8 Create a package CIE which has two classes - student and Internals. The class student has members like usn, name, sem. The class Internals derived from student has an array that stores the internal marks scored 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 in all five courses.

PROGRAM:

Inside CIE folder

Internals.java:

```
Package CIE;
import java.util.Scanner;
public class Internals extends Student {
    protected int marks[] = new int [5];
    public Internals () {
        // constructor for Internals
    }

    public void inputCIEmarks () {
```

```
Scanner scanner = new Scanner(System.in);
System.out.println("Enter Internal Marks for " + name);
for(int i=0; i<5; i++){
    System.out.print("Subject " + (i+1) + " marks: ");
    marks[i] = scanner.nextInt();
}
}
}
```

student.java

```
import java.util.Scanner;
public class Student {
    protected String usn = new String();
    protected String name = new String();
    protected int sem;

public void inputStudentDetails(){
    Scanner scanner = new Scanner(System.in);
    System.out.print("Enter USN: ");
    usn = Scanner.next();
    System.out.println("Enter Name: ");
    name = scanner.next();
    System.out.print("Enter Semester: ");
    sem = scanner.nextInt();
}

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

```
        System.out.println("Semester: " + sem);
    }
}
```

Externals.java

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

public class Externals extends Internals {
    protected int marks[];
    protected int finalMarks[];

    public Externals() {
        marks = new int[5];
        finalMarks = new int[5];
    }

    public void inputSEEmarks() {
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter SEE marks for " + name);
        for (int i = 0; i < 5; i++) {
            System.out.print("Subject " + (i + 1) + " marks: ");
            marks[i] = scanner.nextInt();
        }
    }

    public void calculateFinalMarks() {
        for (int i = 0; i < 5; i++)
            finalMarks[i] = marks[i] / 2 + super.marks[i];
    }
}
```

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

Main.Java:

```
import SEE.Externals;
public class Main {
    public static void main(String args[]) {
        int numOfStudents = 2;
        Externals finalMarks[] = new Externals[numOfStudents];
        for (int i = 0; i < numOfStudents; i++) {
            finalMarks[i] = new Externals();
            finalMarks[i].inputStudentDetails();
            System.out.println("Enter CIE marks");
            finalMarks[i].inputCIEmarks();
            System.out.println("Enter SEE marks");
            finalMarks[i].inputSEEmarks();
        }
        System.out.println("Displaying data:\n");
        for (int i = 0; i < numOfStudents; i++) {
            finalMarks[i].calculateFinalMarks();
            finalMarks[i].displayFinalMarks();
        }
    }
}
```

Output :-

Enter USN : 111

Enter Name : soh

Enter Semester : 2

Enter CIE marks

Enter Internal Marks for soh

Subject 1 marks : 222

Subject 2 marks : 211

Subject 3 marks : 44

Subject 4 marks : 33

Subject 5 marks : 2

Enter SEE marks

Enter SEE marks for soh

Subject 1 marks : 111

Subject 2 marks : 3

Subject 3 marks : 3

Subject 4 marks : 3

Subject 5 marks : 3

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