```java
import java.util.Scanner;

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

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

class Test extends Student {
    int [] cie_marks;
    int [] credits;

    public Test(String usn, String name, int sem, int[] cie_marks, int[] credits) {
        super(usn, name, sem);
        this.cie_marks = cie_marks;
        this.credits = credits;
    }
}

class Exam extends Test {
    int [] see_marks;

    public Exam(String usn, String name, int sem, int[] cie_marks, int[] credits, int[] see_marks) {
        super(usn, name, sem, cie_marks, credits);
        this.see_marks = see_marks;
    }
}

class Result extends Exam {
    public Result(String usn, String name, int sem, int[] cie_marks, int[] credits, int[] see_marks) {
        super(usn, name, sem, cie_marks, credits, see_marks);
    }
    double sgpa;
    char [] grade = new char[credits.length];
    public void cal_grade_sgpa(int tot_credits){
```

```java
    char [] grade = new char[credits.length];
    public void cal_grade_sgpa(int tot_credits){

        int sum=0;
        for(int i=0;i<credits.length;i++) {
            double marks = cie_marks[i] + (see_marks[i] / 2.0);
            if (marks >= 90) {
                sum += credits[i] * 10;
                grade[i] = 'S';
            } else if (marks >= 80 && marks < 90) {
                sum += credits[i] * 9;
                grade[i] = 'A';
            } else if (marks >= 70 && marks < 80) {
                sum += credits[i] * 8;
                grade[i] = 'B';
            } else if (marks >= 60 && marks < 70) {
                sum += credits[i] * 7;
                grade[i] = 'C';
            } else if (marks >= 50 && marks < 60){
                sum += credits[i] * 6;
                grade[i] = 'D';
            }
            else if(marks>=40 && marks<50) {
                sum += credits[i] * 5;
                grade[i] = 'E';
            }
            else {
                sum += credits[i] * 0;
                grade[i] = 'F';
            }
        }
        sgpa = sum*1.0/tot_credits;
    }
    public void display()
    {
        System.out.println("USN:"+usn);
        System.out.println("Name:"+name);
        System.out.println("SEM:"+sem);
        System.out.println("Grades of each subject:");
        for(int i=0;i<credits.length;i++)
        {
            System.out.println("Subject "+(i+1)+":"+grade[i]);
```

```java
        System.out.println("Grades of each subject:");
        for(int i=0;i<credits.length;i++)
        {
            System.out.println("Subject "+(i+1)+":"+grade[i]);
        }
        System.out.println("SGPA:"+sgpa);
    }
}
class Main {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter number of students:");
        int n = sc.nextInt();
        Result [] s = new Result[n];
        int [] tot_credits = new int[n];
        for(int i=0;i<n;i++)
        {
            System.out.println("-------Student "+(i+1)+"-------");
            System.out.print("Enter usn:");
            String usn = sc.next();
            System.out.print("Enter name:");
            String name = sc.next();
            System.out.print("Enter sem:");
            int sem = sc.nextInt();
            System.out.print("Enter number of subjects:");
            int n1 = sc.nextInt();
            System.out.println("Enter cie_marks:");
            int [] cie_marks = new int[n1];
            for(int j=0;j<n1;j++)
            {
                int marks1 = sc.nextInt();
                cie_marks[j] = marks1;

            }
            System.out.println("Enter credits:");
            int [] credits = new int[n1];
            int sum = 0;
            for(int j=0;j<n1;j++)
            {
                int marks1 = sc.nextInt();
                credits[j] = marks1;
                sum += credits[j];
```

```java
            String name = sc.next();
            System.out.print("Enter sem:");
            int sem=sc.nextInt();
            System.out.print("Enter number of subjects:");
            int n1 = sc.nextInt();
            System.out.println("Enter cie_marks:");
            int [] cie_marks = new int[n1];
            for(int j=0;j<n1;j++)
            {
                int marks1 = sc.nextInt();
                cie_marks[j] = marks1;

            }
            System.out.println("Enter credits:");
            int [] credits = new int[n1];
            int sum = 0;
            for(int j=0;j<n1;j++)
            {
                int marks1 = sc.nextInt();
                credits[j] = marks1;
                sum += credits[j];
            }
            tot_credits[i] = sum;
