



Tribhuvan University
Faculty of Humanities and Social Sciences

A PROJECT REPORT

ON

Futsal Finder

Submitted to

Department of Computer Application

Ratna Rajya Laxmi Campus

In partial fulfillment of the requirements for the Bachelors in
Computer Application

Submitted by

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August, 2024

Under the Supervision of

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Supervisor's Recommendation

I hereby recommend that this project prepared under my supervision by DHAN PRASAD CHAULAGAIN entitled “**FUTSAL FINDER**” in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

Mr. Ananda KC

SUPERVISOR

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LETTER OF APPROVAL

This is to certify that this project prepared DHAN PRASAD CHAULAGAIN entitled “FUTSAL FINDER” in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

<p>Signature of Supervisor</p> <p>_____</p> <p>Mr. Ananda KC</p> <p>Ratna Rajya Laxmi Campus</p> <p>Department of Computer Application</p>	<p>Signature of HOD</p> <p>_____</p> <p>Mr. Bhupendra Ram Luhar</p> <p>Coordinator, BCA</p> <p>Department of Computer Application</p> <p>Pradarshani Marg, Kathmandu</p>
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ABSTRACT

In Nepal, there are not proper and interactive platform to book a futsal ground. The players often need to roam around to even book the futsal ground by going to the actual location of ground which may cause inconvenience and time consuming.

Futsal Finder is a user-friendly system designed to simplify the process of finding and booking nearby futsal venues. Players can create accounts, browse available venues, and book their preferred time slots from anywhere. The main objective is to provide a proper online platform to list and book futsal grounds

Implementing this system will benefit both futsal owners and players. It simplifies the booking process for players, allowing them to book futsal grounds effortlessly. Simultaneously, it provides futsal ground owners with an equal opportunity to compete in the market by listing their venues on the platform.

Keywords: booking, futsal, nearby futsal, player, owner, futsal ground..

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List of Abbreviations

CSS - Cascading Style Sheet

DFD - Data Flow Diagram

ER - Entity Relationship

HTML - Hypertext Markup Language

MySQL - My Structured Query Language

PHP - Hypertext Preprocessor

VS Code - Visual Studio Code

UI - User Interface

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Chapter 1: Introduction

1.1 Introduction

Football has long been a beloved sport among Nepalese people, evident in the crowded stadiums during international matches held in Nepal. It has evolved into much more than just a sport. By the 1930s, football had already captivated a wide audience, drawing in people from various backgrounds. Both local and palace teams played on the same fields, underscoring the sport's widespread popularity. The game has not only impacted youths but also the people of different age groups.

The lack of space gave birth to Futsal culture in Nepal. Nawang Nima Lama, the one who introduced FUTSAL in Nepal, constructed a pitch and started futsal as business at Thamel in 2011. Futsal is as similar as football rather it is played inside confined area with maximum 6-7 players in each team [1].

Futsal Finder is a system which provides easy access to the available nearby futsal venues eliminating the necessity to roam around to find the best Futsal venue that matches their expectation. The players can book the futsal venue of their choice from anywhere along with their preferred time. The system would benefit not only the players, but also the futsal owners who has their futsal company where they can register their futsal venue via the system.

Players can create their own accounts and browse various futsal venues available in their city or near them. They can request to book a ground at their preferred time, and if a ground is unavailable, they can explore other futsal venues. Futsal venue owners can also create their own accounts and register their venues on the platform. Additionally, players have the flexibility to edit or delete their booking requests as long as they have not been confirmed. Once a booking is accepted, players will receive a notification and can proceed with the online payment.

1.2 Problem Statement

Currently, booking futsal venue poses significant challenges and complications for players. They often need to be physically present to make a reservation, or even if they can book via phone, they may not be assigned the promised ground. This causes considerable inconvenience, especially for newcomers to the city, who end up spending a lot of time searching for suitable futsal venues. Another issue with physical booking is the risk of

double-booking of the same venue. Additionally, new futsal company owners often struggle with visibility compared to well-established companies, which dominate the market and overshadow newer entrants.

Although there are some “Online futsal booking” applications that allow players to reserve venues and owners to register their companies, these are typically mobile applications that do not prioritize futsal. They are not enhanced enough to provide users with the information required such as reviews written by players. Therefore, in the context of Nepal, finding futsal online needs to be developed solely focusing on the players and futsal company owners.

1.3 Objectives

- To provide platform for players to book futsal venues online.
- To provide opportunity for futsal company owners to register futsal venues.
- To search nearby futsal using Haversine formula.

1.4 Scope and Limitation

1.4.1 Scope

The project's scope is to create a web-based platform for booking and listing futsal grounds. The system will offer comprehensive details about each futsal venue, nearby futsal venues including its location and pricing.

1.4.2 Limitation

The user needs a stable internet connection to access the platform, which may not be available in all areas.

1.5 Development Methodology

1.5.1 Waterfall Model

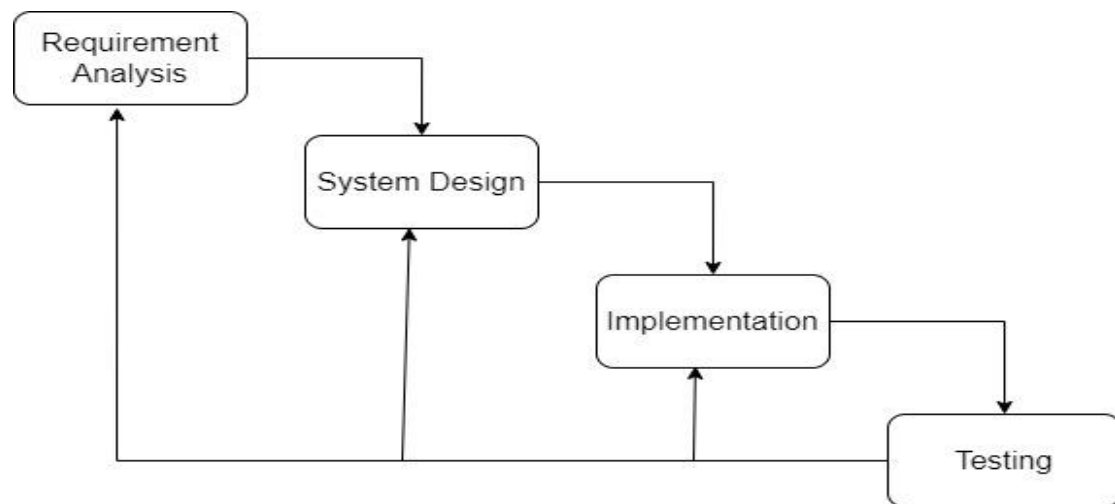


Figure 1.1 Waterfall Model of Futsal Finder

In developing the futsal finder system, the modern waterfall model is used. The methodology begins with comprehensive requirement gathering and documentation. Next, the design phase, focuses on system architecture, database schema, and user interface design. Implementation follows, where coding and development occur based on the design specifications. Finally, testing ensures the system meets all requirements before deployment. This systematic process ensures a well-defined and quality-driven development cycle for the futsal finder system.

1.6 Report Organization

The report can be organized into 5 chapters which are given below:

Chapter 1 provides us information about the system with objective, scope and limitation and development methodology of the system.

Chapter 2 provides background study with already known information from the previous work related to the system.

Chapter 3 analyze the system by performing various requirement and feasibility analysis. This chapter also provides all the system designs of the project.

Chapter 4 includes various implementation method and tools used to develop the system and also contains brief description of testing.

Chapter 5 includes conclusion, outcome of the system and future recommendations about what features can be added in the future in system.

Chapter2: Background Study and Literature Review

2.1 Background study

Futsal is a five-a-side football game, played with three to four substitutes on a hard court, smaller than a football field, and typically indoors. Its popularity is growing, particularly among young people. While many are familiar with futsal, finding and reserving a futsal ground in Nepal can be challenging due to the lack of online options. Furthermore, it is difficult for new futsal grounds to establish themselves in the market. This system aims to address these challenges by offering a platform for both booking and listing futsal grounds.

In the system, the players can get the list of futsal venues near them around the specific radius using the Haversine formula. The user-friendly design ensures that anyone can navigate and use the system with ease [2].

2.2 Literature Review

In the context of Nepal, there are some futsal booking websites available as of now but they are not enhanced enough to assist users for efficient booking of futsal venues. There are also few applications that can help users to book a futsal venues and register their futsal companies. “Vakundo app” and “We play” are one of them whereas “Futsal Blaze” and “Nepal Futsal Hub (NFH)” are two web based futsal booking system currently operating in Nepal. Additionally, there is both application and web based platform “Mero Futsal” providing comprehensive futsal booking solution. “Cimahpar futsal” and “The Ark” are the international web based Futsal booking system based in Indonesia and Singapore respectively. Similarly, Playfinder, Bookteq and SpotAvenue are other sports booking platform which includes futsal booking which are based outside Nepal.

The "Vakundo app" is a platform designed for football enthusiasts, offering features like booking futsal venues and searching for venues near your location. Users can access football-related news directly from the app's Dashboard. Futsal venue owners can register their venues on the app, making them visible to users. Additionally, the app supports online payment options, including Khalti and eSewa. [3].

"WePlay" is designed for sports enthusiasts, not just football fans. The app features a section dedicated to booking futsal venues, where users can find and book nearby futsal grounds. It provides images of the venues, available time slots, and other related details.

The app supports online payments through Khalti and eSewa, making the booking process more convenient for users [4].

"Futsal Blaze" is a user-friendly website designed for futsal enthusiasts in Nepal, offering a seamless booking experience. Users can register or log in to access a variety of futsal courts across the country. They can select their preferred venue, specify the date and time of their booking, and complete the transaction securely online. Overall, "Futsal Blaze" simplifies the process of booking futsal venues, providing convenience and transparency for users [5].

"Nepal Futsal Hub" is a user-friendly website dedicated to the futsal community in Nepal. It offers a comprehensive directory of futsal venues across the country, allowing users to easily browse and book their preferred locations. With secure online payment options and booking management features, users can seamlessly plan their futsal sessions. The website also provides valuable news and updates about the futsal scene in Nepal [6].

"Mero Futsal" offers easy access to booking their preferred futsal venues. Users can navigate through the website to explore available venues like Tahachal Futsal, with detailed information on location, facilities, and pricing. The website allows users to select their desired date and time for booking, make secure online payments, and receive instant confirmation [7].

"Cimahpar Futsal" is like an online shop for booking futsal courts. It's designed for folks who love playing futsal in Indonesia. Think of it as a website where you can easily pick and reserve your favorite futsal spot. Once you sign up and log in, you get to choose from different kinds of futsal fields. After you've picked the one you like, you confirm your booking and pay online [8].

"The Ark" located in Singapore provides Online booking of futsal and it is web based. The website is developed for the company itself where the futsal venues are available not only in one location but in different cities. The company not only focuses on futsal booking but also manages the events. Users need to create account or login to the system if the account is already registered and further proceed for booking [9].

"Playfinder" allows users to easily find and book sports facilities, including futsal courts, in the UK and Ireland. The platform provides detailed information on various venues,

including location, amenities, and pricing. Users can select their preferred date and time, make secure online payments, and receive instant booking confirmation [10].

“Bookteq” is a sports facility management platform that helps sports centers, including futsal venues, manage their bookings efficiently. The platform offers tools for automating bookings, scheduling, and payment processing, making it easier for users to find and book available slots [11].

“SpotAvenue” is a facility management platform that offers online booking solutions for various sports venues, including futsal courts. The platform provides tools for sports centers to manage bookings, schedules, and payments effectively [12].

Overall, each of these futsal booking system offers a unique set of features. Booking futsal grounds and keeping up with events and futsal news, these systems have really helped users to do so.

Chapter 3: System Analysis and Design

3.1 System Analysis

The requirement collection process offers a detailed analysis of user needs, functional and nonfunctional requirements, and system specifications. The front-end development is accomplished using HTML and CSS and JavaScript for client-side operations and PHP for server-side processes. MySQL is used for database management.

3.1.1 Requirement analysis.

Requirement analysis is a crucial step in development of any system. It involves identifying, documenting, and understanding the needs and expectations of various stakeholders.

i. Functional Requirements:

Functional requirement provides the overview of the system.

