

Fitness Assistant

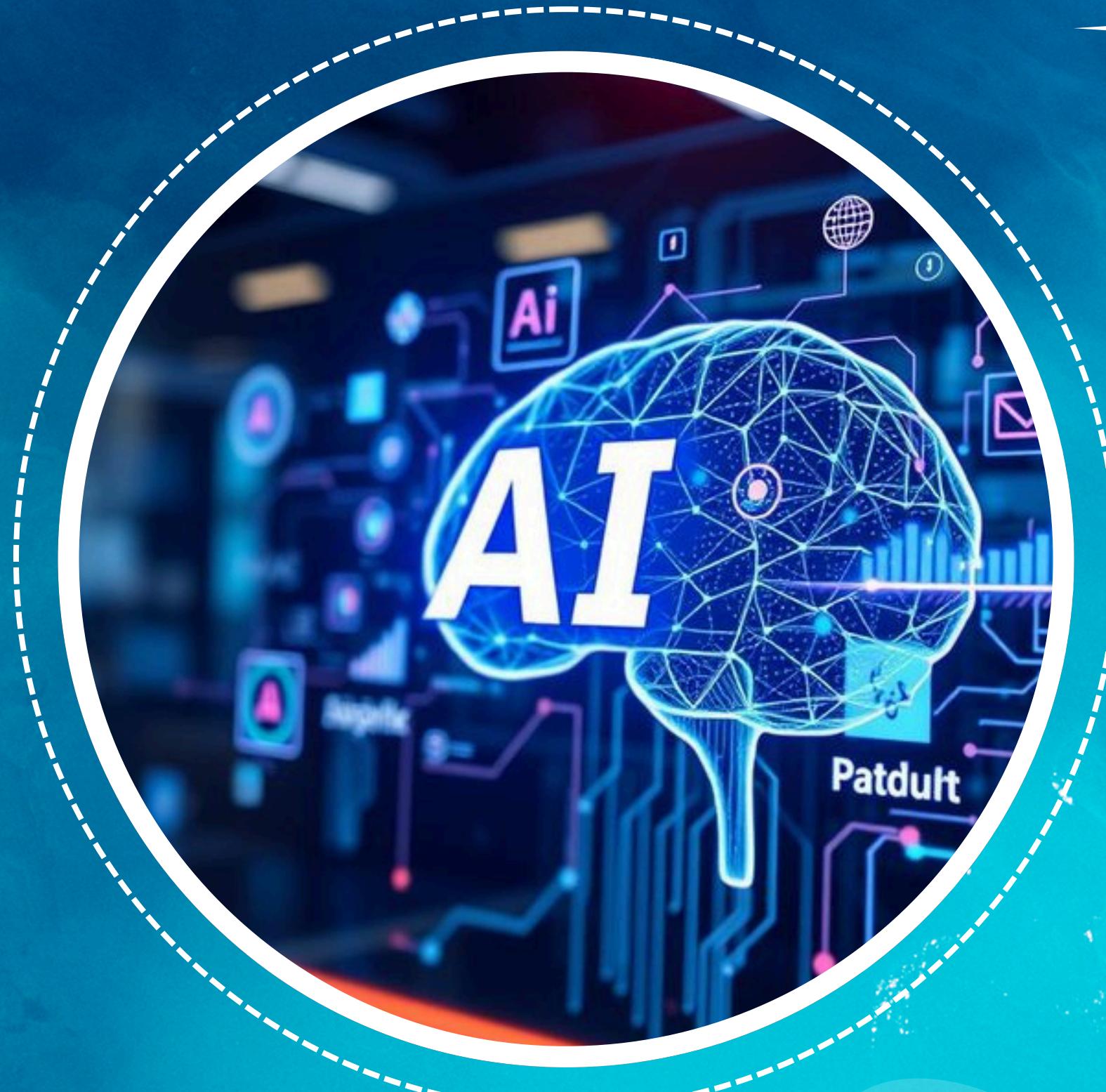


AGENTIC AI, PYTHON, UI
LLM'S



Introduction

In today's fast-paced lifestyle, maintaining a healthy body and mind has become a challenge for many individuals. People often rely on generic diet charts and workout routines found on the internet, which fail to consider personal factors such as weight, height, fitness goals, and activity levels. To solve this problem, our project introduces an AI-based Fitness Assistant — an intelligent model that generates personalized diet and exercise plans based on the user's body data and fitness goals using Large Language Models (LLMs).





