BİLKENT UNIVERSITY - ENGINEERING FACULTY

DEPARTMENT OF COMPUTER ENGINEERING

CS 353 – Group 08

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PROJECT PROPOSAL

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1. Introduction

This report is prepared to explain the basic features of our web-based application named "transfermap". The report consists of four basic parts which are project description, requirements, limitations, and entity/relationship diagram of the database system we plan to use for our project. In the project description, we explain our aim to design this application and how our project would be beneficial for football clubs, players, football agents, scouting agencies, and scouts. We also explain how we will make use of a database system in our application. The requirements part consists of functional requirements, nonfunctional requirements and pseudo requirements. In this part, we define basic functionalities that our system should fulfill, quality features that are critical for the success of our system, and pseudo requirements that define development technologies which we intend to use. In the limitations part, we define restrictions that prospective users and administrators will have while using the application. At the end of the report, we try to conceptualize and visualize the design of our database system using an entity/relationship diagram.

2. Project Description

2.1. Aim

In this age of globalization, football is no longer a mere game; football is now a multibillion-dollar industry. As European football giants pour billions of euros into transfers every year, it's getting more and more difficult for smaller clubs to compete. Bigger football clubs usually have their own full-time scouting staff whereas smaller clubs may not afford

such a luxury. "transfermap" is designed to allow clubs to find scouting agencies that can fulfill their needs for the prices they can afford. And, vice versa, this functionality will allow scouting agencies to find work.

The application will be helping the scouts as well. Not every scout has the funds or the time (some work part-time) to fly over the world for a single footballer. Unless their task specifies to search for footballers from a certain location, a scout would want to search for footballers that play close to him. A scout may also need to get a location-specific task from a location that they might be foreign to. Such a scout will need initial knowledge about clubs and footballers in this location. Our application will allow scouts to search for and learn about footballers that fit their desires, including location.

Shortly, our web-based application is designed to increase the time and cost efficiencies of the footballer scouting process.

2.2. Why and how a database is going to be used?

The aim of this project is to bring football clubs and scouting agencies together and make the scouting process faster. For that purpose, clubs should be able to search for and find the most suitable scouting agency among many agencies and get their scouting reports back successfully. Therefore, the attributes (price, number of scouts employed) of the scouting agencies should be kept in the database. The clubs should also be able to make an offer for players to the clubs or to evaluate incoming offers. The clubs will also be able to search from all the footballers in the database and to compare them with each other. The scouting agencies should easily scan the available and suitable scouts to assign for a specific task. For this purpose, the status (whether he is available or not) and the expertise (which locations he specializes in) of the scout will be kept in the table as well. Finally, the scouts should be able to filter among a vast amount of football players who meet the needs of the club in many ways so the database system will be keeping all of the football players'

statistical (national caps/goals, goals/assists season by season) and personal (height, weight, strong foot, nationality, age, position) information. After deciding on which players to report, they will watch them in real life, rate them from the system, and send individual reports with their comments to the concerned club.

In terms of security issues, all the users (scouts, agencies, clubs, agents, and the FIFA staff) will be specialized from a common entity 'User' which will hold their login information. No one will be able to see or manipulate user IDs or passwords directly except for the users themselves.

2.3. User Entities

Listed below are the five types of user entities:

- **Football Agents:** An agent is crucial for a footballer to get better contract offers. Footballers let their agents evaluate contract offers for them because they are more experienced in such matters. Therefore, in this database, footballers will be mere data items and agents will handle (accept/refuse/counter-offer) incoming contract offers for them. Agents will be able to have several footballers as their customers.
- **Scouts:** A scout's role is to watch players and send their assessments to the clubs they work for. First, a scout gets a task from their agency. Then, the scout uses our application to choose players that fit the task's criteria. Then, the scout physically watches these players and creates reports on them. Finally, the scout sends these reports to the club that created the task. A unique attribute we plan a scout to have is "expertise". The expertise attribute will be signifying the locations in which a scout is the most experienced so that an agency can send these scout to these specific locations.
- **Scouting Agencies:** An agency's role is to provide service to the clubs with their scouts. Naturally, some agencies will cost more than the others. Therefore, clubs will

be able to choose from a number of agencies and then give them a task on the type of player they need. An agency has the option to accept or refuse these tasks. An agency can also have multiple ongoing tasks. After accepting a task, an agency will immediately assign scouts to the task from their scouting team. If they lack the scouts for such a task, the agency will have the option to cancel the task. An ongoing task is over when the task's due date arrives. Up until the due date of the task arrives, scouts of the agency will keep sending their reports on the players that the club might be interested in.

