**CEBU INSTITUTE OF TECHNOLOGY**

**UNIVERSITY**

COLLEGE OF COMPUTER STUDIES

Software Requirements Specifications

for

FitFlow

**Developers**

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Change History

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# Introduction

## Purpose

* The purpose of this SRS is to provide a structured approach for developing FitFlow, an application that helps individuals track calories, weight gain/loss, and protein intake while offering meal and exercise suggestions tailored to fitness goals.

## Scope

* FitFlow aims to serve as a comprehensive platform for individuals seeking to improve their overall fitness and health. It allows users to monitor their daily calorie intake, track their weight changes, and log protein consumption efficiently. Additionally, the system will generate personalized meal plans and exercise suggestions tailored to each user's fitness goals.

The primary focus of the application includes:

* 1. **Tracking and Analytics**: Users can log and monitor their food intake, exercise routines, weight progress, and protein consumption.
  2. **Personalized Recommendations**: Based on user data and preferences, the application will provide meal suggestions, workouts, and insights to help achieve specific goals (e.g., weight loss, muscle gain, or athletic performance).
  3. **Community Support**: Users can share progress, engage with others through challenges, and seek motivation from a supportive fitness community.
  4. **Usability and Accessibility**: The application is designed to cater to a broad audience, from beginners to advanced fitness enthusiasts, ensuring simplicity and ease of use.
* The system targets individuals aged 16 and above, regardless of fitness experience, who aim to achieve specific health objectives, whether for personal improvement, competitive sports, or general wellness

## Definitions, Acronyms and Abbreviations

* **BMI**: Body Mass Index – A measure of body fat based on height and weight applicable to adult men and women.
* **Calorie**: A unit of energy used to measure the energy content of food and drinks.
* **Protein Intake**: The amount of protein consumed by an individual, typically measured in grams per day, crucial for muscle repair and growth.
* **Meal Plan**: A structured guide for daily food consumption tailored to individual goals like weight loss, muscle gain, or maintenance.
* **Exercise Routine**: A structured set of physical activities aimed at achieving fitness goals.
* **UI**: User Interface – The part of the software application with which the user interacts.
* **API**: Application Programming Interface – A set of functions and protocols that allow applications to communicate with each other.
* **Progress Tracker**: A feature of the application that logs and displays a user’s progress toward fitness goals over time.

## References

* *Provide a complete list of all documents referenced elsewhere in the SRS;*
* *Identify each document by title, report number (if applicable), date, and publishing organization;*
* *Specify the sources from which the references can be obtained.*

# Overall Description

* **FitFlow** is a fitness application designed to help users achieve their health and fitness goals by providing personalized workout plans, meal suggestions, and progress tracking. It is aimed at individuals looking to lose weight, gain muscle, or maintain a healthy lifestyle. The app allows users to create profiles, track their physical activity, and receive reminders and motivational messages. **FitFlow** operates as a self-contained system but may integrate with third-party devices like fitness trackers. The software prioritizes user security, performance, and seamless integration with various devices, assuming users have access to compatible hardware and reliable internet connectivity.

## Product perspective

* FitFlow is a self-contained fitness application designed to operate independently, provides users with personalized workout plans, meal suggestions, activity tracking, and motivational reminders. It can also optionally integrate with third-party devices like fitness trackers to enhance its functionality.
* Below are the related products of FitFlow:
  1. Minimalist Fitness Apps
* App Name: Daily Yoga
* Differences: No meal plans, no activity tracking, no integration with devices
  1. Community-Based Fitness Apps
* App Name: Strava
* Differences: No meal plans, limited workout personalization, no push reminders.
* A block diagram showing the major components of the larger system, interconnections, and external inter- faces can be helpful.
* Describe the modular decomposition of the components using the format below:

**Module 1: Authentication and User Management**

Transaction 1.1: User Registration – Register using email, phone number, or social media accounts

Transaction 1.2: User Login and Authentication – Authenticates users during login

Transaction 1.3: Profile Management – Create, update, and manage their profiles (e.g., age, weight, height, fitness goal).

