Bilkent University

CS 353

Database Systems

Project Final Report

Football Database System

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1. Project Description

Football Database System is a web-based application that built for viewing the roster of the football clubs, contract of the players for the club and monitoring and maintaining the various leagues and other competitions. This database system contains the information of the player, club director, club, agent, doctor, coach and the various leagues.

This project offers seven different user domains; Administrator, Club Director, Agent, Coach, Doctor, Player and Fan. All the user domains can view teams, view players, view fixture, view result of the matches, view leagues and view ended transfers.

Our project is for the club directors to make a transfer offer to the other team's players. Agents can see the transfer offer for their player from the Club Director and decide whether they set the transfer meeting or not for the football player. After completing the transaction, system will notify both parties. Furthermore, Fans who should sign up before they can use this feature can keep up with the news of their favorite team which they can customize from their profile page according to their choices.

Workload of the project respectively; **Koray**, wrote a brief description of the application system, implementation details part in the final report and design manuel's description part. **Tanay and Ekinsu** designed the website through the bootstrap, **Kaan**, built the database system of the project, rewrote the algorithms of the design report, built the connection between the database and the website.

2. Relation Schemas

2.1. Person

Relational Model:

Person (person_id,first_name, last_name, e-mail, password, salary, date_of_birth, age(), phone_number)

Foreign Keys:

None

2.2. Fan

Relational Model:

Fan (fan_id,favourite_team)

Foreign Keys: fan_id REFERENCES Person (person_id)
favourite_team REFERENCES Club (club_id))

2.3. Doctor

Relational Model:

Doctor(doctor_id,academic degree,club_id)

Candidate Keys:

{(doctor_id)}

Foreign Keys: doctor_id REFERENCES Person(person_id))
club_id REFERENCES Club (club_id))

2.4. Agent

Relational Model:

Agent (agent_id,date_of_start)

Candidate Keys:

{(agent_id)}

Foreign Keys: agent_id REFERENCES Person(person_id));

2.5. Coach

Relational Model:

Coach (coach_id,goal_percentage, formation,club_id)

Candidate Keys:

{ (coach_id)}

Foreign Keys:coach_id REFERENCES Person(person_id))

club_id REFERENCES Club (club_id))

2.6. Director

Relational Model:

Director(director_id,club_id)

Candidate Keys:

{(director_id)}

Foreign Keys: director_id REFERENCES Person(person_id))

club_id REFERENCES Club (club_id))

2.7. Player

Relational Model:

Player (player_id,club_id,uniform_number, position, nationality,

captain,agent,doctor,coach)

Candidate Keys:

{ (player_id), (team,uniform_number)}

Foreign Keys: coach REFERENCES Coach(coach_id),

player_id REFERENCES Person(person_id),

2.8. Club

Relational Model:

Club (club_id,name, date_of_establishment, colors, number_of_cups, stadium, number_stars total_amount)

Candidate Keys:

{(club_id)}

Foreign Keys:

None

2.9. Game

Relational Model:

Game (Game_id, date,score,arena, home_team, away_team,league_number)

Candidate Keys:

{(Game_id)}

Foreign Keys: home_team REFERENCES Club(club_id))
away_team REFERENCES Club(club_id))
league_number REFERENCES League(league_number))

2.10 League

Relational Model:

League(league_id,date)

Candidate Keys:

{(league_id)}

Foreign Keys:

None

2.11. Offer

Relational Model:

Offer (player,director,date,transfer_fee)

Foreign Keys:player REFERENCES Player(player_id)

director REFERENCES Director(director_id)

2.12. Treats

Relational Model:

Treats (player,doctor,duration,injury_detail)

Foreign Keys:player REFERENCES Player(player_id)

doctor REFERENCES Director(director_id)

2.13. Sets

Relational Model:

Sets(player,agentidate)

Foreign Keys: player REFERENCES Player(player_id)

agent REFERENCES Agent(agent_id)

2.14. Plays_in

Relational Model:

Plays _in(player,game,passes,goal,injury_accuracy)

Foreign Keys: player REFERENCES Player(player_id)

game REFERENCES Game(game_id)

2.15. Contract

Relational Model:

Contract(player,club,transfer_fee,start_date,end_date)

Foreign Keys: player REFERENCES Player(player_id)

club REFERENCES Club(club_id)

