# **SOFTWARE ENGINEERING**

# **SOFTWARE REQUIREMENTS SPECIFICATIONS**

# **(DOCUMENTATION)**

# **DIET PLANNER**

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**Project Documentation: Diet Planner**

**1. Introduction**

**1.1 Purpose**

The Diet Planner project aims to develop a comprehensive software solution to assist individuals in planning, monitoring, and maintaining a healthy diet. The software provides a user-friendly platform accessible through web and mobile applications, offering features such as meal planning, nutrition tracking, recipe suggestions, and progress monitoring.

**1.2 Document Conventions**

This document adheres to standard documentation conventions, following a structured format for clarity and traceability. Each requirement statement is independent, emphasizing priority, and stands on its own.

**1.3 Intended Audience and Reading Suggestions**

The document targets stakeholders involved in the development, deployment, and use of the Diet Planner application. Developers and project managers focus on technical specifications, while nutritionists and end-users understand the features aiding diet planning and management.

**1.4 Project Scope**

The Diet Planner system provides personalized diet plans and tools to help users achieve their health and fitness goals. It addresses the challenge of poor dietary choices in modern lifestyles and aims to offer accessible and affordable personalized dietary guidance.

**2. Overall Description**

**2.1 Product Perspective**

The Diet Planner is a standalone product designed to cater to a diverse user base, providing a personalized approach to nutrition. It interfaces with databases containing food items, recipes, and dietary guidelines, ensuring accurate recommendations.

**2.2 Product Features**

Key features include meal planning, nutrition tracking, recipe suggestions, and user progress monitoring. The software operates on web and mobile platforms, ensuring accessibility across devices.

**2.3 User Classes and Characteristics**

The Diet Planner caters to individuals seeking weight management, athletes, those with specific dietary needs, and anyone aiming to improve overall health through better nutrition. User characteristics influence specific requirements outlined in the document.

**2.4 Operating Environment**

The system operates on various platforms, including iOS and Android, ensuring compatibility with a wide range of devices. It integrates databases of food items, recipes, and dietary guidelines for accurate recommendations.

**2.5 Design and Implementation Constraints**

Development adheres to corporate policies, specified technology stack, and design conventions for a consistent user experience. Security measures ensure the protection of user data.

**2.6 User Documentation**

User documentation includes manuals and guides for using the Diet Planner application. It follows standard formatting and delivery formats for user assistance.

**2.7 Assumptions and Dependencies**

Assumptions include consistent availability of third-party components and a flexible project timeline. Dependencies include data integration from food databases and collaboration with nutritionists for accurate dietary recommendations.

**3. System Features**

**3.1 Meal Planning**

**3.1.1 Description and Priority**

Efficient generation of personalized meal plans based on user preferences, dietary restrictions, and nutritional requirements. It is a high-priority feature, forming the core functionality of the Diet Planner.

**3.1.2 Stimulus/Response Sequences**

Stimulus: The user selects the "Generate Meal Plan" option.

Response: The system processes user preferences and nutritional needs to generate a personalized meal plan.

**3.1.3 Functional Requirements**

REQ-1: The system shall allow users to input dietary preferences, restrictions, and nutritional goals.

REQ-2: The system shall consider user-specific factors like allergies and medical conditions during meal plan generation.

REQ-3: The system shall provide a variety of meal options based on user preferences.

REQ-4: Users can customize generated meal plans according to their liking.

**3.2 Nutrition Tracking**

**3.2.1 Description and Priority**

This feature enables users to track their daily nutritional intake and monitor their progress towards dietary goals. It is of high priority for comprehensive diet management.

**3.2.2 Stimulus/Response Sequences**

Stimulus: The user logs consumed meals in the application.

Response: The system updates the user's nutritional intake and provides real-time feedback on progress.

**3.2.3 Functional Requirements**

REQ-5: The system shall have a database of food items with nutritional information.

REQ-6: Users can log their meals, specifying quantities and ingredients.

REQ-7: The system shall calculate and display daily nutritional intake for users.

REQ-8: Users receive alerts and recommendations if daily nutritional goals are not met.

**3.3 Recipe Suggestions**

**3.3.1 Description and Priority**

The system suggests recipes based on user preferences and nutritional goals, enhancing variety and adherence to dietary plans. It is of medium priority.

**3.3.2 Stimulus/Response Sequences**

Stimulus: The user explores recipe suggestions in the application.

Response: The system provides a list of recipes tailored to the user's dietary preferences.

**3.3.3 Functional Requirements**

REQ-9: The system shall recommend recipes based on user preferences, dietary restrictions, and nutritional goals.

REQ-10: Users can filter recipe suggestions based on cuisine, preparation time, and nutritional content.

REQ-11: The system shall provide detailed recipes, including ingredients, nutritional information, and preparation instructions.

**3.4 User Progress Monitoring**

**3.4.1 Description and Priority**

Users can monitor their progress towards dietary goals, track weight changes, and receive insights into their eating habits. It is a high-priority feature for user engagement and motivation.

**3.4.2 Stimulus/Response Sequences**

Stimulus: The user accesses the "Progress" section in the application.