- **Clubs:** A club, per se, is not the actual person using our database. A club is simply an alias for a manager, a chairman or a director of football of this club. However, we will keep referring to this entity as a "club". A club's main goal is to sign new contracts with their existing players (the ones that they're satisfied with) and to sign new players that will improve their team. A club is tied to these footballers through contracts. Thus, our application allows a club to create and offer such contracts to footballers. However, most footballers already have contracts with other clubs. To sign such a player, first, a club must make a transfer offer to the player's club. If the offer is accepted, the club can proceed to make a contract offer to the player's agent. For a transfer to happen, both these offers must be accepted. However, if the player does not have an existing contract(such a player is called a free agent), then the transfer offer process can be bypassed. On the other flip side of this process, there is another club evaluating this transfer offer. Naturally, each club will be able to see incoming transfer offers through this database, and answer (accept/refuse/counter-offer) them.

  Moreover, our application will allow clubs to find players directly by filtering our footballers' table. However, the information that we can provide is limited(height, weight, position, etc.) and will never be enough to make intelligent transfers.

Therefore, clubs will use our database's scouting agencies and their scouts to learn more about footballers that they might be interested in. To find players, a club will simply choose an agency and send them a scouting task(including player criteria, a due date, and the number of scouts). Until the due date arrives, they will be presented with many scouting reports. Through these reports, they will be able to make comparisons with their own players and also to directly make an offer to the reported player's club. The club will also be able to see when a transfer offer of theirs is accepted so that they can follow up with a contract offer to the player's agent.

- **FIFA Staff**: FIFA is the biggest international football organization in the world. We decided to include them in order to increase the reliability and the formality of our system. They will have the authority to inspect transfers and contracts. If they see anything that breaches their rules, they will be able to send warnings to clubs and to agents.

2.4. Database Items

Listed below are the six types of database items:

- **Footballers**: Footballers are at the center of our database. Scouts watch them in real life, create reports using our system. Clubs try to buy them from their clubs, to convince their agents to sign a contract. Their attributes will include their height, weight, age, position, national caps, etc. Moreover, they also have information about their history, which will include their individual statistics from previous seasons. However, footballers don't get user accounts on our database. The reason is that there is no need for them when agents can and usually negotiate contract offers for them. There are millions of professional footballers in the world and we wouldn't want our database to become overcrowded with that many users.

- **Transfer Offers**: There are two main types of offers in the world of football: transfer offers and contract offers. Transfer offers are sent and evaluated between two clubs. If and when such an offer is accepted, the offering club moves onto contract talks with the agent of the footballer they want. One unique attribute of a transfer offer will be the price attribute on it.

- **Contract Offers**: A contract offer exists between a club and an agent. Its attributes will be salary and length. If and when such an offer is accepted, it turns into an actual contract between the agent's footballer and the club.

- **Contract:** A contract is the realized version of a contract offer. It has a starting date, ending date and a salary. Whereas a club can have multiple contracts related to them, a footballer can have a single contract at a time. Footballers are obliged to fulfill their contract specifications until it's ending date or until they move to a different club.

- **Scouting Tasks**: A scouting task is sent from a club to a scouting agency. Such a task will have specifics of the desired footballers' attributes(nationality, age, height, position, etc.), the desired number of scouts along with the date the reports are required. If the task is accepted by the agency, then it will be given to a number of scouts. From that point on, the club will get their reports from the individual scouts.

- **Scouting Reports**: A scouting report allows clubs to better decide whether they want to buy a player. Such reports will include the player itself along with the scout's rating of the player and the comments of the scout about the player.

3. Requirements

3.1. Functional Requirements

Our system will have five types of end-users: clubs, FIFA staff, scouting agency directors, footballer agents, and scouts. All users have to be authenticated before starting to use the application. Also, the system has administrators.

