LAB-07

1)

a) Create a package 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.

b) 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 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.

```java
// 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);
        }
    }
```

```java
// internals.java.
package CIE;
import Java.util.Scanner;

public class internals extends Students
{
    protected int marks[] = new int[5];
    public void input CIE marks (){

        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 internal;
import java.util.Scanner;

public class external extends internals
{
    protected int marks[];
    protected int final marks[];

    public external(){
        marks = new int[5];
        finalmarks = new int[5];
    }

    public void input SEE marks(){
        Scanner sc = new Scanner(System.in);
        System.out.println(" Enter SEE marks"
            + nam);
        for(int i=0; i<5; i++)
        {
            System.out.println("Subject"+ (i+1)+
                        "marks:");
            marks[i] = sc.nextInt();
        }
    }
}
```

```java
    public void calculate Finalmarks(){
        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 (numof
                        Students);
```

```java
for(int i=0; i< num of Students; i++)
{
    finalmarks[i] = new external();
    finalmarks[i] = input Student Details();
    System.out.println(" Enter CIE marks");
    finalmarks[i]. input CIE marks();
    System.out.println(" Enter SEE marks");
    finalmarks[i]. input SEE marks();
}

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

for(int i=0; i< num of Students; i++)
{
    final marks[i]. Calculate final marks();
    final marks[i]. display finalmarks();
}
}
}
```

Output:

Enter USN : 12
Enter name : Shree
Enter Sem : 3
Enter CIE marks
Enter Internal marks for shree
Subject 1 marks: 11
Subject 2 marks: 22
Subject 3 marks: 33
Subject 4 marks: 12
Subject 5 marks: 23
Enter SEE marks for Shree
Subject 1 marks: 90
Subject 2 marks: 91
Subject 3 marks: 92
Subject 4 marks: 93
Subject 5 marks: 94

Enter USN: 63
Enter name: Varma
Enter Sem: 3
Enter CIE marks
Enter Internal marks for varma
Subject 1 marks: 25
Subject 2 marks: 24
Subject 3 marks: 40
Subject 4 marks: 38
Subject 5 marks: 23

Enter SEE marks for varma:
Subject 1 marks: 786
Subject 2 marks: 81
Subject 3 marks: 89
Subject 4 marks: 8390
Subject 5 marks: 8499

Displaying data:

USN: 12
Name: Shree
Semester: 3
Subject 1: 67
Subject 2: 78
Subject 3: 71
Subject 4: 77
Subject 5: 55

USN: 63
Name: Varma
Semester: 3
Subject 1: 73
Subject 2: 26
Subject 3: 78
Subject 4: 90
Subject 5: 71

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