AI Final Project - Food Recommendation System

1. Introduction

This project aims to help individuals make smarter food choices aligned with their health goals (e.g., weight loss, muscle gain, skin health, mood improvement) using an AI-powered recommendation system built with Streamlit.

2. Problem Statement

People often lack reliable guidance when trying to align their diet with specific wellness goals. This system uses nutritional data and user preferences to suggest suitable food options, enhancing health through personalized dietary support.

3. Data Strategy

The dataset contains food items with detailed nutritional attributes (e.g., proteins, carbs, fats, vitamins). Preprocessing steps included data cleaning, feature selection, and tagging foods based on their potential benefits for the selected goal.

4. Recommendation Logic

The system uses rule-based logic to recommend food items based on the selected goal. For example, for mood improvement, it highlights foods rich in magnesium and tryptophan. More advanced versions could integrate ML models for dynamic suggestions.

5. System Architecture

The app is built using Streamlit for interactivity. User input is collected and passed to the recommendation engine, which filters and returns food items. Visualizations are generated using Plotly for nutrient breakdowns.

6. Testing and Validation

Unit tests validated data loading, recommendation logic, and visualizations. Integration tests ensured seamless user-to-output flow. Peer feedback was collected to refine user interface and relevance of recommendations.

7. Documentation and Reporting

The project is well-documented in the README file. A visual presentation and screenshots demonstrate core functionality. Future iterations could include integration with real-time nutrition APIs and ML-enhanced recommendations.

8. Conclusion and Future Work

This project demonstrates how simple AI tools can offer meaningful lifestyle improvements. Future work includes adding user history tracking, enhancing ML logic, and integrating health APIs for dynamic input handling.