

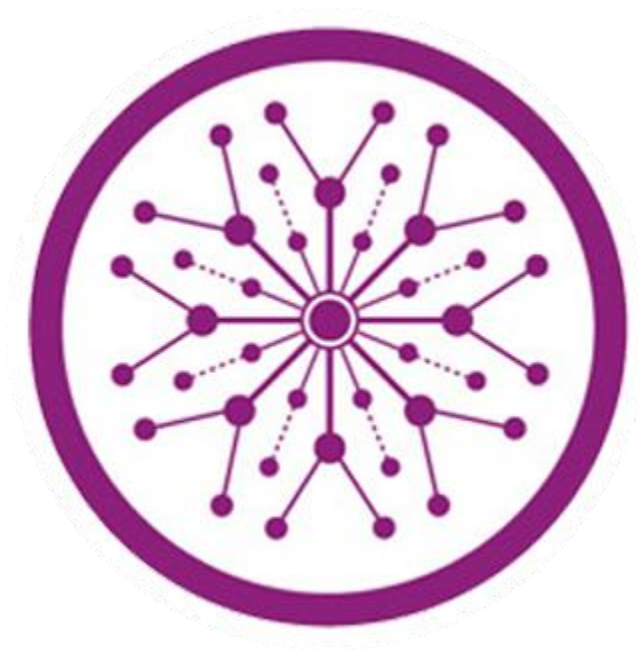
CricCenter

Final Year Project

Session 2019- 2023

A project submitted in partial fulfillment of the degree of

BS in Computer Science



Department of Computer Science

Faculty of Computer Science & Information Technology

The Superior University, Lahore

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Plagiarism Free Certificate

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Project Report

CricCenter

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
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APPROVAL

PROJECT SUPERVISOR

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PROJECT MANAGER

Comments: _____

Date: _____ Signature: _____

HEAD OF THE DEPARTMENT

Comments: _____

Date: _____ Signature: _____

Dedication

Our research work is dedicated to our family and our honorable teacher Mr. Hasan who encouraged and helped us to complete our research in the area of Cricket Scoring Application (CricCenter).

Acknowledgements

I am grateful to the **Almighty Allah**, Who blessed me with health, wisdom, knowledge, thoughts and opportunity to make some contribution in the form of present effort. I offer my humblest thanks from the deepest core of my heart to the Holy **Prophet Muhammad** (Peace be upon him), the most perfect and excelled among and ever born on the surface of earth. The research work embodied in this dissertation was accomplished under the able guidance and affectionate supervision of **Mr. Hasan**, Lecturer, Superior University, Lahore. I will always remember his moral encouragement, skillful guidance, positive criticism and valuable advice throughout the course of my study. I also express my feelings of love and respect for my beloved parents that are the real asset of my life and gave me confidence and my friends also deserve my thanks for their loving encouragement and prayers for my success.

Executive Summary

The CRICENTRE application addresses the challenges faced in scoring cricket matches by providing a digital scoring platform. Traditionally, users have relied on manual scoring methods such as using paper or scoring books. However, this application offers a convenient and efficient solution to score matches digitally and access match records and player statistics effortlessly. The primary focus of our app is to provide a scoring platform for local cricket players, allowing them to digitally score their matches. This eliminates the need for manual scoring methods and streamlines the process of recording match scores and maintaining match records. Moreover, the application caters to club-level cricket as well. Club owners can utilize the features of our application to manage student registrations and form teams for their clubs. They can easily access and analyze player statistics to make informed decisions regarding team selection. Additionally, the application facilitates the interaction between coaches and club owners, with exclusive access granted by the owner to coaches for team management purposes. Our application also benefits popular players who aspire to earn through cricket. They can register themselves on the platform and participate in cricket matches to earn income. The app provides a seamless interface for these players to showcase their skills and connect with potential opportunities. Furthermore, individuals seeking admission to cricket clubs can utilize our application to explore and select clubs of their choice. They can easily register themselves within their preferred club, streamlining the admission process and enhancing accessibility. In summary, the CRIC CENTRE application revolutionizes cricket scoring by offering a digital platform for local and club-level players. It simplifies scoring processes, enables easy access to player statistics, facilitates team management for club owners and coaches, and opens avenues for popular players to earn from cricket matches. Additionally, it provides a convenient tool for individuals looking to join cricket clubs and register themselves seamlessly.

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Chapter 1

Introduction

Chapter 1: Introduction

Cricket is a popular sport enjoyed by millions of players and fans worldwide. However, the traditional method of scoring cricket matches using manual techniques, such as paper or scoring books, poses several challenges. These include the potential for errors, time-consuming processes, and difficulty in accessing and analyzing match records and player statistics. To address these challenges, we have developed the CRICENTRE application, a digital scoring platform that revolutionizes the way cricket matches are scored and managed.

1.1. Background

The CRICENTRE application offers a convenient and efficient solution for scoring cricket matches digitally. It eliminates the need for manual scoring methods and streamlines the process of recording match scores and maintaining accurate match records. The application primarily focuses on providing a scoring platform for local cricket players, enabling them to easily score their matches and access their performance statistics effortlessly.

Moreover, the CRICENTRE application caters not only to local players but also to club-level cricket. Club owners can utilize the features of our application to manage student registrations and form teams for their clubs. By granting exclusive access to coaches, the application facilitates efficient team management and decision-making regarding team selection.

One of the key features of the CRICENTRE application is its ability to provide comprehensive player statistics. Players can track their performance over time, analyze their strengths and weaknesses, and make data-driven improvements to their game. Club owners and coaches can also access player statistics to evaluate performance and make informed decisions about team composition.

Furthermore, the CRICENTRE application opens up opportunities for popular players to earn income through cricket. Players can register themselves on the platform and participate in matches where they can showcase their skills. The application provides a seamless interface for players to connect with potential opportunities, such as sponsorship deals or invitations to professional leagues.

In addition to benefiting players, the CRICENTRE application serves as a valuable tool for individuals seeking admission to cricket clubs. It allows them to explore and select clubs of their choice, simplifying the admission process and enhancing accessibility. The application provides a seamless registration process, enabling aspiring players to join their preferred clubs and start their cricketing journey.

1.2. Motivations and Challenges

The development of the CRICENTRE application was driven by the need for a modern and efficient solution to the challenges faced in scoring cricket matches. Traditional manual scoring methods using paper or scoring books were prone to errors, time-consuming, and often resulted in incomplete or inaccessible match records. Moreover, the lack of easy access to player statistics hindered performance analysis and hindered decision-making processes for club owners and coaches. The motivation behind the CRICENTRE application was to provide cricket players, club owners, coaches, and cricket enthusiasts with a user-friendly digital platform that would simplify the scoring process, enhance data accessibility, and improve overall management of cricket matches.

1.3. Goals and Objectives

The primary goal of the CRICENTRE application is to revolutionize the way cricket matches are scored, managed, and accessed. To achieve this overarching goal, the following specific objectives have been established:

- Provide a Digital Scoring Platform
- Enhance Accessibility to Match Records and Player Statistics
- Streamline Club Management
- Create Opportunities for Players
- Simplify Admission Process
- Ensure Data Security and Privacy
- Foster User Engagement and Satisfaction

1.4. Literature Review/Existing Solutions

Prior to the development of the CRICENTRE application, various solutions and tools were available for scoring cricket matches and managing cricket-related activities. However, these existing solutions often presented limitations and challenges that the CRICENTRE application aims to overcome. Here are some of the existing solutions:

- Manual Scoring Books
- Spreadsheet Applications
- Online Scoring Tools
- Cricket Management Software

While these existing solutions have served as alternatives for scoring cricket matches and managing cricket-related activities, the CRICENTRE application distinguishes itself by offering a comprehensive and user-friendly digital platform. It combines the convenience of digital scoring with advanced features for match analysis, player statistics, club management, and player opportunities, providing an all-in-one solution for cricket enthusiasts, players, club owners, and coaches.

1.5. Gap Analysis

Interview

As our project is reality based. We take interviews of many local and professional cricket players to understand the requirements of project.

Questionnaires

We ask questions about our project from many cricket players during they are playing matches.

Document analysis

We read almost complete document of cricket rules and regulation documents of MCC for analysis purpose.

Observation

We also observe many cricket matches on the field and out the field for requirement elicitation.

1.6. Proposed Solution

The proposed solution, the CRICENTRE application, is a comprehensive and user-friendly digital platform that aims to revolutionize cricket scoring and management. Unlike existing solutions, the CRICENTRE application offers a dedicated and intuitive scoring platform for cricket matches, eliminating the limitations of manual scoring methods and basic online tools. It provides advanced features for recording match scores, generating detailed match reports, and accessing comprehensive player statistics. Additionally, the application facilitates club management by allowing club owners to manage registrations, form teams, and communicate with coaches and players effectively. It also creates opportunities for popular players to showcase their skills and connect with potential earning opportunities. With its seamless admission process, the application simplifies the journey of aspiring players looking to join cricket clubs. The CRICENTRE application brings convenience, accuracy, and accessibility to the world of cricket scoring and management, catering to the needs of players, club owners, coaches, and cricket enthusiasts alike.

1.7. Project Plan

The development and implementation of the CRICENTRE application will follow a systematic project plan, consisting of several key phases and milestones. The project plan is outlined as follows:

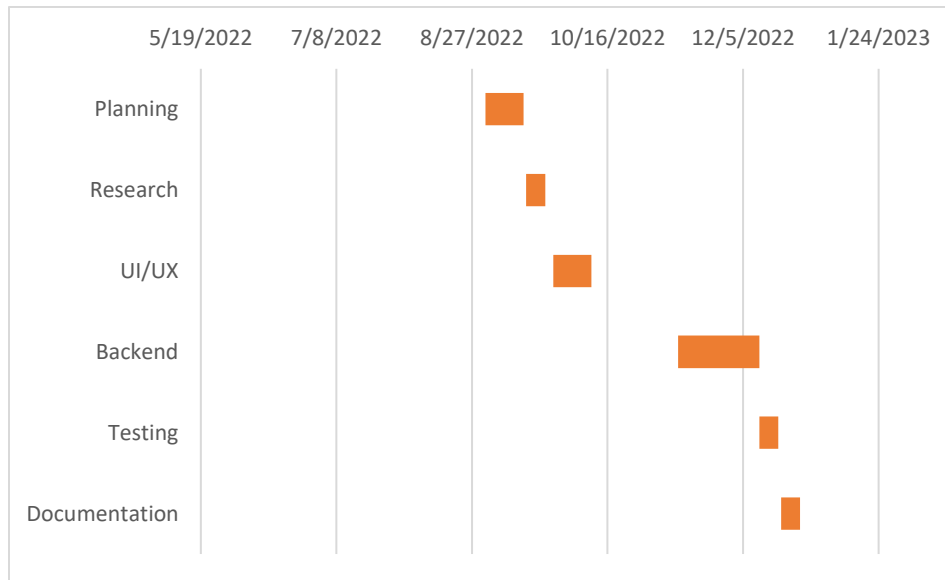
- Requirements Gathering
- Design and Prototyping
- Development
- Testing and Quality Assurance
- Deployment and Rollout
- User Training and Documentation
- Maintenance and Future Enhancements.

1.7.1. Work Breakdown Structure

The purpose of roles & responsibility matrix is to identify who will do what.

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
1	Planning	1	2 week	14	Agha, Usman, Taimoor
2	Research	2	2 week	14	Agha, Usman, Taimoor
3	Manager panel	3	3 week	21	Usman
4	App Design	4	3 week	21	Agha
5	Database/Backend	5	1 month	30	Taimoor
6	Documentation	6	2 week	14	Agha, Usman, Shakoor

1.7.2. Gantt Chart



1.8. Report Outline

Chapter 1:

In chapter 1, background of the project, problems statement of the project, gap analysis of the project and project breakdown structure are discussed in detail. This chapter will give complete details of the system and will ensure the user understands the system after going through this chapter.

Chapter 2:

In chapter 2, purpose is explained briefly. The motive was to identify each and every problem which can be eradicated by the use of this system.

Chapter 3:

In Chapter 3, Use case diagram of the system is explained in detail.

Chapter 4:

In chapter 4, architecture of the system is explained in detail with the help of UML diagrams. In order, any further development, maintenance or updates are required then this chapter will play an important role in understanding the architecture of the system.

Chapter 5:

In chapter 5, all the implementation methods and testing methods are discussed and documented.

Chapter 6:

In chapter 6, testing all the system with the help of tester in future testing and project managers to identify issues and all results were discussed to understand the outcomes of the system.

