```java
import java.util.Scanner;
class Student
{
    String USN,name;
    int sem;
    Scanner sc = new Scanner(System.in);
    void setStuDetails()
    {
        System.out.println("Enter USN of Student: ");
        this.USN = sc.nextLine();
        System.out.println("Enter Name of Student: ");
        this.name = sc.nextLine();
        System.out.println("Enter Semester of Student: ");
        this.sem = sc.nextInt();
    }

    void getStuDetails()
    {
        System.out.println("USN: " + this.USN);
        System.out.println("Name: " + this.name);
        System.out.println("Semester: " + this.sem);
    }
}

class Test extends Student
{
    double cieMarks[] = new double[5];
    int credits[] = new int[5];
    int totalCredits = 0;
    void setCieDetails()
    {
        for(int i=0;i<cieMarks.length;i++)
        {
            System.out.println("Enter CIE marks(50) in course" + (i+1) + ": ");
            cieMarks[i] = sc.nextDouble();
            System.out.println("Enter credits of course" + (i+1) + ": ");
            credits[i] = sc.nextInt();
            totalCredits += credits[i];
        }
    }
}
```

```java
class Exam extends Test
{
    double seeMarks[] = new double[5];
    double totalMarks[] = new double[5];
    int totCredits = super.totalCredits;
    void setSeeDetails()
    {
        for(int i=0;i<cieMarks.length;i++)
        {
            System.out.println("Enter SEE marks(100) in course" + (i+1) + ": ");
            seeMarks[i] = sc.nextDouble()/2;
        }
        calcTotalMarks();
    }
    void calcTotalMarks()
    {
        for(int i=0;i<5;i++)
        {
            totalMarks[i] = cieMarks[i] + seeMarks[i];
        }
    }
}

class Result extends Exam
{
    char grades[] = new char[5];
    double sgpa = 0;
    int points[] = new int[5];
    void calcSGPA()
    {
        for(int i = 0;i<5;i++)
        {
            if(totalMarks[i] > 100)
            {
                System.out.println("Error: Marks are above 100");
                return;
            }else if(totalMarks[i] >= 90)
            {
                points[i] = 10;
            }else if(totalMarks[i] >= 80)
```

```java
        {
            points[i] = 9;
        }else if(totalMarks[i] >= 70)
        {
            points[i] = 8;
        }else if(totalMarks[i] >= 60)
        {
            points[i] = 7;
        }else if(totalMarks[i] >= 50)
        {
            points[i] = 5;
        }else if(totalMarks[i] >= 40)
        {
            points[i] = 4;
        }else
        {
            points[i] = 0;
        }

        sgpa += (points[i]*credits[i]);
    }
}

void calcGrade()
{
    for(int i = 0;i<5;i++)
    {
        if(totalMarks[i] > 100)
        {
            System.out.println("Error: Marks are above 100");
            return;
        }else if(totalMarks[i] >= 90)
        {
            grades[i] = 'S';
        }else if(totalMarks[i] >= 80)
        {
            grades[i] = 'A';
        }else if(totalMarks[i] >= 70)
        {
            grades[i] = 'B';
        }else if(totalMarks[i] >= 60)
```

C:\java lab\inheritance_1.java - Notepad++

File   Edit   Search   View   Encoding   Language   Settings   Tools   Macro   Run   Plugins   Window   ?

bookMain.java   count1.java   course.java   item.java   or.v   BUBSORT.ASM   quad.java   array4.java   inheritance_1.java

```java
            }else if(totalMarks[i] >= 60)
            {
                grades[i] = 'C';
            }else if(totalMarks[i] >= 50)
            {
                grades[i] = 'D';
            }else if(totalMarks[i] >= 40)
            {
                grades[i] = 'E';
            }else
            {
                grades[i] = 'F';
            }
        }
    }

    void getSGPA()
    {
        System.out.format("SGPA is %.2f",(sgpa/totalCredits));
    }

    void getGrades()
    {
        for(int i=0;i<5;i++)
        {
            System.out.println("\nSubject "+(i+1)+": " + grades[i]);
        }
    }
}

class Prog1
{
    public static void main(String[] args)
    {
        int n = 0;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of students");
        n = sc.nextInt();
        Result results[] = new Result[n];
        for(int i=0;i<n;i++)
        {
```