            System.out.println("Enter see_marks:");
            int [] see_marks = new int[n1];
            for(int j=0;j<n1;j++)
            {
                int marks1 = sc.nextInt();
                see_marks[j] = marks1;

            }
            s[i] = new Result(usn,name,sem,cie_marks,credits,see_marks);
        }
        for(int k=0;k<n;k++)
        {
            System.out.println("Details of Student "+(k+1)+":");
            s[k].cal_grade_sgpa(tot_credits[k]);
            s[k].display();
        }
    }
}
```

input

```
Enter number of students:2
--------Student 1--------
Enter usn:1BM19cs33
Enter name:AMBARISH
Enter sem:3
Enter number of subjects:6
Enter cie_marks:
22
33
44
38
49
26
Enter credits:
2
3
4
4
2
3
Enter aee_marks:
65
77
88
96
92
81
--------Student 2--------
Enter usn:1BM18EC133
Enter name:7
Enter sem:4
Enter number of subjects:4
Enter cie_marks:
42
40
43
39
Enter credits:
3
3
2
4
Enter aee_marks:
```

```
Enter sem:4
Enter number of subjects:4
Enter cie_marks:
42
40
43
39
Enter credits:
3
3
2
4
Enter see_marks:
00
96
94
70
Details of Student 1:
USN:1BM19CS33
Name:AMBARISH
SEM:3
Grades of each subject:
Subject 1:D
Subject 2:B
Subject 3:A
Subject 4:A
Subject 5:S
Subject 6:C
SGPA:8.277777777777779
Details of Student 2:
USN:1BM18EC133
Name:7
SEM:4
Grades of each subject:
Subject 1:A
Subject 2:S
Subject 3:S
Subject 4:B
SGPA:9.083333333333334


...Program finished with exit code 0
Press ENTER to exit console.
```

```
     tx2.java                          week7.java
1    import java.util.Scanner;
2    class Player{
3        private String name;
4        private int matches_played;
5        private double average;
6
7        void setdata()
8        {
9            Scanner xx=new Scanner(System.in);
10           System.out.print("Enter the name of the player : ");
11           name=xx.next();
12           xx.nextLine();
13           System.out.print("Enter the number of matches played by the palyer : ");
14           matches_played=xx.nextInt();
15       }
16
17       void setaverage(double x)
18       {
19           average=x;
20       }
21       int returnmatchesplayed()
22       {
23           return matches_played;
24       }
25       void displayaverage()
26       {
27           System.out.println("The name of the student is : "+name);
28           System.out.println("The average of the player is : "+average);
29       }
30   }
31
32   class batsman extends Player{
33       private int runs_scored[];
34       private int n;
35
36       void setdata1()
37       {
38           setdata();
39           Scanner xx=new Scanner(System.in);
40           n=returnmatchesplayed();
41           runs_scored=new int[n];
42           System.out.println("Enter the runs scored : ");
43           for(int i=0;i<n;i++)
44           {
45               System.out.print("Enter the runs scored in "+(i+1)+" match : ");
46               runs_scored[i]=xx.nextInt();
47           }
48       }
```

```
45        System.out.print("Enter the runs scored in "+(i+1)+" match : ");
46            runs_scored[i]=xx.nextInt();
47        }
48    }
49    void calculateaverage()
50    {
51        double temp=0;
52        for(int i=0;i<n;i++)
53        {
54            temp=temp+runs_scored[i];
55        }
56        temp=temp/returnmatchesplayed();
57        setaverage(temp);
58    }
59
60  }
61  class bowler extends Player{
62      private int runs_scored[];
63      private int n;
64
65      void setdata1()
66      {
67          setdata();
68          Scanner xx=new Scanner(System.in);
69          n=returnmatchesplayed();
70          runs_scored=new int[n];
71          System.out.println("Enter the runs given : ");
72          for(int i=0;i<n;i++)
73          {
74              System.out.print("Enter the runs given in "+(i+1)+" match : ");
75              runs_scored[i]=xx.nextInt();
76          }
77      }
78      void calculateaverage()
79      {
80          double temp=0;
81          for(int i=0;i<n;i++)
82          {
83              temp=temp+runs_scored[i];
84          }
85          temp=temp/returnmatchesplayed();
86          setaverage(temp);
87      }
88
89  }
90
91  public class week7
92  {
93      public static void main(String args[])
```

```
84          }
85              temp=temp/returnmatchesplayed();
86              setaverage(temp);
87          }

89      }

91      public class week7
92      {
93          public static void main(String args[])
94          {

95              int n,m;
96              Scanner xx=new Scanner(System.in);
97              System.out.println("Enter the number of batsman : ");
98              n=xx.nextInt();
