CIE Student.java

```
package CIE;

public class Student {
    public String usn;
    public String name;
    public int sem;

    public Student() {
    }

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

    public void displayDetails() {
        System.out.println("USN:"+usn);
        System.out.println("Name:"+ name);
        System.out.println("Sem:"+sem);
    }
}
```

CIE Internals.java

```
package CIE;

import java.util.Scanner;
```

```
public class Internals extends Student {
    public int imarks[] = new int[5];
    Scanner sc = new Scanner(System.in);

    public void setMarks() {
        for(int i=0;i<5;i++) {
            imarks[i] = sc.nextInt();
        }
    }

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

SEE External.java

```
package SEE;

import java.util.Scanner;

public class External extends CIE.Student {
    public int emarks[] = new int[5];
    Scanner sc = new Scanner(System.in);

    public void setEmarks() {
        for(int i=0;i<5;i++) {
            emarks[i] = sc.nextInt();
```

```
        }
    }

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

Main Program □

```
import CIE.Student;
import CIE.Internals;
import SEE.External;
import java.util.Scanner;

public class Main {
    public static void main (String args []) {
        // Variable declarations for the number of students, semester, name, and USN.
        int n, sem;
        String name, usn;

        System.out.println("Enter number of students:");
        // Scanner initialization. It is important to create the scanner here
        // since the input methods on Internal and External classes also use it.
        Scanner sc = new Scanner(System.in);
        n = sc.nextInt();
        // Consume the newline character left after nextInt()
        sc.nextLine();
```

```
// Array declarations to hold 'n' instances of each class
Student stds[] = new Student[n];
Internals i[] = new Internals[n];
External e[] = new External[n];

// --- Input Loop: Get details and marks for each student ---
for (int j=0; j<n; j++) {
   System.out.println("\nEnter Details of Student " + (j+1) + ":");

   System.out.print("Name: ");
   name = sc.nextLine();

   System.out.print("USN: ");
   usn = sc.nextLine();

   System.out.print("Enter Semester: ");
   sem = sc.nextInt();

   // Consume the newline character left after nextInt()
   sc.nextLine();

   // Initialize Student object with details
   stds[j] = new Student(usn, name, sem);

   // Initialize Internals and External mark objects
   i[j] = new Internals();
   e[j] = new External();
```

```
    System.out.println("Enter internal marks (5 subjects):");
    i[j].setMarks();

    System.out.println("Enter external marks (5 subjects):");
    e[j].setEmarks();
}

// --- Output Loop: Display details and calculate total marks ---
System.out.println("\n--- Results ---\n");
for (int j=0; j<n; j++) {
    System.out.println("Student " + (j+1) + " details:");
    stds[j].displayDetails();

    System.out.println("\nInternal Marks:");
    i[j].displayImarks();

    System.out.println("External Marks:");
    e[j].displayEmarks();

    System.out.println("\nTotal Marks (Internal + External):");
    // Loop to calculate and display total marks per subject
    for (int k=0; k<5; k++) {
        System.out.println("Subject" + " " + (k+1) + ": " + (i[j].imarks[k] + e[j].emarks[k]));
    }
    System.out.println("--------------------------------\n");
}
```

```
        sc.close();
    }
}
```

OUTPUT

```
Microsoft Windows [Version 10.0.22631.4890]
(c) Microsoft Corporation. All rights reserved.

C:\Users\sushma\<cd Desktop

C:\Users\sushma\Desktop>cd C:\Users\sushma\OneDrive\Desktop\Pack"

C:\Users\sushma\OneDrive\Desktop\Pack>javac -d . CIE\Student.java CIE\Internals.java
SEE\External.java Main.java

C:\Users\sushma\OneDrive\Desktop\Pack>java Main
Enter number of students:
3

Enter Details of Student 1:
Name: Bob
USN: 1BM001
Enter Semester: 2
Enter internal marks (5 subjects):
89
78
58
98
78
```

Enter external marks (5 subjects):

69

79

84

85

59

Enter Details of Student 2:

Name: Jack

USN: 1BM24CS002

Enter Semester: 3

Enter internal marks (5 subjects):

78

82

73

91

70

Enter external marks (5 subjects):

68

62

80

73

90

Enter Details of Student 3:

Name: Alice

USN: 1BMCS003

Enter Semester: 2

Enter internal marks (5 subjects):

87

83

91

82

70

Enter external marks (5 subjects):

94

56

68

73

91

--- Results ---

Student 1 details:

USN:1BM24CS001

Name:Bob

Sem:0

Internal Marks:

Subject 1: 89

Subject 2: 78

Subject 3: 58

Subject 4: 98

Subject 5: 78

External Marks:

Subject 1: 69

Subject 2: 79

Subject 3: 84

Subject 4: 85

Subject 5: 59

Total Marks (Internal + External):

Subject 1: 158

Subject 2: 157

Subject 3: 142

Subject 4: 183

Subject 5: 137

Student 2 details:

USN:1BM24CS002

Name:Jack

Sem:0

Internal Marks:

Subject 1: 78

Subject 2: 82

Subject 3: 73

Subject 4: 91

Subject 5: 70

External Marks:

Subject 1: 68

Subject 2: 62

Subject 3: 80

Subject 4: 73

Subject 5: 90

Total Marks (Internal + External):

Subject 1: 146

Subject 2: 144

Subject 3: 153

Subject 4: 164

Subject 5: 160

Student 3 details:

USN:1BM24CS003

Name:Alice

Sem:0

Internal Marks:

Subject 1: 87

Subject 2: 83

Subject 3: 91

Subject 4: 82

Subject 5: 70

External Marks:

Subject 1: 94

Subject 2: 56

Subject 3: 68

Subject 4: 73

Subject 5: 91

Total Marks (Internal + External):

Subject 1: 181

Subject 2: 139

Subject 3: 159

Subject 4: 155

Subject 5: 161