Problem Statement

– Finding personalized and accurate fitness guidance without paying for premium trainers or nutritionists.

– Understanding how to balance diet and exercise according to their body type and goals (fat loss, muscle gain, or maintenance).

Lack of motivation and consistency due to unclear, generic plans that do not fit individual needs.

Proposed Solution

Our solution – AI Fitness Assistant – combines fitness science with AI reasoning to create a fully personalized fitness plan.

Key Idea:

The assistant takes simple user inputs such as:

- Weight**
- Height**
- Age**
- Gender**
- Goal (Fat Loss / Muscle Gain / Maintain)**
- Diet Preference (Veg / Non-Veg / Vegan)**

Then it uses an LLM (like Llama 3 or Mistral through Ollama) or Gemini API to generate:

- 1. Daily Calorie Goal (based on BMR & TDEE formulas)**
- 2. Meal-by-meal diet plan with macros (Protein, Carbs, Fats)**
- 3. Workout plan (Gym or Home-based)**
- 4. Motivational and educational guidance for long-term consistency**



Tech Stack

Frontend: HTML, CSS, JavaScript

Backend: Python (Flask)

AI Engine: Ollama (Llama 3 / Mistral model)

Optional APIs: CalorieNinjas (for food data),

ExerciseDB (for workout info)

Flow Diagram:

User → Frontend Form → Flask Backend →
LLM (Ollama/Gemini) → Personalized
Response → Display to User



Step 1: Input Collection

User enters details such as weight, height, age, and fitness goal.

Step 2: AI Processing

The assistant uses:

- Body Mass Index (BMI) and Basal Metabolic Rate (BMR) formulas
- LLM reasoning (via Ollama Llama 3 / Mistral) to contextualize user data
- Prompt engineering to generate personalized, human-like fitness advice

