Software Requirements Specification

for

Sports Venue Booking Application

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1. Introduction

1.1 Purpose

The purpose of the Sports Venue Booking Application is to provide a user-friendly and efficient platform for users to book sports venues in their locality. The application aims to simplify the process of booking sports venues and provide a solution that is easy to use, convenient, and accessible.

1.2 Document Conventions

This document follows the IEEE Std 830-1998 standard for software requirements specification. The document includes functional and non-functional requirements, project plan, timeline, and team details.

1.3 Intended Audience and Reading Suggestions

The intended audience for this document includes the development team, project stakeholders, and any other individuals interested in the Sports Venue Booking Application. The document can be read by anyone who is familiar with software development and has a basic understanding of web technologies.

1.4 Project Scope

The Sports Venue Booking Application mobile app will be a platform that allows users to search for, book, and pay for sports venues in their locality using their mobile devices. The application will have a user management module, venue management module, booking management module, and payment management module. The application will be accessible on both iOS and Android mobile devices and will be developed using modern mobile app development technologies. The scope of the project will be limited to the development of the mobile app only, and it will not include the development of a web-based platform.

1.5 References

1. IEEE Std 830-1998, "IEEE Recommended Practice for Software Requirements Specifications".

2. OpenSports: https://opensports.net/
3. Playfinder: https://www.playfinder.com/
4. SportEasy: https://www.sporteasy.net/.>

2. Overall Description

2.1 Product Perspective

The Sports Venue Booking Application is a standalone mobile application that allows users to search for, book, and pay for sports venues in their locality. The application will be developed as a native mobile app for both iOS and Android platforms and will provide a user-friendly and efficient interface for users to easily search and book sports venues.

2.2 Product Features

1. User registration and login
2. Venue search and filtering
3. Venue booking and payment
4. Venue management
5. User profile management
6. Team creation
7. Player requests
8. Tournament creation
9. Leagues
10. Push notifications and reminders
11. Review and rating system for venues

2.3 User Classes and Characteristics

The application will have two types of users:

1. Customers - Sports enthusiasts who want to book a sports venue for personal use.
2. Venue Owners - Individuals or organizations who own sports venues and want to list their venues on the platform.

2.4 Operating Environment

The application will be developed as a native mobile app for both iOS and Android platforms. The app will require an internet connection to function and will be compatible with the latest mobile operating systems.

2.5 Design and Implementation Constraints

The application will be developed using flutter and will be optimized for performance and user experience. The design will be based on the latest UI/UX trends and will provide an intuitive and user-friendly interface.

2.6 Assumptions and Dependencies

The success of the application depends on the availability of accurate and up-to-date venue information. The application will rely on venue owners to provide accurate information about their venues, such as location, availability, pricing, and amenities. The app will also depend on payment gateway integrations for payment processing.

3. System Features

- **User Registration and Login:** Users can create an account and log in to access the app's features.

- **Venue Search and Filtering:** Users can search for sports venues based on location, availability, pricing, and amenities. They can filter search results based on their preferences.

- **Venue Booking and Payment:** Users can book a sports venue and make payment using the integrated payment gateway.

- **Venue Management:** Venue owners can manage their venue listings, including updating venue information, setting availability, and managing bookings.

- **User Profile Management:** Users can manage their profiles, including updating personal information, viewing booking history, and leaving reviews and ratings.

- **Friend Request:** Users can send and accept friend requests.

- **Team Creation:** Users can upload their team details and can request for a matchup.

- **Player Requests:** Users can request for available players to join them.

- **Push Notifications and Reminders:** Users can receive push notifications and reminders for upcoming bookings and other important information.

- **Review and Rating System:** Users can leave reviews and ratings for venues they have booked, providing valuable feedback to other users.

- **Secure Payment Gateway Integration:** The app will be integrated with a secure payment gateway to ensure safe and reliable payment processing.

- **Multilingual Support:** The app will support multiple languages to cater to a wider audience.

- **24/7 Customer Support:** The app will provide round-the-clock customer support to users, addressing any issues or concerns they may have.

