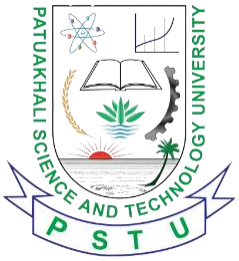

Patuakhali Science and Technology University

Faculty of Computer Science and Engineering

CCE 310 :: Software Development Project-I

Sessional Project Proposal

Project Title: Diet and Nutrition Support System App

Submission Date: STA, July 19, 2025

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Contents

Diet and Nutrition Support System App

1. Abstract

Diet and Nutrition Support System is a cross-platform mobile application designed to empower users to manage their diet, track fitness, and improve overall wellness across Android and iOS devices. In an era where health awareness is rising, Diet and Nutrition Support System addresses the need for a unified platform by integrating step counting via motion sensor APIs, personalized nutrition plans, and community challenges. The app leverages Flutter for a seamless interface and Firebase for real-time data synchronization and secure storage. It aims to provide an intuitive, offline-capable solution with AI-driven recommendations, offering a practical tool for health-conscious individuals to monitor and enhance their lifestyle effectively.

2. Objectives

- To build a unified, cross-platform mobile app for diet and fitness tracking using Flutter.
- To provide secure, real-time sync and storage for user data including step counts and diet logs.
- To implement intuitive features like step tracking, personalized diet plans, and community challenges.
- To offer a seamless experience across Android and iOS platforms with offline support.

3. Problem Statement

Existing diet and fitness apps often lack comprehensive features, such as integrated step counting with motion sensors, or are limited to specific platforms. Many solutions (e.g., MyFitnessPal, Samsung Health) either require subscriptions or fail to offer offline functionality and community engagement. There is a need for a free, user-friendly app that combines diet management, fitness tracking, and social interaction, adaptable to diverse user needs and privacy preferences.

4. Related Work

- [1] MyFitnessPal - Popular fitness app, but subscription-based for advanced features.
- [2] Samsung Health - Strong in step tracking, but limited to Samsung devices.
- [3] Google Fit - Free, but lacks robust diet planning and community tools.
- [4] Fitbit App - Device-dependent, with premium features locked.
- [5] Noom - Focuses on diet coaching, but expensive and platform-specific.
- [6] Lifesum - Offers diet plans, but lacks step tracking integration.

5. Scope

Diet and Nutrition Support System will be developed as a cross-platform mobile application using Flutter, targeting Android and iOS. The app will focus on core features like step counting, diet logging, and community challenges, with Firebase for backend support. Future extensions may include virtual coaching, weather-based diet suggestions, and advanced analytics.

6. Methodology

6.1. Technology Stack

The development of Diet and Nutrition Support System will follow an Agile methodology, allowing iterative improvements. The technology stack includes:

Layer	Technologies/Tools
Frontend	Flutter (Dart)
Backend	Firebase
UI/UX Design	Figma
Database	Firestore
Authentication	Firebase Auth
Hosting	Firebase Hosting
CI/CD	GitHub Actions, Play Store
***Table 1: Technology Stack for* Diet and Nutrition Support System**	

6.2. Design Principles

The design of Diet and Nutrition Support System will adhere to the following principles:

Principle	Description
Material Design	Following Google's guidelines for a modern UI/UX.
Responsive Design	Ensuring seamless functionality across screen sizes.
User-Centric Design	Focusing on ease of use with intuitive navigation.
Cross-Platform	Consistent experience on Android and iOS.
Documentation	Comprehensive guides for developers and users.
Table 2: Design Principles for HealthySteps	