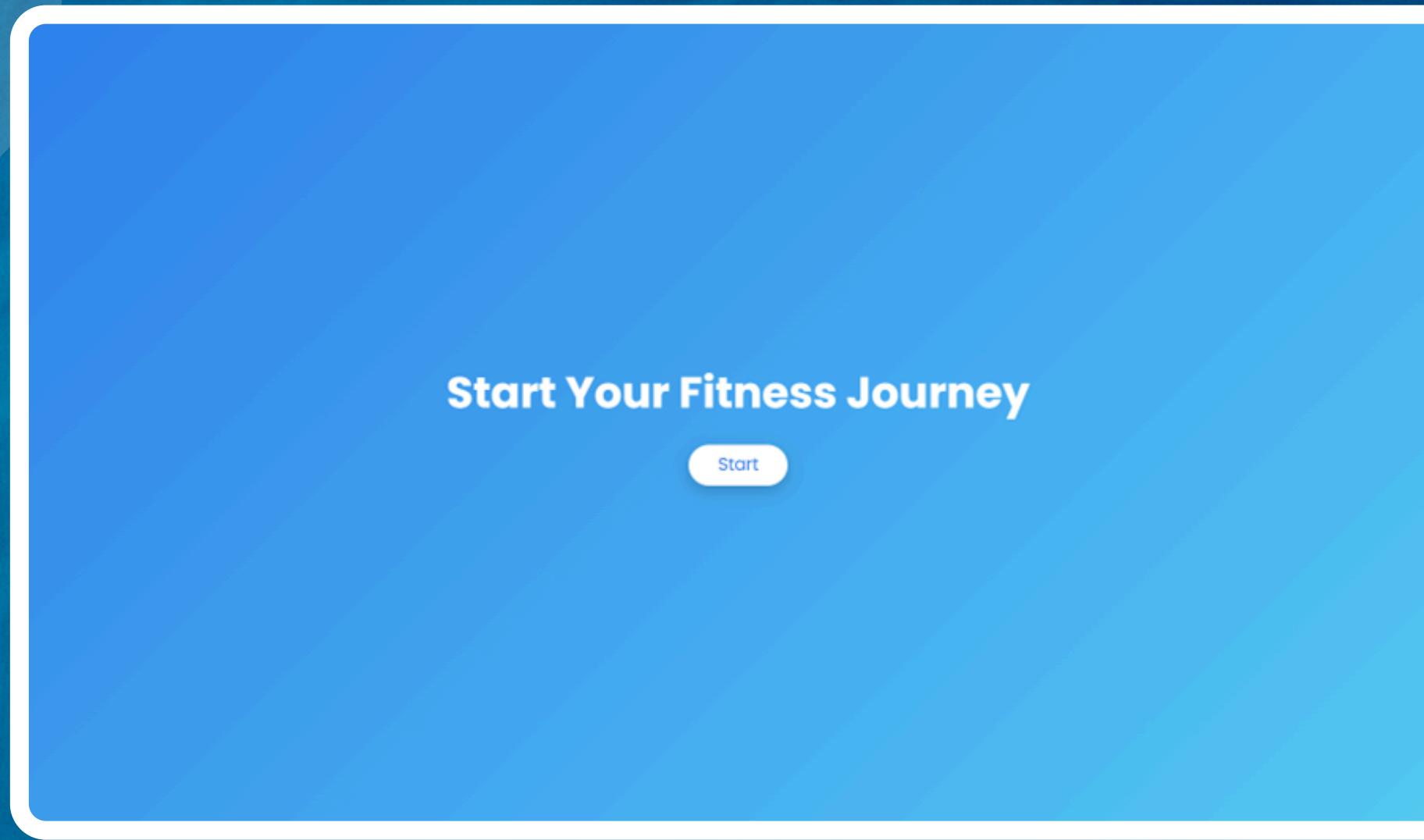
Step 3: Response Generation

The AI model outputs a full-day or weekly fitness plan that includes calorie goals, diet charts, workout schedules, hydration, and rest recommendations.

