

Software Requirement Specification

For

Workout Tracker Application

Prepared By
Abdullah Aejaaz Baig (311120104003)
Paul M Kallarackal (311120104043)
Saam Wesley (311120104051)
Samyuktha S (311120104052)

1.Introduction

1.1.Purpose

The purpose of this document is to provide a comprehensive Software Requirements Specification (SRS) for the Workout Tracker Application(WTA). This document serves as a blueprint for the design, development, and testing of the WTA, outlining the system's functional and non-functional requirements. It is intended to facilitate a shared understanding among project stakeholders, including developers, testers, and end-users, to ensure the successful implementation of the system.

1.2.Document Convention

Entire document must be justified

Convention for Main title

- Font face: Times New Roman
- Font size: 20
- Font style: Bold

Convention for Subtitle

- Font face: Times New Roman
- Font size: 17
- Font style: Bold

Convention for Header

- Font face: Times New Roman
- Font size: Bold
- Font style: 13

Convention for Body

- Font face: Times New Roman
- Font size: Normal
- Font style: 11

1.3 Scope of Development Project

The scope of our Workout Tracker Application entails creating a digital solution aimed at enabling users to monitor and record their physical activities, exercise regimens, and health metrics like steps, calorie expenditure, heart rate, and sleep quality. It will also involve functionalities for setting personalized Workout objectives, receiving tailored workout suggestions, and fostering social interaction and friendly competition within our user community. As the health and wellness industry continues to thrive, our application stands to capitalize on this trend by innovating in wearables, data analysis, and enhancing user engagement.

