VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI, KARNATAKA

A DBMS Mini Project Report

(Fifth Semester)

on

Cricket Database System

Submitted in the partial fulfillment for the requirements for the conferment of degree of

BACHELOR OF ENGINEERING

in

INFORMATION SCIENCE AND ENGINEERING

By

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BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT
YELAHANKA, BENGALURU-560064
DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

2022-2023

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Mission

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PEO-1: Successful professional career in Information Science & Technology.
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1. Apply the knowledge of information technology to develop software solutions.
2. Design and Develop hardware systems, manage and monitor resources in the product life cycle.

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YELAHANKA, BENGALURU-560064

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that the Mini Project (Fifth Semester) entitled **"Cricket Database System"** is a bonafide work carried out by **Mr. Narahari M V (1BY20IS094)** in partial fulfillment for the award of **Bachelor of Engineering Degree in Information Science and Engineering** of the Visvesvaraya Technological University, Belagavi during the year 2022-2023. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in this report. The mini project report has been approved as it satisfies the academic requirements with respect to mini project work for the B.E Degree.

Signature of the Guide
Dr. Sheela Kathavate

Signature of the HOD

Examiner

	Name	Signature
1.		
2.		

ACKNOWLEDGEMENT

I am happy to present this Mini Project after completing it successfully. This Mini Project would not have been possible without the guidance, assistance and suggestions of many individuals. I would like to express our deep sense of gratitude and indebtedness to each and every one who has helped us make this Mini Project a success.

I am grateful to **Dr. Mohan Babu G N,** Principal, BMS Institute of Technology & Management for his constant encouragement and support.

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I gracefully thank our guide**, Dr. Sheela Kathavate** Associate Professor, Dept. of Information Science and Engineering, for her encouragement and advice throughout the course of this project work.

Nevertheless, I express our gratitude towards my family and friends for the encouragement and support which helped us to finish this project successfully.

By,
Narahari M V

DECLARATION

I , hereby declare that the Mini Project titled "**Cricket Database System**" is a record of original Mini Project work undertaken for the award of the degree of Bachelor of Engineering in Information Science and Engineering of the Visvesvaraya Technological University, Belagavi during the year 2022-23. I have completed this Mini Project work under the guidance of **Dr. Sheela Kathavate,** Associate professor, Dept. of ISE.

I also declare that this Mini Project report has not been submitted for the award of any degree, diploma, fellowship or other title anywhere else.

Student Photos:

ABSTRACT

This **"CRICKET DATABASE SYSTEM"** is a cricket scheduling-based application exclusively for the game of cricket. The Application features schedules, information about teams, records of batting and bowling, creating new schedules, can search about players, it displays rank tables for teams and players. The admin has all authorities to make changes for the database so admin can add players, can add schedules, can add stadiums and also have permission to removing of them from the database. It features with searching of players involved in the game and retrieve the players of the particular match by selecting match number. Also, can fetch the schedules with their venue and squad available by the team, players selected for the current match. Admin can also authority to update the rating of the teams and also players runs and wickets and other match particulars in this database. The user's login window also featured with create an account, player search for players information, getting future match particulars, rankings, cricket boards, stadiums, schedules and their venues. Can fetch the schedules with their venue and squad available by the team, players selected for the current match

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CHAPTER 1: INTRODUCTION

1.1 Outline:

Database is an organized collection of data. The data is typically organized to model aspects of reality in a way that supports processes requiring information. A DBMS makes it possible for end users to create, read, update and delete data in a database. The DBMS essentially serves as an interface between the database and end users or application programs, ensuring that data is consistently organized and remains easily accessible.

The DBMS manages three important things: the data, the database engine that allows data to be accessed, locked and modified and the database schema, which defines the database's logical structure. These three foundational elements help provide concurrency, security, data integrity and uniform administration procedures. The DBMS can offer both logical and physical data independence.

The Cricket Database System is a database Management system which features schedules, information about teams, records of batting and bowling, creating new schedules, can search about players, it displays rank tables for teams and players.

In this Database System, the admin has all access to make changes for the database so admin can add players, can add schedules, can add stadiums and also have permission to removing of them from the database. It features with searching of players involved in the game and retrieve the players of the particular match by selecting match number. Also, can fetch the schedules with their venue and squad available by the team, players selected for the current match. Admin can also authority to update the rating of the teams and also players runs and wickets and other

1.2 Motivation and Scope:

- Storing and organizing information about cricket players, teams, and matches, including player statistics, team rosters, and match results
- Allowing for easy querying and reporting of the stored data.
- This system aims to make the data management process more streamlined and efficient.
- The ability to store and analyze data for both domestic and international matches and teams.
- As for the scope, a cricket database management system using DBMS would be responsible for storing and organizing information about cricket players, teams, and matches. This includes player statistics, team rosters, and match results.
- Additionally, the system would allow for easy querying and reporting of the stored data, this system can also support data entry for past match statistics as well as live updates during a match.
- This enables teams and organizations to analyze the data and make better decisions based on accurate and up-to-date information.
- Overall, the main goal is to provide a powerful tool for managing and analyzing cricket data, to support decision-making process within teams and organizations.

1.3 Problem Statement:

A cricket database management system using DBMS is designed to store, organize, and analyze large amounts of data related to the sport of cricket. The system is intended to provide a centralized location for all cricket-related information, including information on players, teams, and matches. With this system, users should be able to easily query and report on the stored data, allowing for the analysis of cricket data to support decision-making. The system should support data entry of past match statistics as well as live updates during a match. It should support multiple access by different user roles like admin, coach, selectors, etc.

CHAPTER 2: REQUIREMENT SPECIFICATIONS

2.1 Functional Requirement:

Functional Requirements mainly specify what the project should do. This project aims to bring all the Cricket players played in the several matches. To keep track them and all the records we need essential functional requirements.

- **R1: Request for Login:**

  Description: The system shall require a user to login/register, in order to carry out any operations in the software. It will ask the user for information like username, password, and various other relevant fields. If the credentials used by the user are correct, then the system allows the user to carry out further operations. While registering for the first time, a user should enter details along with User-ID which is not present in the database.

- **R2: Adding new Players/Stadiums/Records:**

  Description: A Player, Stadiums and other Records can be added to the concerned database on the basis of matches availability and its concerned requirements.

- **R3: Data Querying:**

  Description: The system should allow for easy querying and reporting of the stored data, for example, users should be able to easily retrieve information such as a list of all players on a particular team, or the results of all matches played by a team in a given year.

- **R4: User-friendly Interface:**

  Description: The system should be easy to use and understand, with a user-friendly interface that makes it accessible to a wide range of users.

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2.2 Non-Functional Requirement:

Performance:

- Response time of the System should be less than 3 second most of the time.
- Response time refers to the waiting time while the system accesses, queries and retrieves the information from the databases.

Reliability:

- It shall be available 24 hours a day, 7 days a week.
- It shall always provide an accurate listing of the available venues and ongoing events.

Integrity:

- Only the system administrator has the right to change system parameters, such as deleting unwanted/spam Details concerned to users/organizations and event details.
- Users need to be authenticated before having access to any data.

A Convenient dashboard, user-friendly UI, separation of working pages for user's convenience, separate dashboards for Players/stadiums and Admin is a must.

