

WEEK 2:

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.

Source Code:

```
import java.util.Scanner;
class Student {
    String usn;
    String name;
    int numSubjects;
    int[] credits;
    int[] marks;
    double sgpa;

    public void acceptDetails() {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter USN: ");
        usn = sc.nextLine();

        System.out.print("Enter Name: ");
        name = sc.nextLine();

        System.out.print("Enter the number of subjects: ");
        numSubjects = sc.nextInt();

        credits = new int[numSubjects];
        marks = new int[numSubjects];

        for (int i = 0; i < numSubjects; i++) {
            System.out.print("Enter credits for subject " + (i + 1) + ": ");
            credits[i] = sc.nextInt();

            System.out.print("Enter marks for subject " + (i + 1) + ": ");
            marks[i] = sc.nextInt();
        }
    }

    public void displayDetails() {
        System.out.println("\nStudent Details:");
    }
}
```

```
        System.out.println("USN: " + usn);
        System.out.println("Name: " + name);
        System.out.println("Subjects and Marks:");

        for (int i = 0; i < numSubjects; i++) {
            System.out.println("Subject " + (i + 1) + ": Marks = " + marks[i]
+ ", Credits = " + credits[i]);
        }
    }

    public void calculateSGPA() {
        int totalCredits = 0;
        int totalGradePoints = 0;

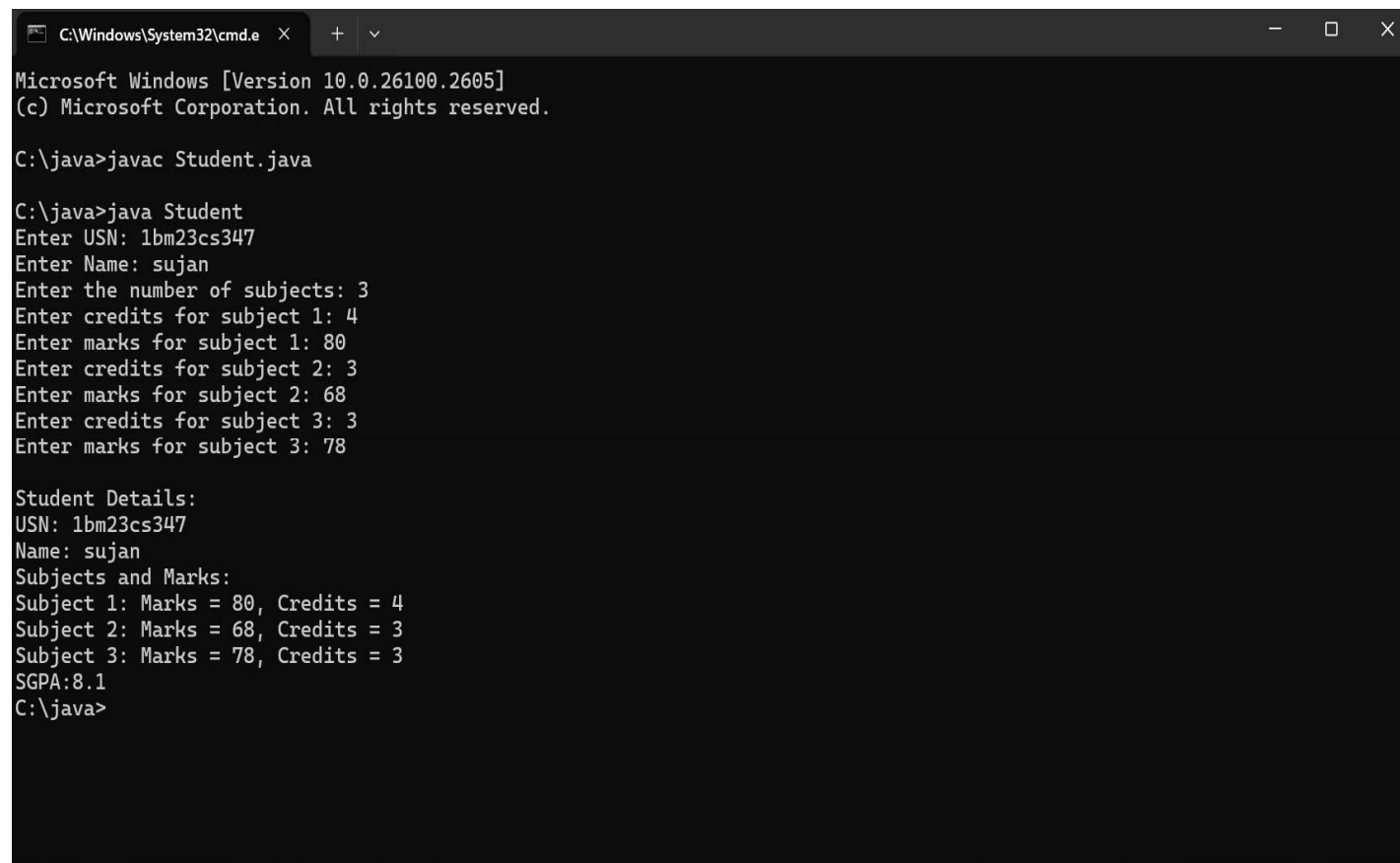
        for (int i = 0; i < numSubjects; i++) {
            int grade = calculateGrade(marks[i]);
            totalGradePoints += grade * credits[i];
            totalCredits += credits[i];
        }

        sgpa = (double) totalGradePoints / totalCredits;
    }
    private int calculateGrade(int marks) {
        if (marks >= 90) {
            return 10;
        } else if (marks >= 80) {
            return 9;
        } else if (marks >= 70) {
            return 8;
        } else if (marks >= 60) {
            return 7;
        } else if (marks >= 50) {
            return 6;
        } else if (marks >= 40) {
            return 5;
        } else {
            return 0;
        }
    }

    public void displaySGPA() {
        System.out.printf("SGPA:" + sgpa);
    }
}
```

```
public static void main(String[] args) {  
    Student student = new Student();  
    student.acceptDetails();  
    student.displayDetails();  
    student.calculateSGPA();  
    student.displaySGPA();  
}  
}
```