1.4 Definitions, Acronyms and Abbreviations

WTA - Workout Tracker Application

ER- Entity Relationship

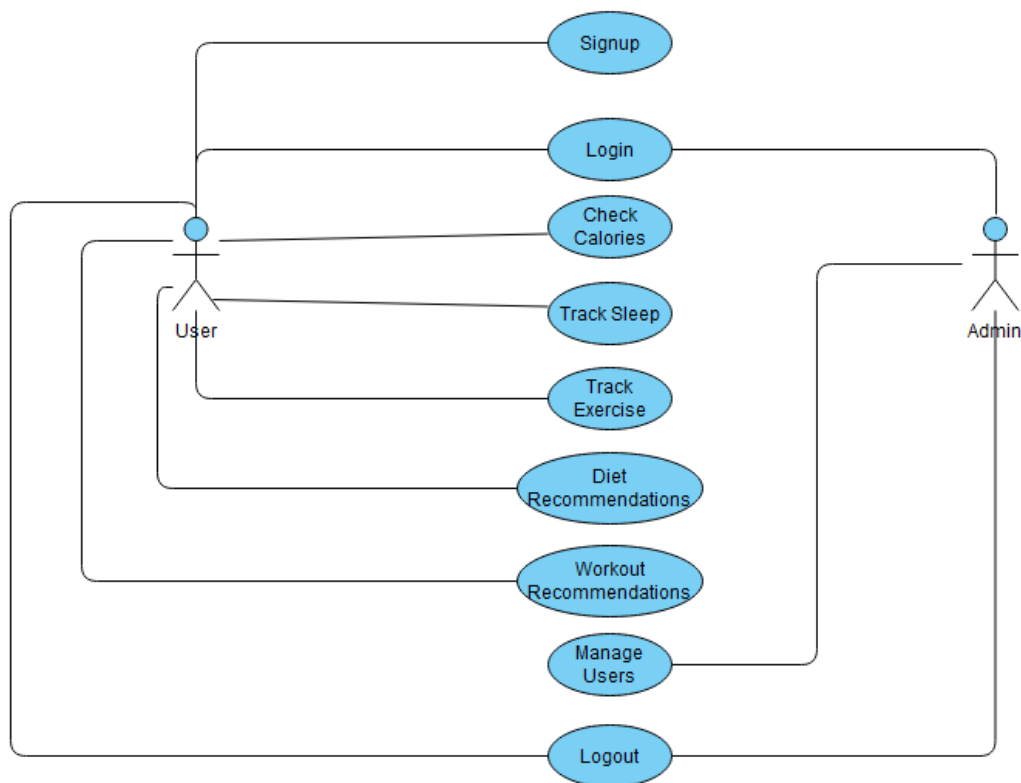
UML - Unified Modeling Language

IDE- Integrated Development Environment

SRS- Software Requirement Specification

2.Overall Descriptions

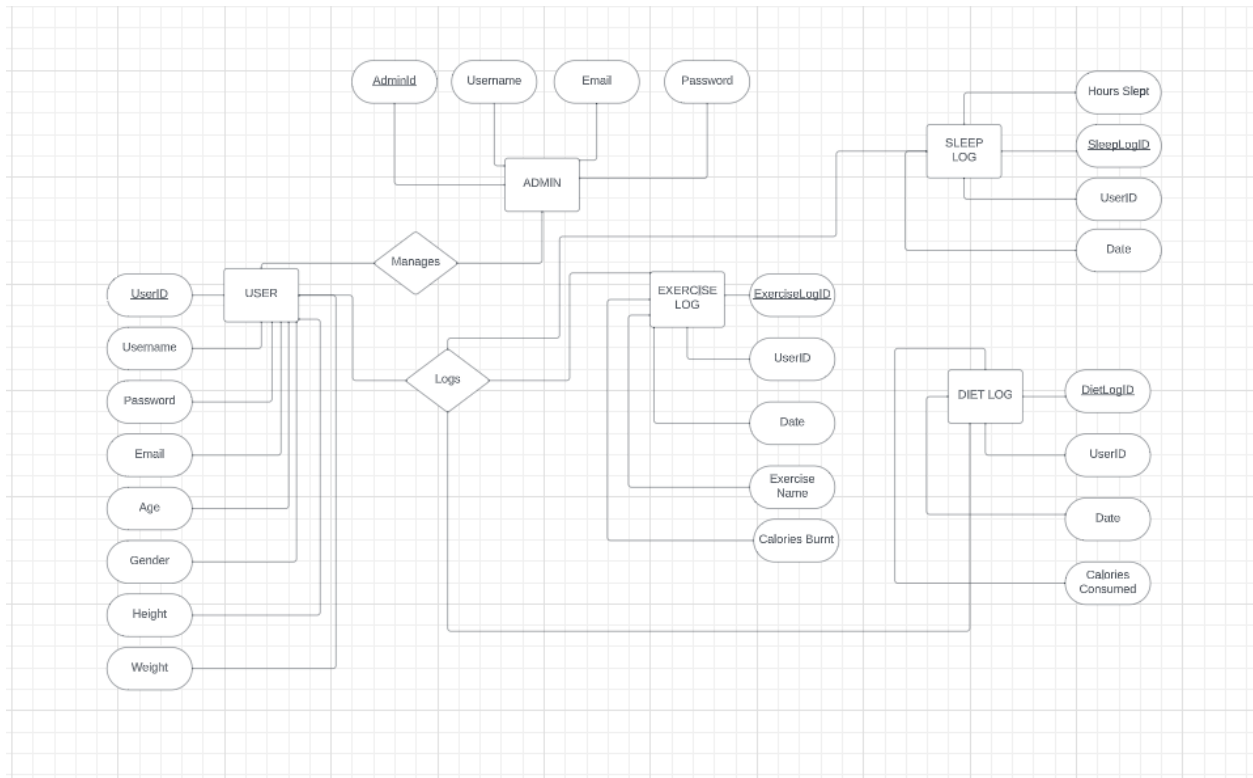
2.1.Product Perspective



Use case diagram for Workout Tracker Application

In the Workout Tracker Application, the flow begins with users who can log in and log out of the system, ensuring secure access to their Workout data. They can track essential health metrics such as calories burned, sleep patterns, and exercise routines, providing a comprehensive view of their well-being. The application also offers personalized diet and workout recommendations to help users achieve their Workout goals. On the administrative side, the Admin actor can log in, log out, and manage user accounts, ensuring the application's smooth operation. These use cases collectively support users in their Workout journeys, providing them with the tools they need to monitor their progress and make informed decisions about their health and Workout.

2.2 Product Function



ER Diagram for Workout Tracker Application

The Workout Tracker Application offers real-time tracking of health and Workout data. Its primary goal is to streamline Workout management processes, reducing manual effort. This software enables users to monitor their health metrics, track exercises, manage diet and workout recommendations, and receive penalty notifications for late returns. Admins oversee user accounts and ensure the application's smooth operation. The system maintains user activity records and allows members to access their Workout information

2.3 User Classes and Characteristics

Standard User:

- Registers an account with a unique username and password.
- Provides personal information such as age, gender, height, and weight.
- Logs in to access the application's features.
- Tracks daily exercise routines and logs them.
- Records sleep patterns and hours slept.
- Monitors calorie intake and calories burned.
- Receives diet and workout recommendations.
- Books exercise sessions.
- Views personal Workout history and progress.

Administrator (Admin):

- Has administrative privileges to manage the application.
- Can add, edit, or remove user accounts.
- Manages the database of exercises, sleep logs, and calorie logs.
- Provides diet and workout recommendations.
- Handles user penalties for late returns.
- Generates various reports for record-keeping and analysis.
- Monitors and maintains the overall functionality of the application.

