Software Requirements Specification

for

Online Sports Club Management System

Version 2.0 approved

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1 Introduction

1.1 Purpose/Objective

This project "Online Sports Club Management System" has been developed to help Coaches, Trainers and Team Managers manage their team effectively and in a hassle-free way. The purpose of this SRS is to describe and define the complete behavior and function of the software design proposed. Special importance is given to what we are trying to achieve from this system and not how the internals of the system will work to achieve its goal. The end goal is to make a standard and justifiable SRS.

1.2 Document Conventions (Definition, Acronyms, Abbreviations)

1.2.1 Alignment

This document has been aligned with justifiable alignment throughout.

1.2.2 Convention for the Main Title

1.2.2.1 Font Face: Times New Roman
1.2.2.2 Font Style: Bold
1.2.2.3 Font Size: 16

1.2.3 Convention for the Subtitles

1.2.3.1 Font Face: Times New Roman
1.2.3.2 Font Style: Bold
1.2.3.3 Font Size: 14

1.2.4 Convention for the Body

1.2.4.1 Font Face: Times New Roman
1.2.4.2 Font Style: Normal
1.2.4.3 Font Size: 12

1.2.5 Abbreviations

1.2.5.1 SRS: Software Requirements Specification
1.2.5.2 OSCMP: Online Sports Club Management System
1.2.5.3 JSON: Java Script Object Notation
1.2.5.4 IDE: Integrated Development Environment
1.2.5.5 HDD: Hard Disk Drive

1.3 Scope

This software is mainly made for people who are regularly managing sports teams/clubs and schedules for the same. Our software will help such individuals manage their team and their

schedules in a much more efficient and planned way. Our software will also act a database for the recording the metrics of players, their past matches and helps the coach schedule their trainings.

1.4 References

1.1.1 https://www.activesports.com/sports-solutions/by-feature/sports-club-management

1.1.2 https://softwarecompany.ae/sports-club-management-system/

1.1.3 https://www.getomnify.com/use-case/sports-club-software

2 History/Background Study (Sources of Domain Knowledge)

2.1 Technical Literature

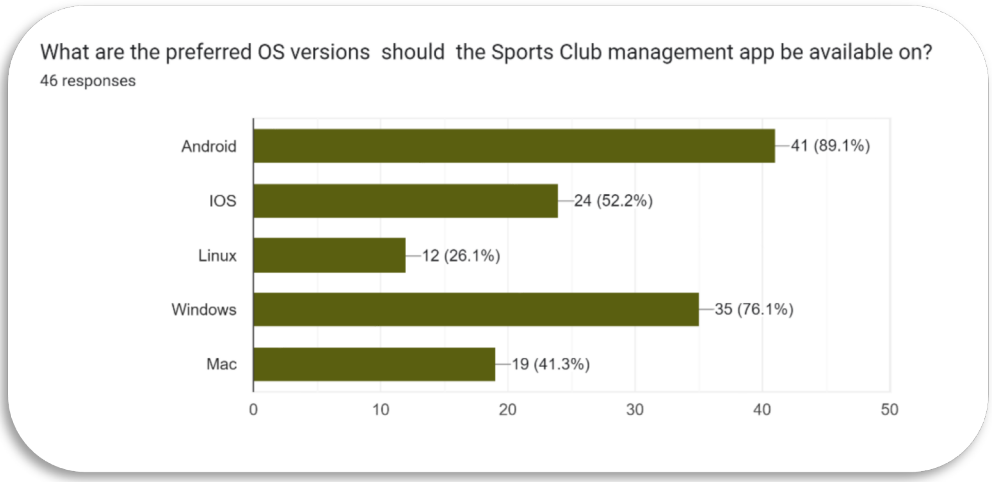
Sports industry has been increasing ever since it was invented.
New players and teams are emerging from every corner of the world.
There is a need to manage new teams and players in a efficient and hassle-free way. There must be also a way of benchmarking the performance and playstyle of teams and their players.
The players need to know each other better to make the most of the team. There also need to be a centrally synchronized way of scheduling training and practices so that the team can increase their chances of winning.
Sports in the world has been, and still currently is a business on the rise. People want to know about their players and the teams they are representing.