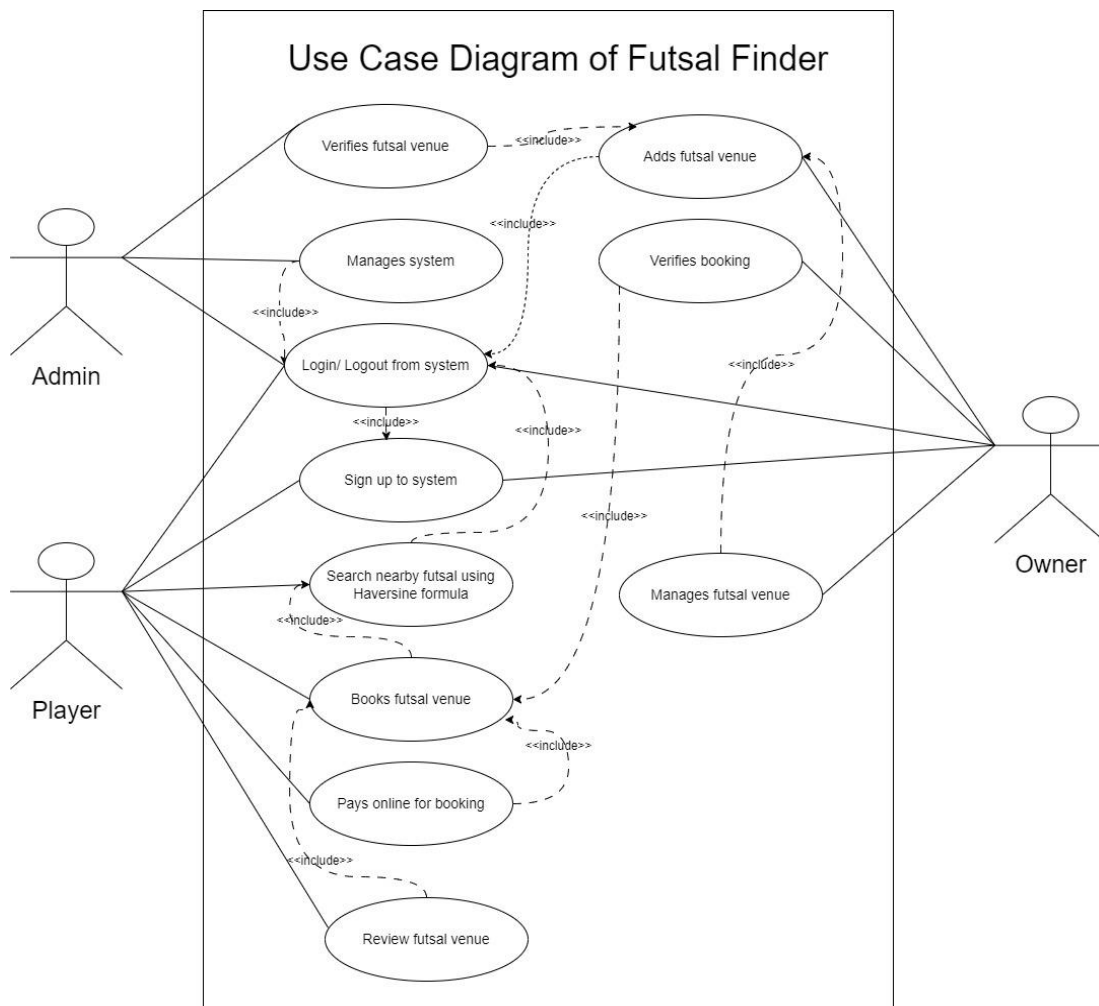


Figure 3.1 Use Case Diagram of Futsal Finder

Admin shall be able to login and logout from the system and verify the futsal company that is added by owner. Player and Owner shall be able to sign up into system, login and logout from the system. Player shall also be able to edit their information, find nearby futsal venues, book or cancel reservations, and review futsal venues. Owner shall be able to sign up into the system, login and logout from the system. Owner shall also be able to register their futsal company in the system and update that information. Owner shall be able to edit their information.

ii. Non Functional Requirement

- a) Availability: This is a web based application, so it shall be available to anyone who can access it.
- b) Security: Only the admin is able to make changes in the system thus, making the system more secure.
- c) Performance: The system is designed to perform in such a way where the admin shall be able to manage the system and users shall be able to use system.
- d) Reliability: The system is very reliable. It can yield correct output in correct time duration.

3.1.2 Feasibility Study

i. Technical feasibility

The Futsal Finder is a web-based application, compatible with almost all technical devices that have a web browser. It will be developed using HTML, CSS, and JavaScript for the front-end, and PHP and MySQL for the back-end support.

ii. Operational feasibility

The project is feasible to operate, providing adequate throughput and response. As a web-based application, it can be operated on multiple platforms, as long as the user has access to a web browser on their device.

iii. Economic feasibility

The system is economically feasible as it is developed using free tools like Visual Studio Code for HTML, CSS, and JavaScript, and Draw.io for diagram creation. These tools help keep development costs within budget while delivering an effective and appealing system.

iv. Schedule Feasibility

The time required to complete the project is calculated and classified using the following Gantt Chart:

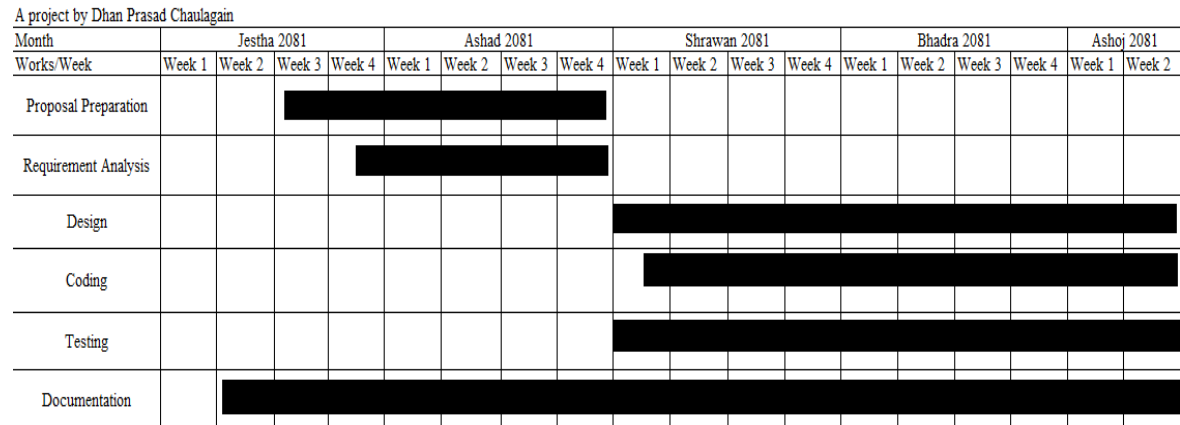


Figure 3.2 Gantt Chart of Futsal Finder

3.1.3 Data Modeling: ER-Diagram

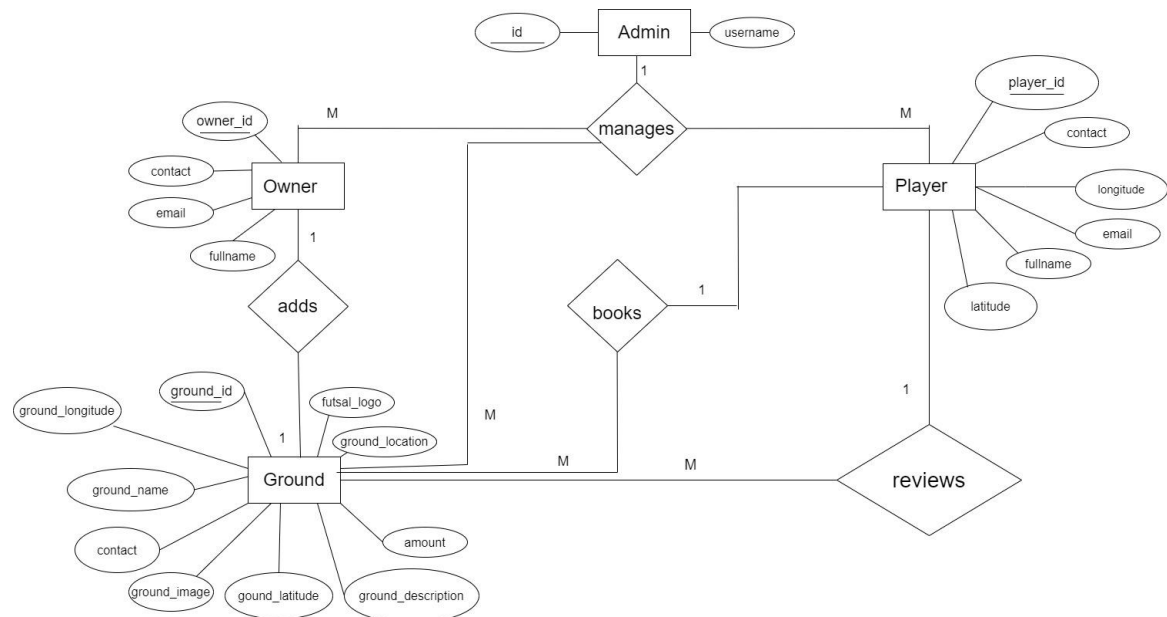


Figure 3.3 ER Diagram of Futsal Finder

The model illustrates the entities, their relationships, and the entity relationship models. Players must provide valid information to access the system and book futsal grounds. Similarly, owners need to submit their valid information to gain access and register their

futsal grounds in the system. The admin oversees the overall management and operation of the system.

3.1.4 Process Modeling: DFD

Process modeling is the technique of graphically capturing the series of processes and how they relate to one another.

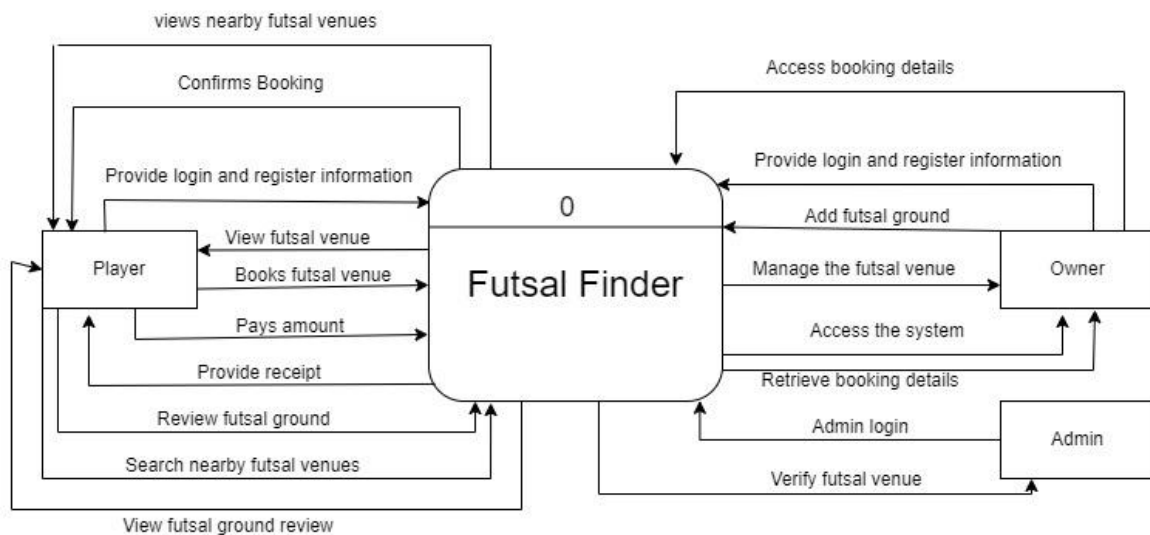


Figure 3.4 Context Diagram of Futsal Finder

The Futsal Finder's context diagram identifies the flows of data between the system and external entities. Here the external entities are player who can login to system to view futsal grounds, book futsal ground and to pay the amount to receive receipt. Owner is another external entity who can login to system to add their futsal ground and to manage them. And admin who can login to system to verify owner and manage entire system.

