CME1212 Algorithms and Programming II
Homework 1

Upload your source code files from *DEUZEM SAKAI* until **4 April 2021, 23:55.**

Soccer Management System

In this homework, implement a simple *Soccer Management System* that will be used by the *Turkish Football Federation* (TFF). TFF organizes 11 football leagues: Super League, 1. League, 2. League, 3. League, A2 League, Amateur League, Women's League, Development League, Beach Soccer League, Futsal League, and Turf League. Especially, the program will help to manage the Super League. This league has 21 teams and 630 players.

The program should allow a user to manage a number of teams and keep the match statistics. The program has to include some entities to handle the records of soccer teams, players, coaches, matches, stadiums, referees, sponsorship companies, etc.

A ***team*** is represented with several attributes, including name, foundation year, number of cups, and two main colors.

Each team has a ***coach*** who manages the team within a period, starting from the contract date to the end date, and earns a salary (monthly). When needed, to be able to communicate with a coach, his contact information (address, phone) should be kept in the system.

Each ***player*** should be represented with basic features such as license number, name surname, birthdate, nationality, address, and phone. Each player belongs to a team within a period, starting from the contract date to the end date, and earns a salary. The main positional role of a player should also be kept in the system, including goalkeeper, defender, midfielder, or attacker.

Each match is controlled by a ***referee***, who is assisted by two assistant referees. When needed, to be able to communicate with a referee, his contact information (address, phone, etc.) should be kept in the system.

In a ***match***, the home-team will play with the away-team. If a team wins a match, it is awarded 3 points. If a team draws a match, it is awarded 1 point. If a team loses a match, it is not awarded any points. The program should read an input file to get the results of the matches that have been played.

Football matches have been played in ***stadiums*** and there are approximately 60 stadiums in different cities in Turkey, with different capacities and lighting options (available or not). They have different surface types such as grass, soil, etc.

Currently, each football team has one sponsor. For example, some sponsorship ***companies*** are Ülker, Türk Telecom, and Vodafone. Sponsorship information should also be stored in the system such as company name, company address (formatted as street, town, city, country), and phone number (formatted as country code + area code + number).

Entities in the system (i.e., team, coach, company, referee) have ID properties to identify each record. All IDs must be incremented automatically.

Beginning of the program

At the beginning of the program, an input file (D:*input.txt*) must be read and processed line by line.
Each line corresponds to an individual command. Each command must be parsed and executed in order.

Don’t take any input from the user !!!

Requirements

Don’t forget to create *Date*, *Address*, and *Phone* classes.

Your program should include at least one inner class.

In one class, there must be more than one constructor.

The output of the program

After reading the file, the following 3 reports should be automatically printed on the screen.

1- List all teams (with their coaches)
2- List all players
3- List all sponsor companies

Statistics

1- Find the scores of all teams and print the winner. If the scores of more than one team are equal, print all of them.
2- Find the biggest stadium in capacity

Operation
Increase the salaries of all referees by 10%.
List all referees

Error Checking

The program should control all possible errors such as:
- Invalid date such as 31.04.2021
- Making a match in a stadium that is not stored in the system
- Contract start date must be smaller than the contract end date
- The number of goals can't be a negative number.
- ... etc.

Input file format:

AddTeam;name;year;cups;colors
AddCoach;name;address;phone;team;startdate;enddate;salary
AddPlayer;licensenumber;name surname;birthdate;nationality;address;phone;team;startdate;enddate;salary;positionalrole
AddStadium;name;city;capacity;lighting;surface
AddReferee;name;address;phone;salary
AddCompany;name;address;phone;team
AddMatch;home-team;numberofgoals;away-team;numberofgoals;refereeID;refereeID;refereeID;stadiumID
DeletePlayer;licensenumber

The program should correctly work with any input file. The program should be dynamic. The following input file is only an example. It will be changed during the code control task.