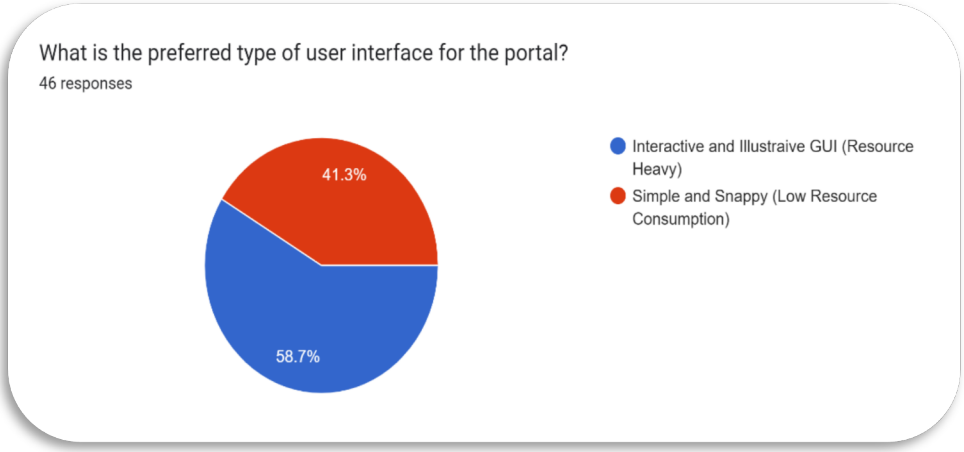
2.2 Existing Applications

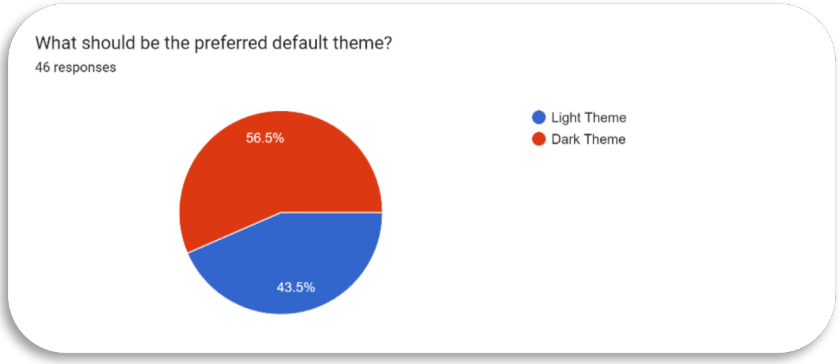
There is only one application on the market that currently acts as a OSCMP: Sports Club Management Application - Hvantange Technologies Inc.

