

Lab-7

23/1/24

- Q) ^{Create} Design a package for called maths having a class called number (add and subtract) method. Implement a simple class maths demo. to use maths (outside package maths) that makes use of class which is provided by maths.
- Q) Create a package AE 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 5 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 5 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 sc = new Scanner(System.in);
```

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

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

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

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

```
        System.out.println("Enter semester:");
```

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

```
    }
```

```
    public void DisplayStudentDetails() {
```

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

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

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

```
    }
```

```
}
```

llinternals.java

package CIE;

import java.util.Scanner;

public class internals extends student{

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

public void inputCIEmarks(){

Scanner sc = new Scanner(System.in);

System.out.println("Enter Internal marks
for: " + name);

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

{

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

marks[i] = sc.nextInt();

}

}

}


```
External.java
```

```
Package SEE;
```

```
import CIE.internals;
```

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

```
public class external extends internals {
```

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

```
    protected int finalmarks[];
```

```
    public external() {
```

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

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

```
    }
```

```
    public void inputSEemarks() {
```

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

```
        System.out.println("Enter SEE marks" + name);
```

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

```
        {
```

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

```
            marks[i] = sc 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]);  
    }  
}
```

// finalmarks.java

```
import SEE.external;
```

```
public class finalmarks {
```

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

```
        int numofstudents = 2;  
        external finalMarks[] = new  
            external [numofstudents];
```

```
        for (int i=0; i< numofstudents; i++)  
        {
```

```
            finalmarks[i] = new external();  
            finalmarks[i].inputStudentDetails();  
            System.out.println ("Enter CIE marks");  
            finalmarks[i].inputCIE marks();
```

```
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 USN: 12

Enter name: Shreya

Enter Sem: 3

Enter CIE marks

Enter Internal marks for Shreya

Subject 1 marks: 33

Subject 2 marks: 23

Subject 3 marks: 22

Subject 4 marks: 33

Subject 5 marks: 11

Enter SEE marks for Shreya

Subject 1 marks: 89

Subject 2 marks: 90

Subject 3 marks: 99

Subject 4 marks: 88

Subject 5 marks: 89

Enter USN: 22

Enter Name: Praneeta

Enter sem: 3

Enter CIE marks for Praneeta:

Subject 1 marks: 34

Subject 2 marks: 22

Subject 3 marks: 34

Subject 4 marks: 45

Subject 5 marks: 22

Enter SEE marks for praneeta:

Subject 1 marks: 78

Subject 2 marks: 8

Subject 3 marks: 89

Subject 4 marks: 90

Subject 5 marks: 99

Displaying data:

USN: 12

Name: Shreya

Semester: 3

Subject 1: 67

Subject 2: 78

Subject 3: 71

Subject 4: 77

Subject 5: 55

USN: 22

Name: Praneeta

Semester: 3

Subject 1: 73

Subject 2: 26

Subject 3: 78

Subject 4: 90

Subject 5: 71

A.
23/01/24