Clubs:

- Clubs should be able to create a scouting task and select a scouting agency for this task.
- Clubs should be able to view scout reports related to their tasks.
- Clubs should be able to directly compare their footballers with other footballers in the database.
- Clubs should be able to choose footballers from scouting reports and send the footballer's club a transfer request.
- Clubs should be able to answer an incoming transfer offer.
- Clubs should be able to send agents contract offers.
- Clubs should be able to view all the players' information.
- Clubs should be able to send a change(add/remove/edit) request to the admins for their footballers and for themselves.

Scouting Agencies:

- Scouting agencies should be able to accept a task from club managers.
- Scouting agencies should be able to select suitable scouts and assign them for the task.

- Scouting agencies should be able to add to and remove scouts from the system.

Scouts:

- Scouts should be able to list and filter through all the players in the system.

- Scouts should be able to create a report after watching a player in real life.

- Scouts should be able to send the report to the clubs.

- Scouts should be able to deny or accept a task.

Footballer Agents:

- Footballer agents should be able to send a change(add/remove/edit) request to the admins for their customers.

- Footballer agents should be able to accept or deny contract offers of clubs.

- Footballer agents can make a counter-offer.

FIFA Staff:

- FIFA staff should have access to all contract offers and contracts.

- FIFA staff should be able to send a warning to the clubs and agents when they recognize illegal behavior(spending too much on transfers or on wages, buying footballers before they reach a certain age).

Administrator:

- An administrator should be able to evaluate requests and complaints from users.

- An administrator should be able to add/remove/change footballer profiles.

- An administrator should be able to verify user registrations.

3.2. Non-Functional Requirements

3.2.1. Confidentiality

Because footballer transfers are critical for the clubs, information such as a contract offer should be confidential. In our application, each user type will have different levels of accessibility to the information. For example, contract offer information will only be available to agents, clubs, and FIFA staff. Scouting agencies or scouts will not have any information about contracts or contract information.

3.2.2. Reliability

Footballer transfers require serious attention due to their financial background. A system failure may lead to serious financial troubles for clubs and agents. That is why it is important to avoid system failures.

3.2.3. Response Time

We use a database in our application. It is obvious that connecting a server and sending data to the end-user browser will take time. However, relatively long response time decreases the effectiveness and preferability of an application. Therefore, the application should have a maximum response time of 2-5 seconds.

3.2.4. User-friendliness

While creating an application, user types should be taken into consideration. Users of our application may not always be technology enthusiasts. Therefore, the interface of the application should be easy to use to be able to address users with different levels of capabilities.

3.2.5. Modifiability

Footballer data and statistics change every year. The system should be modifiable to deal with these changes. In this application, administrators will be able to update footballer information.

3.3. Pseudo Requirements

- MySQL will be used for the database.
- Node.js will be used as a server.
- Javascript with HTML and CSS will be used in front-end development.

4. Limitations

- The clubs will only have access to the scouting agency table, the task information, the offer information and the players' information whose IDs are included in the report table.
- The scouting agency will only have access to the scouts' information and the task.
- The scouts will only have access to the task, all footballers' information and the report which will be created by them.
- The agents will only have access to the offers made for the player whom they are responsible for and the club's information who made the offer. The admins will have access to everything in the database system.
- A club can send at most thirty contract offers in a single transfer season.
- A scouting agency has to answer the task request in three days. Otherwise, the club will have the option to assign the same task to another agency of their choice.

- A contract's length can be at most five years.

- A club can't complete transfers that will exceed their transfer budget or wage budget.

- A club can't renew a contract if it exceeds their wage budget.

- A report will only be accessible to the club that requested it, to the agency and the scout that created it.

- If a footballer's agent is not registered in the system, a footballer cannot take any offer.

