# Build a QnA ChatBot using Gemini Pro

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interactions. They use natural language processing (NLP) and machine learning algorithms to understand and respond to user queries, providing a personalized experience.

**Gemini** is an AI model made by the Google Deepmind team. It is a very capable model which is a multimodal type. That means we can generate text, analyze images, audio, video, etc. We can make text generators, chatbots, image analyzers, etc.

In this tutorial, we will build a QnA ChatBot using Gemini Pro API and Flask in Python. The API is available for free with which we will create a web application.

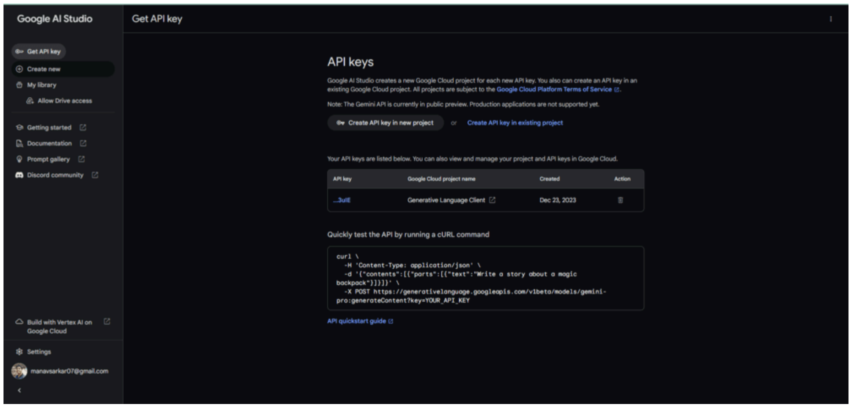
## Create An API for Gemini Pro

Below are the steps to create an API for Gemini Pro:

### Get API Key

Navigate to **Google AI Studio**(https://makersuite.google.com/app/apikey) and click on **Get API key**.

```
https://makersuite.google.com/app/apikey
```



API keys

Google AI Studio creates a new Google Cloud project for each new API key. You also can create an API key in an existing Google Cloud project. All projects are subject to the Google Cloud Platform Terms of Service.

Note: The Gemini API is currently in public preview. Production applications are not supported yet.

Your API keys are listed below. You can also view and manage your project and API keys in Google Cloud.

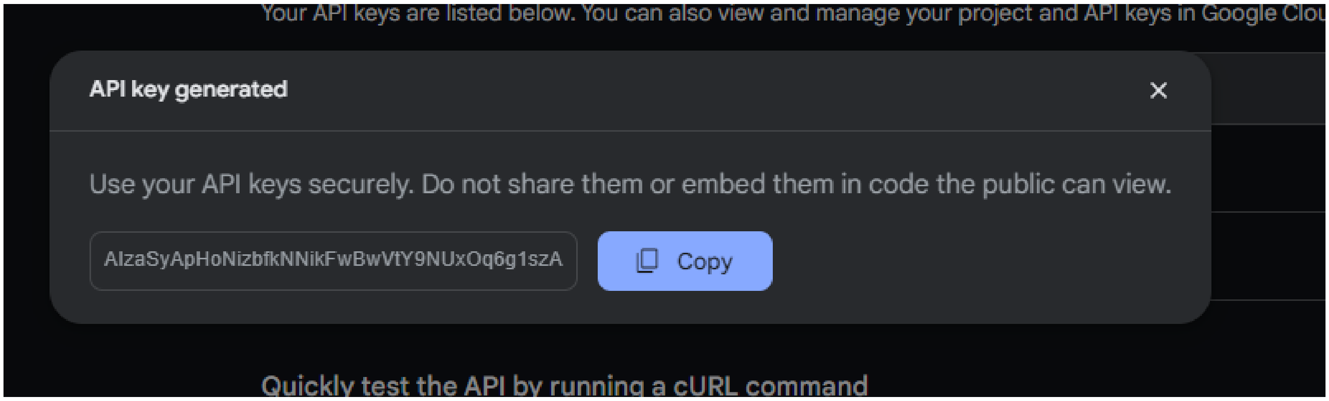
| API key | Google Cloud project name | Created | Action |
|---|---|---|---|
| ...3uIE | Generative Language Client | Dec 23, 2023 | |

Quickly test the API by running a cURL command

```
curl \
  -H 'Content-Type: application/json' \
  -d '{"contents":[{"parts":[{"text":"Write a story about a magic
backpack"}]}]}' \
  -X POST https://generativelanguage.googleapis.com/v1beta/models/gemini-
pro:generateContent?key=YOUR_API_KEY
```

### Create a API Key

Create API Key in new project button, and copy the generated API key. Copy the API Key and use in generating the chatbot.



