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Integrating Gemini APIs with Python and Building a Chatbot App with Streamlit

Open Lab | Digital Summit 2025

Goal

In this OpenLab, you will learn to create a simple, user-friendly chat bot using **Streamlit** and powered by **Google Cloud's Gemini API**. Here's what you'll be working on:

- **Streamlit** is an easy-to-use platform that helps you build interactive applications quickly. With it, you'll create a chatbot where users can ask questions and get accurate answers.
- The chatbot will use **Gemini's AI**, a powerful language model by Google, to understand the user's questions and provide intelligent, helpful responses.

By the end of the OpenLab, you'll have built a chatbot that anyone can use to ask questions and get smart answers, all with a simple interface!

Pre-Requisites

The following installations are required to complete this lab and run successfully,

- Google Account
- Python Installation
- Any Text Editor(VS Code/Pycharm/Notepad++)

Technology Involved

- Python
- Streamlit (HTML + CSS)

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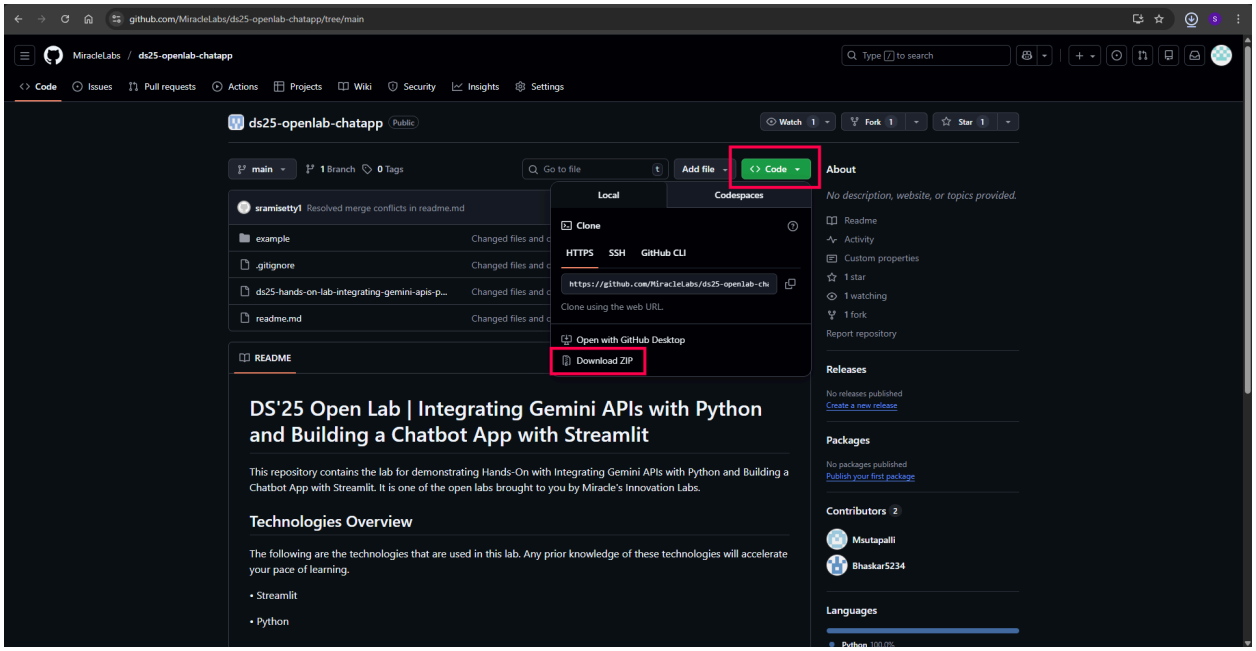
Step 1 | Download Code Repository

Get Started

- Download the code from the following GitHub Repo link https://github.com/MiracleLabs/ds25-openlab-chatapp



- After downloading, unzip it

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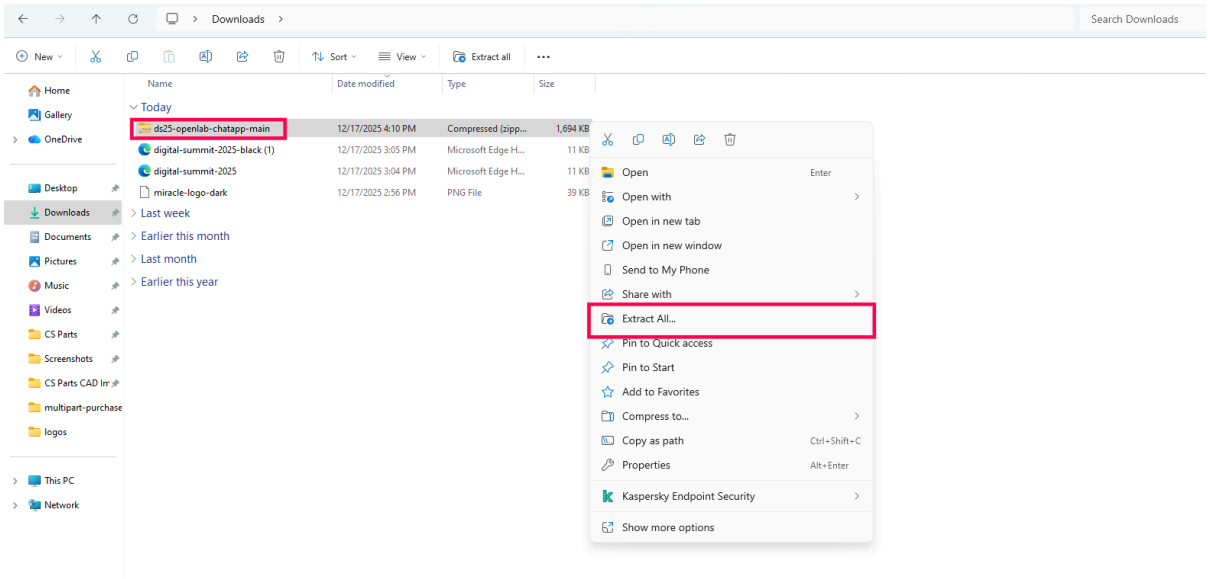