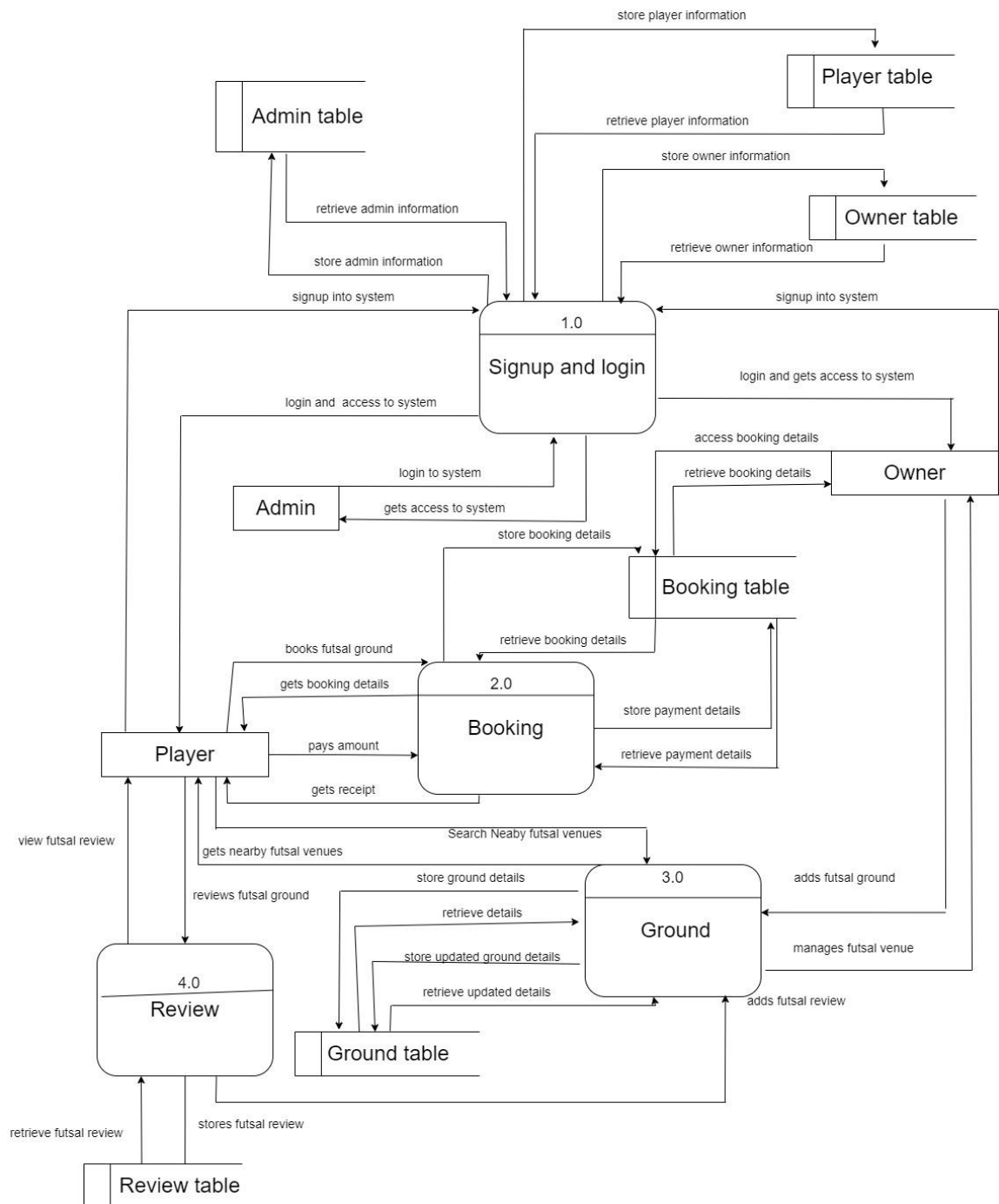


Figure 3.5 Level-1 DFD of Futsal Finder

In the Level-1 Data Flow Diagram (DFD), the context diagram is expanded into multiple processes. At this level, the main functions of the system are highlighted, breaking down the high-level process from the context diagram into more detailed sub-processes. The Level-1 DFD provides a more in-depth view of the proposed system, illustrating the various actions that the admin, player, and owner can perform.

3.2 System Design

The system design of Futsal Finder consists of architectural design, database schema design, user interface design and physical DFD which are shown as follows:

3.2.1 Architectural Design

The architectural design of Futsal Finder is built on a Client-Server model, with the Apache server handling server-side operations and the user's computer managing client-side tasks. Within this client-server model, the system is structured around a three-tier client-server architecture.

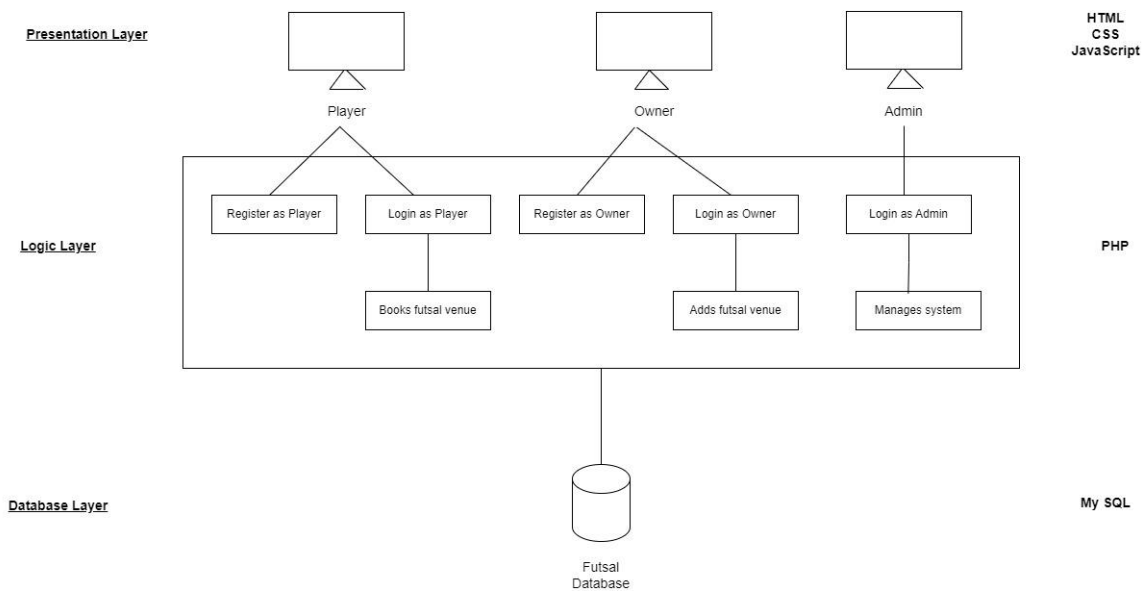


Figure 3.6 Client Server Model of Futsal Finder

In this architecture, the user sends a request via a web browser to the HTTP Apache server, which then interacts with the database and returns the requested data to the user. This architectural design has been implemented for the project. The presentation layer is built using HTML, CSS, and JavaScript, while PHP is used for the business logic layer, and MySQL is utilized for the database layer.

3.2.2 Database Schema Design

The database schema design for online futsal booking system showing all the relations along with their attributes and inter-relationship between the relations is shown below:

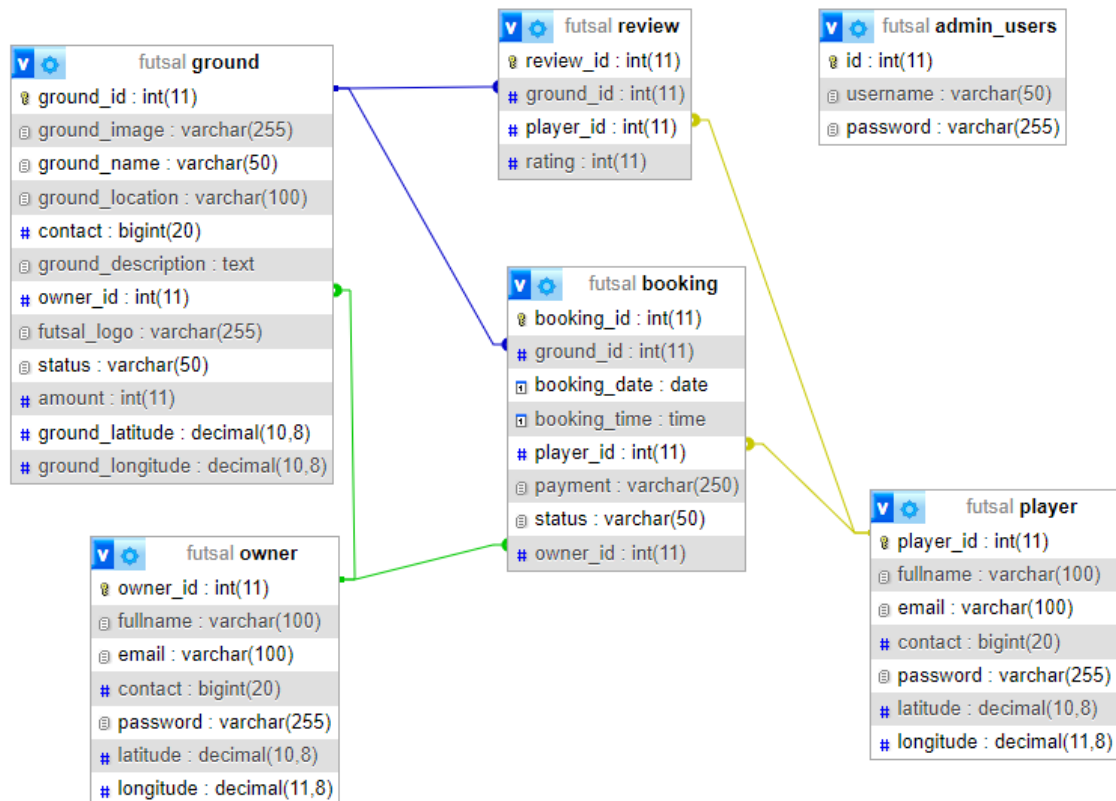


Figure 3.7 Database Schema of Futsal Finder

The database named “futsal” has been created for this project. It consist a total of six tables as: Admin, Player, Owner, Ground, Review and Booking with corresponding primary key id, player_id, owner_id, ground_id, review_id and booking_id respectively. The foreign keys are also shown in the diagram above.

3.2.3 Interface Design

The interface design of the futsal finder is below:

a) Admin Login page:

The interface for login page of admin is shown below. The figure 3.8 is the page from where admin can login to the system. It asks for admin username and password and will redirect to admin dashboard if successively logged in.

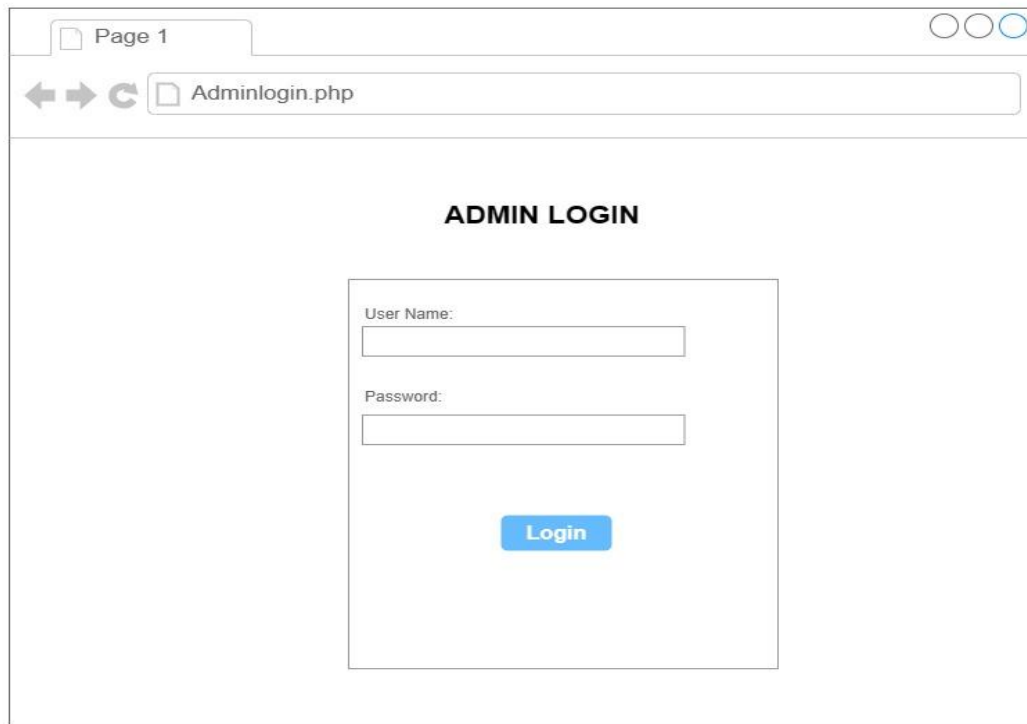


Figure 3.8 Interface of Login page for admin

b) Admin Home page:

The interface for home page of admin or admin dashboard is shown below. The figure 3.9 shows the homepage or dashboard of admin after successively login. From this page, admin can manage overall system. Admin can also logout from this page.

