T.C.

MARMARA UNIVERSITY

FACULTY of ENGINEERING

COMPUTER ENGINEERING DEPARTMENT

CSE 3055 – Database Systems Logical Database Design Report

Project Name: Football Tournament

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Project Description:

- Aim of this project is to create a simulation of a championship league. In this simulation, there will be a group of football teams and the simulation will show match results and the final table.

- Rules associated with this league is that there will be teams and groups (team and group numbers are tentative). In each group, each team should play with each other, and the first two teams in the group should go to the next round. Every match will be in elimination manner.

- After first step of initial matches resulted, the group matches will be played randomly and there should be a group result table which consisting of number of matches played, scores, goals, and averages.

- At final, for every match played in every step will be showed with their score values.

Project Scope:

- By the time we finish this project, we aim to handle all the requirements of database implementation. Beside that, we plan to handle back-end and front-end development.

- For the back-end development part, we will be creating our own API to be communicating with the web interface. This part will process match tables, scores and all the necessary information to the front-end part. Technologies to be used here is: Node.js

- For the front-end development part, as I mentioned above, gathered information from the back-end will be displayed. Technologies to be used here is: Angular, Typescript, HTML and CSS.

Business process and its definitions:

Step1: Determination of groups By the time the new season is opened, draw is being made by the responsible organization. Depending on the results each team is assigned to corresponding group.

Step2: Group matches By the rules defined in the section 1.3., each team plays matches for the whole seasons against the teams that are in the same group. Succeeding teams will have the right to play further matches in quarter finals.

Step3: Elimination matches This stage starts with quarter finals which contains teams that succeeded in group stage. Every group leader matches randomly with a team that finished the group stage second. After quarter finals remaining teams match in semifinals. At last, remaining two teams match in the finals and tournament concludes. Teams plays two times with each other in every round and loser is out of the tournament.

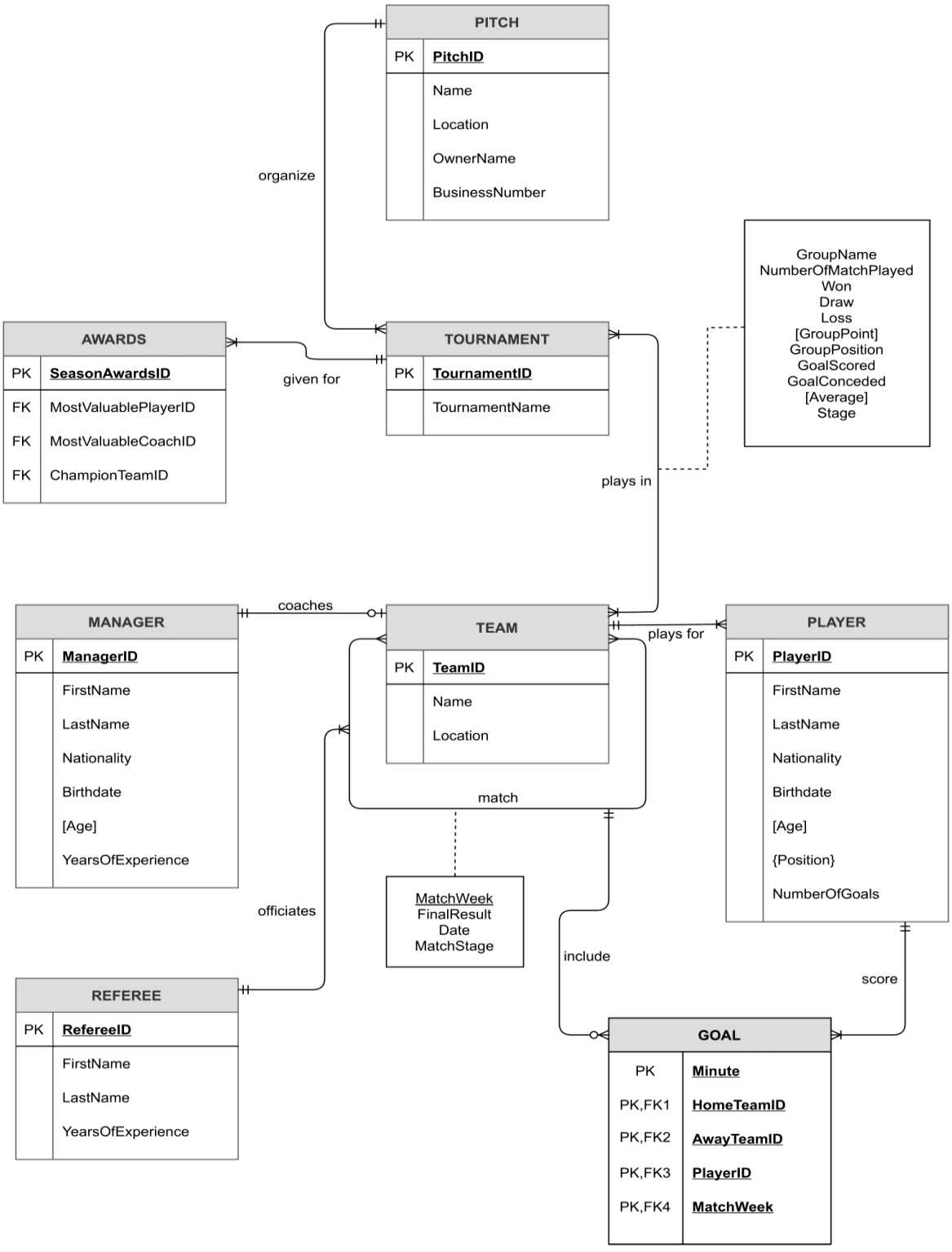
Business rules:

- Number of teams inside the database is determined as 16.
- Number of groups inside the database is determined as 4.
- In each group teams must play with each other at least twice.
- First two teams in each group will be able to go next round.
- After group matches handled next will be in elimination manner.
- Determination of each team's opponent is done randomly.
- If the points of the two teams are equal, the higher average will be placed higher.
- Match scores can range from 0 to 10
- Average is calculated by goal scored – conceded goal

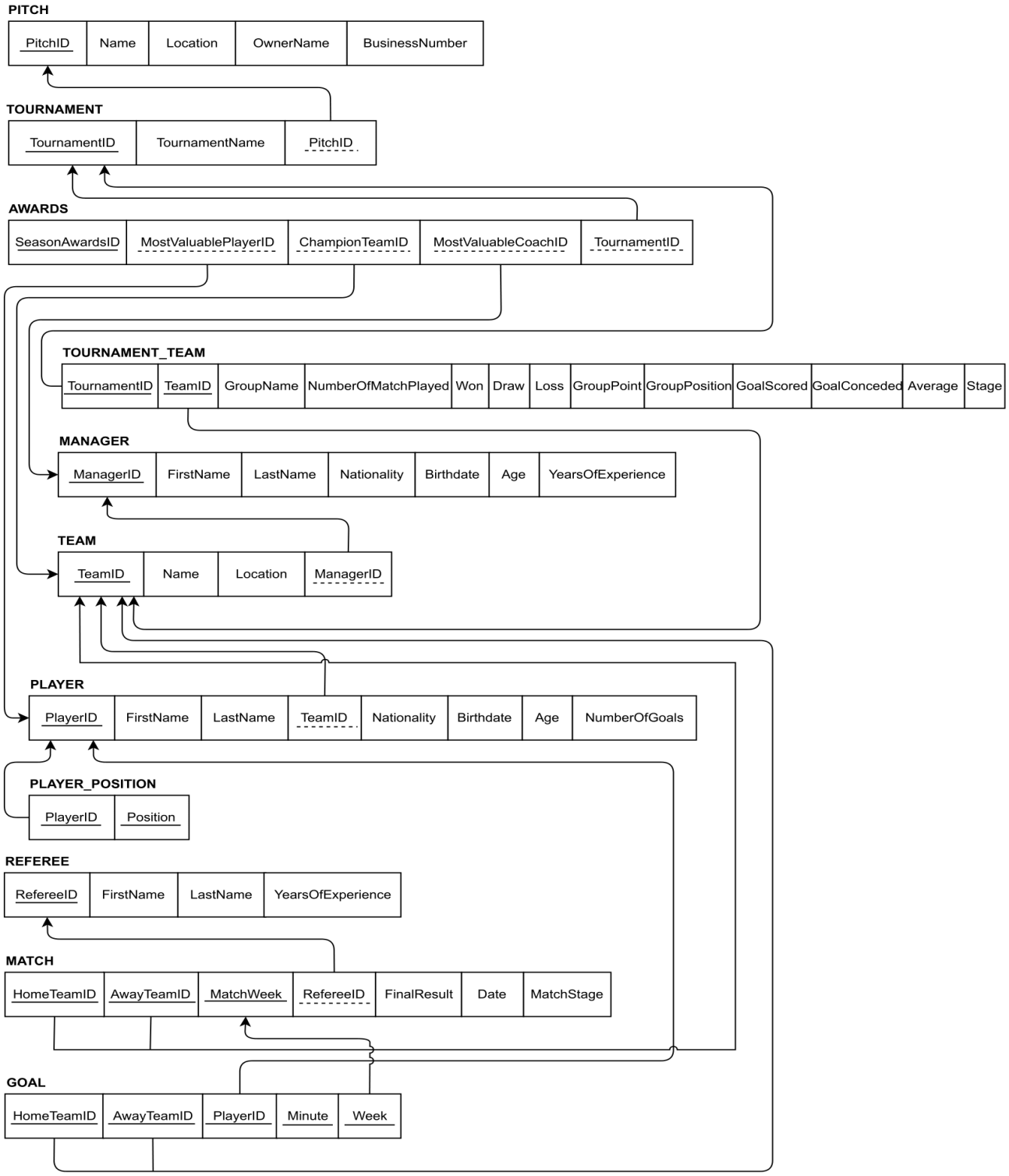
Other functional and non-functional requirements:

- In each group the two teams with most point is going to advance to elimination round
- Elimination rounds have a future of first overtime then penalty shootout in case of total draw with equal scores for each team.
- An API is required for handling communication between backend and frontend
- In the first step group matches will be fetched from the backend via API service.

B) E-R Diagram of whole datebase



Relational Mapping of the Database



C) TABLES

TABLE AWARDS

i) SeasonAwardsID, ChampionTeamID, MostValuablePlayerID, MostValuableCoachID and TournamentID

ii) This table includes some data about awards given at the end of a tournament.

iii) SeasonAwardsID-->**tinyint**

ChampionTeamID-->**tinyint**

MostValuablePlayerID-->**tinyint**

MostValuableCoachID-->**tinyint**

TournamentID-->**tinyint**

iv) There is no index for table AWARDS.