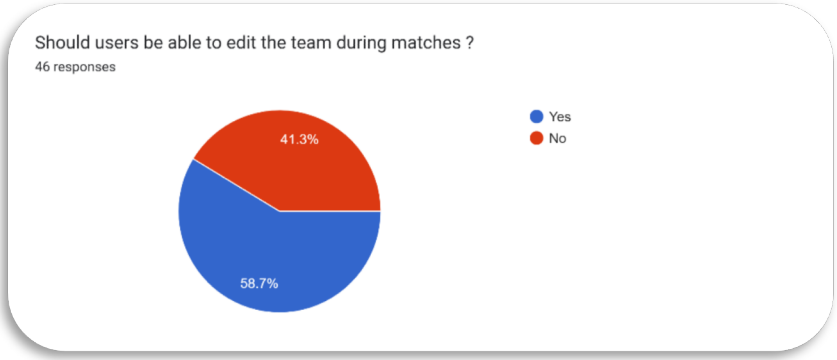
2.3 Customer Surveys

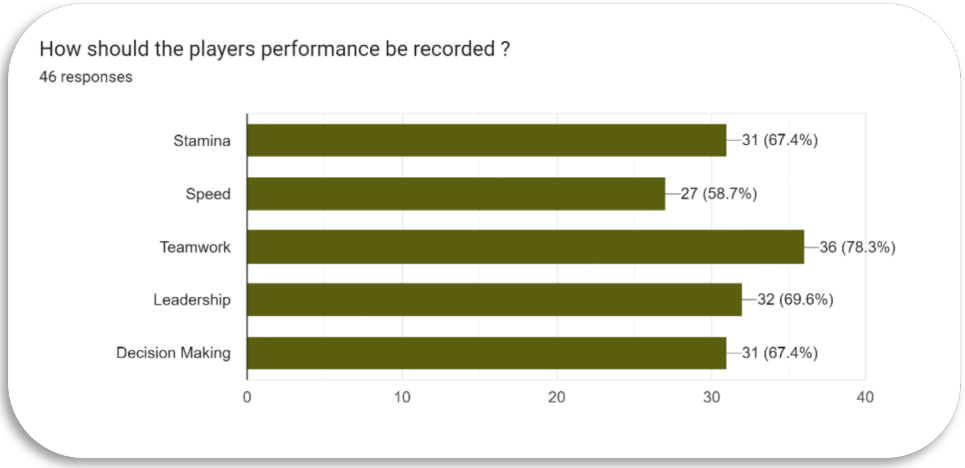
Survey Form Link: https://forms.gle/NjR942wYA4FtPfiRA

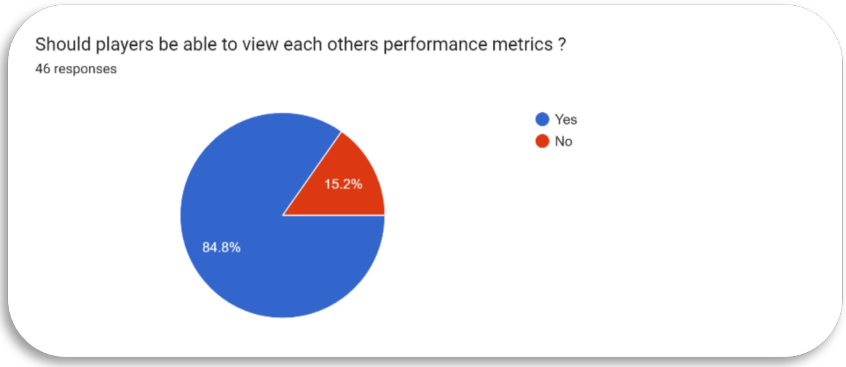

What are the preferred OS versions should the Sports Club management app be available on?
46 responses
Android
IOS
Linux
Windows
Mac
41 (89.1%)
24 (52.2%)
12 (26.1%)
35 (76.1%)
19 (41.3%)
0
10
20
30
40
50

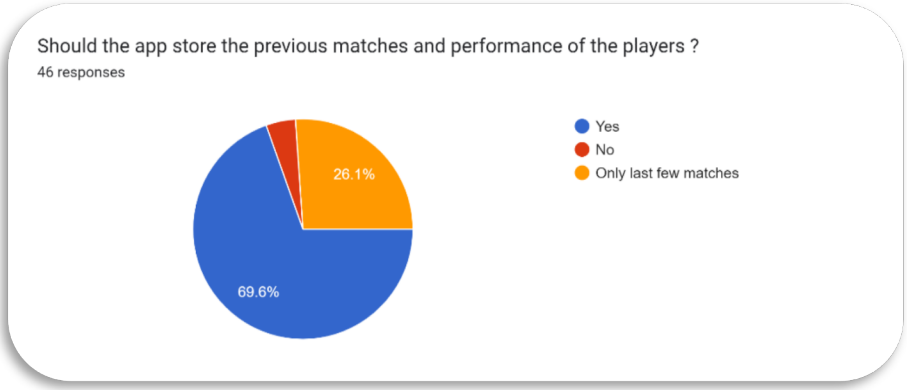

What is the preferred type of user interface for the portal?
46 responses
41.3%
58.7%
Interactive and Illustraive GUI (Resource Heavy)
Simple and Snappy (Low Resource Consumption)