2.16. Trains

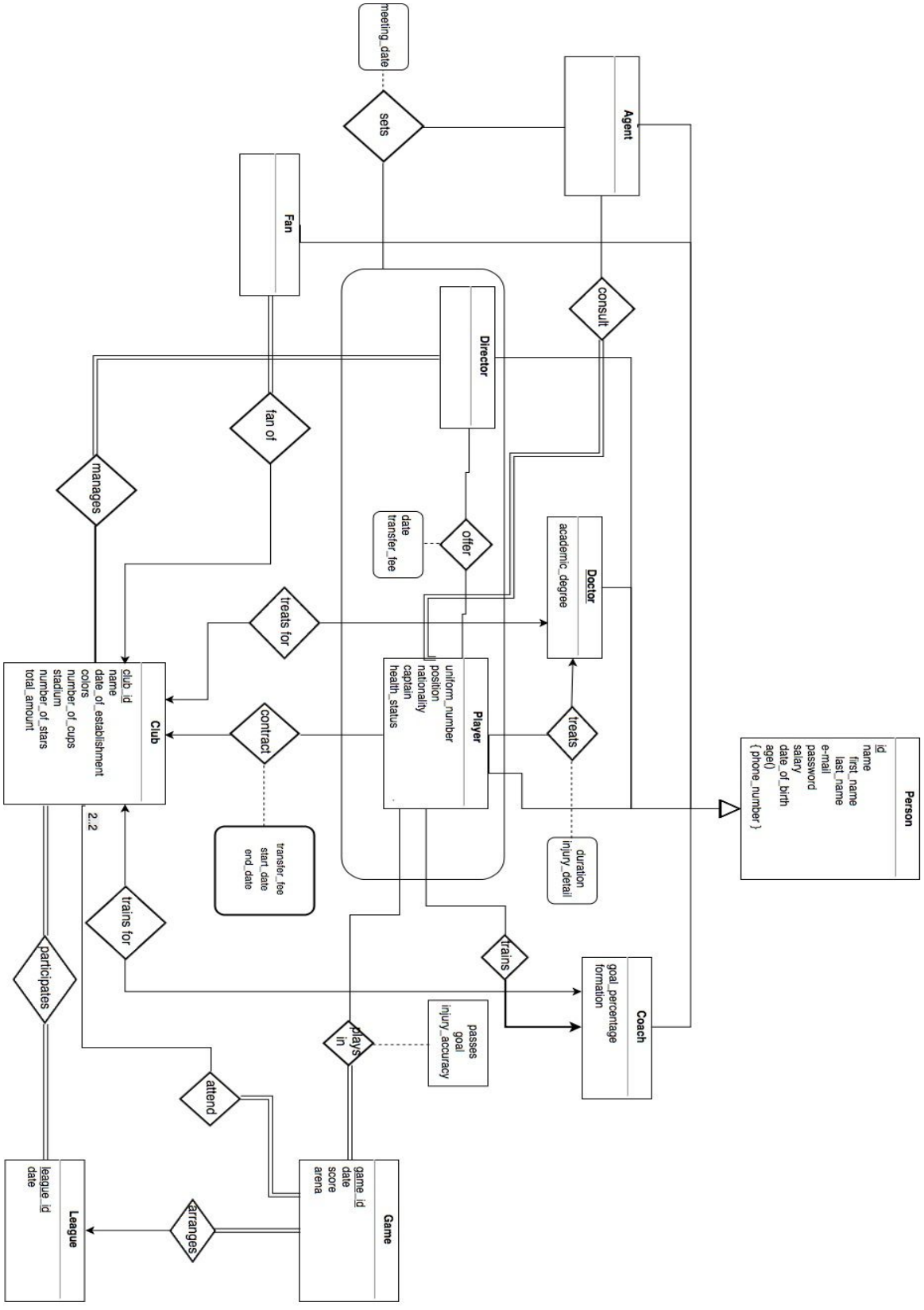
Relational Model:

Trians(player,coach)

Foreign Keys: player REFERENCES Player(player_id)

coach REFERENCES Coach(coach_id)

3. E/R Diagram


meeting_date
sets
Agent
Fan
consult
Director
fan of
manages
offer
date
transfer_fee
Doctor
academic_degree
treats for
Club
club_id
name
date_of_establishment
colors
number_of_cups
stadium
number_of_stars
total_amount
contract
Player
uniform_number
position
nationality
captain
health_status
treats
Person
id
name
first_name
last_name
e-mail
password
salary
date_of_birth
age()
{phone_number}
transfer_fee
start_date
end_date
duration
injury_detail
2..2
trains for
participates
trains
Coach
goal_percentage
formation
plays in
passes
goal
injury_accuracy
attend
League
league_id
date
arranges
Game
game_id
date
score
arena

4. Implementation Details

For our database project, we used XAMPP to create the database of the system and to monitoring the PHP codes that we wrote to see whether they are working or not.

For our project, we use Bootstrap framework to create a user interface and visuals for our website.

We chose to use MySQL to create the database of the project. To maintain a connection between the website and database we used Javascript. Finally, for the website we used PHP language.

We encountered couple of problems such as; When we close the XAMPP and reopen again, we encountered a connection error between SQL and XAMPP so we have to delete XAMPP from the computer and reinstall every time to create a SQL connection.

Second problem we encountered was, this was the first time that we used Javascript and PHP so we got errors in our implementation of the code. We had to search through the internet to resolve those issues.

Final problem was, we didn’t know how to create visuals in the Bootstrap framework, so we have to search how to add and edit the visuals through the website of the Bootstrap framework.

5. Advance Database Components

5.1 Views

Top 5 Most richest football clubs

```
CREATE VIEW clubs_top10(club_name, total_amount, wage_budget,
transfer_budget)
AS SELECT(name, total_amount, wage_budget, transfer_budget)
FROM club
SELECT club_id,SUM(wage_budget) + SUM(transfer_budget) AS total amount
FROM club
GROUP BY(club_id)
ORDER BY total_amount DESC
LIMIT 10
```

Ongoing Transfers

```
create view ongoing_offers
as select *
from (offer join player) join person on player = player_id and person_id = player_id
```

