Bilkent University

Department of Computer Engineering

# CS353 TERM PROJECT

## Project Proposal

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## 1. Introduction

Online betting platforms are web applications that allow their users to bet on numerous sports matches. These platforms might have a large amount of betting enthusiasts as users, and therefore require a system that makes it possible to store and manage the necessary data. The data needed by a betting platform might be names, phone numbers and e-mail addresses of the users as well as dates and types of sports matches.

This project aims to develop a betting platform with a wide range of social features. First, the usage of the database is justified by the explanation of why and how the database will be used. Afterwards, functional and non-functional requirements of the project will be discussed, followed by the limitations set for each user type. Then, an entity diagram of the designed database and the explanation of this entity diagram will be given. The report will be finalized with a conclusion section.

## 2. Project Description

*Betman* is a web application that aims to provide a social platform for betting enthusiasts to communicate and bet on their preferred games. During our project development, we also observed websites like İddaa and Nesine [1][2]. System keeps information on sports teams, matches, bets, and users. System users consist of bettors, editors, and admins. Planned features for the bettors include befriending other bettors, sharing posts about betting, liking the posts and commenting on posts, commenting on matches, following people who are adept at betting (editors) and learning about their suggestions regarding matches. Editors, while not able to bet, are also able to like and comment on posts and comment on matches. They can also prepare bet slips that can be viewed by their followers to give advice on profitable betting practices. Admins supervise the other users, and are able to change the odds of bets or remove a bet completely. The platform provides different bet types for various types of matches; including but not limited to football, basketball, volleyball, tennis, and hockey. Apart from these, there will be an additional functionality called lottery. Bettors will be able to gain application currency *BetCoin* when they first register to the platform and they can make bets using this currency instead of real money. Later, bettors can choose to use their BetCoins to purchase lottery tickets to enter the lottery. There will be an adequate amount of money as the prize for the lottery winners, and the winners will be determined randomly. The prize money will be given from the money that will be collected as a commission at each bet which will be set at a certain percentage.

### 2.1 Usage of Database

In our application, the usage of a database is crucial due to the requirements. In the website, information regarding different kinds of objects needs to be stored. Some of the object types include variations of users, bet slips, lottery tickets, match and bet information. User variations are admins and general users who also have two subtypes called bettors and editors which are involved in different relations from each other. Additional functionalities that focus on adding social features like sharing, liking and commenting which will also need to be stored in the database. These features will be used by the bettors and editors. The bettors will also join lotteries through tickets and information regarding both the tickets and the lottery itself need to be stored. The amount of data to be stored will increase in time constantly, so storage in the database will increase the performance of the system and allow easier maintainability in the future.

Another critical functionality of the application involves personal “Wallet” for bettors. In the wallet, they can make payments to the system to add money to their accounts and use this money to make bets. The system will also provide an application currency that the users can use on bets and by winning or losing the bets, they can have more or less application currency in their wallets. It will work similar to virtual money. The user can use this type of currency to buy lottery tickets and have a chance to win actual money through these timed events. Due to the nature of these financial transactions, storage of data in an appropriate manner is crucial due to both security concerns and to prevent loss of data.

In conclusion, Betman will be a web application that will store large amounts of data that will only grow larger in time and some of this data will include critical information like financial transactions so usage of a database system will help with maintainability and security issues. Usage of SQL will also be practical while showing the relations between data.

## 3. Project Requirements

### 3.1 Functional Requirements

#### *3.1.1 Admin*

Admins should be able to:

- Remove bets
- Change odds
- View odds
- View bets

*3.1.2 Bettor*

Bettors should be able to:

- Add other bettors as friend
- Follow editors
- Share bet slips
- View friends' activities on timeline
- View match scores
- View odds
- Comment on other people's bet slips
- Like other people's bet slips
- Make bets using either real TRY currency or application currency
- Add money to their wallet through payment
- Earn application currency daily and during first sign-up
- Use the application currency to buy lottery tickets and get a chance earn real money by winning in lottery
- Comment on matches

