FitCal

Software Requirements Specification

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1. INTRODUCTION

1.1 PURPOSE

The purpose of this Software Requirements Specification document is to provide a detailed overview of the FitCal application, a software solution aimed at how individuals manage their diet and fitness goals. The document outlines the functional and non-functional requirements, intended audience, and objectives of the software. FitCal is designed to offer users personalized diet programs, Body Mass Index (BMI) calculation tools, and a database of foods with their nutritional values such as protein and fat. This SRS will serve as a guideline for the development team and a contract between the stakeholders and the developers.

1.2 SCOPE

FitCal is designed to serve individuals looking to manage their diet and fitness goals through a personalized approach. The software will enable users to input personal information, dietary preferences, and goals to receive tailored diet plans. Features include a user-friendly interface, a comprehensive database of foods with nutritional values, algorithms for BMI calculation, personalized diet program generation, and progress tracking tools. FitCal aims to cater to a broad audience, from fitness enthusiasts to individuals seeking to improve their dietary habits.

1.3 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

BMI: Body Mass Index, a measure of body fat based on height and weight.
SRS: Software Requirements Specification, a document that describes what the software will do and how it will be expected to perform.
UI: User Interface, the graphical layout of an application.
Database: A structured set of data held in a computer, especially one that is accessible in various ways.
API: Application Programming Interface, a set of functions and procedures allowing the creation of applications that access the features or data of an operating system, application, or other service.

1.4 RESOURCES*

Development Tools: List of software tools and programming languages proposed for the development of FitCal, including but not limited to, React Native or Flutter for mobile application development, Node.js or Django for backend services, and a MySQL or MongoDB database.
Design Tools: Tools such as Adobe XD or Sketch for designing the UI/UX of FitCal.
Project Management Tools: Github.
Nutritional Data Sources: Reliable sources where nutritional information of foods can be obtained, e.g., USDA FoodData Central.

1.5 OVERVIEW

The remainder of this document provides a detailed description of the functionality of FitCal, its system features, requirements (both functional and non-functional), constraints, and dependencies. Following sections will elaborate on specific requirements, including system features, user interactions, data management, and security considerations. The document will conclude with appendices that include data models, preliminary design sketches, and any assumptions or dependencies relevant to the development of FitCal.

2. GENERAL DESCRIPTION

2.1 PRODUCT PERSPECTIVE

FitCal is an application designed to provide a comprehensive solution for individuals seeking to manage and improve their health and fitness through diet. It integrates various functionalities, including personalized diet plans, BMI calculations, and a nutritional database, positioning itself as a unique tool in the health and fitness market. FitCal operates with the perspective of empowering users by providing them with the information and tools necessary to make informed decisions about their diet and lifestyle.

2.2 PRODUCT FUNCTIONS

Personal Information and Dietary Preference Input: Allows users to enter personal information, including height, weight, age, gender, and dietary preferences and restrictions.
BMI Calculation: Calculates the user's Body Mass Index based on the inputted height and weight.
Nutritional Database: Provides a comprehensive database of foods along with their nutritional values such as calories, proteins, carbohydrates, and fats.
Personalized Diet Plan Generation: Generates appropriate diet plans based on the user's specific goals, dietary restrictions, and preferences.
Progress Tracking: Offers tools for users to track their dietary intake, BMI changes, and progress towards their fitness goals over time.

2.3 USER FEATURES

User Profile Management: Users can create and manage their profiles, where they can input and update personal information and preferences.
Dietary Log: Users can log their daily food intake, with the application calculating and displaying the nutritional values against their daily goals.
Goal Setting and Monitoring: Users can set and monitor their health and fitness goals, such as weight loss, muscle gain, or maintaining a balanced diet.
Feedback and Suggestions: Users receive feedback on their progress and suggestions for improving their diet plans or achieving their fitness goals more effectively.

2.4 GENERAL RESTRICTIONS

FitCal relies on the accuracy of the nutritional database and the inputs provided by users. Inaccurate data can lead to misleading recommendations and progress tracking.
The application's effectiveness is contingent on regular use and honest logging of food intake by the user.
FitCal's BMI calculations and diet recommendations are not a substitute for professional medical advice.

2.5 ASSUMPTIONS AND DEPENDENCIES

Assumptions:

- Users have a basic understanding of technology to navigate and utilize the application effectively.
- Nutritional information provided in the database is accurate and up to date.
- Users will input accurate and honest information about their dietary intake and personal data.

Dependencies:

- FitCal's performance and accuracy depend on the reliability and extent of the nutritional database.
- The application's development and maintenance depend on the continued availability of development tools and platforms.

3. SPECIAL REQUIREMENTS

3.1 EXTERNAL INTERFACE REQUIREMENTS

3.1.1 User Interfaces

Responsive Design: The application should be accessible on computers, with a responsive design that adapts to different screen sizes.
Intuitive Navigation:User interfaces should be clear and easy to navigate, allowing users to easily access different features without confusion.

3.1.2 Hardware Interfaces

Because FitCal is a software application without direct hardware integration, there are no special hardware interface requirements beyond the need for a compatible device (smartphone, tablet, computer) and input devices (keyboard, mouse, touchscreen).

3.1.3 Software Interfaces

Database System: FitCal will interface with a database system (e.g., MySQL, MongoDB) for storing user profiles, dietary logs, and nutritional information.

3.1.4 Communication Interfaces

FitCal will need an internet connection to access the database. The application must support secure HTTP (HTTPS) for all communications to protect user data.

3.2 FUNCTIONAL REQUIREMENTS

3.2.1 User Registration and Profile Management

Users can register, create, edit, and manage their profiles, inputting personal information and dietary preferences.