5.2. Player Received Offers Report

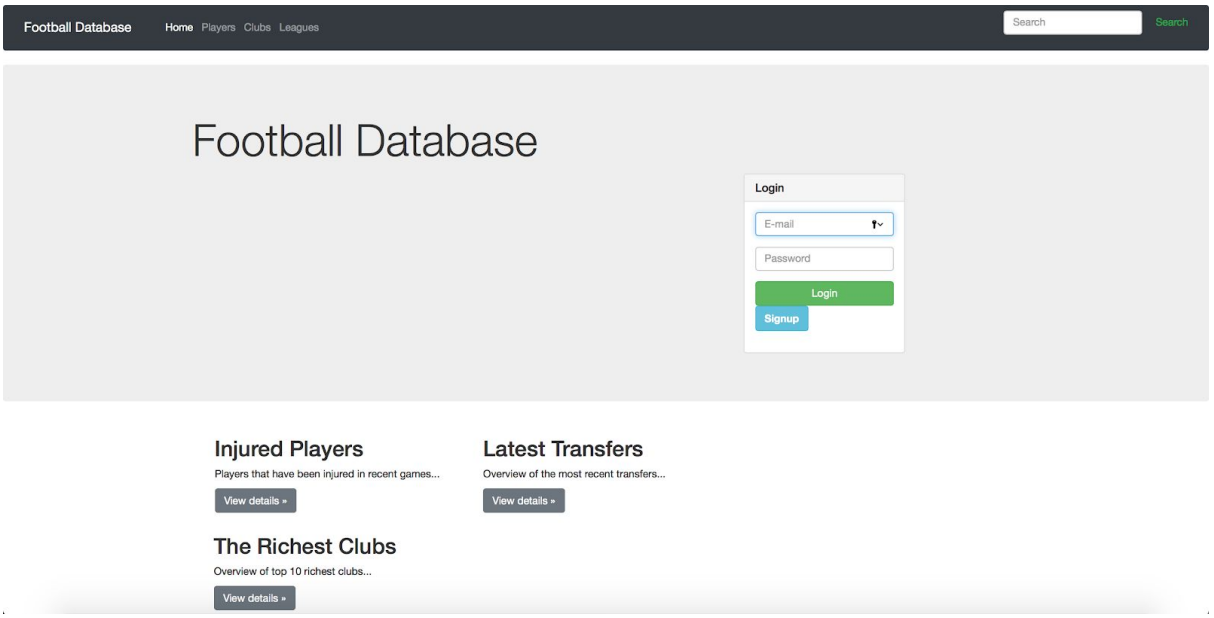
```
select *
from club,offer,player
where offer.player=player_id and offer.director=club.director
```

5.3. Trigger

```
create trigger report_injured_player after insert on game
for each row
begin
update treats
        player=new.injuredPlayer,
        doctor=new.home_team.doctor,
        duration=new.duration,
        injury_detail=new.injury_detail;
where home_team= new.team;
update treats
        player=new.injuredPlayer,
        doctor=new.away_team.doctor,
        duration=new.duration,
        injury_detail=new.injury_detail;
where away_team= new.team;
```