A sample input.txt

AddTeam;Galatasaray;1905;75;sarı kırmızı
AddTeam;Fenerbahçe;1907;56;sarı lacivert
AddCoach;Erol Bulut;Bağdat Caddesi;Kadıköy;İstanbul;Türkiye;90;212;1234567;Fenerbahçe;30;07;2020;31;05;2022;600000
AddCoach;Fatih Terim;Yalı Caddesi;Bebek;İstanbul;Türkiye;90;212;7654321;Galatasaray; 01;06;2019;31;05;2021;2500000
AddTeam;Beşiktaş;1903;51;siyah beyaz
AddPlayer;17701;MesutÖzil;15;10;1988;Almanya;OsmanbeyCaddesi;Gaziosmanpaşa;İstanbul;90;212;1726354;Fenerbahçe;25;01;2021;31;05;2024;2100000;midfielder
AddPlayer;853895;ArdaTuran;30;01;1987;Türkiye;ValikonağıCaddesi;Şişli;İstanbul;90;212;5554433;Galatasaray;06;08;2020;31;05;2021;120000;attacker
AddPlayer;15302;CenkTosun;07;06;1991;Almanya;İstiklalCaddesi;Taksim;İstanbul;Türkiye;90;212;5556677;Beşiktaş;01;02;2021;31;05;2021;120000;attacker
AddCoach;Sergen Yalçın;İstiklal Caddesi;Taksim;İstanbul;Türkiye;90;212;9876543;Beşiktaş;29;01;2020;31;05;2021;1800000
AddPlayer;17686;AtillaArpadSzalai;20;01;1998;Budapeşte;DivanyoluCaddesi;Fatih;İstanbul;Türkiye;90;212;9384756;Fenerbahçe;18;01;2021;31;05;2025;500000;defender
DeletePlayer;17686
AddStadium;Türk Telekom Stadium;İstanbul;52223;true;grass
AddStadium;Şükrü Saraçoğlu Stadium;İstanbul;47834;true;grass
AddStadium;Vodafone Park Stadium;İstanbul;41903;true;grass
AddReferee;Cüneyt Çakır;Ordu Caddesi;Fatih;İstanbul;Türkiye;90;212;3332211;50000
AddReferee;Fırat Aydınus;Ata Caddesi;Yeşilköy;İstanbul;Türkiye;90;212;1144555;40000
AddReferee;Halis Özkahya;Tarabya Caddesi;Tarabya;İstanbul;Türkiye;90;212;6665544;30000
AddCompany;Ülker A.Ş.;Valikonağı Caddesi;Şişli;İstanbul;Türkiye;90;212;1122333;Fenerbahçe
AddCompany;Türk Telekom A.Ş.;Yaka Caddesi;Büyükçekmece;İstanbul;Türkiye;90;212;1122333;Galatasaray
AddCompany;Vodafone A.Ş.;Kaya Caddesi;Ortaköy;İstanbul;Türkiye;90;212;8877666;Beşiktaş
AddMatch;Galatasaray;4;Fenerbahçe;0;1;2;3;1
AddMatch;Beşiktaş;2;Fenerbahçe;2;1;2;3;2
AddMatch;Fenerbahçe;2;Galatasaray;3;1;2;3;3
AddMatch;Galatasaray;2;Beşiktaş;0;1;2;3;1
AddMatch;Beşiktaş;0;Galatasaray;3;1;2;3;2
AddMatch;Fenerbahçe;0;Beşiktaş;1;1;3;4;3

Sample Output
Scores:
Galatasaray 12
Beşiktaş 4
Fenerbahçe 1

Winner: Galatasaray

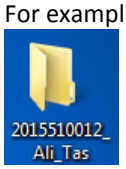
…….. *Lists*
…….. *Statistics*
…….. *Operation*

This homework will be graded by Res.Asst.Dr. Özge KART.
You can ask your questions her from the "**FORUM → Homework 1 - Questions**" part of the *DEUZEM SAKAI* software.

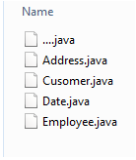
Notes

1- Upload format

Step1: Create a new folder, named by your student number and name (without any space)
For example: 2015510012_Ali_Tas



Step2: Copy all java files into this folder



Step3: Compress the folder **2015510012_Ali_Tas.zip**

Step4: Upload the file **2015510012_Ali_Tas.zip** from *DEUZEM SAKAI*

2- Don't use **ENIGMA** or any other extra library.

3- If you are late, your grade will be decreased by 10 points for each day. After five days, your assignment will not be accepted.

4- Assignment must be your individual work.
Cheating is strictly prohibited.
All source codes will be automatically compared with each other by using a program.
If any cheating occurs, your assignment will be graded with **zero (0)**.

5- Your program must work correctly under all conditions. Try to control all possible errors.

6- You should use meaningful variable names, appropriate comments, and good prompting messages.
For example;
Class Stadium
Stadium[] stadium**s** = new Stadium[60];