Page No.
Date. / /

23/1/24

Q 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 current semester of student. Create another package SEE which has class External which is a derived class of Student. This class has an array that stores the SEE marks scored in 5 courses of current Semester of the student. Import 2 packages in a file that declares the final marks of n students in all 5 courses.

A
```
// Student java file
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.print("Enter USN: ");
        usn = s.next();
        System.out.println("Enter name: ");
        name = s.next();
        System.out.println("Enter Semester");
        sem = s.nextInt();
    }
```

Page No.
Date. / /

```
public void displayStudentDetails()
{
System.out.println("USN:" + USN);
System.out.println("Name:" + name);
System.out.println("Semester:" + sem);
}
}

// Internals java file
package CIE;
import java.util.Scanner;
public class Internals extends Student
{
  protected int marks[] = new int[5];
  public Internals(){
  public void inputCIEMarks()
  {
    Scanner s = new Scanner(System.in);
    System.out.println("Enter internal marks for " + name);
    for(int i=0; i<5; i++)
    {
      System.out.print("Subject " + (i+1) + " Marks: ");
      marks[i] = s.nextInt();
    }
  }
}
```

// Externals java file

```
package SEE;
import CIE.Internals;
import java.util.Scanner;
public class Externals extends Internals
{
  protected int marks[];
  protected int finalMarks[];
  public Externals()
  {
    marks = new int[5];
    finalMarks = new int[5];
  }

public void inputSEEMarks()
{
  Scanner s = new Scanner(System.in);
  System.out.println("Enter SEE marks for " + name);
  for(int i=0; i<5; i++)
  {
    System.out.println("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 file
import SEE.External;
public 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] = new External[];
   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();
 }
}
```

Page No.
Date. / /

Output:

Enter USN: 1
Enter Name: A
Enter Semester: 3
Enter CIE Marks:
Enter internal Marks for A
Subject 1 Marks: 50
Subject 2 Marks: 50
Subject 3 Marks: 40
Subject 4 Marks: 50
Subject 5 Marks: 40
Enter SEE marks for A
Subject 1 Marks: 90
Subject 2 Marks: 92
Subject 3 Marks: 94
Subject 4 Marks: 96
Subject 5 marks: 98

Enter USN: 2
Enter Name: B
Enter Semester: 3
Enter CIE Marks:
Enter internal Marks for B
Subject 1 Marks: 33
Subject 2 Marks: 36
Subject 3 Marks: 23
Subject 4 Marks: 27
Subject 5 Marks: 40

Page No.
Date. / /

Enter SEE marks for B
Subject 1 Marks : 89
Subject 2 Marks : 90
Subject 3 Marks : 98
Subject 4 Marks : 92
Subject 5 Marks : 90

Displaying data:
USN: 1
Name: A
Semester: 3
Subject1: 95
Subject2: 96
Subject3: 87
Subject4: 98
Subject5: 89

USN: 2
Name: B
Semester: 3
Subject1: 77
Subject2: 81
Subject3: 72
Subject4: 73
Subject5: 85

(Sayeed P. Pandit)
(1BM22CS241)

X X X X

Oct 24 2024