Lab Program-6

Q) Create a package CCE which has two classes - Student & Internals. The class Student has members like usn, name, sem. The class ~~Student decorators~~ Internals derived from student has an array that stores the internal marks stored in five courses of the current semester of the student. Create another package SEE which has the class External which is a derived class of Student. This class has an array that stores the SEE marks scored in five courses of the current semester of the student. Import the two packages in a file that declares the final marks of n students e in all five courses.

Source Code

CIE | Student.java

```
package CIE;
import java.util.Scanner;


public class Student {
    protected String usn;
    protected String name;
    protected int sem;

    public void inputStudentDetails () {
        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 semester: ");
        sem = sc.nextInt ();
    }
}
```

```java
    public void displayStudentDetails(){
        System.out.println("USN: " + usn);
        System.out.println("Name: " + name);
        System.out.println("Semester: " + sem);
    }
}
```

CIE / Internals.java

```java
package CIE;
import java.util.Scanner;
public class Internals extends Student{
    protected int[] internalMarks = new int[5];
    public void inputCIEmarks(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Internal Marks for 5 subjects:");
        for (int i=0; i<5; i++)
        {
            System.out.println("Subject " + (i+1) + ":");
            internalMarks[i] = sc.nextInt();
        }
    }
}
```

SEE / Externals.java

```java
package SEE;
import CIE.Internals;
import java.util.Scanner;
public class Externals extends Internals(){
    protected int[] seeMarks = new int[5];
    protected int[] finalMarks = new int[5];
```

```java
public void input SEEmarks (){
    Scanner sc = new Scanner (System.in);
    System.out.println("Enter SEE marks for 5 subjects: ");
    for (int i=0; i<5; i++) {
        System.out.println ("Subject " + (i+1) + ": ");
        seeMarks [i] = sc.nextInt();
    }
}

public void calculateFinalMarks () {
    for (int i=0; i<5; i++) {
        finalMarks [i] = internalMarks (i) + seeMarks [i];
    }
}

public void displayFinalMarks () {
    displayStudentDetails ();
    System.out.println ("Final Marks for 5 subjects: ");
    for (int i=0; i<5; i++) {
        System.out.println ("Subject " + (i+1) + ": " + finalMarks[i]);
    }
}
```

```java
import java.util.Scanner;
import SEE.Externals;
class Main {
    public static void main (String [] args) {
        Scanner sc = new Scanner (System.in);
        System.out.print ("Enter number of students: ");
        int n = sc.nextInt ();
        Externals [] student = new Externals [n];
```

```
        for (int i=0; i< n; i++) {
            System.out.println ("\n Enter details for student " +(i+1)+ ":");
            students [i] = new Externals ();
            students [i]. inputStudentDetails ();
            students [i]. input CIEmarks ();
            students [i]. input SEEmarks ();
            students [i]. calculateFinalMarks ();
        }
        System.out.println ("\nFinal Marks of Students: ");
        for (int i=0; i < n; i++) {
            System.out.println ("\n Student " + (i+1) + ":");
            students [i]. display FinalMarks ();
        }
    }
}
```

Output

Enter number of students: 1
Enter USN: IBM23CS003
Enter Name: Aaron
Enter Semester: 3
Enter Internal Marks for 5 subject:
Subject 1: 45
Subject2: 46
Subject3: 47
subject 4: 48
Subject 5: 49
Enter SEE Marks for 5 subjects:
Subject1: 45
Subject 2: 46
Subject 3: 47

Subject 4: 48
Subject 5: 49

Final Marks of Students:

Student 1:
USN: 1BM23CS003
Name: Aaron
Semester: 3
Final Marks for 5 subjects:
Subject 1: 90
Subject 2: 92
Subject 3: 94
Subject 4: 96
Subject 5: 98

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