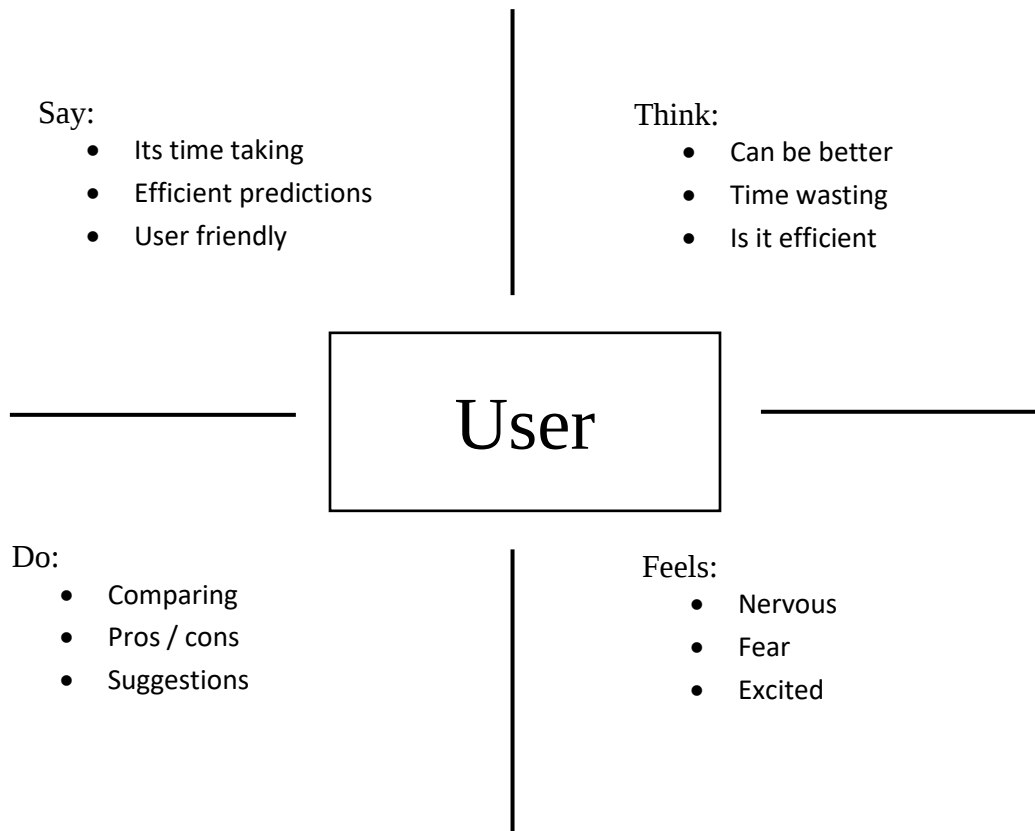
Chapter 7:

In chapter 7, whole documentation is concluded and future work which was not carried out in the current version of the system is discussed.

References and Appendices: This shows all the references from where the data was gathered.

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1.9. Empathy Map



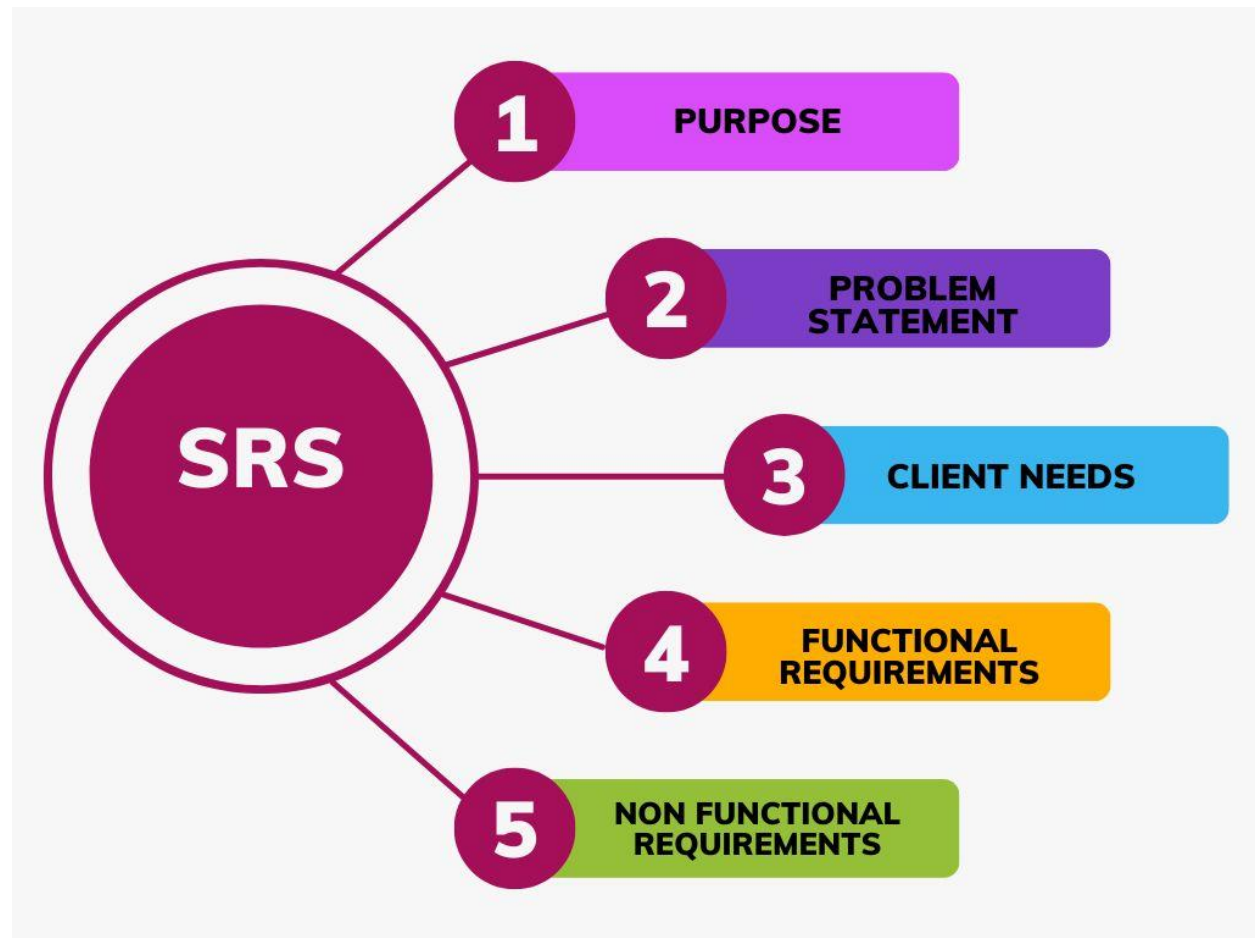
Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

2.1. Introduction

In the software requirement specification, we capture complete description about how the system is expected to perform. It is usually signed off at the end of requirements engineering phase.



2.1.1. Purpose

The purpose of this project is to give the solution to some problems which are faced in most cricket applications. The major problem in the current system is that almost all the local cricket teams record their team, player statistics on a paper scoring book. Due to this, they lose their

team as well as player's statistics. In a local cricket match, sometimes the umpire forgot the score and make a mistake which led both teams to a conflict. Existing cricket scoring applications manage the activities like manual decision making, processing, announcement, scoring data, and handling players and team information are very tough processes. Moreover, it will make a lot of confusion and risks to make further process. This leads to wrong decision-making in cricket. In the existing application, there is no option for customization of the number of players per side. If someone wants to add a player name as a numeric value or special character they accept.

2.1.2. Document Conventions

In the documentation, we use different font numbers for the clear distinction. For example, in the document, the overall main headings are numbered with whole numbers like:

1. Introduction.
2. Overall Description.

And the overall subheadings of main headings are numbered with decimal numbers like:

- 1.1 Purpose.
- 1.2 Document Conventions.

The text style which is used in the documentation is Calibri and the spaces between the texts is single space. Text size for the main headings is 16 and the size of subheading is 14 and the text size for the text is 12.

2.1.3. Intended Audience and Reading Suggestions

This documentation is referred to project managers, developers, testers, and stakeholders for reviewing the app and see if any changes are required.

- PM's can use the documentation in case of any up-gradation and maintenance. PM's can also use the documentation for any future product.
- Developers may refer to documentation for version update, maintenance, and any future development.
- Testers may refer to documentation to review the product and ask for any changes if required. For Testers, this documentation will play an important role.

- Stakeholders may use this documentation for further expansion of the plan, review of plan, presentation of installed programs, any changes, and future developments

The documentation is organized into three parts.

1. Introduction.
2. Software Requirements Specifications.
3. Use case Analysis.

All parts are independent however by reading the document sequentially helps the reader to understand the order.

2.1.4. Product Scope

The product scope of the CRICENTRE application encompasses a wide range of features and functionalities that cater to the needs of cricket players, club owners, coaches, and cricket enthusiasts. The core elements of the product scope include:

- Digital Scoring Platform
- Match Records and Player Statistics
- Club Management
- Player Opportunities
- Admission Process
- User Management
- Data Security and Privacy

The product scope may expand over time based on user feedback, market demands, and emerging trends in cricket scoring and management. Regular updates and enhancements will be introduced to add new features, improve existing functionalities, and address user needs, ensuring the CRICENTRE application remains a cutting-edge solution for cricket enthusiasts.

2.1.5. References

- < IEEE STD 610.12-1990, IEEE Standard Glossary for Software Engineering Terminology.
- IEEE STD 730-1998, IEEE Standard Glossary for Software Quality Assurance Plans.
- IEEE STD 730.1-1995, IEEE Standard Glossary for Software Quality Assurance Planning.

- IEEE STD 828-1998, IEEE Standard Glossary for Software Configuration Management Plans.
- IEEE STD 1028-1997, IEEE Standard Glossary for Software Reviews.

2.2. Overall Description

2.2.1. Product Perspective

Necessity:

- The need for a product is recognized.
- The decision to provide the product is made.
- The scope of the product is determined.
- The requirement for the product is gathered.

Invention:

- The product is designed from the requirements.
- The product is created from the design.
- The product is documented and undergoes.

Release:

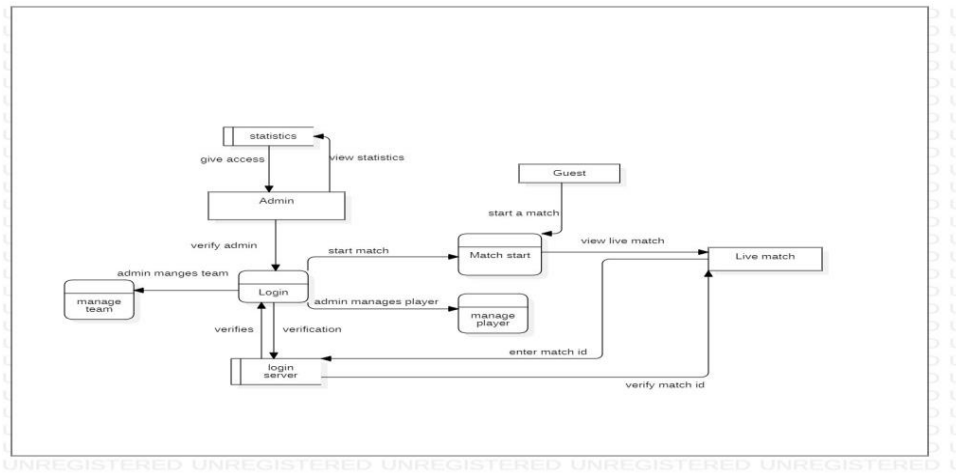
- The product is packaged for outside release.
- The product goes through further external testing.
- The product may be handled off to an operational group.

Support:

- An operational group may support the product.
- A user service group may support the product.
- Development may support operations.
- Development will support the code.

DE support:

- The lack of need for the product is recognized.
- The product may be phased out entirely.
- Our support may transition to a different product.



2.2.2. User Classes and Characteristics

The user will make an account by filling the necessary form. After making an account the user can now add a team and enables players to enter in that team. The user can add and drop players also the user can arrange a match. The user is allowed to edit its profile according to need.

2.2.3. Operating Environment

Operating environment for the Trade Portal is as listed below.

- **Database:** Firebase
- **Operating system:** Android 9 or Above
- **Hardware:** Dual-core or better, 4GB or more RAM recommended, Storage: min to 200 MB of available space
- **Tool:** Android Studio, VS code
- **Languages:** Dart
-

2.2.4. Design and Implementation Constraints

- **Technical limitations:** The app is being developed using flutter as a platform and Dart as a programming language. Apps will be integrated through APIs with databases, etc.
- **Resource availability:** 4 months
- **Performance:** Quality and performance of the app will not be compromised at any single instance and will be given special attention.

- **Business goals:** Local target audience, cricket clubs, national level teams and local tournaments.

2.2.5. Assumptions and Dependencies

Assumption is that the internet facility, power supply, backup power, internet bandwidth is always up and functioning. Another assumption also a dependency for the architecture is hardware configuration of the central server. We assume that the hardware will be above specification, so that it will not need to face any problem in future.

2.3. External Interface Requirements

2.3.1. User Interfaces

2.3.2. Hardware Interfaces

There are the following hardware and software technologies required that supports to this application:

- Personal Mobile Phones (Android or Iphones) with good to average hardware.
- Application will be deployed on Google Play and App Store so all cricket players and fans can access their statistics from any device.

2.3.3. Software Interfaces

- Android 9 or more
- Google play-store

2.3.4. Communications Interfaces

Communication interface will be showing the interaction and relation between different attributes in the app. It enables and provide an authenticated and satisfactory connection.

