Web App – Football Prediction
Group 49
The Net Predictor
The Winning Goal
Software Design Document

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1. INTRODUCTION

1.1 Purpose

This software design document describes the architecture and system design of our Web application. The purpose of the product is to provide soccer fans with accurate and reliable predictions for upcoming matches. This will help users make informed decisions about which teams to support and allow them to bet on them. By using the results of previous games and the current statistics of the team, our product will be able to guess correct guesses about the results of future games. These predictions may yield a return on their bets.

1.2 Scope

The scope of this software design document is to describe the architecture and system design of our web application, which is designed to provide soccer fans with accurate and reliable predictions for upcoming matches. The goals and objectives of this project are to:

- Utilize data from previous games and current statistics of teams to make predictions about the results of future games
- Provide users with a user-friendly interface to access these predictions
- Continuously update and improve the predictions based on new data and user feedback
- Develop a robust prediction algorithm that can accurately predict the results of upcoming soccer matches
- Create a responsive and visually appealing user interface for easy navigation and access to predictions
- Ensure the scalability of the application to accommodate an increasing number of users

1.3 Overview

People bet on soccer results and spend a lot of time on research and testing to understand what is the right bet. We want to provide an easy and comfortable platform for people who want to bet.

Features and technology:

- Web application in JavaScript
- Machine learning and prediction algorithm
- Dataset: historic football results

1.4 Reference Material

Articles about soccer game predictions will be added later.

1.5 Definitions and Acronyms

Machine learning : is a field of inquiry devoted to understanding and building methods that 'learn', that is methods that leverage data to improve performance on some set of tasks.

Dataset: is a collection of data. In the case of tabular data, a data set corresponds to one or more database tables, where every column of a table represents a particular variable, and each row corresponds to a given record of the data set in question. The data set lists values for each of the variables.

Algorithm: is a procedure used for solving a problem or performing a computation.

(Others definitions will be provide later.)

2. SYSTEM OVERVIEW

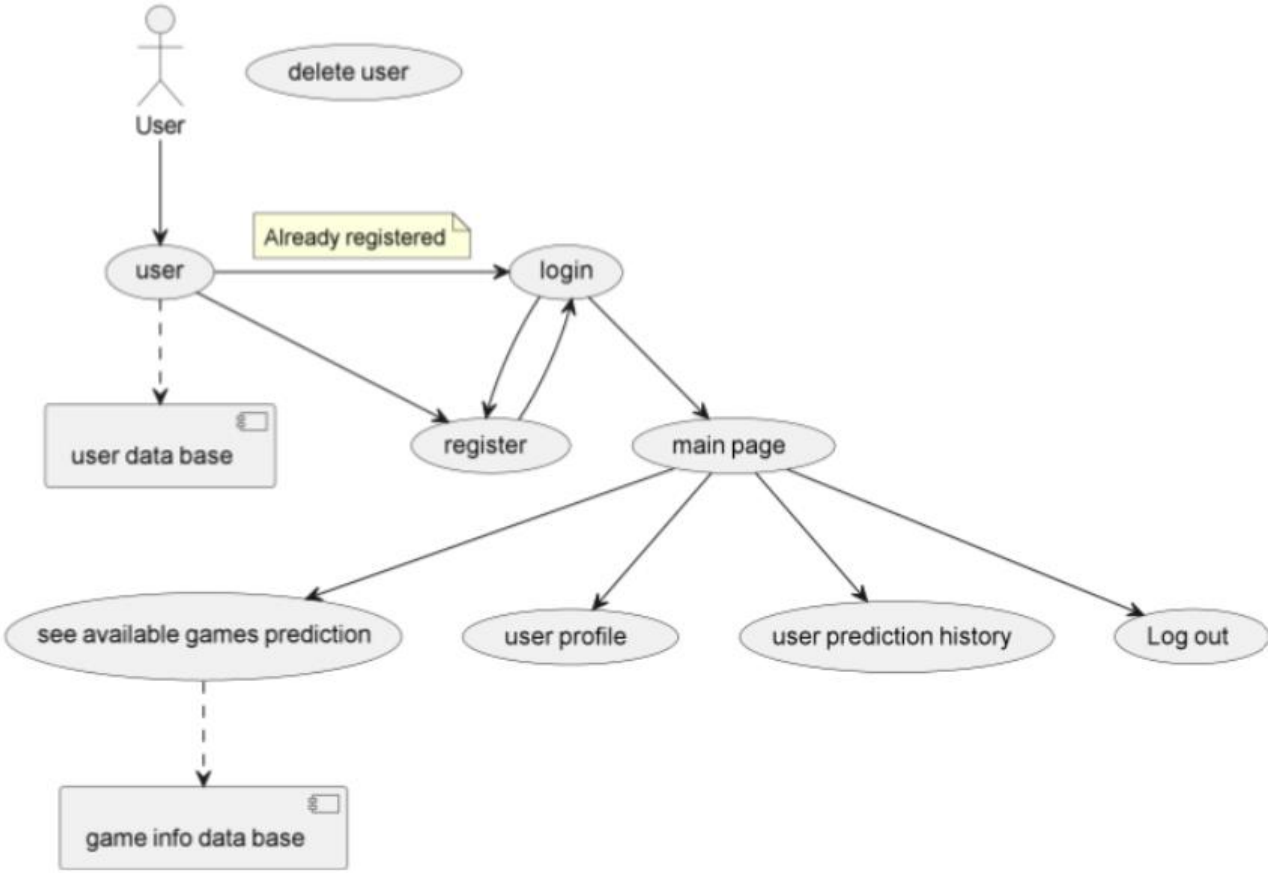
The feature should provide a range of **functionality** to meet the needs of users, including: User authentication, match predictions, team and player statistics, live score updates, push notifications, and more.

