LAB program 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.

CODE:

```
import java.util.Scanner;

class Student {

    String usn;
    String name;
    int numSubjects;
    int[] credits;
    int[] marks;


    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();

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

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

        System.out.println("Enter credits and marks for each subject: ");
        for (int i = 0; i < numSubjects; i++) {
            System.out.println("Subject " + (i + 1) + ": ");
            System.out.print("Credits: ");
            credits[i] = sc.nextInt();
            System.out.print("Marks: ");
            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("Credits and Marks:");

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


    public double calculateSGPA() {
        int totalCredits = 0;
        int weightedSum = 0;

        for (int i = 0; i < numSubjects; i++) {
            int gradePoint = getGradePoint(marks[i]);
            weightedSum += gradePoint * credits[i];
            totalCredits += credits[i];
        }

        return (double) weightedSum / totalCredits;
    }


    private int getGradePoint(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; // Fail grade
        }
    }
```

```
}

public class second{
    public static void main(String[] args) {

        Student student = new Student();
        student.acceptDetails();
            student.displayDetails();

        double sgpa = student.calculateSGPA();
        System.out.printf("SGPA: %.2f\n", sgpa);
    }
}
```

OUTPUT:

```
Enter USN:
1BM23CS324
Enter Name:
shrinanda
Enter number of subjects:
3
Enter credits and marks for each subject:
Subject 1:
Credits: 3
Marks: 70
Subject 2:
Credits: 4
Marks: 90
Subject 3:
Credits: 2
Marks: 99

Student Details:
USN: 1BM23CS324
Name: shrinanda
Credits and Marks:
Subject 1: Credits = 3, Marks = 70
Subject 2: Credits = 4, Marks = 90
Subject 3: Credits = 2, Marks = 99
SGPA: 9.33
PS E:\java lab>
```

OBSERVATION:

Lab program 2

SGPA calculator.

② Develop a Java program to create class student with USN name, an array credits and array marks. Include methods to accept and display details and method to calculate SGPA of a student.

```
Import java.util.Scanner;
class Student {
    String usn;
    String name;
    int noofSubjects;
    int[] credits;
    int[] marks;

    Public void acceptDetails() {
        Scanner sc = new Scanner(System.in);
        Sout("Enter USN");
        usn = sc.nextLine();
        Sout("Enter name");
        name = sc.nextLine();
        Sout("Enter number of subjects");
        no_ofSubjects = sc.nextInt();
        credits = new int[no_of subjects];
        marks = new int[no_of Subjects];
        Sout("Enter credits and marks for
              each Subject");
        for(int i=0; i < no_of Subjects; i++){
            Sout("Subject:");
            Sout("Credits :");
            credits[i] = sc.nextInt();
            Sout("Marks :");
            marks[i] = sc.nextInt();
    }  }
```

```
Public void display(){
        Sout("Student Details:");
        Sout("USN: "+ USN);
        Sout("Name: " + name);
        Sout("credit and Marks:");
        for(int i=1; i<=no_of students; i++){
            Sout("Subject "+(i)+ ": credits="+
                credits[i]+" Marks = "+marks[i]);
        }
    }

private int gradepoints(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 double calculateSGPA(){
    int totalcredits = 0;
    int Summation = 0;
    for(int i=0; i< noofSubjects ; i++){
        int gradepoint = getGradePoint(marks[i]);
        Sum += gradepoint * credits[i];
        totalcredits += credits[i];
    }
    return (double) Sum / totalcredits;
}
}

public class Main{
    Public Static void main(String[] args){
        Student student = new Student();
        Student.acceptDetails();
        Student.display();
        double sgpa = Student.calculateSGPA();
        Sout(sgpa);
    }
}
```

// output

Enter USN:

1BM23CS324

Enter Name:

Shrinanda

Enter number of subjects:

8

Enter credits and marks for each subject

credits : 4

marks : 95

credits : 4

marks : 97

credits : 3

marks : 91

credits : 3

marks : 87

credits : 3

marks : 86

credits : 1

marks : 91

credits : 1

marks : 95

credits : 1

marks : 99

Student Details :

USN : 1BM23CS324

Name : Shrinanda.

credits and Marks:

Subject 1: credits = 4 , Marks = 95
Subject 2: credits = 4 , Marks = 91
Subject 3: credits = 3 Marks = 91
Subject 4: credits = 3 Marks = 87
Subject 5: credits = 3 Marks = 86
Subject 6: credits = 1 Marks = 91
Subject 7: credits = 1 Marks = 95
Subject 8: credits = 1 Marks = 99

9.7

24/10/24