Response: The system displays visual representations of progress, including weight charts and nutritional trends.

**3.4.3 Functional Requirements**

REQ-12: Users can log and track their weight over time.

REQ-13: The system shall generate visual representations of nutritional trends.

REQ-14: Users receive insights and recommendations based on their progress data.

**4. External Interface Requirements**

**4.1 User Interface Requirements**

**4.1.1 Web Application Interface**

Intuitive dashboard displaying meal plans, nutrition tracking, recipe suggestions, and progress monitoring.

Responsive design for optimal user experience on various devices.

Standard buttons for actions like generating meal plans, logging meals, and accessing progress.

**4.1.2 Mobile Application Interface**

Consistent layout and features for seamless navigation on iOS and Android devices.

Touch-friendly controls for easy interaction.

Integration with device features like camera for meal logging.

**4.2 Hardware Interface Requirements**

The system operates on standard hardware platforms, including smartphones, tablets, and computers.

Compatibility with iOS and Android devices.

**4.3 Software Interface Requirements**

**4.3.1 Database Interface**

Integration with databases containing food items, recipes, and nutritional information.

Utilization of standard database management systems.

**4.3.2 Authentication Interface**

Secure user authentication mechanisms to protect user data.

Integration with third-party authentication systems for convenience.

**4.4 Communications Interface Requirements**

**4.4.1 Web Browser Communication**

Support for major web browsers (Chrome, Firefox, Safari).

Utilization of HTTPS for secure communication.

**4.4.2 Push Notifications**

System-generated push notifications for meal reminders, progress updates, and goal achievements.

Integration with device notification systems.

**4.4.3 API Integration**

Provision of APIs for integration with third-party fitness trackers and health monitoring devices.

Compliance with industry-standard API protocols.

**5. Other Nonfunctional Requirements**

**5.1 Performance Requirements**

**5.1.1 System Response Time**

Requirement: The application shall respond to user interactions within 2 seconds under normal operating conditions.

Rationale: Ensures a seamless and responsive user experience.

**5.1.2 Database Query Performance**

Requirement: Database queries for meal plan generation and nutrition tracking shall be optimized for efficient performance.

Rationale: Enhances the speed of generating personalized meal plans and tracking nutritional data.

**5.2 Safety Requirements**

**5.2.1 Data Security**

Requirement: The system shall implement robust data encryption protocols for the secure storage and transmission of user data.

Rationale: Safeguards user information from unauthorized access and ensures data privacy.

**5.2.2 User Authentication**

Requirement: Multi-factor authentication shall be implemented to enhance the security of user accounts.

Rationale: Prevents unauthorized access and protects user data.

**5.3 Security Requirements**

**5.3.1 Compliance with Privacy Regulations**

Requirement: The system shall comply with relevant privacy regulations and data protection laws.

Rationale: Ensures legal adherence and user trust in handling personal health data.

**5.3.2 Regular Security Audits**

Requirement: Regular security audits shall be conducted to identify and address potential vulnerabilities.

Rationale: Ensures the ongoing security of the Diet Planner application.

**5.4 Software Quality Attributes**

**5.4.1 Usability**

Requirement: The system shall adhere to usability standards, providing an intuitive and user-friendly interface.

Rationale: Enhances user adoption and satisfaction, reducing the learning curve for effective use.

**5.4.2 Maintainability**

Requirement: The software source code shall follow industry best practices for ease of maintenance and future enhancements.

Rationale: Enables efficient updates and improvements to the system.

**6. Other Requirements**

**6.1 Internationalization Requirements**

**6.1.1 Multilingual Support**

Requirement: The Diet Planner system shall support multiple languages to cater to a diverse user base.

Rationale: Enhances accessibility and usability for users with different language preferences.

**6.1.2 Regional Nutrition Information**

Requirement: The system shall provide nutrition information tailored to regional dietary norms.

Rationale: Ensures accuracy and relevance of nutritional recommendations based on regional preferences.

**6.2 Legal Requirements**

**6.2.1 Compliance with Health Data Regulations**

Requirement: The system shall comply with health data regulations and standards.

Rationale: Ensures legal adherence and user trust in handling health-related data.

**6.2.2 Informed Consent Mechanism**

Requirement: The system shall include an informed consent mechanism, explaining how user data will be used.

Rationale: Promotes transparency and user understanding of data usage practices.

**Appendix A: Glossary**

BMI: Body Mass Index.

RDA: Recommended Dietary Allowance.

API: Application Programming Interface.

HTTPS: Hypertext Transfer Protocol Secure.

UI: User Interface.

UX: User Experience.

**Appendix B: Issues List**

**Open Issues:**

**Feature Enhancement:**

Description: Explore options for integrating AI-based recipe suggestions for advanced personalization.

Resolution Plan: Schedule a discussion with the development team in the next sprint planning meeting.

**Data Integration Delay:**

Description: Delays in integrating regional nutrition databases for accurate regional dietary recommendations.

Resolution Plan: Expedite communication and collaboration with external nutrition data providers.

**Mobile App Performance:**

Description: Reports of slow performance on certain mobile devices.

Resolution Plan: Conduct a performance analysis and implement optimizations in the upcoming software update.