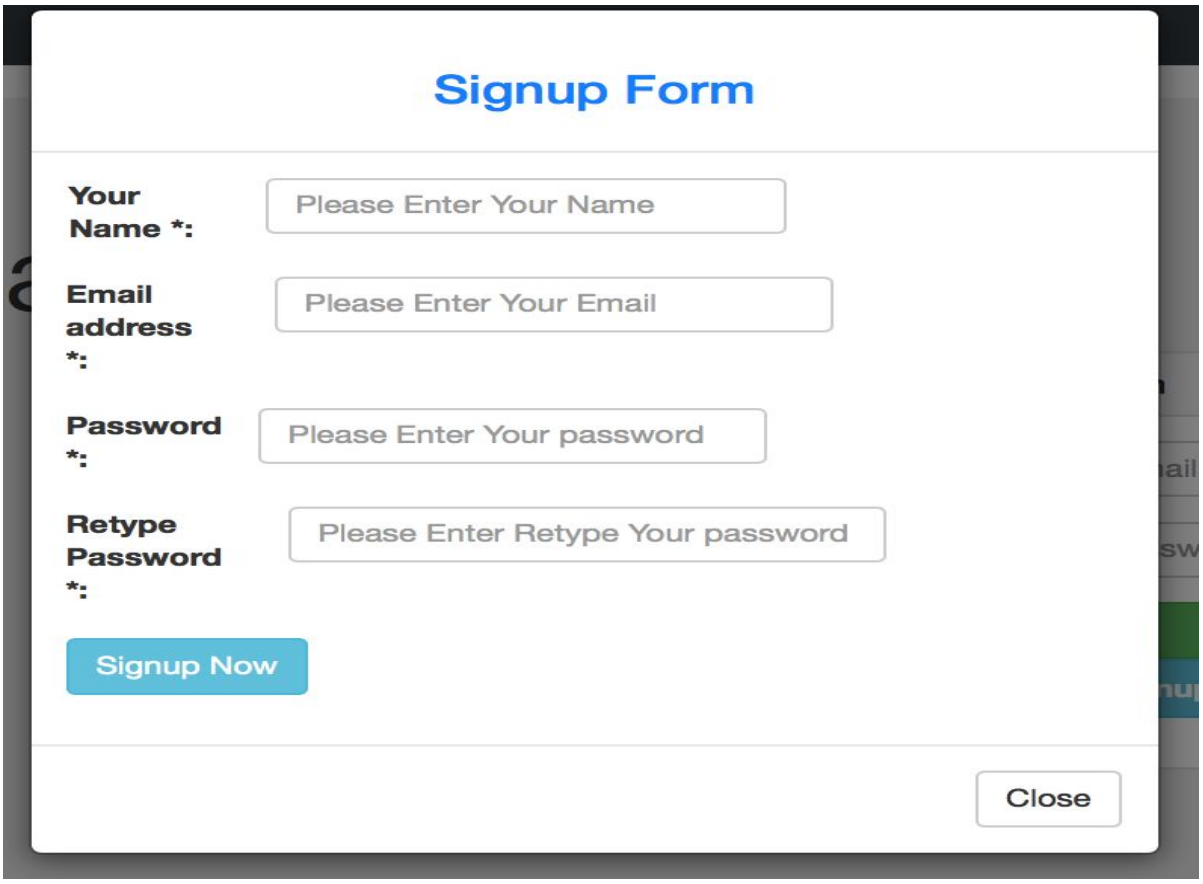
6. User Manual

6.1.Home Screen



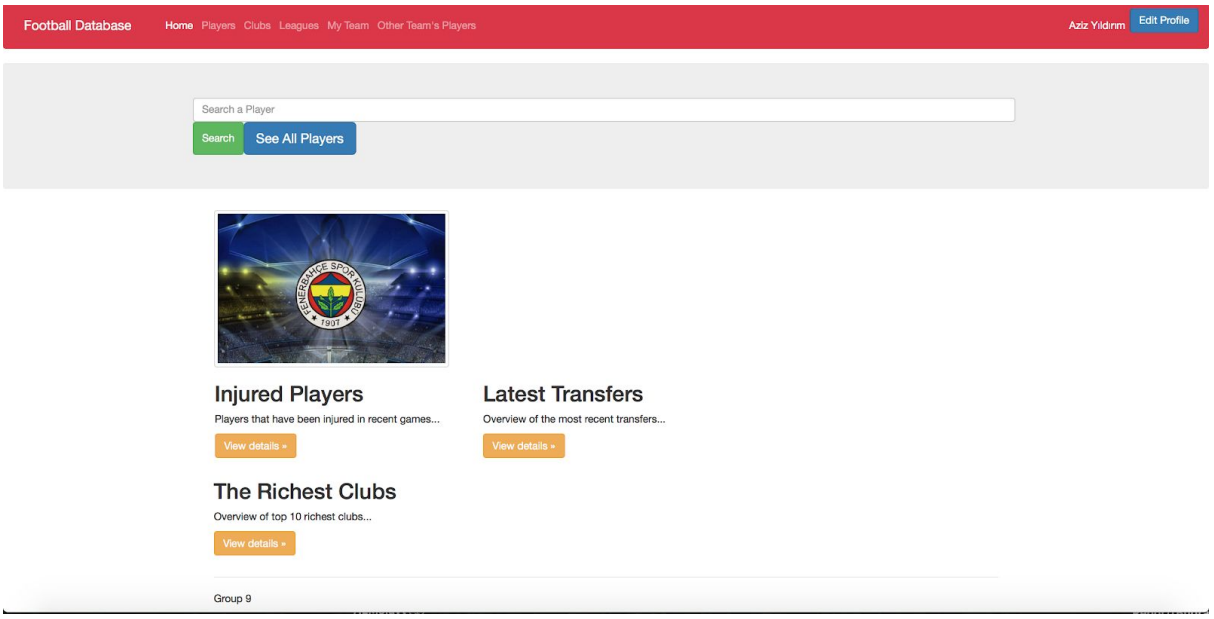
Whether they are logged in or not, all user can view the information about clubs, players, leagues, injured players and top 5 richest clubs. Furthermore, they can view the latest transfers of the clubs, they can view the detailed information of which team make the transfer offer, which team had got the transfer offer, name of the football player and the transfer fee of the transaction.

6.2. Signup Screen



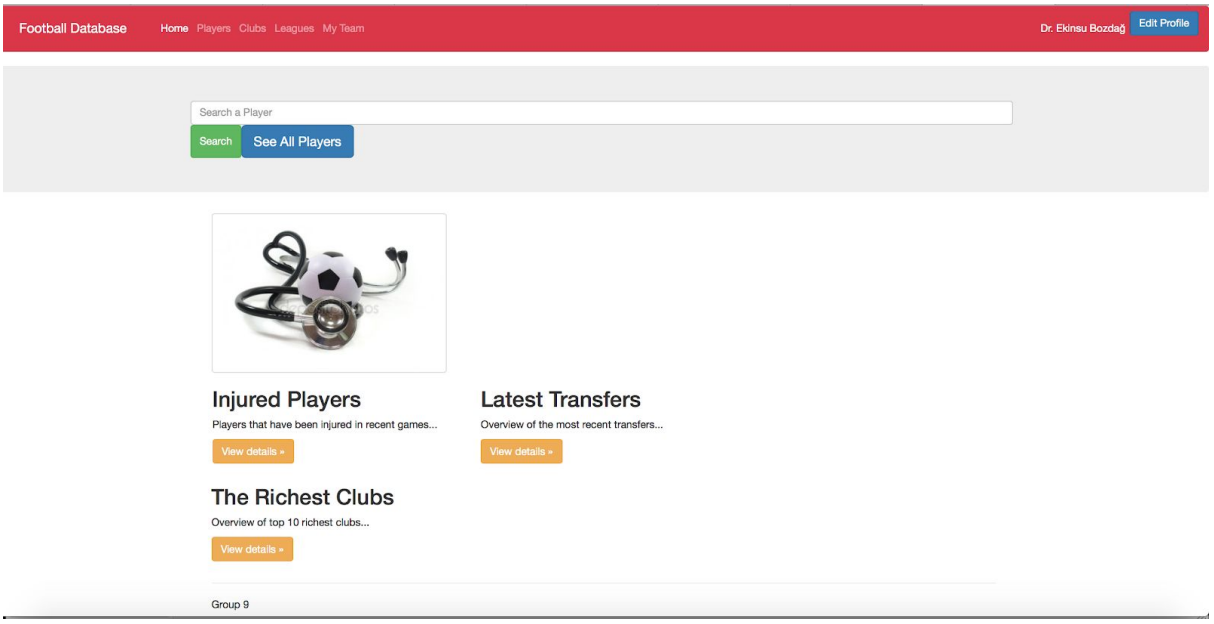
When the user clicks the sign in button, user should fill the signup form. The form includes the user's name, Email address and password. For security precautions user should retype their password. When they finish the signup form they can click the signup now button to sign up the web-site.