SeasonAwardsID-->**Primay Key**

ChampionTeamID-->**Foreign Key** (from table TEAM)

MostValuablePlayerID--> **Foreign Key** (from table PLAYER)

MostValuableCoachID--> **Foreign Key** (from table MANAGER)

TournamentID--> **Foreign Key** (from table TOURNAMENT)

v) There is no unique, identity, check constraint, default nor computed columns for table AWARDS

vi) No trigger applied.

TABLE GOAL

i) HomeTeamID, AwayTeamID, PlayerID, Minute, Week

ii) This table keeps the records of all goals scored in matches.

iii) HomeTeamID-->tinyint

AwayTeamID-->tinyint

PlayerID-->tinyint

Minute-->tinyint

Week-->char(2)

iv) There is a index for table GOAL named goal_information.

HomeTeamID-->Primary Key and Foreign Key (from table TEAM)

AwayTeamID-->Primary Key and Foreign Key (from table TEAM)

PlayerID-->PrimaryKey and Foreign Key (from table PLAYER)

Minute-->Primary Key and Foreign Key (from table MATCH)

Week-->Primary Key and Foreign Key (from table MATCH)

v) There is no unique, identity, check constraint, default nor computed columns for table GOAL

vi) There is one trigger attached to GOAL table. It is triggered when some row is updated or newly goal information is entered.

TABLE MANAGER

i) ManagerID, FirstName, LastName, Nationality, Birthdate, Age, YearsOfExperience

ii) This table keeps information about managers.

iii) ManagerID-->tinyint

FirstName-->nvarchar(20)

LastName-->nvarchar(20)

Nationality-->char(7)

Birthdate-->date

Age--> COMPUTED COLUMN (from Birthdate)

YearsOfExperience--> tinyint

iv) There is no index for table MANAGER

ManagerID-->Primary Key

v) There is a default value in column NATIONALITY which is 'Turkish' and also a computed column AGE (computed from birthdate). There is no uniques, identities, and check constrains in this table

vi) No trigger applied.

TABLE MATCH

i) HomeTeamID, AwayTeamID, Week, RefereeID, Date, FinalResult, MatchStage

ii) This table keeps information about matches played in a tournament

iii) HomeTeamID-->tinyint

AwayTeamID-->tinyint

Week-->char(2)

RefereeID-->tinyint

Date-->date

FinalResult-->varchar(5)

MatchStage-->varchar(15)

iv) There is no index for table MATCH

HomeTeamID-->Primary Key and Foreign Key (from table TEAM)

AwayTeamID-->Primary Key and Foreign Key (from table TEAM)

Week-->Primary Key

v) There is no unique, identity, check constraint, default nor computed columns for table MATCH

vi) No trigger applied.

TABLE PITCH

i) PitchID, Name, Location, OwnerName, BusinessNumber

ii) This table keeps information about the pitch which organize football tournament.

iii) PitchID-->tinyint

Name-->nvarchar(20)

Location-->nvarchar(20)

OwnerName-->nvarchar(25)

BusinessNumber-->char(10)

iv) There is no index for table PITCH

PitchID-->Primary Key

v) There is a unique in column BUSINESSNUMBER. There is no identity, check constraint, default, computed column for table PITCH

vi) No trigger applied.

TABLE PLAYER

i) PlayerID, FirstName, LastName, TeamID, Nationality, Birthdate, Age, NumberOfGoals

ii) This table keeps information about all the players.

iii) PlayerID-->tinyint

FirstName-->nvarchar(20)

LastName-->nvarchar(20)

TeamID-->tinyint

Nationality-->varchar(25)

Birthdate-->date

Age-->COMPUTED COLUMN

NumberOfGoals-->tinyint

iv) There is a index for table PLAYER named player_firstname_lastname.

PlayerID-->Primary Key

TeamID-->Foreign Key

v) There is no unique, identity, check constraint, default nor computed columns for table PLAYER.

vi) After trigger is triggered from the GOAL table “NumberOfGoals” attribute is updated accordingly to the scenario.

TABLE PLAYER_POSITION

i) PlayerID, Position

ii) This table keeps information about positions of players played.

iii) PlayerID-->tinyint

Position-->varchar(15)

iv) There is no index for table PLAYER_POSITION

PlayerID-->Primary Key and Foreign Key (from table PLAYER)

Position-->Primary Key

v) There is no unique, identity, check constraint, default nor computed columns for table PLAYER_POSITION.

vi) No trigger applied.

TABLE REFEREE

i) RefereeID, FirstName, LastName, YearsOfExperience

ii) This table keeps information about referees

iii) RefereeID-->tinyint

FirstName-->nvarchar(20)

LastName-->nvarchar(20)

YearsOfExperience-->tinyint

iv) There is no index for table REFEREE.

RefereeID-->Primary Key

v) There is a check constrain for table REFEREE named Chk_REFEREE_Years OfExperience which determines that YearsOfExperience must be higher than 0. There is no unique, identity, default nor computed column in table REFEREE

vi) No trigger applied.

TABLE TEAM

i) TeamID, Name, Location, ManagerID

ii) This table keeps information about teams.

iii) TeamID-->tinyint

Name-->nvarchar(20)

Location-->nvarchar(20)

ManagerID-->tinyint

iv) There is no index for table TEAM

TeamID-->Primary Key

ManagerID-->Foreign Key

v) There is no unique, identity, check constraint, default nor computed columns for table TEAM.

vi) No trigger applied.

