

Lab 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.

```
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;

}

}

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++)~~

for (int i=0; i<8; i++) {

subjects[i] = new Subject();

}

void getStudentDetails {

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

usn = scanner.next();

System.out.println("Enter 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();  
        subject[i].calculateGrade();  
    }  
}
```

```
void calculateSGPA() {  
    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 = effectiveScore / totalCredits;  
}
```

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

```
class StudDetails {  
    public static void main (String [] args) {  
        Student [] students = new Student [3];  
        for (int i=0; i<3; i++) {  
            System.out.println("Enter Student details:");  
            students [i] = new Student ();  
            students [i].getStudentDetails ();  
            students [i].getMarks ();  
            students [i].calculate SGPA ();  
        }  
        for (int i=0; i<3; i++) {  
            students [i].display ();  
        }  
    }  
}
```

}

Scanned
execute

Output

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

→ USN: 1BM23CS006

Name: Aaryan

SGPA: 9.4

o/p Seen
GK
16/10/24