3.2.2 Personalized Diet Plan Generation

Based on user-entered data and preferences, FitCal creates personalized diet plans, taking into account calorie requirements and dietary restrictions.

3.3 NON-FUNCTIONAL REQUIREMENTS

3.3.1 Performance

FitCal should load and respond quickly to user inputs, with diet plan generation and BMI calculations completing within a few seconds.

3.3.2 Reliability

The system should ensure data accuracy and consistency, with minimal downtime and data loss.

3.3.3 Availability

FitCal should be available to users 24/7. It should be easily accessible.

3.3.4 Security

Implement strong data encryption, secure user authentication (e.g., OAuth, multi-factor authentication), and regular security audits to protect user data.

3.3.5 Sustainability

FitCal should be developed with sustainability in mind, optimizing energy use and minimizing its carbon footprint.

3.3.6 Portability

The application should be compatible across different operating systems and devices without significant modifications.

3.4 REVERSE REQUIREMENTS

FitCal should not require users to possess advanced technical knowledge or external devices (beyond a basic smartphone or computer) to access its full range of features.

3.5 DESIGN LIMITATIONS

FitCal's design is limited by the need to balance functionality and ease of use, ensuring the app is accessible to a wide number of users.

3.6 LOGIC DATABASE REQUIREMENTS

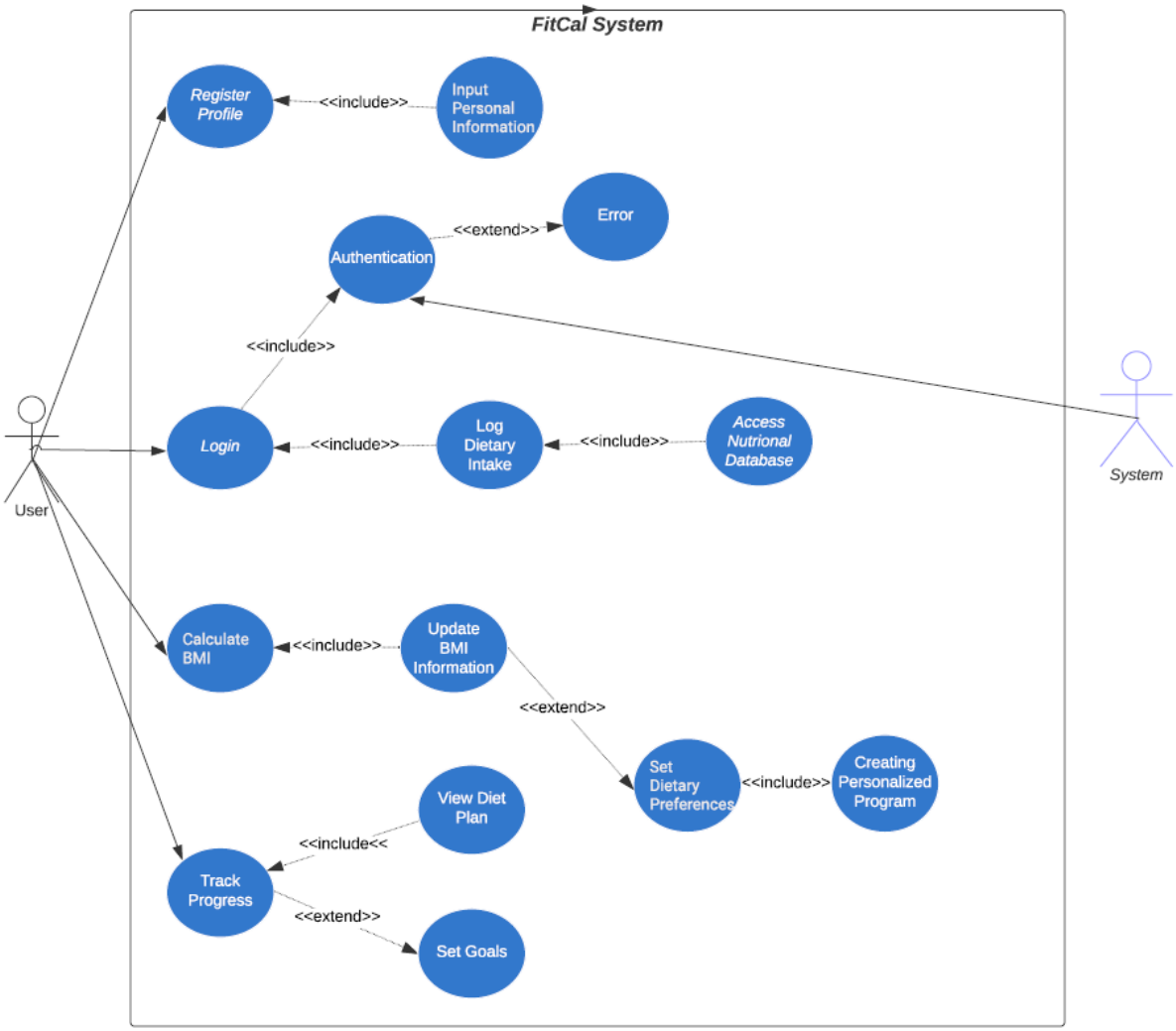
FitCal requires a relational or NoSQL database to efficiently store and retrieve user data, dietary logs, nutritional information, and diet plans, ensuring data integrity and security.

3.7 OTHER REQUIREMENTS

Compliance: The app must comply with data protection regulations (e.g., GDPR, HIPAA) relevant to the regions it operates in.

4. UML DIAGRAMS

4.1 USE CASE DIAGRAM



5. APPENDIX

4.1 CREDITS

Emre Cihan Varlı - Specific Requirements, UML Diagrams
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Nurbetül Çakır - Intro, General Description, UML Diagrams
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