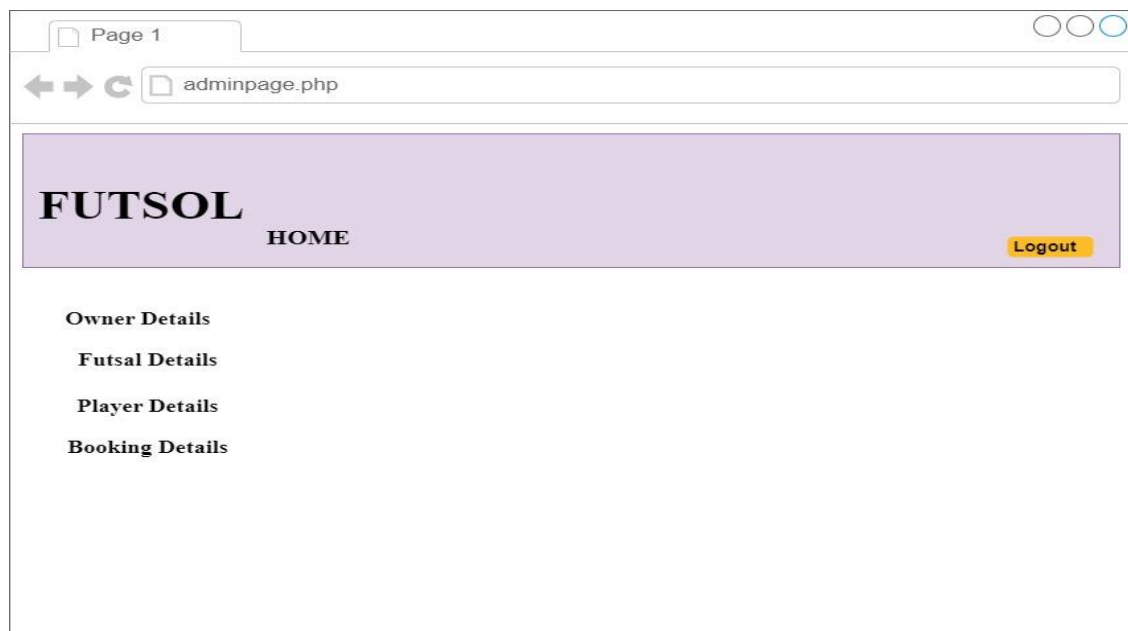


Figure 3.9 Interface of Home page for admin

c) Admin Player Details page:

The interface where admin manages player details is shown below. The figure 3.10 shows the page from where admin can manage player details. Admin can view player's details and remove player from system with delete button.

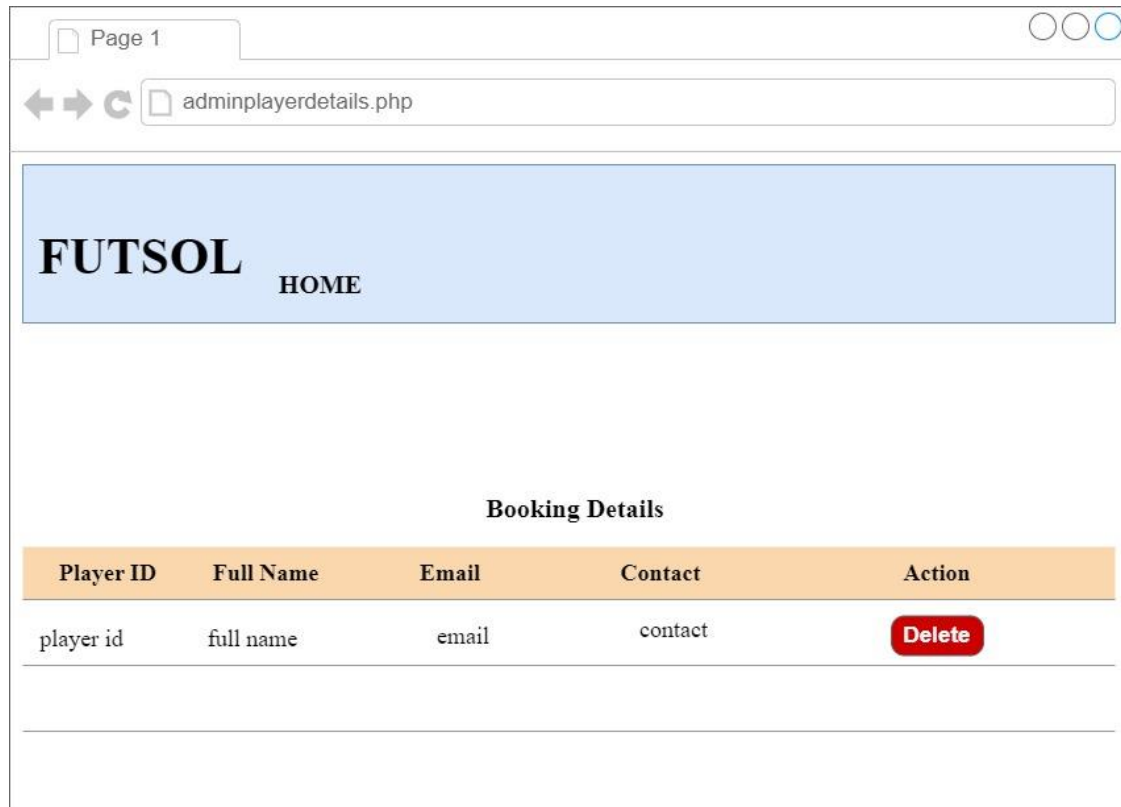


Figure 3.10 Interface of Page where admin manages player details

d) Admin Owner Details page:

The interface where admin manages owner details is shown below. The figure 3.11 shows the page from where admin can manage owner details. Admin can view owner's details and remove owner from system with delete button.



Figure 3.11 Interface of Page where admin manages owner details

e) Admin Booking Details page:

The interface where admin manages booking details is shown below. The figure 3.12 shows the page from where admin can manage booking details. Admin can view who has booked the ground in particular date and time.

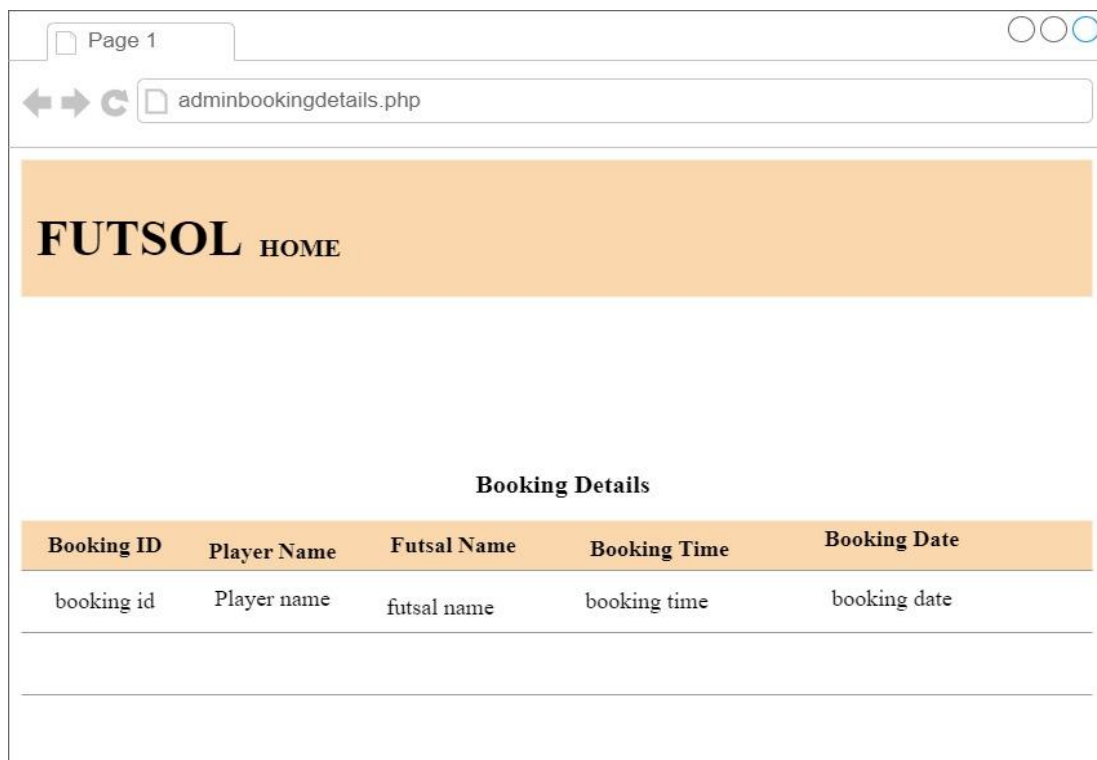


Figure 3.12 Interface of Page where admin manages booking details

f)Homepage:

The interface of home page is shown below. The figure 3.13 is the page which player sees when s/ he successfully logs in to system. They can see the list of grounds listed in the system and book the ground. They can also logout from the system through this page.

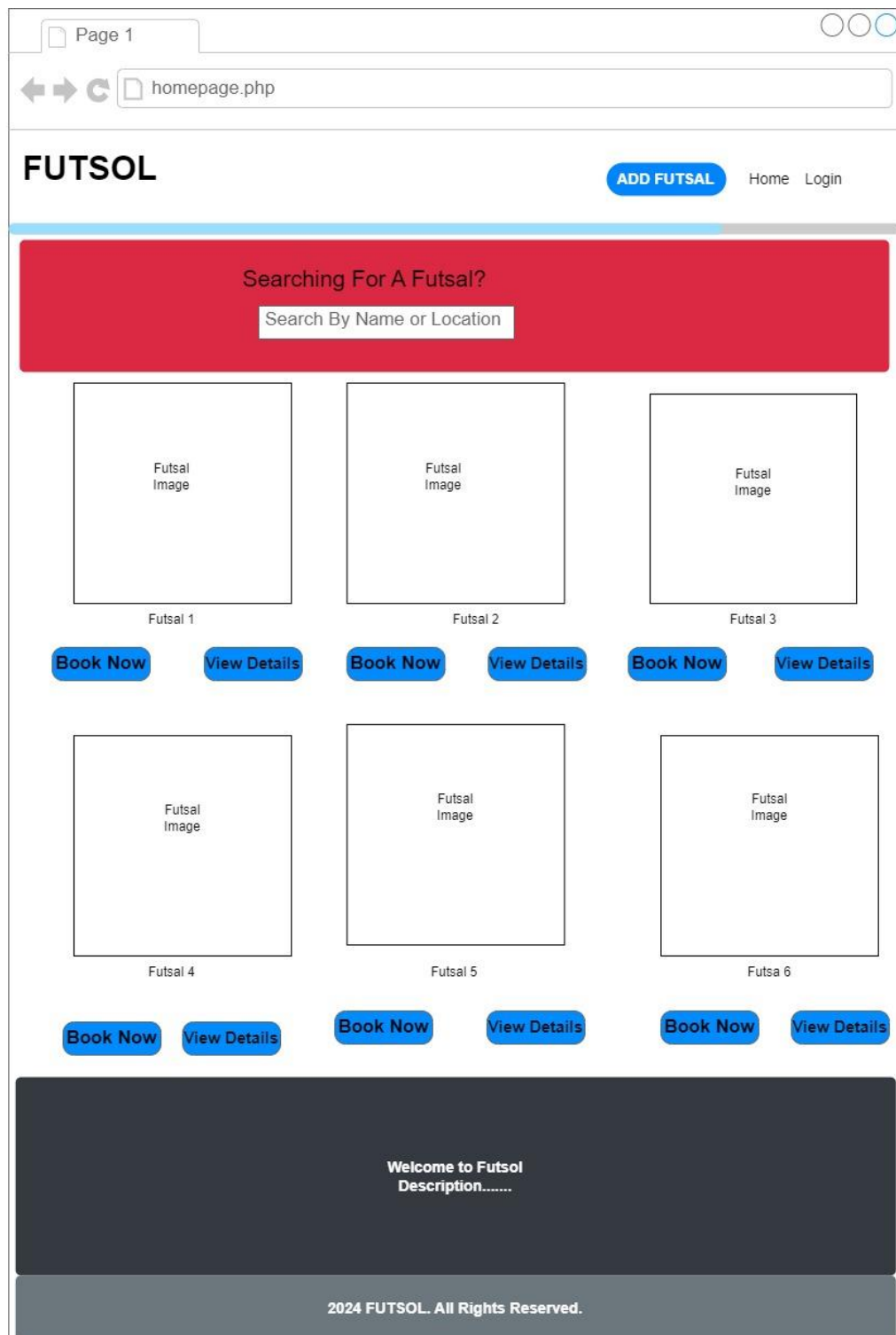


Figure 3.13 Interface for homepage

g) Signup popup:

The interface to register as player or owner is shown below. The figure 3.14 is the signup for both players and owners. They can register themselves as player or owner by signing up in this form. They can choose to be player or owner from radio button provided in the form.

