

# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

---

## Introduction:

flavour Fusion: AI-Driven Recipe Blogging is a web application that leverages Google's Generative AI to create unique and customized recipe blogs. The app provides users with the ability to input a topic and specify the desired word count for their recipe blog. Using the specified parameters, the AI generates detailed and engaging recipe content. Additionally, the app includes a fun feature where it tells a programmer joke to entertain users while the AI is generating the content.

### Scenario 1: Creating a Vegan Recipe Blog

A food blogger specializing in vegan recipes opens the Flavour Fusion app and inputs "Vegan Chocolate Cake" with a 1200-word count. As the app generates the content, it entertains them with a programmer joke. The AI quickly delivers a detailed and creative recipe. The blogger reviews the well-crafted content and incorporates it into their blog, ready to share with their audience.

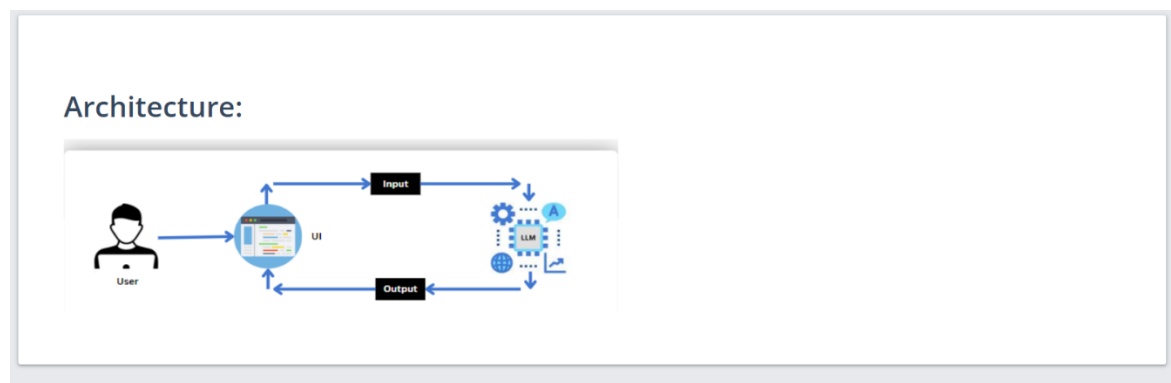
### Scenario 2: Crafting a Quick Weeknight Dinner Recipe Blog

A busy professional looking for quick dinner ideas uses the Flavour Fusion app, inputting "Quick Weeknight Dinners" and specifying an 800-word count. The app provides a light hearted joke while generating the content. The AI produces a concise yet practical recipe blog filled with quick and easy dinner ideas. The user finds the suggestions useful and incorporates them into their weeknight meal planning.

### Scenario 3: Developing a Gluten-Free Baking Recipe Blog

A baker specializing in gluten-free recipes accesses the Flavour Fusion app to generate new content for their blog. They enter "Gluten-Free Bread" as the topic and select a 1500-word count. The app entertains with a joke during the content creation process. The AI delivers a comprehensive and well-detailed recipe. The baker reviews the high-quality content and publishes it on their gluten-free baking blog, confident it will be valuable to their readers.

## Architecture:



# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

---

## 1. Prior Knowledge:

To successfully complete this project, you should have a fundamental understanding of the following topics:

### 1.1 Large Language Models (LLMs) & Gemini 1.5 Flash

- A **Large Language Model (LLM)** is an advanced AI model that can process, understand, and generate human-like text.
- Tasks include **text generation, translation, summarization, chatbots, code generation, and more.**
- **Gemini 1.5 Flash** is a powerful generative AI model developed by **Google** for fast and cost-efficient text generation.
- Resources:
  - [Understanding Large Language Models](#)
  - [Google's Gemini AI](#)

### 1.2 Streamlit (Web Framework for Python)

- **Streamlit** is an open-source Python framework for building interactive web apps with minimal effort.
- It allows seamless integration of UI components (e.g., buttons, sliders, text input fields) with backend logic.
- Knowledge of how to use Streamlit to build a simple UI is required.
- Resources:
  - [Streamlit Introduction](#)

### 1.3 Python & API Integration

- Understanding how to call APIs using Python and handle authentication using **API keys**.
- Basics of working with .env files to **store and load environment variables securely**.
- Understanding exception handling (try-except) for handling API request failures.

# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

---

## 2. Project Structure:

Below is the folder structure for this project:

📁 AI Recipe Generator (Project Root)

```
|— 📄 app.py           # Main Streamlit app file
|— 📄 api_key.env      # Stores Google API Key (DO NOT SHARE PUBLICLY)
|— 📄 requirements.txt # Dependencies for the project
|— 📁 assets           # Stores images, logos, or static assets (if needed)
|— 📁 utils            # Contains helper functions (if any)
|— 📄 .gitignore       # Ignore unnecessary files like api_key.env
|— 📄 README.md        # Documentation on how to set up and run the project
```

### File Descriptions

- **app.py** → Main file containing the Streamlit app and API calls.
- **api\_key.env** → Stores sensitive API keys securely.
- **requirements.txt** → Contains all necessary Python dependencies to install using `pip install -r requirements.txt`.
- **assets/** → Stores static files (e.g., images, banners) used in the app.
- **utils/** → Optional folder for utility functions (e.g., text formatting, API handlers).
- **.gitignore** → Prevents uploading sensitive files (like `api_key.env`) to repositories.
- **README.md** → Provides instructions on project setup, usage, and API integration.

# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

---

## Create a requirements.txt file to list the required libraries:

### 1. Software Requirements

- **Python** (Version 3.8 or higher)
- **pip** (Python package manager)

### 2. Libraries Required

- **Streamlit** – For building the interactive web application
- **python-dotenv** – For loading environment variables securely
- **google-generativeai** – For integrating Google's Generative AI API

### 3. API Requirements

- **Google Generative AI API Key** (Needed to interact with Gemini 1.5 Flash)

### 4. Hardware Requirements

- **Minimum 4GB RAM** (For smooth execution)
- **Stable Internet Connection** (Required for API requests)

## Required Packages and Installation:

### Step 1: Required Packages

The following Python libraries are required for the project:

- **streamlit** – To create the web-based UI
- **python-dotenv** – To manage environment variables securely
- **google-generativeai** – To integrate Google's Generative AI (Gemini 1.5 Flash)

### Step 2: Creating requirements.txt

Create a file named requirements.txt in the project directory and add the following dependencies:

1.streamlit

2.python-dotenv

3.google-generativeai

### Step 3: Installing the Packages

Run the following command in the terminal or command prompt to install all required packages:

# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

---

```
pip install -r requirements.txt
```

## Step 4: Verifying Installation

After installation, verify that the packages are installed correctly:

```
pip list
```

Ensure that streamlit, python-dotenv, and google-generativeai are listed.

## Adding Google API Key:

### Step 1: Obtain Google API Key

To use Google's Generative AI, you need an API key:

1. Go to the **Google Cloud Console**: <https://console.cloud.google.com/>
2. Create a **new project** or select an existing one.
3. Navigate to **APIs & Services > Credentials**.
4. Click **Create Credentials** and select **API Key**.
5. Copy the generated API key for later use.

### Step 2: Store API Key Securely

To store the API key securely, create a .env file in your project directory:

1. Open the project folder.
2. Create a new file named **api\_key.env**.
3. Add the following line to the file:

```
GOOGLE_API_KEY= your_api_key_here
```

Replace your\_api\_key\_here with the actual API key you copied.