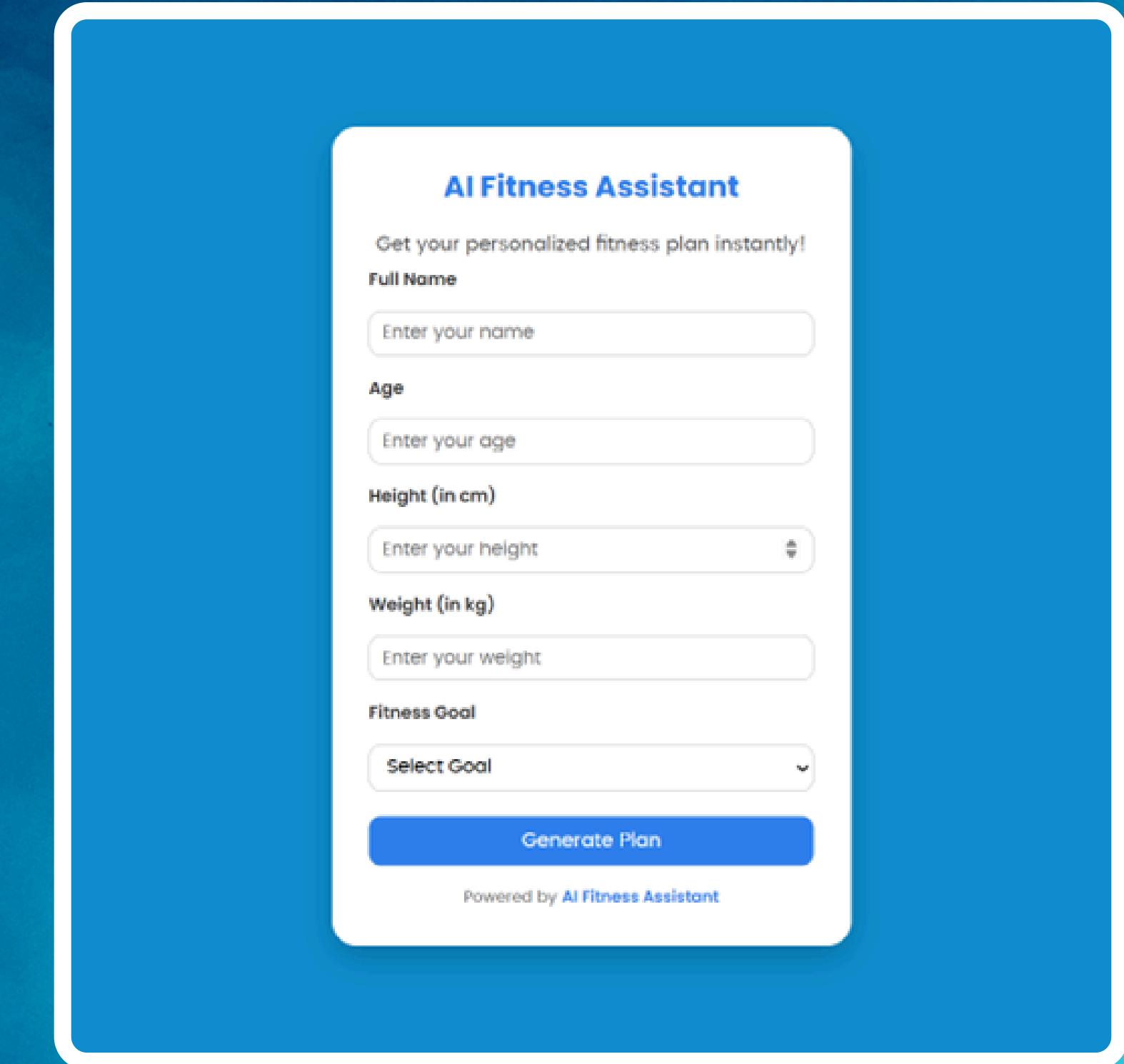
Step 4: User Interface

A simple Flask-based web interface takes inputs and displays AI responses in a chat format.

Frontend Design



A light blue rectangular card with rounded corners and a thin white border. Inside, the text "Start Your Fitness Journey" is centered in bold black font. Below it is a small, rounded white button containing the word "Start" in black.



A light blue rectangular card with rounded corners and a thin white border. At the top right, the text "AI Fitness Assistant" is displayed in blue. Below it, the subtext "Get your personalized fitness plan instantly!" is shown in smaller blue font. The card contains several input fields and dropdown menus:

- Full Name:** An input field with placeholder text "Enter your name".
- Age:** An input field with placeholder text "Enter your age".
- Height (in cm):** An input field with placeholder text "Enter your height" and a small unit icon.
- Weight (in kg):** An input field with placeholder text "Enter your weight".
- Fitness Goal:** A dropdown menu with placeholder text "Select Goal".

At the bottom right of the card is a large blue button labeled "Generate Plan". Below the card, the text "Powered by AI Fitness Assistant" is visible.

Backend Outputs

Enter your height in meters: 1.70

Enter your age: 20

Your BMI is: 24.22

Category: Normal weight

What is your goal?

1. Gain weight (muscle)
2. Lose fat
3. Stay fit

Enter your choice (1/2/3): 2

Choose your workout mode:

1. Gym
2. Home workout



👉 Here is your customized plan:

Hello there! As your fitness doctor and nutritionist, I've reviewed your details carefully. Your current BMI of 24.22 places you in a healthy weight range, but your goal to **lose fat** is excellent. This suggests a focus on body recomposition - building lean muscle while reducing body fat percentage - which will lead to a leaner, stronger physique and improved health markers.

Given your age (20) and a home workout preference, we can design an effective, sustainable, and budget-friendly plan. Consistency is key, so let's aim for progress, not perfection!

1. Complete Home Workout Plan for Fat Loss

This plan focuses on full-body strength training using only your body weight, combined with effective cardio to maximize fat burn and muscle engagement. Aim for **4 structured workout days per week**, with 1-2 days of active recovery and 1-2 full rest days.

General Guidelines:

- * **Listen to Your Body:** If something hurts, stop. Modify exercises as needed.
- * **Form Over Speed:** Always prioritize correct form to prevent injuries and maximize muscle activation.
- * **Hydration:** Drink water before, during, and after your workouts.
- * **Progressive Overload:** As you get stronger, increase reps, sets, decrease rest time, or try more challenging variations (e.g., single leg squats, elevated push-ups).

Workout Structure (Each Session):

1. **Warm-up (5-7 minutes):** Prepare your muscles and joints for activity.
 - * **Jumping Jacks:** 60 seconds



Thank You!

