Flask + Groq Chatbot – Beginner Guide

# 1. Introduction

This project is a chatbot web application built using Flask (a Python web framework) and the Groq API (which provides powerful AI models such as LLaMA). The chatbot has a modern navy-blue UI with emoji stickers and allows users to type questions and receive real-time AI-generated answers.  
  
Why this project is useful for beginners:  
• Learn how to build a web app with Flask.  
• Understand how to call an external API (Groq).  
• Explore how frontend (HTML/CSS/JavaScript) connects with backend (Python).

# 2. Project Setup

## Requirements

• Python 3.8 or higher  
• Groq API Key (get it from https://console.groq.com/)  
• Libraries: Flask, requests

## Steps

1. Clone the repository:  
 git clone https://github.com/your-username/flask-groq-chatbot.git  
 cd flask-groq-chatbot  
  
2. Create a virtual environment and activate it:  
 python -m venv venv  
 source venv/bin/activate # Mac/Linux  
 venv\Scripts\activate # Windows  
  
3. Install dependencies:  
 pip install -r chatbot\_requirement.txt  
  
4. Open app.py and replace the placeholder with your Groq API key:  
 GROQ\_API\_KEY = "your\_api\_key\_here"

# 3. Code Explanation

• Flask Backend (chatbot.py):  
 - '/' → Serves the chatbot HTML interface.  
 - '/chat' → Receives user input, sends it to Groq API, and returns AI’s reply.  
  
• Frontend (HTML/CSS/JS inside chatbot.py):  
 - HTML → Defines chatbot layout.  
 - CSS → Styles the navy-blue theme and floating emoji stickers.  
 - JavaScript → Sends user messages to Flask using fetch() and updates chat history dynamically.  
  
• Groq API Call:  
 - Uses requests.post() to send a chat completion request.  
 - Model used: llama-3.1-8b-instant.  
 - Returns AI response as JSON, which is displayed in the chat.

# 4. Running the App

1. Start the Flask server:  
 python chatbot.py  
  
2. Open your browser at:  
 <http://127.0.0.1:5000> # it is just the example url   
  
3. Type a question, and the bot will reply instantly!

# 5. Example Output

You: What is AI?  
Bot: Artificial Intelligence is the field of computer science focused on creating systems that can perform tasks that normally require human intelligence.

# 6. Conclusion

This project helps beginners understand the basics of:  
• Flask web development  
• Using APIs in Python  
• Connecting frontend and backend for real-time communication  
  
You can extend the chatbot further by:  
• Adding a database for chat history  
• Supporting multiple languages  
• Deploying to a platform like Render or Heroku