Lab Objects & Classes

Exercice 1:

Write in java a class called Student. The Student class will have four data members: name (a string),   age (an int), semesterNo (an int), and GPA (a float).

Write a java program to test your Student class. Your program should:
Create three Student objects; enter their name, age, semesterNo (any value from 1 to 8), and GPA and display the data for each Student. Continuing the Student class, calculate and display the average GPA of the three Students.

Student
+ name : String + age : int + semesterNo: int + GPA: float

```java
public class Student {
      public String name;
      public int age;
      public int semesterNo;
      public float GPA;
}
```

```java
public class Main {

    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        float avgGPA;
        Scanner input=new Scanner(System.in);
        Student s1,s2,s3;
        s1=new Student();
        s2=new Student();
        s3=new Student();
        System.out.println("For First Student");
        System.out.println("Enter Name:");
        s1.name=input.next();
        System.out.println("Enter Age:");
        s1.age=input.nextInt();
        System.out.println("Enter Semester No:");
        s1.semesterNo=input.nextInt();
        System.out.println("Enter GPA:");
        s1.GPA=input.nextFloat();

        System.out.println("For Second Student");
        System.out.println("Enter Name:");
        s2.name=input.next();
        System.out.println("Enter Age:");
        s2.age=input.nextInt();
        System.out.println("Enter Semester No:");
        s2.semesterNo=input.nextInt();
        System.out.println("Enter GPA:");
        s2.GPA=input.nextFloat();


        System.out.println("For Third Student");
        System.out.println("Enter Name:");
        s3.name=input.next();
        System.out.println("Enter Age:");
        s3.age=input.nextInt();
        System.out.println("Enter Semester No:");
        s3.semesterNo=input.nextInt();
        System.out.println("Enter GPA:");
        s3.GPA=input.nextFloat();

        System.out.println("Displaying Data for All Students");

        System.out.println("First Student Data");
        System.out.println("Name: "+s1.name+"  Age: "+s1.age+"
SemesterNo: "+s1.semesterNo+" GPA: "+s1.GPA);


        System.out.println("Second Student Data");
        System.out.println("Name: "+s2.name+"  Age: "+s2.age+"
SemesterNo: "+s2.semesterNo+" GPA: "+s2.GPA);

        System.out.println("Third Student Data");
```

```java
            System.out.println("Name: "+s3.name+"  Age: "+s3.age+"
SemesterNo: "+s3.semesterNo+" GPA: "+s3.GPA);

            avgGPA=(s1.GPA+s2.GPA+s3.GPA)/3;

            System.out.println("Average GPA is "+avgGPA);

        }
}
```

Exercise 2:

Write a java class called Distance. The Distance class will have three data members: kilometres (a double), meters (a double), and centimetres (a float). Remember that there are 100 centimetres in one meter and 1000 meters in one kilometres.

Write a java program to test your Distance class. Your program should:
Create three Distance objects dist1, dist2 and dist3, prompt the user to enter values for the Distance objects in kilometres. Calculate the distance in meters and centimetres and store them in the attributes of the corresponding objects then display distance in meters and centimetres. Display the total distance in meters after adding all three distances.

Distance
+ kilometres: float + meters : float + centimetres: float

```java
public class Distance {

     public float kilomeres;
     public float meters;
     public float centimetres;

}
```

```java
import java.util.Scanner;

public class Main {

	/**
	 * @param args
	 */


	public static void main(String[] args) {
		// TODO Auto-generated method stub
		float totalDist;
		Scanner input=new Scanner(System.in);
		Distance dist1,dist2,dist3;
		dist1=new Distance();
		dist2=new Distance();
		dist3=new Distance();


		System.out.println("For First Distance Object");
		System.out.println("Enter Distance in kilometres:");
		dist1.kilomeres=input.nextFloat();
		dist1.meters=dist1.kilomeres*1000;
		dist1.centimetres=dist1.kilomeres*1000*100;
		System.out.println("Distance in meters is "+dist1.meters);
		System.out.println("Distance in centimetres is
"+dist1.centimetres);


		System.out.println("For Second Distance Object");
		System.out.println("Enter Distance in kilometres:");
		dist2.kilomeres=input.nextFloat();
		dist2.meters=dist2.kilomeres*1000;
		dist2.centimetres=dist2.kilomeres*1000*100;
		System.out.println("Distance in meters is "+dist2.meters);
		System.out.println("Distance in centimetres is
"+dist2.centimetres);


		System.out.println("For Third Distance Object");
		System.out.println("Enter Distance in kilometres:");
		dist3.kilomeres=input.nextFloat();
		dist3.meters=dist3.kilomeres*1000;
		dist3.centimetres=dist3.kilomeres*1000*100;
		System.out.println("Distance in meters is "+dist3.meters);
		System.out.println("Distance in centimetres is
"+dist3.centimetres);

		totalDist=dist1.meters+dist2.meters+dist3.meters;
		System.out.println("Total Distance in meters is
"+totalDist);



		}
}
```