

# Internship Report: Nutrition App Using Gemini Pro

## 1. Introduction

**Nutrition App Using Gemini Pro: Your Comprehensive Guide to Healthy Eating and Well-being** is an innovative mobile application designed to provide personalized dietary recommendations and nutritional advice. The app leverages the advanced capabilities of the **Gemini 1.5 Flash model** to analyze user data, dietary preferences, and health goals, delivering tailored meal plans, nutritional insights, and wellness tips. The primary aim of Nutrition App is to promote healthier eating habits and improve overall well-being through intelligent and data-driven recommendations.

## 2. Objectives

- **To create a tool** that offers personalized dietary recommendations based on individual user data.
- **To enhance user health** by providing tailored meal plans and nutritional insights.
- **To integrate AI capabilities** for seamless dietary advice, catering to various health goals.

## 3. Technologies Used

- **Streamlit**: For building the interactive web interface.
- **Google Generative AI (Gemini 1.5 Flash)**: To process user data and generate dietary recommendations.
- **Pillow (PIL)**: For image processing and handling of uploaded food images.
- **python-dotenv**: For secure handling of environment variables, such as API keys.
- **Python**: The primary programming language used for building the application.

## 4. Key Components

### 1. User Interaction:

- Users input their dietary preferences, health goals, and personal data.
- The app provides meal plans, nutritional advice, and wellness tips tailored to the user's needs.

### 2. AI Integration:

- The app uses the **Gemini 1.5 Flash model** to analyze user inputs and generate personalized dietary recommendations.

- The AI processes images of food items, providing calorie counts and nutritional breakdowns.
- 3. **Scenario-Based Personalization:**
  - **Weight Loss Journey:** Users aiming to lose weight receive calorie-controlled, nutrient-dense meal plans.
  - **Managing Diabetes:** Diabetic users get low-carb, high-fiber meal plans tailored to their condition.
  - **Building Muscle:** Users focused on muscle gain receive high-protein meal plans to support their goals.
- 4. **Technical Architecture:**
  - **Project Flow:** User inputs are collected via the UI, processed by the Gemini 1.5 Flash model, and results are displayed on the frontend.
  - **Model Deployment:** Implemented using Streamlit to ensure an intuitive user experience.

## 5. Code Overview

### 5.1 Main Application (app.py)

- **Functionality:** The user enters their health goals and preferences, and the application generates a personalized meal plan using the Gemini 1.5 Flash model.
- **Key Features:**
  - Image uploading for food items.
  - Calorie counting and nutritional analysis.
  - Integration with fitness trackers to provide comprehensive health insights.

### 5.2 Dependencies (requirements.txt)

- **Libraries Used:**
  - **Streamlit:** For building the UI.
  - **google-generativeai:** For accessing Google's advanced AI models.
  - **python-dotenv:** For managing environment variables securely.
  - **Pillow (PIL):** For handling and displaying images.

## 6. Challenges Faced

- **Model Integration:** Ensuring seamless integration with the **Gemini 1.5 Flash model** required careful API management and testing.

- **User Data Handling:** Managing sensitive user data securely while providing personalized recommendations was a priority.
- **Scenario-Based Personalization:** Creating accurate and effective meal plans based on diverse user scenarios demanded extensive AI model training and fine-tuning.

## 7. Future Work

- **Advanced AI Capabilities:** Incorporating more sophisticated AI models to enhance the accuracy of dietary recommendations.
- **Expanded Dietary Scenarios:** Developing more scenarios and expanding the app's capabilities to cater to a wider range of dietary needs.
- **Security Enhancements:** Strengthening data protection measures, particularly in cloud-based environments.

## 8. Conclusion

The **Nutrition App Using Gemini Pro** successfully demonstrates the power of generative AI in promoting healthier eating habits and overall well-being. By providing personalized dietary recommendations, the app has the potential to make a significant impact on users' health and lifestyle, with room for future expansion and enhancement.

## 9. Results

```
(.venv) PS D:\AI_Doctor> streamlit run app.py

You can now view your Streamlit app in your browser.

Local URL: http://localhost:8501
Network URL: http://100.100.20.64:8501
```

## AI Doctor

Choose an image..