OUTPUT :



```
C:\Windows\System32\cmd.e  X + v  
Microsoft Windows [Version 10.0.26100.2605]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\java>javac Student.java  
  
C:\java>java Student  
Enter USN: 1bm23cs347  
Enter Name: sujan  
Enter the number of subjects: 3  
Enter credits for subject 1: 4  
Enter marks for subject 1: 80  
Enter credits for subject 2: 3  
Enter marks for subject 2: 68  
Enter credits for subject 3: 3  
Enter marks for subject 3: 78  
  
Student Details:  
USN: 1bm23cs347  
Name: sujan  
Subjects and Marks:  
Subject 1: Marks = 80, Credits = 4  
Subject 2: Marks = 68, Credits = 3  
Subject 3: Marks = 78, Credits = 3  
SGPA:8.1  
C:\java>
```

OBSERVATION:

Develop a Java prog. to create a class student with member
② CAPA: usn, name, credits array, grade points array, cal
SGPA.

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

```
class student
```

```
{
```

```
    private String usn;
```

```
    private String name;
```

```
    private int[] credits;
```

```
    private double[] marks;
```

```
    public student (int numSubjects)
```

```
    {
```

```
        credits = new int[numSubjects];
```

```
        marks = new double[numSubjects];
```

```
    }
```

```
    public void acceptDetails()
```

```
    {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.println("Enter usn");
```

```
        usn = sc.nextLine();
```

```
        System.out.println("Enter name");
```

```
        name = sc.nextLine();
```

```
        for (int i = 0; i < credits.length; i++)
```

```
        {
```

```
            System.out.print("Enter credits for Subject " + (i+1) + ": ");
```

```
            credits[i] = sc.nextInt();
```

```
            System.out.print("Enter grade points for Subject " + (i+1) + ": ");
```

```
            marks[i] = sc.nextDouble();
```

```
        }
```

```
    }
```

```

Public class n {
    Public void displayDetails()
    {
        System.out.println("usn:" + usn);
        System.out.println("Name" + name);
        for (int i = 0; i < credits.length; i++)
        {
            System.out.println("subject " + (i+1) + " - credits: " + credits[i] +
                ", grade points: " + marks[i]);
        }
    }
}

```

```

Public double calculateGpa()
{
    double totalPoints = 0;
    int totalCredits = 0;
    for (int i = 0; i < credits.length; i++)
    {
        totalPoints += (marks[i] * credits[i]);
        totalCredits += credits[i];
    }
    return totalPoints / totalCredits;
}
}

```

~~Public static mainSgpa.~~

```

Public static void main(Strings[] args)
{
    Scanner sc = new Scanner(System.in);

    System.out.println("Enter the no. of subjects");
    int numSubjects = sc.nextInt();

    Student student = new Student(numSubjects);
    student.acceptDetails();
}
}

```

```

System.out.println("Student Details");
Student.displayDetails();

double sgpa = student.calculateSgpa();
System.out.println("SGPA: " + sgpa);
sc.close();

```

OUTPUT:

```

Enter number of subjects: 2
Enter usn: 20
Enter name: ABC
Enter credits for subject 1: 2
Enter grade points for subject 1: 9
Enter credits for subject 2: 4
Enter grade points for subject 2: 7

```

Student details:

```

USN: 20
Name: ABC
Subject 1 - credits: 2, grade point: 9
Subject 2 - credits: 4, grade point: 7
SGPA = 7.66

```