```
package CIE;

import java.util.Scanner;

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

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


package CIE;

import java.util.Scanner;

public class Internals extends Student {
   protected int[] marks = new int[5];

   public void inputCIEmarks() {
      Scanner scanner = new Scanner(System.in);
      System.out.println("Enter Internal marks for 5 courses:");
for (int i = 0; i < 5; i++) {
         System.out.print("Enter marks for Course " + (i + 1) + ": ");
marks[i] = scanner.nextInt();
      }
   }
   public void displayCIEmarks() {
      System.out.println("Internal Marks for 5 courses:");
for (int i = 0; i < 5; i++) {
         System.out.println("Course " + (i + 1) + ": " + marks[i]);
      }
   }
}
package SEE;
```

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

public class Externals extends Internals {
protected int[] externalMarks = new int[5];
   protected int[] finalMarks = new int[5];


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

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


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

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

```
import SEE.Externals;
import java.util.Scanner;

public class Main {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter the number of students: ");
      int n = scanner.nextInt();
```

```
        Externals[] students = new Externals[n];
for (int i = 0; i < n; i++) {
            students[i] = new Externals();

            System.out.println("Enter details for student " + (i + 1));
students[i].inputStudentDetails();
students[i].inputCIEmarks();
students[i].inputSEEmarks();
            students[i].calculateFinalMarks();
        }
        for(int i=0; i<n; i++){
             students[i].displayFinalMarks();
             System.out.println();
        }
    }
}
```

```
C:\Users\Admin\Documents\23cs310\lab6 packages>java Main.java
Enter the number of students: 1
Enter details for student 1
Enter USN: 1bm23cs310
Enter Name: joey
Enter Semester: 3
Enter Internal marks for 5 courses:
Enter marks for Course 1: 45
Enter marks for Course 2: 35
Enter marks for Course 3: 42
Enter marks for Course 4: 26
Enter marks for Course 5: 39
Enter External marks for 5 courses:
Enter marks for Course 1: 50
Enter marks for Course 2: 43
Enter marks for Course 3: 20
Enter marks for Course 4: 38
Enter marks for Course 5: 41
USN: 1bm23cs310
Name: joey
Semester: 3
Internal Marks for 5 courses:
Course 1: 45
Course 2: 35
Course 3: 42
Course 4: 26
Course 5: 39
Final Marks (Internal + External) for 5 courses:
Course 1: 95
Course 2: 78
Course 3: 62
Course 4: 64
Course 5: 80
```

PROGRAM 6

Create a package CIE which has two classes - Student and Internals. The class Personal has members like usn, name, sem. The class internals has an array that stores the internal marks scored in 5 courses of the current sem of the student. Create another package SEE which has the external class which is a derived class of Student. The class has an array that stores SEE marks scored in the 5 courses of the current sem of the student. Import the 2 packages in a file that declares the final marks of a student in all 5 courses.

```
package CIE;

import java.util.Scanner;

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

public void inputStudentDetails(){
        Scanner scanner = new Scanner(System.in);
        S.O.P("Enter USN");
        usn = scanner.nextLine();
        S.O.P("Enter name:");
        name = scanner.nextLine();
        S.O.P("Enter semester:");
        sem = scanner.nextInt();
    }
    public void displayStudentDetails(){
        S.O.P("USN:" +usn);
        S.O.P("Name:" +name);
        S.O.P("Semester:" +sem);
    }
}

package CIE;

import java.util.Scanner;

public class Internals extends Student{
    protected int[] marks = new int[5];

    public void inputCIEmarks(){
        Scanner scanner = new Scanner(System.in);
        S.O.P("Enter Internal marks for 5 courses:");
        for(int i=0; i<5; i++){
            S.O.P("Enter marks for course" +(i+1)+":");
            marks[i] = scanner.nextInt();
        }
    }

    public void displayCIEmarks(){
        S.O.P("Internal marks for 5 courses");
        for(int i=0; i<5; i++){
            S.O.P("course" +(i+1)+ ":" + marks[i]);
        }
    }
}
```

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```
package SEE;

import CIE.Internals;
import java.util.Scanner;

public class Externals extends Internals{
        protected int[] externalMarks = new int[5];
        protected int[] finalMarks = new int[5];

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

    public void inputSEEmarks(){
        Scanner scanner = new Scanner(System.in);
        S.O.P("Enter marks for course" + (i+1) + ":");
        externalMarks[i] = scanner.nextInt();
      }
    }

public void calculateFinalMarks(){
    for(int i = 0; i<5; i++){
        S.O.P("Enter marks for course" + (i+1) + ":");
        externalMarks[i] = scanner.nextInt();
      }
    }

public void displayFinalMarks(){
    displayStudentDetails();
    displayCIEmarks();
```

```
    S.O.P("Final marks (Internal + External) for 5 courses:");
    for(int i = 0; i<5; i++){
        S.O.P("Course" + (i+1) + ":" + finalMarks[i]);
    }
}
}

import SEE.Externals;
import java.util.scanner;

public class Main{
        PSVM(String[] args){
        Scanner scanner = new Scanner(System.in);
        S.O.P("Enter the no. of students:");
        int n = scanner.nextInt();

    Externals[] students = new Externals[n];

    for(int i=0; i<n; i++){
        students[i] = new Externals();

    S.O.P("Enter details for student" + (i+1));
        Students[i].inputStudentDetails();
        Students[i].inputCIEMarks();
        students[i].inputSEEMarks();
        students[i].calculateFinalMarks();
      }
    for(int i=0; i<n; i++){
            Students[i].displayFinalMarks();
            S.O.P();
        }
    }
```

Output

Enter the no of students: 1
Enter the details for student:
Enter USN: 1BH23CS318
Enter Name: Shreya
Enter Semester: 3
Enter Internal marks for 5 courses:
Enter marks for course 1: 50
course 2: 50
course 3: 49
course 4: 50
course 5: 50

Enter external marks for 5 courses:
Enter marks for course 1: 50
course 2: 50
course 3: 50
course 4: 49
course 5: 48

Final marks (Internal + External) for 5 courses:
Course 1: 100
course 2: 100
course 3: 99
course 4: 99
course 5: 98