CricVee	Software Requirement Specification
Version ID Date: 07/02/2023 Document ID: SWD 01 Version ID: 1.0	

Revision History

Doc. Ver.	Date	Author	Reviewer	Description Of Revision
1.0	07.02.2023	Mohammed Moinul Morshed Alvee	Nani Gopal Barai, Sarwar Miral	

Contents

1. Introduction

This section provides a scope description and overview of this whole SRS document. Besides, the purpose for this document and a list of acronyms and definitions is provided.

1.1 Purpose

This SRS document presents a comprehensive overview of the requirements and specifications of CricVee, addressing both functional and non-functional requirements as well as requirements for the user interface and design, performance, data management, and storage. Furthermore, it will describe the interface, interactions, and system constraints with other external applications. This document is primarily meant to serve as a proposal to a client for approval and as a guide for development as the initial version of the system is created.

1.2 Scope

The “CricVee” app is an app for cricket enthusiasts to view match scores, statistics, fixtures. etc. based on the user preference of player, team, league, country. Etc. In fact, the app will collect data from API and cache it into the local database to display it to the user in a convenient manner. Furthermore, the app requires Internet connection to fetch and display updated data to the user and without Internet connection, the app shall display the most recent locally cached data so the app is also functional in offline mode.

1.3 Intended Stakeholder

BJIT Academy is the primary stakeholder of the project. Besides, the other intended stakeholders are mentioned in the following:

- **Client:** The document will be presented to the client as a proposal for approval and it will serve to the client as a comprehensive reference during the project development.
- **Project Manager:** The project manager will get assistance from the document to understand the project requirements and to organize and supervise the development phase.
- **Development team:** For the development team, this document will serve as a guide to ensure all the required functionalities and features are included while building the software.
- **Testers:** Information required for quality assurance, testing and intended functionalities will be found from this document so that it can benefit the testers to verify that the software meets the specified requirements.
- **End Users:** The end users are basically the cricket enthusiasts who would use the app to get updates about match scores, schedules, fixtures, statistics. etc.

1.4 References

Reference	Location
Requirement Specification	

1.5 Definitions, Acronyms, and Abbreviations

Term/Acronym	Definition
SRS	Software Requirement Specification
API	Application Programming Interface
App	Application
User	A person who interacts with the software system
CricVee	Name of the Software

2. Overall Description

An overview of the system is what this section aims to provide. In order to illustrate how the system interacts with other systems and to explain the system's core capabilities, the system will be discussed in the context of its environment. Additionally, it will describe the various stakeholder categories that will use the system and the capabilities that are available to each of these categories. Lastly, the limitations and assumptions of the system are about to be presented.

2.1 Overview

- **Product Perspective:** In order to provide users with comprehensive and trustworthy information on the game of cricket, this app was developed from a product perspective. The app offers a variety of features, such as player information, match schedules, and live scores. Users may easily find the information they need due to the app's user-friendly interface. This app will need to retrieve data from the API, which it will then save in the database. The App and API will interface with the database in slightly different ways. While the API also adds and modifies data, the App simply uses the database to obtain data. This entire interaction will be locally stored in SQLite database.
- **Product Functions**: The "CricVee" app's product features include:

  1. Live Scores: The app provides real-time scorecards, ball-by-ball updates, and live scores for every cricket match that is currently in progress.

  2. Win-prediction: Based on a team's recent results and in-game performances, this software compares its odds of winning.

  3. Match Fixtures: The app provides a complete listing of all forthcoming cricket games, including the dates, times, venues, and participating teams.

  4. Player Statistics: The program provides extensive information on runs scored, wickets taken, average, and other player stats.

  5. Push Notifications: The app sends push notifications for matches that are about to start.

  6. Search: This app searches for players, teams, and leagues and shows statistics and data.

- **User Characteristics**: The only users who engage with the system are the end users. The live cricket match score, player statistics, match schedules, and other cricket-related options are available to users of the app. Users can also search for their favorite player to evaluate their stats, images, and other information.
- **Constraints**: The primary constraint of the app is that it requires internet connection to fetch the data for the first time. Another constraint is that there is a limit of accessing the API endpoints since it is free.

2.2 Technical platform

The tools used to create the application are:

Operating System: Windows

Software's Operating System: Android Operating System

IDE: Android Studio

API: Sportmonks Cricket API

Data Storage: SQLite Room Database

Programming Language: Kotlin

Debugging & Testing: Android Studio Debugger tool & Unit Testing

UI Designing: XML

Libraries: Retrofit2 for managing HTTP requests and API calls, Room Database as lightweight SQLite database for storage purpose, Material Design for improved UI designing and Navigation component to manage navigation between application fragments.