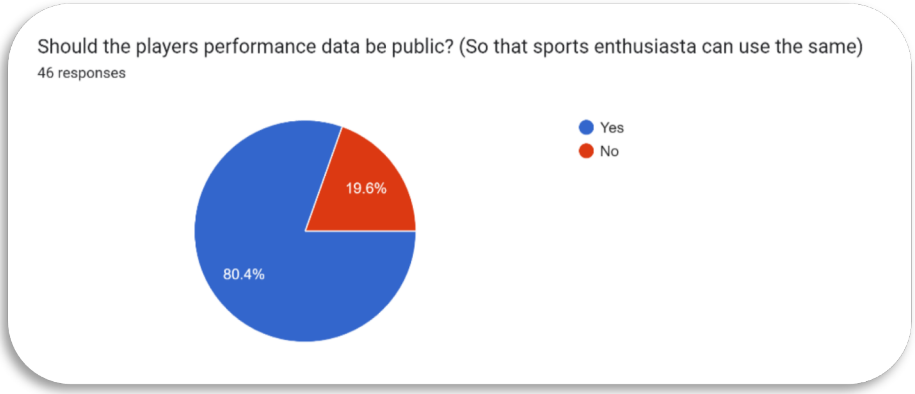

What should be the preferred default theme?
46 responses
56.5%
43.5%
Light Theme
Dark Theme

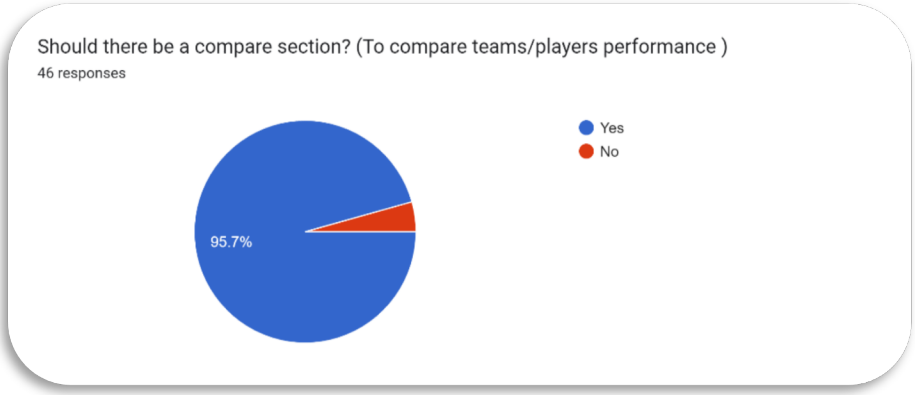

Should users be able to edit the team during matches ?
46 responses
41.3%
58.7%
Yes
No