2.4. System Features

The CRICENTRE application offers a comprehensive set of features designed to cater to the needs of cricket players, club owners, coaches, and cricket enthusiasts. The system features of the CRICENTRE app include:

- **Digital Scoring:** The application provides a user-friendly interface for cricket players to digitally score matches. It allows them to record runs, wickets, extras, and other match details in real-time, ensuring accurate and efficient scoring.
- **Match Records:** The CRICENTRE app stores and maintains detailed match records, including match results, player performances, and statistical data. Users can access and analyze match statistics such as batting averages, bowling figures, strike rates, and economy rates.
- **Player Profiles:** The application allows players to create individual profiles, showcasing their personal information, achievements, and performance history. Player profiles serve as a digital cricketing resume and provide a platform for players to connect with potential opportunities.
- **Club Management:** Club owners can utilize the CRICENTRE app to manage club registrations, create teams, and assign roles to players and coaches. The app streamlines team selection processes and facilitates effective communication among club members.
- **Real-time Updates:** The CRICENTRE app provides real-time updates on live matches, allowing users to track the progress of ongoing games. Users can view live scores, ball-by-ball commentary, and instant notifications for key match events.
- **Player Opportunities:** The application creates opportunities for popular players to showcase their skills and connect with potential earning opportunities. Players can participate in matches and tournaments organized through the app, attracting sponsorships, endorsements, or invitations to professional leagues.
- **Match Schedule and Reminders:** The CRICENTRE app features a match schedule module that allows users to view upcoming matches and set reminders. Users can stay updated on their team's fixtures and receive notifications for important match-related events.

- **Team Collaboration:** The app facilitates collaboration among team members, coaches, and club owners through chat and messaging features. Users can exchange messages, share important announcements, and discuss strategies within the app.
- **User Authentication and Security:** The application ensures secure user authentication and data privacy. User accounts are protected through secure login mechanisms, and data transmission is encrypted to safeguard sensitive information.
-

2.4.1. System Feature 1

Digital Scoring

2.4.1.1. Description and Priority

The "Digital Scoring" feature enables cricket players to digitally record match scores, including runs, wickets, extras, and other match details. It eliminates the need for manual scoring methods, such as using paper or scoring books, providing a convenient and efficient solution for scoring cricket matches. This feature is of high priority as it forms the core functionality of the CRICENTRE application.

2.4.1.2. Stimulus/Response Sequences

- **User Action:** The player selects a match to score within the CRICENTRE app.
- **System Response:** The app displays a user-friendly interface for digital scoring, presenting relevant scoring options and match details.
- **User Action:** The player records runs, wickets, extras, and other match events as they occur during the game.
- **System Response:** The app updates the match score in real-time, recalculating team totals, individual player scores, and other statistical data.
- **User Action:** The player completes the scoring for the match.
- **System Response:** The app finalizes the match score, generates a comprehensive match report, and updates player statistics accordingly.
-

2.4.1.3. Functional Requirements

The app should provide an intuitive and user-friendly interface for digital scoring.

- The app should allow players to record runs, wickets, extras, and other match events accurately.
- The app should update the match score and relevant statistics in real-time as the scoring progresses.
- The app should support multiple cricket formats, including T20, ODI, and Test matches.
- The app should validate the input to ensure data integrity and accuracy.
- The app should provide error handling and feedback for invalid inputs or unexpected scenarios.
- The app should allow players to pause and resume scoring, accommodating interruptions during the match.
- The app should generate a comprehensive match report at the end of the scoring process.
- The app should store match scores and statistics for future reference and analysis.

The "Digital Scoring" feature of the CRICENTRE application is essential for providing a convenient and accurate scoring platform, simplifying the process of recording match scores and maintaining match records. It ensures a reliable and efficient method of scoring cricket matches for players and enhances the overall cricketing experience.

2.4.2. System Feature 2

Club Management

2.4.2.1. Description and Priority

Club Management is a high-priority feature within the CRICENTRE application. It enables club owners to efficiently manage their cricket clubs, including registration, team

formation, and assigning roles and responsibilities. The feature provides a centralized platform for club owners to streamline club administration and enhance team management processes.

2.4.2.2. Stimulus/Response Sequences

- Club Owner logs in to the CRICENTRE application.
- The application presents the club management interface.
- Club Owner selects the option to manage club registrations.
- The application displays a registration form for new players.
- Club Owner enters the player details and submits the registration form.
- The application validates the information and adds the player to the club's registered players list.
- Club Owner selects the option to form teams for upcoming matches.
- The application presents a team formation interface.
- Club Owner selects players from the registered players list and assigns them to specific teams.
- The application updates the team compositions and displays the finalized teams.
- Club Owner assigns roles and responsibilities to players and coaches.
- The application records and stores the assigned roles for future reference.

2.4.2.3. Functional Requirements

- Itemize the detailed functional requirements associated with this feature. These are the software capabilities that must be present in order for the user to carry out the services provided by the feature, or to execute the use case. Include how the product should.
- The application should provide a user-friendly interface for club owners to manage club registrations, team formation, and role assignments.
- The registration form should capture relevant player information, such as name, age, contact details, and playing positions.

- The application should validate the entered player details to ensure accuracy and completeness.
- The registered players list should be maintained within the application and easily accessible for club owners.
- The team formation interface should allow club owners to select players from the registered players list and assign them to teams.
- The application should handle conflicts or restrictions in team compositions, such as player availability and skill balance.
- The assigned roles and responsibilities should be recorded and associated with the respective players and coaches.
- The club management feature should support efficient communication and collaboration between club owners, coaches, and players.
- Error handling should be implemented to handle invalid inputs, data inconsistencies, and any unexpected scenarios that may arise during club management processes.

2.4.3. System Feature 2

Live Updates/Real time

2.4.3.1. Description and Priority

The Real-time Updates/Live Match feature provides users with live updates and real-time information during cricket matches. It is of high priority as it enhances user engagement and allows them to stay updated on match progress.

2.4.3.2. Stimulus/Response Sequences

- User launches the CRICENTRE application and selects a live match.
- The system retrieves live match data from the backend server.
- The system displays real-time match information, including scores, run rates, wickets, and other relevant match statistics.
- Users can view ball-by-ball commentary and live updates of key match events.

- As the match progresses, the system continuously updates the match information and displays the latest scores and match status.

2.4.3.3. Functional Requirements

- The application must establish a real-time connection with the backend server to receive live match updates.
- The system should retrieve and display real-time scores, run rates, wickets, and other match statistics.
- Users should be able to access ball-by-ball commentary and view updates of key match events.
- The system must ensure timely updates and responsiveness, providing an up-to-date representation of the match status.
- The application should handle potential network disruptions and reconnect to the server when the connection is restored.
- In case of any errors or invalid data received, the system should provide appropriate error messages or notifications to users.

The Real-time Updates/Live Match feature enhances the user experience by providing real-time match updates, enabling users to stay informed and engaged with the ongoing cricket matches.

2.5. Other Nonfunctional Requirements

2.5.1. Performance Requirements

The performance requirement of the CRICENTRE application is to ensure a smooth and responsive user experience, allowing users to access and interact with the app without any significant delays or performance issues. The application should meet the following performance criteria:

- Responsiveness
- Loading Times
- Real-time Updates

- Scalability
- Network Efficiency
- Battery Consumption
- Error Handling
- Compatibility

2.5.2. Safety Requirements

While the CRICENTRE application primarily focuses on providing a digital scoring platform and enhancing user experience, it is important to consider safety requirements to ensure the well-being of users. The safety requirements for the CRICENTRE application include:

- Data Security
- Privacy Protection
- Age Restrictions
- User Consent and Notifications
- Safe Content and Interactions
- User Verification:
- Secure Payment Processing
- User Support and Reporting

2.5.3. Security Requirements

To ensure the integrity and protection of user data and the overall security of the CRICENTRE application, the following security requirements should be considered:

- User Authentication
- Secure Communication.
- Secure Storage
- Role-Based Access Control
- Security Auditing and Logging
- Protection against Malicious Attacks
- Regular Security Updates
- Data Backup and Disaster Recovery
- Security Testing and Code Reviews

2.5.4. Usability Requirements

Usability requirements focus on ensuring that the CRICENTRE application is user-friendly, intuitive, and easy to use. These requirements aim to enhance the overall user experience and maximize user satisfaction. The usability requirements for the CRICENTRE application include:

- Intuitive User Interface
- Responsive Design
- Clear and Concise Labels
- Consistency:
- Error Prevention and Handling
- Help and Documentation
- User Feedback and Suggestions
- Accessibility
- Performance

2.5.5. Reliability Requirements

Reliability requirements for the CRICENTRE application focus on ensuring its consistent and dependable performance, as well as the ability to recover from failures or disruptions. These

requirements are crucial to establish trust in the application and ensure the availability of its services. The reliability requirements for the CRICENTRE application include:

- Availability
- Fault Tolerance
- Data Integrity
- Performance Stability
- Error Handling
- Recovery and Backup
- Scalability
- Continuous Monitoring
- Version
- Disaster Recovery Plan

By meeting these reliability requirements, the CRICENTRE application can provide users with a dependable and consistent experience, ensuring that they can rely on the application for scoring matches, accessing player statistics, and other cricket-related activities without disruptions or data loss.

2.5.6. Supportability Requirements

The Supportability requirements for the CRICENTRE application focus on ensuring that the system can be effectively supported, maintained, and evolved over time. These requirements aim to facilitate the smooth operation of the application and provide a framework for ongoing support and maintenance activities. The supportability requirements for the CRICENTRE application include:

- Documentation
- Maintenance and Upgrades
- Training and Documentation
- Knowledge Transfer and Succession Planning
- Continuous Improvement

By addressing these supportability requirements, the CRICENTRE application can ensure that it is well-supported, easily maintainable, and capable of evolving to meet the changing needs of users and the cricket community.

2.5.7. Maintainability Requirements

The system will integrate latest functionalities and updating for the better performance and can be modifiable any time when modification will require.

2.5.8. Application Quality Attribute:

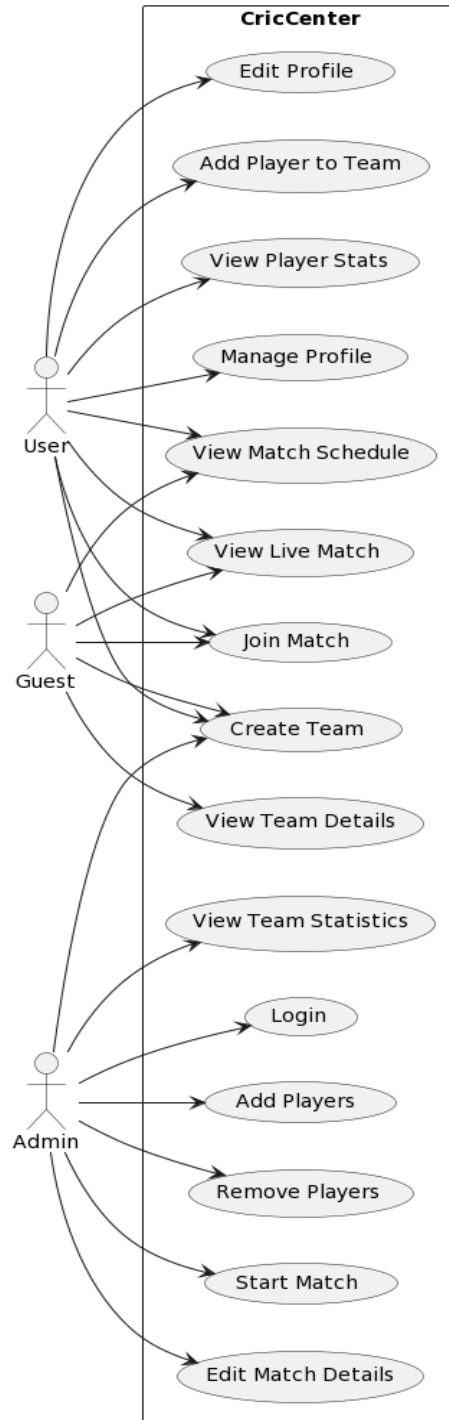
- **Accessibility:**
This application can be accessed anywhere at any time by Google PlayStore.
- **Accuracy:**
The correctness of data inputs to the system was ensured.
- **Availability:**
Game is available 24 hours on Google PlayStore.
- **Efficiency:**
The execution of score, running, etc is made sure for efficiency and smoothness.
- **Effectiveness:**
Users were given the facility to perform different actions in the app.
- **Maintainability:**
This is a considerable factor especially for a non-technical user.
- **Privacy:**
The confidentiality of the data inputs to the system has been assured.
- **Security:**
The data feeds to the system has been protected by controlling the user access privileges.

Chapter 3

Use Case Analysis

Chapter 3: System Analysis

3.1. Use Case Model



3.2. Use Case Descriptions

Owner/Coach Use-cases

Usecase ID	CricketScoringApplication-UC-01
Usecase Name	Owner/Coach-CreateAccount
Description	Owner/Coach create account by providing Name, email, password.
Pre-condition	User must be on the create account screen.
Input	Tap Create Account button
Post-condition	Owner/Coach account created successfully.
Goal in context	Owner/Coach account created to login to the Owner/Coach module.
Normal course	1. Owner/Coach enters his/her username 2. Enters valid Email 3. Enters correct password
Alternative course	1. User enter incorrect or empty email 2. Owner/Coach enters incorrect or empty password 3. Password and Confirm password doesnot match 4. Re-Enter Name, valid Email, Password and Confirm Password

Table: Owner/Coach Create Account

Usecase ID	CricketScoringApplication-UC-02
Usecase Name	Owner/Coach-Login
Description	Owner/Coach enters existing account for the purpose of manage team and players.
Pre-condition	Owner/Coach must already have an account in the system.
Input	Tap on the Login button
Post-condition	Owner/Coach successfully login
Goal in context	Owner/Coach login to his account for purpose of manage team and players
Normal course	1. Enters valid Email 2. Enters correct password
Alternative course	1. Owner/Coach enters incorrect password or invalid email 2. Re-enter valid Email and correct password.