Your API keys are listed below. You can also view and manage your project and API keys in Google Clou

API key generated

Use your API keys securely. Do not share them or embed them in code the public can view.

AIzaSyApHoNizbfkNNikFwBwVfY9NUxOq6g1szA

Quickly test the API by running a cURL command

## Creating a QnA Chatbot Using Flask

Below are the step by step procedure to build a QnA Chatbot using Gemini Pro and Flask in Python:

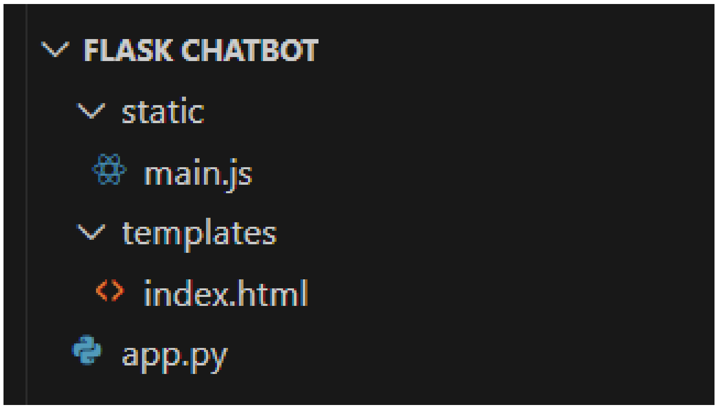
### Installation

Before starting, we will have to install the following things to progress further:

- Install Flask
- Install Python

### File Structure

Project Structure should be as follows:



FLASK CHATBOT
- static
  - main.js
- templates
  - index.html
- app.py

### Create a Python File

In this Python code, a Flask web application is initialized with an instance named `app`. A route decorator directs the root URL to render the **`index.html`** template. When executed, the Flask application runs in debug mode, facilitating development with real-time error feedback.

**app.py**

Python3

```python
from flask import Flask, render_template

app = Flask(__name__)

@app.route('/')
def index():
    return render_template('index.html')

if __name__ == '__main__':
    app.run(debug=True)
```

### Create a UI in HTML

Inside the **templates folder**, create "**index.html**" file and start writing this code. In this HTML code, a chatbot interface is structured with a title, message display area, and input field. External libraries, Tailwind CSS for styling and Showdown for markdown conversion, are imported. Additionally, Google's Generative AI is integrated, and a JavaScript module (`main.js`) is included to manage chatbot interactions.

