classmate
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WEEK 7: Practice programs

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 2 classes BATSMAN and BOWLER from PLAYER. Class BATSMAN has a member variable runs_scored. Class BOWLER has a member variable runs_given. Create m batsman objects and n BOWLER objects. Calculate and display the average runs stored by 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, int matches, int runs) {
     average = (float) runs / matches;
     return average;
    }
}

class BATSMAN extends PLAYER {
int runs_stored;
Scanner s = new Scanner (System.in);
```

```
void accept_details() {
 System.out.println("Enter the name of player :");
 name = s.next();
 System.out.println("Enter number of matches played :");
 matches_played = s.nextInt();
 System.out.println("Enter number of runs scored by the batsman:");
 runs_scored = s.nextInt();
 }
 void print_average() {
 System.out.println(name + "    " + cal_average(name, matches_
 played, runs_scored));
 }
}

class BOWLER extends PLAYER {
 int runs_given;
 Scanner s = new Scanner(System.in);

 void accept_details() {
 System.out.println("Enter the name of player :");
 name = s.next();
 System.out.println("Enter number of matches played :");
 matches_played = s.nextInt();
 System.out.println("Enter number of runs ~~scored~~ given by batsman :");
```

```
runs_given = s.nextInt();
}
void print_average() {
System.out.println(name + "  " + cal_average(name, matches_
played, runs_given));
}
}

public class HeirarchialMain {
public static void main(String[] args) {
Scanner s = new Scanner(System.in);
PLAYER p = new PLAYER();
System.out.println("Enter the number of batsman:");
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();
 }
}
}
```

18) 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 their corresponding credits in another array. Derive an ~~or~~ class Exam from test which includes an array of see marks. Derive a class Result which calculates the grade for each course and the SGPA. Create n students objects and display 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 n)
{
```

```
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 = (mie[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 MultilevelMain {
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.nextInt();
name = ss.next();
System.out.println("enter sem");
s = ss.nextInt();
System.out.println("Enter no. of courses");
int nn = sc.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();
  }
}
```