The image displays a web application interface for 'FUTSOL'. A 'Sign up' popup is overlaid on the main page. The popup includes the following elements:

- Sign up** (Title)
- Full Name (Text input)
- Email (Text input)
- Contact (Text input)
- Password (Text input)
- Confirm Password (Text input)
- Signup as: (Section header)
- ☐ Player (Radio button)
- ☐ Owner (Radio button)
- Sign up** (Button)
- [Login if registered](#) (Text link)

The background interface shows a homepage with a search bar, a grid of 6 futsal items (Futsal 1-6) with 'Book Now' and 'View Details' buttons, and a footer with 'Welcome to Futsol' and '2024 FUTSOL. All Rights Reserved.'.

Figure 3.14 Interface for Signup

h) Login popup:

The interface for login page is shown below. The figure 3.15 is the login popup for both owner and player. After creating account from sign up page, they can now log in to their account from this page to use the system. They can choose ether player or owner from dropdown option provided in this page.

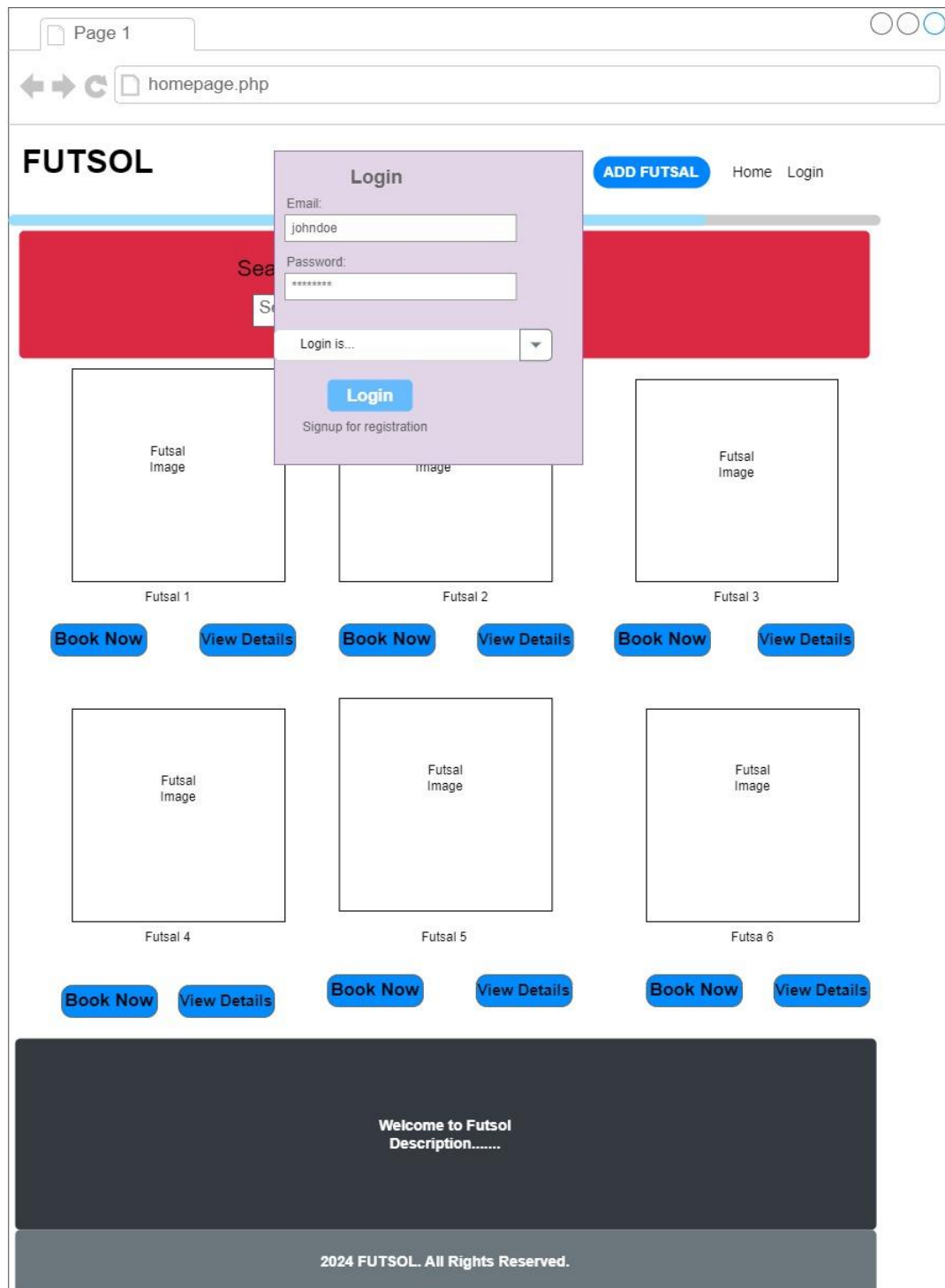


Figure 3.15 Interface for Login

i) Player Details page:

The interface to edit player's information is shown below. The figure 3.16 shows the page to edit player's information. Player can edit their information which includes full name, email, contact and password from this page. If the player edit their information, they will have to enter new email and password next time they want to log in to system.

The screenshot displays a web browser window with the address bar showing 'playerdetails.php?player_id='. The page header features the 'FUTSOL' logo, navigation links for 'HOME' and 'GROUNDS', a user profile icon, and a 'USERNAME' button. The main content area contains a red 'Edit Your Details' form with input fields for 'FullName:', 'Email', 'Contact', and 'Password', followed by an 'Update' button. The footer includes a dark grey bar with the text 'Welcome to Futsol Description.....' and a light grey bar with the copyright notice '2024 FUTSOL. All Rights Reserved.'

Figure 3.16 Interface to edit player's information

j) Booking page:

The interface which shows the booking page is shown below. The figure 3.17 is the page from where player can book futsal ground. When player clicks book now option from their desired futsal ground, they will be redirected to this page. From here they can select the date to make their reservation.

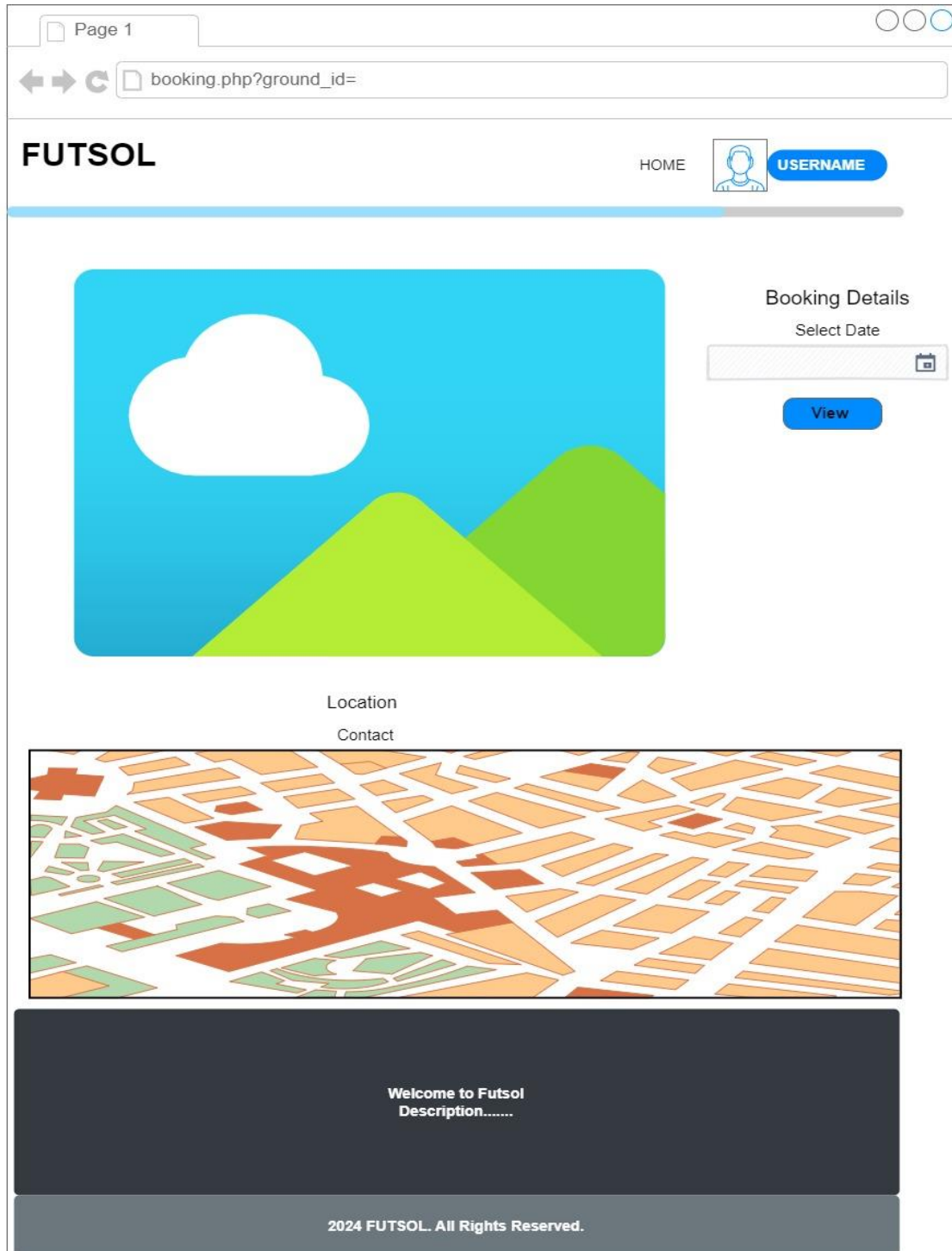


Figure 3.17 Interface for booking page

k) Futsal register page:

The interface which shows the page from where owner can add futsal ground is shown below. The figure 3.18 shows the form that owner will fill to add their ground in system. Owner will need to fill all the required information in the form and click register to register their futsal ground. After that admin will verify the ground and will add it to the system.

The screenshot displays a web browser window with a tab labeled 'Page 1'. The address bar shows 'playerdetails.php?player_id=' with navigation icons. The page header features the 'FUTSOL' logo on the left, and 'Edit DETAILS GROUNDS' with a user profile icon and a 'USERNAME' button on the right. The main content area is titled 'Add Your Futsal's Details' and contains a form with the following fields: 'Futsal Logo:', 'Ground Image:', 'Futsal Name:', 'Location:', 'Latitude:', 'Longitude:', 'Contact Number:', 'Amount per hour:', and 'Description:'. The 'Description' field is a large text area. Below the form are 'Get on Map' and 'Get Current Location' buttons. At the bottom of the form are 'Cancel' and 'Register' buttons. A dark grey footer bar contains the text 'Welcome to Futsol Description.....' and a light grey footer bar contains '2024 FUTSOL. All Rights Reserved.'

