Generative AI Project Report

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Meal Measure Monitor

AGENDA

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- Project Overview
- Implementation Details
- Results and Findings
- Screenshots of Testing & Results

Problem Statement

- In today's fast-paced world, maintaining a healthy lifestyle is crucial. A significant aspect of this lifestyle is monitoring dietary intake, including calorie consumption. However, manually calculating the calorie content of every meal can be time-consuming and challenging, especially for individuals with busy schedules or limited nutritional knowledge. To address this challenge, there is a need for a convenient and efficient tool that can analyze images of food items and provide detailed information about their calorie content.

Project Overview

- The aim of this project is to develop a Meal Measure Monitor, an innovative tool that utilizes advanced technology to analyze images of food and calculate the total calories, as well as provide detailed information about the calorie content of individual food items.
- Tools Used: Streamlit for app development, Google Gemini Pro Vision API for image analysis.

Implementation Details

- Environment Setup: The project utilizes Python programming language and various libraries such as dotenv, streamlit, google.generativeai, and PIL. Environment variables are loaded using dotenv for secure configuration.
- Google Gemini Pro Vision API Integration: The Gemini Pro Vision API is configured with the provided API key to enable image analysis and content generation.

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- Function Definitions: Custom functions are developed to interact with the Gemini Pro Vision API and process image data. These functions include get_gemini_response and input_image_setup.
- Streamlit App Development: The Meal Measure Monitor is developed as a Streamlit web application. The app interface includes input fields for user prompts and file uploaders for images. Upon submission, the app displays the uploaded image and provides a detailed analysis of the calorie content.

Results & Findings

- The Meal Measure Monitor successfully analyzes images of food items and calculates their total calorie intake.
- Integration with the Google Gemini Pro Vision API ensures accurate image analysis and reliable results.
- The Streamlit interface offers a seamless user experience, making it easy for users to interact with the application.

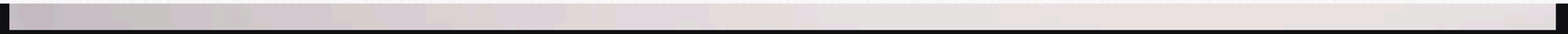
ScreenShots of Testing & Results

- Input Images with Prompt:

Food1
Prompt:why the food is liked by vegetarians?

Food2
Prompt: is that food good for gut health?

Response food1



Uploaded Image.

Tell me the total calories

The Response is

The food items shown in the image are:

1. Rice - 200 calories
2. Sambar - 100 calories
3. Rasam - 50 calories
4. Curd - 100 calories
5. Pickle - 50 calories
6. Papad - 100 calories
7. Sweet - 100 calories

Response food2

Uploaded Image.

Tell me the total calories

The Response is

The pizza contains a variety of vegetables, which are good for gut health. The vegetables provide fiber, which is essential for good digestion. They also contain antioxidants, which can help to protect the cells in the gut from damage. The pizza also contains cheese, which is a good source of protein and calcium. Protein is essential for building and repairing tissues, and calcium is important for bone health. However, the pizza also contains a lot of fat and calories, which can be unhealthy if consumed in large amounts. Overall, the pizza is a good source of nutrients, but it should be consumed in moderation.

1. Pizza - 285 calories
2. Capsicum - 20 calories