

Lab 6

23/01/24/2. abstract classed and interface

// Student.java

```
package CIE;
import java.util.Scanner;

public class Student {
    protected String usn = new String("20210123");
    protected String name = new String("John");
    protected int sem;

    void inputStudentDetails() {
        Scanner s = new Scanner(System.in);
        usn = s.next(); name = s.next(); sem = s.nextInt();
    }
}
```

Student()

```
String
Student(String usn, String name, int sem) {
    this.usn = usn; this.name = name; this.sem = sem;
}
```

// Internals.java

```
import java.util.Scanner;
package CIE;
```

{ } abstract class Project { }

```
public class Internals extends Student {  
    protected int[] marks = new int[5];  
    String name; String usn; int sem;  
    void InputCIEDetails() {  
        Scanner s = new Scanner(System.in);  
        System.out.println("Enter Internals marks in  
        5 subjects");  
        for (int i=0; i<5; i++) {  
            System.out.println("Subject " + (i+1));  
            marks[i] = s.nextInt();  
        }  
    }  
    Internals() {  
    }  
    Internals(String usn, String name, int sem,  
    int marks[]) {  
        Super(usn, name, usn);  
        for (int i=0; i<5; i++) {  
            this.marks[i] = marks[i];  
        }  
    }  
    void displayStudentDetails() {
```

```
System.out.println ("Name: " + this.name + "\n"
                    "USN: " + this.usn + "\n"
                    "Sem: " + this.sem);
System.out.println ("Marks: ");
for (int i=0; i<5; i++){
    System.out.println ("Subject " +(i+1) + ": "
                        + marks[i]);
}
```

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

public void setInputSETmark() {String two = "2";}

System.out.println("Enter SEE marks for 5 subjects");

for (int i=0; i<5; i++) { if (j > i) o = i - r[i] } }

marks[i] = s.nextInt();

{

}

```
public void calcFinalMarks() {
```

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

Final Marks = marks[1]/2 + Super_marks[1].

3

```
public void displayFinalMarks() {
```

display StudentDetails();

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

System.out.println("Subject "+
(it)+": "+finalsMarks(i));

3

3

3

```
// main.java  
import SEE.Externals;  
import java.util.Scanner;  
  
class main {  
    public static void main (String args[]) {  
        Scanner s = new Scanner (System.in);  
        int n;  
        System.out.println ("Enter number of  
        students :");  
        n = s.nextInt();  
        External finalMarks[] = new External[n];  
        for (int i=0; i<n; i++) {  
            finalMarks[i] = new External();  
            finalMarks[i].inputStudentDetails();  
            finalMarks[i].inputCIEDetails();  
            finalMarks[i].inputSEEMarks();  
        }  
        System.out.println ("Final details :");  
        for (int i=0; i<n; i++) {  
            finalMarks[i].calFinalMarks();  
            finalMarks[i].displayFinalmarks();  
        }  
    }  
}
```

" Output

Number of students : 2

Enter usn: 238

Enter name: Sarjana

Semester: 3

Enter CGE marks:

(Subject 1: 22, min= 20, max= 25)

Subject 2: 27

Subject 3: 34

Subject 4: 37

Subject 5: 36

Enter SEE marks:

(Subject 1: 90, min= 70, max= 100)

Subject 1: 90

Subject 2: 92

Subject 3: 86

Subject 4: 95

Subject 5: 83

Displaying data -

Name : Sanjana

U.S.N : 238

Semester : 3

Subject 1 : 78

Subject 2 : 82

Subject 3 : 71

Subject 4 : 84

Subject 5 : 83