

- Q. Create a package CIE which has two classes Student and Internal. The class Student has members like USN, name, iden. The class Internal derived from Student has an array that stores the internal marks scored in five courses of 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 scored 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 scanner = new Scanner(System.in);
        System.out.print("Enter USN: ");
        USN = scanner.next();
        System.out.print("Enter name: ");
        name = scanner.next();
        System.out.print("Enter semester: ");
        sem = scanner.nextInt();
    }
```

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



// Internals.java

package CIE;

import java.util.Scanner;

public class Internals extends Student {  
 protected int marks[] = new int[5];

~~public Internals() {~~

public void inputCIEmarks() {

Scanner scanner = 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] = scanner.nextInt();

// Externals.java

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 scanner = new Scanner(System.in);
    System.out.println("Enter SEE marks for " + name);
    for (int i = 0; i < 5; i++) {
        System.out.print("Subject " + (i+1) + " marks: ");
        marks[i] = scanner.nextInt();
    }
}
```

```
public void calculateFinalMarks() {
    for (int i = 0; i < 5; i++) {
        finalMarks[i] = (marks[i] / 2) + (examMarks[i] / 2);
    }
}
```

```
public void displayFinalMarks() {
    for (int i = 0; i < 5; i++) {
        System.out.println("Subject " + (i+1) + " : "
            + finalMarks[i]);
    }
}
```

```
main
```

```
//Main.java
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 SEE marks");
        }
    }
}
```



```

    FinalMarks[i], inputCSEmarks();
    System.out.println("Enter SEE marks");
    FinalMarks[i], inputSEEmarks();
}
System.out.println("Displaying data:");
for (int i = 0; i < numofStudents; i++) {
    FinalMarks[i], calculateFinalMarks();
    FinalMarks[i], displayFinalMarks();
}
}

```

## Output

Enter UN: 1BM22CS224

Enter name: Shruti B

Enter semester: 3

Enter CSE marks

Enter Internal marks for Shruti

Subject 1 marks: 40

Subject 2 marks: 35

Subject 3 marks: 42

Subject 4 marks: 38

Subject 5 marks: 45

Enter UN: 1BM22CS223

Enter name: Shreyash

Enter semester: 3

Enter CSE marks

Enter Internal marks for Shreyash

Subject 1 marks: 36

Subject 2 marks: 48

Enter SEE marks

Enter SEE marks for Shruti

Subject 1 marks: 75

Subject 2 " : 80

Subject 3 " : 65

" 4 " : 80

" 5 " : 85



subject 3 marks : 60  
subject 4 marks : 42  
subject 5 marks : 55

Enter SEE marks

Enter SEE marks for shruyash

subject 1 marks : 80  
subject 2 marks : 72  
subject 3 marks : 85  
subject 4 marks : 78  
subject 5 marks : 90

Displaying data :

USN : IBM220224

Name : Shrutti

Semester : 3

subject 1 : 87  
subject 2 : 75  
subject 3 : 74  
subject 4 : 78  
subject 5 : 87

USN : IBM220224

Name : Shruyash

Semester : 3

subject 1 : 98  
subject 2 : 84  
subject 3 : 92  
subject 4 : 81  
subject 5 : 100