### Step 3: Load API Key in Code

Modify the Python code to load the API key securely using python-dotenv:

```
import os

from dotenv import load_dotenv

# Load API Key from .env file
load_dotenv("api_key.env")

GOOGLE_API_KEY = os.getenv("GOOGLE_API_KEY")

if not GOOGLE_API_KEY:

    raise = ValueError("Missing Google API Key! Add it to api_key.env.")
```

# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

## Step 4: Verify API Key Loading

To check if the API key is loaded correctly, run the following command:

```
python -c "import os; from dotenv import load_dotenv; load_dotenv('api_key.env');  
print(os.getenv('GOOGLE_API_KEY'))"
```

## Recipe and Joke Generation Code:

```
app.py > ...  
1 C:\Users\Jagadeesh\OneDrive\Desktop\flavour-fusion\app.py  
2 import streamlit as st  
3 import google.generativeai as genai  
4 from dotenv import load_dotenv  
5 import random  
6  
7 # Load API Key from api_key.env  
8 load_dotenv("api_key.env")  
9  
10 # Get API Key securely  
11 GOOGLE_API_KEY = os.getenv("GOOGLE_API_KEY")  
12  
13 if not GOOGLE_API_KEY:  
14     st.error("Missing Google API Key! Add it to api_key.env.")  
15     st.stop()  
16  
17 genai.configure(api_key=GOOGLE_API_KEY)  
18  
19 # Function to generate recipe  
20 def generate_recipe(topic, word_count):  
21     try:  
22         model = genai.GenerativeModel("gemini-1.5-flash")  
23         response = model.generate_content(f"Write a {word_count}-word blog on {topic} with a detailed recipe.")  
24         return response.text  
25     except Exception as e:  
26         return f"Error: {str(e)}"  
27  
28  
29 # List of programmer jokes  
jokes = [  
    "Why do programmers prefer dark mode? Because light attracts bugs! 🐛",  
    "Why was the JavaScript developer sad? Because he didn't [null] his feelings.",  
    "Why do Python developers prefer snakes? Because they love indentation!",  
    "What is a programmer's favorite hangout place? The Foo Bar!",  
    "How do you comfort a JavaScript bug? You console it. 😊",  
    "Why did the developer go broke? Because he used up all his cache!",  
    "Why was the computer cold? It left its Windows open!"  
]  
30  
31  
32 # UI Design  
st.title("Flavour Fusion: AI-Driven Recipe Blogging 🍷")  
33  
34 topic = st.text_input("Enter Recipe Topic", "Vegan Chocolate Cake")  
35 word_count = st.slider("Select Word Count", 500, 2000, 1200)  
36  
37 if st.button("Generate Recipe"):  
38     with st.spinner("Generating..."):  
39         recipe = generate_recipe(topic, word_count)  
40         joke = random.choice(jokes) # Select a random joke  
41         st.success("Recipe Generated!")  
42         st.write(recipe)  
43         st.info(f"Joke: {joke}")
```

# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

## Output:

# Flavour Fusion: AI-Driven Recipe Blogging

Enter Recipe Topic

chicken biryani

Select Word Count



Generate Recipe

Recipe Generated!

## A Symphony of Spices: Mastering the Art of Chicken Biryani

Chicken biryani. Just the name conjures up images of fragrant saffron-infused rice, tender chunks of chicken, and a medley of aromatic spices, a culinary masterpiece that transcends mere sustenance and elevates to an experience. Originating from the Indian subcontinent, this dish is a testament to the region's rich culinary heritage, a celebration of flavors and textures that has captivated palates worldwide. Today, we'll embark on a journey to understand and recreate this magnificent dish, delving into its history, variations, and, most importantly, a detailed recipe to help you master this aromatic symphony.

Biryani's history is shrouded in a delicious haze of legend and speculation. Some trace its roots to the Mughal Empire, where it was supposedly a dish favored by royalty. Others suggest Persian influences, pointing to the layering techniques and use of saffron, a spice traditionally associated with Persian cuisine. Regardless of its precise origin, biryani's journey through time has resulted in countless regional variations, each boasting its own unique character and flavor profile. From the robust Hyderabadi biryani of Andhra Pradesh to the subtly spiced Lucknowi biryani of Uttar Pradesh, every region has its own interpretation of this beloved dish. These variations often involve differences in the type of rice used (basmati being the most popular), the spices included, and the method of cooking.