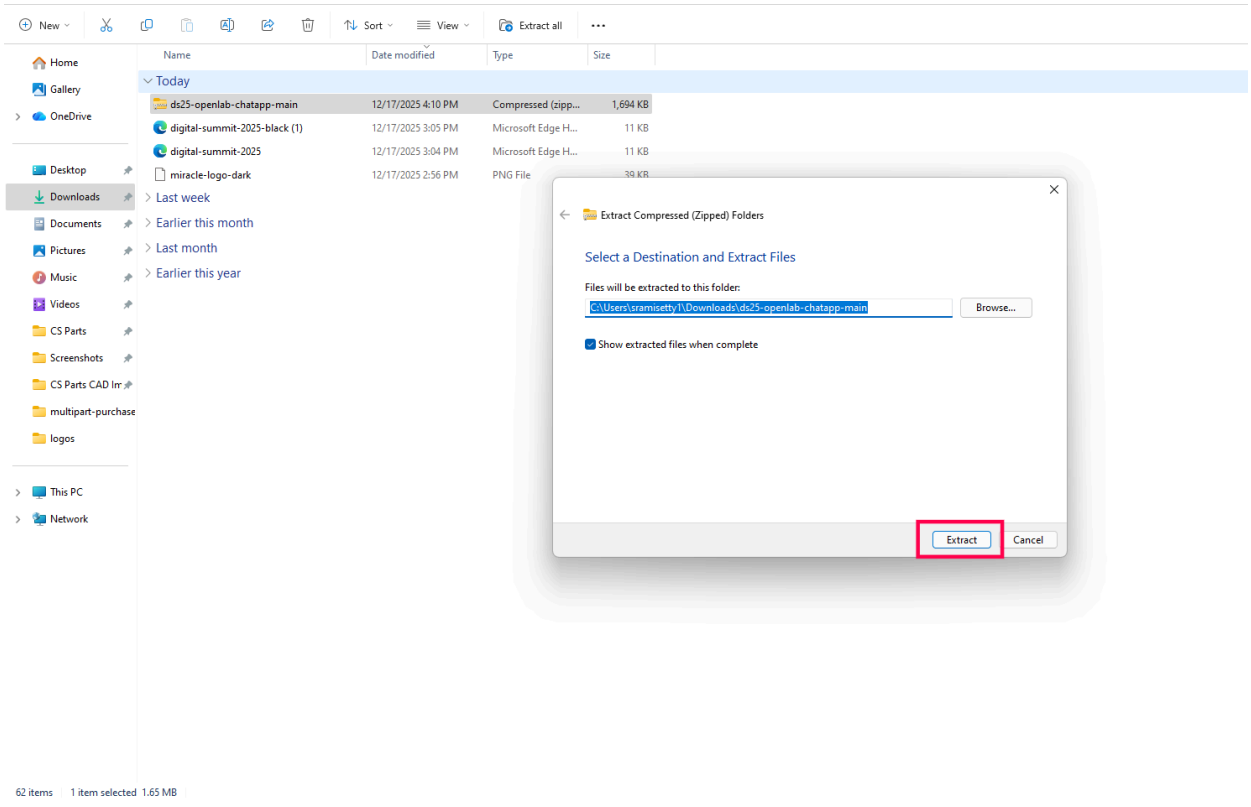

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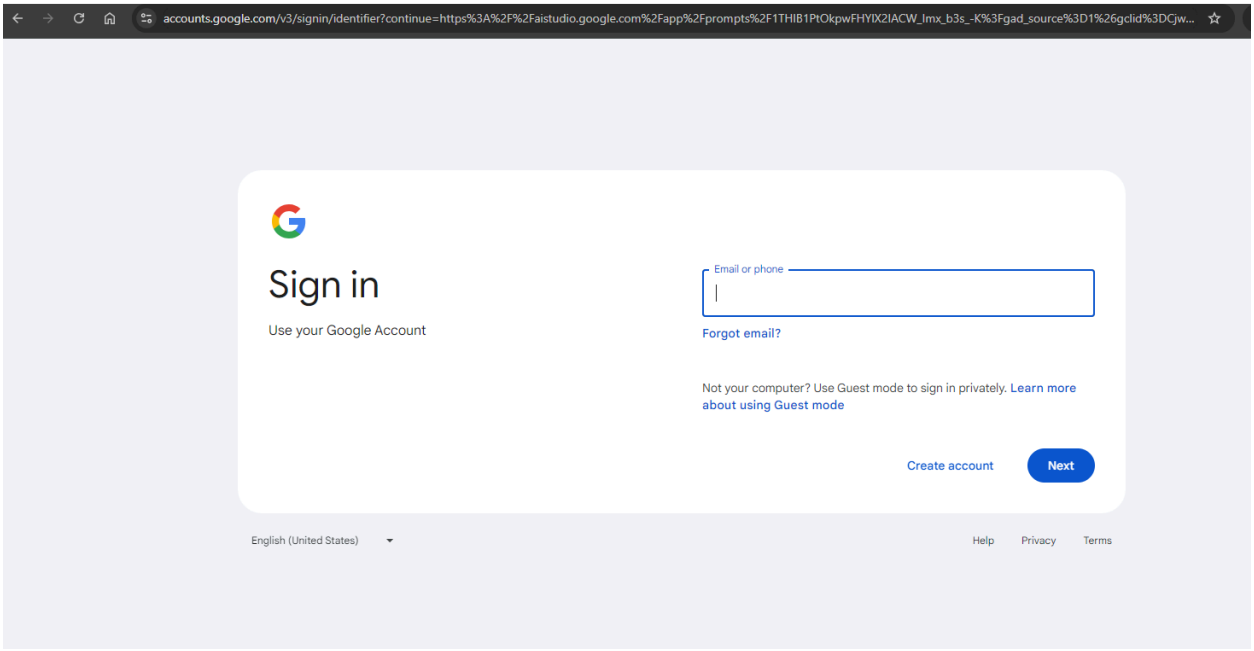
Step 2 | Access Google AI Studio

- Click on Google AI Studio



- After logging into your Google account, you'll be redirected to the AI Studio dashboard, where you need to accept the Terms of Service and click "**Continue**" to proceed.

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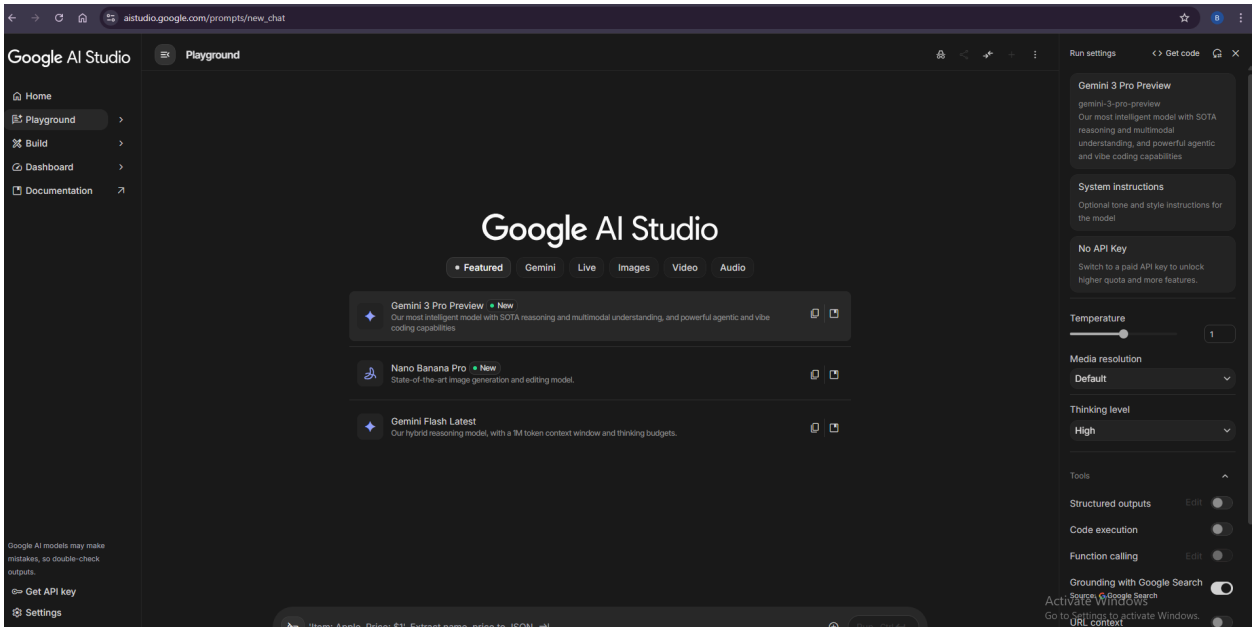
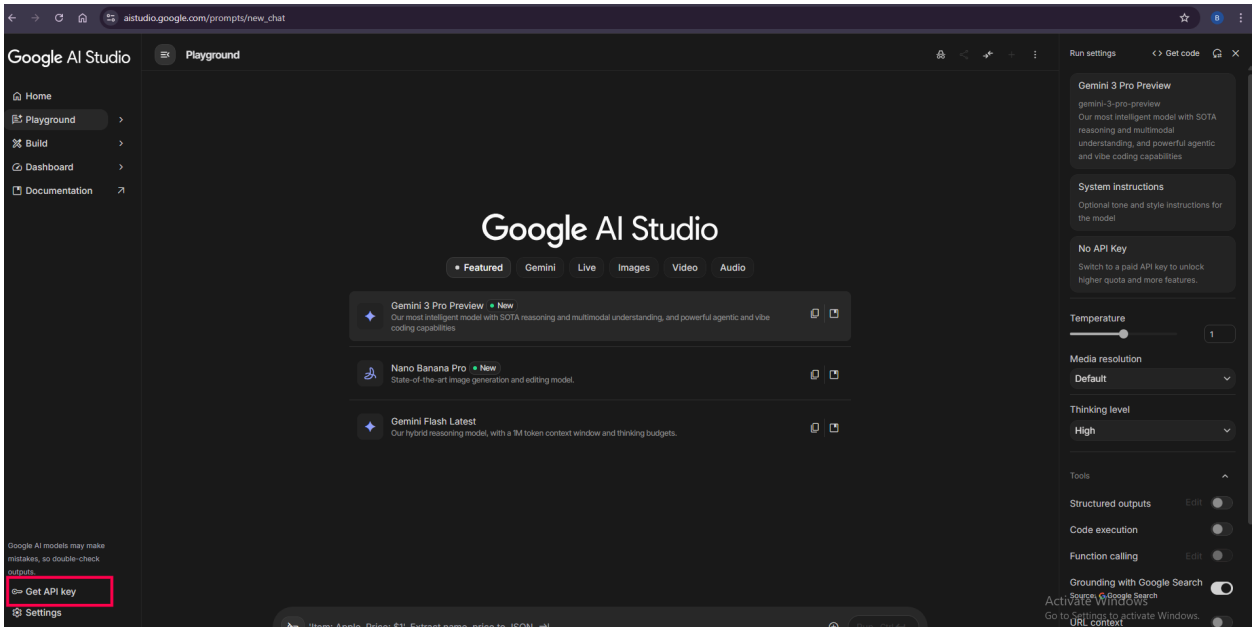


