

## Assignment 5

Due: Thursday, 18<sup>th</sup> Feb 11:59 PM PST

### Requirement:

Create a class 'Player.java' that contains private data members - Name (String), Age (int), TotalPoints (int) and two member methods – 'printInfo()' to print the information as shown in the output below and 'isLeading()' which returns a boolean; to check whether one player is leading the other by some points.

Create two other separate classes- 'Attacker.java' and 'Goalkeeper.java' that inherit the properties of Player class and have other private data members as follows:

#### Attacker.java:

- 1) GoalsScored (int) – to keep a record of the number of goals scored [**3 points per goal**]
- 2) GoalsMissed (int) – number of goals missed (or saved by the goalkeeper) [**-1 point per goal missed**]

#### Goalkeeper.java:

- 1) GoalsSaved (int) – number of goals saved [**1 point per goal saved**]
- 2) GoalsConceded (int) – number of goals conceded (not saved) [**-1 point per goal**]

- TotalPoints are the combination of the points mentioned in bold as per the type of player.
- printInfo() is overridden in the two derived classes (Look at the output for clear understanding)

*The headers of the constructors are as follows:*

```
public Player(String name, int age)
public Attacker(String name, int age, int scored, int missed)
public Goalkeeper(String name, int age, int saved, int conceded)
```

Create a last java class LastnameFirstnameA5.java in the same package which contains the main method to call the constructors (and other methods, if required) of all the classes defined above.

If 'TotalPoints' calculated for the attacker and goalkeeper are negative, please set them to zero.

#### Sample input:

```
Attacker a = new Attacker("Lionel Messi", 29, 3, 0);
Goalkeeper g = new Goalkeeper("Petr Cech", 34, 5, 1);
```

### Sample output:

```
Name: Lionel Messi
Age: 29 years
Type: Attacker
Goals Scored: 3
Goals Missed: 0
Total Points: 9

Name: Petr Cech
Age: 34 years
Type: GoalKeeper
Goals Saved: 5
Goals Conceded: 1
Total Points: 4
Lionel Messi leads Petr Cech by 5 points.
```

Submit all the files – ‘Player.java’, ‘Attacker.java’, ‘Goalkeeper.java’ and ‘LastnameFirstnameA5.java’

### Note:

1. The program should always print ‘**Program Completed**’ before exiting.
2. Check if your program works properly by giving different values.
3. There is no user input needed for this program.
4. Give comments to increase code readability.
5. Mention the sources used to complete the assignment.
6. Adhere to the filename conventions. Please send me, Player.java and not anything like for example Player\_1.java etc. And this goes for all the .java files, except the one with the main which will be LastnameFirstnameA5.java
7. Submit .java file only.