7. Visual Models

7.1. Flow Chart Diagram

Figure 1: Flow Chart of Diet and Nutrition Support System Architecture

7.2. ERD (Entity Relationship Diagram)

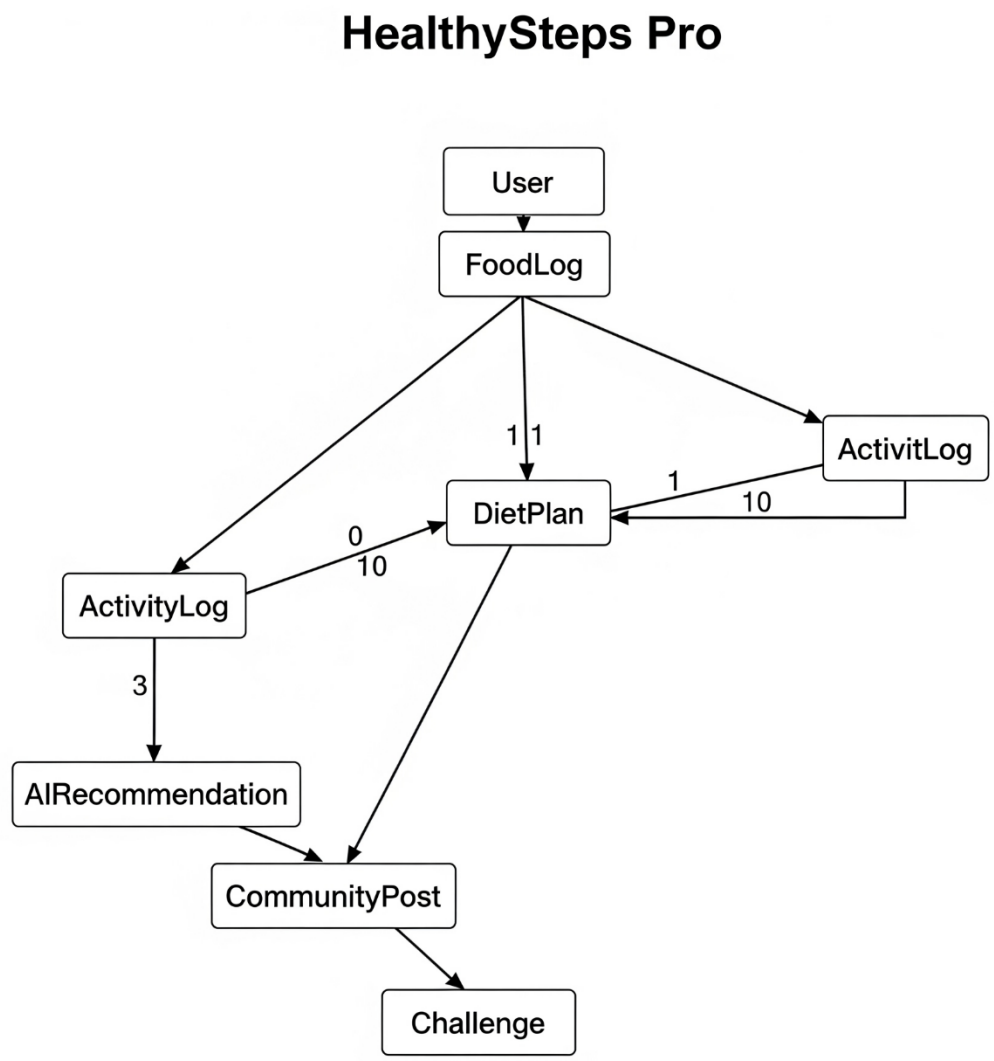


Figure 2: Entity Relationship Diagram of Diet and Nutrition Support System

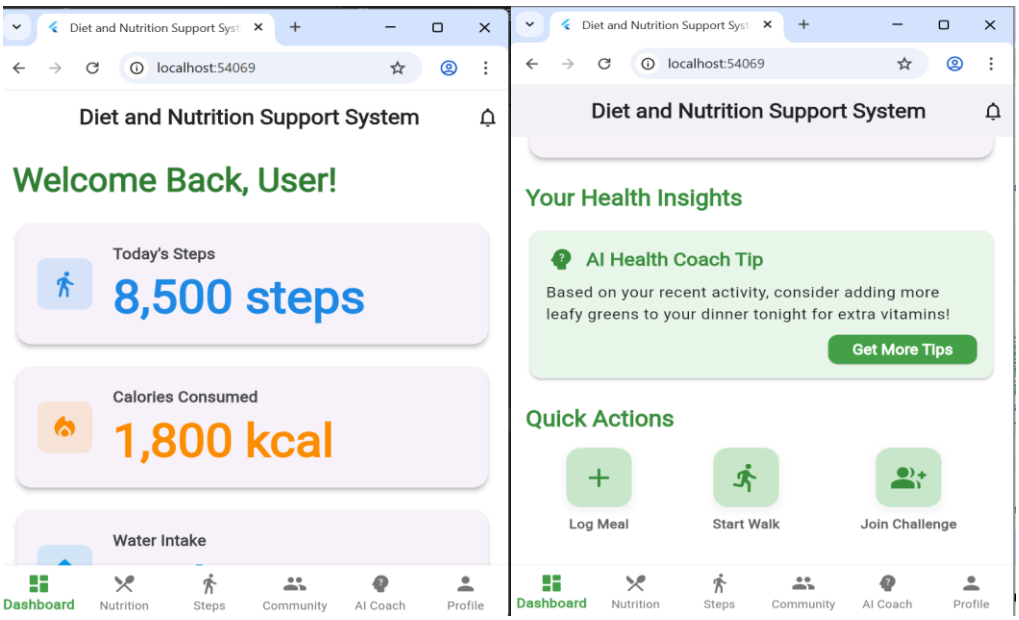
7.3. Timeline (Gantt Chart)

