NutriAI

NutriAI –
Instant Nutritional Information Using Generative AI

1 INTRODUCTION

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1.1 Project Overview

NutriAI is a web-based application developed using Streamlit that provides instant nutritional information for food items entered by users. The application utilizes Generative AI concepts to generate structured nutritional details including macronutrients, micronutrients, and calorie content.

The system allows users to enter multiple food items and receive organized nutritional analysis in a user-friendly interface.

1.2 Purpose

The purpose of this project is to:

- Provide instant nutritional insights.

- Help users make healthier food choices.

- Demonstrate integration of Generative AI concepts in web applications.

- Build a simple, interactive AI-powered tool using Streamlit.

2 IDEATION PHASE

2️⃣IDEATION PHASE

2.1 Problem Statement

Many users struggle to quickly find structured and clear nutritional information for food items. Searching manually can be time-consuming and confusing.

A centralized AI-powered system can simplify this process.

2.2 Empathy Map Canvas

Users:

- Health-conscious individuals

- Students

- Fitness enthusiasts

Needs:

- Quick nutritional data

- Easy interface

- Clear structured output

Pain Points:

- Scattered information online

- Inconsistent nutritional details

- Time-consuming research

2.3 Brainstorming

Ideas considered:

- Recipe analyzer

- Calorie counter

- Personalized meal planner

- AI nutritional assistant

Final selected idea:
👉 Instant Nutritional Information Generator

3 REQUIREMENT ANALYSIS

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3.1 Customer Journey Map

1. User opens application

2. Enters food items

3. Clicks "Get Nutritional Information"

4. System processes input

5. Displays structured nutritional data

3.2 Solution Requirement

Functional Requirements:

- Input form for food items

- AI-based response generation

- Structured output display

Non-functional Requirements:

- Fast response time

- Clean UI
- Easy deployment

3.3 Data Flow Diagram (Explain in words)

User → Input Form → Prompt Generation → AI Processing → Structured Output → Display to User

3.4 Technology Stack

- Python

- Streamlit

- Generative AI Concepts

- GitHub (Version Control)

- Streamlit Cloud (Deployment)

4 PROJECT DESIGN

4.1 Problem Solution Fit

NutriAI solves the need for fast and organized nutritional information by combining user input with AI-generated structured responses.

4.2 Proposed Solution

A web application where:

- User enters food items

- System generates AI-based nutritional analysis

- Results are displayed clearly

4.3 Solution Architecture

Frontend: Streamlit Interface
Backend Logic: Python Functions
AI Layer: Prompt-based response generation
Deployment: Streamlit Cloud

5 PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Milestones completed:

✔ Define prompt template
✔ Build Streamlit UI
✔ Implement input collection
✔ Generate structured output
✔ Deploy on Streamlit Cloud
✔ Upload project to GitHub