Figure 3.18 Interface to register futsal ground

3.2.4 Physical DFD

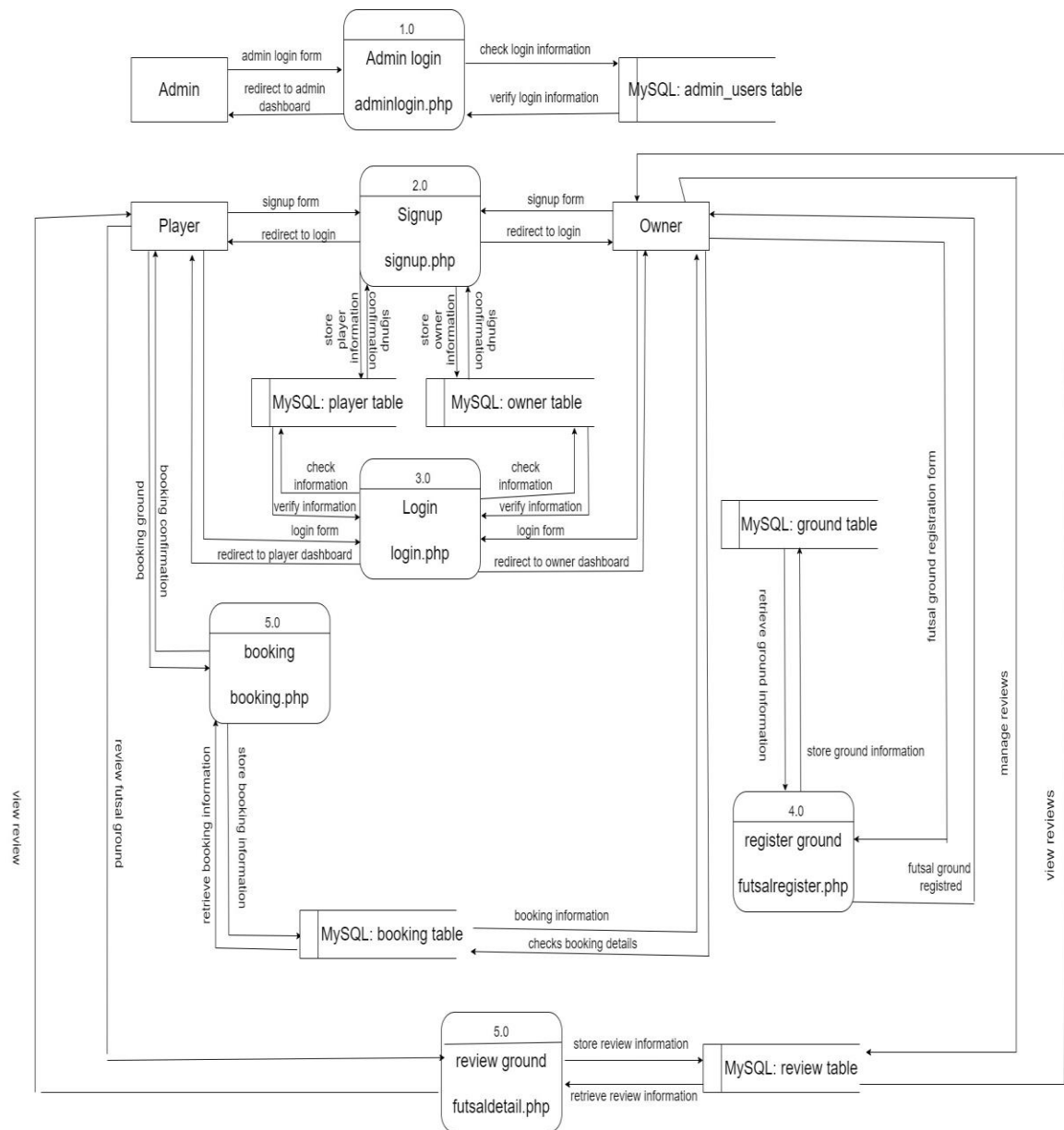


Figure 3.19 Physical DFD of Futsal Finder

Figure 3.19 represents the physical data flow diagram of the Futsal Finder. Physical data flow diagrams focus on how things happen in an information flow. These diagrams specify the software, hardware, files, and people involved in an information flow. A detailed physical data flow diagram can facilitate the development of the code needed to implement a data system.

3.3 Algorithm Details

Nearby futsal search using Haversine formula

Haversine formula is used to calculate the distance between two points on the Earth's surface, given their latitude and longitude. In Futsal Finder, Haversine formula is used to find the futsal venue near player's location.

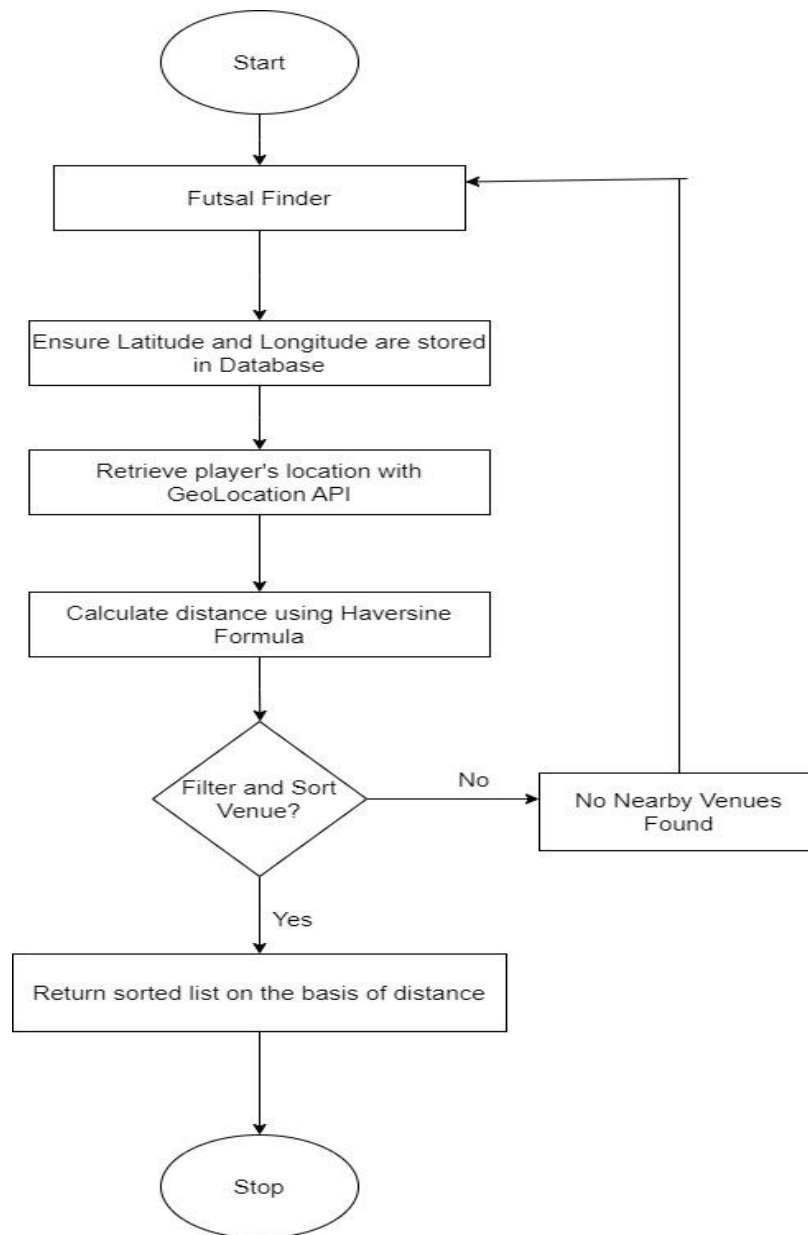


Figure 3.20 Flow Diagram of Algorithm of Futsal Finder

- The process begins by ensuring that each futsal venue has its latitude and longitude information stored in the database.
- Then the player's current location is retrieved using the browser's Geolocation API automatically when logged in.
- The retrieved latitude and longitude are then converted into radians on server side.

- The distance is calculated between the player's location and each futsal venue using the Haversine formula:

```
(6371 * acos(
    cos(radians($latitude))
    * cos(radians(ground_latitude))
    * cos(radians(ground_longitude) - radians($longitude))
    + sin(radians($latitude))
    * sin(radians(ground_latitude))
)) AS distance
FROM ground
HAVING distance < $radius
ORDER BY distance
```

- Return the sorted list of nearby futsal venues to the player with name, address, and distance from the player's location.

Chapter 4: Implementation and Testing

4.1 Implementation

The implementation phase involves the application of the design specifications done before. The implementation involves coding of the system designs if this project, systems testing are live running. During implementation we start coding according to our requirement.

4.1.1 Tool Used

Diagram Tool:

The designs used in this project are created using "draw.io," an online diagramming tool that allows users to build various types of diagrams and charts. It provides a wide range of pre-built shapes and icons, enabling custom layouts and designs. The tool also features a drag-and-drop interface, making it user-friendly and accessible for creating professional diagrams.

Web Application Development Tool:

HTML:

HTML (Hypertext Markup Language) is a standard markup language used to create and structure the content of web pages. It has been utilized to design the frontend of the web pages in this project.

CSS:

CSS (Cascading Style Sheets) is a style sheet language used to describe the presentation and formatting of HTML (and XML) documents. The styling to the web page is done using CSS.

JavaScript (JS):

JavaScript is a versatile scripting language that is widely used for adding interactive features to web pages. It is essential for client-side operations, enabling dynamic content updates, form validation, animations, and more.

PHP:

PHP (Hypertext Preprocessor) is a popular server-side scripting language used for building dynamic websites and web applications and web applications. It handles backend processes

and facilitates interaction with databases.

MySQL:

MySQL is an open-source relational database management system used for storing and managing structured data. With MySQL, CRUD (Create, Read, Update and Delete) operations can be performed efficiently.

Visual Studio Code:

Visual Studio Code is a powerful source code editor that supports a wide variety of programming languages, making the coding process faster and hassle-free.

4.1.2 Implementation Details of Modules

User Registration: Users have to register into the system before they login into the system. User is required to fill the registration form with text boxes, radio-button for role. User can choose two roles while registering:

- i. As an owner: When owner is selected in radio button while signing up, s/he is assigned with the role of owner.
- ii. As a player: When owner is selected in radio button while signing up, s/he is assigned with the role of player.

User login: User can login into the system only after completing the signup process. User can login into the system with the same email and password that they create their account with. User can select owner or player from dropdown menu.

Book Futsal ground: Any user logged in into the system as a player can book futsal ground of their choice at their preferred time and pay online.

Find Futsal ground: Player who is logged in into the system can find futsal venues near them under the respective radius (in km).

Register Futsal ground: Any user logged into the system as an owner can register their futsal ground in the system. However admin will first verify the ground before user (players) can book it.

Admin Dashboard Panel: Admin after logging in can approve or reject the registration of futsal ground, delete user's account from system and have overall control of system.

Review futsal ground: Players who are logged in into the system can review the futsal ground. It can be both seen by owner and player.

View booking details: Players can view their booking details. Owners can view booking of their futsal ground. Admin can view booking details of all registered futsal grounds.

Editing User's information: Both players and owners can edit their information.

User Logout: User can logout of the system as per their choice.

4.2 Testing

The testing is performed to verify and validate the Futsal Finder. The presented system is tested to see if it is working properly with no error and if it fulfills the necessary requirement.

4.2.1 Test Case for Unit Testing

The system comprises of signup form, login form, admin dashboard, player/owner dashboard and for each case unit testing is done. It is performed to determine if there are any issues and its main aim is to identify, analyze and fix the found defects.

Table 4.1 Testing Signup

Pre-conditions:							
Dependencies:							
SN	Test Case ID	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Test case status
01	TC 01	Navigate to home page			Home page should open.	Home page opened.	pass
02	TC 02	Sign up pop-up Full Name validation	Full Name validation	Input Full Name with numeric characters	If full name consist of digit display message	Message displayed "Fullname cannot	pass

					"Fullname cannot contain numbers"	contain numbers	
03	TC 03	Sign up pop-up email validation	Email validation	Input email with less than 5 characters	If email is less than 5 characters display message "mail must be more than 5 characters."	Message displayed "mail must be more than 5 characters."	pass
04	TC 04	Sign up pop-up email validation	Email validation	Input email with less than 5 characters	No error message should display.	Message displayed "mail must be more than 5 characters."	fail
05	TC 05	Sign up pop-up contact number validation	Contact number validation	Input contact number with alphabets	Display message "Contact number must contain only digits"	Message displayed "Contact number must contain only digits"	pass

06	TC 06	Sign up pop-up password validation	Password validation	Input unmatched password	Display message “Passwords do not match ”	Message displayed “Passwords do not match .”	pass
07	TC 07	Sign up pop-up password validation	Password validation	Input unmatched password	No error message should display.	Message displayed “Passwords do not match .”	fail
08	TC 08	Sign up as player or owner		Select player or owner from radio button.	Create account as per selection.	Account created as per selection.	pass
09	TC 09	Sign up pop-up validation	Provide valid full name, email, contact number and password	Provide valid email, contact number and password.	Open login pop-up	Login pop- up opened.	Pass
Post-conditions: The account of player and owner is successfully created.							

