;i++) {
        students[i].display();
    }
}
}
```

Output:

```
C:\Users\Admin>D:
D:\>cd 1BM23CS006
D:\1BM23CS006>javac StudDetails.java
D:\1BM23CS006>java StudDetails
aaryan prakash
Enter the details for student 1:
Enter the USN: 1BM23CS006
Enter the Name: Aaryan
Enter marks for subject 1: 98
Enter credits for subject 1: 4
Enter marks for subject 2: 91
Enter credits for subject 2: 4
Enter marks for subject 3: 78
Enter credits for subject 3: 3
Enter marks for subject 4: 89
Enter credits for subject 4: 3
Enter marks for subject 5: 98
Enter credits for subject 5: 3
Enter marks for subject 6: 71
Enter credits for subject 6: 1
Enter marks for subject 7: 81
Enter credits for subject 7: 1
Enter marks for subject 8: 99
Enter credits for subject 8: 1
```

```
Enter the details for student 2:  
Enter the USN: 1BM23CS003  
Enter the Name: Aaron  
Enter marks for subject 1: 94  
Enter credits for subject 1: 4  
Enter marks for subject 2: 99  
Enter credits for subject 2: 4  
Enter marks for subject 3: 93  
Enter credits for subject 3: 3  
Enter marks for subject 4: 97  
Enter credits for subject 4: 3  
Enter marks for subject 5: 81  
Enter credits for subject 5: 3  
Enter marks for subject 6: 99  
Enter credits for subject 6: 1  
Enter marks for subject 7: 99  
Enter credits for subject 7: 1  
Enter marks for subject 8: 99  
Enter credits for subject 8:  
1
```

```
Enter the details for student 3:  
Enter the USN: 1BM23CS016  
Enter the Name: Afreen  
Enter marks for subject 1: 97  
Enter credits for subject 1: 4  
Enter marks for subject 2: 82  
Enter credits for subject 2: 4  
Enter marks for subject 3: 91  
Enter credits for subject 3: 3  
Enter marks for subject 4: 93  
Enter credits for subject 4: 3  
Enter marks for subject 5: 85  
Enter credits for subject 5: 3  
Enter marks for subject 6: 89  
Enter credits for subject 6: 1  
Enter marks for subject 7: 91  
Enter credits for subject 7: 1  
Enter marks for subject 8: 99  
Enter credits for subject 8: 1
```

```
USN: 1BM23CS006  
Name: Aaryan  
SGPA: 9.4  
USN: 1BM23CS003  
Name: Aaron  
SGPA: 9.85  
USN: 1BM23CS016  
Name: Afreen  
SGPA: 9.6
```