2.3 Domain Constraints:

Domain constraints are defined as the valid set of values of an attribute. In this project, we have used various domain constraints such as primary keys, foreign keys and restriction on the type of data stored in the table. The tables use the VARCHAR Data type to store strings and text values. INTEGER data type is used to store respective entity. Integrity constraints are also managed in this project. The Primary Key used is unique and does not repeat. The Foreign Key used is derived from an existing table and is used for a valid attribute to make connections to the tables and run the queries easily. Normalization, which is defined as the process of storing data in a database, was also used. Normalization up to 3 Normal Form was used so as to reduce redundancy.

- **Regulatory policies**: It is mandatory that no text box must contain insufficient data.
- **Hardware limitations:** There must be a 64 MB on board memory.
- **Control functions**: The software is user-friendly and displays appropriate error messages.
- **Parallel operations**: It supports many users simultaneously.
- **Safety/security considerations**: The application always exits normally.
- **Software Requirement**: OS- Windows/Mac, Browser- Chrome/Mozilla Firefox
- **Hardware Requirement:** Processor- 32, Memory- 4GB RAM

CHAPTER 3: SYSTEM/REQUIREMENT ANALYSIS

3.1 Overall System Design:

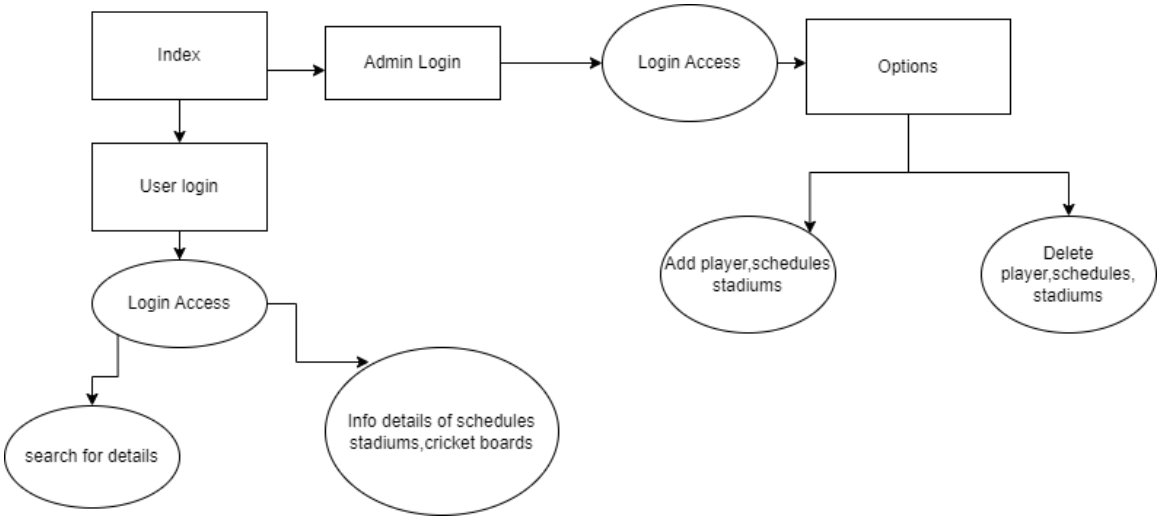

Fig. 3.1: System Design

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The first step in this project was having a discussion about what functionalities we want to provide with our work. After getting a mutual understanding of what the end product might look like, we worked on the database design Fig 3.1. Two of us made our own database schema, compared them, and put together a final database schema that we all could agree upon, with parts of all our works to make what we deemed to be the most functionally accurate database.

The next step was frontend development (using HTML + CSS) and database creation(using MySQL), both of which were done simultaneously. The frontend was made with regular interaction with the backend-in-charge, to make sure it properly reflects the backendand at the same time is user-friendly.

After these were done, Flask framework was used to put the project together, some final touches were added, and was then hosted onto the internet.

3.2 Admin Module:

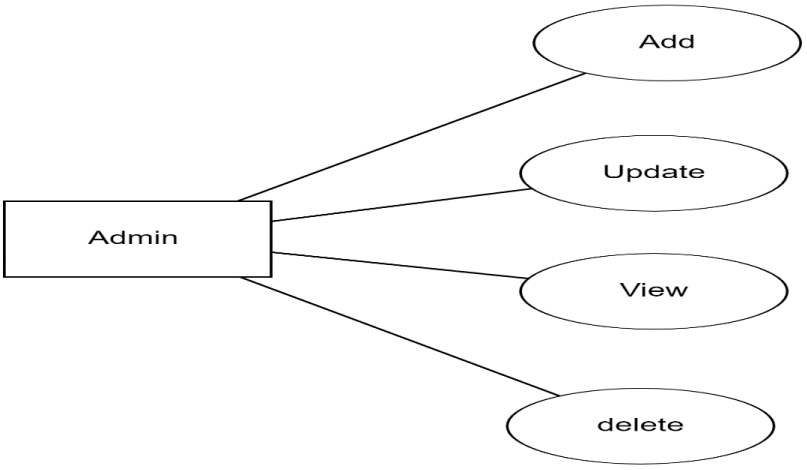

Fig. 3.2: Admin Module Design

As shown in Fig 3.2, Admin upon Login is redirected to the dashboard where the admin can view all the events, venues and the bookings made. Admin also can manage the users or audience for a particular event.

3.3 User Module:

As detailed out in Fig 3.3, a user can register himself/herself for an event. Request for booking an Event at a Venue. User also can book for a venue and the validation is done by the admin. User in our website can view all the ongoing/upcoming events in the front page and also have a look the venues depicted in the venues page.

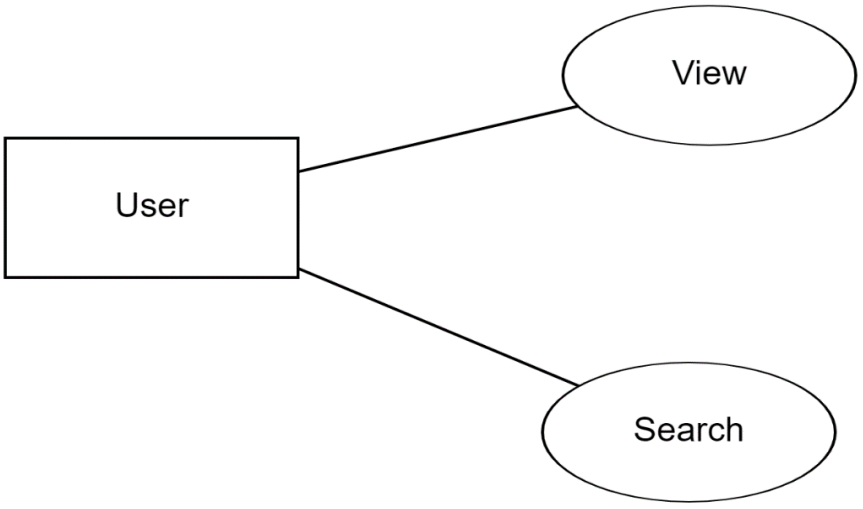

Fig. 3.3: User Module Design

CHAPTER 4: SYSTEM DESIGN

4.1 Entity Relationship Diagram:

ER Diagram stands for Entity Relationship diagram, also known as ERD is a diagram that displays the relationship of entity sets(objects) stored in a database. In this project database, the ER Diagram is depicted in Fig 4.1.