Table : Owner/Coach Login

Usecase ID	CricketScoringApplication-UC-03
Usecase Name	Owner/Coach-Forgot Password
Description	Owner/Coach enters valid email to reset the password.
Pre-condition	Owner/Coach must already have an account in the system.
Input	Tap on the Reset Password button
Post-condition	Owner/Coach successfully reset the password.
Goal in context	Owner/Coach reset his/her Owner/Coach account password for the purpose of login to the Owner/Coach Module.
Normal course	1. Enters valid Email
Alternative Course	1. Owner/Coach enters invalid email 2. Re-enter valid Email.

Table : Owner/Coach Reset Password

Usecase ID	CricketScoringApplication-UC-04
Usecase Name	AddTeamName
Description	Owner/Coach login and enter the name of hir/her team.
Pre-condition	Owner/Coach must be login
Input	Tap on add team button.
Post-condition	Team name added successfully
Goal in context	Owner/Coach enters the name of his/her team for the purpose of his/her team recognition.
Normal course	1. Owner/Coach login with valid email and password 2. Enter team name 3. Tap on add team button.
Alternative course	1. Owner/Coach enters incorrect email and password 2. Re-enter Email and password 3. Again enter team name

Table : Adding Team Name

Usecase ID	CricketScoringApplication-UC-05
Usecase Name	UpdateTeamName
Description	Owner/Coach login and update the name of his/her team.
Pre-condition	Owner/Coach must be login
Input	Press the update button.
Post-condition	Team name updated successfully
Goal in context	Owner/Coach update the name of his/her team for the purpose of his/her team new recognition.
Normal course	1. Owner/Coach login with valid email and password 2. Update team name 3. Tap the Update button
Alternative course	1. Owner/Coach enters incorrect email and password 2. Re-enter Email and password 3. Again update team name

Table : Updating Team Name

Usecase ID	CricketScoringApplication-UC-06
Usecase Name	DeleteTeam
Description	Owner/Coach login and Delete the of his/her team.
Pre-condition	Owner/Coach must be login
Input	Tap on the Delete button.
Post-condition	Team name Deleted successfully
Goal in context	Owner/Coach remove delete of his/her team.
Normal course	1. Owner/Coach login with valid email and password 2. Tap on the Delete button
Alternative course	1. Owner/Coach enters incorrect email and password 2. Re-enter Email and password 3. Again tap delete team button

Table: Delete Team

Usecase ID	CricketScoringApplication-UC-07
Usecase Name	AddTeamPlayer
Description	Owner/Coach login and enter the name of player of his/her team.
Pre-condition	Owner/Coach must be login
Input	Add Player button.
Post-condition	Player added successfully
Goal in context	Owner/Coach enter the name of player of his/her team for the purpose of completing the squad of his/her team.
Normal course	1. Owner/Coach login with valid email and password 2. Enter team player name
Alternative course	1. Owner/Coach enters incorrect email and password 2. Re-enter Email and password 3. Again enter player name

Table : Adding Team Player

Usecase ID	CricketScoringApplication-UC-08
Usecase Name	DeleteTeamPlayer
Description	Owner/Coach login and delete the player of his/her team.
Pre-condition	Owner/Coach must be login
Input	Tap on Delete button.
Post-condition	Player Deleted Successfully
Goal in context	Owner/Coach Delete the player of his/her team for the purpose of update the team.
Normal course	1. Owner/Coach login with valid email and password 2. Tap the Delete button
Alternative course	1. Owner/Coach enters incorrect email and password 2. Re-enter Email and password 3. Again Tap Delete button

Table : Delete Team Player

Usecase ID	CricketScoringApplication-UC-09
Usecase Name	StartMatch
Description	Owner/Coach login and begin the scoring of match through Scoreboard.
Pre-condition	Owner/Coach must be login
Input	Press the Start a match button.
Post-condition	Match Result
Goal in context	Owner/Coach start the match to collect statistics of his/her team as well as players.
Normal course	1. Owner/Coach login with valid email and password 2. Tap on Start a match button
Alternative course	1. Owner/Coach enters incorrect email and password 2. Re-enter Email and password 3. Again start a new match

Table : Start Match (Owner/Coach)

Usecase ID	CricketScoringApplication-UC-10
Usecase Name	ViewStatistics
Description	Owner/Coach Tap on statistics to view team and players performances.I
Pre-condition	Owner/Coach must be login
Input	Tap on any team and any player name added by player id
Post-condition	View the perormance of team and players.
Goal in context	To analyzing the current form of players and team situation.
Normal course	1. Owner/Coach login with valid email and password 2. Tap on team button 3. Tap on player name
Alternative course	1. Owner/Coach enters incorrect email and password 2. Re-enter Email and password 3. 4. Tap on team button 5. Tap on player name

Table : View Statistics (Owner/Coach)

Usecase ID	CricketScoringApplication-UC-11
Usecase Name	Live Match
Description	Anyone can tap on Live Match button to see the live match score-bar of his/her team even he /she out of the cricket ground field.
Pre-condition	User must have Match Id
Input	Tap Live Match Button
Post-condition	View the live perormance of team.
Goal in context	To analyzing the live scorecard of ongoing match.
Normal course	1. Enters valid match id 2. Tap Live on view button
Alternative course	1. Player enters incorrect match id 2. Re-enter match id 3. Re-clicks View button

Table: Live Match

Guest Use-cases

Usecase ID	CricketScoringApplication-UC-12
Usecase Name	AddTeamName
Description	Guest enter the name of hir/her team.
Pre-condition	Must be on My Teams Screen
Input	Tap on add team button.
Post-condition	Team name added successfully
Goal in context	Guest enters the name of his/her team for the purpose of his/her team recognition.
Normal course	1. Enter team name 2. Tap on add team button.
Alternative course	1. Not Tap on the Add button 2. Again tap enter team name

Table: Adding Team Name

Usecase ID	CricketScoringApplication-UC-13
Usecase Name	UpdateTeamName
Description	Guest update the name of his/her team.
Pre-condition	Guest must be on My Teams Screen
Input	Press the update button.
Post-condition	Team name updated successfully
Goal in context	Guest update the name of his/her team for the purpose of his/her team new recognition.
Normal course	1. Update team name 2. Tap the Update button
Alternative course	1. Not uppdated the taam name and tap on 2. Again update team name

Table: Updating Team Name

Usecase ID	CricketScoringApplication-UC-14
Usecase Name	DeleteTeam
Description	Guest Delete the of his/her team.
Pre-condition	Must be on My team screen.
Input	Tap on the Delete button.
Post-condition	Team name Deleted successfully
Goal in context	Guest remove delete of his/her team.
Normal course	1. Tap on the Delete button
Alternative course	1. Not tap on the delete button 2. Again tap delete team button

Table: Delete Team

Usecase ID	CricketScoringApplication-UC-15
Usecase Name	AddTeamPlayer
Description	Guest enter the name of player of his/her team.
Pre-condition	Guest must on My team Screen
Input	Add Player button.
Post-condition	Player added successfully
Goal in context	Guest enter the name of player of his/her team for the purpose of completing the squad of his/her team.
Normal course	1. Enter team player name
Alternative course	1. Guest Niot add the player name correctly 2. Again enter player name

Table: Adding Team Player

Usecase ID	CricketScoringApplication-UC-16
Usecase Name	DeleteTeamPlayer
Description	Guest delete the player of his/her team.
Pre-condition	Guest must be on My Teams Screen
Input	Tap on Delete button.
Post-condition	Player Deleted Successfully
Goal in context	Guest Delete the player of his/her team for the purpose of update the team.
Normal course	1. Tap the Delete button
Alternative course	1. Not tap the team to delete correctly 2. Again Tap Delete button

Table : Delete Team Player

Usecase ID	CricketScoringApplication-UC-17
Usecase Name	StartMatch
Description	Guest begin the scoring of match through Scoreboard.
Pre-condition	Guest must be on Start a New match screen
Input	Press Start button.
Post-condition	Match Result
Goal in context	Guest start the match to see the statistics of current match.
Normal course	1. Tap on Start a match button
Alternative course	1. Guest not tap the start button 2. Again start a new match

Table: Start Match (Guest)

Usecase ID	CricketScoringApplication-UC-18
Usecase Name	About button
Description	User can Tap on Question Mark icon Button to know the purpose of each Module of Cricket Scoring Application
Pre-condition	User must Launch the Application
Input	Tap About button
Post-condition	Get more information of cricket scoring application.
Goal in context	To get more information of cricket scoring application.
Normal course	1. Tap on About button
Alternative course	1. User didn't tap on About button 2. Tap on About button