**Module 2: Personalized Workout and Meal Planning**

Transaction 2.1: Workout Plan generation – Generates personalized workout plans based on user goals (e.g., weight loss, muscle gain) and preferences (e.g., strength training, cardio).

Transaction 2.2: Meal and Calorie Suggestions – Provides daily calorie intake recommendation and meal plans based on user data (e.g., age, weight, activity level).

Transaction 2.3: Plan Customization – Allows users to modify or customize their workout and meal plans.

**Module 3: Activity Tracking and Progress Monitoring**

Transaction 3.1: Activity Logging

Transaction 3.2: Progress Tracking – Tracks user’s progress over time (e.g., weight loss, muscle gain) and provides visual reports.

Transaction 3.3: Integration with Fitness Tracking – Syncs data with third-party fitness trackers (e.g., Apple Watch) for automatic activity tracking.

**Module 4: Notification and Reminders**

Transaction 4.1: Push Notification – Sends reminder for workout schedules, meal times, and motivational messages.

Transaction 4.2: Notification Preferences – Allows users to customize notification settings

**Module 5: External Interfaces**

Transaction 5.1: Integration with Third-Party APIs – Connects with external APIs for additional data synchronization.

Transaction 5.2: Device Compatibility – Ensures compatibility with various devices (e.g., iOS, Android, wearables.

## User characteristics

***1. Regular Users***

**Description**: Individuals seeking to achieve personal fitness goals, such as losing weight, building muscle, or maintaining health based on their goals and input details.

**Roles and Privileges:**

* Create and manage personal profiles
* Log daily calorie intake, protein consumption, and weight.
* Access personalized meal plans and exercise suggestions.
* Track progress through charts and summaries.
* Participate in community challenges (if applicable).
* Receive system-generated insights and notifications.

***2. Premium Users***

**Description**: Paid subscribers who gain access to additional features and advanced functionalities.

**Roles and Privileges:**

* All privileges of regular users
* Access to exclusive meal plans and exercise programs
* One-on-one coaching
* Priority support for issues and queries

***3. Administrators***

**Description**: Internal system managers responsible for maintaining the platform and ensuring its smooth operation.

**Roles and Privileges**:

* Manage user accounts (create, update, or delete).
* Monitor and moderate community interactions.
* Approve or reject user-generated content (e.g., comments, posts).
* Access analytics dashboards to monitor system performance and user engagement.
* Resolve user-reported issues and technical bugs.

***4. Fitness Experts/Coaches (Optional)***

**Description**: Certified professionals providing tailored fitness advice and insights to users.

**Roles and Privileges**:

* Offer customized fitness plans and dietary suggestions to Premium Users.
* Track the progress of assigned users and provide feedback.
* Host live sessions or answer queries within the app.

***5. Guest Users***

**Description**: Visitors exploring the app without creating an account.

**Roles and Privileges**:

* Browse limited features, such as a demo of meal and exercise plans.
* View general tips and insights without personalization.
* Upgrade to a Regular or Premium User account for full access.