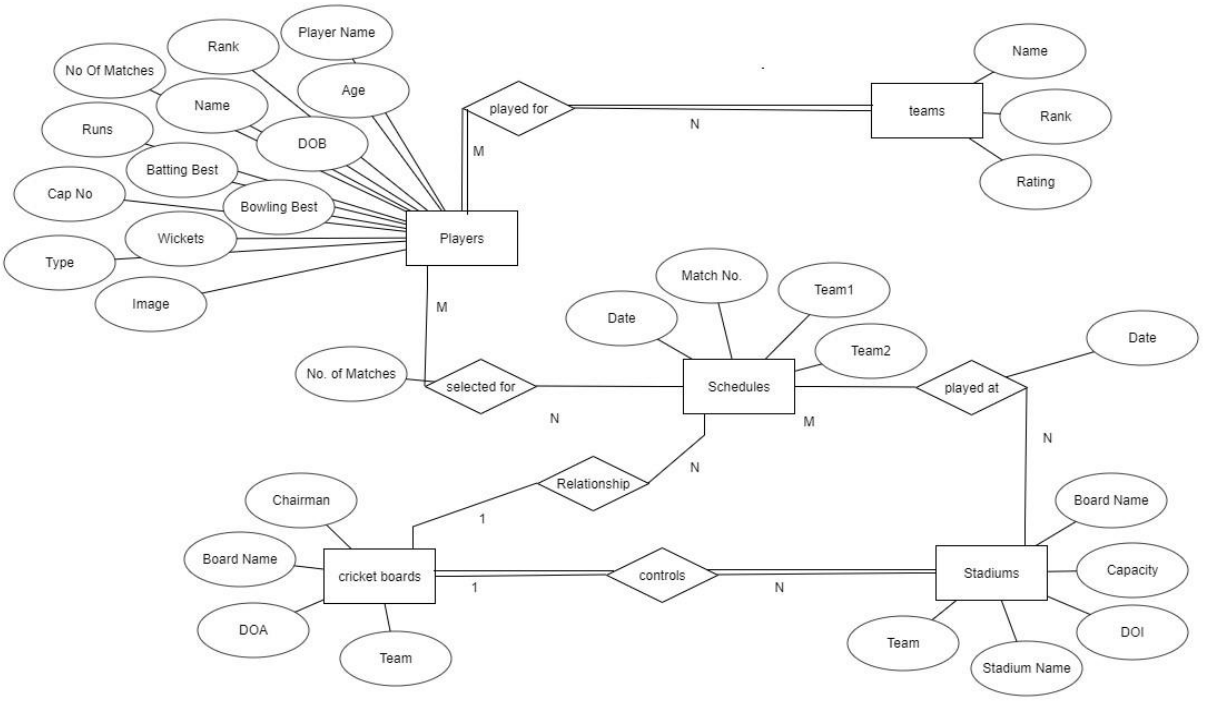

Fig. 4.1: Entity Relationship Diagram

4.1.1 Entity Sets:

- Players

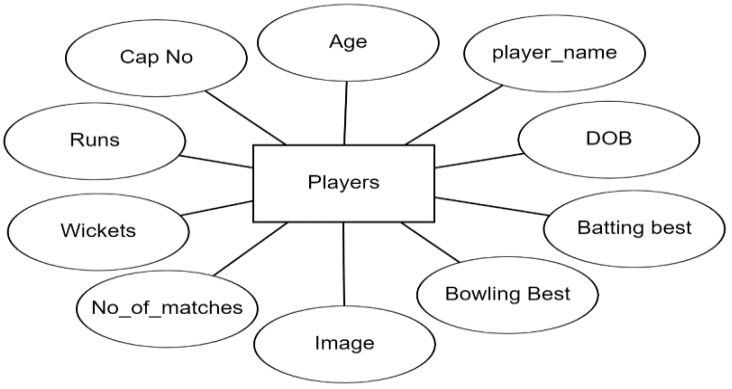

Fig. 4.2: Players Entity set

- Stadiums

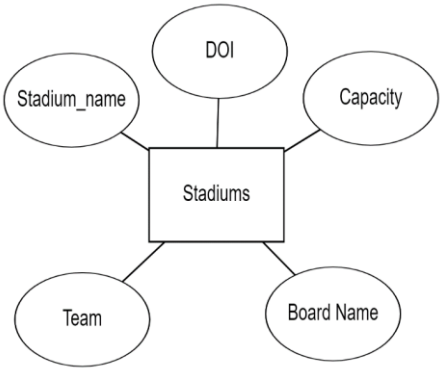

Fig. 4.3: Stadiums Entity Set

- Boards

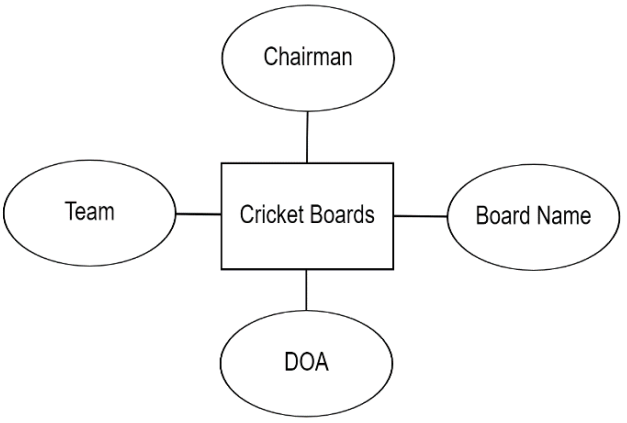

Fig. 4.4: Boards Entity Set

- Schedules

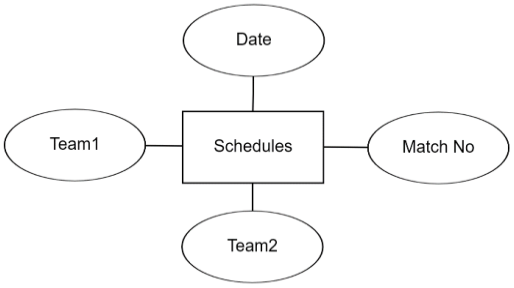

Fig. 4.5: Schedules Entity set

- Team

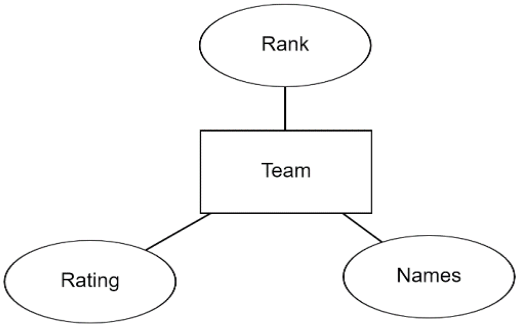

Fig. 4.6: Team Entity Set

As shown, there are 5 Entity Sets in our database. Admin Entity Fig 4.2 to store the admin details, Stadiums Fig 4.3 to store list of events happening and respective venues, Boards Fig 4.4 to keep track of user bookings made, Schedules Fig 4.5 to store details of all players for a given match, Team Fig 4.6 to store details about the team and current rankings.

4.1.2 Schema Diagram:

A database Schema defines how data is organized with a relational database; this is inclusive of logical constraints such as table names, fields, data types and the relationship between these entities. The Schema developed for this project is defined in Fig 4.7.