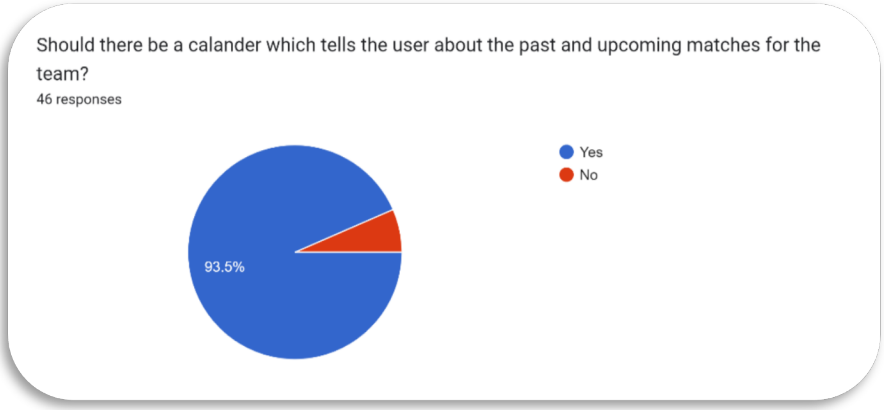

How should the players performance be recorded ?
46 responses
Stamina
Speed
Teamwork
Leadership
Decision Making
31 (67.4%)
27 (58.7%)
36 (78.3%)
32 (69.6%)
31 (67.4%)
0
10
20
30
40

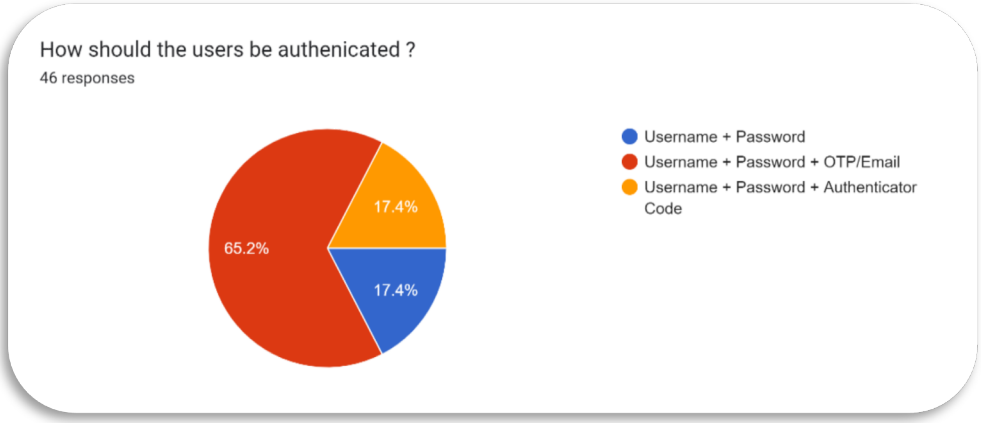

Should players be able to view each others performance metrics ?
46 responses
15.2%
84.8%
Yes
No


Should the app store the previous matches and performance of the players ?
46 responses
26.1%
69.6%
Yes
No
Only last few matches


Should the players performance data be public? (So that sports enthusiasta can use the same)
46 responses
Yes
No
19.6%
80.4%


Should there be a compare section? (To compare teams/players performance)
46 responses
Yes
No
95.7%


Should there be a calander which tells the user about the past and upcoming matches for the team?
46 responses
Yes
No
93.5%



2.4 Expert Advice

The application is the best and the most efficient way of managing large sports clubs. The application supports training scheduling and tournament scheduling facilities and is following the best security measures.

2.5 Current/Future requirements

2.5.1 Support for Match Planning Feature

2.5.2 Multi Language Support

2.5.3 Industry Standard Security Features

3 Overall Description

3.1 Product Functions

3.1.1 Hardware Requirement

- **Platform**: Mobile/Desktop/Laptop
- **RAM**: 4GB or Above

- **Processor**: Intel i3 6th Gen or later/ AMD Ryzen 3rd Gen Or later/ MediaTek Helio A25 or Later/ A12 Bionic or later.
- **GPU**: Nvidia GT710 or Later/ Intel IRIS XE / AMD Radeon Vega 8 or later.
- **HDD**: 1GB to 2GB (Depending on the OS)

3.1.2 Software Requirement

3.1.2.1 OS: Android (9 or later)/iOS/Windows (10 or above) /Linux (Debian 14.04 or above)/

3.1.2.2 A Database Management System to store player data and history

3.2 Functional Requirements

3.2.1 Sign Up/Sign In

Description: There are three types of Sign up, one for the Coach/Trainer/Manager, one for Players and one for the Admin.

