LAB PROGRAM 3

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.

```java
import java.util.Scanner;

class Student
{
  String usn,name;

  int[] credits,marks;


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

  System.out.println("Enter USN:");

  usn = sc.next();

  System.out.println("Enter Name:");

  name = sc.next();

  credits = new int[4];

  marks = new int[4];

  System.out.println("Enter the details of credits and marks in order for 4 subjects:");

  for(int i = 0; i < 4; i++)

  {

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

    credits[i] = sc.nextInt();

    System.out.println("Enter marks for Subject"+ (i+1) +":");

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

```java
    }
}
void display()
{
    System.out.println("Student Details:");
    System.out.println("USN:" + usn);
    System.out.println("Name:" + name);
    for(int i=0;i<4;i++)
    {
        System.out.println("Subject"+ (i+1) + "- Credits:" + credits[i] + ",Marks:" + marks[i]);
    }
}
double calc()
{
    int totalCredits = 0;
    double totalGradePoints = 0;
    for(int i=0;i<4;i++)
    {
        totalCredits += credits[i];
        totalGradePoints += gradePoints(marks[i])*credits[i];
    }
    return totalGradePoints/totalCredits;
}
int gradePoints(int marks)
{
    if (marks >= 90) return 10;
    else if (marks >= 80) return 9;
```

```java
    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;

  }

}

class SGPA

{

  public static void main(String[] args)

  {

    Scanner sc = new Scanner(System.in);

    System.out.println("Enter number of students:");

    int numStudents = sc.nextInt();

    Student student[] = new Student[numStudents];

    for(int i=0 ;i < numStudents; i++)

    {

      student[i] = new Student();

      student[i].acceptDetails();

      student[i].display();

      System.out.println("\n SGPA:" + student[i].calc());

    }

  }

}
```

OUTPUT :

```
Enter number of students:
2

--- Entering details for Student 1 ---
Enter USN:
1BM24CS300
Enter Name:
SURAJ
Enter the details of credits and marks in order for 4 subjects:
Enter credits for Subject 1:
4
Enter marks for Subject 1:
97
Enter credits for Subject 2:
3
Enter marks for Subject 2:
91
Enter credits for Subject 3:
3
Enter marks for Subject 3:
72
Enter credits for Subject 4:
1
Enter marks for Subject 4:
94
Student Details:
USN: 1BM24CS300
Name: SURAJ
Subject 1 - Credits: 4, Marks: 97
Subject 2 - Credits: 3, Marks: 91
Subject 3 - Credits: 3, Marks: 72
Subject 4 - Credits: 1, Marks: 94
SGPA: 9.45

--- Entering details for Student 2 ---
Enter USN:
1BM24CS297
Enter Name:
SUJAL
Enter the details of credits and marks in order for 4 subjects:
Enter credits for Subject 1:
4
Enter marks for Subject 1:
93
Enter credits for Subject 2:
3
Enter marks for Subject 2:
88
Enter credits for Subject 3:
1
Enter marks for Subject 3:
90
Enter credits for Subject 4:
1
Enter marks for Subject 4:
89
Student Details:
USN: 1BM24CS297
Name: SUJAL
Subject 1 - Credits: 4, Marks: 93
Subject 2 - Credits: 3, Marks: 88
Subject 3 - Credits: 1, Marks: 90
Subject 4 - Credits: 1, Marks: 89
SGPA: 9.56
```

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

    void acceptDetails ()
    {
        Scanner sc = new Scanner (System.in);
        System.out.println(" Enter USN: ");
        usn = sc.next();
        System.out.println (" Enter name: ");
        name = sc.next();
        credits = new int [4];
        marks = new int [4];
        System.out.println (" Enter details of
                            credits and marks in orde
                                for 4 subjects : ")
        for ( int i=0; i<4; i++)
        {
            System.out.println (" Enter credits
                        for subject " + (i+1) + ": ")
            credits [i] = sc.nextInt ();
            System.out.println (" Enter marks
                        for subject " + (i+1) + ":
            marks [i] = sc.nextInt ();
        }
    }
```

```java
void display ()
{
    System.out.println (" Student Details :");
    System.out.println (" USN : " + usn);
    System.out.println ("Name :" + name);
    for (int i = 0 ; i < 4 ; i++)
    {
        System.out.println ("subject " + (i+i)
            + " - Credits : " + credits [i] +
            ", Marks : " + marks [i]);
    }
}

double Calc ()
{
    int totalCredits = 0;
    double totalGradePoints = 0;
    for (int i = 0; i < 4 ; i++)
    {
        totalCredits += credits [i];
        totalGradePoints += gradePoints
                            (marks [i])
                            * credits [i];
    }
    return totalGradePoints / totalCredits;
}
```

```java
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;
}
}

class SGPA
{
    public static void main (String [] args)
    {
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter number of
                            Students : ");
        int numStudents = sc.nextInt();
        Student student [] = new Student
                            [numStudents];
        for (int i=0; i< numStudents ; i++)
        {
            Student [i] = new Student ();
            Student [i].acceptDetails ();
            Student [i].display ();
            System.out.println (" \n SGPA : "
                            + student [i].calc());
        }
    }
}
```

O/P :-

Enter number of students :
1

Student Details :
Enter USN :
1BM24CS300
Enter Name :
SURAJ
Enter Details of credits & marks in ord
for 4 Subjects :
Enter credits for subject 1 :
4
Enter marks for subject 1 :
97
Enter credits for subject 2 :
3
Enter marks for subject 2 :
91
Enter Credits for Subject 3 :
3
Enter marks for subject 3 :
72
Enter Credits for subject 4 :
1
Enter marks for subject 4 :
94
Student Details :
USN : 1BM24CS300
Name : SURAJ

Subject 1 - Credits - 4 , Marks : 97
Subject 2 - Credits - 3 , Marks : 91
Subject 3 - Credits - 3 , Marks : 72
Subject 4 - Credits : 1 , Marks : qu
SGPA : 9.45