## 2.4. Constraints

* Provide a general description of any other items that will limit the developer’s options.
* Regulatory policies;
* Hardware limitations (e.g., signal timing requirements);
* Device Compatibility – Must be compatible with a wide range of devices, including smartphones, tablets, and wearables, running on iOS and Android operating systems.
* Performance Constraints – Must be efficient on devices with limited processing power, memory, or battery life, ensuring smooth operation without excessive resource consumption.
* Interfaces to other applications;
* Third-Party API Integration – Integrate with third-party APIs for data synchronization
* Fitness Tracker Compatibility – The app must support integration with popular fitness trackers and handle differences in data formats and communication protocols.
* Parallel operation;
* Multi-User Support – FitFlow must support multiple users simultaneously without performance degradation, ensuring scalability as the user base grows.
* Real-Time Data Sync – The app must handle real-time data synchronization across multiple devices platforms.
* Audit functions;
* Activity Logging – The app must maintain logs of user activities for progress tracking and reporting.
* Error Logging – The app must log errors and exceptions for debugging and improving system reliability.
* Compliance Audits – The system must support audits to ensure compliance with regulatory policies and security standards.
* Control functions;
* User Access Control – The app must implement role-based access control (RBAC) to ensure only authorized users can access specific features or data.
* Data Validation – The app must validate user inputs (e.g., weight, height) to prevent errors and ensure data accuracy.
* System Monitoring – The app must include monitoring tools to track system performance, detect anomalies, and prevent unauthorized access.
* Reliability requirements;
* Uptime and Availability – The app must maintain high availability, with minimal downtime, to ensure users can access the app whenever needed.
* Data Integrity – The app must ensure data integrity by preventing data loss or corruption during storage, transfer, or synchronization.
* Error handling – The system must handle errors gracefully, providing users with meaningful error messages and recovery options.
* Criticality of the application;
* User Dependence – FitFlow is critical for users relying on it to achieve their fitness goals, so the app must be reliable, accurate, and user-friendly.
* Health Impact – Incorrect meal or workout recommendations could negatively impact user health, so the app must ensure recommendations are safe and appropriate.
* Safety and security considerations.
* Data Encryption – All user data, including personal information and health data, must be encrypted during storage and transmission.
* Authentication and Authorization – FitFlow implements secure authentication and authorization mechanisms to prevent unauthorized access.
* User Safety – Workout plans, and meal suggestions must be designed to ensure data safety, avoiding recommendations that could lead to injury or health risks.

## 2.5. Assumptions and dependencies

The following assumptions and dependencies have been identified as factors that may affect the requirements outlined in this SRS. Any changes to these assumptions or dependencies may necessitate revisions to the SRS.

1. **User Devices:** Users will access the system via smartphones, tablets, or desktops.
2. **Data Input:** Users will manually log data, but integrations will automate tracking when enabled.
3. **Network Dependency:** Some features may require internet access, but offline functionality must be supported.

# Specific Requirements

## External interface requirements

### 3.1.1. Hardware interfaces

Smartphones, tablets, and wearable fitness devices.

### 3.1.2. Software interfaces

MySQL for User Data

### 3.1.3. Communications interfaces

1. Local Network Protocols

2. Internet-Based Communication

3. Integration with Third-Party APIs

4. Push Notification Services

5. Data Formats and Protocols

## Functional requirements

### Module 1

#### 1.1 Authentication Process (Web & Mobile)

* System should allow users to register with an email, social media, or phone number and securely authenticate their identity during login.

##### Use Case Diagram

##### Use Case Description

##### Activity Diagram

##### Wireframe

### Module 2

#### 2.1 Workout Plans and Food/Calories Suggestions (Web & Mobile)

* System should provide personalized workout plans based on user goals and preferences (e.g., strength training, cardio, flexibility). Additionally, the system should suggest daily calorie intake and meal plans based on the user’s fitness goals (e.g., weight loss, muscles gain) and personal data such as age, weight, height, and activity level.

##### Use Case Diagram

##### Use Case Description

##### Activity Diagram

##### Wireframe

### Module 3

*3.1 User Profile Management (Web & Mobile)*

- Users should be able to create and edit profiles, including personal details such as age, gender, weight, height, and fitness goals.

##### Use Case Diagram

##### Use Case Description

##### Activity Diagram

##### Wireframe

### Module 4

#### 4.1 Activity Tracking (Web & Mobile)

* Users should be able to track their progress made physically through given workouts

##### Use Case Diagram

##### Use Case Description

##### Activity Diagram

##### Wireframe

### Module 5

#### 5.1 Push Notifications and Reminders (Web & Mobile)

* System should send notification to users to remind them of their workout schedules, meal times, or motivational messages based on their preference.

##### Use Case Diagram

##### Use Case Description

##### Activity Diagram

##### Wireframe

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## Non-functional requirements

### Performance

* Must load within **2 seconds** on high-speed internet connections.
* Must handle **5,000+ concurrent users** without performance degradation.

### Security

* Implements **AES-256 encryption** for sensitive user data.
* Uses **OAuth 2.0** for secure third-party authentication.

### Reliability

* 99.9% uptime guarantee with **automated backups** every 24 hours.
* Must handle **real-time data sync** across multiple devices seamlessly.