TABLE TOURNAMENT

i) TournamentID, TournamentName, PitchID

ii) This table keeps information about tournament.

iii) TournamentID-->tinyint

TournamentName-->nvarchar(75)

PitchID-->tinyint

iv) There is no index for table TOURNAMENT.

TournamentID-->Primary Key

PitchID-->Foreign Key

v) There is no unique, identity, check constraint, default nor computed columns for table TOURNAMENT.

vi) No trigger applied.

TABLE TOURNAMENT_TEAM

i) TournamentID, TeamID, GroupName, NumberOfMatchPlayed, Won, Draw, Loss, GroupPoint, GoalScored, GoalConceded, Average, GroupPosition, Stage

ii) This table keeps information for some team statistics in a tournament.

iii) TournamentID-->tinyint

TeamID-->tinyint

GroupName-->char(1)

NumberOfMatchPlayed-->tinyint

Won-->tinyint

Draw-->tinyint

Loss-->tinyint

GroupPoint-->COMPUTED COLUMN (from Won*3 + Draw)

GoalScored-->smallint

GoalConceded-->smallint

Average-->COMPUTED COLUMN (from GoalScored – GoalConceded)

GroupPosition-->char(1)

Stage-->varchar(15)

iv) There is no index for table TOURNAMENT_TEAM

TournamentID-->Primary Key and Foreign Key (from table TOURNAMENT)

TeamID-->Primary Key and Foreign Key (from table TEAM)

v) There is two computed colums in table TOURNAMENT_TEAM which are GroupPoint and Average. There is no unique, identity, check constraint nor defaults is table TOURNAMENT_TEAM.

vi) No trigger applied.

D) VIEWS

1-Foreign Players View

i) Foreign_Players

ii) This view shows number of foreign players for each nation.

iii)

```
CREATE VIEW Foreign_Players
AS
SELECT COUNT(*) NmbrOfPlyrs,p.Nationality
FROM PLAYER p inner join TEAM t on p.TeamID=t.TeamID
WHERE p.Nationality not like 'Turkish'
GROUP BY p.Nationality
```

	NmbrOfPlyrs	Nationality
1	2	Azerbaijani
2	1	Bosnian
3	1	Caucasian
4	1	Chinesee
5	2	Ginean
6	2	Persian
7	1	Senagalese

2-Match number of each referee View

i) Referee_Matches

ii) This view shows the number of match officiated for each referee

iii)

```
CREATE VIEW Referee_Matches
AS
SELECT COUNT(*) NmbrOfMtchs, r.FirstName + ' ' + r.LastName as FullName
FROM REFEREE r inner join MATCH m on r.RefereeID=m.RefereeID
GROUP BY r.FirstName + ' ' + r.LastName
ORDER BY NmbrOfMtchs DESC
```

	NmbrOfMtchs	FullName
1	3	Ali Dinke
2	3	Emin Mertol
3	3	Kerim Yıldırım
4	3	Mahmut Aslantaş
5	3	Mehmet Ali Kocatepe
6	3	Mustafa Kuzey
7	3	Hasan Salihoğlu
8	3	Hüseyin Halsiz
9	2	Tuna Sezer
10	1	Yıldırım Türkoğlu
11	1	İbrahim Tezcan
12	1	Oğuzhan Tepe
13	1	Hakan Marangoz
14	1	Hasan Akbaba

3- Second half top scorers View

i) SecondHalf_TopScorers

ii) This view shows the top five second half scorer and how much goal he scored

iii)

```
CREATE VIEW SecondHalf_TopScorers
AS
SELECT TOP 5 COUNT(*) GoalNmbr,p.FirstName + ' ' + p.LastName as FullName
FROM PLAYER P inner join GOAL g on p.PlayerID=g.PlayerID
WHERE g.Minute between 30 and 60
GROUP BY p.FirstName + ' ' + p.LastName
ORDER BY GoalNmbr DESC
```

	GoalNmbr	FullName
1	9	Tolga Çelik
2	7	Burak Kurt
3	5	Enes Yorulmaz
4	5	Hong Lee
5	4	Adil Özgüdenli

4- Young Player per Team View

i) YoungPlayer_PerTeam

ii) This view shows how many young players plays for each team. If a player has a age that is smaller than average age of all players then he is considered as young player.

iii)

```
CREATE VIEW YoungPlayer_PerTeam
AS
SELECT COUNT(*) YoungPlayerNumber,t.Name
FROM PLAYER p inner join TEAM t on p.TeamID=t.TeamID
WHERE p.age<(SELECT AVG(Age)
             FROM PLAYER)
GROUP BY t.Name
ORDER BY YoungPlayerNumber DESC
```

	YoungPlayerNumber	Name
1	6	Hamsispor
2	6	Lokomotif Haydarpaşa
3	6	Moda Kozmoz
4	6	Şehremini FK
5	5	Köyiçi FK
6	4	Crusader FK
7	3	Dedeler FK
8	3	İmangücü İdman Yurdu
9	2	Baklavasına FK
10	2	Haddini Bilbao
11	2	Olimpique Limon
12	1	Hakiki Gol FK
13	1	Bacakspor

5-Young Managers View

i) Young_Managers

ii) This view show the young managers. If a manager has a age that is smaller than average age of all managers then he is considered as young manager

iii)

```
CREATE VIEW Young_Managers
AS
SELECT  m.FirstName + ' ' + m.LastName as FullName
FROM MANAGER m
WHERE m.Age<(SELECT AVG(AGE)
             FROM MANAGER)
```

	FullName
▶	Adem Tepe
	Celalettin Doğr...
	Hamit Akarsu
	Mustafa Sevimli
	Mehmet Aydın
	Yasin Topçu
	Serdar Demirel
	Habil Sucuoğlu
	Kamil Sönmez
	Mustafa Karagöz
	Attila Ünlü
•	*NULL*

E) TRIGGERS

GoalOccuredorCorrected

Explanation: This trigger works between "Goal" and "Player" tables. It works when a newly goal information is inserted or some of them deleted from the table GOAL. When it is triggered "NumberOfGoals" attribute from the PLAYER table is updated.