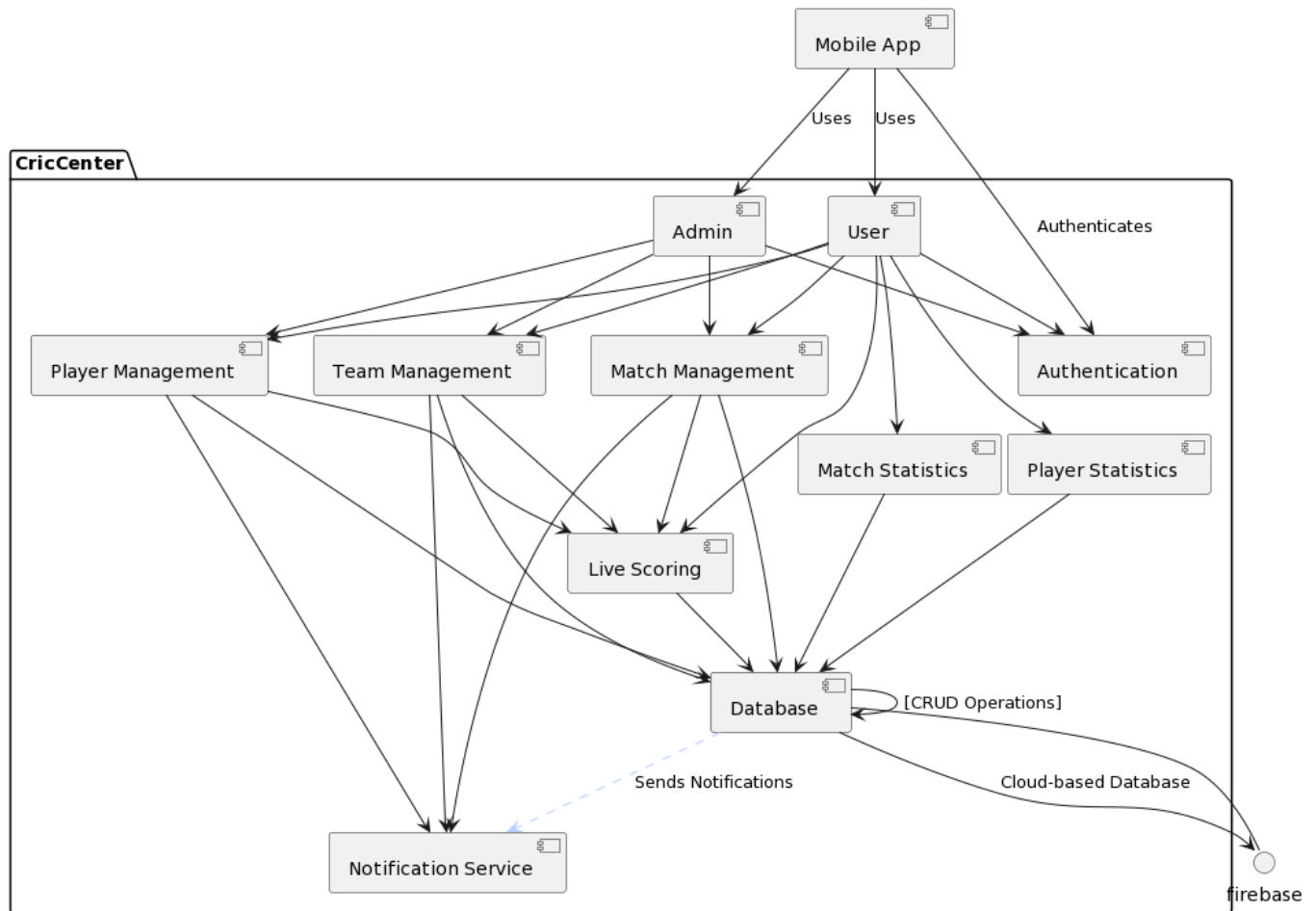
Chapter 4

System Design

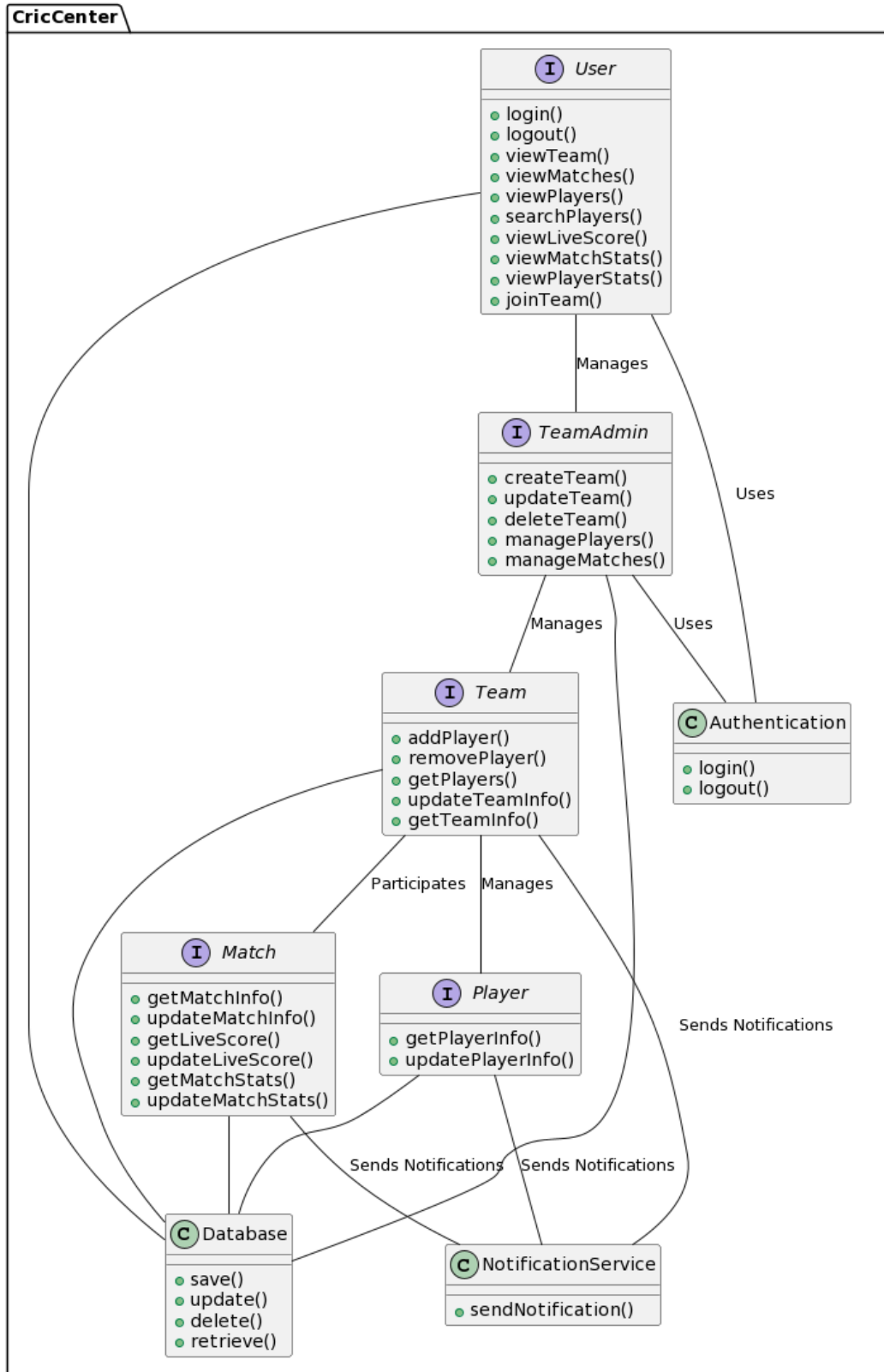
Chapter 4: System Design

In this chapter, we will show the different diagrams which will display the flow of our project that in which manner the whole working of our project will be carried out. We are showing our use case diagram; in which we are showing different actors of our project which will play a vital role in our system and in which manner they are affecting the environment. We are also discussing our entity relationship diagram (ERD) by which we are displaying the relationships between different entities of our project.