bookMain.java | count1.java | course.java | item.java | or.v | BUBSORT.ASM | quad.java | array4.java | inheritance_1.java

```java
137        }
138
139            void getSGPA()
140            {
141                System.out.format("SGPA is %.2f",(sgpa/totalCredits));
142            }
143
144            void getGrades()
145            {
146                for(int i=0;i<5;i++)
147                {
148                    System.out.println("\nSubject "+(i+1)+": " + grades[i]);
149                }
150            }
151        }
152
153        class Prog1
154        {
155            public static void main(String[] args)
156            {
157                int n = 0;
158                Scanner sc = new Scanner(System.in);
159                System.out.println("Enter number of students");
160                n = sc.nextInt();
161                Result results[] = new Result[n];
162                for(int i=0;i<n;i++)
163                {
164                    results[i] = new Result();
165                    results[i].setStuDetails();
166                    results[i].setCieDetails();
167                    results[i].setSeeDetails();
168                    results[i].calcSGPA();
169                    results[i].calcGrade();
170                    results[i].getSGPA();
171                    results[i].getGrades();
172
173                }
174            }
175        }
176
177
```

```
Command Prompt

Microsoft Windows [Version 10.0.18362.1016]
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C:\Users\arpit>cd..

C:\Users>cd..

C:\>cd java lab

C:\java lab>javac inheritance_1.java

C:\java lab>java Prog1
Enter number of students
2
Enter USN of Student:
123
Enter Name of Student:
aaa
Enter Semester of Student:
1
Enter CIE marks(50) in course1:
50
Enter credits of course1:
5
Enter CIE marks(50) in course2:
50
Enter credits of course2:
5
Enter CIE marks(50) in course3:
50
Enter credits of course3:
5
Enter CIE marks(50) in course4:
50
Enter credits of course4:
5
Enter CIE marks(50) in course5:
50
Enter credits of course5:
5
Enter SEE marks(100) in course1:
100
Enter SEE marks(100) in course2:
100
Enter SEE marks(100) in course3:
100
Enter SEE marks(100) in course4:
100
Enter SEE marks(100) in course5:
```

```
Enter SEE marks(100) in course5:
100
SGPA is 10.00
Subject 1: S

Subject 2: S

Subject 3: S

Subject 4: S

Subject 5: S
Enter USN of Student:
456
Enter Name of Student:
bbb
Enter Semester of Student:
1
Enter CIE marks(50) in course1:
1
Enter credits of course1:
5
Enter CIE marks(50) in course2:
1
Enter credits of course2:
5
Enter CIE marks(50) in course3:
1
Enter credits of course3:
5
Enter CIE marks(50) in course4:
1
Enter credits of course4:
5
Enter CIE marks(50) in course5:
1
Enter credits of course5:
5
Enter SEE marks(100) in course1:
1
Enter SEE marks(100) in course2:
1
Enter SEE marks(100) in course3:
1
Enter SEE marks(100) in course4:
1
Enter SEE marks(100) in course5:
1
SGPA is 0.00
```

```
1
Enter credits of course1:
5
Enter CIE marks(50) in course2:
1
Enter credits of course2:
5
Enter CIE marks(50) in course3:
1
Enter credits of course3:
5
Enter CIE marks(50) in course4:
1
Enter credits of course4:
5
Enter CIE marks(50) in course5:
1
Enter credits of course5:
5
Enter SEE marks(100) in course1:
1
Enter SEE marks(100) in course2:
1
Enter SEE marks(100) in course3:
1
Enter SEE marks(100) in course4:
1
Enter SEE marks(100) in course5:
1
SGPA is 0.00
Subject 1: F

Subject 2: F

Subject 3: F

Subject 4: F

Subject 5: F

C:\java lab>
```