Code part:

```
Create Trigger GoalOccuredorCorrected
    on GOAL
    after insert, delete
as
begin

    Update p
    Set NumberOfGoals = NumberOfGoals + 1
    From Player p inner join inserted i on i.PlayerID=p.PlayerID

    Update p
    Set NumberOfGoals = NumberOfGoals - 1
    From Player p inner join deleted d on d.PlayerID=p.PlayerID

end
```

Initials States:

	14	16	79	26	3
	14	16	79	37	3
	15	16	86	35	2
	15	16	93	28	2
*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*

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PlayerID	FirstName	LastName	TeamID	Nationality	Birthdate	Age	NumberOf...
1	Faruk	Çakır	1	Ugandan	1997-07-20	24	9
2	Ömer	Kaçmaz	1	Turkish	1996-09-11	25	7
3	Kerem	Saçaklı	1	Turkish	1998-02-26	23	0
4	Metin	Emin	1	Turkish	1995-12-25	26	0
5	Kerem	Sakın	1	Turkish	1998-07-08	23	0

After inserting two goals information to the GOAL table:

	14	16	79	37	3
	15	16	86	35	2
	15	16	93	28	2
	1	5	1	45	2
	1	6	1	24	3
▶*	NULL	NULL	NULL	NULL	NULL

PlayerID	FirstName	LastName	TeamID	Nationality	Birthdate	Age	NumberOf...
1	Faruk	Çakır	1	Ugandan	1997-07-20	24	11
2	Ömer	Kaçmaz	1	Turkish	1996-09-11	25	7
3	Kerem	Saçaklı	1	Turkish	1998-02-26	23	0
4	Metin	Emin	1	Turkish	1995-12-25	26	0
5	Kerem	Sakın	1	Turkish	1998-07-08	23	0

After deleting one of the goals newly added from the GOAL table:

	14	15	86	56	1
	14	16	79	26	3
	14	16	79	37	3
	15	16	86	35	2
	15	16	93	28	2
▶	1	6	1	24	3
*	NULL	NULL	NULL	NULL	NULL

PlayerID	FirstName	LastName	TeamID	Nationality	Birthdate	Age	NumberOf...
1	Faruk	Çakır	1	Ugandan	1997-07-20	24	10
2	Ömer	Kaçmaz	1	Turkish	1996-09-11	25	7
3	Kerem	Saçaklı	1	Turkish	1998-02-26	23	0
4	Metin	Emin	1	Turkish	1995-12-25	26	0
5	Kerem	Sakın	1	Turkish	1998-07-08	23	0
6	Şah	Muradov	1	Azerbaijani	1994-10-29	27	1

F) STORED PROCEDURES

1 - sp_InsertManagerInfo

Explanation: A new manager can be created with using this stored procedure.

Coding part:

```
create proc sp_InsertManagerInfo
    @ManagerID tinyint,
    @FirstName nvarchar(20), @LastName nvarchar(20),
    @Nationality char(7), @Birthdate date,
    @Experience tinyint
as
begin
    set nocount on;

    insert into Manager(ManagerID, FirstName, LastName, Nationality,Birthdate,YearsOfExperience)
    values(@ManagerID,@FirstName,@LastName,@Nationality,@Birthdate,@Experience)
end
```

```
exec sp_InsertManagerInfo 31, 'Mehmet', 'Kelek', 'Fransa', '1980-10-10', 15
```

Before and After:

ManagerID	FirstName	LastName	Nationality	Birthdate	Age	YearsOfExp...
2	Yusuf	Hacıoğlu	Turkish	1986-02-05	35	6
3	Celalettin	Doğruyol	Turkish	1988-10-21	33	2
4	Oktay	Camcı	Turkish	1987-06-11	34	5
5	Hamit	Akarsu	Turkish	1989-03-26	32	5
6	Ekrem	Yerebakan	Turkish	1982-05-29	39	10
7	Mustafa	Sevimli	Turkish	1991-11-13	30	1
8	Mehmet	Aydın	Turkish	1989-07-19	32	2
9	Mehmet	Beşiroğlu	Turkish	1986-10-24	35	2
10	Yasin	Topçu	Turkish	1988-05-03	33	4
11	Serdar	Demirel	Turkish	1989-08-17	32	3
12	Ali	Yıldırım	Turkish	1981-12-06	40	8
13	Barış	Haskaya	Turkish	1985-07-12	36	6
14	Muhammed...	Kaldırım	Turkish	1986-11-19	35	2
15	Habil	Sucuoğlu	Turkish	1988-10-09	33	1
16	Fatih	Ay	Turkish	1982-06-16	39	6
17	Murat	Ok	Turkish	1978-03-27	43	10
18	Kamil	Sönmez	Turkish	1990-07-18	31	2
19	Mustafa	Karagöz	Turkish	1989-11-16	32	1
20	Attila	Ünlü	Turkish	1990-03-14	31	2
21	Kazım	Karabasan	Turkish	1992-05-15	29	4
22	Berk	Sevdalı	Turkish	1991-06-16	30	4
23	Ahmet	Gül	Turkish	1988-09-09	33	6
24	Kadir	Uhut	Turkish	1985-08-11	36	8
25	Hüseyin	Nohutçu	Turkish	1988-10-11	33	6
26	Mustafa	Bahçebaşı	Turkish	1978-05-06	43	15
27	Burak	Yurtsever	Turkish	1980-12-11	41	14
28	Mehmet	Soyaslan	Turkish	1993-08-17	28	3
29	Mevlüt	Mendeş	Turkish	1992-11-25	29	2
30	Muhsin	Görek	Turkish	1987-01-30	34	7
NULL	NULL	NULL	NULL	NULL	NULL	NULL