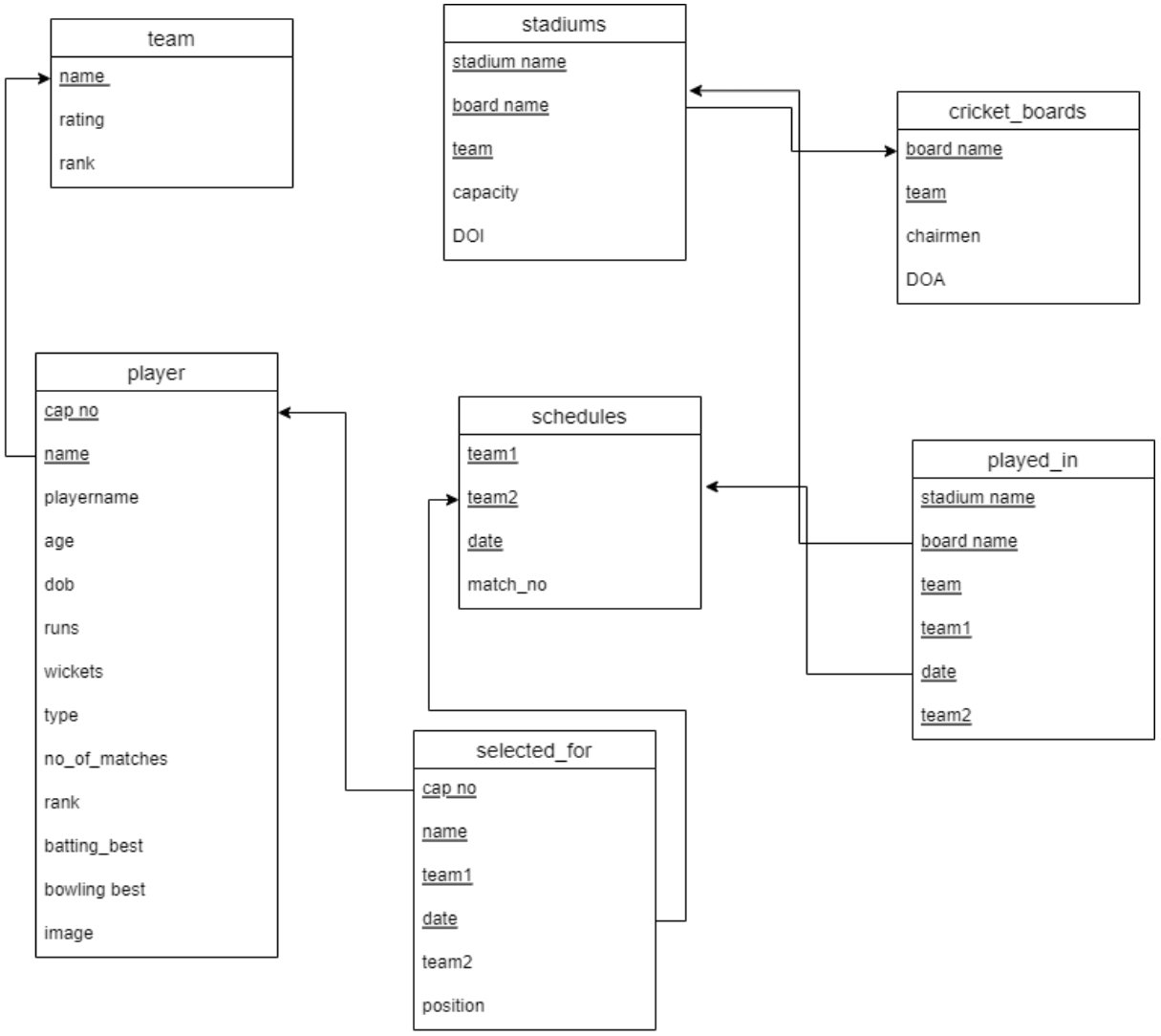

Fig. 4.7: Schema Diagram

CHAPTER 5: IMPLEMENTATION

5.1 Description of Database Tool (Backend)

The Database used was MySQL, MySQL is an open-source relational database management system (RDBMS) that works with an operating system to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups. It is most noted for its quick processing, proven reliability, ease and flexibility of use. It is a stable, reliable and powerful solution with advanced features like: Data Security, High Performance, complete workflow control, flexibility of open source.

The MySQL Database Server is very fast, reliable, scalable, and easy to use. If that is what you are looking for, you should give it a try. MySQL Server can run comfortably on a desktop or laptop, alongside your other applications, web servers, and so on, requiring little or no attention.

The MySQL Database Software is a client/server system that consists of a multithreaded SQL server that supports different back ends, several different client programs and libraries, administrative tools, and a wide range of application programming interfaces (APIs). It also provides MySQL Server as an embedded multithreaded library that you can link into your application to get a smaller, faster, easier-to-manage standalone product.

The MySQL Database Server is very fast, reliable, scalable, and easy to use. If that is what you are looking for, you should give it a try. MySQL Server can run comfortably on a desktop or laptop, alongside your other applications, web servers, and so on, requiring little or no attention.

PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Development Team. PHP originally stood for personal home page but it now stands for the recursive acronym PHP: Hypertext Preprocessor.

PHP code may be embedded into HTML or HTML5 code, or it can be used in combination

with various web template systems, web content management systems and web frameworks. PHP code is usually processed by a PHP interpreter implemented asa module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also beexecuted with a command-line interface (CLI) and can be used to implement standalone graphical applications.

5.2 Description of Implementation (Frontend)

For front-end development, Visual Studio Code was used. Visual Studio Code is a free source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, coderefactoring, and embedded Git.

Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).

HTML5:

Hypertext Markup Language revision 5 (HTML5) is markup language for the structure and presentation of World Wide Web contents. HTML5 supports the traditional HTML and XHTML style syntax and other new features in its markup, New APIs, XHTML and error handling**.**

CSS:

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JAVASCRIPT.

MySQL:

MySQL is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Wideners' daughter, and "SQL", the abbreviation for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by OracleCorporation.

CHAPTER 6: TESTING

6.1 Component Tests:

Component testing is undertaken when a module has been created and has successfully reviewed.

Each component of the software was tested individually from the Login Page Table 6.1 for Admin and the user Page Table 6.2. The Login Test was Authenticated for an admin. The admin Page Test consisted of adding new players/stadiums/schedules and verifying whether the details of the player, stadiums, schedules were displayed.

Table 6.1: **Registration Screen**

TEST UNIT	TEST CASE	RESULT
Registration Screen	Providing details and clicking on register user	The system takes the user to the login screen. Account has been registered as a user (Player) and can perform login.

Table 6.2: Login Screen

TESTUNIT	TEST CASE	RESULT
Login Screen	Providing a registered user id and password	The system takes the user to their respective Dashboards.
Login Screen	Providing login details which do not match registered credentials	The system does not grant access to the user/admin and shows error message

6.2 System Test:

The whole system testing was done to evaluate the efficient working of software. All the bugs that were found were sorted out.

The Project went through two levels of testing:

6.2.1 : Unit Testing:

Unit Testing is a type of software testing where individual units or components of a software are tested. The purpose is to validate that each unit of the software code performs as expected. Unit Testing is done during the development (coding phase) of an application by the developers.

6.2.2 : Integration Testing:

Integration Testing is defined as a type of testing where software modules are integrated logically and tested as a group. A typical software project consists of multiple software modules, coded by different programmers. The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated. The whole page was integrated and checked against dynamic changes to the website, i.e., the events and venues requested by user were validated and changes were made apparent in the respective front-end pages of the website.

