Software Requirements Specification for Gym Management System

Version 1.0

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**Revision History**

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| Name | Date | Reason For Changes |
| <Your Name> | <Date> | Initial Document Creation |

**1. Introduction**

**1.1 Purpose**

The purpose of this document is to define the requirements for the development of a Gym Management System, which will allow gym administrators to manage memberships, reservations, schedules, and provide a platform for members to book classes and facilities.

**1.2 Product Scope**

The Gym Management System is designed to provide a comprehensive platform for:  
- Managing gym memberships and user accounts.  
- Allowing members to reserve gym facilities and classes.  
- Tracking attendance and usage of gym resources.  
- Generating reports for management and analysis.

**1.3 Intended Audience and Document Overview**

This document is intended for:  
- Development team members  
- Project managers  
- System administrators  
- Business stakeholders  
- Quality assurance team

**1.4 Definitions, Acronyms, and Abbreviations**

API: Application Programming Interface  
SSL: Secure Sockets Layer  
User: A registered member of the gym  
Admin: The system administrator with full access to the application’s backend  
Membership: A subscription plan that allows access to gym facilities

**1.5 References and Acknowledgments**

IEEE 830 - 1998 Software Requirements Specification Standard

**2. Overall Description**

**2.1 Product Overview**

The Gym Management System will serve as an online platform integrated with a backend database to manage user data, memberships, reservations, and gym schedules. The system will support desktop and mobile access.

**2.2 Product Functionality**

Major functions include:  
- User Registration and Authentication  
- Membership Management  
- Facility and Class Reservation  
- Attendance Tracking  
- Admin Dashboard for managing schedules, users, and reports

**2.3 User Characteristics**

Members: Gym users with basic internet knowledge who want to manage their memberships and reservations.  
Admins: Staff members experienced in gym management and scheduling.

**2.4 Design and Implementation Constraints**

Must comply with data protection laws (GDPR, CCPA).  
Must support major web browsers (Chrome, Firefox, Safari, Edge).  
Must implement SSL/TLS encryption for secure transactions.

**2.5 Assumptions and Dependencies**

Internet connectivity is required for access.  
Availability of a calendar API for scheduling.

**3. Specific Requirements**

**3.1 External Interface Requirements**

User Interfaces: The application shall have a responsive web interface accessible via desktop and mobile browsers.  
Hardware Interfaces: The application shall be accessible via any device with an internet connection.  
Software Interfaces: Integration with MySQL Database and calendar APIs.

**3.2 Functional Requirements**

User Registration and Login:  
- Users shall be able to register with their name, email, and password.  
- Users shall be able to log in using their email and password.  
- The system shall offer a “Forgot Password” feature for recovery.  
Membership Management:  
- Users shall be able to view available membership plans and subscribe.  
- Admins shall be able to manage membership plans, including pricing and duration.

**3.3 Software Interfaces in Gym Management Systems**

Web Portal:

User-friendly interface for members to view their membership details, book classes, track their progress, and access personalized workout plans.

Secure login and password management.

Integration with payment gateways for online transactions.

Ability to view class schedules, instructor profiles, and facility information.

Mobile App:

Convenient access to member portal features on smartphones and tablets.

Real-time class schedule updates and booking.

Push notifications for class reminders, special offers, and gym updates.

Integration with fitness trackers and other health apps.

2. Staff-Facing Interfaces

Staff Portal:

Dashboard for managing member information, memberships, and billing.

Class scheduling and instructor management.

Inventory management for equipment and supplies.

Reporting and analytics tools to track gym performance.

Point-of-Sale (POS) System:

Interface for processing memberships, payments, and retail sales.

Integration with barcode scanners for efficient inventory management.

Ability to generate receipts and track sales data.

3. Integration with Fitness Equipment:

Smart Fitness Equipment:

Interfaces with fitness equipment like treadmills, ellipticals, and weight machines.

Tracks user performance metrics, such as heart rate, calories burned, and workout duration.

Syncs data with member profiles for personalized training plans.

4.Payment Gateways:

Secure Payment Processing: Seamless integration with online payment gateways (e.g., PayPal, Stripe) for secure transactions.

Recurring Payments: Automated processing of recurring membership fees.

**4.1 Key Features of a Gym Management System**

A robust gym management system should offer a range of features to streamline operations, enhance member experience, and boost revenue. Here are some key features to consider:

Core Features

Member Management:

Member registration and profile management

Membership plan management (e.g., one-time, monthly, annual)

Payment processing and billing

Attendance tracking (e.g., RFID, biometric)

Communication tools (e.g., email, SMS notifications)

Class Scheduling and Booking: Online class scheduling and booking

Real-time class availability and waitlist management Integration with fitness equipment for class tracking

Automated class reminders and notifications

Equipment Management: Inventory tracking and maintenance scheduling

Equipment usage tracking and analytics

Integration with IoT devices to monitor equipment performance

Financial Management:

Revenue tracking and reporting

Expense management

Payroll processing

Sales and marketing analytics

Advanced Features

Fitness Tracking and Analytics:

Integration with wearable devices to track member workouts and progress

Personalized workout plans and fitness assessments

Data-driven insights to optimize training programs

Staff Management:

Staff scheduling and time tracking

Performance management and training

Communication tools for staff collaboration

CRM Integration:

Customer relationship management to track member interactions and preferences personalized marketing campaigns and promotions

Security and Access Control:

Secure user authentication and authorization access control for restricted areas of the gym

Data encryption and security protocols

Mobile App:

Member-facing app for booking classes, tracking progress, and accessing personalized workout plans

Staff-facing app for managing schedules, checking in members, and accessing real-time data

**Integration Interfaces**

Payment Gateways: Integration with payment gateways like PayPal, Stripe, or Authorize.Net to process online payments.

Fitness Equipment Interfaces: Integration with smart fitness equipment to track workout data, such as heart rate, calories burned, and exercise duration.

Biometric Systems: Integration with biometric devices (e.g., fingerprint scanners, facial recognition systems) for secure access control and member identification.

CRM Systems: Integration with customer relationship management (CRM) software to manage customer data, track interactions, and improve customer satisfaction.

Email and SMS Gateways: Integration with email and SMS services for sending notifications, reminders, and promotional messages to members.

**Data Interfaces**

Database Systems: Interaction with databases to store and retrieve member information, transaction history, equipment inventory, and other relevant data.

Cloud Storage: Integration with cloud storage services (e.g., Google Drive, Dropbox) to store and access data securely.

**Payment and Billing**

Flexible Payment Options: Support various payment methods, including credit cards, debit cards, and online payment gateways.

Recurring Payments: Implement recurring payment processing for monthly or annual memberships.

Payment History: Maintain a detailed record of all payments made by members.

Marketing and Sales:

Membership Sales: Implement tools to track membership sales and generate sales reports.

Marketing Campaigns: Support targeted marketing campaigns to attract new members and retain existing ones.

Customer Relationship Management (CRM): Integrate with a CRM system to manage customer interactions and track sales.