2.4 Operating Environment

The Workout Tracker Application is designed to operate within a versatile computing environment. It is compatible with multiple operating systems, including Windows 10, Windows 11, and Ubuntu, ensuring accessibility for a wide user base. The application functions seamlessly in popular web browsers such as Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Specifically, it maintains compatibility with Internet Explorer 6.0 and offers most features on Mozilla Firefox and Opera 7.0 or higher versions. The hardware configuration includes Hard Disk: 40 GB, Monitor: 15” Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

2.5 Assumptions and Dependencies

Assumptions and dependencies are important considerations when developing or implementing a project, system, or application. They help clarify expectations and identify factors that may impact the project's success.

Assumptions:

- **User Engagement:** It is assumed that users of the Workout Tracker Application are motivated to improve their Workout and are willing to actively use the application to track their progress.
- **Device Compatibility:** Users are assumed to have access to compatible devices, such as smartphones or Workout trackers, to use the application effectively.
- **Data Accuracy:** The application assumes that users input accurate exercise and health data to ensure the reliability of tracked metrics and progress analysis.
- **Internet Connectivity:** Users are assumed to have a reliable internet connection to access and sync data with the application's servers.
- **Health Consultation:** Users are encouraged to consult with healthcare professionals before starting any new exercise program, especially if they have preexisting medical conditions.
- **Legal Compliance:** The application assumes that it complies with all relevant laws and regulations related to data privacy, healthcare information, and Workout recommendations.

Dependencies:

- **Data Sources:** The accuracy and availability of exercise and health-related data depend on the data sources the application integrates with, such as wearable Workout devices or manual user input.
- **External Services:** If the application uses external services for features like weather updates or mapping for outdoor activities, it relies on the availability and reliability of these services.
- **Server Infrastructure:** The application's performance and uptime depend on the reliability and capacity of the server infrastructure, including databases and hosting services.
- **Mobile Platforms:** If the application has a mobile app version, it depends on the policies and updates of mobile operating systems (e.g., iOS, Android).
- **User Engagement:** The success of the application depends on user engagement and adherence to Workout routines. User behavior and retention may influence the application's effectiveness.
- **Hardware Compatibility:** If the application integrates with specific hardware devices (e.g., heart rate monitors), it depends on the compatibility and functionality of these devices.
- **Regulatory Changes:** Changes in healthcare regulations or data privacy laws may impact how the application handles user data and provides health-related recommendations.

2.6 Software Requirements:

Operating System: Windows 10, Windows 11, Ubuntu

Language: Java,HTML,CSS,Spring

Database: MySQL Server

2.7 Data Requirement

The Workout Tracker Application involves inputs and outputs that facilitate user interactions with the system. Inputs primarily consist of user queries sent to the database, while outputs encompass query results and user account details.

3 External Interface Requirement

3.1 GUI

It enables users to quickly access reports like book issuance and returns within specific timeframes. Additionally, it offers stock verification and search functionalities based on various criteria. The system allows for customization of the user interface by administrators, ensuring that all software modules seamlessly integrate into this graphical interface while adhering to a standardized template. The design prioritizes simplicity, with all interfaces following a consistent format. The user interface facilitates interaction with the user management module, including a dedicated section for login and logout procedures.

4 System Features

The Workout Tracker Application boasts a diverse array of essential system features, encompassing user registration and profile customization, exercise logging with detailed input options, health metrics

tracking and wearable device integration, goal setting and personalized workout recommendations, comprehensive reports and analytics for trend analysis, safety and health guidelines with alerts, optional social and community features for engagement, robust data privacy and security measures, mobile accessibility across platforms, accessible customer support, and notification capabilities. This all-in-one Workout management system not only empowers users to monitor their progress and set attainable goals but also fosters a sense of community and safety in their Workout journeys, ensuring a holistic and enriching Workout tracking experience.

5.Other Non Functional Requirements

5.1 Performance Requirement

The Workout Tracker Application is expected to deliver a responsive and efficient user experience, ensuring that users can seamlessly track their Workout progress and access the necessary information without delays or interruptions. To achieve this, the following performance requirements have been defined:

- **Response Time:** The application shall provide quick response times for user interactions. Common operations such as logging in, inputting exercise data, retrieving Workout metrics, and generating reports should all have response times within a few seconds to ensure a smooth user experience.
- **Scalability:** The system should be capable of handling a growing user base and increasing data volumes without significant degradation in performance. It must scale gracefully to accommodate a potentially large number of users concurrently accessing the application.
- **Concurrent User Support:** The Workout Tracker Application shall support a minimum of [Specify the expected number] concurrent users without performance degradation. This ensures that multiple users can use the system simultaneously without experiencing delays.
- **Data Retrieval:** Retrieval of Workout-related data, such as exercise history and metrics, should be near-instantaneous. Users should experience minimal wait times when accessing their Workout data.

5.2 Safety Requirements

Safety requirements are essential in the Workout Tracker Application to protect users from potential harm, maintain data privacy and integrity, and ensure a secure and trustworthy user experience. By implementing robust safety measures, we aim to minimize risks associated with exercise, safeguard user information, and build a platform where users can focus on their Workout goals with confidence, knowing that their well-being and data are in good hands.

