```
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 VI

Q. Create a package CIE which has two classes Student and Internals. The class internals 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.

```
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]);
        }
    }
}
```

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

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

public class Main {
    public static void main (String[] args) {
        Scanner scanner = new Scanner
                          (System.in);
        S.O.p("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();

            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 number of students : 2

Enter details for student 1
Enter USN: 1bm23cs310
Enter Name : joey
Enter Semester : 3
Enter Internal marks for 5 courses:
Enter marks for course1 : 45
                course2 : 35
                course3 : 40
                course4 : 26
                course5 : 39
Enter External marks for 5 courses:
Enter marks for course1 : 50
                course2 : 43
                course3 : 20
                course4 : 38
                course5 : 41

USN : 1bm23cs310
Name : joey
Semester 3

Internal Marks for 5 courses:
course1 : 45
course2 : 35
course3 : 40
course4 : 26
course5 : 39

Final marks (Internal + External) for 5 courses
course1 95
course2 78
course3 60
course4 64
course5 80
```