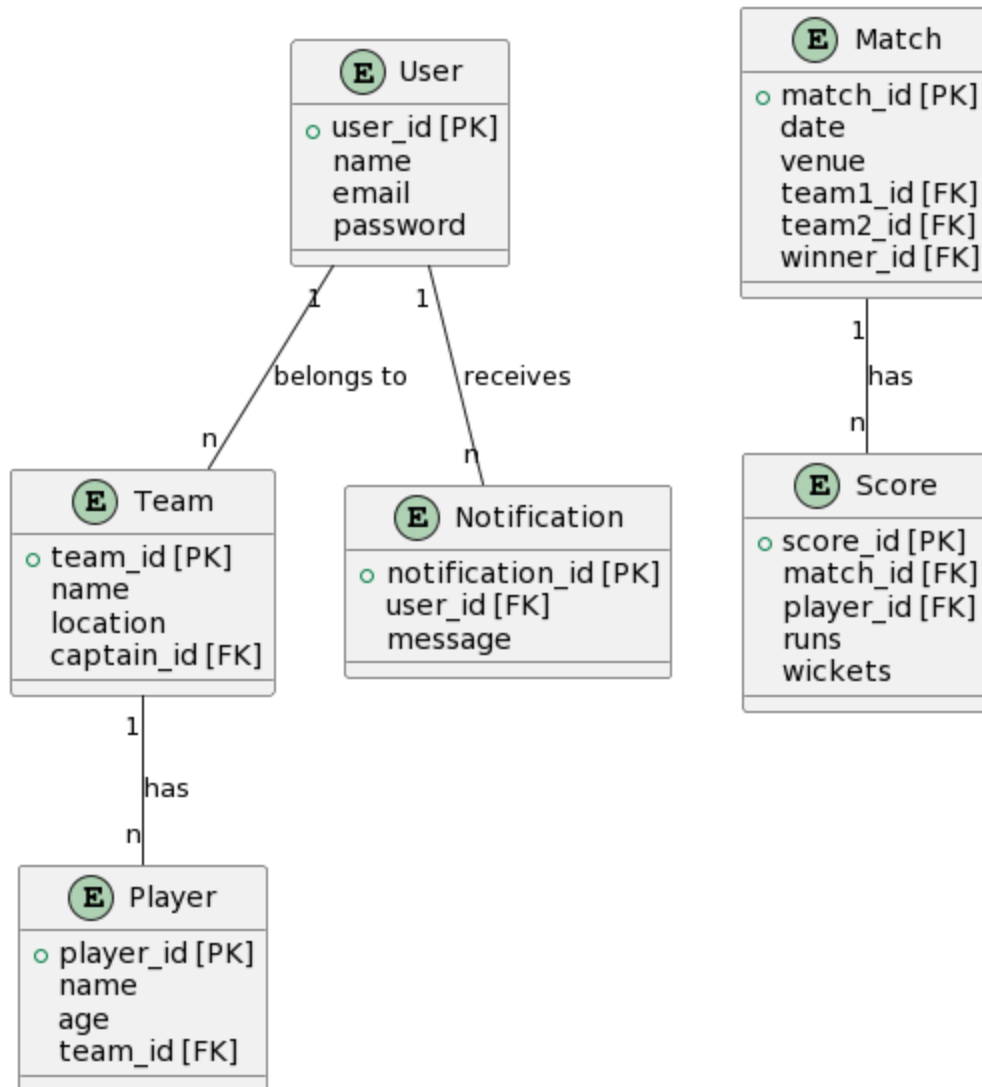
4.1. Architecture Diagram



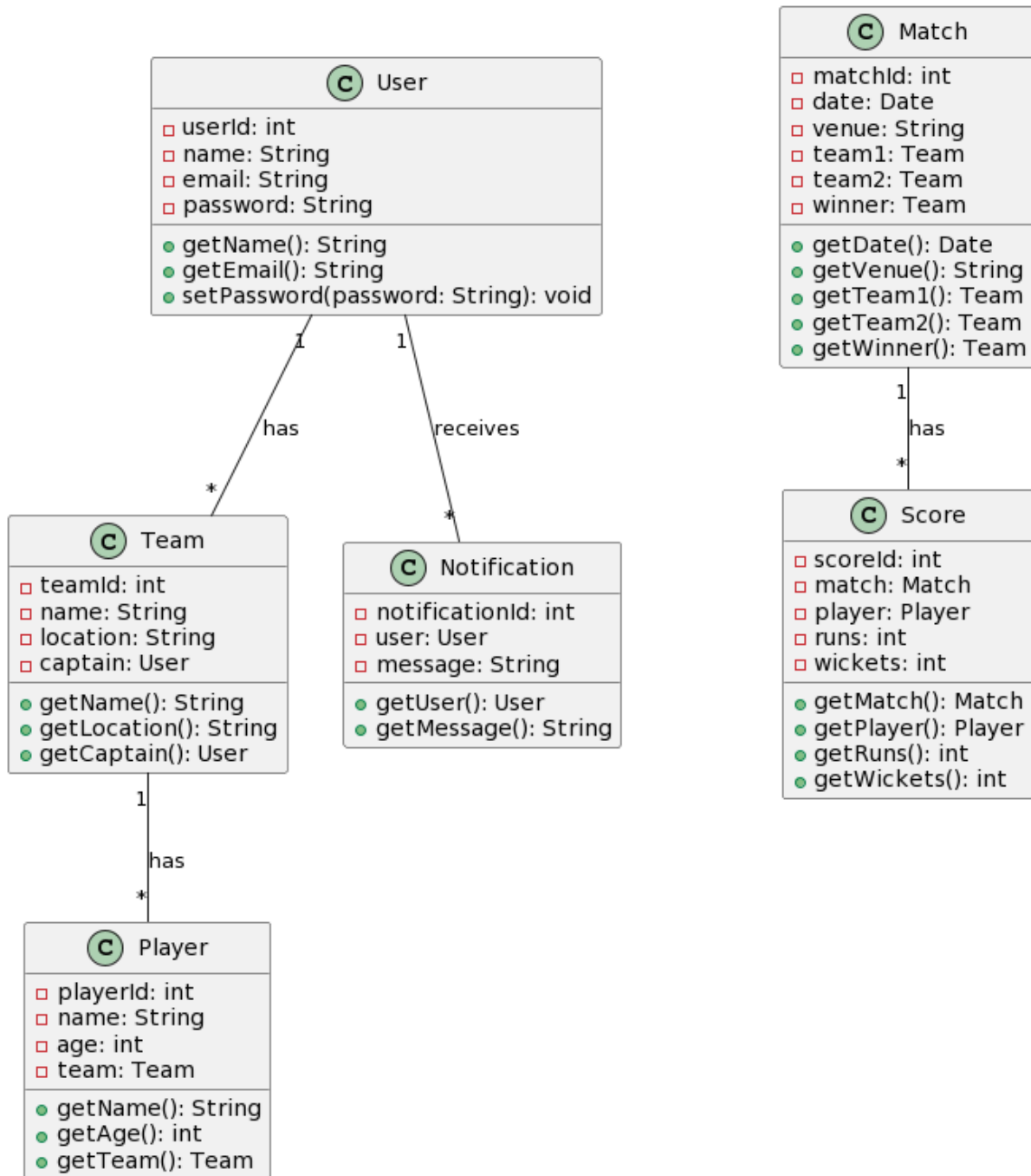
4.2. Domain Model



4.3. Entity Relationship Diagram with data dictionary

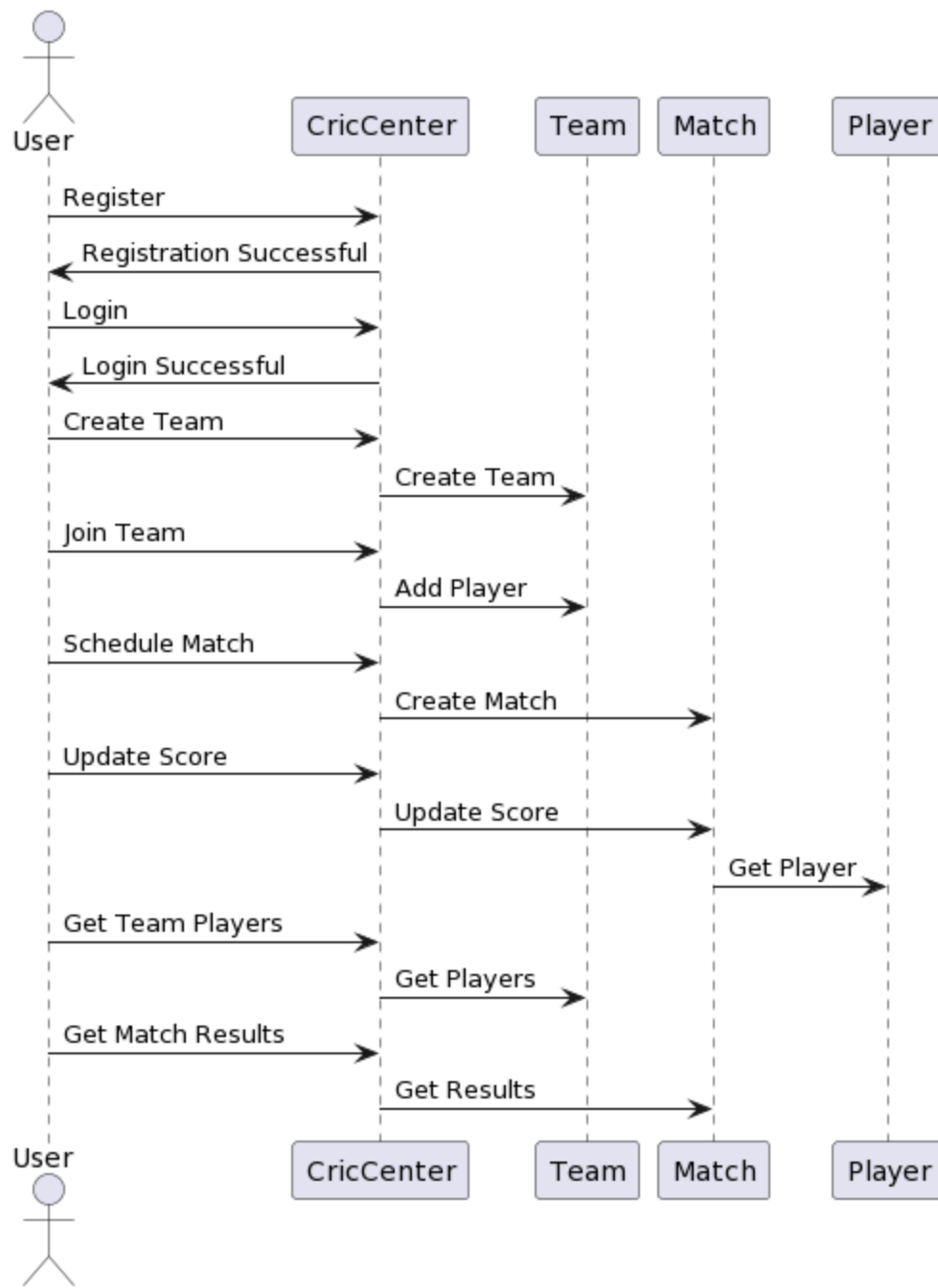


4.4. Class Diagram



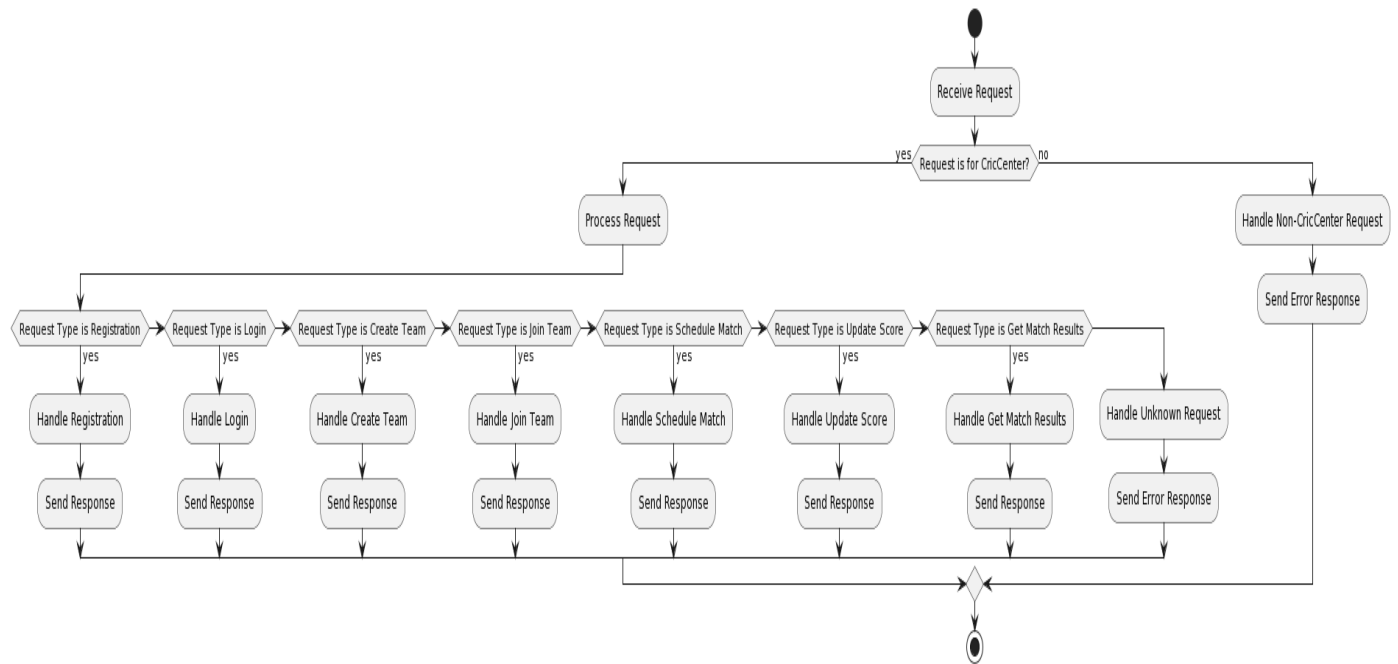
4.5. Sequence / Collaboration Diagram

A sequence diagram is a type of interaction diagram because it describes how and in what order a group of objects works together. These diagrams are used by software developers and business professionals to understand requirements for a new system or to document an existing process.

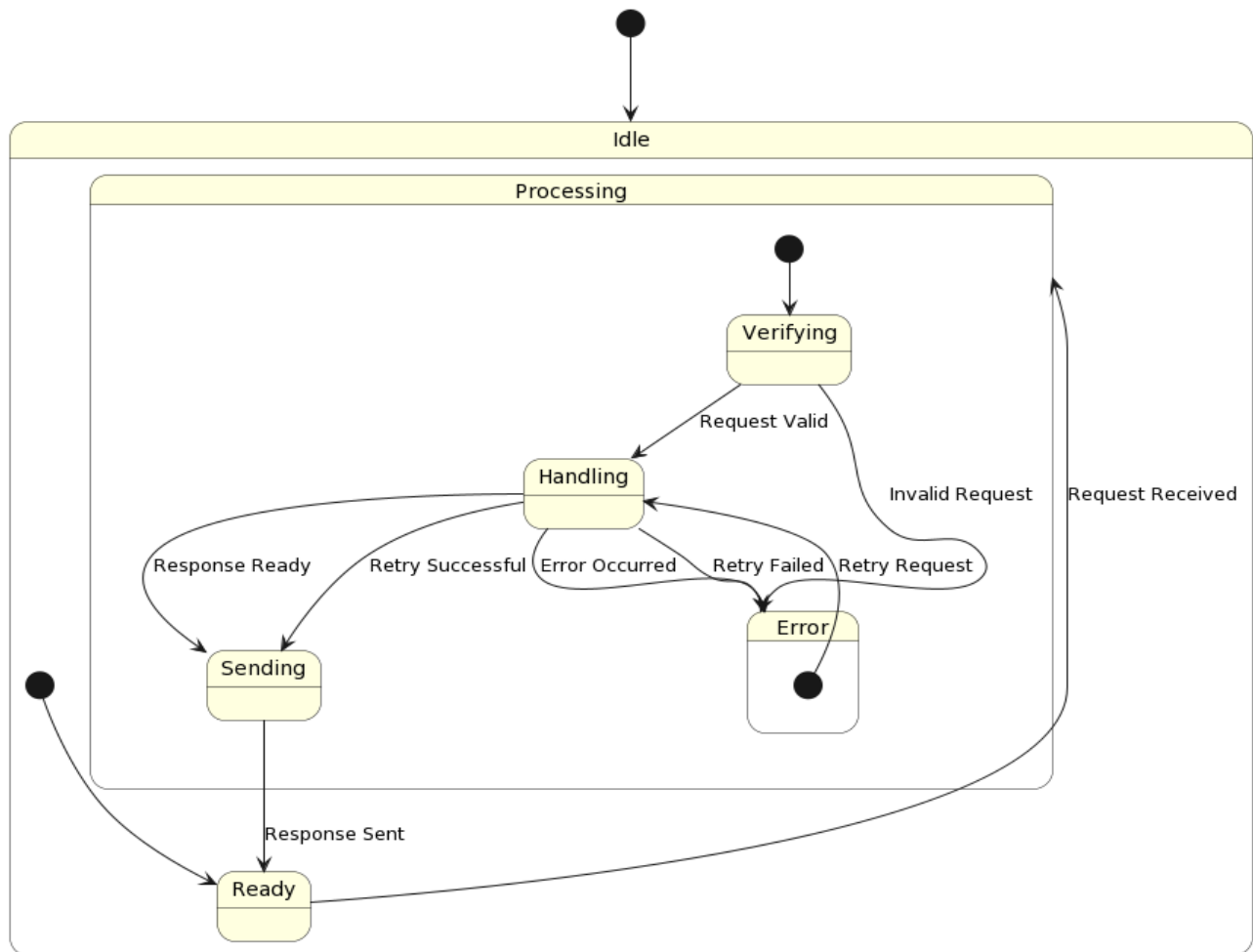


4.6. Activity Diagram

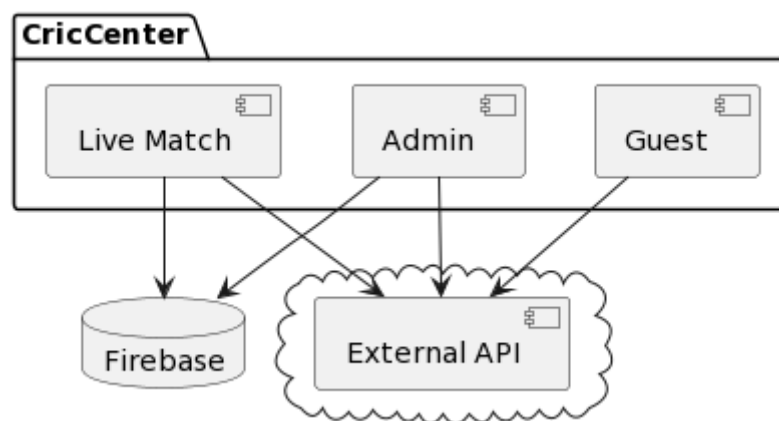
Activity diagram tells the flow of use case. It's like a flow chart. It flows in a specific order and describe the scenario or scene of program/use case step by step.