Table 4.2 Testing login

Pre-conditions: The player and owner has a valid email and password								
Dependencies: Sign-Up Module								
SN	Test Case ID	Test Case Name	Test Case User	Test Case Description	Step	Expected Result	Actual Result	Test Case status
01	TC 10	Validate Login	Player	Enter invalid email and password	Enter email, password and choose login as player.	Log in success or error message "Invalid email or password" must be displayed.	No Successful login.	fail
02	TC 11	Validate Login	Player	Enter Valid email and password	Enter email, password and choose login as player.	Log in success or error message "Invalid email or password" must be displayed.	Successful login in directed to player dashboard	pass
03	TC 12	Validate Login	Owner	Enter Valid email and password	Enter email, password and choose login as owner.	Log in success or error message "Invalid email or password" must be displayed	Successful login in directed to owner dashboard	pass
Post-conditions: The owner and player are successfully redirected to their respective dashboard.								

Table 4.3 Testing Admin dashboard

Pre-conditions: The admin has valid username and password.							
Dependencies: Admin login Module							
SN	Test Case ID	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Test case status
01	TC 13	Verify Futsal ground	Verify selected Futsal ground	Click on verify to accept Futsal ground	Futsal ground must be accepted	Futsal ground accepted	Pass
02	TC 14	Delete Futsal ground	Delete Selected Futsal ground	Click on delete to delete Futsal ground	Futsal ground must be deleted	No Futsal ground deleted	fail
03	TC 15	Delete Futsal ground	Delete Selected Futsal ground	Click on delete to delete Futsal ground	Futsal ground must be deleted	Futsal ground deleted	Pass
04	TC 16	Delete owner	Delete selected owner	Click on delete to delete owner	Owner must be deleted	Owner deleted	Pass
05	TC 17	Delete player	Delete selected player	Click on delete to delete player	Player must be deleted	Player deleted	pass
06	TC 18	View booking details	View booking details	Click on booking details to view booking details	Booking details must be shown	No Booking details shown	fail
07	TC 19	View booking details	View booking details	Click on booking details to view booking details	Booking details	Booking details shown	pass

					must be shown		
08	TC 20	Logout	To Exit Dashboard	Click on logout	Direct to admin login page	Directed to admin login page	Pass
Post-conditions: The admin successfully performed all activities.							

Table 4.4 Testing Player dashboard

Pre-conditions: The player has valid username and password.							
Dependencies: Login module.							
SN	Test Case ID	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Test case status
01	TC 21	View list of grounds	View list of all grounds in the system	Click on grounds to view list of all grounds in the system	List of all grounds must be shown	List of all grounds shown	pass
02	TC 22	View details of futsal ground	View the details of selected futsal ground.	Click on view details to display of selected futsal ground	Details of selected futsal ground must be displayed	No Details of selected ground displayed	fail
03	TC 23	View details of futsal ground	View the details of selected futsal ground.	Click on view details to display of selected futsal ground	Details of selected futsal ground must be displayed	Details of selected ground displayed	Pass

04	TC 24	Edit Profile	To edit player's profile	Click on details to edit player's information	Player's details must be updated	Player's details updated	Pass
05	TC 25	Logout	To exit dashboard	Click on logout	Direct to login page	Directed to login page	Pass

Post-conditions:

The player successfully performed all activities including profile editing, viewing ground details, finding nearby futsal ground and booking futsal ground.

Table 4.5 Testing Nearby futsal search

Pre-conditions: The player access the playerhomepage.							
Dependencies: Login module.							
SN	Test Case ID	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Test case status
01	TC 26	Search Nearby futsal ground using Haversine formula.	Display the nearby futsal grounds respective to players and ground's latitude and longitude.	Click on find here button to get the list of futsal grounds near the player's location.	Futsal grounds available near to players must be displayed and eligible for booking.	Nearby futsal grounds not displayed.	fail
02	TC 27	Search Nearby futsal ground using	Display the nearby futsal grounds respective to players and ground's	Click on find here button to get the list of futsal grounds near	Futsal grounds available near to players must be displayed	Nearby futsal groundst displayed and eligible for booking.	Pass

		Haversine formula.	latitude and longitude.	the player's location.	and eligible for booking		
Post-conditions: The player successfully finds the futsal grounds near them in order of shortest distance by calculating the player's current latitude and longitude with latitude and longitude of futsal venues stores in database.							

Table 4.6 Testing Owner dashboard

Pre-conditions: The owner has valid username and password.							
Dependencies: Login module.							
SN	Test Case ID	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Test case status
01	TC 28	View verified ground	View grounds in the system	Click on My ground to view ground in the system	Verified grounds must be shown	Verified grounds shown	pass
02	TC 29	Edit Profile	To edit owner's profile	Click on details to edit owner's information	Owner's details must be updated	Owner's details updated	Pass
03	TC 30	Add futsal ground	Add new futsal ground	Click on register to add the futsal ground after filling form.	Futsal ground must be added.	No Futsal ground added.	fail

04	TC 31	Add futsal ground	Add new futsal ground	Click on register to add the futsal ground after filling form.	Futsal ground must be added.	Futsal ground added.	Pass
05	TC 32	Futsal Details Futsal Name validation	Futsal Name Validation	Input Futsal Name with less than 4 characters	If Futsal Name less than 4 characters display message “Futsal Name must contain more than 4 characters”	Message displayed “Futsal Name must contain more than 4 characters”	Pass
06	TC 33	Futsal Details contact number validation	Contact Number validation	Input contact number with less than 10 digits	Display message “Contact Number must be 10 digits”	Message displayed “Contact Number must be 10 digits”	Pass
07	TC 34	Logout	To exit dashboard	Click on logout	Direct to login page	Directed to login page	Pass

Post-conditions:

The owner successfully performed all activities including profile editing, adding futsal ground and view booking details of futsal ground.

Chapter 5: Conclusion and Future Recommendation

5.1 Outcome

Futsal Finder platform aims to deliver an intuitive user interface, rapid response times, and a cost-effective solution that surpasses the previous appointment booking systems in terms of security and performance.

5.2 Conclusion

In conclusion, the system offers a simple and intuitive way for users to book futsal grounds. The well-designed homepage enables users to quickly locate nearby futsal venues and select their preferred options. The secure login system ensures privacy, while tailored features for both players and owners enhance the overall experience, allowing each user to fully utilize the platform's capabilities.

5.3 Future Recommendation

The system was developed to offer an enhanced futsal booking experience, benefiting both players and futsal ground owners. It allows users to enjoy futsal with friends without the stress of finding available time slots. By streamlining the booking process, the platform aims to make organizing futsal sessions more convenient and efficient for everyone involved.

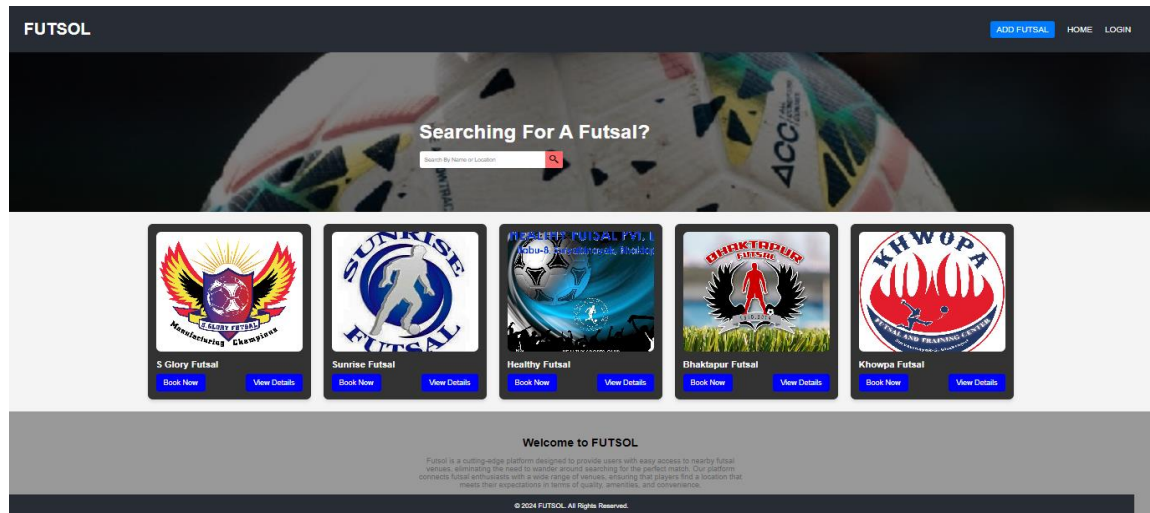
Despite these improvements, several areas still require attention in Futsal Finder. Security measures could be strengthened to protect user data more effectively. Expanding the system into a mobile application would help reach a larger user base. Additionally, integrating e-wallets and banking networks would make transactions more secure and user-friendly.

References

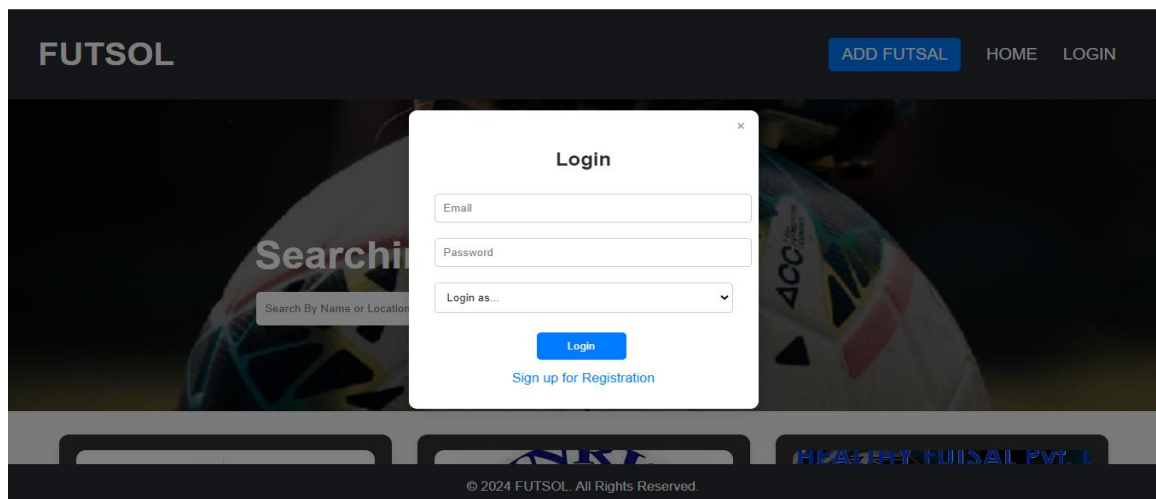
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Appendices

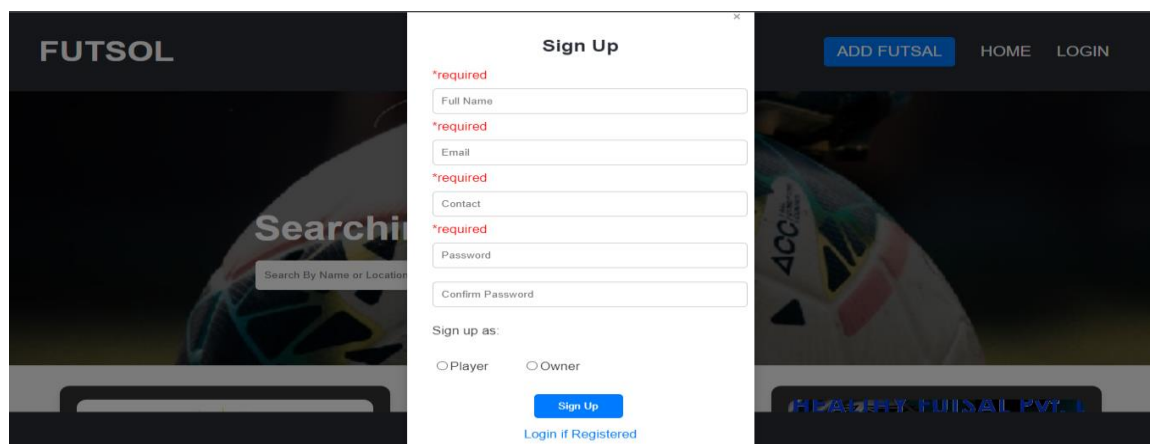
1) Homepage:



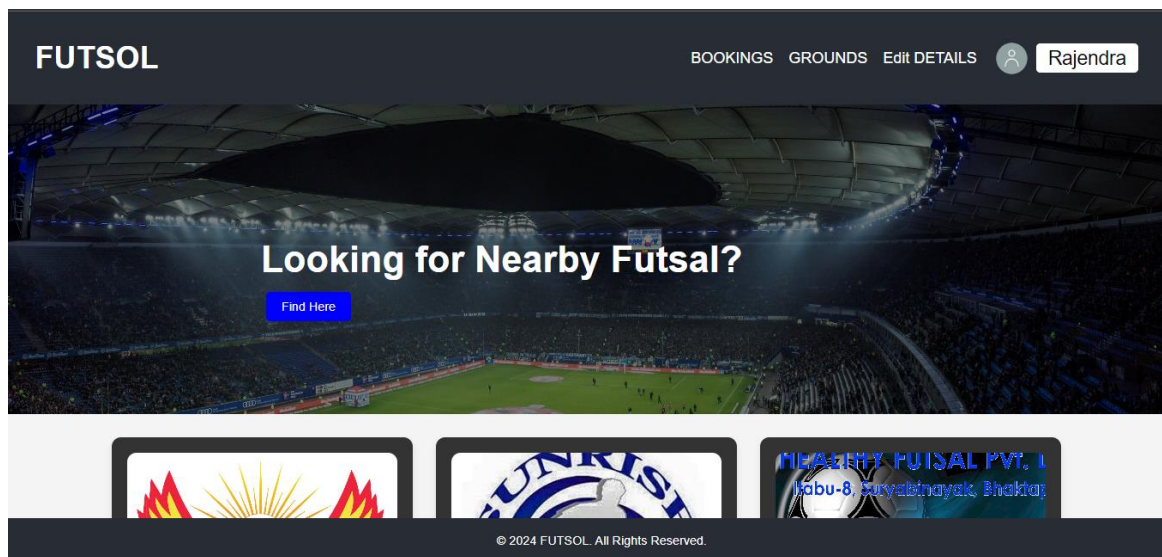
2) Login popup:



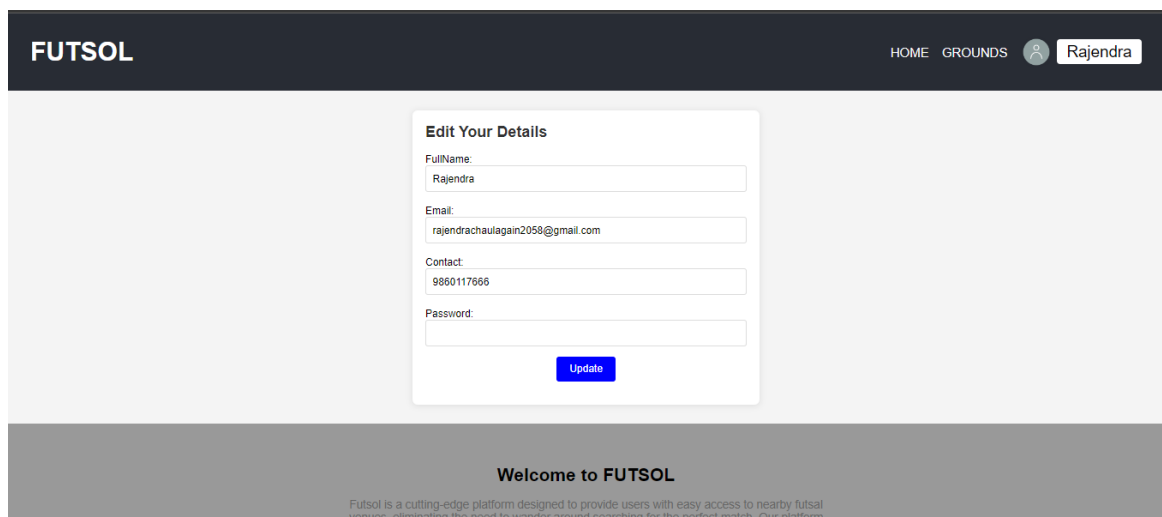
3) Signup popup:



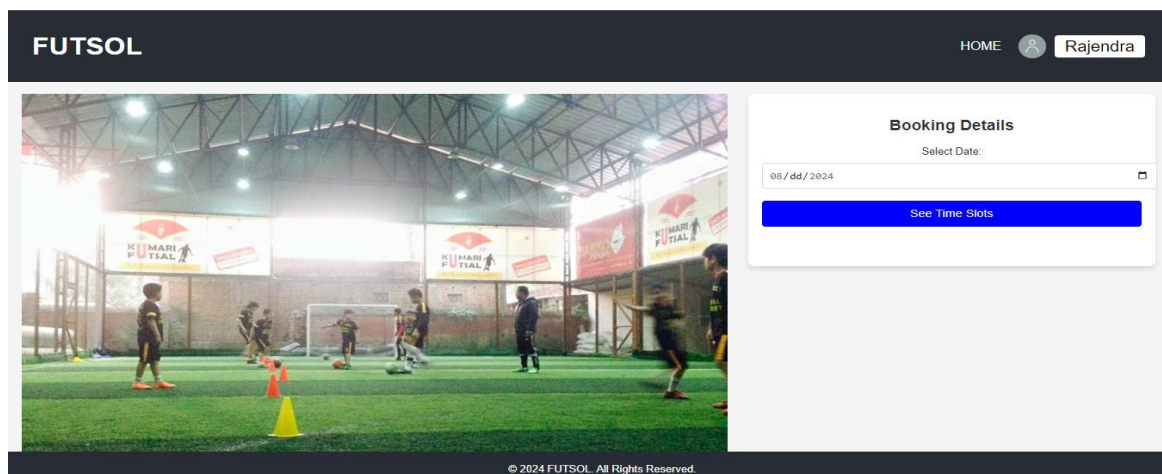
4) Player Dashboard:



5) Edit player details:



6) Booking page:



7) Futsal registration page:

Add Your Futsal's Details

Futsal Logo:

No file chosen

Ground Image:

No file chosen

Futsal Name:

Location:

Latitude:

Longitude:

Contact Number:

Amount per hour:

Description:

B *I* | |

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8) Admin login page:

Admin Login!

Username:

Password:

9) Admin dashboard:

FUTSOL

Home

Logout

Owner Details

Futsal Details

Player Details

Booking Details







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10) Admin verifying futsal venues:

FUTSOL

HOME

Futsal Details

Ground ID	Owner Name	Futsal Name	Location	Contact	Futsal logo	Ground Image	Verify	Delete
7	Rajendra	S Glory Futsal	Shrijananagar, Bhaktapur	9841345119			Verified	<div>Delete</div>
9	Shyam Shah	Sunrise Futsal	Kathmandu	9860227666			Verified	<div>Delete</div>
								

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11) Admin dashboard to view owner details:

FUTSOL

HOME

Owner Details

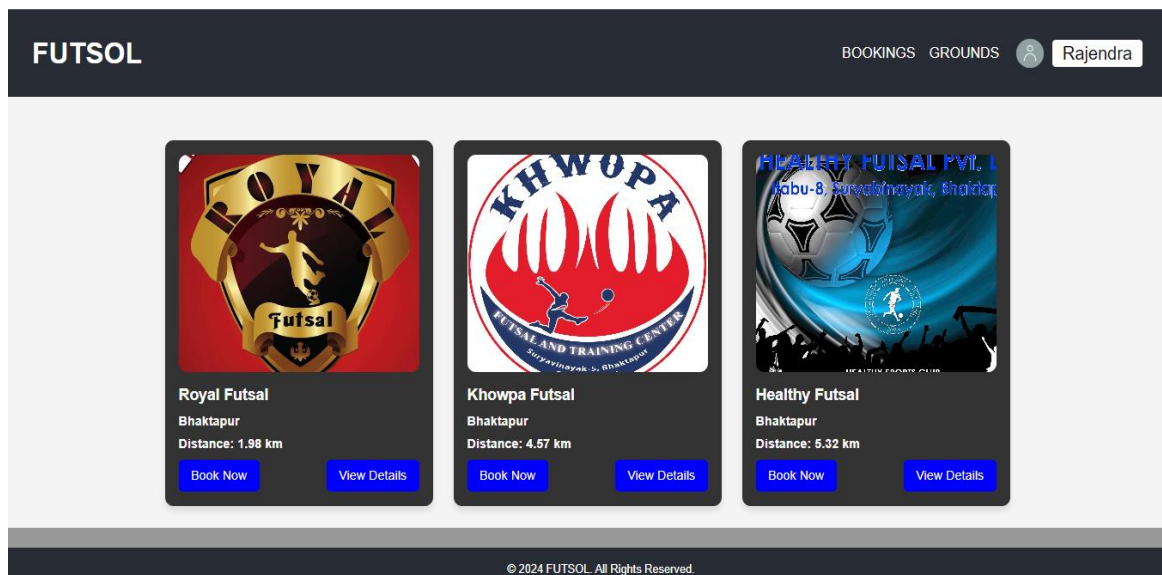
Owner ID	Full Name	Email	Contact	Action
1	Rajendra	o@gmail.com	9841345119	<div>delete</div>
2	Shakti	owner@gmail.com	9840275041	<div>delete</div>
3	Shyam Shah	Shyam@gmail.com	9860227666	<div>delete</div>
4	Ram Singh	ram@gmail.com	9812345678	<div>delete</div>
5	Krishna	krishna@gmail.com	9811111111	<div>delete</div>
6	Balram	bal@gmail.com	9811111110	<div>delete</div>
7	Raju	raju@gmail.com	9810101010	<div>delete</div>

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12) Player looking for nearby futsal venues:



13) Page displaying futsal near to player's location:



14) Source code finding the nearby futsal from player's location:

```
<!-- Geo Locaiton API for Current latitude and longitude -->
<script>
  function getLocation() {
    if (navigator.geolocation) {
      navigator.geolocation.getCurrentPosition(function (position) {
        const latitude = position.coords.latitude;
        const longitude = position.coords.longitude;

        document.getElementById('latitude').value = latitude;
        document.getElementById('longitude').value = longitude;
      });
    } else {
      alert("Geolocation is not supported by this browser.");
    }
  }
  document.addEventListener('DOMContentLoaded', function () {
    getLocation();
  });
</script>
```

```

<?php

$sql = "SELECT * FROM player where player_id='$player_id'";
$result = mysqli_query($con, $sql);
$row = mysqli_fetch_assoc($result);
$longitude = $row['longitude'];
$latitude = $row['latitude'];
$radius = 6;

$sql = "
SELECT *,
(6371 * acos(
    cos(radians($latitude))
    * cos(radians(ground_latitude))
    * cos(radians(ground_longitude) - radians($longitude))
    + sin(radians($latitude))
    * sin(radians(ground_latitude))
)) AS distance
FROM ground
HAVING distance < $radius
ORDER BY distance
";

```

```

$result = mysqli_query($con, $sql);
if (mysqli_num_rows($result) == 0) {
    echo '<script>
    alert("No nearby futsal venues found.");
    window.location.href = "playerhomepage.php";
    </script>';
} else {

```

```

    echo '
<div class="futsal-box">
    <img src="" . $futsal_logo . "" alt="Futsal Ground" height="100px">
    <h3>' . $ground_name . '</h3>
    <h4>' . $ground_location . '</h4>
    <h4>Distance: ' . round($distance, 2) . ' km</h4>
    <div class="btn-container">
        <button onclick="redirectlogin(' . $ground_id . ')">Book Now</button>
        <button onclick="viewDetails(' . $ground_id . ')">View Details</button>
    </div>
</div>';
    }
}

```