- Click on '**Get API Key**' in the top left corner to proceed to the screen shown below.



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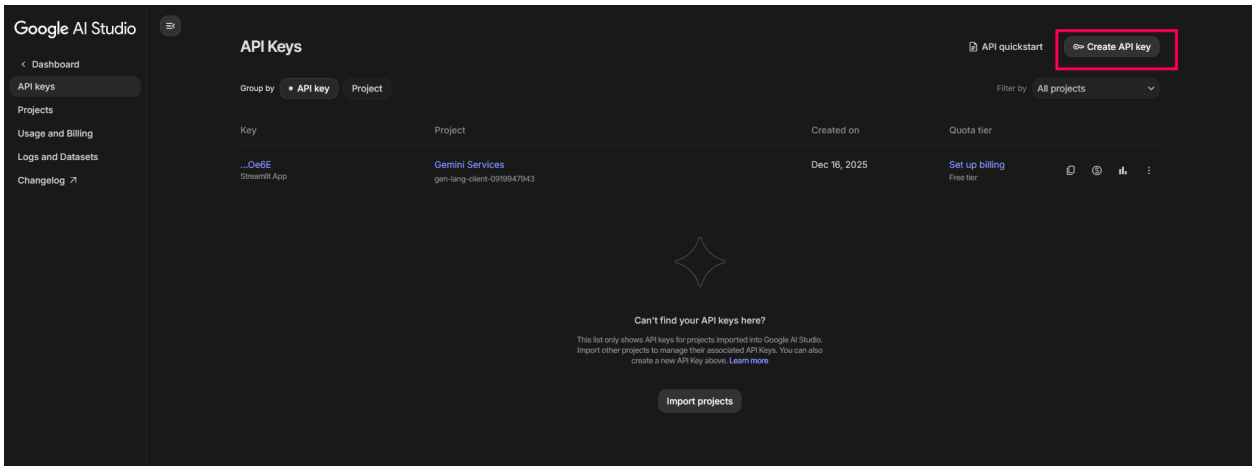
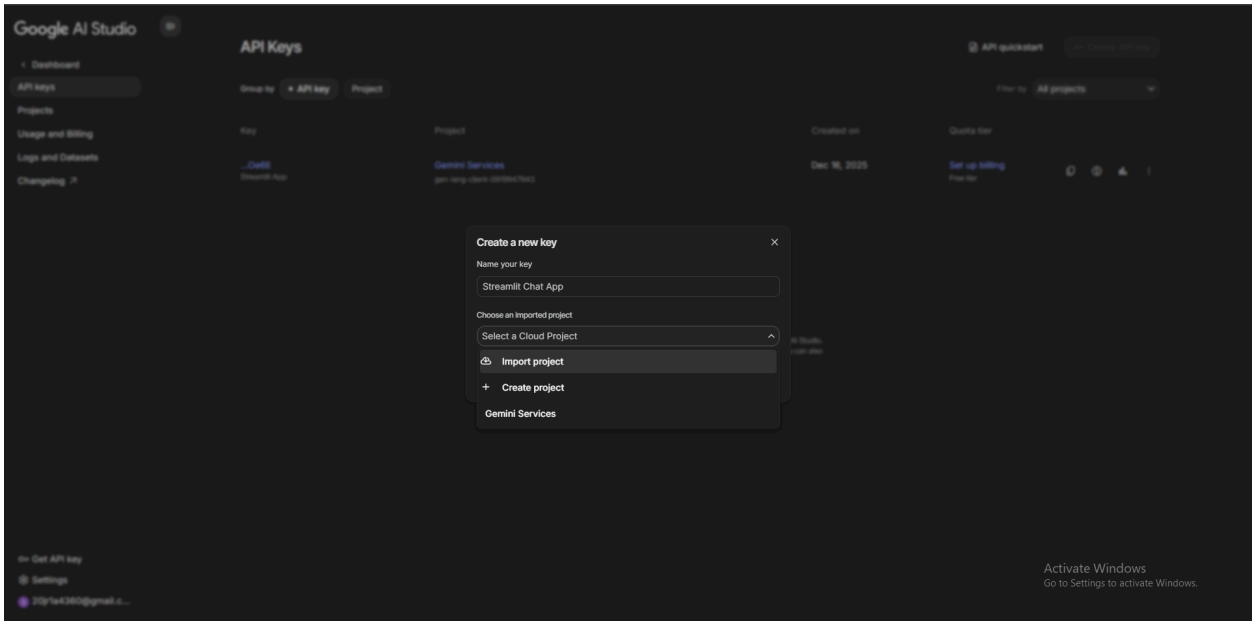
- Click on '**Create API Key**' as shown below.



