**1. Project Title:**

**PicPlate (AI-Powered Meal Planner)**

**2. Objective:**

This project aims to create a **Single Page Application (SPA)** that allows users to **upload food images from Pinterest/Google Photos**, use the **Google Vision API** to identify food items, and leverage the **Google Gemini API** to estimate calorie content and suggest healthy meal alternatives. The application will also enable users to **have a recipe based on the alternate ingredients and suggestions of some healthy restaurant near their location.**

**3. Features:**

**User Features:**

* **User Authentication:** Login via Google or email authentication.
* **Food Image Upload:** Users can upload food images from their device or import from **Pinterest/Google Photos**.
* **Food Recognition (Google Vision API):**
  + Detects food items in the image.
  + Identifies ingredients where possible.
* **Calorie Estimation & Nutrition Insights (Google Gemini API):**
  + Suggests healthy meal alternatives based on user’s dietary goals.
  + Generates recipes based on alternate ingredients.
  + Recommends nearby healthy restaurants based on user location.

**4. System Architecture:**

**Frontend:** React.js (SPA) - Ensures a seamless, interactive user experience. **Backend:** Node.js with Express - Handles API requests and processes data. **Database:** Google Firestore - Stores user food logs, calorie data, and fitness goals. **Deployment:** Google Cloud Run or GAE (Google App Engine) - Scalable cloud hosting. **APIs Used:**

* **Google Vision API**: Identifies food items from uploaded images.
* **Google Gemini API**: Provides calorie estimation and suggests healthy meal alternatives.

**5. Workflow:**

1. **User logs in** and connects their Google Photos/Pinterest account.
2. **Retrieve food images** from the connected account.
3. **Google Vision API identifies food items** and matches them with nutrition databases.
4. **Google Gemini API estimates calories and suggests meal improvements.**
5. **Generate recipe suggestions based on alternative ingredients.**
6. **Find and recommend healthy restaurants near user location.**
7. **Display recommendations** in an interactive dashboard.
8. **Data is stored in Firestore**, allowing users to retrieve and compare past meals.

Here are some screenshots of the search results using Google API and Gemini for our project.

A screenshot of a food

AI-generated content may be incorrect.A plate of food on a wooden surface

AI-generated content may be incorrect.A screenshot of a menu

AI-generated content may be incorrect.

A white page with black text

AI-generated content may be incorrect.

A white paper with black text

AI-generated content may be incorrect.