3. Functional Requirements

3.1 Overview

The specifications for all of the fundamental operations of the software application are contained in this section.

Serial No	Main Features	• Description
1	Live Score	• Show scores of live matches • Show team squad list • Show match stats like Scoreboard, Venue, Man of the Match, Match Result. etc.
2	Fixtures	• Show whole fixture of the tournament • Show country wise/team-wise players • Show date-wise fixture
3	Scoreboard of recent matches	• Show summary of recent matches • Show match stats like scoreboard, squad list, venue, date, match results, MoM. etc.
4	Get Statistics	• Show data like Top performer of the tournament, most runs for a batsman, team-wise ranking etc • Show some advanced level data according to your understanding
5	Push Notifications	• Notify user about live scores and updates
6	Winning Probability	• Show winning probability in percentage unit by calculating based on current data and keep updating accordingly.
7	Search Players	• Search a player by name • After searching show the player data in a box with picture. Players' information will be displayed like Name, Country, Team/Club, Position, Total Runs, Total Wickets, Achievements. etc.

3.1.1 Live Score

The live score feature of CricVee shall display real time score update of the ongoing matches with current total score, number of overs bowled, number of wickets fallen, target score and other necessary data in an effective and user-friendly manner.

Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee_001>	Show scores of live matches	The teams competing, the score, the number of overs finished, the number of wickets taken and other relevant information must all be displayed for each match. The real-time score information must also come from a reliable source and be accurate.	The dependency on internet connection, the basic operation of out-of-date devices, the impact of implementation on success, and so forth.	
<CricVee_002>	Show team squad list	The team squad lists must allow for player, position, and other search criteria, be from a credible source, and be accurate. They must also be displayed in a style that is simple to read and navigate, such as a table or list.	The limitations of a show team squad list may include out-of-date information, a lack of details, and no performance or fitness reports.	

<CricVee_003>	Show match stats like ScoreBoard, Venue, Man of the Match, Match Result etc	The source of the match statistics must be reliable and accurate, and the match statistics itself must be presented in a way that is easy to understand and use, such as tables, graphs, or charts.	Depending on the source, the accuracy of match statistics varies and may not be precise. They may also not be updated or accessible for all matches.	

3.1.2 Fixtures

Users of CricVee app can view a list of upcoming matches for a certain tournament or series using the fixtures tool. The scheduling information must originate from credible and up-to-date sources, such as official cricket boards or tournament organizers. The teams competing, the venue, the date and time of the event, and any additional details, including the tournament's format, should all be provided in a straightforward and clear manner in the fixture information (e.g., T20, ODI, Test), The fixtures information should be easy to find and browse using a user-friendly interface that allows users to search and filter the fixtures based on numerous parameters, such as tournament, teams, and date. The fixtures data should be updated in real-time etc. to ensure that users have access to the most current and accurate information.

Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _004>	Show whole fixture of the tournament	The teams competing, the venue, the date, and the time of the match must all be contained in the fixture data, among other things. The fixture data must be accurate and up to date.	The fixture information won't be provided for every competition, especially for smaller or less well-known competitions. The fixture information may change because of unanticipated situations, adverse weather, or other factors, etc.	

<CricVee _005>	Show country wise/team-wise players	The information about the player must be accurate, up-to-date, and reflect the most recent changes to the player's status, such as transfers or retirements, etc. The player's name, position, country, and other relevant information, among other things, must all be incorporated into the player data.	The player information needs to be stored in a secure database that can handle high user traffic and data volumes, and it must come from reliable and trustworthy sources, such as the cricket boards' official websites or reputable sports news organizations.	
<CricVee _006>	Show date-wise fixture	An intuitive interface is essential for the date-wise fixture function to allow users to navigate and understand the data, and the data itself must be accurate, up-to-date, and sourced from credible sources.	The performance of the date-wise fixture feature may be impacted by a number of factors, including the reliability of the data sources and the promptness of changes, the availability of precise and up-to-date fixture information, and the quality and reliability of the user's network connection, which could result in prolonged loading times and a poor user experience, among other things.	

3.1.3 Scoreboard of recent matches

With this feature, users of CricVee app can get a breakdown of previous matches and the Scoreboard for each game. The most up-to-date games and scoreboard data must be accurate and come from a reliable source; Scoreboard and recent games information have to be shown in a readable format, such as a table or list, for maximum usability. There needs to be information about the teams involved, the venue, the date, and the result of recent encounters. Each team's total runs, wickets, and overs must be displayed, all recent matches must have a Scoreboard interface that is intuitive, easy on the eyes, and quick to load. The Scoreboard of recent matches, feature displays recent matches so users can easily check the outcomes of recent cricket matches and compare their team's performance to that of other teams. Adding this feature to the CricVee app will likely lead to happier users and lead to greater app popularity.

Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _007>	Show summary of recent matches	A reliable source must be used to prepare an accurate record of recent matches, including the competing teams, the venue of the match, the date of the match, and the result of the match.	Limitations such as inaccurate data, informational gaps, real-time changes, user preferences, and technical issues may have a major impact on the user experience of recent match summaries.	
<CricVee _008>	Show match stats like scoreboard, squad list, venue, date, match results, MoM etc	All of the information contained in the match statistics (such as the competing teams, the venue and date of the game, the score, the squads, and the final score) must be accurate and verified by a credible source.	Constraints on the need for a cricket application to display match statistics such as scoreboard, squad, venue, date, match results, Man of the Match (MoM), etc. For instance, the match statistics	

			may not be up-to-date or they may not be available for all matches.	

3.1.4 Get Statistics

The "Get Statistics" feature of CricVee is used to display statistical information about cricket matches and players. This feature may contain a variety of statistical data regarding players and clubs, such as averages, strike rates, rankings, etc. The data may be displayed in graphical or tabular ways for greater readability. Frequently, the data is retrieved from a database or API that is frequently updated with the most current information.

Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _007>	Show data like Top performer of the tournament, most runs for a batsman, team-wise ranking etc	Statistics such as top performers, most runs scored by a batter, and team rankings are acceptable for providing insights into individual and team performance. However, data accuracy and transparency must be ensured.	Data precision, algorithm precision, sample size, bias, and relevance are all factors that reduce the likelihood of displaying optimal performance statistics. It is crucial to get above these limitations to get reliable results.	
<CricVee _008>	Show some advanced level data according to understanding	In order to provide insights and improve comprehension, data at advanced level can be presented in a	Advanced level data display is constrained by the accuracy of the data, the precision of the algorithms,	

		manner that is understandable to the user, while maintaining accuracy and transparency of original data and methodologies.	relevance, complexity and audience interpretation. By effectively resolving these limitations, accuracy, dependability, and the user's utility could be guaranteed.	

3.1.5 Push Notification

With these notifications, the user can remain aware of current events or other relevant information even if they have closed the CricVee app.

Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _009>	Notify user about live scores and updates	Users should be able to receive real-time scores and changes through the app via push notifications.	It's possible that previous versions of the Android OS will not support the push notifications feature.	

3.1.6 Winning Probability

CricVee app should be able to calculate the likelihood of a team to win the ongoing match based on the live score fetched from API

Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _010>	Show winning probability in percentage unit by calculating based on current data and keep updating accordingly	Based on the current data and comparison of the statistics of the two competing teams, the probability should be realistic to be acceptable as a credible predictor for the users.	The probability might not be accurate all the time and sometimes due to lack of useful data from API, it might fail to predict the winner.	

3.1.7 Search Player

Users can look for information about certain cricket players using a CricVee app's search players' feature. Searching for players is simplified.

Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _011>	Search a player by name.	Based on user input the accurate player should be filtered and displayed.	Accuracy of the available data will affect the search result. Moreover, players that are not that much popular, their data might be unavailable.	
<CricVee _012>	After searching show the player data in a box with picture. Players' information will be displayed like Name, Country, Team/Club, Position, Total Runs, Total	Player information, including a profile photo, should be presented after a search in an easy-to-read and well-organized structure.	The functionality may have a limit imposed by the player data's accessibility. If accurate player information is	

	Wickets, Achievements. etc.	Displaying player data accurately, quickly, and effectively in response to user searches.	unavailable, difficult to gather, etc., the feature might not function as planned.	

4. User Interface

UI No.	UI Name	Related Function Req ID	Description	Test case Identifier
<CricVee_UI_001>	Home Screen	CricVee_001, CricVee_002, CricVee_003	User shall be able to view a list of live scores and may tap on them to view further details of that particular match	
<CricVee_UI_002>	Fixture	CricVee_004, CricVee_005, CricVee_006	User shall be able to scroll through all the scheduled tournament match information from this tournament fixture	

<CricVee_UI_003>	Player Info	CricVee_011, CricVee_012	User will be able to view picture and other relevant details of the players. User will have the option to search about his preferred player so they don't have to keep scrolling to find the player on their own.	

5. Non-Functional Requirements

REQUIREMENT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee_NFR_001>	Performance	Even in the presence of heavy usage and numerous concurrent users, optimal performance and a seamless user experience.	There is a need for continuous testing and optimization of the apps' performance, as well as the danger of performance degradation with intensive usage.	
<CricVee_NFR_002>	Responsiveness	A user interface that is responsive and can be adapted to a variety of devices and screen sizes to offer a user experience that is both consistent and ideal.	Continuous testing on various devices and screen sizes, as well as the possibility of design restrictions, are required.	