3.2.1.1 Sign Up

- **Input:**
  - Name
  - Role: Player/Manager/Administrator
  - Admin ID (Only if Admin is Selected)
  - Email
  - Username
  - Password
  - Mobile Number
  - Proof Of Identity (Aadhaar Card/Passport)

- **Output:**
  An OTP will be sent to the new users email and mobile. On verification, his/her account will be added to the Database. The status of the user as a Coach or a Player will be verified by a human after looking at the Proof of Identity. Every user is given a unique registration ID.

3.2.1.2 Sign In

- **Input:**
  - Username/Email
  - Password
- **Output:**

User is logged in if he/she enters the right password. In case of a wrong password/wrong username, the user is given at max 3 tries to resolve, after which the account is locked, and the user must use the forget password feature.

3.2.1.3 Forgot Password/Forgot Username

- **Input:**
  Email/Mobile Number
- **Output**:
  A Security code sent to the mobile number and a link to for resetting password.

3.2.2 Schedule Training (Coach/Trainer Only)

Description: This feature will help trainers/coaches schedule meetings and trainings with their teams/players in a simple way.

3.2.2.1 Input:

- Players (Checkbox)
- Time Range
- Message to the players
- Venue

3.2.2.2 Output:

Validations:

- Players are available at the given time (App is synced with player's calendars)
- Time range is proper

If all the validation checks are passed, then an email will be sent to the players and the training schedule will be added to their preferred calendar (Google/Microsoft).

3.2.3 View History

Description: Views the history of players and all the matches they have played

3.2.3.1 Input:

Player Name/ Player Registration ID

3.2.3.2 Output:

A table will be displayed with all the past matches of that player. In case the player's details are wrong (name does not exist or registration ID does not exist, the system will throw an error). The upper side will have a rectangular section showing the performance metrics of the player.

3.2.4 Calendar (Players/Coach only)

Description: This feature helps to keep a track of the trainings and commitments the players have already scheduled, so that the coach/trainers can schedule their training in a appropriate time without clashing with anything else.

3.2.4.1 Add to calendar

- **Input:**
  - Title
  - Time Range
  - Place
- **Output:**

  If the Title is not empty, Time Range is proper, and Place is not

empty, the event is added to the players calendar and added to the database. This Database is a Centralized Database and will be updated for every player.

3.2.4.2 Remove from calendar

- **Input:**
  - Select from the existing Calendar events of the player
- **Output:**
  - The event is deleted.

3.2.5 Admin Portal (Admin Only)

Description: This is a dashboard exclusive to the admins of the application. Here the admins will be able to control users and check the status of trainings and other important information regarding the team and the players/coaches/trainers.

3.2.5.1 Register Team:

- **Input:**
  - Team Name
  - Number of Players
  - Player Names/Player IDs
  - Number of Trainers
  - Coach Name/Trainer Name
  - Management Head Name
- **Output:**

Validation

Team Name is Unique

A player name exists in the Database and is not a part of another team

Player IDs are Unique

Coach/Trainer names exist in the database and are unique and are not a part of other teams

- On passing all the above checks, a new team is created with the above properties and data.

3.2.5.2 Edit Team:

- **Add Members:**

  Input:

  - Name
  - Role
  - Age

  Output:

  A new member is added into the team

- **Remove Members**

  Input:

  Player ID/ Coach ID

  Output:

  If the ID is valid, that player/coach is removed from the team.

3.2.5.3 Apply for a Tournament:

- **Input:**
  - Tournament Name

- Select Team
- Select Time

- **Output:**
  Team is added to the tournament upon verification by the tournament heads.

3.3 Non-Functional Requirements

3.3.1 Correctness Requirement

This document covers all the required features and functions required by the OSCMS. The system has been well thought out and implemented for the most efficient usage in the industry. All the different requirements specified in the document have been correctly implemented.

3.3.2 Portability requirement

The application is JSON and Python based.
This is a fully portable application and any system using any modern OS should be able to use the features of the system, including any hardware platform that is available or will be available in the future. An end-user uses this system on any OS. Compatible with Linux, Mac, Windows, Android, and iOS.