CHAPTER 7: INTERPRETATION OF RESULTS

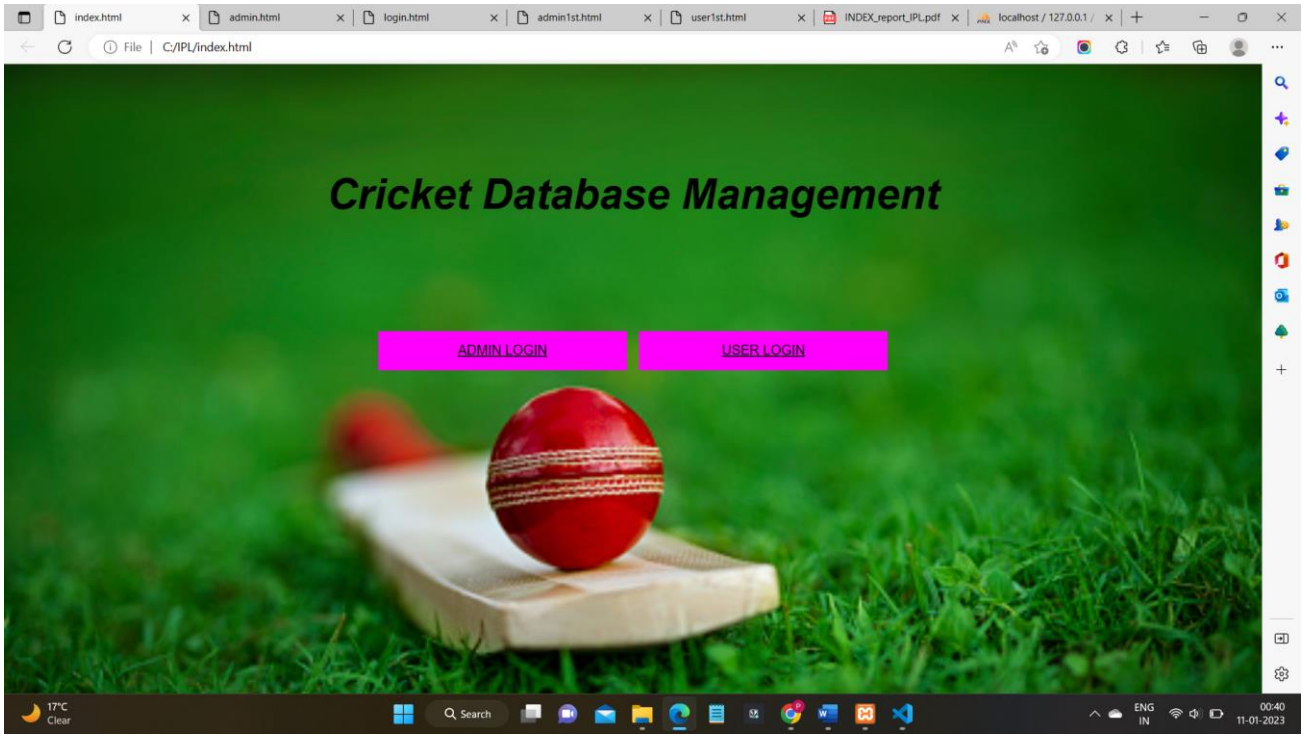

Fig. 7.1: Home Page of Website

The home page of the website which shows a navigation to other parts of the website as shown in Fig 7.1.

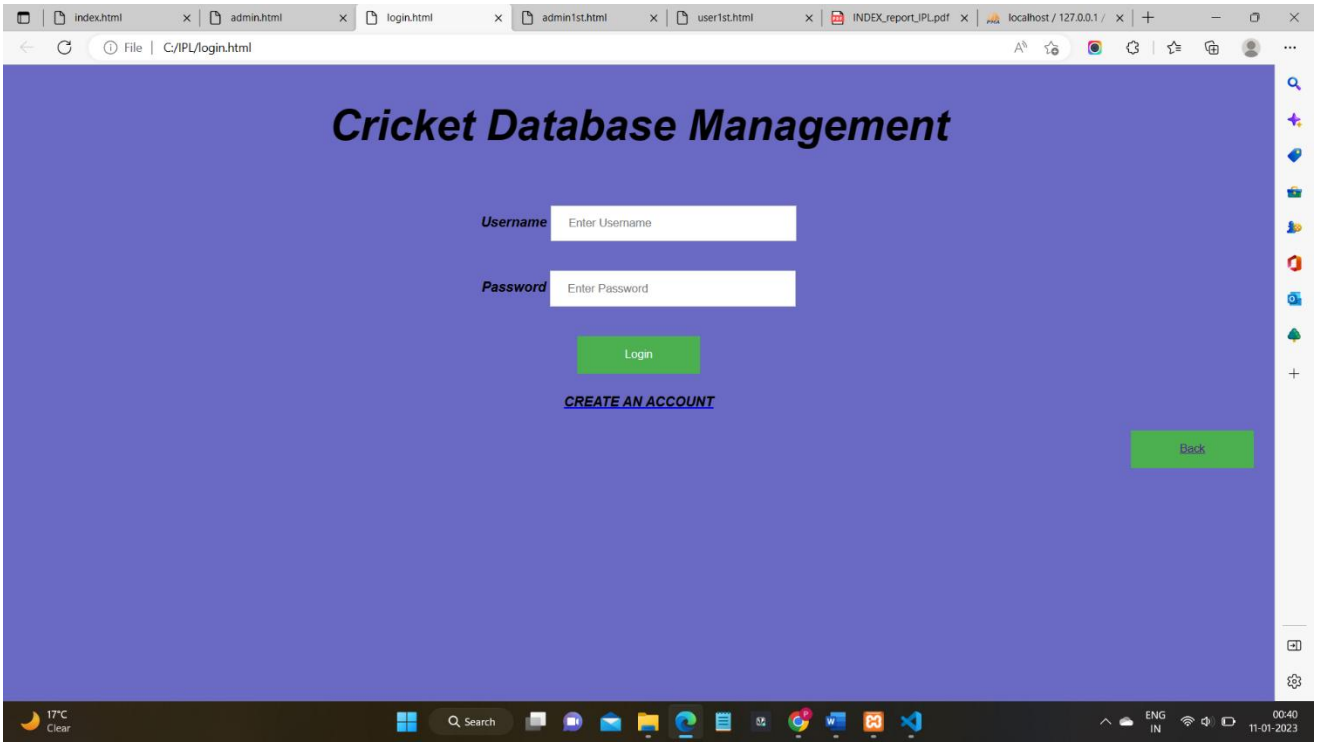

Fig 7.2: User login Page

Old user can login directly and new user should first create an account and then login in Fig 7.2.