6.3. Director Home Page



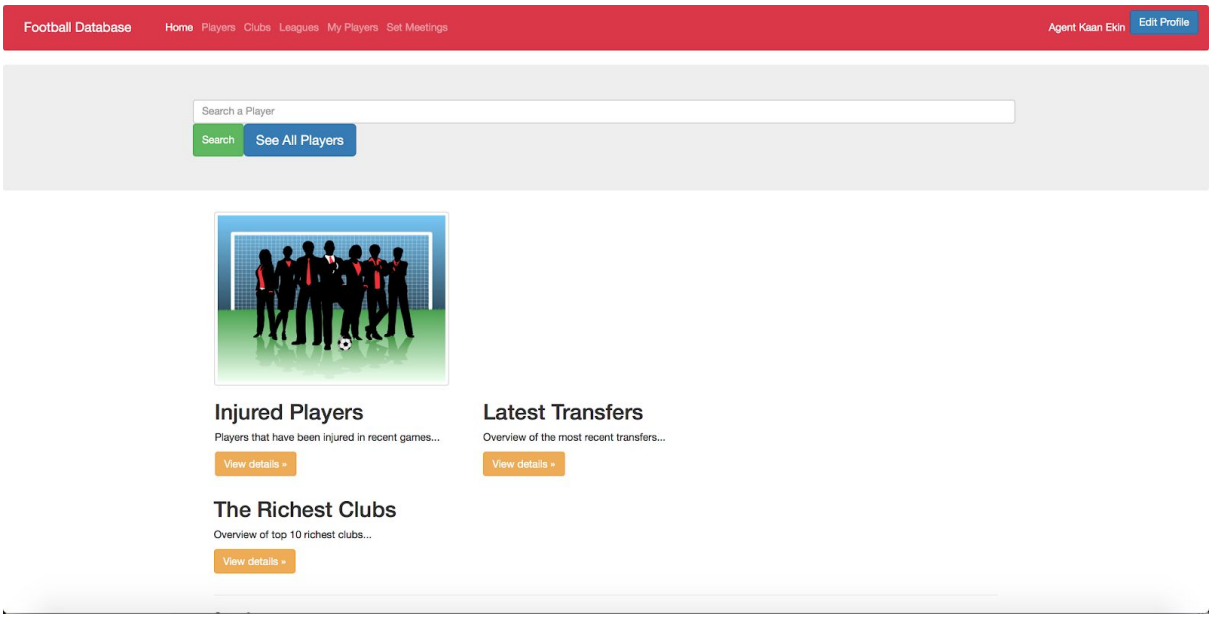
When Club Director logs in, they can make an offer to the other club's football player by clicking the Other Team's Players button. Club Directors can view the roster of their team.

6.4. Doctor Home Page



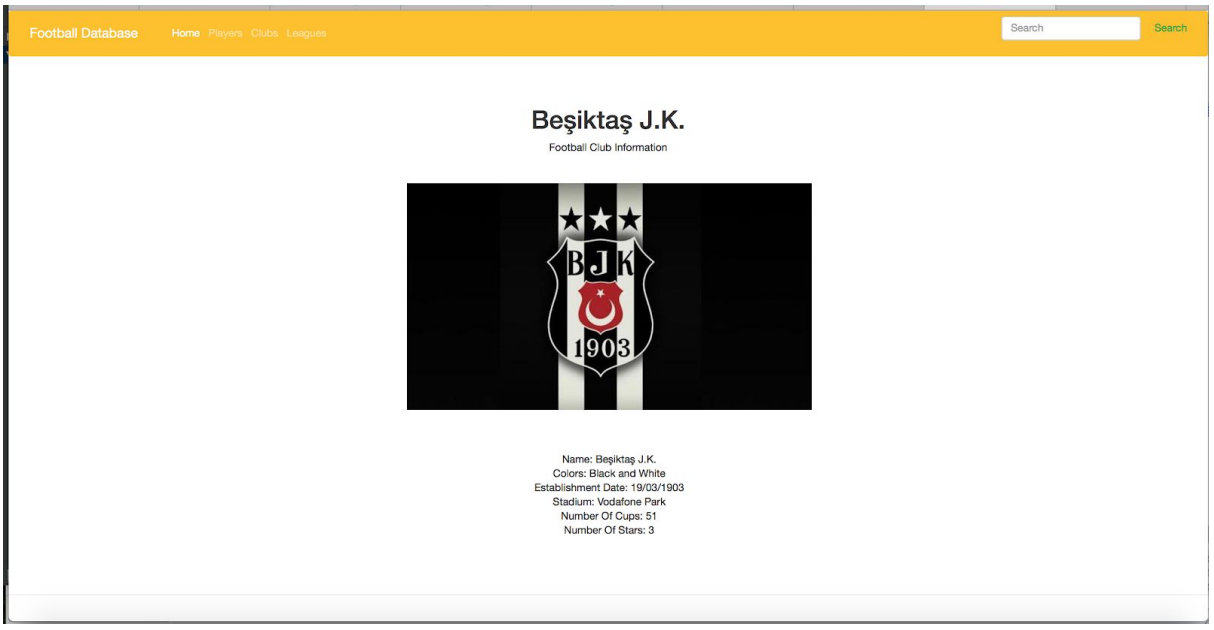
Doctors can view the injured players from their team by clicking the My Team button on the menu on top of the screen. The difference between injured players and doctor's my team function is in the menu of the injured players, all injured player can be seen but in My Team section, Doctor can see the injured players that works for the same team with the doctor.