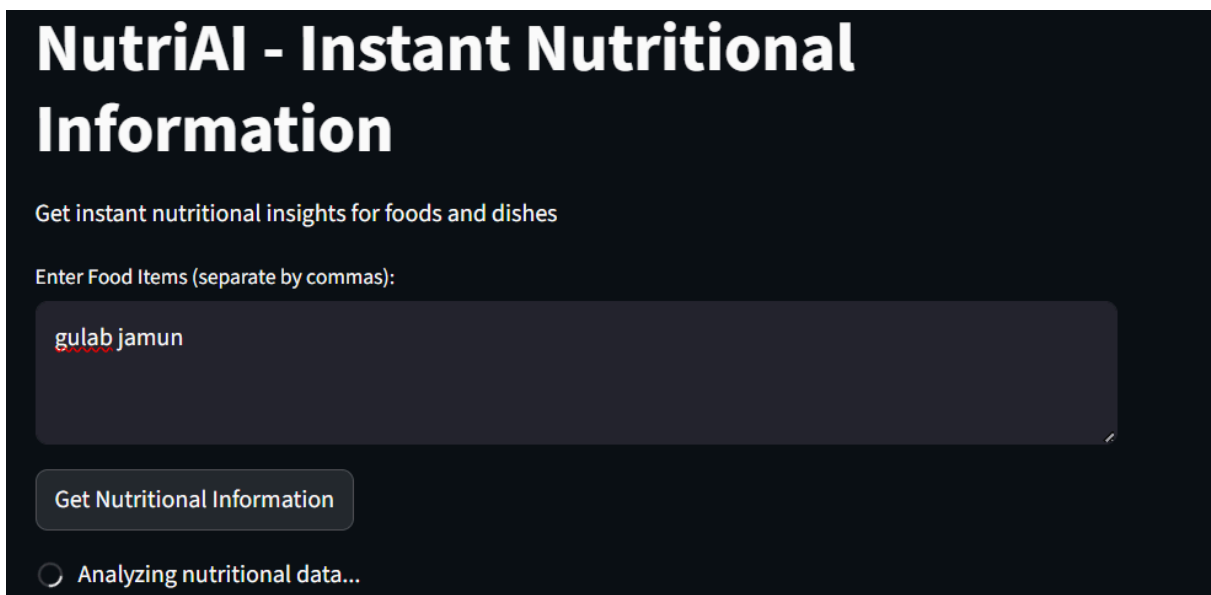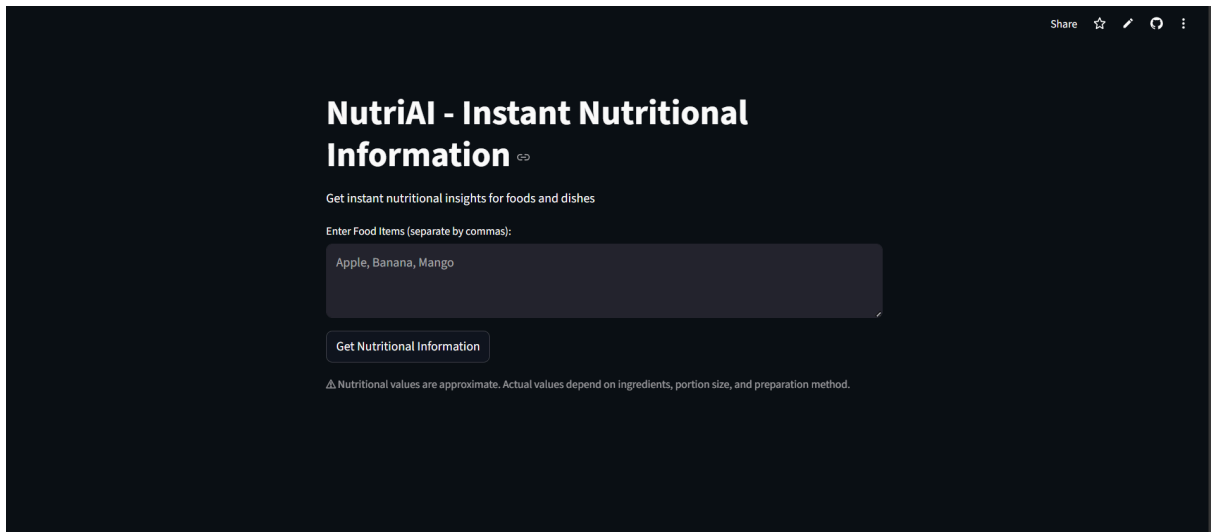# 6 FUNCTIONAL AND PERFORMANCE TESTING

