Quiz 3

Subject: Inheritance and polymorphism
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Due Date: 30.04.2019 - 23:59:59

1 Problem

Write an object oriented program that creates the standing tables from the given previous matches of the Football, Basketball, and Volleyball sports.
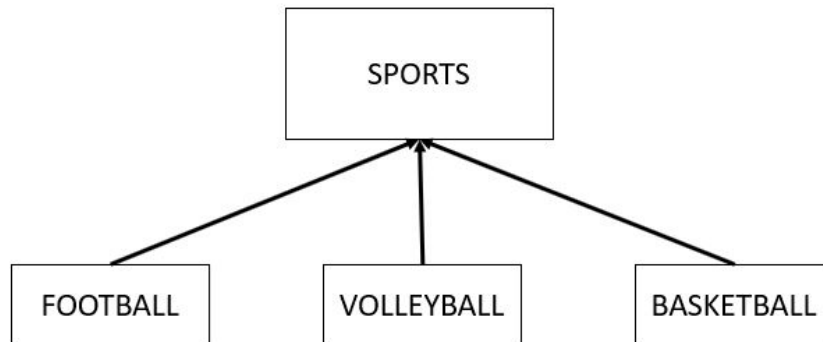

Figure 1: The class diagrams

1.1 Information about the sports

- In football, in which three points are awarded to the team winning a match, with no points awarded to the losing team. If the game is drawn, each team receives one point.

- In basketball, in which two points are awarded to the team winning a match, with one point awarded to the losing team.

- In volleyball ,points for won and lost matches are allocated as follows:

  - 3 points for the winner 3:0 or 3:1 of a match,

  - 2 points for the winner 3:2 of a match,

  - 1 point for the loser 2:3 of a match,

  - 0 point for the loser 0:3 or 1:3 of a match

- If two or more teams are on the same number of points. The number of goals scored against a team is subtracted from the number of goals it has scored itself. The bigger the goal difference, the better.

1.2 Restrictions

- You must implement your codes by using **inheritance**.

- Using Polymorphism is not mandatory. But those who use polymorphism will get 10 points as bonus.

1.3 Sample Input and Outputs

- Sample input file named as "fixtures.txt":

```
F Galatasaray Rizespor 2 :  2
F Fenerbahçe Yeni Malatyaspor 3 :  2
F Akhisarspor Trabzonspor 1 :  3
V Beşiktaş Canakkale 3 :  0
F Galatasaray Trabzonspor 3 :  1
B Afyon Belediye Banvit 90 :  96
F Beşiktaş Akhisarspor 2 :  1
F Kayserispor Ankaragücü 0 :  2
B Beşiktaş Sakarya BB 77 :  65
V Nilüfer Bld.  Fenerbahçe 0 :  3
```

- Sample output files
  ```
  football.out
  1.  Basaksehir 28 18 7 3 44:15 61
  2.  Galatasaray 28 16 8 4 59:28 56
  3.  Besiktas 28 15 8 5 60:37 53
  4.  Trabzonspor 28 14 7 7 50:37 49
  5.  Yeni Malatyaspor 28 10 8 10 38:37 38
  ```

  The explanation of the football standing tables' columns are as follows :

  - First column defines the ranking

  - Second column defines the club name

  - Third column defines the number of played matches

  - Fourth column defines the number of matches won

  - Fifth column defines the number of times a team has finished a match with an even score or tie

  - Sixth column defines the number of matches loss

  - Seventh column defines the number of Goals For : the number of Goals Against

  - Eighth column defines the total number of points earned

```
basketball.out
1.   Fenerbahce 24 21 3 2052:1690 45
2.   Anadolu Efes 24 21 3 2099:1851 45
3.   Tofas 25 17 8 2072:1950 42
4.   Galatasaray 24 15 9 1974:1864 39
5.   Besiktas 25 14 11 1933:1923 39
```

The explanation of the basketball standing tables' columns are as follows :

- First column defines the ranking

- Second column defines the club name

- Third column defines the number of played matches

- Fourth column defines the number of matches won

- Fifth column defines the number of matches loss

- Sixth column defines the number of Points For : the number of Points Against

- Seventh column defines the total number of points earned

```
volleyball.out
1.   Eczacibasi 21 20 1 60:10 59
2.   Vakifbank 21 20 1 61:11 57
3.   Fenerbahce 21 16 5 52:22 47
4.   Galatasaray 21 13 8 47:31 41
5.   Thy 21 11 10 34:37 32
```

The explanation of the volleyball standing tables' columns are as follows :

- First column defines the ranking

- Second column defines the club name

- Third column defines the number of played matches

- Fourth column defines the number of matches won

- Fifth column defines the number of matches loss

- Sixth column defines the number of Sets For : the number of Sets Against

- Seventh column defines the total number of points earned

1.4 How to run your program

- Use the following command with the arguments to start your implementation:

  ```
  java Main /path/input /path/Football /path/Basketball /path/Volleyball
  ```

  ```
  e.g java Main fixtures.txt football.out basketball.out volleyball.out
  ```

2 Submission Notes

- The output of your program will be graded **automatically**. Therefore, any difference of the output (even a smallest difference) from the sample output will cause an error and you will get 0 from execution. **Keep in mind that a program that does not work 100% right is a program that works wrong.**

- **Test your program on "dev.cs.hacettepe.edu.tr" before submission**. Your submission will be compiled and executed in this machine and this machine only.

- Do not submit any file via e-mail. You will use online submission system to submit your experiments. Other type of submissions especially by e-mail WILL NOT BE ACCEPTED.
  https://submit.cs.hacettepe.edu.tr/

- Save all your work until the assignment is graded.

- The assignment must be original, individual work. All the duplicate or Internet works (even if a citation is provided) are both going to be considered as cheating.

- Don't use your instructors as a google. Use google for general purposes then ask us for specific ones

- You can ask your questions through Piazza and you are supposed to be aware of everything discussed there.

- The submission format is given below:: This file hierarchy must be zipped before submission (Not .rar, only .zip files are supported by the system)

  $\rightarrow$ <student id.zip>
  $\rightarrow$ src.zip (Main.java, *.java)