Task	Week 1-2	Week 3-4	Week 5-6	Week 7-8	Week 9-10	Week 11-12
Requirements & UI Mockup	✓					
Authentication + Firestore		✓				
Step Tracking Module			✓			
Diet Logging + AI				✓		
Community Challenges					✓	
Testing & Polish						✓
Final Testing & Deployment						✓

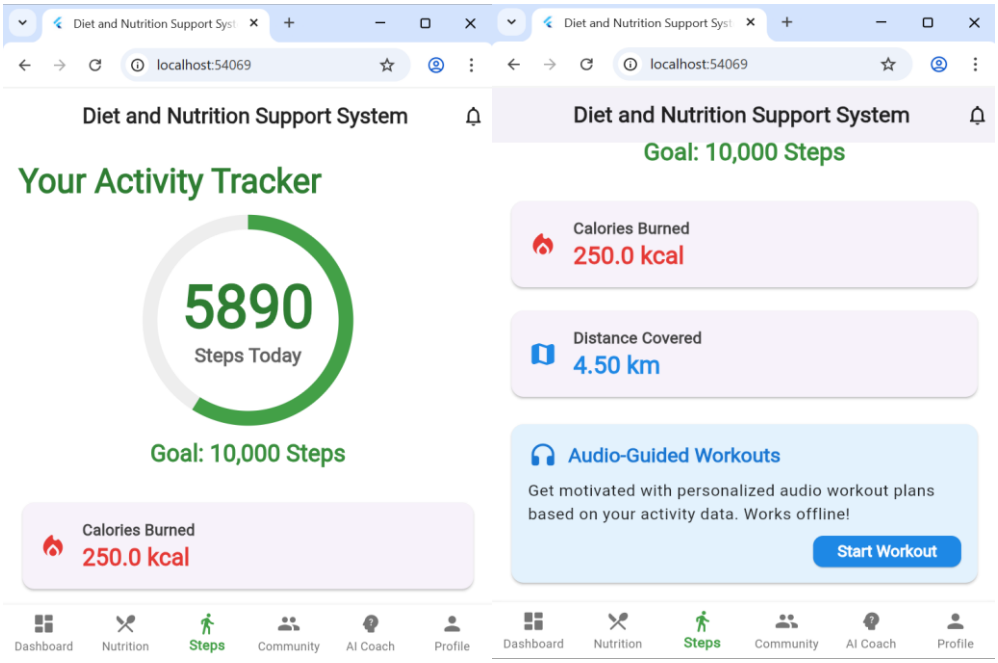
***Table 3: Development Timeline of* Diet and Nutrition Support System**

7.4. UI Mockups

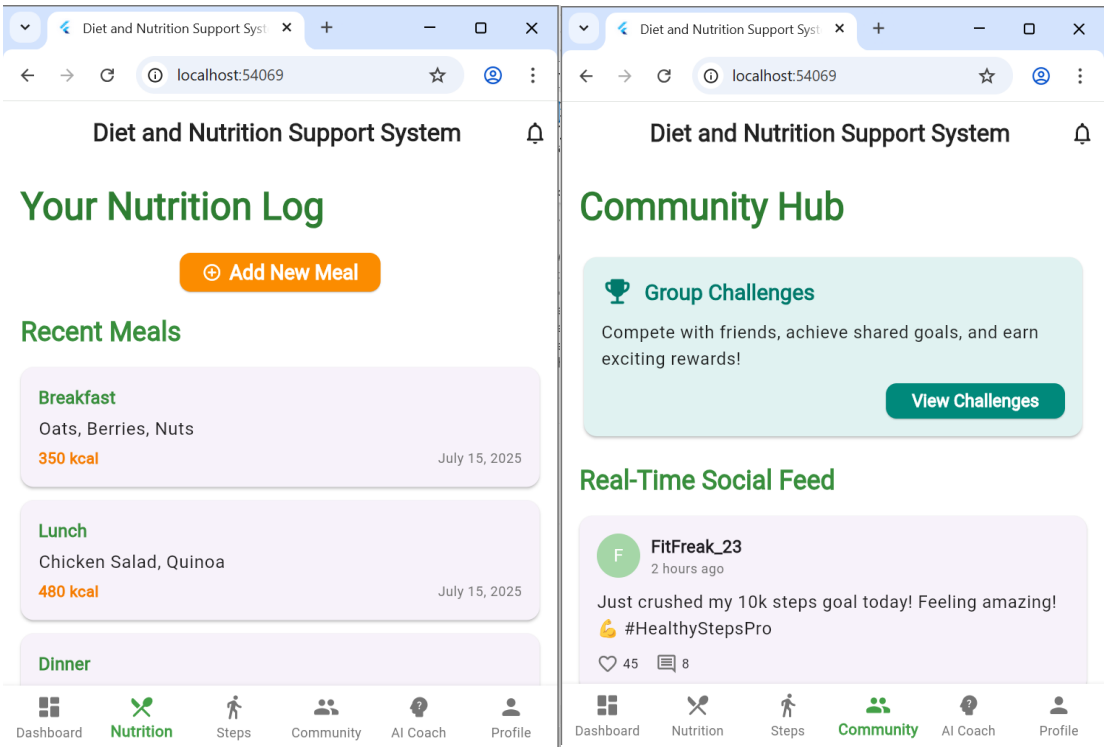
- **Figure 3**: Home Screen - Dashboard with step count (large green circle), diet log button, and community feed.