- Select the project



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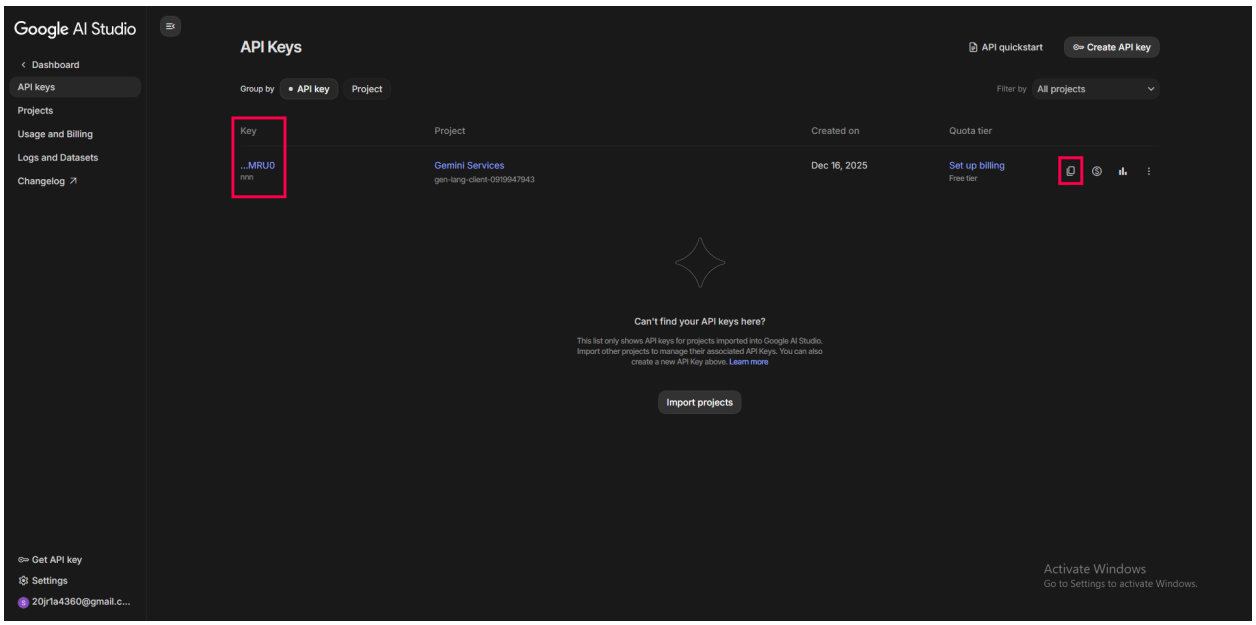
- Now, copy the **API key** and use it in the code.



Step 3 |Steps to Install and Set Up Python on Your Local

- You must have the Python interpreter installed on your local machine. Click the link below to install Python (version).
- https://www.python.org/downloads/

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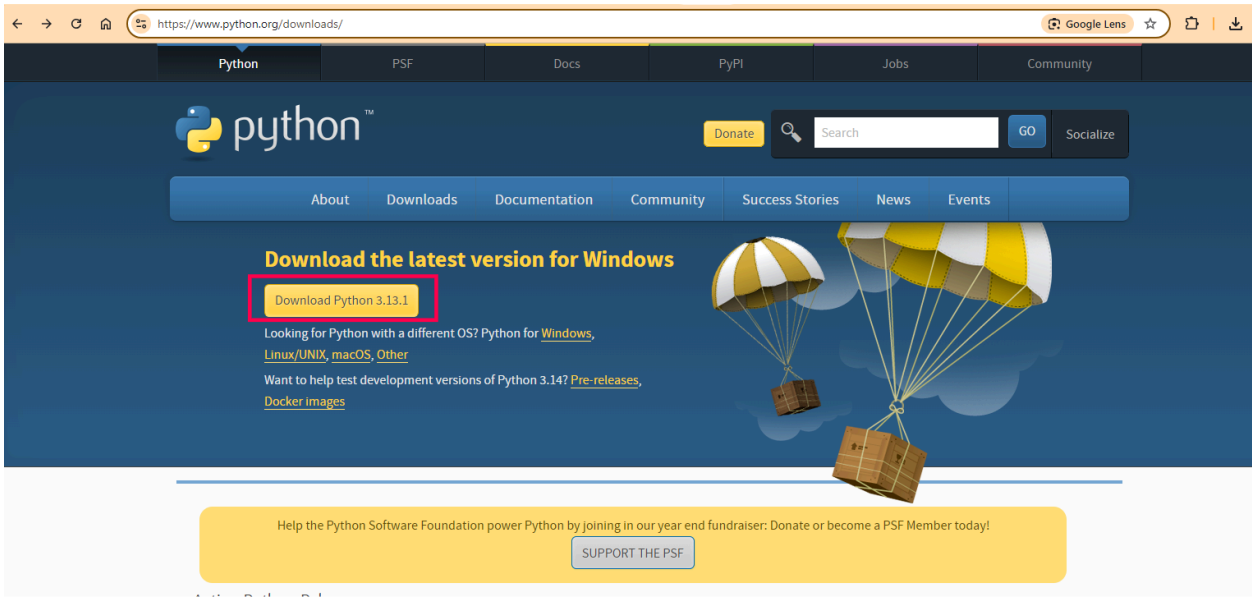
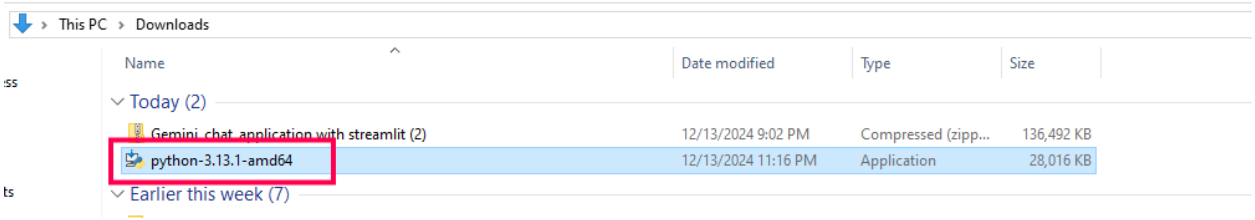


- Open the downloaded installer file, as shown in the image below.



- Click on "**Add Python to PATH**" checkbox

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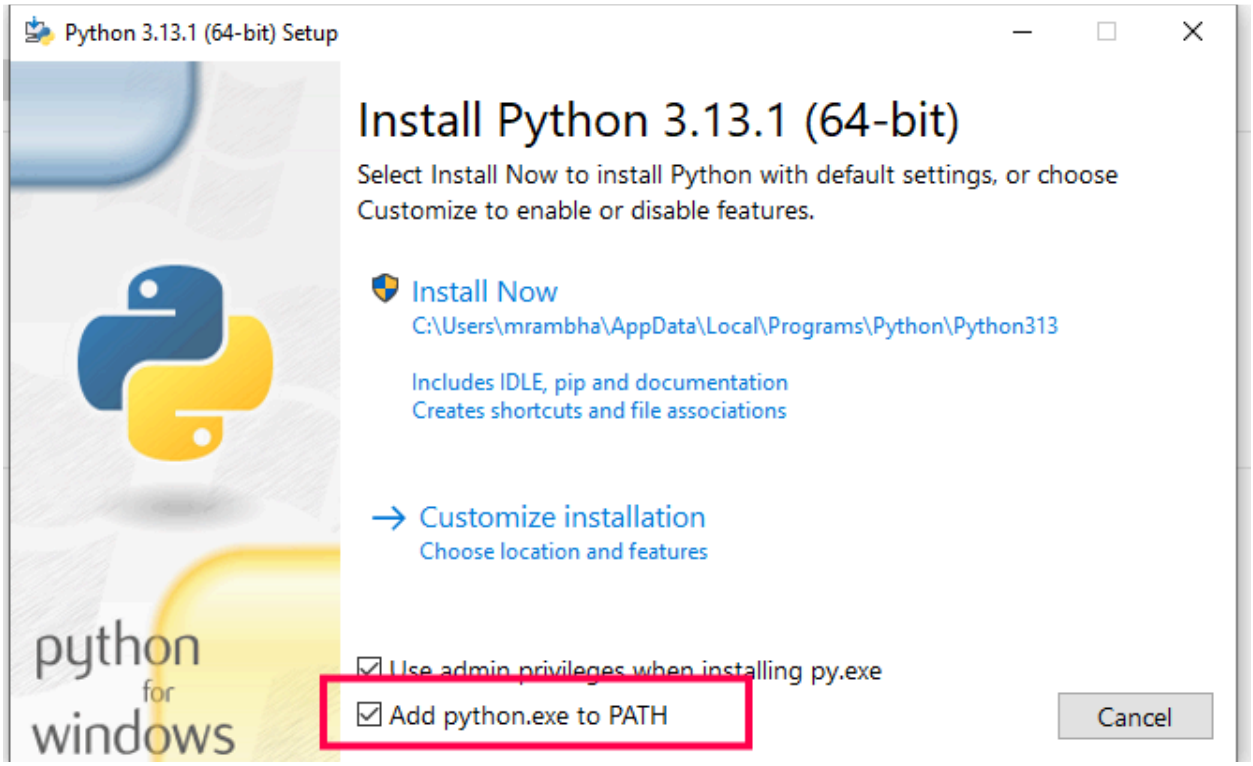

