

## Multi-Agent Product Comparison Bot

This project is a web-based application that uses a team of specialized AI agents to generate detailed and insightful comparisons between any two products. The application is built with Python, Gradio, and the Google Generative AI API.

### Features

- **Detailed Comparisons:** Get a full report including a side-by-side specification table, pros and cons for each product, and a final verdict.
- **AI-Powered:** Utilizes the powerful Gemini 2.5 Pro model to provide accurate and up-to-date information.
- **Multi-Agent System:** A sophisticated architecture where different agents collaborate to gather, analyze, and present the information, ensuring a high-quality report.
- **User-Friendly Interface:** A simple and clean web UI built with Gradio, making it easy for anyone to use.
- **Loading Animation:** A progress indicator shows that the report is being generated, improving the user experience.

### How It Works

The bot uses a multi-agent system to handle user requests. Instead of a single AI trying to do everything, the task is broken down into a sequence of steps, each handled by a specialized agent:

1. **Info Extractor Agent :** This agent's only job is to gather the raw specifications for each product. It is called once for Product A and once for Product B.
2. **Comparator Agent :** This agent takes the raw data from the first agent and organizes it into a structured format. It creates the comparison table and the pros/cons lists.
3. **Recommender Agent :** The final agent analyzes the structured comparison and provides a "Final Verdict," recommending one product over the other for a specific type of user.

This separation of tasks makes the final report more reliable, structured, and accurate.

## Setup and Usage


This project is designed to be run easily in a Google Colab notebook.

### Requirements

You will need to install the following Python libraries:

- `gradio`
- `google-generativeai`

### Step-by-Step Instructions

1. **Install the Libraries** Open a new cell in your Colab notebook and run the following command to install the required packages:
2. `!pip install -q -U gradio google-generativeai`
3. **Set Up Your API Key** This project requires a Google Generative AI API key. You must store it securely using Colab's "Secrets" feature.
  - In your Colab notebook, click the **key icon** (  ) on the left sidebar.
  - Click "**Add a new secret**".
  - For the **Name**, enter `GEMINI_API_KEY`.
  - In the **Value** field, paste your actual Gemini API key.
  - Make sure the "Notebook access" toggle is turned on.
4. **Run the Code**
  - Copy the entire Python script (`your_script_name.py`) into a new cell in your Colab notebook.
  - Run the cell.
5. **Access the Application** After running the script, a public URL will be generated in the output. Click on this URL to open the Gradio web interface in your browser and start comparing products!

## Technologies Used

- **Python:** The core programming language.
- **Gradio:** For creating the interactive web UI.
- **Google Generative AI:** For the core AI and language model capabilities (Gemini 2.5 Pro).