OOJ LAB- WEEK 7– Practice Programs

Programs and Output

Mallika Prasad

1BM19CS081

27-10-2020

Program 1-

Develop a Java program to create a class Student whose variables are usn, name and sem.Derive a class Test from Student to include an array of cie marks of each course and theircorresponding credits in another array. Derive a class Exam from Test which includes anarray of see marks. Derive a class Result which calculates the grade for each course and theSGPA. Create n student objects and displays all the above details.

```
import java.util.Scanner;
class student
{
	String usn,name;
	int sem;
	void input(String u,String n,int s)
	{
		usn=u;
		name=n;
		sem=s;
	}
}
class test extends student
{
```

```
 int cie[],credits[];
        void get_cie(int a)
        {
                Scanner ss=new Scanner(System.in);
                 cie=new int[a];
                 credits=new int[a];
                for(int i=0;i<a;i++)
                {
                        System.out.println("enter cie marks with credits");
                        cie[i]=ss.nextInt();
                        credits[i]=ss.nextInt();
                }
        }
}
class exam extends test
{
        int see[];
        void get_see(int b)
        {
                Scanner ss=new Scanner(System.in);
                 see=new int[b];
                for(int i=0;i<b;i++)
                {
                        System.out.println("enter see marks");
                        see[i]=ss.nextInt();
                }
```

```
        }
}
class result extends exam
{
        float sgpa;
        void cal(int c)
        {
                int sum=0,cred=0;
                int g;
                int tot;
                for(int i=0;i<c;i++)
                {
                        tot=cie[i]+see[i]/2;
                        if(tot>=90)
        g=10;
        else if(tot>=80)
        g=9;
        else if(tot>=70)
        g=8;
        else if(tot>=60)
        g=7;
        else if(tot>=50)
        g=6;
        else if(tot>=40)
                        g=4;
                else
```

```
                g=0;
            sum+=g*credits[i];
                cred+=credits[i];
            }
            sgpa=(float)sum/(float)cred;
        }
        void display()
        {
            System.out.printf("%22s %22s %22d %22f \n",usn,name,sem,sgpa);
        }
}
class Main
{
        public static void main(String args[])
        {
            Scanner ss=new Scanner(System.in);
            System.out.println("enter no of students");
            int n=ss.nextInt();

            result []res=new result[n];
            String u,nam;
            int s;
            for(int i=0;i<n;i++)
            {
                System.out.println(" -----enter details of student "+(i+1)+"-----");
                System.out.println("enter usn and name  ");
```

```
                u=ss.next();
                nam=ss.nextLine();
                System.out.println("enter sem ");
                s=ss.nextInt();
                System.out.println("enter no of courses");
                int nn=ss.nextInt();
                res[i]=new result();
                res[i].input(u,nam,s);
                res[i].get_cie(nn);
                res[i].get_see(nn);
                res[i].cal(nn);
            }
            System.out.println("\t\t\t-----student details-----");
            System.out.printf("%22s %22s %22s %22s \n","usn","name","sem","sgpa");

            for(int i=0;i<n;i++)
                res[i].display();
        }
}
```

Output-

```
enter no of students
2
 -----enter details of student 1-----
enter usn and name
21 mal
enter sem
3
enter no of courses
2
enter cie marks with credits
35 5
enter cie marks with credits
26 4
enter see marks
66
enter see marks
56
 -----enter details of student 2-----
enter usn and name
35 ren
enter sem
3
enter no of courses
2
enter cie marks with credits
21 4
enter cie marks with credits
16 3
enter see marks
```

```
enter cie marks with credits
26 4
enter see marks
66
enter see marks
56
 -----enter details of student 2-----
enter usn and name
35 ren
enter sem
3
enter no of courses
2
enter cie marks with credits
21 4
enter cie marks with credits
16 3
enter see marks
45
enter see marks
36
                    -----student details-----
                usn                  name                   sem                  sgpa
                 21                   mal                     3              6.555555
                 35                   ren                     3              2.285714


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

Program 2-

Develop a Java program to create a class PLAYER with member variables name,matches_played and average. This class has an abstract method cal_average(String,int,int).Derive two classes BATSMAN and BOWLER from PLAYER. Class BATSMAN has amember variable runs_scored. Class BOWLER has a member variable runs_given. Create mBATSMAN objects and n BOWLER objects. Calculate and display the average runs scoredby each BATSMAN and average runs given by each BOWLER.

```
import java.util.Scanner;
class PLAYER{
   String name;
   int matches_played;
   float average;
   float cal_average(String name,int matches,int runs){
      average=(float) runs/matches;
      return average;
   }
}
class BATSMAN extends PLAYER{
   int run_scored;
   Scanner s=new Scanner(System.in);
   void accept_details(){
      System.out.println("Enter the name of the player:");
      name=s.nextLine();
      System.out.println("Enter the number of matches played:");
      matches_played=s.nextInt();
      System.out.println("Enter the number of runs scored by the batsman:");
      run_scored=s.nextInt();
   }
```

```
    void print_average(){
        System.out.println(name+"          "+cal_average(name,matches_played,run_scored));
    }
}
class BOWLER extends PLAYER{
    int runs_given;
    Scanner s=new Scanner(System.in);
    void accept_details(){
        System.out.println("Enter the name of the player:");
        name=s.nextLine();
        System.out.println("Enter the number of matches played:");
        matches_played=s.nextInt();
        System.out.println("Enter the number of runs given by the bowler:");
        runs_given=s.nextInt();
    }
    void print_average(){
        System.out.println(name+"          "+cal_average(name,matches_played,runs_given));
    }
}
public class Main{
    public static void main(String[] args){
        Scanner s=new Scanner(System.in);
        PLAYER p=new PLAYER();
        System.out.println("Enter the number of batsmen:");
        int m=s.nextInt();
        BATSMAN[] bt=new BATSMAN[m];
```

```
        for (int i=0;i<m;i++){
            bt[i]=new BATSMAN();
            bt[i].accept_details();
        }
        System.out.println("BATSMEN"+"       "+"AVERAGE RUNS SCORED");
        System.out.println();
        for (int i=0;i<m;i++){
            bt[i].print_average();
        }
        System.out.println("Enter the number of bowlers:");
        int n=s.nextInt();
        BOWLER[] bl=new BOWLER[n];
        for (int i=0;i<n;i++){
            bl[i]=new BOWLER();
            bl[i].accept_details();
        }
        System.out.println("BOWLER"+"       "+"AVERAGE RUNS GIVEN");
        System.out.println();
        for (int i=0;i<n;i++){
            bl[i].print_average();
        }
    }
}
```

Output-

```
Enter the number of batsmen:
2
Enter the name of the player:
a
Enter the number of matches played:
4
Enter the number of runs scored by the batsman:
24
Enter the name of the player:
b
Enter the number of matches played:
2
Enter the number of runs scored by the batsman:
16
BATSMEN        AVERAGE RUNS SCORED

a           6.0
b           8.0
Enter the number of bowlers:
1
Enter the name of the player:
c
Enter the number of matches played:
3
Enter the number of runs given by the bowler:
21
BOWLER        AVERAGE RUNS GIVEN

c           7.0
```