99              System.out.println("Enter the number of bowlers : ");
100             m=xx.nextInt();
101             batsman p1[]=new batsman[n];
102             bowler p2[]=new bowler[m];

104             System.out.println("Enter the details of the batsman : ");
105             for(int i=0;i<n;i++)
106             {
107                 p1[i]=new batsman();
108                 p1[i].setdata1();
109                 p1[i].calculateaverage();
110             }
111             System.out.println("Enter the details of the bowlers : ");
112             for(int i=0;i<m;i++)
113             {
114                 p2[i]=new bowler();
115                 p2[i].setdata1();
116                 p2[i].calculateaverage();
117             }
118             System.out.println("The details of the batsman are : ");
119             for(int i=0;i<n;i++)
120             {
121                 p1[i].displayaverage();
122             }
123             System.out.println("The details of the bowler are : ");
124             for(int i=0;i<m;i++)
125             {
126                 p2[i].displayaverage();
127             }
128         }
129     }
```

Type here to search

```
Command Prompt

C:\Users\anant\JAVA A>javac week7.java

C:\Users\anant\JAVA A>java week7
Enter the number of batsman :
6
Enter the number of bowlers :
5
Enter the details of the batsman :
Enter the name of the player : A
Enter the number of matches played by the palyer : 10
Enter the runs scored :
Enter the runs scored in 1 match : 12
Enter the runs scored in 2 match : 22
Enter the runs scored in 3 match : 50
Enter the runs scored in 4 match : 60
Enter the runs scored in 5 match : 100
Enter the runs scored in 6 match : 100
Enter the runs scored in 7 match : 02
Enter the runs scored in 8 match : 10
Enter the runs scored in 9 match : 0
Enter the runs scored in 10 match : 50
Enter the name of the player : B
Enter the number of matches played by the palyer : 2
Enter the runs scored :
Enter the runs scored in 1 match : 10
Enter the runs scored in 2 match : 98
Enter the name of the player : C
Enter the number of matches played by the palyer : 1
Enter the runs scored :
Enter the runs scored in 1 match : 52
Enter the name of the player : 0
Enter the number of matches played by the palyer : 0
Enter the runs scored :
Enter the name of the player : D
Enter the number of matches played by the palyer : 0
Enter the runs scored :
Enter the name of the player : E
Enter the number of matches played by the palyer : 3
Enter the runs scored :
Enter the runs scored in 1 match : 22
Enter the runs scored in 2 match : 55
Enter the runs scored in 3 match : 88
Enter the details of the bowlers :
Enter the name of the player : Z
Enter the number of matches played by the palyer : 2
Enter the runs given :
Enter the runs given in 1 match : 24
Enter the runs given in 2 match : 18
Enter the name of the player : X
```

Type here to search

```
Command Prompt

Enter the runs scored in 3 match : 88
Enter the details of the bowlers :
Enter the name of the player : Z
Enter the number of matches played by the palyer : 2
Enter the runs given :
Enter the runs given in 1 match : 24
Enter the runs given in 2 match : 18
Enter the name of the player : X
Enter the number of matches played by the palyer : 1
Enter the runs given :
Enter the runs given in 1 match : 50
Enter the name of the player : Y
Enter the number of matches played by the palyer : 1
Enter the runs given :
Enter the runs given in 1 match : 16
Enter the name of the player : W
Enter the number of matches played by the palyer : 3
Enter the runs given :
Enter the runs given in 1 match : 22
Enter the runs given in 2 match : 33
Enter the runs given in 3 match : 44
Enter the name of the player : V
Enter the number of matches played by the palyer : 0
Enter the runs given :
The details of the batsman are :
The name of the student is : A
The average of the player is : 40.6
The name of the student is : B
The average of the player is : 54.0
The name of the student is : C
The average of the player is : 52.0
The name of the student is : 0
The average of the player is : NaN
The name of the student is : D
The average of the player is : NaN
The name of the student is : E
The average of the player is : 55.0
The details of the bowler are :
The name of the student is : Z
The average of the player is : 21.0
The name of the student is : X
The average of the player is : 50.0
The name of the student is : Y
The average of the player is : 16.0
The name of the student is : W
The average of the player is : 33.0
The name of the student is : V
The average of the player is : NaN

C:\Users\anant\JAVA A>
```

Type here to search