*3.1.3 Editor*

Editors should be able to:

- Prepare bet slips to be seen by the followers
- Share bet slips
- Comment on other people's bets
- Like other people's bets
- Comment on matches

**3.2 Non-Functional Requirements**

*3.2.1 Security*

Due to the nature of a website that deals with bets, some of the functionalities require stronger security since it deals with private information. One of such functionalities is getting the credit card information of a user while buying app currency for their wallet. Furthermore, since the user needs to provide their ID number in order to prove they are older than 18 years old and sign up to the website according to the laws, the security is one of the primary focuses of the application.

*3.2.2 Privacy*

As the application will be a social betting platform, privacy regarding the personal information of the users is required. There could be times where the person would like to not share their bets or overall remain anonymous on the website if they prefer to. Therefore, the user's personal information and the data they would like to share on the website require an overall need of privacy.

*3.2.3 Scalability*

The social betting platform will be providing lots of services for many types of users and matches to be bet on. Therefore, the website aims to be scalable while a great number of new matches and bets are added with a growing user population that keeps coming back due to the website's efficiently addicting features.

*3.2.4 Performance*

The performance of the social betting platform comes as another important requirement since the odds of a bet keeps changing due to the nature of betting. The users should be able to bet on a match without worrying about the performance quality of the website. Therefore, performance speed is crucial for this application. Tools like web.dev will be used to measure this performance after the implementation is completed.

### 3.3 Constraints

For the development of this program Java and Spring Framework will be used for the backend. For the database MySQL will be used. For the frontend JavaScript, HTML, CSS and React framework will be used.

## 4. Limitations

Below are the limitations assigned to each user type:

### 4.1 Users

- A user has to provide e-mail, password, username and phone number in order to register to the application.
- A user cannot use an already existing username, e-mail or phone number.

### 4.2 Admins

- Cannot join bets or lotteries.
- Cannot use social features such as like, comment and share.

### 4.3 Editors

- Cannot prepare bet slips with bet number less than the maximum of all of the bet's MBN.
- Cannot join the lotteries.
- Cannot make bets.

### 4.4 Bettors

- Cannot make conflicting bets in a single bet slip.
- Cannot make bets with bet number less than the maximum of all of the bet's MBN.