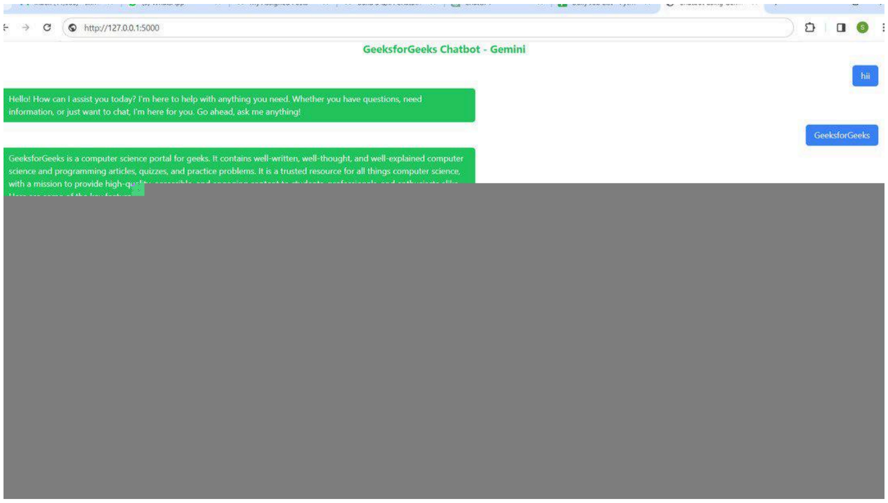
**index.html**

HTML

```html
<!DOCTYPE html>
<html lang="en">
  <head>
```

```
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width,
                                   initial-scale=1.0" />
    <title>Chatbot using Gemini | GeeksforGeeks</title>
    <script src="https://cdn.tailwindcss.com"></script>
    <script
       src="https://cdnjs.cloudflare.com/ajax/libs/showdown/2.1.0/showdown.min.js"></script>
    <style type="text/tailwindcss">
      @layer base {
        ul {
          list-style-type: circle;
        }
        ol {
          list-style-type: decimal;
        }
      }
    </style>
  </head>
  <body class="flex flex-col justify-between h-screen">
    <div>
      <p class="text-xl font-bold text-center text-green-500">
        GeeksforGeeks Chatbot - Gemini
      </p>
      <div class="overflow-y-auto" style="max-height: 80vh">
        <div id="messageHolder" class="flex flex-col m-4"></div>
      </div>
    </div>
    <div class="flex flex-row m-4">
      <input
        type="text"
        class="flex-1 border rounded-md m-2 border-green-600
               p-2 outline-none ring-2 ring-green-600
               border-transparent"
        placeholder="Chat..."
        name="chat"
        id="chat"
      />
      <button id="btn" class="m-2 bg-blue-500 p-2
                              rounded-md text-white">
        Send
      </button>
    </div>
    <script type="importmap">
      {
        "imports": {
          "@google/generative-ai": "https://esm.run/@google/generative-ai"
        }
      }
    </script>
    <script type="module" src="{{ url_for('static',
                               filename='main.js') }}"></script>
  </body>
</html>
```

Output



http://127.0.0.1:5000

GeeksforGeeks Chatbot - Gemini

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Hello! How can I assist you today? I'm here to help with anything you need. Whether you have questions, need information, or just want to chat, I'm here for you. Go ahead, ask me anything!

GeeksforGeeks

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## Write JavaScript File

Inside the **static folder**, create a "**main.js**" file and start writing this code. In this [JavaScript](#) code, the `GoogleGenerativeAI` module is initialized with an API key to establish a chat instance with the "gemini-pro" model. The `chatGemini` function manages user interactions, sending messages for processing and displaying the chatbot's responses. Utility functions render messages on the webpage, and event listeners capture user inputs for chat interactions.

**chatGemini():** Here we interact with the API and send the message and store the result in variable HTML after converting the markdown text to HTML using showdownjs.

**addMessage():** Here we add a div container with the message content each time a message is added from user as well as gemini pro bot.

JavaScript

```javascript
import { GoogleGenerativeAI } from "@google/generative-ai";
const conv = new showdown.Converter();

const genAI = new GoogleGenerativeAI("AIzaSyCg3KDDSpMZGQnzlFWHAXhr4fBjkc_3uIE");
const gen_model = genAI.getGenerativeModel({ model: "gemini-pro" });
const chat = gen_model.startChat({
    generationConfig: {
        maxOutputTokens: 1000,
    },
});

const chatGemini = async (message) => {
    addMessage(message, "end");
    let res = await chat.sendMessage(message);
    res = await res.response;
    console.log(res);
    let html = conv.makeHtml(res.text());
    addMessage(html, "start");
}
const addMessage = (msg, direction) => {
    const messageHolder = document.getElementById("messageHolder");
    const message = document.createElement("div");
    const colour = direction !== "start" ? "blue" : "green";
    message.innerHTML = `
     <div class="flex flex-col items-${direction}">
            <div class="bg-${colour}-500 px-4 py-2 rounded-md text-white w-fit
            max-w-4xl mb-1">${msg}</div>
          </div>
    `
    messageHolder.appendChild(message);
}

const messageInput = document.getElementById("chat");
const sendBtn = document.getElementById("btn");

sendBtn.addEventListener("click", function () {
    const message = messageInput.value;
    chatGemini(message);
    messageInput.value = "";
});
```

**In Depth Explaination**

To start a chat session, we first need to import the **Google GenerativeAI module**

```
import { GoogleGenerativeAI } from "@google/generative-ai";
```

Then, we need to create a model for chat sessions called **gemini-pro**.

```
const genAI = new GoogleGenerativeAI("API_KEY_HERE");
const gen_model = genAI.getGenerativeModel({ model: "gemini-pro" });
```

After creating the model, we need to start a chat session using the **startChat()** method and pass parameters accordingly.

```
const chat = gen_model.startChat({
    generationConfig: {
        maxOutputTokens: 1000,
    },
});
```

To send a message and receive response, we use sendMessage and text methods.

```
let res = await chat.sendMessage(message);
res = await res.response;
let text= res.text();
```

The text returned is in markdown format and we will convert it into HTML for our purpose.

## Run the Program

To run this Flask application, just write the following command in your terminal:

```
python app.py
```

Access the application in your web browser at `http://127.0.0.1:5000`

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