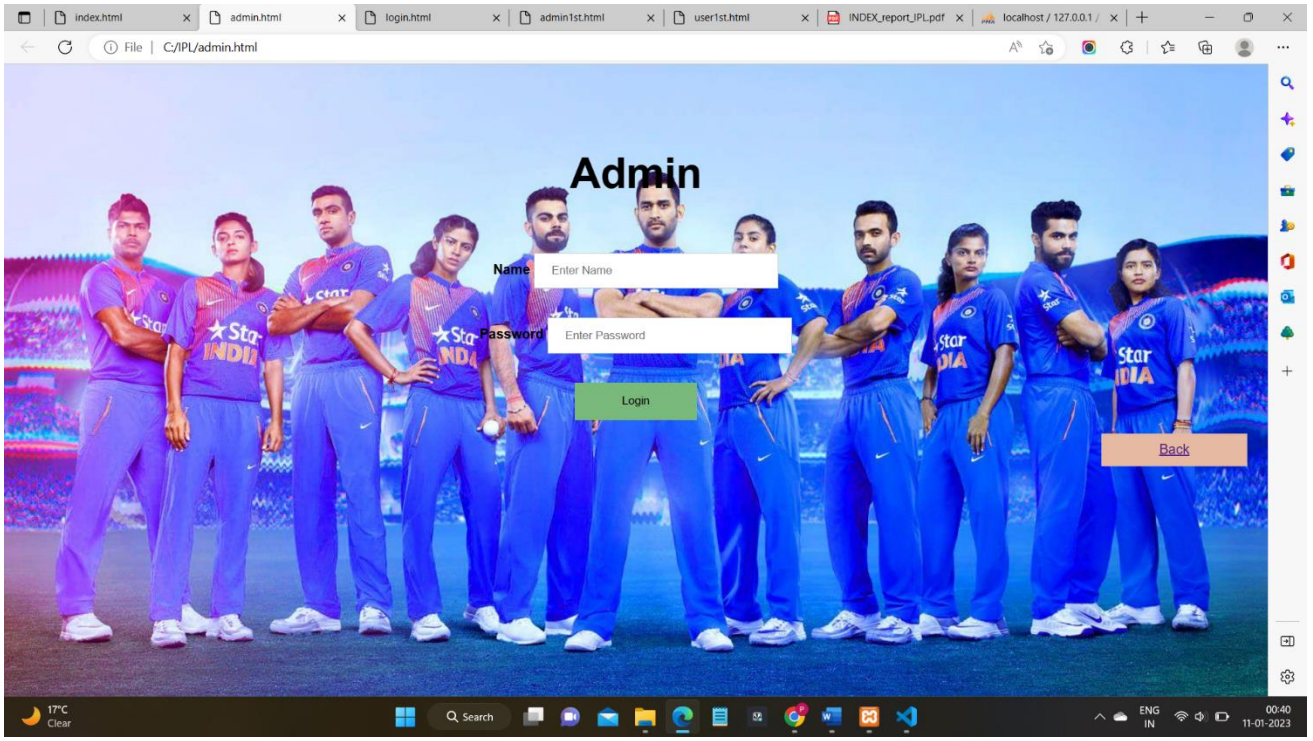

Fig 7.3: Admin Home Page

Admin has all the access to update players, stadiums and team rankings in Fig 7.3

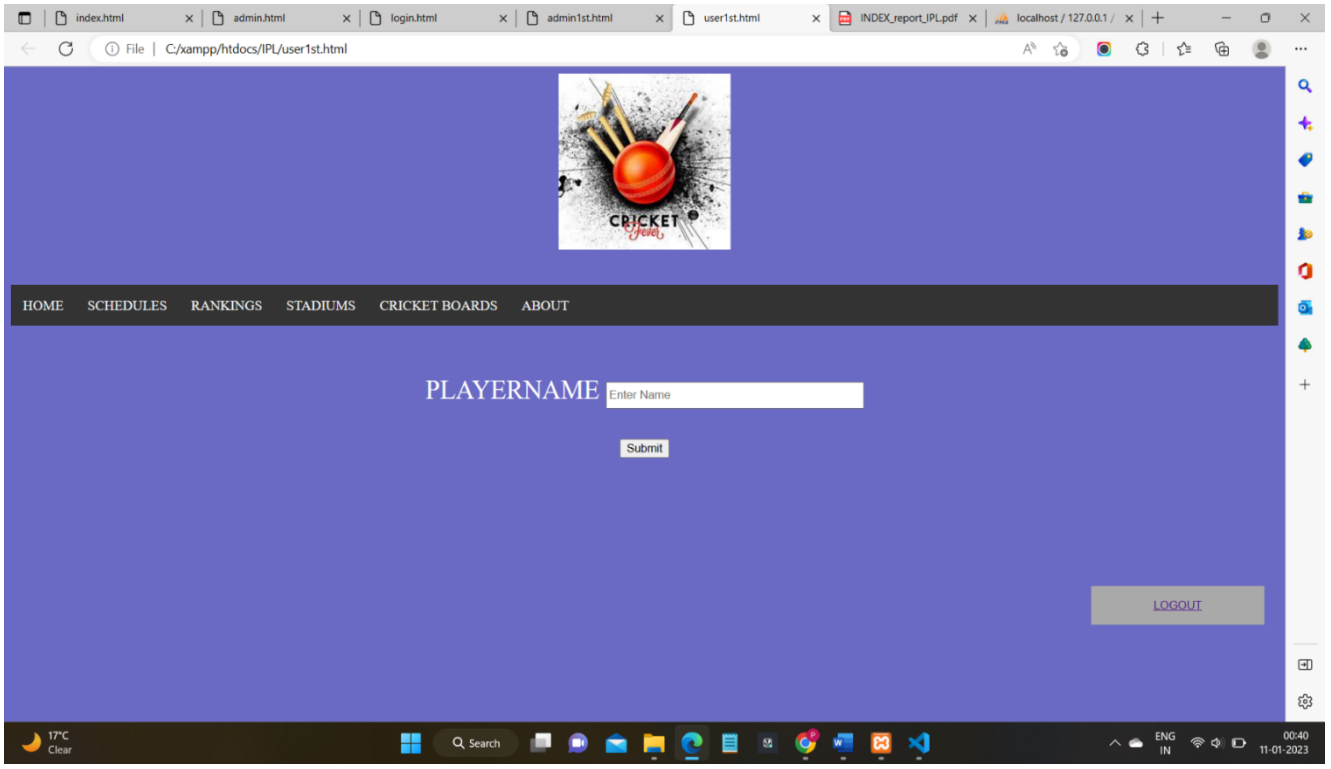

Fig 7.4: View of players through user login.

All stats of players can be viewed in Fig 7.4.