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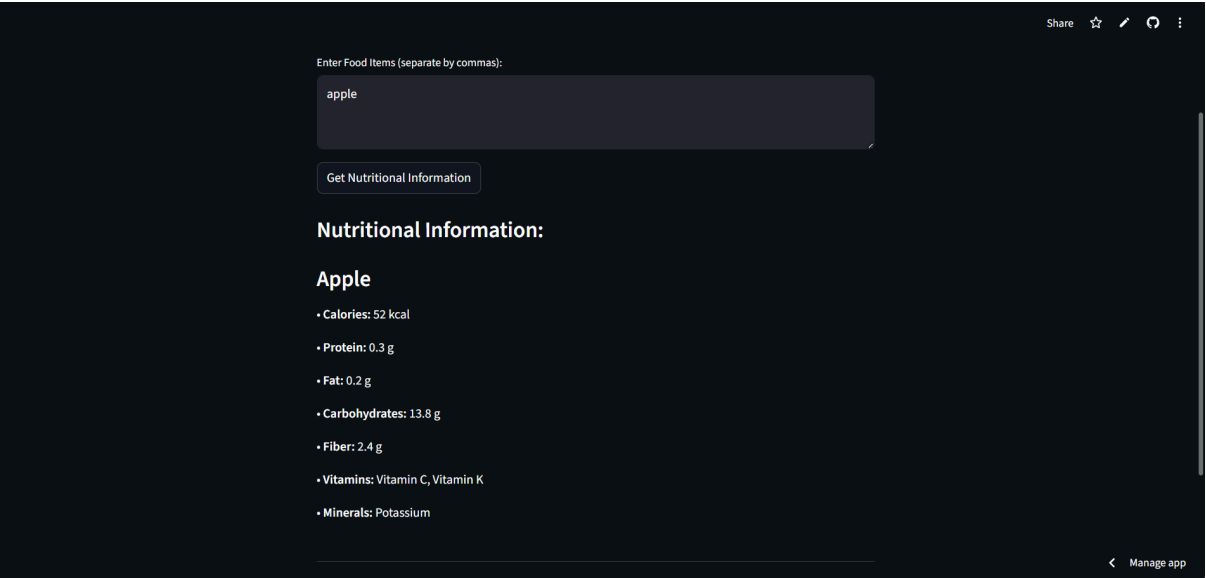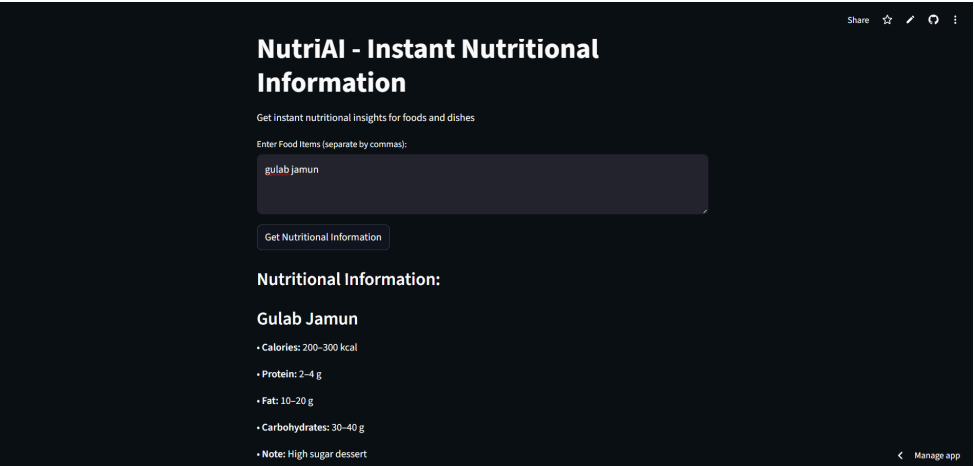## 6.1 Performance Testing

- Application loads within seconds.

- Input processing occurs instantly.

- No crash during multiple inputs.

- UI responsive across devices.

7 RESULTS

NutriAI - Instant Nutritional Information

Get instant nutritional insights for foods and dishes

Enter Food Items (separate by commas):

gulab jamun

Get Nutritional Information

◯ Analyzing nutritional data...

NutriAI - Instant Nutritional Information

Get instant nutritional insights for foods and dishes

Enter Food Items (separate by commas):

gulab jamun

Get Nutritional Information

Nutritional Information:

Gulab Jamun

• **Calories:** 200–300 kcal

• **Protein:** 2–4 g

• **Fat:** 10–20 g

• **Carbohydrates:** 30–40 g

• **Note:** High sugar dessert

Enter Food Items (separate by commas):

apple

Get Nutritional Information

Nutritional Information:

Apple

• **Calories:** 52 kcal

• **Protein:** 0.3 g

• **Fat:** 0.2 g

• **Carbohydrates:** 13.8 g

• **Fiber:** 2.4 g

• **Vitamins:** Vitamin C, Vitamin K

• **Minerals:** Potassium

8 ADVANTAGES & DISADVANTAGES

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Advantages

- Fast and easy nutritional lookup

- User-friendly interface

- Scalable to real AI models

- Easily deployable

Disadvantages

- Generalized nutritional values

- Depends on input clarity

- Requires internet for deployment

⑨ CONCLUSION

9 CONCLUSION

NutriAI successfully demonstrates the use of Generative AI concepts in building an interactive nutritional assistant. The project integrates user input forms, prompt templates, AI response generation, and deployment practices effectively.

10 FUTURE SCOPE

🔟 FUTURE SCOPE

- Integration with real Gemini API

- Personalized diet recommendations

- User login & saved history

- Calorie tracking dashboard

- Mobile app version

APPENDIX

APPENDIX

GitHub Link:
 (https://github.com/KAVYASHREE0414/NutriAI-Streamlit-App.git)

Streamlit Deployment Link:
 (https://nutriai-app-app-kcnbuv9obv4dn4q5vgjnxm.streamlit.app/)

Project Demo Video:
 (Optional – upload to GitHub)