6.5. Agent Home Page



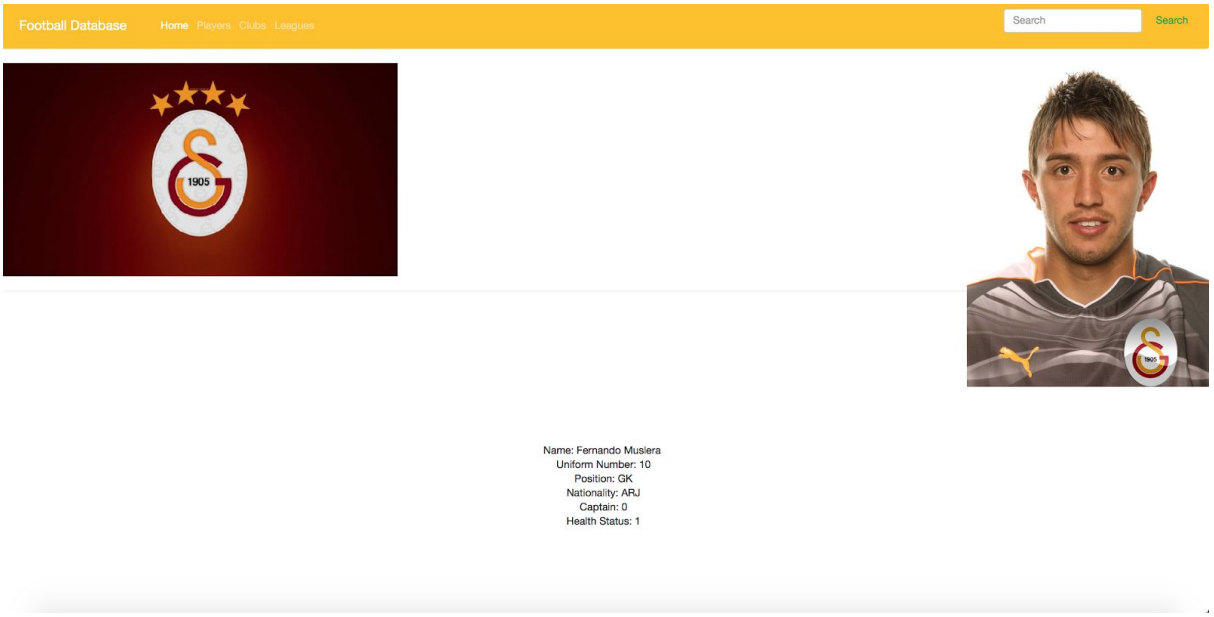
Agent can view the associate football players by clicking the My Players button. Furthermore, Agents can see the transfer offer made to their associate football players by clicking the Set Meetings button. Agents can decide whether they set meeting with the other club director or not through that menu.

6.6. Club Information



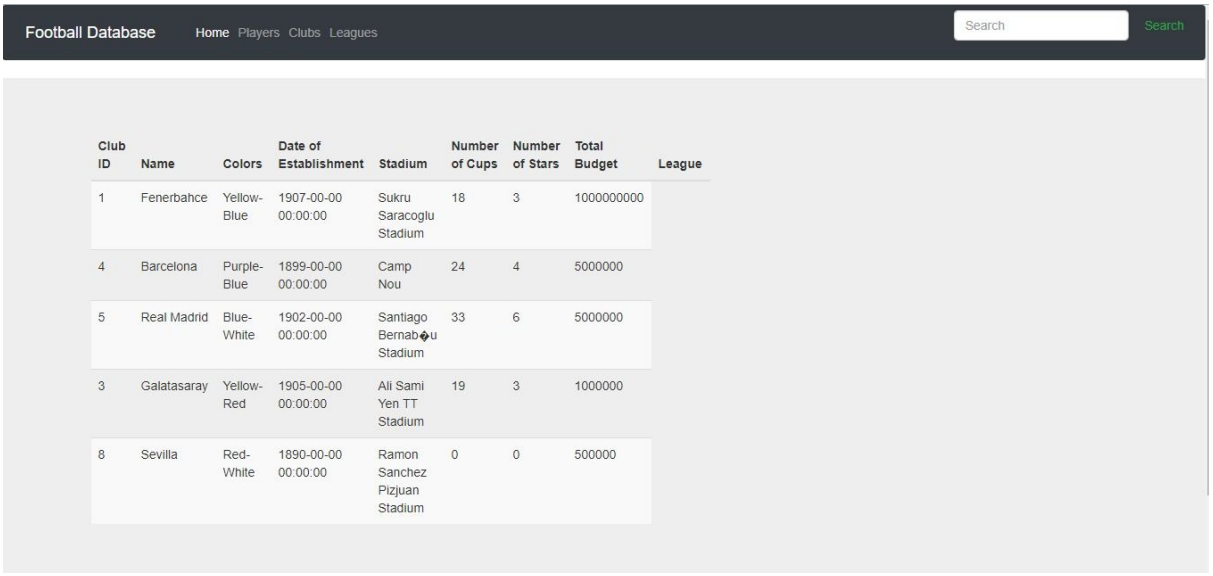
When the user clicks the club button on the menu that located on top of the screen, user will view the list of the football clubs. When the users clicks one of the club, they can see the information about that football club. (Name of the club, Colors of the club, Establishment Date, Stadium, Number of Cups, Number of Stars and the club's logo)

6.7. Player Information



When the user clicks the Players button on the menu, they can view the list of the players. When the user clicks one of the football players, they can see the information about that player such as the football club that they play for, the photograph of the player, their name, Uniform number, Position thet they play, Nationality, whether they are captain in their team or not and health status.