The application will have a user-friendly interface that will allow users to easily access the predictions and navigate the site. The interface will be responsive and visually appealing, and will be designed to provide users with a seamless experience across different devices.

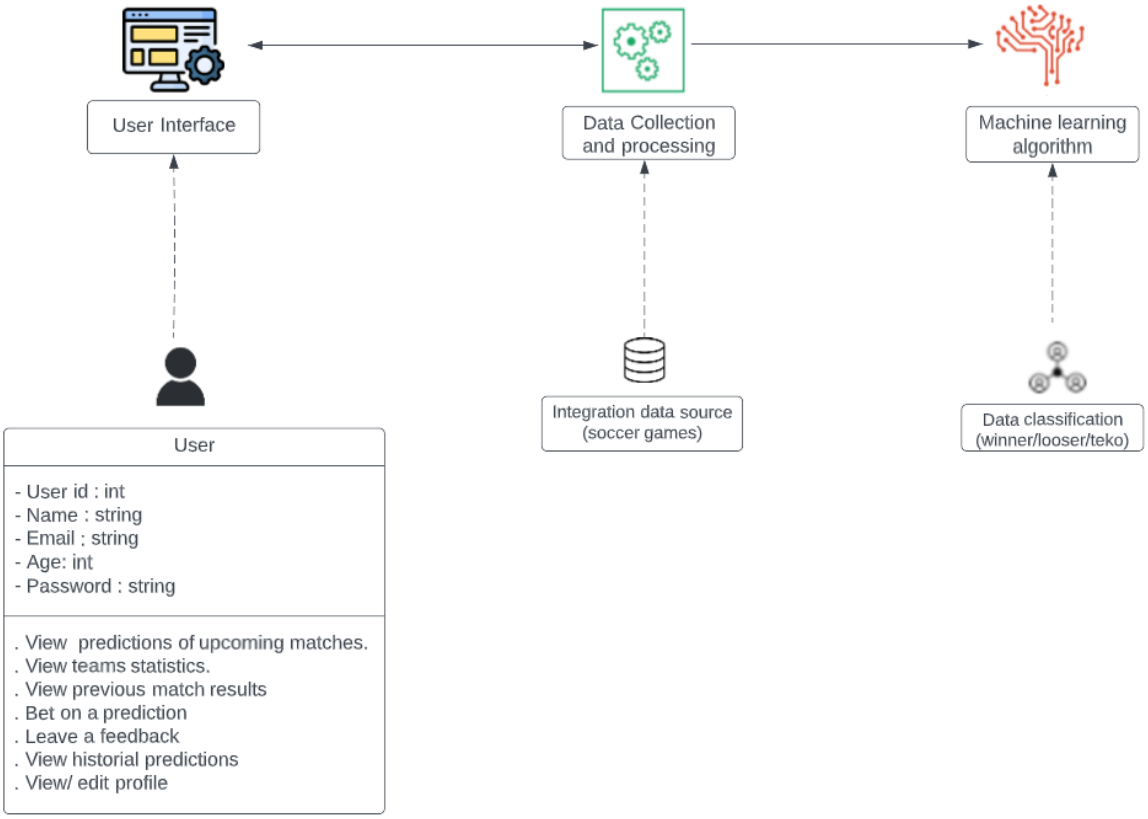
The application will also have an integrated database management system that will allow users to store and retrieve data and manage and maintain the data. The data will be stored in a structured format, and the database will be designed to ensure data security and scalability.