Drag and drop file here

Limit 200MB per file • JPG, JPEG, PNG

Browse files

Tell me about my meal

3. Blueberries - 80 calories
4. Cucumber - 45 calories
5. Red pepper - 45 calories
6. Tomatoes - 40 calories
7. Spinach - 10 calories
8. Red Onion - 15 calories
9. Egg - 78 calories
10. Walnuts - 185 calories

**Total Calories: 818 calories**

This meal is healthy. It has a good balance of carbohydrates, proteins, and fats.

Percentage Split:

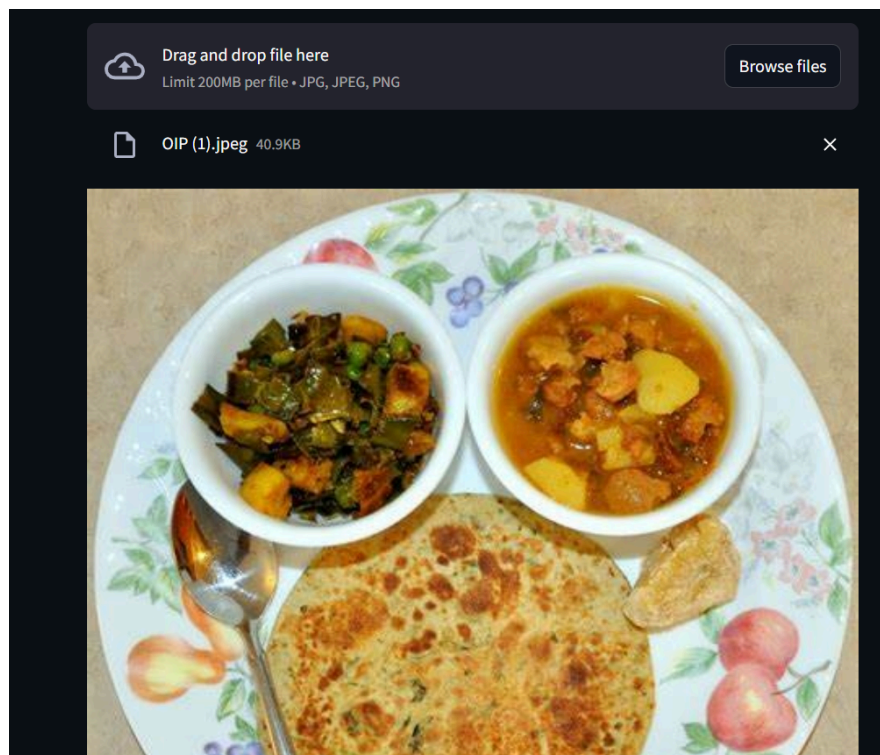
- Carbohydrates - 40%
- Proteins - 20%
- Fats - 30%
- Sugar - 10%
- Calories - 100%

Suggestions:

This meal is already quite healthy and balanced, but here are a few minor adjustments that can be made:

Remove:

- One of the walnuts (reduce the total amount of walnuts by 1/3)



Tell me about my meal

## The Response is

1. Green Peas and Potato Curry - 150 calories
2. Paratha - 250 calories
3. Potato Curry - 200 calories

Total calories: 600 calories

This meal is not healthy. It is high in carbohydrates and fats.

- Carbohydrates: 60%
- Protein: 10%
- Fat: 30%
- Sugar: 10%
- Calories: 600

Suggestions:

- Remove the paratha. It is high in calories and fat.
- Remove the potato curry. It is high in calories and fat.
- Add a green salad with a light dressing. This will add fiber and nutrients to the meal.
- Add a small portion of grilled chicken or fish. This will provide protein and healthy fats.

This meal would be much healthier if you choose to eat just the green peas and potato curry with the salad and lean protein. This will provide you with a balanced meal that is lower in calories and fat.



Uploaded Image.

Tell me about my meal

## The Response is

1. Quinoa - 220 calories
2. Chickpeas - 160 calories

3. Blueberries - 80 calories
4. Cucumber - 45 calories
5. Red pepper - 45 calories
6. Tomatoes - 40 calories
7. Spinach - 10 calories
8. Red Onion - 15 calories
9. Egg - 78 calories
10. Walnuts - 185 calories

**Total Calories: 818 calories**

This meal is healthy. It has a good balance of carbohydrates, proteins, and fats.

Percentage Split:

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This meal is already quite healthy and balanced, but here are a few minor adjustments that can be made:

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- One of the walnuts (reduce the total amount of walnuts by 1/3)