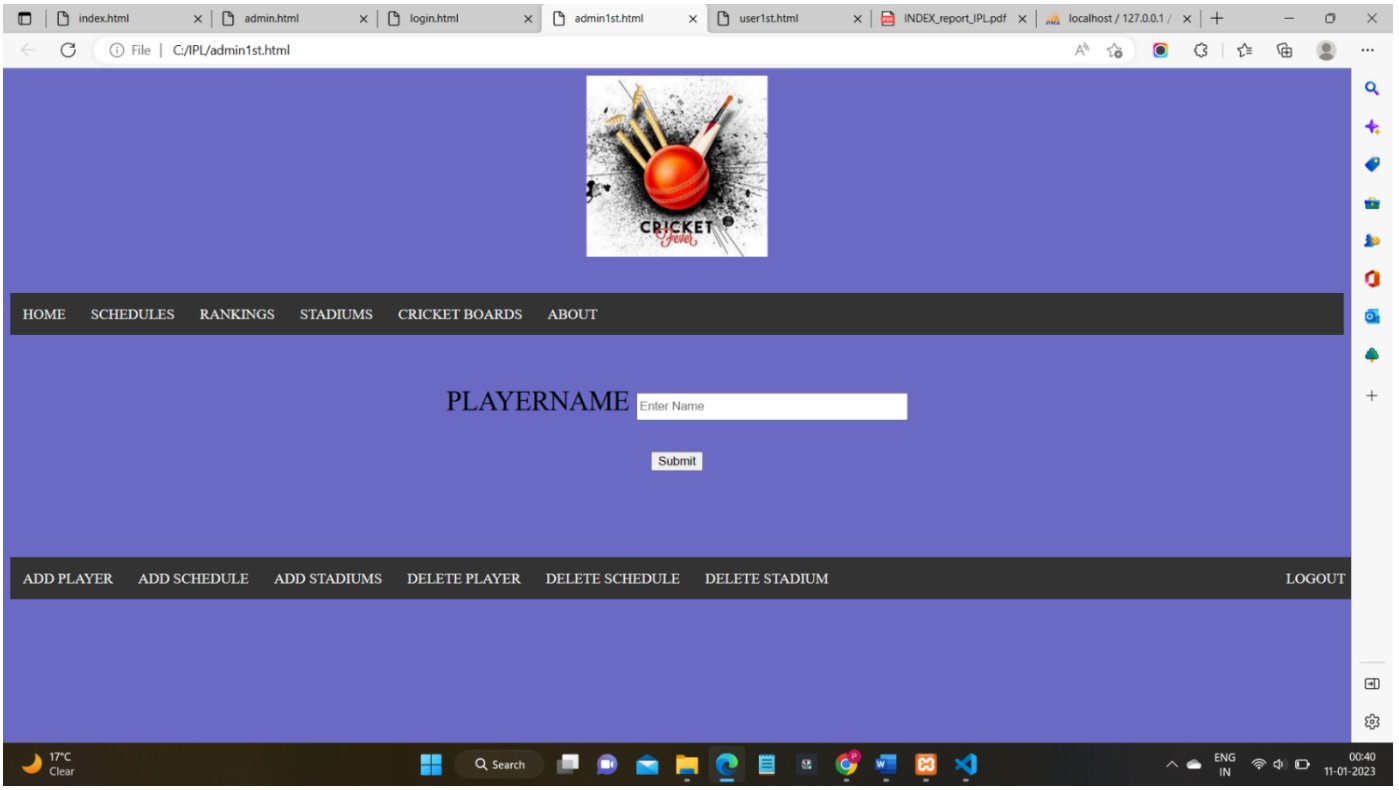

Fig 7.5: View of players through admin login

Admin have all the access and permissions to update player and stadiums

Fig 7.6: Team, Player Rankings.

View of rankings of different players, teams in Fig 7.6.

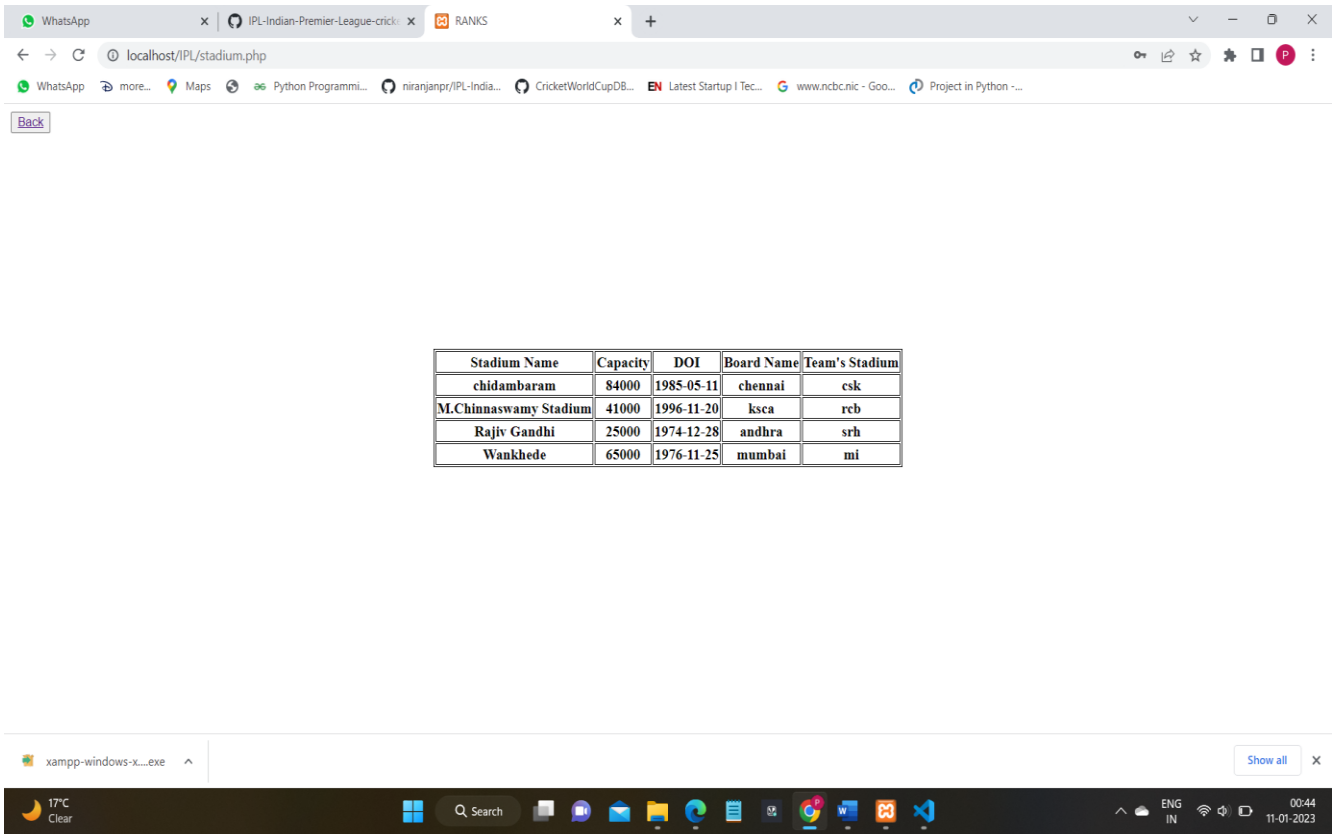

Fig 7.7: Cricket Stadium Data

This page allows to view information about different stadiums in Fig 7.7.

