WEEK 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 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.

Source Code :

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

public class Studentmarks {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter number of students: ");
        int n = scanner.nextInt();
        scanner.nextLine();


        Internals[] cieStudents = new Internals[n];
        External[] seeStudents = new External[n];


        for (int i = 0; i < n; i++) {

            System.out.println("Enter details for CIE Student " + (i + 1) + ":
");
            System.out.print("USN: ");
            String usn = scanner.nextLine();
            System.out.print("Name: ");
            String name = scanner.nextLine();
            System.out.print("Semester: ");
            int sem = scanner.nextInt();
            int[] internalMarks = new int[5];
            System.out.println("Enter internal marks for 5 courses: ");
            for (int j = 0; j < 5; j++) {
                internalMarks[j] = scanner.nextInt();
```

```
            }
            cieStudents[i] = new Internals(usn, name, sem, internalMarks);
            scanner.nextLine();


            System.out.println("Enter details for SEE Student " + (i + 1) + ":
");
            System.out.print("USN: ");
            usn = scanner.nextLine();
            System.out.print("Name: ");
            name = scanner.nextLine();
            System.out.print("Semester: ");
            sem = scanner.nextInt();
            int[] externalMarks = new int[5];
            System.out.println("Enter external marks for 5 courses: ");
            for (int j = 0; j < 5; j++) {
                externalMarks[j] = scanner.nextInt();
            }
            seeStudents[i] = new External(usn, name, sem, externalMarks);
            scanner.nextLine();
        }


        System.out.println("\nFinal Marks for all students:");

        for (int i = 0; i < n; i++) {

            cieStudents[i].displayStudentDetails();
            cieStudents[i].displayInternalMarks();


            seeStudents[i].displayStudentDetails();
            seeStudents[i].displayExternalMarks();


            int[] internalMarks = cieStudents[i].getInternalMarks();
            int[] externalMarks = seeStudents[i].getExternalMarks();
            int[] finalMarks = new int[5];

            for (int j = 0; j < 5; j++) {
                finalMarks[j] = internalMarks[j] + externalMarks[j];
            }


            System.out.print("Final Marks: ");
```

```
            for (int mark : finalMarks) {
                System.out.print(mark + " ");
            }
            System.out.println("\n");
        }

        scanner.close();
    }
}
```

```
package CIE;

public class Internals extends Student {

    private int[] internalMarks = new int[5];


    public Internals(String usn, String name, int sem, int[] internalMarks) {
        super(usn, name, sem); // Call parent constructor
        this.internalMarks = internalMarks;
    }


    public void displayInternalMarks() {
        System.out.print("Internal Marks: ");
        for (int mark : internalMarks) {
            System.out.print(mark + " ");
        }
        System.out.println();
    }


    public int[] getInternalMarks() {
        return internalMarks;
    }
}
```

```
package CIE;

public class Student {

    protected String usn;
    protected String name;
```

```
    protected int sem;

    public Student(String usn, String name, int sem) {
        this.usn = usn;
        this.name = name;
        this.sem = sem;
    }


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

```
package SEE;

import CIE.Student;

public class External extends Student {
    private int[] externalMarks = new int[5];

    public External(String usn, String name, int sem, int[] externalMarks) {
        super(usn, name, sem);
        this.externalMarks = externalMarks;
    }

    public void displayExternalMarks() {
        System.out.print("External Marks: ");
        for (int mark : externalMarks) {
            System.out.print(mark + " ");
        }
        System.out.println();
    }

    public int[] getExternalMarks() {
        return externalMarks;
    }
}
```

Output :

```
Enter number of students: 2
Enter details for CIE Student 1:
USN: 1
Name: sagar
Semester: 2
Enter internal marks for 5 courses:
38 40 41 45 46
Enter details for SEE Student 1:
USN: 1
Name: sagar
Semester: 2
Enter external marks for 5 courses:
39 42 45 50 48
Enter details for CIE Student 2:
USN: 2
Name: chetan
Semester: 3
Enter internal marks for 5 courses:
40 44 46 47 50
Enter details for SEE Student 2:
USN: 2
Name: chetan
Semester: 3
Enter external marks for 5 courses:
40 44 46 47 50

Final Marks for all students:
USN: 1, Name: sagar, Semester: 2
Internal Marks: 38 40 41 45 46
USN: 1, Name: sagar, Semester: 2
External Marks: 39 42 45 50 48
Final Marks: 77 82 86 95 94

USN: 2, Name: chetan, Semester: 3
Internal Marks: 40 44 46 47 50
USN: 2, Name: chetan, Semester: 3
External Marks: 40 44 46 47 50
Final Marks: 80 88 92 94 100
```

OBSERVATION:

⑥ Create a Package cie having two classes - student & Internals, the class Personal has member like usn, name, sem. 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 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.

```
as class student
{
    Public int usn;
    Public string name;
    public int sem;
    int[] imarks = new int[5];

    Public student(int usn, string name, int sem)
    {
        this.usn = usn;
        this.name = name;
        this.sem = sem;
    }
    Public void show()
    {
        System.out.println("usn:"+usn+"\t"+"Name"+name+" "+"sem"+sem);
    }

Package cie;

class Internal extends student
{
    int[] imark = new int[5];
    Public Internal(int usn, string name, int sem, int[] imark)
    {
        super(usn, name, same);
        this.imark = imark;
    }
}
```

```
Package SEE;
import cie.student;

Public class external extends Student
{
 Public int smark[] = new int[5];

 Public external (int usn, String name, int sem, int[] smark)
  {
   super(usn,name,sem);
   this.smark = smark;
  }
 }

import cie.Internals;
import see.Externals;
import java.util.Scanners;

Public class test
{ Public static void main(String xx[])
 {
  Scanner sc = new Scanner (System.in)
  int[] cmark = new int[5];
  int emark = new int[5];
  System.out.println("Enter number of students");
  int n = sc.nextInt();
  for(int k=0 ; k<n; k++)
  { System.out.println("Enter usn, name, sem");
   int usn = sc.nextInt();
   String name = sc.next();
   int sem = sc.nextInt();
  System.out.println("Enter 5 subjects mark in internal")
  for(int i=0; i<5 ; i++)
   { cmark[i] = nextInt();
   }
  System.out.println("Enter see marks of 5 subject");
   for(int i=0; i<5; i++)
    { emark[i] = next Int();
    }
```

```
Internal i1 = new Internal(usn, name, sem, marks);
External e1 = new External(usn, name, sem, marks);
System.out.println("Details");
for(int i=0; i<5; i++)
{
    System.out.println("Total marks of student");
    e1.show();
    System.out.println(i1.imarks[i] + e1.smarks[i]);
}
}
}
```

OUTPUT:

```
Enter no of students
1
Enter usn, name, sem
21
Rohit
3
Enter 5 subject marks of Internals
38
37
30
35
39
Enter see marks of 5 subjects.
78
89
96
98
60
Details
USN: 21  name: Rohit  sem: 3
Total marks of subject
77
81
78
83
63
```