

22/01/24

LAB -

Create a package called Maths having the class called Number (add and subtract methods). Implement a single class called MathDemo to use Maths (outside package Maths) that makes use of classes provided by Maths.

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 exams 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 5 exams of the current semester of the student. Import the two packages in a file that declares final marks of a student in all 5 exams.

// Student.java

```
package CIE;
import java.util.*;
public class Student
{
```

```
    protected String usn = new String();
    protected String name = new String();
    protected int sem;
```

```
    public void main(String args[])
```

```
    public void inputStudentDetails()
    {
```

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

```
        System.out.println("Enter student USN");
```

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

```
        System.out.println("Enter student name");
```

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

```
System.out.println (" Enter semester ");  
sem = sc.nextInt ();
```

```
public void displayStudentDetails ()
```

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

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

```
    System.out.println (" Student semester : " + sem);  
}
```

```
// Internals.java
```

```
package CIE ;
```

```
import java.util.* ;
```

```
public class Internals extends Student
```

```
{  
    protected int marks [] = new int (5) ;
```

```
    public void inputCIEMarks ()
```

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

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

```
{
```

```
            System.out.println (" Enter 5 subject marks ") ;
```

```
            marks [i] = sc.nextInt ();  
        }  
    }  
}
```



```
// External.java
```

```
package SEET;
```

```
import CIE.Internals;
```

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

```
public class External extends Internals
```

```
{
```

```
    protected int marks[];
```

```
    protected int finalMarks[];
```

```
    public External()
```

```
{
```

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

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

```
}
```

```
    public void inputSEEMarks()
```

```
{
```

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

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

```
{
```

```
            System.out.println("Subject " + (i+1) + " marks: ");
```

```
            marks[i] = sc.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 SEE.External

class Main

public static void main (String args[])

{
int numofStudents = 2 ;

External finalMarks [] = new External [numofStudents];

for (int i = 0; i < numofStudents ; i++)

{

~~finalMarks[i].inputCEmarks();~~

finalMarks[i] = new External ();

finalMarks[i].inputStudentDetails();

System.out.println ("Enter CE marks");

finalMarks[i].inputCEmarks();

System.out.println ("Enter SEE marks");

finalMarks[i].inputSEEmarks();

}

System.out.println ("Displaying data : \n");

for (int i = 0; i < numofStudents ; i++)

{

finalMarks[i].calculateFinalMark();

finalMarks[i].displayFinalMarks();

}

}

}

OUTPUT

Enter student um

IBM22CS239

Enter student name

Sanjana

Enter student semester

3

Enter CIE marks

Enter 5 marks : 39

Enter 5 marks : 38

Enter 5 marks : 26

Enter 5 marks : 40

Enter 5 marks : 36

Enter SEE marks

Subject 1 marks : 78

Subject 2 marks : 89

Subject 3 marks : 90

Subject 4 marks : 87

Subject 5 marks : 92

Enter student um

IBM22CS240

Enter student name

Sarvi

Enter student semester

3

Enter CIE marks

Enter 5 marks : 39

Enter 5 marks : 38

Enter 5 marks : 30

Enter 5 marks : 30

SANJANA SURESH

IBM22CS239

Enter 5 marks : 25.

Enter PE marks

Subject 1 marks : 56

Subject 2 marks : 78

Subject 3 marks : 89

Subject 4 marks : 90

Subject 5 marks : 92

Displaying data —

Student name : Sanjana

Student ID : IBM22CS239

Student semester : 3

Subject 1 : 78

Subject 2 : 82

Subject 3 : 71

Subject 4 : 83

Subject 5 : 82

Student name : Sanjana

Student ID : IBM22CS240

Student semester : 3

Subject 1 : 58

Subject 2 : 77

Subject 3 : 80

Subject 4 : 70

Subject 5 : 80

SANJANA SURESH
IBM22CS239

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