- Click on "**Next**" as shown in the image below.

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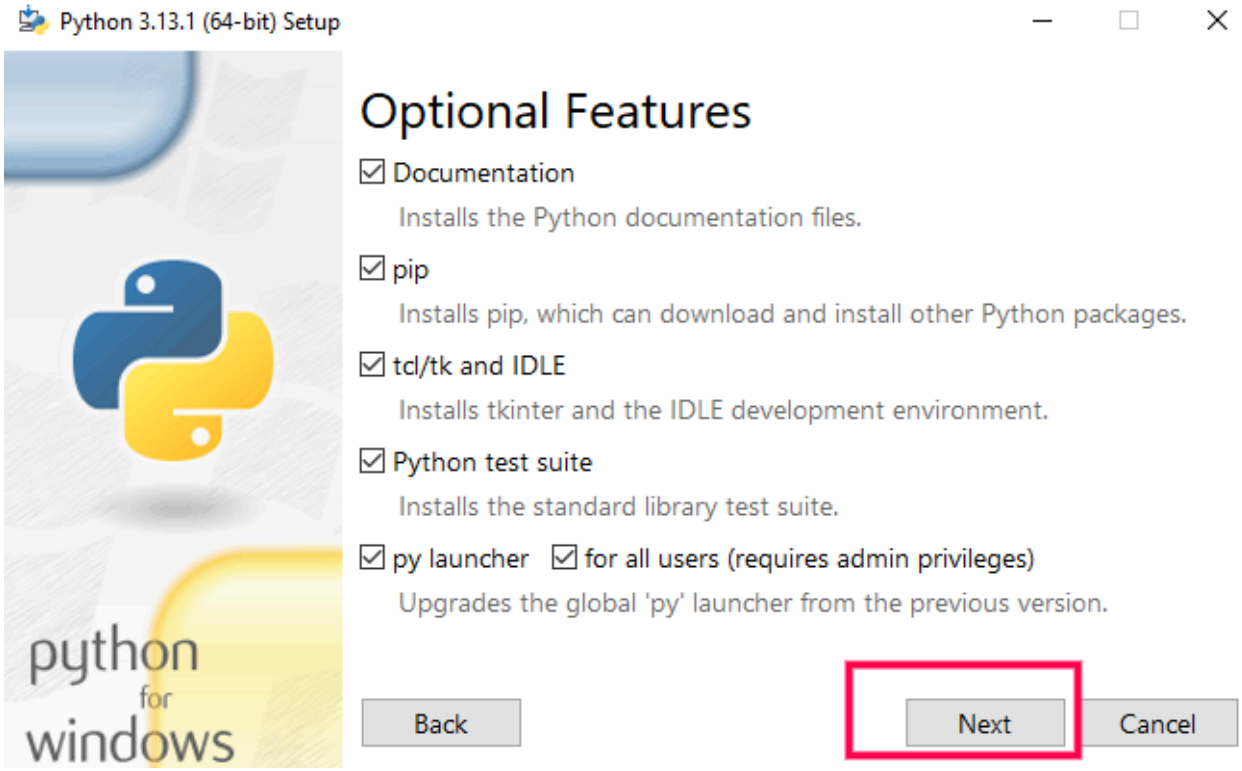

- Click on "**Install Now**" as shown in the image below.

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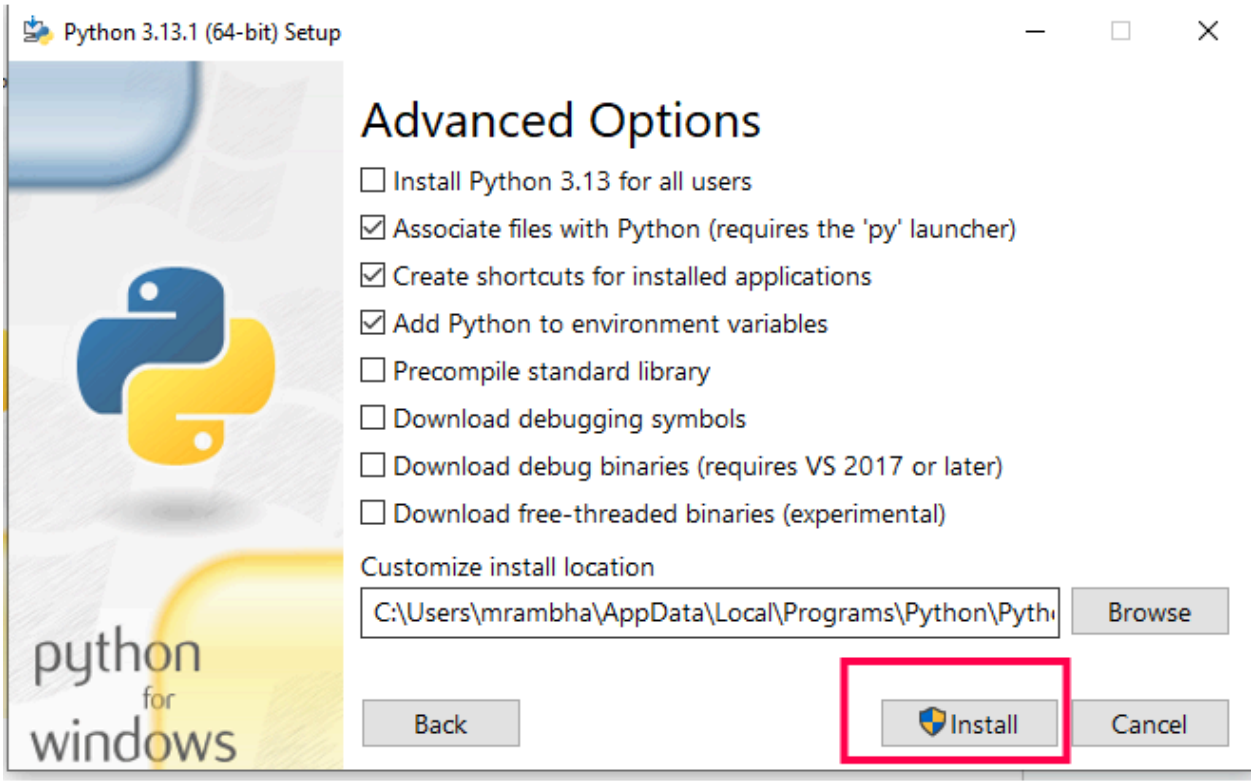