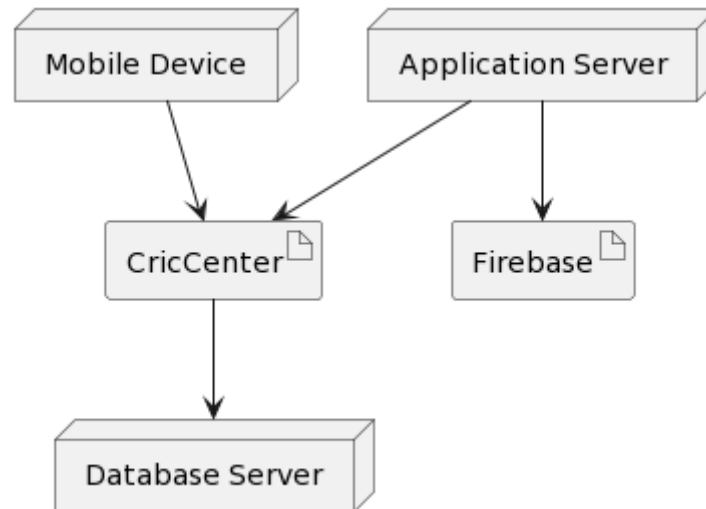
4.7. State Transition Diagram



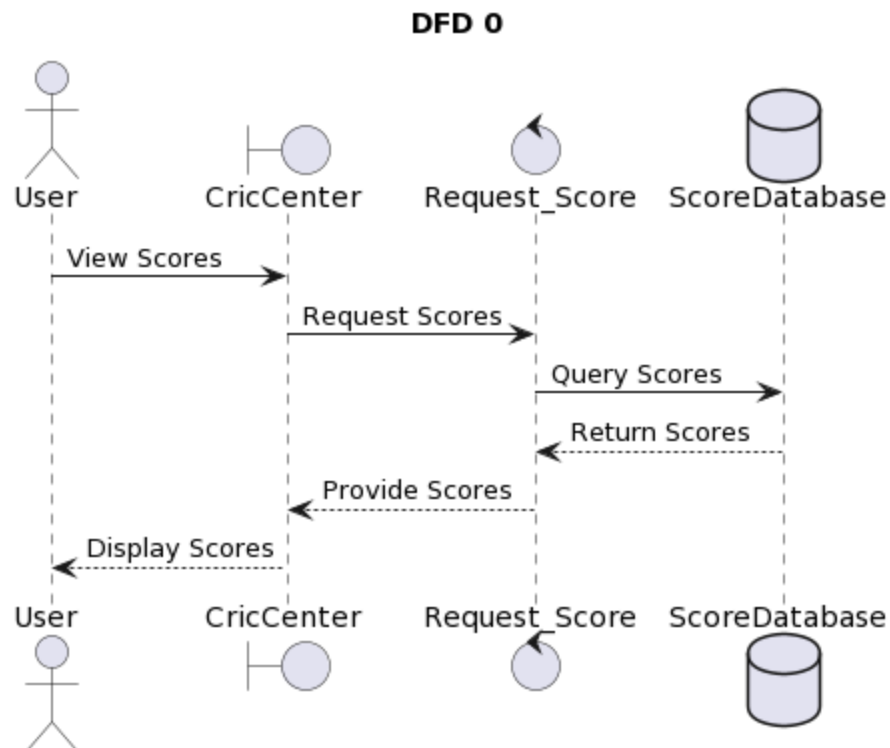
4.8. Component Diagram

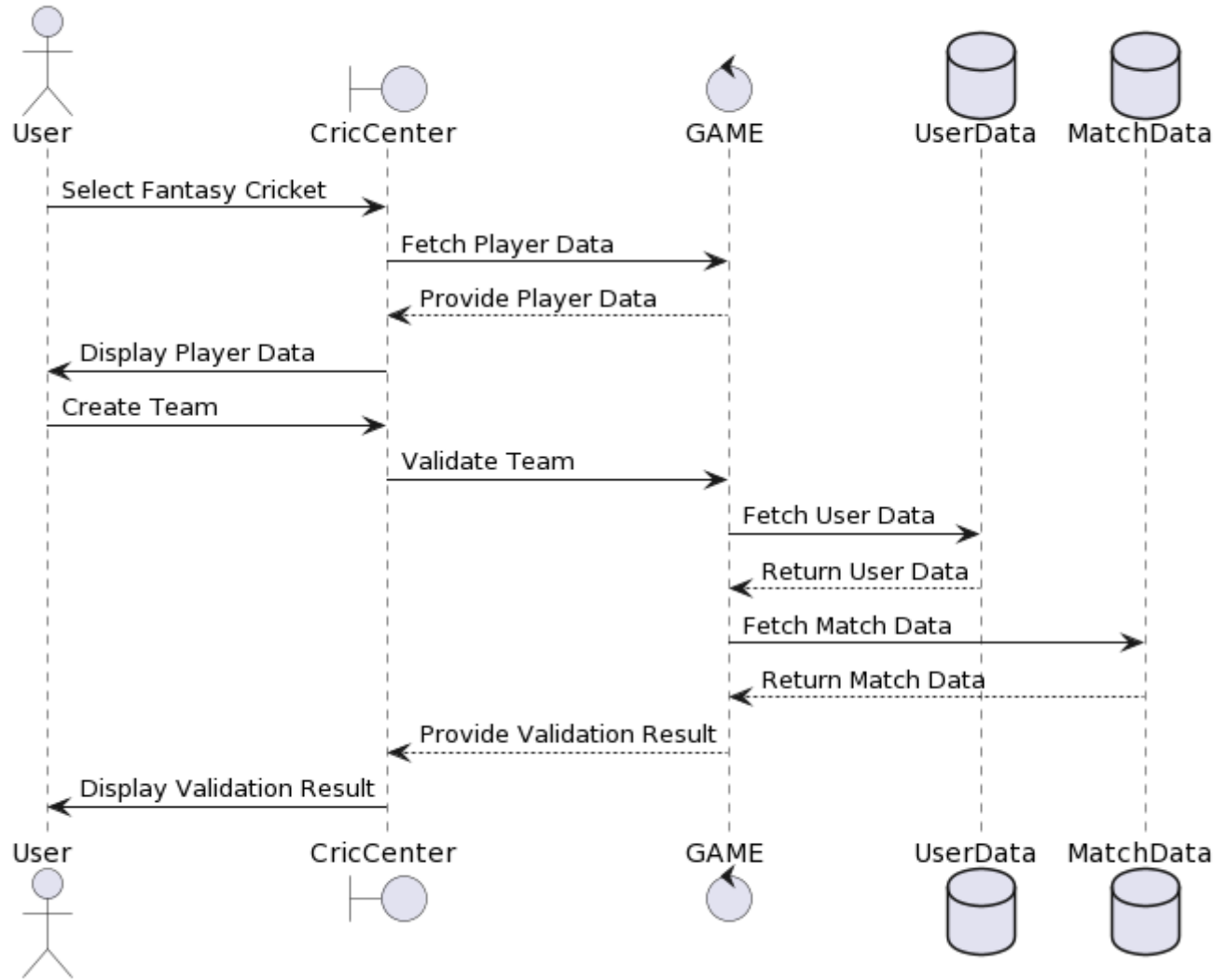


4.9. Deployment Diagram



4.10. Data Flow diagram



DFD LEVEL 1

Chapter 5

Implementation

Chapter 5: Implementation

Implementing a project typically involves several steps, including define the project scope and objectives, develop a project plan and assemble a team, execute the project plan and complete tasks and activities, monitor and control the project to stay on track, close the project by finalizing tasks and documenting results.

5.1. Important Flow Control/Pseudo codes

Tools:

- Android studio
- Flutter SDK
- Firebase

5.2. Components, Libraries, Web Services and stubs

Components, libraries, web services, and stubs are integral parts of the CRICCENRE application that enable its functionality and integration with various systems. Here are some of the key components, libraries, web services, and stubs used in the CRICCENRE application:

- Framework
- Firebase
- Cricket Data APIs
- Image and File Storage Services

5.3. Deployment Environment

The development environment for the CRICCENRE application includes the necessary tools and software required to build, test, and deploy the application. Here are the key components of the development environment:

- **Integrated Development Environment (IDE):** The preferred IDE for developing the CRICCENRE application is Android Studio. Android Studio is specifically designed for Android development and provides a comprehensive set of tools, including code editors, debugging capabilities, and project management features. It also includes the Flutter framework and Dart SDK, which are essential for building Flutter applications.
- **Flutter SDK:** Flutter SDK is a software development kit provided by Google for building cross-platform mobile applications. It includes the Flutter framework, Dart programming language, and various command-line tools. The Flutter SDK needs to be installed and configured in the development environment to develop the CRICCENRE application.
- **Dart Programming Language:** Dart is the programming language used for developing Flutter applications. It is an object-oriented language with a syntax similar to languages like Java and JavaScript. Dart is used to write the business logic, UI components, and other functionalities of the CRICCENRE application.
- **Emulators and Physical Devices:** To test the CRICCENRE application during development, emulators and physical devices are required. Android Studio provides built-in emulators that simulate Android devices for testing and debugging purposes. Additionally, physical Android and iOS devices can be connected to the development environment for real-time testing.
- **Version Control System:** A version control system, such as Git, is crucial for managing source code, tracking changes, and collaborating with team members. Git allows developers to work on different features simultaneously and merge their changes seamlessly. Platforms like GitHub or Bitbucket can be used for hosting the repository and facilitating collaboration.
- **Package and Dependency Management:** Flutter uses a package management system called Pub to manage dependencies and packages used in the CRICCENRE application. Pub allows developers to easily include external libraries and packages in their project, providing additional functionalities and simplifying development.

- **Testing Frameworks:** To ensure the quality and reliability of the CRICCENTRE application, testing frameworks like Flutter's built-in testing framework or third-party testing libraries can be used. These frameworks enable the creation of unit tests, integration tests, and widget tests to verify the functionality and behavior of the application.
- **Documentation and Collaboration Tools:** Documentation and collaboration tools play a crucial role in the development process. Platforms like Confluence or Google Docs can be used for documenting project requirements, design decisions, and development guidelines. Communication and collaboration tools like Slack or Microsoft Teams facilitate effective communication among team members.

5.4. Tools and Techniques

- **Database:** Firebase
- **Operating system:** Android 9 or Above
- **Hardware:** Dual-core or better, 4GB or more RAM recommended, Storage: min to 200 MB of available space
- **Tool:** Android Studio, VS code
- **Languages:** Dart

5.5. Best Practices / Coding Standards

Adhering to best practices and coding standards is essential for maintaining code quality, readability, and maintainability in the CRICCENTRE application. Here are some recommended best practices and coding standards to follow during development:

- Consistent Code Formatting:
- Meaningful Variable and Function Names
- Modular and Maintainable Code Structure
- Comments and Documentation.
- Error Handling and Exception Management
- Code Reusability and DRY (Don't Repeat Yourself) Principle
- Test-Driven Development (TDD)

- Version Control and Collaboration
- Performance Optimization
- Security Considerations

5.6. Version Control

- Git version control system will be used to track and manage code changes.
- Code will be organized into branches and follow a branching strategy (e.g., Gitflow for effective collaboration and release management.

Chapter 6

Testing and Evaluation

Chapter 6: Testing and Evaluation

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6.1. Use Case Testing

The use case testing for the CRICCENRE application will focus on testing various user interactions and verifying that the expected outcomes are achieved. Some key use cases to consider for testing include:

- **Scoring a Cricket Match:** This use case involves testing the functionality of scoring a cricket match using the application. It includes entering runs, wickets, and other relevant data, and verifying that the scores are accurately calculated and recorded.
- **Viewing Player Statistics:** This use case involves testing the functionality of viewing player statistics. It includes verifying that the application displays accurate and up-to-date statistics for individual players, such as batting averages, bowling averages, and overall performance metrics.
- **Team Management:** This use case involves testing the functionality of team management for club owners and coaches. It includes creating and managing teams, adding or removing players, and ensuring that team rosters are accurately maintained.
- **Live Match Updates:** This use case involves testing the functionality of real-time updates during a cricket match. It includes verifying that the application provides timely updates on match progress, scores, and other relevant information.
- **User Registration and Login:** This use case involves testing the functionality of user registration and login processes. It includes verifying that users can successfully create accounts, log in securely, and access their personalized profiles and settings.

6.2. Equivalence partitioning

Equivalence partitioning helps us test different ranges of inputs related to image properties such as size, resolution, and file format. By dividing the input ranges into equivalence classes, we can design test cases that cover each partition. This ensures that our application handles images within each range correctly.

6.3. Data flow testing

Data flow testing is a technique used to test the flow and transformation of data within a system. It aims to identify potential issues related to data manipulation, data dependencies, and data integrity. In the context of the CRICCENRE application, data flow testing can involve the following:

- Validating the flow of data from user inputs (such as match scores, player statistics) to the storage or database.
- Verifying the correctness of data transformation and calculations during scoring processes.
- Testing data retrieval and display, ensuring that the correct and up-to-date information is presented to users.
- Examining data dependencies and verifying that changes in one part of the system appropriately impact related data in other components.

By performing data flow testing, the CRICCENRE application can ensure the accuracy, consistency, and reliability of the data being processed and displayed to users.

6.4. Unit testing

. Unit testing involves testing individual units or components of the software to ensure they function correctly in isolation. In the context of the CRICCENRE application, unit testing would involve testing individual functions, classes, or modules within the codebase. Some examples of unit tests for the CRICCENRE application may include:

- Testing functions responsible for calculating match scores or player statistics.
- Verifying the correctness of database operations, such as adding or retrieving data.
- Testing user authentication and authorization mechanisms.

Unit testing helps identify and address issues within specific units of the code, allowing for early detection of defects and ensuring that each component works as intended.

6.5. Integration testing

Integration testing is conducted to verify the interaction and collaboration between different components or modules of the software. In the case of the CRICCENTRE application, integration testing would involve testing the interaction between various functionalities, such as:

- Testing the integration between the scoring module and the database, ensuring that scores are correctly stored and retrieved.
- Verifying the interaction between the user interface and the backend system, ensuring that user actions result in the expected system responses.
- Testing the integration between different user roles, such as club owners, coaches, and players, to ensure proper access control and data sharing.

Integration testing helps uncover any issues that may arise when different components of the application are combined, ensuring seamless communication and functionality across the system.

6.6. Performance testing

Integration testing is conducted to verify the interaction and collaboration between different components or modules of the software. In the case of the CRICCENTRE application, integration testing would involve testing the interaction between various functionalities, such as:

- Testing the integration between the scoring module and the database, ensuring that scores are correctly stored and retrieved.
- Verifying the interaction between the user interface and the backend system, ensuring that user actions result in the expected system responses.

- Testing the integration between different user roles, such as club owners, coaches, and players, to ensure proper access control and data sharing.

Integration testing helps uncover any issues that may arise when different components of the application are combined, ensuring seamless communication and functionality across the system.

6.7. Stress Testing

Stress testing involves evaluating the application's performance under extreme or beyond-normal workload conditions to determine its robustness and stability. In the case of the CRICCENTRE application, stress testing would involve:

- Simulating a high number of concurrent users or requests to assess the application's ability to handle peak load situations.
- Testing the application's behavior under resource constraints, such as limited memory or bandwidth.
- Assessing the application's resilience and recovery mechanisms in the face of high load or stress.

Stress testing helps identify any weaknesses or limitations in the application's architecture or infrastructure, enabling improvements to be made to ensure its reliability and stability even under demanding conditions.

Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

The CRICCENTRE application is a digital scoring platform designed to address the challenges faced in scoring cricket matches. The traditional manual scoring methods using paper or scoring books are replaced with a convenient and efficient digital solution. The primary focus of the app is to provide a scoring platform for local cricket players, eliminating the need for manual scoring and streamlining the process of recording match scores and maintaining match records.

The application not only caters to local cricket players but also extends its features to club-level cricket. Club owners can utilize the app to manage student registrations, form teams, and access player statistics for informed decision-making regarding team selection. Coaches are granted exclusive access by the club owner to facilitate team management.

The CRICCENTRE application also benefits popular players who aspire to earn through cricket. They can register on the platform, participate in cricket matches, and earn income. The app provides a seamless interface for these players to showcase their skills and connect with potential opportunities

Moreover, the application serves as a convenient tool for individuals seeking admission to cricket clubs. They can explore and select clubs of their choice, register themselves seamlessly, and enhance the accessibility of the admission process.

In summary, the CRICCENTRE application revolutionizes cricket scoring by offering a digital platform for local and club-level players. It simplifies scoring processes, enables easy access to player statistics, facilitates team management for club owners and coaches, and opens avenues for popular players to earn from cricket matches. Additionally, it provides a convenient tool for individuals looking to join cricket clubs and register themselves seamlessly.

7.2. Achievements and Improvements

During the development of the CRICCENRE application, several achievements and improvements have been made to enhance its functionality, usability, and overall user experience. Here are some notable achievements and improvements:

- **Digital Scoring Platform:** The successful implementation of a digital scoring platform has eliminated the reliance on manual scoring methods.
- **Seamless Match Record Management:** The application provides a streamlined process for recording and maintaining match records.
- **Player Statistics Accessibility:** The integration of player statistics within the application has enabled users to access and analyze player performance data effortlessly.
- **Team Management Capabilities:** The CRICCENRE application offers comprehensive team management features for club owners and coaches. They can efficiently manage student registrations, form teams, assign roles, and communicate with team members, enhancing overall team coordination and organization.
- **Income Generation Opportunities:** The application provides popular players with opportunities to earn income through cricket matches
- **Enhanced Admission Process:** Individuals seeking admission to cricket clubs can utilize the CRICCENRE application to explore and select clubs of their choice. The app simplifies the admission process by allowing seamless registration within preferred clubs, reducing administrative complexities and enhancing accessibility.