3.SYSTEM ARCHITECTURE

3.1 Architectural Design



3.2 Decomposition Description



3.3 Design Rationale

The main actor is the user, its attributes: userid, name, mail, password of the user will be stored in the database. The user will be able to register or login if he already has an account. In the main page, the user will can see the predictions of different soccer games, all the information about the games: date, teams and results will be stored in the database too. In addition, the user will be able to see and edit his profile information: name, age, mail and the history of all the past predictions.

4. DATA DESIGN

4.1 Data Description

The information of the system will be acquired by data base that will save all the previous data of a certain game. When a user chooses a game and wants to predict the outcome, the algorithm will run on the information in the database and will get a result. The data will be organized by teams and by previous games of each team.

4.2 Data Dictionary

- Users - list
    - UserId - uid
    - Name - string
    - Password - string
    - Email - mail
    - Phone – integer

5 COMPONENT DESIGN

Since our application is a JavaScript web application, we will take a closer look at the components of our web application and their specific functions:

1 - **Data Collection and Processing**: This component is responsible for collecting and processing data from previous games and current statistics of teams. The data is then used to make predictions about the results of future games. First, collect data from previous games and current statistics of teams, then process the data to remove any errors or inconsistencies and store the processed data in a database for future use.

2 - **Prediction Algorithm:** This component utilizes the processed data from the Data Collection and Processing component to make predictions about the results of future games. The algorithm for this component can be summarized as follows:

- Retrieve processed data from the database
- Apply statistical analysis and machine learning techniques to the data
- Generate predictions for upcoming matches
- Store the predictions in the database for future use

3 - **User Interface:** This component provides users with a user-friendly interface to access the predictions generated by the Prediction Algorithm component. The different steps for this component can be described as follows:

- Retrieve predictions from the database
- Display the predictions in a user-friendly interface
- Allow users to navigate to different predictions and view additional information

4 - **Database:** This component stores the data collected and processed by the Data Collection and Processing component, as well as the predictions generated by the Prediction Algorithm component. The data stored in the database includes information such as team statistics, previous match results, and predicted outcomes.

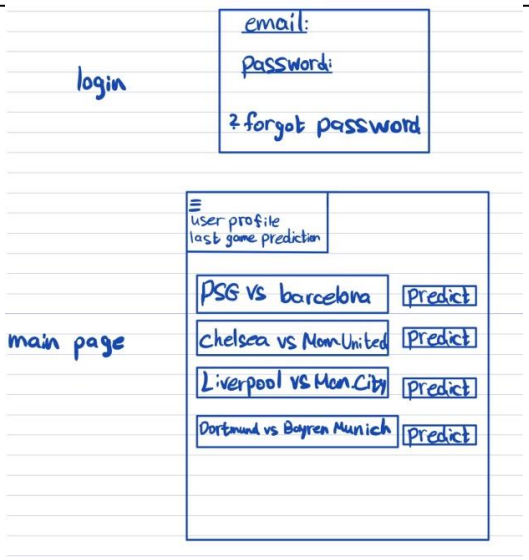
All of these components work together to provide soccer fans with accurate and reliable predictions for upcoming matches, helping users make informed decisions about which teams to support and allowing them to bet on them. The system is continuously updated and improved based on new data and user feedback, and designed to be responsive and visually appealing for easy navigation and access to predictions.

6 HUMAN INTERFACE DESIGN

6.1 Overview of User Interface

When a user enters the site, he has an option to log in or register. After he completes this step, the user can choose a football match out of the wide range of football matches to get a prediction of it. The user will get a screen of the predicted score. He also has the option to see his profile, his latest predictions and more.

6.2 Screen Image



7 REQUIREMENTS MATRIX

ID Number	Description	Functional / Non-functional requirement	Prioritization (high/low)	Note
1	Game Predictions	functional	high	The algorithm and database
2	Push Notifications	functional	high	The user interface
3	Easy To Use	Non - functional	high	The user interface
4	Fast Performance	Non - functional	high	The user interface
5	Wide Coverage Of Games	functional	high	The database
6	Security	Non - functional	high	Secured database of users
7	Loading time of the games (reliability)	Non - functional	high	The user interface
8	Displaying the user's profile	functional	high	View / edit user's details profile
9	PRD features	functional	high	System