5. Entity/Relationship Diagram
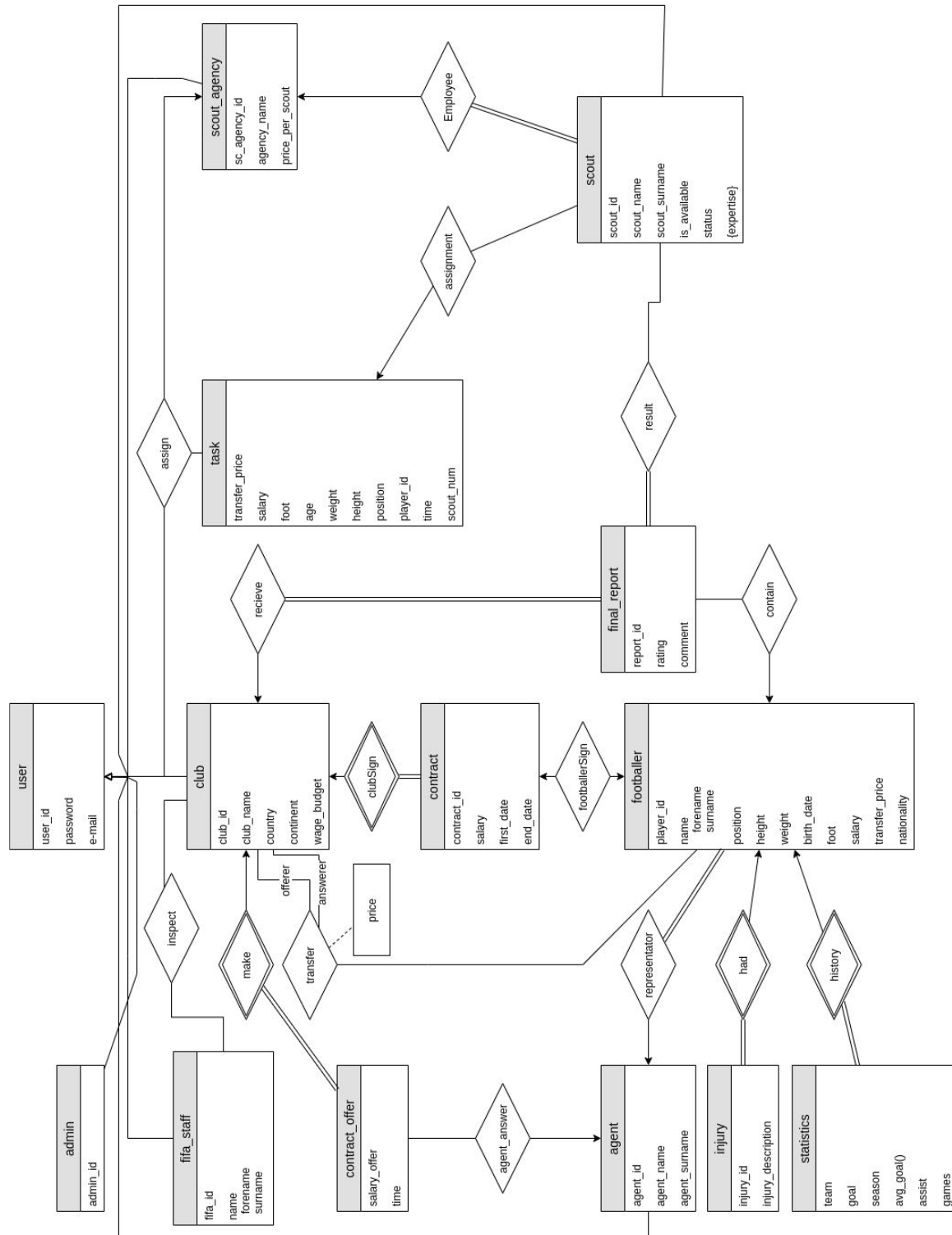
6. Conclusion

To conclude, we designed our system to facilitate scouting and transfer processes for clubs, scouting agencies, scouts, and agents. We tried to pay special attention to the possible demands of target groups of the application.

In our report, we explained the purpose and general structure of the application. In the project description, we explained our aim to implement this application, our purpose to use a database, and how our system will benefit from the use of the database. We tried to clarify the functional, nonfunctional, and pseudo requirements of the system. Also, we stated the limitations of the system. At the end of the report, we added our entity/relationship diagram to visualize the design of our database.

7. Website

https://github.com/aybukeertekin/Bilkent_CS353_Database_Project

The reports are in the folder named "documents" in the repository.