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ManagerID	FirstName	LastName	Nationality	Birthdate	Age	YearsOfExp...
3	Celalettin	Doğruyol	Turkish	1988-10-21	33	2
4	Oktay	Camcı	Turkish	1987-06-11	34	5
5	Hamit	Akarsu	Turkish	1989-03-26	32	5
6	Ekrem	Yerebakan	Turkish	1982-05-29	39	10
7	Mustafa	Sevimli	Turkish	1991-11-13	30	1
8	Mehmet	Aydın	Turkish	1989-07-19	32	2
9	Mehmet	Beşiroğlu	Turkish	1986-10-24	35	2
10	Yasin	Topçu	Turkish	1988-05-03	33	4
11	Serdar	Demirel	Turkish	1989-08-17	32	3
12	Ali	Yıldırım	Turkish	1981-12-06	40	8
13	Barış	Haskaya	Turkish	1985-07-12	36	6
14	Muhammed...	Kaldırım	Turkish	1986-11-19	35	2
15	Habil	Sucuoğlu	Turkish	1988-10-09	33	1
16	Fatih	Ay	Turkish	1982-06-16	39	6
17	Murat	Ok	Turkish	1978-03-27	43	10
18	Kamil	Sönmez	Turkish	1990-07-18	31	2
19	Mustafa	Karagöz	Turkish	1989-11-16	32	1
20	Attila	Ünlü	Turkish	1990-03-14	31	2
21	Kazım	Karabasan	Turkish	1992-05-15	29	4
22	Berk	Sevdalı	Turkish	1991-06-16	30	4
23	Ahmet	Gül	Turkish	1988-09-09	33	6
24	Kadir	Uhut	Turkish	1985-08-11	36	8
25	Hüseyin	Nohutçu	Turkish	1988-10-11	33	6
26	Mustafa	Bahçebaşı	Turkish	1978-05-06	43	15
27	Burak	Yurtsever	Turkish	1980-12-11	41	14
28	Mehmet	Soyaslan	Turkish	1993-08-17	28	3
29	Mevlüt	Mendeş	Turkish	1992-11-25	29	2
30	Muhsin	Görek	Turkish	1987-01-30	34	7
31	Mehmet	Kelek	Fransa	1980-10-10	41	15
NULL	NULL	NULL	NULL	NULL	NULL	NULL

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2- sp_InsertRefereeInfo

Explanation: A new referee can be created with using this stored procedure.

Coding part:

```
create proc sp_InsertRefereeInfo
    @RefereeID tinyint, @FirstName nvarchar(20),
    @LastName nvarchar(20), @Experience int
as
begin
    set nocount on;

    insert into Referee(RefereeID, FirstName, LastName, YearsOfExperience)
    values(@RefereeID,@FirstName,@LastName,@Experience)
end
```

```
exec sp_InsertRefereeInfo 31, 'Kadir', 'Kulak', 6
```

Before and After:

	RefereeID	FirstName	LastName	YearsOfExp...
	2	Hasan	Salihoğlu	2
	3	Hüseyin	Halsiz	3
	4	Mahmut	Aslantaş	3
	5	Ali	Dinke	4
	6	Oğuzhan	Tepe	2
	7	Yıldırım	Türkoğlu	1
	8	Hakan	Marangoz	2
	9	Mehmet Ali	Kocatepe	6
	10	Mustafa	Kuzey	4
	11	Hasan	Akbaba	2
	12	İbrahim	Tezcan	2
	13	Tuna	Sezer	3
	14	Kerim	Yıldırım	3
	15	İlyas	Bozbaş	5
	16	Emre	Kuserli	6
	17	Narin	Kasapoğlu	8
	18	Hasan	Rışvanlı	6
	19	Serdar	Bora	7
	20	Sezgin	Ülker	5
	21	Muhammed	Temel	7
	22	Kıvanç	Samsa	3
	23	Abdurrahm...	Fuat	4
	24	Tekin	Kasar	2
	25	Ulaş	Elçi	8
	26	Mehmet	Şentürk	6
	27	Evren	Özalp	5
	28	Özden	Akdur	3
	29	Nezih	Uyluk	10
	30	Erem	Çalış	5
*	NULL	NULL	NULL	NULL