Step 4 |Steps to Set Up The Python Project

1. Project with Virtual Environment:

- Open a terminal or command prompt in the directory where you want to create the virtual environment. Then, use the following command to install the required libraries: **python -m venv venv**

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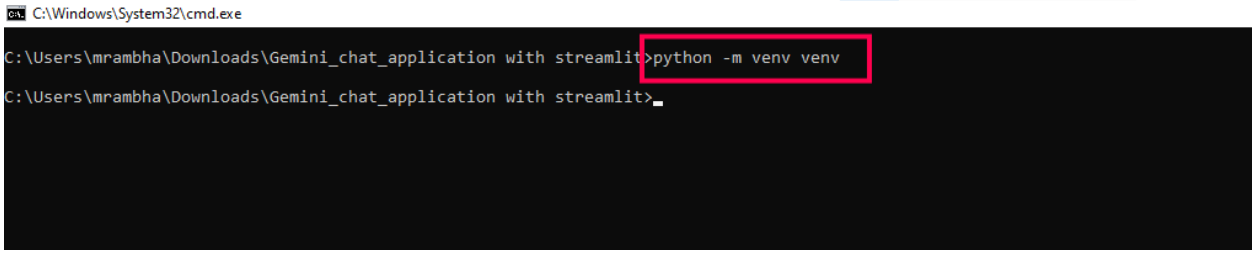


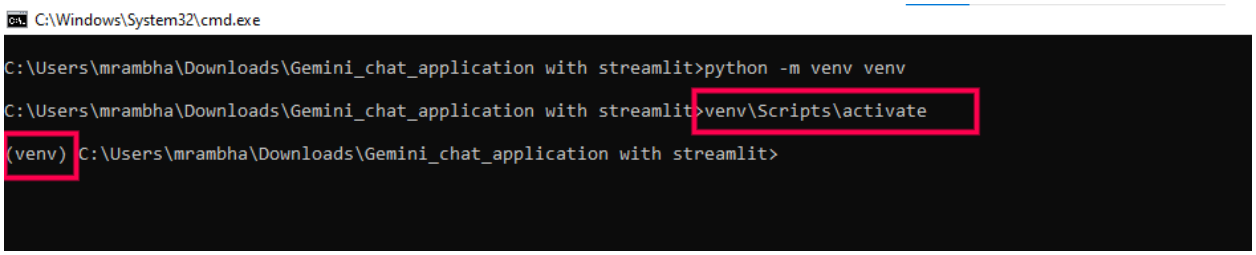
Open the terminal and navigate to the example folder. Use the below command

- For Windows: cd example

Once the environment is created, you need to activate it:

- For Windows: `venv\Scripts\activate`
- For Linux/Mac: `source venv/bin/activate`

After activation, your terminal prompt will look like the image below.



2. Install Required Packages:

- Install all the dependencies required for this usecase by using the below command:

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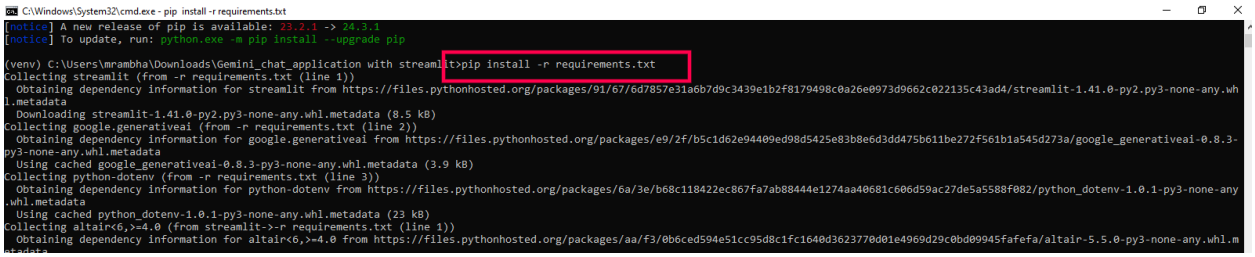
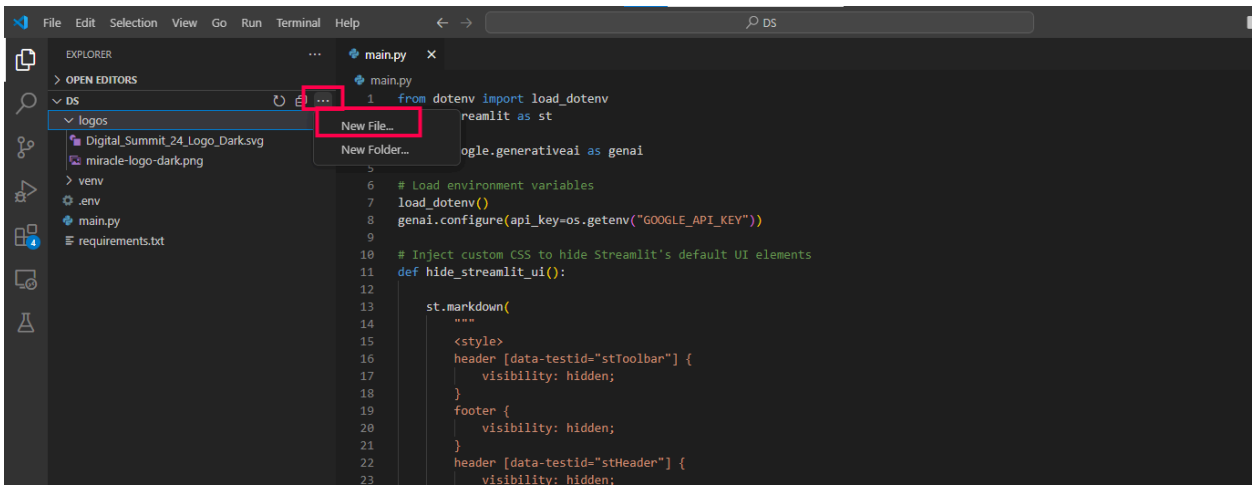
pip install -r requirements.txt



3. Environment Variables (.env)

- Create a new file, name it as **.env** in the root of your project directory.



- Inside the **.env** file, add your variables in the **KEY=VALUE** format, one per line **`GOOGLE_API_KEY=<Your-Google-API-Key>`**

- Replace **`<Your-Google-API-Key>`** with your actual API key that we got in the **Step-2**