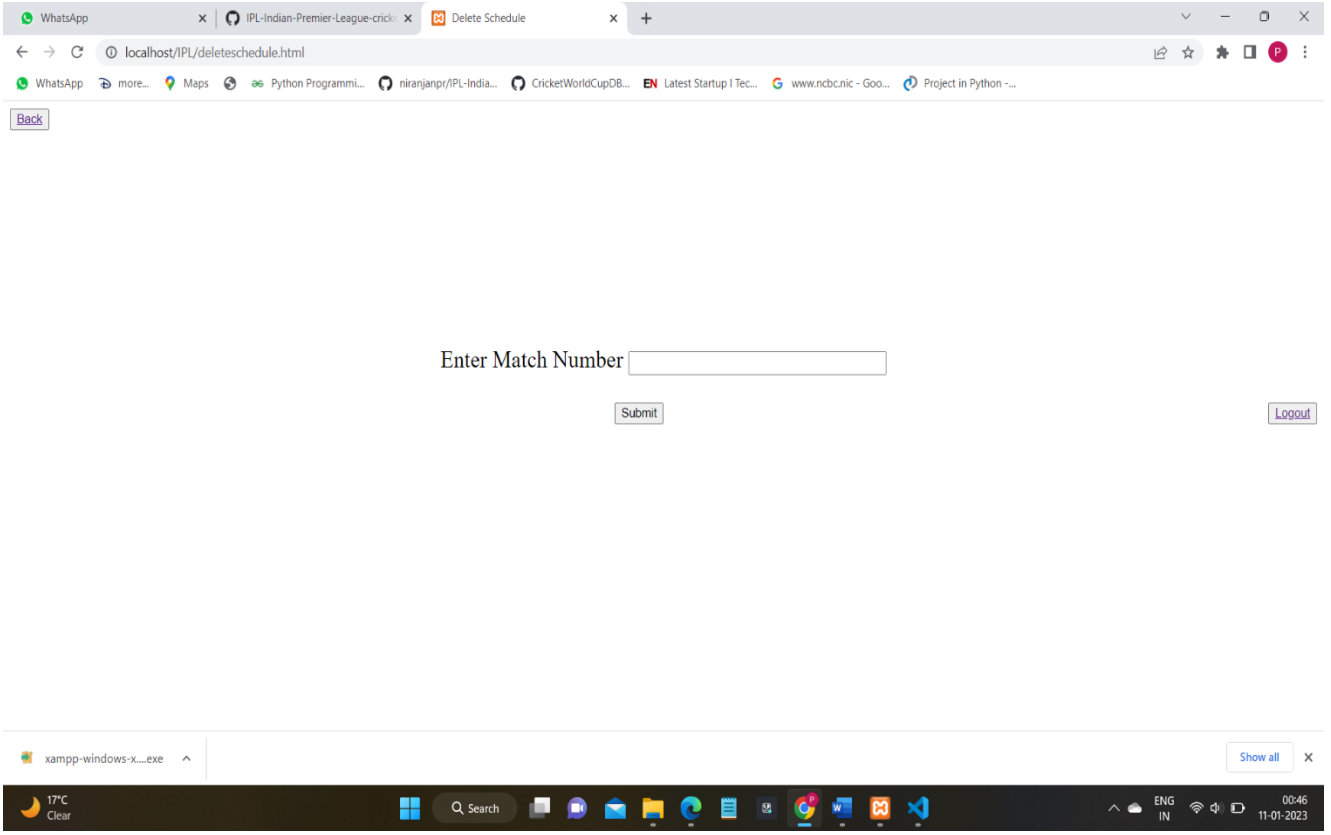

Fig 7.8: Match details

This page allows to get the match details in Fig 7.8.

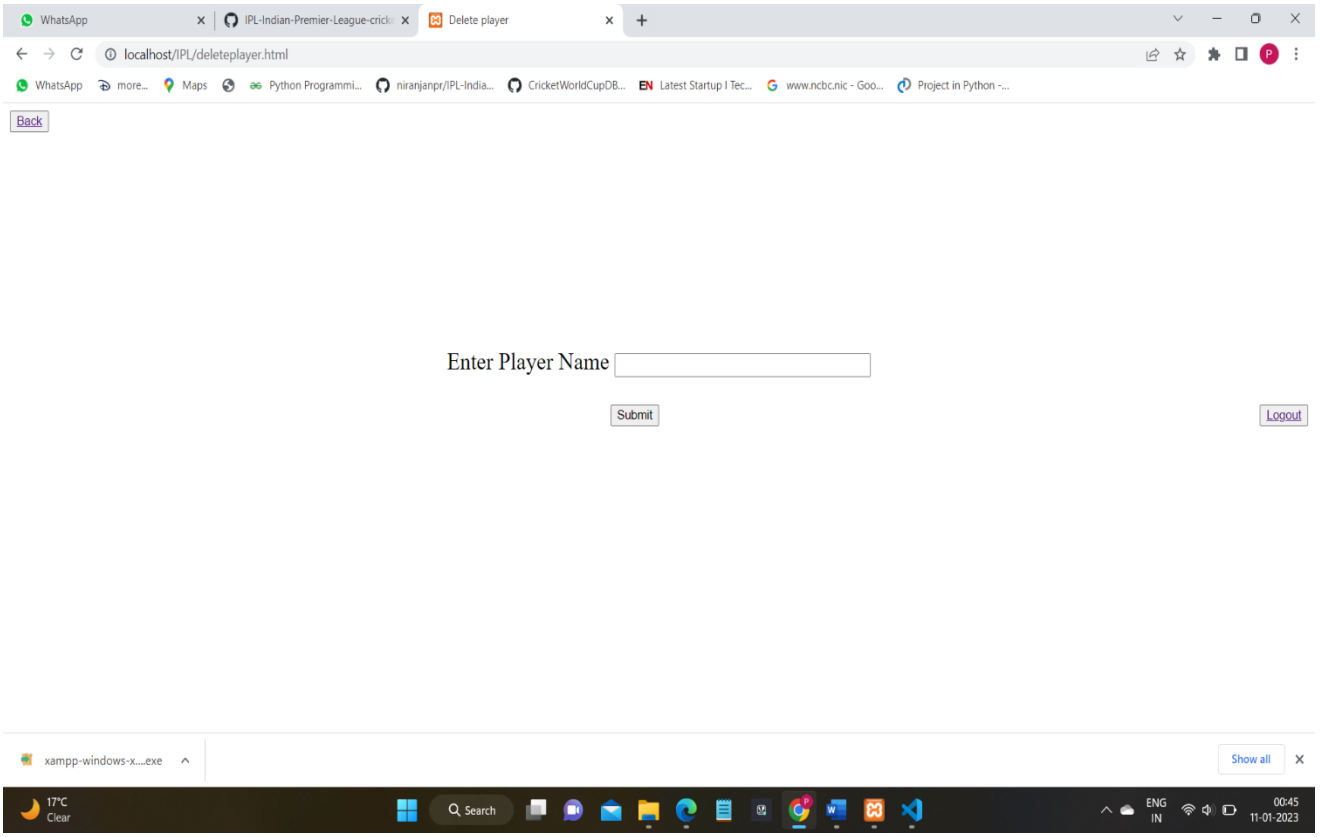

Fig 7.9: Player Name Page

To retrieve the details of the player in Fig 7.9

CONCLUSION

Thus, the project, developed using PHP and MySQL is based on the requirement specification of the user and the analysis of the existing system, with flexibility for future enhancement. The expanded functionality of today's software requires an appropriate approach towards software development.

This Cricket database management software is designed for people who want to manage various particulars can be known by recording them in the database. various records and particulars about match got increased rapidly. Thereby the numbers of matches and there is going to be increased day-by-day. And hence there is a lot of strain on the person who are watching the cricket to know about future matches and also to see the records done by various players and getting datils in fingertips. Identification of the drawbacks of the existing system leads to the designing of computerized system that will be compatible to the existing system with the system which is more user friendly and more GUI oriented.

REFERENCES

1. Fundamentals of Database Systems, Rameez Elmar and Shamkant B. Navathe, 7th Edition, 2017, Pearson.

2. Database management systems, Ramakrishnan, and Gehrke, 3rd Edition, 2014, McGraw Hill.

3. Learning PHP, MySQL & JavaScript: A Step-by-Step Guide to Creating Dynamic Websites, Robin Nixon, 6th Edition.

4. PHP and MySQL Web Development, Luke Welling, Laura Thomsen, 5th Edition.

Programme Outcomes

The graduates will have an ability to

PO1 **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6 **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.