The magic of biryani lies in its layered construction. This careful layering of marinated chicken, fragrant rice, and a medley of spices ensures that every bite offers a harmonious blend of flavors and textures. The rice, ideally long-grain basmati, absorbs the rich aromas and juices from the chicken and spices, resulting in a dish that is both flavorful and visually stunning. The glistening grains, the tender chicken, and the vibrant colors of the spices create a culinary masterpiece that's as pleasing to the eye as it is to the palate.

# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

---

- **For the Chicken Marinade:**
  - 1.5 lbs boneless, skinless chicken thighs, cut into 1-inch pieces
  - 1 cup yogurt
  - 2 tbsp ginger-garlic paste
  - 1 tbsp lemon juice
  - 1 tsp turmeric powder
  - 1 tsp red chili powder (adjust to your spice preference)
  - 1 tsp coriander powder
  - 1 tsp cumin powder
  - 1/2 tsp garam masala
  - 1/2 tsp salt (or to taste)
  - 1/4 cup chopped cilantro
  - 2 tbsp oil
- **For the Rice:**
  - 2 cups basmati rice, washed thoroughly
  - 4 cups water
  - 1 tsp salt
  - 1/2 tsp saffron strands, soaked in 1/4 cup warm milk or water
  - 2 tbsp ghee (clarified butter) or vegetable oil
  - 1 large onion, thinly sliced
  - 2 green chilies, slit lengthwise (optional)
  - 1 stick cinnamon
  - 2-3 cloves
  - 2-3 green cardamom pods



# Flavour Fusion: AI-Driven Recipe Blogging (documentation)

## Instructions:

1. **Marinate the Chicken:** In a large bowl, combine all the chicken marinade ingredients. Mix well, ensuring the chicken is evenly coated. Cover and refrigerate for at least 2 hours, or preferably overnight, for maximum flavor development.
2. **Cook the Rice:** Rinse the basmati rice thoroughly under cold water until the water runs clear. This step removes excess starch and helps the rice cook evenly. In a large pot, combine the rinsed rice, water, and salt. Bring to a boil, then reduce heat to low, cover, and simmer for 12-15 minutes, or until the rice is cooked but still slightly firm (al dente). Once cooked, drain any excess water and set aside.
3. **Sauté the Aromatics:** Heat the ghee or oil in a large, heavy-bottomed pot or Dutch oven over medium heat. Add the sliced onions and sauté until golden brown. Add the green chilies (if using), cinnamon stick, cloves, cardamom pods, and bay leaves. Sauté for another minute until fragrant.
4. **Cook the Chicken:** Add the marinated chicken to the pot and cook until browned on all sides. This step helps to seal in the juices and develop a deeper flavor.
5. **Layer the Biryani:** This is the crucial step that distinguishes biryani from other rice dishes. In the pot, start by layering half of the cooked rice, followed by half of the browned chicken. Repeat the layers, finishing with the remaining rice on top. Pour the saffron milk (or water) evenly over the rice.
6. **Steam the Biryani:** Cover the pot tightly with a lid and reduce the heat to low. Simmer for 15-20 minutes, or until the rice is fully cooked and the flavors have melded together. Do not lift the lid during this time to avoid disrupting the steaming process.
7. **Rest and Serve:** Once cooked, remove the pot from the heat and let it rest, covered, for at least 10-15 minutes. This allows the flavors to further meld and the biryani to absorb any remaining moisture. Garnish with fresh cilantro before serving.

Serve hot with raita (yogurt dip), salad, and your favorite side dishes. The aroma alone is enough to transport you to a bustling Indian market, and the first bite will confirm that you've created a truly authentic and delicious chicken biryani.

Experimenting with different spices and additions is part of the fun of making biryani. Try adding chopped nuts, dried fruits, or even potatoes for a unique twist. Remember, the beauty of this dish lies in its adaptability and the joy of creating a flavorful masterpiece in your own kitchen. So gather your ingredients, embrace the process, and enjoy the aromatic journey of preparing this iconic dish. Happy cooking!

Joke: Why was the computer cold? It left its Windows open!