

CSE 112 Bütünleme

Olcay Taner YILDIZ

I. QUESTION (15 POINTS)

Draw the UML diagram of the following problem. A **League** consists of a name, a set of **Team**'s and a set of **Player**'s.

Each **Team** has a title, a set of **Player**'s, a point, a coach and one method **int play(Team b)**. Two teams play each other by calling abstract method **boolean play(Player p)** for all players of the first team with all players of the second team. The function returns the number of *true* results of all these matches.

FootballTeam and **BasketBallTeam** are two type of **Team**'s which have **FootballPlayer** and **BasketBallPlayer**'s as **Player**'s. Each **FootballTeam** has a team captain, each **BasketBallTeam** has a field which represents if the team has cheerleaders or not.

Each **Player** has name, surname, performance which is a random number between 0 and 100 and one abstract method **boolean play(Player p)**. The first **FootballPlayer** beats the second one if he/she has a larger performance score. The first **BasketBallPlayer** beats the second one if he/she has a larger sum of performance and number of PointsScored.

FootballPlayer and **BasketBallPlayer** are two type of **Player**'s. **FootballPlayer** has field numberOfGoalsScored, **BasketBallPlayer** has field numberOfPointsScored.

Define attributes and constructors for these classes. Don't define any setters or getters.

II. QUESTION (36 POINTS)

Implement the classes **League**, **Team**, **Player**, **FootballTeam**, **BasketBallTeam**, **FootballPlayer**, **BasketBallPlayer** according to your UML diagram.

III. QUESTION (12 POINTS)

Write a function **void addPlayers(String fileName)** in the class **FootballTeam**, which reads information about football players from a file and add them to the player list. The file format is as follows:

```
3
hakan sukur 45 87
ridvan dilmen 37 46
metin oktay 78 80
```

IV. QUESTION (10 POINTS)

Write the function **void printPlayers(String fileName)** in the class **BasketBallTeam**, which prints information about authors to a file. The file format is as follows:

```
2
erman kunter 43 1887
gokhan sirin 67 1085
```

V. QUESTION (16 POINTS)

- Add the function **sortTeams()** in **League** to sort teams in a league with respect to their points.
- Add the function **sortPlayers()** to sort players in **Team** with respect to their surname, if their surnames are equal to their names.

VI. QUESTION (11 POINTS)

First add the exception class **WrongNumberOfPoints** which displays an exception message if the number of points is negative. Then write a setter for method for point in the **Team** class and if the user enters a negative number, it will throw **WrongNumberOfPoints**.