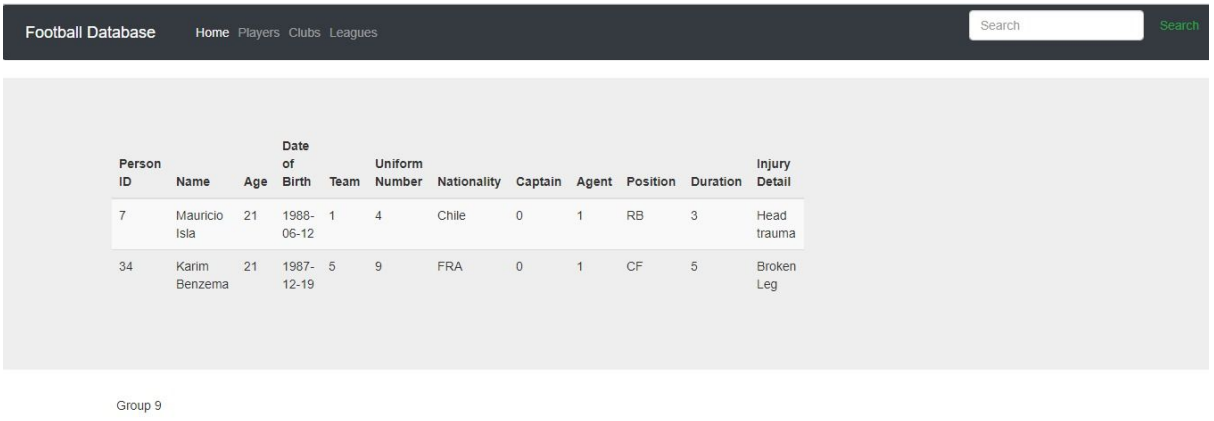
6.8. Top 5 Most richest football clubs



Club ID	Name	Colors	Date of Establishment	Stadium	Number of Cups	Number of Stars	Total Budget	League
1	Fenerbahce	Yellow-Blue	1907-00-00 00:00:00	Sukru Saracoglu Stadium	18	3	1000000000	
4	Barcelona	Purple-Blue	1899-00-00 00:00:00	Camp Nou	24	4	5000000	
5	Real Madrid	Blue-White	1902-00-00 00:00:00	Santiago Bernab&#65533;u Stadium	33	6	5000000	
3	Galatasaray	Yellow-Red	1905-00-00 00:00:00	Ali Sami Yen TT Stadium	19	3	1000000	
8	Sevilla	Red-White	1890-00-00 00:00:00	Ramon Sanchez Pizjuan Stadium	0	0	500000	

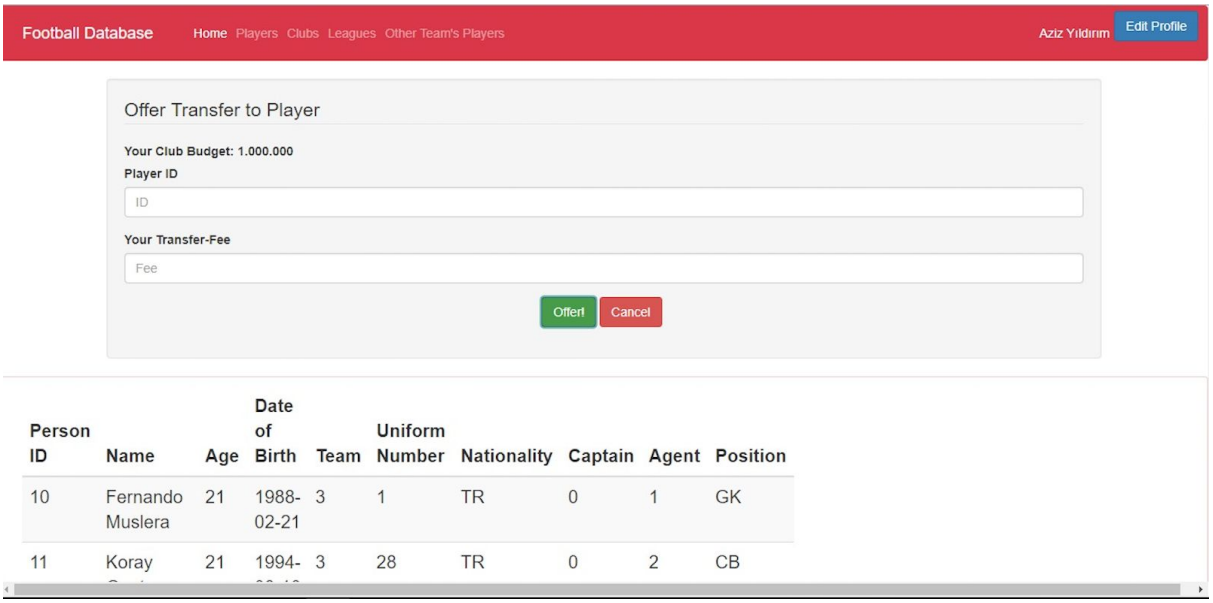
Top 5 most richest football players list can be seen from both logged in users and without logged in users. This information is pulled from the SQL.

