

23.01.24

Lab Program (6):

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 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.

// student.java

```
package CIE;
import java.util.Scanner;
public class student
{
    protected String usn = new String();
    protected String name = new String();
    protected int sem;
    public void inputStudentDetails()
    {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the usn ");
        usn = s.nextLine();
```

```

System.out.println("Enter the student name");
name = s.nextLine();
System.out.println("Enter the semester");
sem = s.nextInt();
}

public void display Student Details()
{
    System.out.println("USN = " + usn);
    System.out.println("Student name = " +
        name);
    System.out.println("Semester = " + sem);
}
}

```

// ~~Internals.java~~

```

package CIE;
import CIE.Student;
import java.util.Scanner;
public class Internals extends Student
{
    protected int marks[] = new int[5];
    public void input CIE marks()
    {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the marks of
            each subject");
        for(int i = 0; i < 5; i++)
            marks[i] = s.nextInt();
    }
}
}

```


Externals.java

```
package SEE;
import cic.Internals;
import java.util.Scanner;
public class Externals extends Internals
{
    protected int marks [7];
    protected int finalMarks [7];
    public Externals ()
    {
        marks = new int [5];
        finalMarks = new int [5];
    }
    public void inputSEEmarks ()
    {
        Scanner s = new Scanner(System.in);
        for (int i = 0; i < 5; i++)
        {
            System.out.print("Subject " + (i+1) + "
            marks: ");
            marks [i] = s.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 Sec.Externals;
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 the usn

18A122CS197

Enter the student name

Ajay

Enter the semester

3.

Enter CIE Marks.

Enter the marks of each subject

48

46

45

49

50

Enter SEE Marks.

subject 1 marks : 46

subject 2 marks : 43

subject 3 marks : 48

subject 4 marks : 49

subject 5 marks : 44

Enter the usn

18A122CS198

Enter the student name

Ram

Enter the semester

3

Enter CIE Marks

Enter the marks of each subject

44

49

48

47

43

Enter SEE marks

Subject 1 Marks: 49

Subject 2 Marks: 47

Subject 3 Marks: 45

Subject 4 Marks: 46

Subject 5 Marks: 42

~~Subject 6 Marks~~

Displaying data:

~~USN = 18M22CS198~~

~~Student name = Ajay~~

~~Semester = 3~~

~~Subject 1: 71~~

~~Subject 2: 67~~

~~Subject 3: 69~~

~~Subject 4: 73~~

~~Subject 5: 72~~

USN = 18M22CS198

Student name = Ram

Semester = 3

Subject 1: 93

Subject 2: 96

~~Subject 3: 88~~

~~Subject 4: 83~~

~~Subject 5: 85~~

[Signature]
23/01/24