Diet Recommendation System Using Machine Learning

# Overview

The Diet Recommendation System is a machine learning-based web application designed to provide personalized dietary suggestions. It takes into account a user's blood sugar level, blood pressure, macro-nutrient requirements, and health goals (such as weight loss, weight gain, or muscle building) to recommend suitable food items. Built with Python and Flask, it uses a pre-trained ML model to make accurate, health-conscious suggestions.

# Installation Guide

Follow the steps below to set up the project locally:

1. Create a Virtual Environment (Optional)

***python -m venv venv  
source venv/bin/activate # On Windows: venv\Scripts\activate***

1. Install Dependencies

***pip install -r requirements.txt***

1. Run the Application

**For model training run:**

***Python ml\_model.py***

**After training run the application by:**

***Streamlit run app.py***

# Working Mechanism

## 1. User Input

Users provide the following inputs via the web interface:  
- Age, gender, and dietary preference (e.g., vegetarian/non-vegetarian)  
- Health goal: weight loss, weight gain, muscle gain, or maintenance  
- Blood sugar level  
- Blood pressure  
- Daily intake requirements for calories, proteins, carbs, and fats

## 2. Data Processing & Prediction

The input data is processed and passed into a trained ML model (food\_model.pickle) that predicts suitable foods. The model uses a dataset (done\_food\_data.csv) containing nutritional profiles of various food items.  
  
Blood sugar and blood pressure levels are used to filter out food items that may negatively affect users with hypertension or diabetes, ensuring that the diet is both effective and safe.

## 3. Output

The system returns a personalized list of food recommendations tailored to the user's health condition and nutritional needs. Each item includes its nutritional breakdown to help users make informed choices.

# Features

- Medical Awareness: Takes into account blood sugar and pressure to avoid risky food items.

- Smart ML-based Suggestions: Uses a trained model for precise and dynamic food recommendations.

- Custom Goal Setting: Supports various health objectives.

- Clean Web Interface: User-friendly UI for smooth interaction.

- Data-Driven: Built on real nutritional data for accuracy.

# Contribution

We welcome contributions to improve the system. Fork the repository, make changes, and submit a pull request on GitHub.