4. External Interface Requirements

4.1 User Interfaces

- **Registration and Login Screens**: The user can create a new account or log in to an existing account.
- **Venue Search Screen:** Users can search for sports venues and apply filters to refine their search.
- **Venue Details Screen:** Users can view detailed information about a venue, including location, amenities, pricing, and availability.
- **Booking Screen:** Users can book a venue by selecting a date and time and making payment.
- **User Profile Screen:** Users can manage their profile information, view booking history, and leave reviews and ratings.

- **Venue Owner Dashboard:** Venue owners can manage their venue listings, including updating venue information, setting availability, and managing bookings.

4.2 Hardware Interfaces

The app will be compatible with smartphones and tablets running on iOS and Android platforms.

4.3 Software Interfaces

- The app will be built using the Flutter framework and the Dart programming language.
- The app will integrate with third-party services, including payment gateways and location-based services.

4.4 Communications Interfaces

- The app will communicate with the server through APIs to fetch venue information, manage bookings, and process payments.
- The app will use push notifications to alert users of upcoming bookings and other important information.
- The app will provide customer support through chat or email communication.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- The app should load quickly, and all features should respond within two seconds.
- The app should be responsive and provide seamless user experience on low-end devices.
- The app should be able to handle multiple requests simultaneously without crashing.

- The app should have efficient data storage and retrieval mechanisms to handle a large volume of data.

5.2 Safety Requirements

- The app should not allow users to book a venue that is already occupied by another user at the same time.
- The app should provide necessary safety instructions for users, especially in case of outdoor venues.
- The app should ensure that all venues listed are safe and meet the necessary safety requirements.

5.3 Security Requirements

- The app should be secure and protect user data from unauthorized access.
- The app should use encryption mechanisms to secure sensitive user data, such as payment information.
- The app should implement secure login mechanisms, such as two-factor authentication, to prevent unauthorized access to user accounts.
- The app should have a mechanism to handle security breaches and data breaches and alert users if necessary.

5.4 Software Quality Attributes

- The app should be easy to use and intuitive, with a user-friendly interface.
- The app should be reliable and provide consistent performance.
- The app should be scalable and able to handle a growing number of users and bookings.

- The app should be maintainable and easy to update with new features or bug fixes.
- The app should be portable and able to run on different platforms without any significant changes.

6. Other Requirements

- Compatibility Requirements: The app should be compatible with the latest versions of iOS and Android operating systems.
- Usability Requirements: The app should have a user-friendly interface, with clear navigation and easy-to-understand instructions.
- Performance Requirements: The app should be fast and responsive, with minimal loading times for features and functions.
- Testing Requirements: The app should undergo rigorous testing to ensure that all features and functions work as expected and that the app is free from bugs and errors.
- Maintenance Requirements: The app should be easy to maintain and update, with regular bug fixes and feature enhancements.
- Documentation Requirements: The app should have comprehensive documentation, including user manuals, developer guides, and system specifications.

Appendix A: Glossary

- Sports Venue: A location where sporting events or activities take place, such as a stadium, gym, or field
- Booking: The process of reserving a sports venue for a specific date and time.

- User: An individual who uses the Sports Venue Booking Application to search and book sports venues.
- Venue Owner: The owner or manager of a sports venue who lists their venue on the Sports Venue Booking Application.
- API: Application Programming Interface. A set of protocols and tools used to build software applications and communicate between different software systems.
- Encryption: The process of converting plain text data into a coded message to prevent unauthorized access.
- Push Notification: A message that is sent from a server to a mobile device, even when the app is not open.
- UX/UI: User experience/User Interface.

Appendix B: Analysis Models

The analysis model for the Sports Venue Booking Application includes the following components:

- Use Cases: Descriptions of the different ways in which users interact with the application and the actions they can perform.
- Class Diagrams: A graphical representation of the application's data and the relationships between different classes.
- Sequence Diagrams: A graphical representation of the interactions between different components or classes in the application.
- State Diagrams: A graphical representation of the different states of a particular object or component in the application.
- Activity Diagrams: A graphical representation of the flow of activities or processes in the application.

- Entity Relationship Diagrams: A graphical representation of the relationships between different entities or tables in the application's database.

- Data Flow Diagrams: A graphical representation of the flow of data through different components or processes in the application.

These analysis model components help to provide a better understanding of the functionality and structure of the Sports Venue Booking Application. They are used during the design and development stages to ensure that the application meets the requirements of users and stakeholders, and to identify any potential issues or problems that may arise during the development process.