- **Data Encryption:** All user data, including personal information and health metrics, must be encrypted using secure protocols both in transit and at rest to prevent unauthorized access and protect user privacy.
- **Safety Guidelines:** The application should provide clear safety guidelines and warnings to users, particularly regarding exercise practices that could lead to injury or overexertion. Users should be

encouraged to consult with healthcare professionals for exercise recommendations tailored to their individual health status.

- **Emergency Contact Integration:** Users should have the option to input emergency contact information within the application. In the event of an emergency during a workout or exercise session, the application should provide quick access to this information for first responders or healthcare providers.
- **Regular Software Updates:** The application should regularly receive updates to address security vulnerabilities, bugs, and improve user safety. Users should be prompted to install updates for the latest safety enhancements.
- **User Reporting:** Implement a feature that allows users to report safety concerns, inappropriate content, or technical issues within the application. Admins should have a process for promptly addressing these reports to ensure the safety and satisfaction of users.

5.3 Security Requirement

- **Access Control:** Implement role-based access control (RBAC) for user permissions. Enforce strong password policies.
- **Authentication and Authorization:** Use 2FA for user logins. Define clear authorization rules for data access.
- **Data Protection:** Encrypt data in transit (HTTPS). Encrypt sensitive data at rest (database and files).
- **Logging and Monitoring:** Implement comprehensive logging and real-time monitoring.
- **Data Backup and Recovery:** Regularly back up data to secure offsite locations. Develop a disaster recovery plan.

5.4 Requirement attributes

- **Administrative Access:**
 - **Attribute:** Accessibility.
 - **Description:** Multiple administrators will have the right to create changes to the system, while regular members or users cannot modify system configurations.
- **Open Source:**
 - **Attribute:** Licensing
 - **Description:** The project should be open source, allowing for community contributions, transparency, and customization.
- **Database Quality:**
 - **Attribute:** Usability
 - **Description:** The quality of the database should prioritize user-friendliness, ensuring that all users find it easy to interact with and retrieve data from.
- **Ease of Installation:**
 - **Attribute:** Installation
 - **Description:** Users should be able to easily download and install the system, ensuring a straightforward setup process.

5.5 Business Rules

Business rules are essential for governing the operations and behavior of the Workout Tracker Application within a structured framework. Here are some business rules for the Workout Tracker Application:

- **User Registration:**Users must provide accurate and verifiable personal information during registration.Each user can have only one active account.
- **Privacy and Data Handling:**User data, including health metrics and personal information, must be treated with strict confidentiality and comply with relevant data protection laws. Users have the right to access, modify, or delete their data upon request.Data may be anonymized and used for aggregated, non-identifiable analysis to improve the application's services.
- **Exercise and Workout Data Entry:**Users are responsible for accurately inputting their exercise data and Workout metrics.Users should be encouraged to consult with healthcare professionals for exercise recommendations tailored to their individual health status.The application should allow users to enter historical exercise data and metrics.
- **Safety and Health Warnings:**The application should provide safety warnings and guidelines for exercises or activities that may pose a risk to users' health.Users should be encouraged to consult with healthcare professionals before starting any new exercise program, especially if they have preexisting medical conditions.

5.6 User Requirements

- **User Registration and Profiles:**Users should be able to create accounts easily, providing their name, age, gender, contact information, and Workout goals.User profiles should allow customization, including the ability to set Workout preferences and track personal progress.
- **Exercise Tracking:**Users should be able to log various types of exercises, including cardio, strength training, yoga, and more.The application should provide options for inputting exercise duration, intensity, and any additional notes.
- **Workout Metrics Recording:**Users should have the capability to input and track health-related metrics such as weight, body measurements, and heart rate.The application should support the manual entry of data or integration with wearable Workout devices for automatic data capture.
- **Goal Setting and Monitoring:**Users should be able to set specific Workout goals, such as weight loss, muscle gain, or running a marathon.The application should provide progress tracking and goal achievement notifications.
- **Workout Plans and Recommendations:**Users should have access to pre-designed workout plans suitable for various Workout levels and goals.The application should offer personalized exercise recommendations based on user profiles and progress.
- **Reports and Analytics:**Users should be able to generate reports and visualizations of their Workout data, showcasing trends and improvements over time.Analytics should provide insights into areas where users can make adjustments to achieve their goals more effectively.
- **Mobile Accessibility:**The application should have a mobile-friendly interface or a dedicated mobile app for convenient access on smartphones and tablets.

- Customer Support: Users should have access to customer support for inquiries, assistance with technical issues, or reporting safety concerns.
- Notification and Alerts: Users may wish to receive notifications, reminders, and alerts related to workouts, goal progress, or system updates.

6 Other Requirements

6.1 Class diagram

