1. 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 & CGPA of a student.
NOTE: Add Semester 1 & Semester 2 marks of all subjects and compute SGPA and CGPA

```
import java.util.*;

class Student {
   String usn;
   String name;
   int[] creditSM1, creditSM2;
   int[] marksSM1, marksSM2;

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

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

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

       System.out.println("Enter number of subjects in SEM1: ");
       int n1 = sc.nextInt();

       creditSM1 = new int[n1];
       marksSM1 = new int[n1];

       System.out.println("Enter credits and marks for SEM1: ");
       for (int i = 0; i < n1; i++) {
           System.out.println("Credits for subject " + (i + 1) + ": ");
           creditSM1[i] = sc.nextInt();

           System.out.println("Marks for subject " + (i + 1) + ": ");
           marksSM1[i] = sc.nextInt();
       }

       System.out.println("Enter number of subjects in SEM2: ");
       int n2 = sc.nextInt();
```

```
        creditSM2 = new int[n2];
        marksSM2 = new int[n2];

        System.out.println("Enter credits and marks for SEM2: ");
        for (int j = 0; j < n2; j++) {
            System.out.println("Credits for subject " + (j + 1) + ": ");
            creditSM2[j] = sc.nextInt();

            System.out.println("Marks for subject " + (j + 1) + ": ");
            marksSM2[j] = sc.nextInt();
        }

        sc.close();
    }

    public void calculateAndDisplaySGPAandCGPA() {
        double sgpa1 = calculateSGPA(creditSM1, marksSM1);
        double sgpa2 = calculateSGPA(creditSM2, marksSM2);
        double cgpa = (sgpa1 + sgpa2) / 2;

        System.out.println("SGPA 1: " + sgpa1);
        System.out.println("SGPA 2: " + sgpa2);
        System.out.println("CGPA: " + cgpa);
    }

    public double calculateSGPA(int[] credits, int[] marks) {
        int totalCredits = 0;
        double weightedSum = 0;

        for (int i = 0; i < credits.length; i++) {
            totalCredits += credits[i];
            weightedSum += credits[i] * calculateGradePoint(marks[i]);
        }

        return weightedSum / totalCredits;
    }

    public int calculateGradePoint(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 MainStudent {
    public static void main(String[] args) {
        Student student = new Student();
        student.acceptDetails();
        student.calculateAndDisplaySGPAandCGPA();
    }
}
Enter USN:
1WA23CS015
Name:
TARUN
Enter number of subjects in SEM1:
3
Enter credits and marks for SEM1:
Credits for subject 1:
4
Marks for subject 1:
80
Credits for subject 2:
4
Marks for subject 2:
80
Credits for subject 3:
4
Marks for subject 3:
80
Enter number of subjects in SEM2:
3
Enter credits and marks for SEM2:
Credits for subject 1:
4
Marks for subject 1:
80
Credits for subject 2:
3
Marks for subject 2:
```

```
90
Credits for subject 3:
4
Marks for subject 3:
70
SGPA 1: 9.0
SGPA 2: 8.909090909090908
CGPA: 8.954545454545453
```

```
2. Create a class Book which contains four members: name, author, price, num_pages.
Include a
constructor to set the values for the members. Include methods to set and get the
details of the
objects. Display the complete details of the book. Develop a Java program to create n
book
objects.
NOTE: 1: Use normal display method
2: Use Override toString method
Eg: public String toString() {Write code to display data }


import java.util.*;

class Book {
   String name;
   String author;
   double price;
   int pages;

   void setDetails(String name, String author, double price, int pages) {
       this.name = name;
       this.author = author;
       this.price = price;
       this.pages = pages;
   }

   void displayDetails() {
       System.out.println("Book name: " + name);
       System.out.println("Book author: " + author);
       System.out.println("Book price: " + price);
```

```
        System.out.println("Book pages: " + pages);
    }
}

public class MBook {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Number of books: ");
        int n = sc.nextInt();
        sc.nextLine();

        Book[] book = new Book[n];

        for (int i = 0; i < n; i++) {
            book[i] = new Book();

            System.out.println("Name of book: ");
            String name = sc.nextLine();

            System.out.println("Book author: ");
            String author = sc.nextLine();

            System.out.println("Book price: ");
            double price = sc.nextDouble();

            System.out.println("Book pages: ");
            int pages = sc.nextInt();
            sc.nextLine();
            book[i].setDetails(name, author, price, pages);
        }

        System.out.println("Book Details:");

        for (Book books : book) {
            books.displayDetails();
            System.out.println();
        }

        sc.close();
    }
}
Number of books:
```

```
2
Name of book:
ANNA
Book author:
HAZARE
Book price:
150
Book pages:
500
Name of book:
ROCK
Book author:
DWAYNE
Book price:
200
Book pages:
400
Book Details:
Book name: ANNA
Book author: HAZARE
Book price: 150.0
Book pages: 500

Book name: ROCK
Book author: DWAYNE
Book price: 200.0
Book pages: 400
```