3.3.3 Efficiency Requirement

The software is highly efficient and various tasks in its various modules simultaneously. Fault Tolerance, Elasticity and Scalability has been implemented.

3.3.4 Usability Requirement

The software has an interactive and beginner friendly user interface, which is easily usable to both technically sound and not-so-technically sound people. So, any user can use its functionalities without any sort of complications.

3.3.5 Reusability Requirement

The system downtime is very low. This system can be reused in the making of larger sports management system where more functions and features can be added. The system should

be available at all time, thus has high Availability. This system has also equipped with fault tolerance and Elasticity.

3.3.6 Reliability Requirement

The principal component of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes. All overall stability of the system depends on the stability of the container and its underlying operating system. The system provides storage of all databases on redundant computers with automatic switch over. The reliability of the overall program depends on the reliability of the separate component.

3.3.7 Maintainability Requirement

A database management system is used for maintaining the database and the application backend takes care of the functionality. In case of failure, a simple reload of the program can fix the problem. Also, the software design is being done with modularity in mind so that its maintainability can be done efficiently.

3.4 User Characteristics

No specific technical expertise is needed to use the software efficiently. The developers and the admins are expected to have knowledge regarding the internal implementation of the software. Users can be from any gender and any nationality but must be within the age range of (18-60) as per Indian Government Rules.

3.5 Design & Implementation Constraints

Without a fast internet connection, the data will be saved in the local storage and the data will be later synced in the presence of internet. If in any case internet connection fails, the local data will be never synced with the actual database data, and this might create some problems. There are not so many strong firewalls so proper antivirus scans must be done before use. There is no provision for saving incomplete data. All data must be backed up on an HDD with proper security and no chances of Data Leakage.

3.6 Assumptions & Dependencies

3.6.1 Assumption:

3.6.1.1 Internet Connection Available for all users

3.6.1.2 Data is always secured, and sensitive data is only accessible to the admins.

3.6.2 Dependencies:

3.6.2.1 System has High Availability
3.6.2.2 System is Highly Scalable
3.6.2.3 Fault Tolerance Implementation
3.6.2.4 A good database management system
3.6.2.5 Android Studio (For developing the android app)
3.6.2.6 IntelliJ Idea Ultimate (For developing the desktop software)
3.6.2.7 Figma (For designing the UI of the app)

4 Interface Requirements

4.1 User Interfaces

The software boasts an interactive and modern UI for the user that can be run on the device by a user, performing the necessary tasks such as Registering, Training, Managing Calendar.

a. Login/Register Page
b. Dashboard
c. Calendar Page
d. Scheduled Training Page

4.2 Hardware Interfaces

The system must run over the internet, all the hardware must be online.

a. Local Area Network / Wide Area Network ports.
b. Wi-Fi Receiver
c. Router.
d. Touch Screen/ Mouse and Keyboard

4.3 Software Interfaces

The system is a software, so it requires a backend like Python (Desktop) or Kotlin (Mobile). For the frontend part, Figma for the UI design and React Native for the implementation. The system also requires a database to store the required data and this a relational database like MariaDB would be very useful.

4.4 Communication Interfaces

As a whole sports club management system, we are going to be a host a partly open-sourced API which will help other developers use this to their best practices. No data will be shared in any way. A call to the API will be totally

new and users need to have their own hosting and database. If needed, there will be an Endpoint that will be help this software be used as a Web App on the Cloud.

5 Conclusion

Throughout the SRS, user ease of use and user-friendly UI along with utmost functionality has been the core of coding and design techniques. Client requirements have been fulfilled as much as possible, additional requirements can be completed within a short time extension. This project ensures that this software will be able to handle the complex and challenging requirements of the real world. Here all the facilities are made and tested. Currently the system works for limited number of options for buyers and sellers. The future version of the system will be able to handle more clubs and manage whole tournaments among teams.