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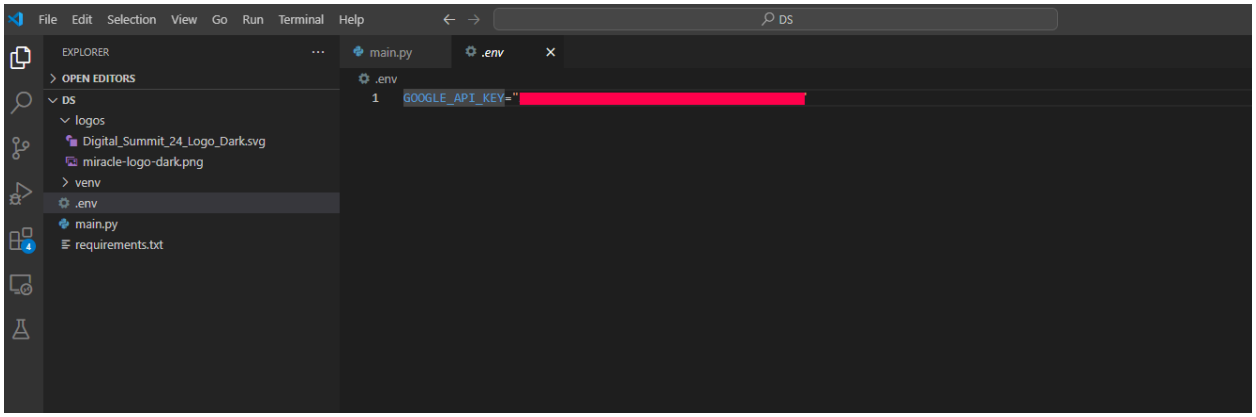
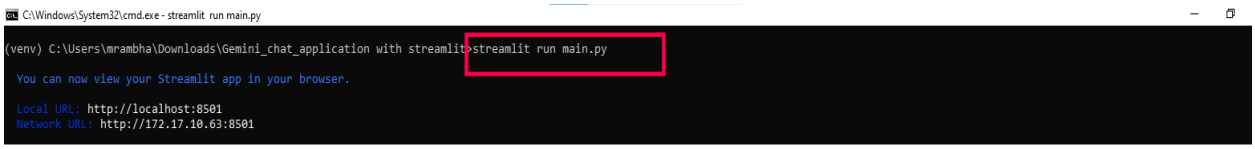
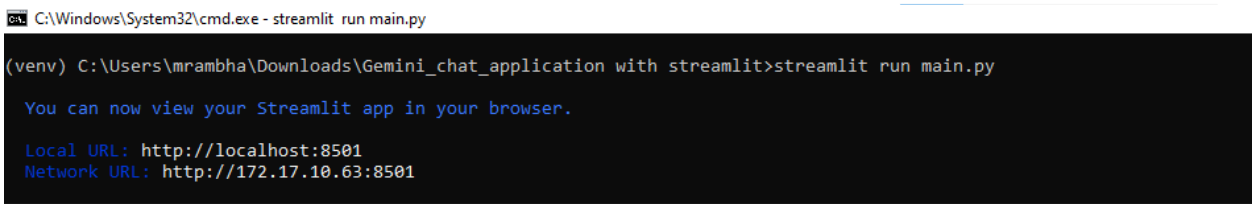


Step 5 | Run the Chatbot Application

- Use the below command to start the Streamlit app: **streamlit run main.py**



- After running the command, your terminal will look like below.



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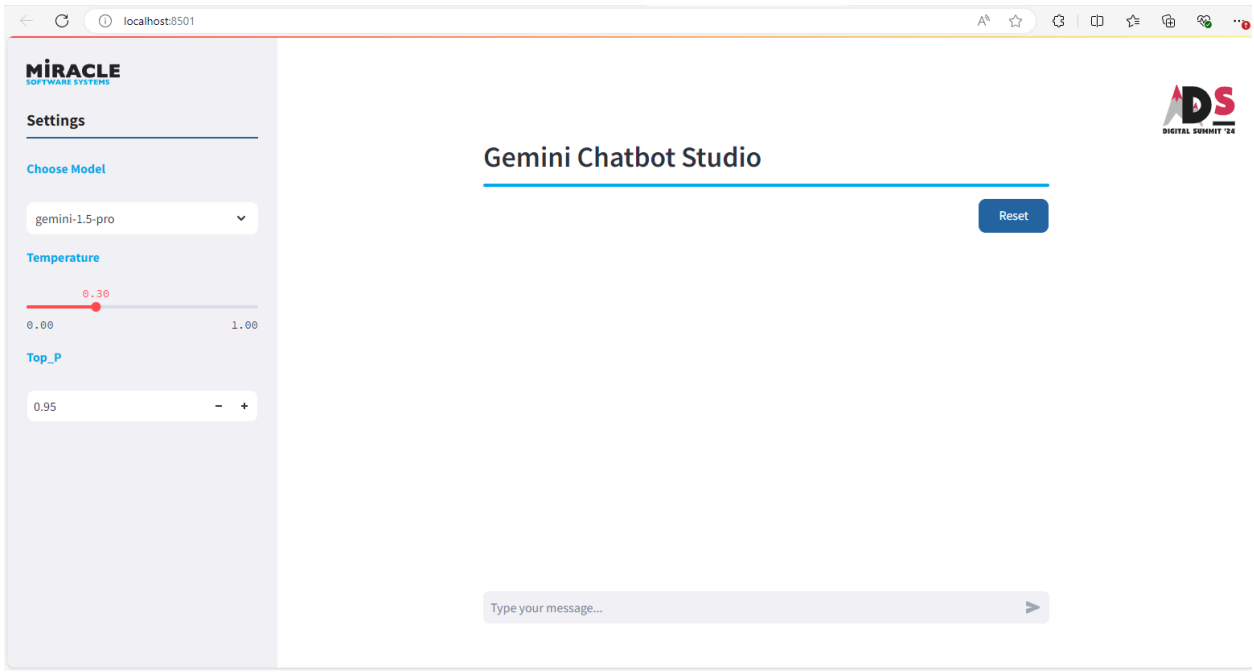
Step 6 |Test the Chatbot Application

- After running the command, Streamlit will provide a URL (**http://localhost:8501**) in the terminal

- Open this URL in your browser to interact with the chatbot application, which will redirect you to the UI.



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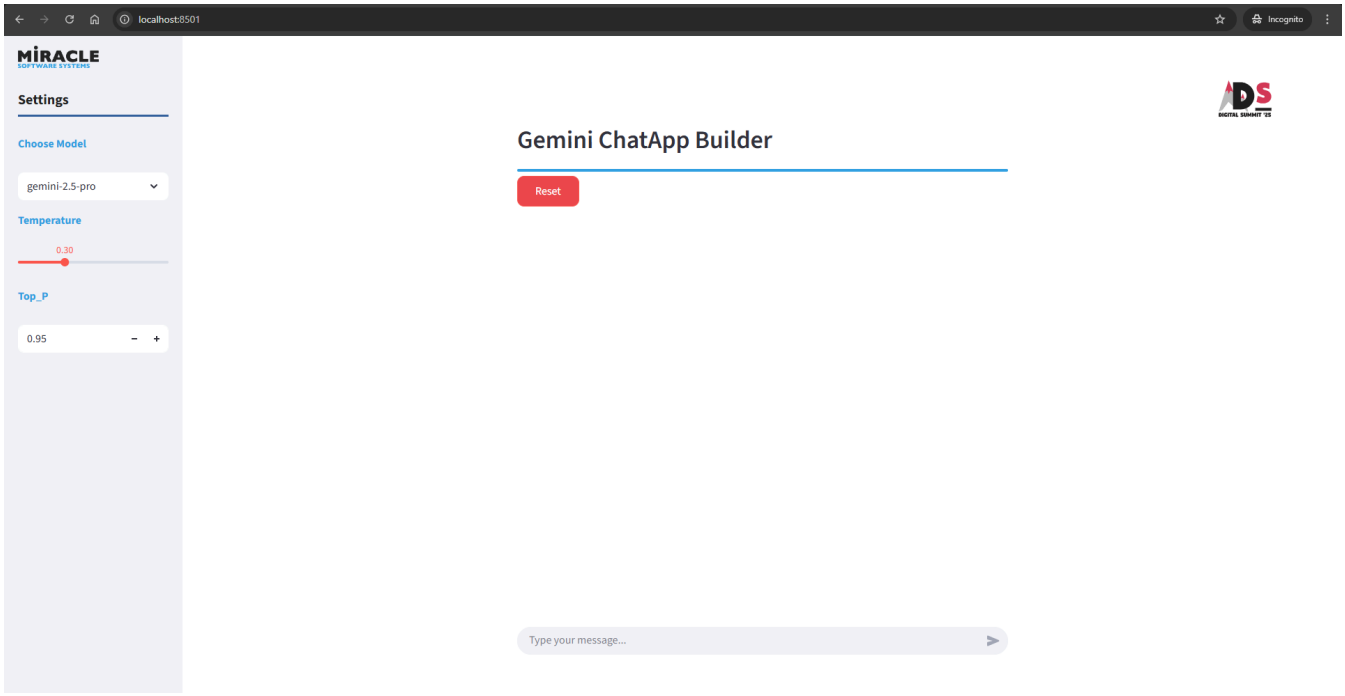
- Enter a question or prompt in the input box and submit it.
- Ask a variety of questions from different domains, powered by Google's Gemini Pro.