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	RefereeID	FirstName	LastName	YearsOfExp...
	3	Hüseyin	Halsiz	3
	4	Mahmut	Aslantaş	3
	5	Ali	Dinke	4
	6	Oğuzhan	Tepe	2
	7	Yıldırım	Türkoğlu	1
	8	Hakan	Marangoz	2
	9	Mehmet Ali	Kocatepe	6
	10	Mustafa	Kuzey	4
	11	Hasan	Akbaba	2
	12	İbrahim	Tezcan	2
	13	Tuna	Sezer	3
	14	Kerim	Yıldırım	3
	15	İlyas	Bozbaş	5
	16	Emre	Kuserli	6
	17	Narin	Kasapoğlu	8
	18	Hasan	Rışvanlı	6
	19	Serdar	Bora	7
	20	Sezgin	Ülker	5
	21	Muhammed	Temel	7
	22	Kıvanç	Samsa	3
	23	Abdurrahm...	Fuat	4
	24	Tekin	Kasar	2
	25	Ulaş	Elçi	8
	26	Mehmet	Şentürk	6
	27	Evren	Özalp	5
	28	Özden	Akdur	3
	29	Nezih	Uyluk	10
	30	Erem	Çalış	5
	31	Kadir	Kulak	6
*	NULL	NULL	NULL	NULL

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3- sp_ListMatches

Explanation: This stored procedure takes a date as input value and lists the matches played between date and current date. If the entered date time is not within the season time, it raises an error informing the database user.

Code part:

```
create proc sp_ListMatches
      @Date date
as
begin
      set nocount on;
      if (@Date<'2020-12-01')
      begin
         Raiserror('Not a date involving in season time!', 0, 1)
         return 0
      end
      Select th.Name HomeTeam, ta.Name AwayTeam, m.Week WeekNumber, r.FirstName + ' ' + r.LastName RefereeFullname,
                  m.Date WhichDate, m.FinalResult Result, m.MatchStage Stage
      From Match m inner join Team ta on m.AwayTeamID=ta.TeamID
                  inner join Team th on m.HomeTeamID=th.TeamID
                  inner join REFEREE r on m.RefereeID=r.RefereeID
      Where m.Date > @Date
end

exec sp_ListMatches '2020-12-10'
```

Execution:

	HomeTeam	AwayTeam	WeekNumber	RefereeFullname	WhichDate	Result	Stage
1	Olimpique Limon	Bacakspor	5	Ali Dinke	2020-12-15	2-1	SEMI FINALS
2	Olimpique Limon	Lokomotif Haydarpaşa	4	Kerim Yıldırım	2020-12-13	3-2	QUARTER FINALS
3	Olimpique Limon	Şehremini FK	6	Mehmet Ali Kocatepe	2020-12-16	1-3	FINALS
4	Bacakspor	Dedeler FK	4	Hüseyin Halsiz	2020-12-13	3-1	QUARTER FINALS
5	Haddini Bilbao	Baklavasına FK	3	Hasan Akbaba	2020-12-11	1-3	GROUP C
6	Şehremini FK	Köyiçi FK	3	İbrahim Tezcan	2020-12-11	3-0	GROUP C
7	Şehremini FK	Cerrahpaşa FK	5	Mustafa Kuzey	2020-12-15	3-1	SEMI FINALS
8	Şehremini FK	Hamsispor	4	Mahmut Aslantaş	2020-12-14	5-1	QUARTER FINALS
9	Baklavasına FK	Cerrahpaşa FK	4	Emin Mertol	2020-12-14	1-3	QUARTER FINALS
10	Red Bull Sarıyer	Hakiki Gol FK	3	Hasan Salihoğlu	2020-12-12	3-3	GROUP D
11	Cerrahpaşa FK	Hamsispor	3	Hasan Salihoğlu	2020-12-12	2-0	GROUP D

4- sp_MostValuablesForTeam

Explanation: This stored procedure takes a team name as input parameter and finds out max goals achieved by a player during the whole season and also team's coach informations.

Code part:

```
create proc sp_MostValuablesForTeam
      @TeamName nvarchar(20)
 as
begin
      set nocount on;

      Select MAX(p.NumberOfGoals) PlayerWithMaxGoal, mg.FirstName + ' ' + mg.LastName TeamsCoach
      From TOURNAMENT_TEAM tt inner join TEAM t on tt.TeamID=t.TeamID
           inner join Player p on p.TeamID=t.TeamID
           inner join Manager mg on t.ManagerID=mg.ManagerID
      Where t.Name=@TeamName
      Group By t.TeamID, mg.FirstName + ' ' + mg.LastName
end

exec sp_MostValuablesForTeam 'Köyiçi FK'
```

Execution:

	PlayerWithMaxGoal	TeamsCoach
1	2	Attila Ünlü

5- sp_RefereeStages

Explanation: This stored procedure first name and last name information of the referee's as input parameters and prints out how many matches officiated by the referee at which stages.

Code part:

```
create proc sp_RefereeStages
    @RefereeFN nvarchar(20), @RefereeLN nvarchar(20)
as
begin
    Select m.MatchStage, Count(*) NumberOfMatches
    From Referee r inner join Match m on m.RefereeID=r.RefereeID
    Where r.FirstName=@RefereeFN and r.LastName=@RefereeLN
    Group By m.MatchStage
end

exec sp_RefereeStages 'Emin', 'Mertol'
```

Execution:

	MatchStage	NumberOfMatches
1	GROUP C	2
2	QUARTER FINALS	1

6- sp_TeamSeasonStats

Explanation: This stored procedure takes a team name as the input parameter and prints out every detail of the statistics about the team.