<CricVee_NFR_003>	User-Friendliness	Easy accessibility and navigation through a convenient user interface.	Actual user friendliness and potential design constraints can only be determined through user testing.	
<CricVee_NFR_004>	Accuracy	Correct information about all of the application's important aspects	Changes in scheduling or player statistics may cause discrepancies in the information supplied.	
<CricVee_NFR_005>	Efficiency	Information and real-time updates delivered promptly and effectively.	For optimum functioning, the application requires a rapid network connection, as well as there is risk of information update delays.	

Performance Requirements

When it comes to the CricVee app, performance is of the utmost importance because it determines how satisfied users will be. To guarantee the program runs smoothly and efficiently for its users, we'll go through some of the system's performance aspects here.

- **Capacity:** The CricVee app must be at least 10,000 users, with the option to scale up to meet future demand.
- **Utilization of System Resources:** The CricVee must make effective use of the system's memory, disk space, and network connections to achieve peak performance and avoid performance deterioration. The program needs to be constructed so that it can scale efficiently and with minimal impact on system resources.
- **Degradation Modes:** The CricVee app must continue to deliver key functionality, such as live scores and player information, with acceptable performance degradation in the event of system degradation.
- **Response Time:** CricVee app transactions must complete in less than 3 seconds on average, and no more than 5 seconds.

- **Throughput:** The CricVee should handle at least 50 transactions per second and no more than 100.

5.1 Safety Requirements

REQUIREMNT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee_013>	The app will have strong security measures in place to keep personal information from being stolen.	To keep sensitive information from untrusted sources, the app must use encryption and secure data storage.	To keep up with the ever-changing nature of threats, security protocols should be examined and modified on a regular basis.	
<CricVee_014>	Strong data backup and restoration mechanisms will be built into the app.	Each user's data and private information will be backed up every day in the app. The program is designed to swiftly and effectively recover data in the event of data loss or calamity.	There is still a chance that user data will be lost in the event of a catastrophic system failure, the backup procedure could take a long time, and backup data might be difficult to access.	

5.2 Security Requirements

<Specify the factors that protect the software from accidental or malicious access, use, modification, destruction or disclosure. Specific requirements may include the need to

- utilize certain cryptographic techniques
- Keep specific log or history data sets.
- assign certain functions to different modules
- restrict communications between some areas of the program
- check data integrity for critical variables>

REQUIREMNT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _015>	Data Integrity	Critical variables should be checked for integrity to prevent data manipulation.	There needs to be a dependable and effective method of verification.	
<CricVee_016>	Keeping Logs	Keeps a log of all system operations, such as user searches, data modifications, and security incidents.	Log information must be protected and tamper-proof.	
<CricVee_017>	Utilizes Cryptography	Protect private information via encryption.	Because of encryption, the app's performance may decrease and its data storage needs may grow.	

6. Design Constraints

A software system's design is impacted by its design constraints, such as the ones presented above from the perspective of the platform limits. Since Android development typically makes use of the Kotlin programming language, this may have an impact on the CricVee app's layout if specific features are not available there.

Performance Requirements: The design of the CricVee application must take into account performance constraints such as reaction time and throughput, which may affect the design if specific algorithms or data structures are too computationally costly for the hardware on which the application will run.

Integration with other systems: The CricVee app must interact with external systems such databases and online API services; as a result, the design must care for the specific requirements of each system, including data format and API compatibility.

Security Requirement: The design of the CricVee app must take into account security needs such data encryption and secure data transfer, which may have an effect on the design if certain encryption methods or security protocols are unavailable in Kotlin.

Development Environment: The tools and libraries that can be used to build the CricVee app in Kotlin, as well as any limitations or compatibility issues that may arise as a result of using them, must be taken into account throughout the design phase.

7. Software Quality Attributes

REQUIREMNT ID	Requirement Description	Acceptability/ Completion Criteria	Limitations/ Constraints	Test case Identifier
<CricVee _018>	Users will find the interface to be simple and straightforward.	The app's UI will be simple and intuitive to use. Navigation and data architecture of the app will be simple and straightforward.	Adaptations to the layout may be necessary for users with impairments, and the interface should be responsive across a wide range of devices and display types.	
<CricVee_019>	Reliability	Users can trust that the app will always give them up-to-date data.	Connectivity issues and periodic server downtime could reduce the system's reliability.	
<CricVee_020>	Performance	The application must match the SRS document's performance requirements, such as response times and throughput.	The performance of the system may be affected by network connectivity, server capacity, and the number of concurrent users accessing the system.	