Example Prompts/ Questions:

- What does the temperature setting do in generative AI models?
- Can you help me debug this error: KeyError: 'value'?
- Explain the theory of relativity?
- Can you suggest a workout plan for beginners?



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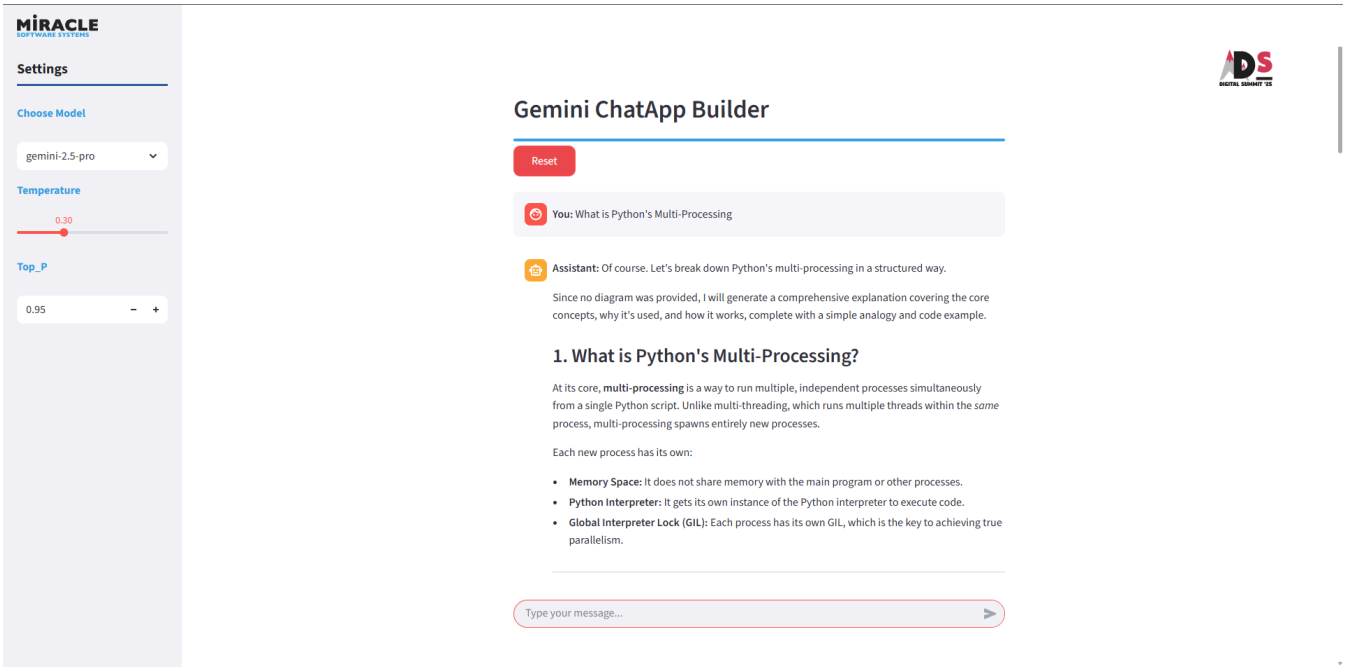

- **Temperature:** Controls randomness in responses. Lower values (e.g., 0.2) lead to more focused answers, while higher values (e.g., 1.0) encourage more creative responses.
- **Top_P:** Limits choices to the top tokens with a cumulative probability above P. Higher values (e.g., 0.95) increase diversity in responses.

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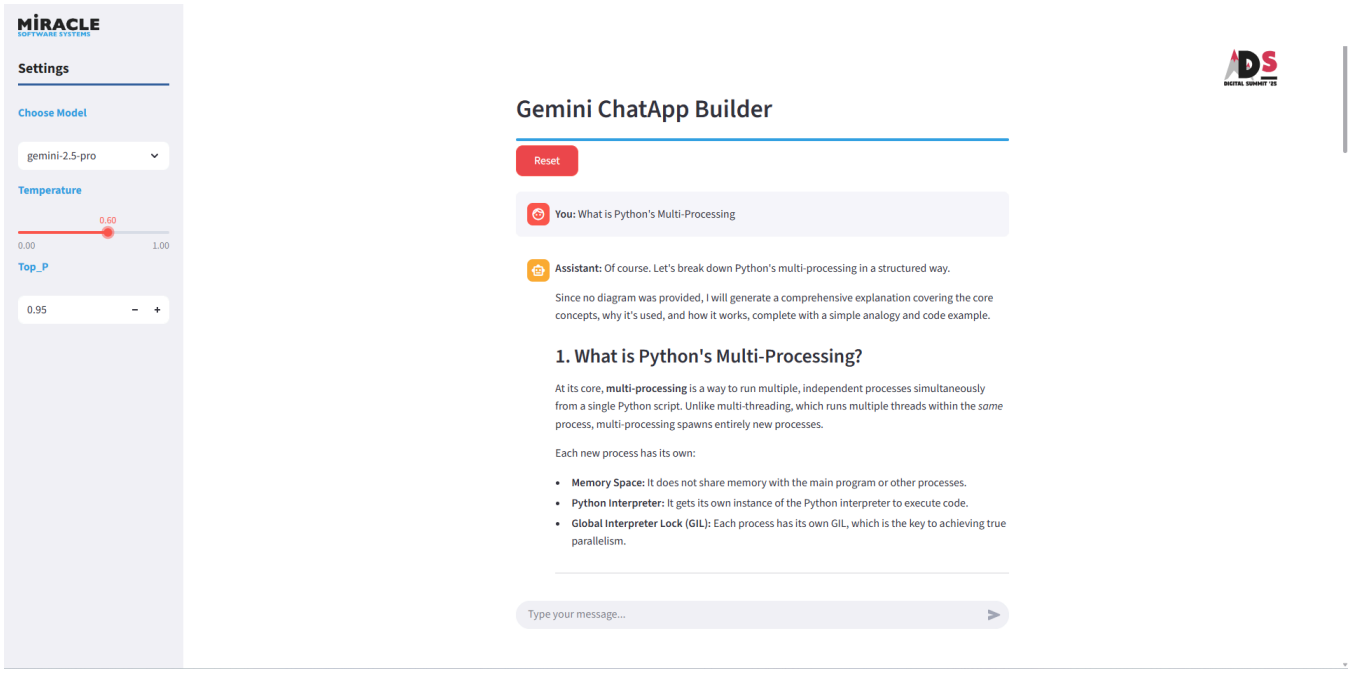

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