23/01/24

Lab program - 6   Tuesday

1) Create a package CIE which has two classes - Student and Internals. The class Student has members like name, usn, 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 a derived class of Student. This class has an array that stores the SEE marks stored 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.

→ 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 the usn");
usn = sc.next();
System.out.println("Enter the name");
name = sc.next();
System.out.println("Enter the semester");
sem = sc.nextInt(); }
public void displayStudentDetails() {
System.out.println("Usn -- " + usn);
System.out.print("Name -- " + name);
System.out.println("Semester -- " + sem);
}

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

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);
for (int i=0; i<5; i++) {
        System.out.println("Subject "+ (i+1) + "marks: ");
        marks[i] = s.nextInt();        }}
```

```java
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]);
    }}}
import SEE.externals;
class Main{
public static void main (string args[])
{
    int numofStudents = 2;
    Externals finalMarks[] = new Externals[num ofstudents];
    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 date :\n");
    for (int i=0; i<numofStudents; i++)
    {
        finalMarks[i].CalculatefinalMarks();
        finalMarks[i].displayfinalMarks();
    }// end of for loop
```

} // end of public main
} end of class main

Output

Enter the ~~usn~~ usn
1ABC123
Enter the name
John Doe
Enter the semester
3

Enter **CIE** marks
Enter the marks of subject 1 : 80
Enter the marks of subject 2 : 75
Enter the marks of subject 3 : 90
Enter the marks of subject 4 : 85
Enter the marks of subject 5 : 88
Enter SEE marks
Subject 1 marks : 85
Subject 2 marks : 82
Subject 3 marks : 78
Subject 4 marks : 90
Subject 5 marks : 88

Enter the usn
2XYZ456

Enter the name
Jane Doe
Enter the semester
3

Enter CIE marks
Enter the marks of subject1 : 75
Enter the marks of subject2 : 80
Enter the marks of subject3 : 92
Enter the marks of subject4 : 88
Enter the marks of subject5 : 85
Enter SEE marks
Subject 1 marks : 88
Subject 2 marks : 90
Subject 3 marks : 75
Subject 4 marks : 82
Subject 5 marks : 98
Displaying data:
Usn - - 1ABC123
Name - - John Doe
Semester - - 3
Subject1 : 102
Subject 2 : 108
Subject 3 : 120
Subject 4 : 127
Subject 5 : 128
Usn - - 2XYZ466
Name - - Jane Doe
Semester - - 3
Subject 1 : 109
Subject 2 : 116
Subject 3 : 167
Subject 4 : 170
Subject 5 : 163

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