

Program 6

Create a package CIE which has two classes - Personal 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 Personal. 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.

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Q. Create a package CIE which has two classes - Personal 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 Personal. 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.

```
import java.util.Scanner;  
import cie.Student;  
import cie.Internals;  
import see.Externals;  
  
class Demo  
{  
    static int n;  
    static Internals in[] = new Internals[n];  
    static Externals e[] = new Externals[n];  
  
    public static void dispdetails()  
    {  
        for (int i = 0; i < n; i++)  
        {  
            e[i].sdisp();  
            in[i].disp();  
            e[i].disp();  
        }  
    }  
}
```

```
public static void compute ()
{
    for (int i=0; i<n; i++)
    {
        e[i] = new External();
        in[i] = new Internal();
        e[i].getd();
        in[i].getd();
        e[i].getd();
        for (int j=0; j<5; j++)
        {
            e[i].finals[j] = e[i].markarray[j] + in[i].
                markarray[j];
        }
    }
}
```

```
public static void main (String args [])
{
    Scanner sc = new Scanner (System.in);
    System.out.println ("Enter no of students : ");
    n = sc.nextInt();
    compute();
    System.out.println ("Displaying all Student details : ");
    dispdetails();
}
```



```
package cic;
```

```
import java.util.Scanner;
```

```
public class student
```

```
{
```

```
    String usn;
```

```
    String name;
```

```
    int sem;
```

```
    int finals [] = new int [5];
```

```
    public void getd ()
```

```
    {
```

```
        Scanner sc = new Scanner (System.in);
```

```
        System.out.print ("Enter usn : ");
```

```
        usn usn = sc.next ();
```

```
        System.out.print ("Enter Name : ");
```

```
        name = sc.next ();
```

```
        System.out.print ("Enter Sem : ");
```

```
        sem = sc.nextInt ();
```

```
    }
```

```
    public void disp ()
```

```
    {
```

```
        System.out.println ("usn : " + usn);
```

```
        System.out.println ("Name : " + name);
```

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

```
    }
```

```
}
```

```
package cie;
```

```
import java.util.Scanner;
```

```
public class Internals
```

```
{
```

```
    int markarray [] = new int [5];
```

```
    public void getd()
```

```
    {
```

```
        System.out.print("Enter Internal Marks out of 50: ");
```

```
        for (int i = 0; i < 5; i++)
```

```
        {
```

```
            System.out.print("Enter Marks for subject " + (i+1) + ": ");
```

```
            markarray[i] = sc.next();
```

```
            System.out.print("\n");
```

```
        }
```

```
    }
```

```
    public void disp()
```

```
    {
```

```
        System.out.print("Internal Marks out of 50: ");
```

```
        for (int i = 0; i < 5; i++)
```

```
        {
```

```
            System.out.print("Marks for subject " + (i+1) + ": "
```

```
            + markarray[i]);
```

```
            System.out.print("\n");
```

```
        }
```

```
    }
```

```
}
```



```
package see;
import java.util.Scanner;
import cie.Student;

public class External extends Student
{
    int markarray [5] = new int [5];
    public External ()
    {
        super ();
    }

    public void sgeta ()
    {
        super.getd ();
    }

    public void sdisp ()
    {
        super.disp ();
    }

    public void geta ()
    {
        Scanner sc = new Scanner (System.in);
        for (int i = 0; i < 5; i++)
        {
            System.out.print ("Enter Marks for subject " + (i+1) + " ");
            markarray [i] = sc.nextInt ();
            System.out.print ("\n");
        }
    }

    public void disp ()
    {
        Scanner sc = new Scanner (System.in);
    }
```

```

System.out.print("External Marks out of 50: ");
for (int i=0; i<5; i++)
{
    System.out.println("Marks for Subject " + (i+1) + " : "
        + markarray[i]);
    System.out.print("\n");
}
}
}

```

Output

Enter USN: 1BM23CS001

Enter Name: Alice Singh

Enter Semester: 3

Enter Internal Marks for 5 courses:

18

20

17

19

16

Enter SEE Marks for 5 courses:

60

55

10

65

50

Student Final Marks:

USN: 1BM23CS001

Name: Alice Singh

Semester: 3

Course-wise Marks:

Course 1: Final Marks = 78 (Internal: 18, SEE: 60)

Course 2: Final Marks = 75 (Internal: 20, SEE: 55)

Course 3: Final Marks = 87 (Internal: 17, SEE: 70)

Course 4: Final Marks = 84 (Internal: 19, SEE: 65)

Course 5: Final Marks = 66 (Internal: 16, SEE: 50)

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```
package CIE;

public class Student {
    private String usn;
    private String name;
    private int sem;
    public Student(String usn, String name, int sem) {
        this.usn = usn;
        this.name = name;
        this.sem = sem;
    }
    public String getUsn() {
        return usn;
    }
    public String getName() {
        return name;
    }
    public int getSem() {
        return sem;
    }
}
```

```
package CIE;

public class Internals {
    private int[] internalMarks;
    public Internals() {
        internalMarks = new int[5];
    }
    public void setInternalMarks(int[] marks) {
        if (marks.length == 5) {
            this.internalMarks = marks;
        } else {
```

```

        System.out.println("Error: Marks should be for 5 courses.");
    }
}

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

package SEE;

import CIE.Student;

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

    public External(String usn, String name, int sem) {
        super(usn, name, sem);
        externalMarks = new int[5];
    }

    public void setExternalMarks(int[] marks) {
        if (marks.length == 5) {
            this.externalMarks = marks;
        } else {
            System.out.println("Error: Marks should be for 5 courses.");
        }
    }

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

    public int[] getFinalMarks(int[] internalMarks) {
        int[] finalMarks = new int[5];
        for (int i = 0; i < 5; i++) {
            finalMarks[i] = internalMarks[i] + externalMarks[i];
        }
    }
}

```



```

        return finalMarks;
    }
}

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

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter number of students: ");
        int n = scanner.nextInt();
        External[] externalStudents = new External[n];
        Internals[] internalMarks = new Internals[n];
        for (int i = 0; i < n; i++) {
            scanner.nextLine();
            System.out.print("\nEnter USN for student " + (i + 1) + ": ");
            String usn = scanner.nextLine();
            System.out.print("Enter name for student " + (i + 1) + ": ");
            String name = scanner.nextLine();
            System.out.print("Enter semester for student " + (i + 1) + ": ");
            int sem = scanner.nextInt();

            externalStudents[i] = new External(usn, name, sem);

            internalMarks[i] = new Internals();
            int[] internalMarksArray = new int[5];
            System.out.println("Enter internal marks for 5 courses: ");
            for (int j = 0; j < 5; j++) {

```

```

        internalMarksArray[j] = scanner.nextInt();
    }
    internalMarks[i].setInternalMarks(internalMarksArray);

    int[] externalMarksArray = new int[5];
    System.out.println("Enter external marks for 5 courses: ");
    for (int j = 0; j < 5; j++) {
        externalMarksArray[j] = scanner.nextInt();
    }
    externalStudents[i].setExternalMarks(externalMarksArray);
}
System.out.println("\nFinal Marks for Students:");
for (int i = 0; i < n; i++) {
    System.out.println("\nStudent " + (i + 1) + ": " + externalStudents[i].getName() + " ("
+ externalStudents[i].getUsn() + ")");
    int[] finalMarks =
externalStudents[i].getFinalMarks(internalMarks[i].getInternalMarks());
    System.out.println("Semester: " + externalStudents[i].getSem());
    System.out.println("Final Marks: ");
    for (int j = 0; j < 5; j++) {
        System.out.println("Course " + (j + 1) + ": " + finalMarks[j]);
    }
}
scanner.close();
}
}

```

```
D:\24BMSCE>java Main
Enter number of students: 1

Enter USN for student 1: 11234
Enter name for student 1: anupriyaa
Enter semester for student 1: 3
Enter internal marks for 5 courses:
21
22
23
24
25
Enter external marks for 5 courses:
89
90
91
92
93

Final Marks for Students:

Student 1: anupriyaa (11234)
Semester: 3
Final Marks:
Course 1: 110
Course 2: 112
Course 3: 114
Course 4: 116
Course 5: 118
```