## 5. Entity-Relationship Diagram

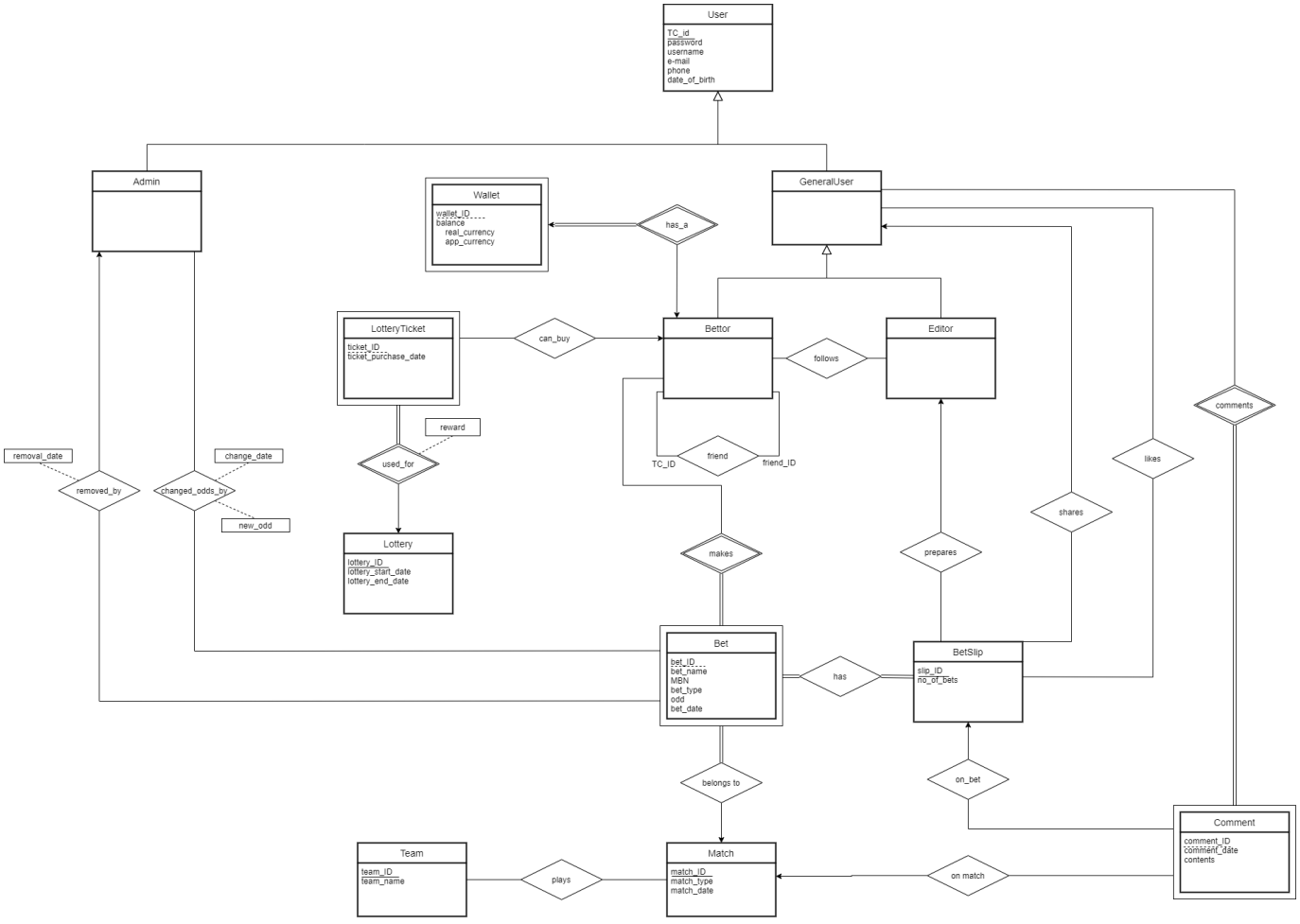


*Figure 1: Entity-Relation Diagram*

There are two types of users for the web application: Admins and general users. For all users, the primary key will be TC identification numbers. Admins will be responsible for bet management through either removing or changing the odds of a bet and the times of these

modifications will be stored in the database. General users are divided into two subtypes: Bettors and editors. Bettors can have friends, make bets, follow editors and can buy lottery tickets. Each lottery ticket will be specific for the lottery running at that point. Each lottery will be running for a certain amount of time and the winning tickets will be announced at the end of this time period. Each bettor can have multiple tickets for the same lottery. Each bettor will also have a wallet where their money will be stored. Editors will prepare betslips. All general users will have access to social features of the application like sharing, liking and commenting. Match and team information will be included to resolve the bets as each bet will belong to a match and teams will be playing the match.

## 6. Website

In the following, the website where we will be sharing our project documents can be found: https://znurcavcar.github.io/ProjectCS353/

## 7. Conclusions

In conclusion, Betman is a web application that will serve as an online betting platform. Like all betting platforms, the users can bet on matches using their own money and they will have a virtual wallet preserved only for them in the system, however, they can also use the application currency that they have earned to make bets. As an extra feature to classical betting platform functionalities, the users can like, share and comment on bet slips prepared and shared by editors and comment on matches. The application currency provided to the bettors can be used to buy lottery tickets in the system and through this lottery, users can win a certain amount of money given that they have the winning ticket. This report specifies project requirements which include the functional and non-functional requirements, constraints, and limitations of different user types and the system structure that is explained through an entity relationship diagram.

## 8. References

[1] *İddaa,* https://www.iddaa.com/ Accessed: 28th February, 2021.
[2] *Nesine*, https://www.nesine.com/ Accessed: 28th February, 2021.