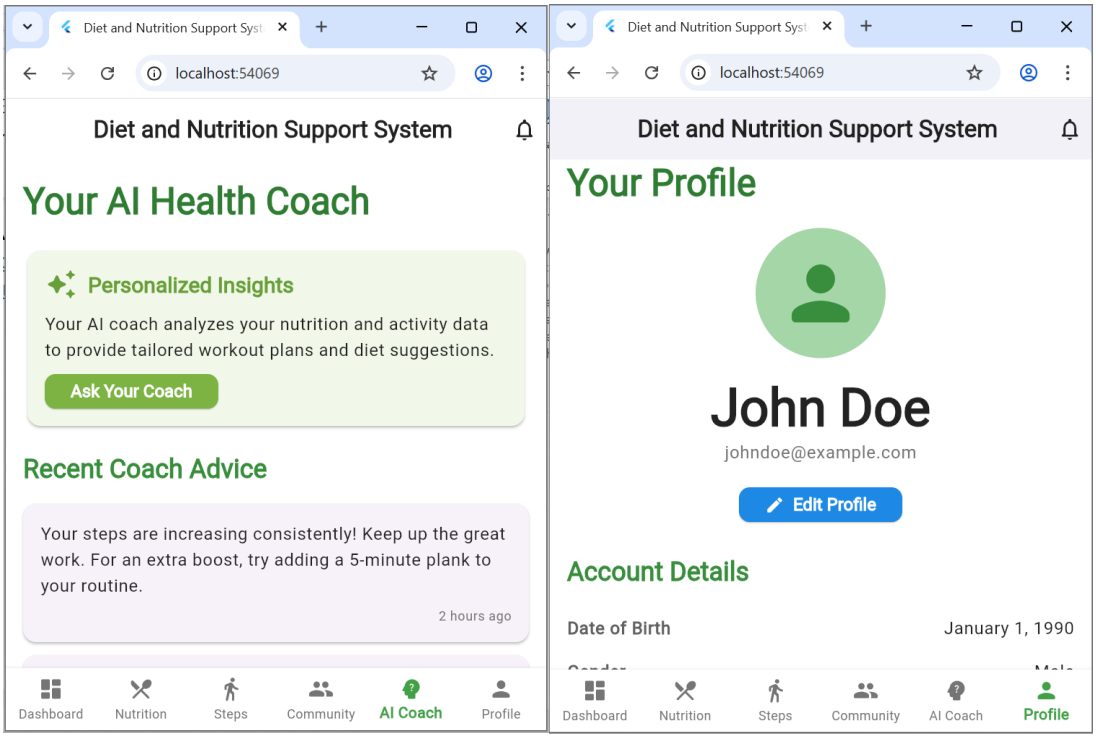


- **Figure 4**: Step Tracking Page - Graph of daily steps, sync status indicator.



- **Figure 5**: Settings Page - Profile edit, logout, and privacy options.





Figures 3-5: UI Mockups of Diet and Nutrition Support System

8. Limitations

1. Initial version will not support wearable device integration.
2. Advanced AI features (e.g., deep learning) are out of scope for the MVP.

9. Result

The expected outcome is a fully functional, cross-platform mobile app that enables users to track diet and fitness, engage in community challenges, and receive personalized health insights.

Bibliography

[1] MyFitnessPal. Accessed: Jul. 18, 2025. [Online]. Available: https://www.myfitnesspal.com/
[2] Samsung Health. Accessed: Jul. 18, 2025. [Online]. Available: https://www.samsung.com/global/galaxy/apps/samsung-health/
[3] Google Fit. Accessed: Jul. 18, 2025. [Online]. Available: https://www.google.com/fit/
[4] Fitbit App. Accessed: Jul. 18, 2025. [Online]. Available: https://www.fitbit.com/
[5] Noom. Accessed: Jul. 18, 2025. [Online]. Available: https://www.noom.com/
[6] Lifesum. Accessed: Jul. 18, 2025. [Online]. Available: https://lifesum.com/

[7] Flutter Documentation. [Online]. Available: https://flutter.dev/docs
[8] Firebase Guides. [Online]. Available: https://firebase.google.com/docs

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THE END