Code part:

```
create proc sp_TeamSeasonStats
     @TeamName nvarchar(20)
as
begin
     set nocount on;

     Select *
     From TOURNAMENT_TEAM tt inner join Team t on tt.TeamID=t.TeamID
     Where t.Name = @TeamName
end

exec sp_TeamSeasonStats 'Olimpique Limon'
```

Execution:

	TournamentID	TeamID	GroupName	NumberOfMatchPlayed	Won	Draw	Loss	GroupPoint	GoalScored	GoalConceded	Average	GroupPosition	Stage	TeamID	Name	Location	ManagerID
1	1	1	A	6	2	1	0	7	10	6	4	1	Finals	1	Olimpique Limon	Kadiköy	10

7- sp_TopGoalScorers

Explanation: This stored procedure takes a limit number as the input parameter and prints out top x players having most goals scored.

Code part:

```
create proc sp_TopGoalScorers
     @limit int
as
begin
     set nocount on;

     Select rank() over(Order By p.NumberOfGoals desc) rankNum, *
     from (Select top(@limit) *
          From Player) p
end

exec sp_TopGoalScorers 5
```

Execution:

	rankNum	PlayerID	FirstName	LastName	TeamID	Nationality	Birthdate	Age	NumberOfGoals
1	1	55	Tolga	Çelik	10	Turkish	1999-02-15	22	14
2	2	10	Burak	Kurt	2	Turkish	1996-11-16	25	11
3	3	1	Enes	Yorulmaz	1	Turkish	1997-05-20	24	8
4	4	2	Ömer	Kaçmaz	1	Turkish	1996-09-11	25	7
5	4	30	Bilal	Beşikçi	5	Turkish	1999-11-07	22	7

8- sp_UpdatePitchInfo

Explanation: Considering there might be a typo occurred during storage of a row entered, this stored procedure allows to update table PITCH.

Code part:

```
create proc sp_UpdatePitchInfo
      @PitchID tinyint, @Name nvarchar(20),
      @Location nvarchar(20), @OwnerName nvarchar(25), @BusinessNumber char(10)
as
begin
      set nocount on;

      Update PITCH
      Set Name=@Name, Location=@Location,
         OwnerName=@OwnerName, BusinessNumber=@BusinessNumber
      Where PitchID=@PitchID
end
```

```
exec sp_UpdatePitchInfo 1, 'MALTEPECLUB', 'ESENYURT', 'EMRE', '5535557741'
```

Before and After:

	PitchID	Name	Location	OwnerName	BusinessNu...
▶	1	AYDINOĞLU	MALTEPE	ÖZGÜR	5531981741
*	NULL	NULL	NULL	NULL	NULL

	PitchID	Name	Location	OwnerName	BusinessNu...
▶	1	MALTEPECL...	ESENYURT	EMRE	5535557741
*	NULL	NULL	NULL	NULL	NULL

9- sp_UpdatePlayerInfo

Explanation: Considering there might be a typo occurred during storage of a row entered, this stored procedure allows to update table PLAYER.

Code part:

```
create proc sp_UpdatePlayerInfo
     @PlayerID tinyint, @FirstName nvarchar(20), @LastName nvarchar(20),
     @Nationality varchar(25), @Birthdate date, @NumberOfGoals tinyint
as
begin
     set nocount on;

     Update Player
     Set FirstName=@FirstName, LastName=@LastName, Nationality=@Nationality,
         Birthdate=convert(date, @Birthdate), NumberOfGoals=@NumberOfGoals
     Where PlayerID=@PlayerID
end

exec sp_UpdatePlayerInfo 1, 'Faruk', 'Çakır', 'Ugandan', '1997-07-20', 9
```

Before and After:

PlayerID	FirstName	LastName	TeamID	Nationality	Birthdate	Age	NumberOf...
1	Enes	Yorulmaz	1	Turkish	1997-05-20	24	8
2	Ömer	Kaçmaz	1	Turkish	1996-09-11	25	7
3	Kerem	Saçaklı	1	Turkish	1998-02-26	23	0
4	Metin	Emin	1	Turkish	1995-12-25	26	0
5	Kerem	Sakın	1	Turkish	1998-07-08	23	0

PlayerID	FirstName	LastName	TeamID	Nationality	Birthdate	Age	NumberOf...
1	Faruk	Çakır	1	Ugandan	1997-07-20	24	9
2	Ömer	Kaçmaz	1	Turkish	1996-09-11	25	7
3	Kerem	Saçaklı	1	Turkish	1998-02-26	23	0
4	Metin	Emin	1	Turkish	1995-12-25	26	0
5	Kerem	Sakın	1	Turkish	1998-07-08	23	0

10- sp_UpdateRefereeInfo:

Explanation: Considering there might be a typo occurred during storage of a row entered, this stored procedure allows to update table REFREE.

Code part:

```
create proc sp_UpdateRefereeInfo
    @RefereeID tinyint, @FirstName nvarchar(20),
    @LastName nvarchar(20), @Experience int
as
begin
    set nocount on;

    Update REFEREE
    Set RefereeID=@RefereeID, FirstName=@FirstName,
        LastName=@LastName, YearsOfExperience=@Experience
    Where RefereeID=@RefereeID
end
```

```
exec sp_UpdateRefereeInfo 1, 'Yaman', 'Şaner', 5
```

Before and After:

RefereeID	FirstName	LastName	YearsOfExp...
1	Emin	Mertol	3
2	Hasan	Salihoğlu	2
3	Hüseyin	Halsiz	3
4	Mahmut	Aslantaş	3
5	Ali	Dinke	4

RefereeID	FirstName	LastName	YearsOfExp...
1	Yaman	Şaner	5
2	Hasan	Salihoğlu	2
3	Hüseyin	Halsiz	3
4	Mahmut	Aslantaş	3
5	Ali	Dinke	4