7.3. Critical Review

Strength, weakness and improvement for CRICCENRE:

Strengths:

- **Digital Scoring Platform:** The CRICCENRE application successfully addresses the challenges faced in manual scoring methods by providing a convenient and efficient digital scoring platform. This eliminates the need for paper-based scoring books and improves accuracy and efficiency in recording match scores.

- **Player Statistics and Team Management:** The integration of player statistics and team management features within the application is a valuable asset for club owners, coaches, and players. It allows for informed decision-making regarding team selection, strategy, and individual player development.
- **Income Generation Opportunities:** The application's provision of income generation opportunities for popular players through participation in cricket matches is a unique and beneficial feature. It allows players to showcase their skills and connect with potential opportunities, opening up avenues for career advancement and financial benefits.

Weaknesses:

- **Limited Feature Set:** While the CRICCENRE application provides essential features such as scoring, player statistics, and team management, there is potential for further enhancement. Additional features like live match streaming, social networking capabilities for players, and advanced analytics could add more value to the application.
- **User Interface:** Although the application aims for convenience and usability, there may be room for improvement in terms of the user interface. Enhancements to the design, layout, and navigation could enhance the overall user experience and make it more visually appealing.
- **Security Considerations:** As the application handles sensitive user data, including personal information and financial transactions, it is crucial to prioritize robust security measures. Regular security audits, encryption of data, and protection against potential vulnerabilities should be given high priority.

Areas for Improvement:

- **Continuous Development and Updates:** The CRICCENRE application should strive for continuous development and updates to keep pace with evolving user needs and technological advancements. This includes incorporating user feedback, addressing bugs, and adding new features to enhance the application's functionality.

- **Performance Optimization:** Performance optimization is essential to ensure smooth and responsive user experience. Regular performance testing, code optimization, and efficient resource management should be implemented to minimize loading times and maximize application efficiency.
- **User Engagement and Feedback:** Encouraging user engagement and actively seeking feedback can provide valuable insights for improving the application. Surveys, user forums, and feedback mechanisms should be implemented to understand user preferences, identify areas for improvement, and prioritize future development efforts.

7.4. Lessons Learnt

During the development and implementation of the CRICCENTRE application, several lessons have been learned that can contribute to future projects and improvements. These lessons include:

- **User-Centric Approach:** Putting the user at the center of the design and development process is crucial. Understanding the needs, preferences, and pain points of the target users helps in creating a more intuitive and user-friendly application.
- **Continuous User Feedback:** Actively seeking and incorporating user feedback throughout the development cycle is essential. Regular user testing and feedback sessions allow for identifying potential issues and areas for improvement early on, leading to a more refined and user-friendly application.
- **Scalability and Flexibility:** Designing the application with scalability and flexibility in mind is important. Anticipating future growth and accommodating new features and functionalities helps in avoiding major architectural changes or limitations as the application evolves.
- **Robust Security Measures:** Prioritizing the implementation of robust security measures is critical when handling sensitive user data and financial transactions. Incorporating encryption, secure authentication protocols, and regular security audits helps in safeguarding user information and maintaining user trust.

- **Performance Optimization:** Paying attention to performance optimization is vital for ensuring a seamless user experience. Regular performance testing, code optimization, and efficient resource management contribute to faster loading times, smoother operation, and overall user satisfaction.
- **Agile Development Methodology:** Adopting an agile development methodology allows for flexibility, adaptability, and faster iterations. Embracing incremental development, regular iterations, and continuous feedback loops help in delivering a high-quality product that meets user expectations.
- **Collaboration and Communication:** Effective collaboration and communication among team members are essential for project success. Establishing clear channels of communication, setting up regular meetings, and maintaining transparent documentation promote synergy and ensure everyone is aligned with project goals.
- **Documentation and Version Control:** Maintaining thorough documentation and utilizing version control systems are crucial for project organization and code management. Proper documentation helps in knowledge sharing, troubleshooting, and facilitating future development or maintenance.
- **Testing and Quality Assurance:** Incorporating a comprehensive testing and quality assurance process is vital for identifying and resolving issues before the application is deployed. Implementing automated testing, test-driven development, and regular quality checks contribute to a more stable and reliable application.
- **Continuous Improvement:** Embracing a mindset of continuous improvement is key. Regularly evaluating the application, gathering user feedback, and identifying areas for enhancement ensure that the product remains relevant, up-to-date, and aligned with user needs and expectations.
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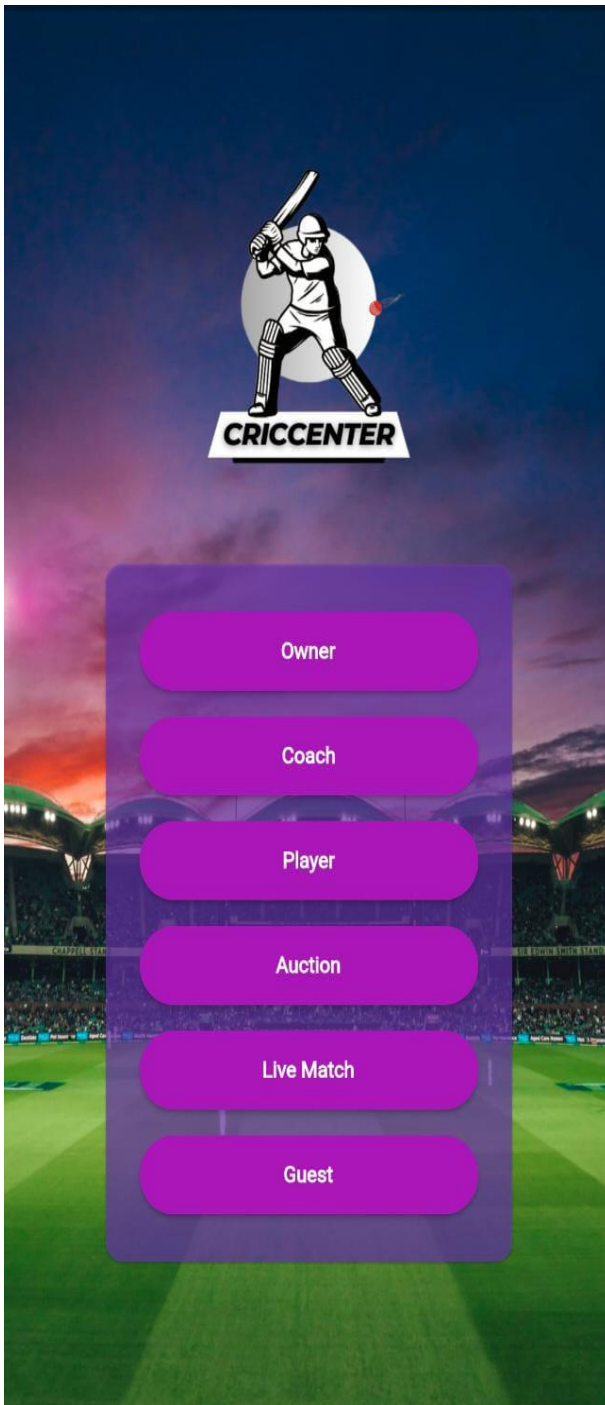
7.5. Future Enhancements/Recommendations

Future Enhancements/Recommendations for the CRICCENRE application:

- **Live Match Streaming:** Implement live match streaming functionality within the application to allow users to watch cricket matches in real-time. This feature will enhance user engagement and provide a comprehensive cricket experience within the app.
- **Social Networking Integration:** Integrate social networking features that allow players to connect with each other, share updates, and engage in discussions related to cricket. This will foster a sense of community and provide additional avenues for players to showcase their skills and connect with opportunities.
- **Advanced Analytics and Insights:** Enhance the player statistics module by incorporating advanced analytics and insights. This will provide players, coaches, and club owners with deeper insights into player performance, trends, and patterns, enabling them to make more informed decisions and strategies.
- **Gamification Elements:** Introduce gamification elements within the application to make the cricket experience more interactive and enjoyable. Features like achievements, leaderboards, and challenges can enhance user motivation and engagement.
- **Integration with External Platforms:** Explore integration with popular cricket statistics platforms, social media platforms, and cricket news websites to provide users with a comprehensive cricket ecosystem. This will offer seamless access to external data, news, and insights, enriching the user experience.

Appendices

← Owner Login



 Login ID

 Password

☐ Show Password

Login

Club not registered ? [Register now](#)

← Register Club

🏠 Club Name

👤 Owner Name

📍 Address

💰 Reistration Fee

👥 Contact

✉ Email

🔒 Password

Register

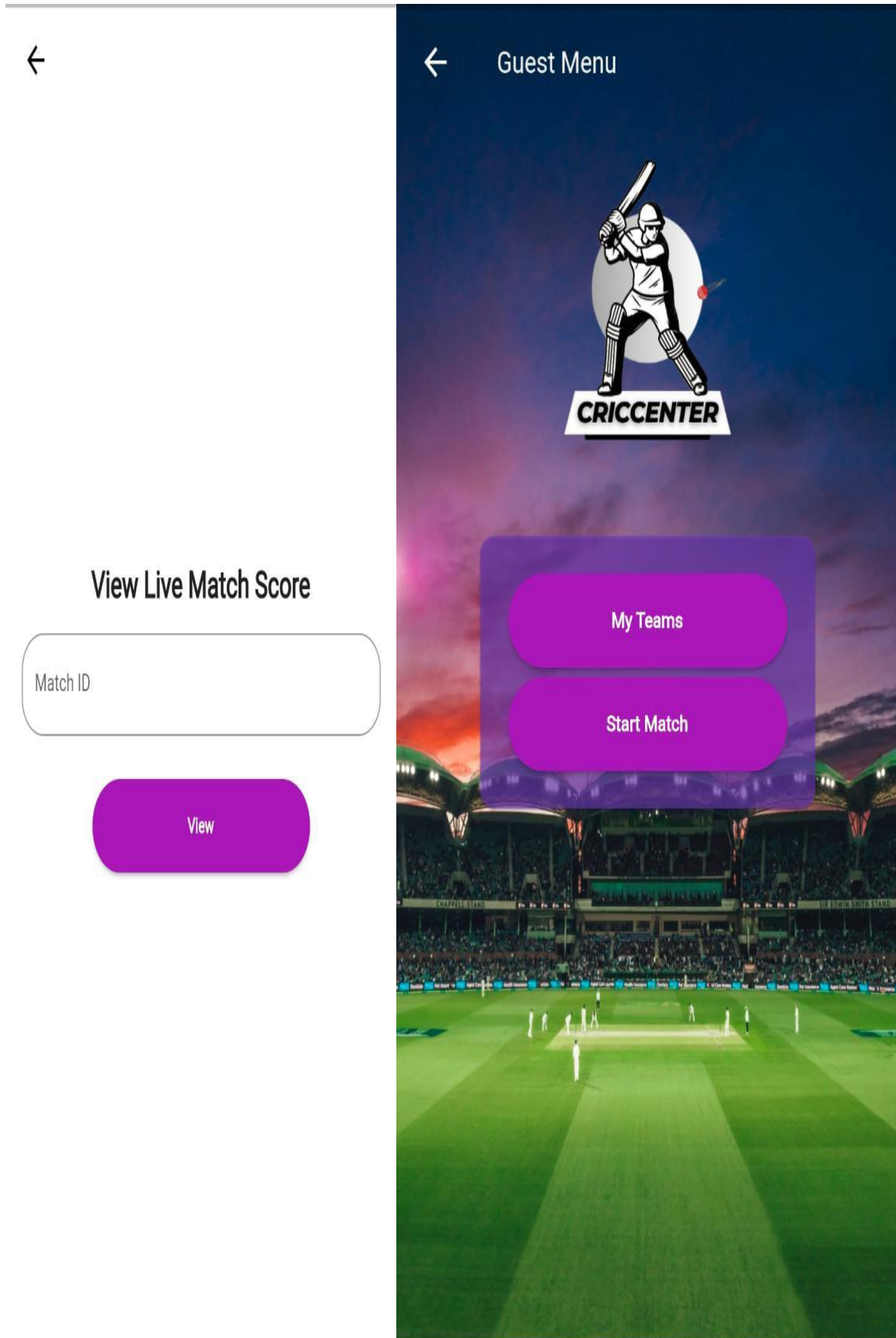
← Auction

Batsman

Bowler

All Rounder

Name	Age	Category	Fee
Naveed alam	22	Batter	3000
ubaid	20	All	2000



← My Teams



t1



t2

← Match

Team 1

VS

Team 2

*Click on team to select

Match Name

Max Players 11 ▼

Match Type

☐ T10

☐ T20

☐ Custom

Add Team

Start



← Live Match

Match

Team 1

Team 2

Usman associates 11

Inning: 2

Batting:

farhan 36 (6)
haseeb * 0 (0)

36/0

Bowler:

bhatti

This Over

Current Run Rate: 36.0

Required Run Rate: 18.0

Target: 54

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Reference and Bibliography

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