6.9. Injured Players



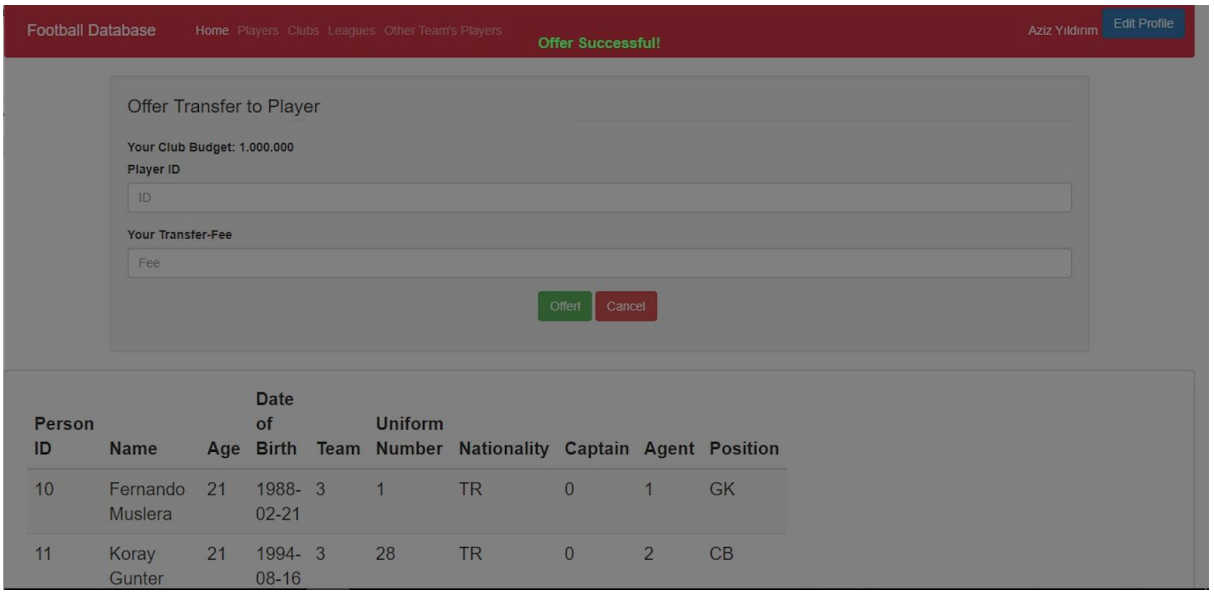
Injured Players can be seen both logged in users and without logged in users and this data is pulled from the SQL.

6.10. Director's Offer Page



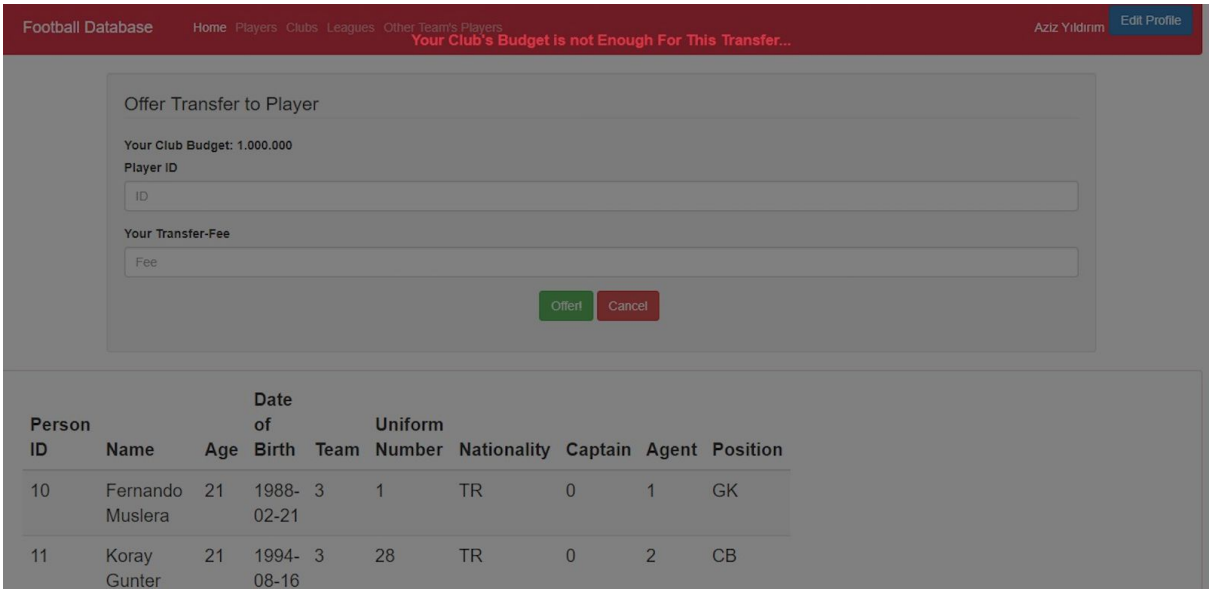
When the Club Director clicks the Other Team's Players button in their menu. They can see the list of the other team's players which are pulled from the database. Transfer Budget can be seen in the screen. When the Club Director wants to make an offer to the player, they should enter the ID of the player and also should enter the transfer-fee. If the transfer-fee of the player is bigger than the transfer budget, system will give the error.

6.11. Director’s Offer Page If the Offer is Successful



When the transfer-fee of the player is smaller than the transfer budget the transfer offer will be successful.

6.12. Director’s Offer Page If the Offer is Not Successful



When the transfer-fee of the player is more expensive than the transfer budget, the transfer offer will be denied by the system.