PRAGNA – The Career Guidance Bot

Introduction:

Introduction: Instructions for Setup, Execution, and Usage

The **Career Guidance Bot** is a user-friendly application that provides valuable career advice and guidance using state-of-the-art AI technologies. Built with OpenAI's GPT-4 and Pinecone's vector database, this bot leverages advanced natural language processing (NLP) and semantic search capabilities to deliver relevant and personalized responses.

This document outlines the step-by-step instructions for setting up, executing, and using the Career Guidance Bot. Whether you are a developer, a student, or a professional, these instructions will guide you through the entire process, ensuring a smooth implementation and seamless usage of the bot.

Purpose of the Document:

1. **Setup Instructions**: Provides detailed guidance on configuring the required environment, installing dependencies, and setting up API keys for OpenAI and Pinecone.
2. **Execution Instructions**: Explains how to run the bot using Streamlit and verify its proper functioning.
3. **Usage Instructions**: Guides users on interacting with the bot, exploring suggestions, and making the most out of its capabilities.

By following the steps outlined in this document, you will gain a comprehensive understanding of how to set up and utilize the bot effectively, ensuring a productive and insightful career guidance experience.

This document is tailored for ease of use and can serve as a reference for future updates or iterations of the application.

Setup Instructions

1. **Environment** **Setup**:
   Ensure that you have Python 3.10 or later installed on your system. You can download Python from the official Python website. After installation, verify it by running python --version in your terminal.

Install the required Python libraries using the following command:

pip install streamlit openai pinecone-client

2. **OpenAI API Key**:

- Visit OpenAI's API Keys Page to create and copy your API key.
- In the code, replace the placeholder your-openai-api-key with your actual API key.

3. **Pinecone Setup**:

- Create an account on Pinecone and log in to the Pinecone dashboard.
- Retrieve your Pinecone API key and environment details.
- Replace the placeholders in the project code (api_key and host) with your Pinecone credentials.

4. **Streamlit Installation**:
Ensure Streamlit is installed in your Python environment by running:

```
pip install streamlit
```

Execution

Instructions for Execution

To run the project and see the Career Guidance Bot in action, follow these steps:

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1. **Notebook Execution (Embedding Data and Connecting OpenAI & Pinecone)**:
    - Open the provided **Google Colab notebook** file.
    - Make sure all necessary dependencies, such as openai, pinecone-client, and langchain, are installed in the Colab environment.
        - Example commands:

        ```
        !pip install openai==0.28 pinecone-client langchain
        ```

    - Upload the required text files (e.g., career_guidance_text.txt or Textbook3.txt) to the Colab environment.
    - Execute all the cells step-by-step:
        - **Data Preprocessing**: Combines and splits text into chunks for embeddings.
        - **Embedding Creation**: Generates embeddings using the OpenAI API.
        - **Pinecone Connection**: Connects to your Pinecone index, initializes it if necessary, and uploads embeddings.
        - **Query Execution**: Queries the Pinecone vector database and retrieves relevant context to pass to OpenAI's GPT-4 for responses.
    - Ensure all outputs confirm successful connection to APIs, embedding generation, and queries returning correct results.

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2. **Streamlit Execution (Frontend Chatbot Deployment)**:
    - Open your **Streamlit app** file (e.g., app.py) in your IDE (VS Code or PyCharm).
    - Ensure all required Python libraries are installed in your local environment:
        - Example command: pip install streamlit openai pinecone-client
    - Run the app:
        - In your terminal, navigate to the directory containing app.py and execute:streamlit run app.py
    - The Streamlit app will open in your browser (default: http://localhost:8501).
    - Test the chatbot by entering queries into the input box. The bot will retrieve relevant context from Pinecone and generate responses using GPT-4.

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3. **Interactive Testing**:
    - Use the chatbot to ask questions related to career guidance.
    - Example queries:
        - "What are the top skills required for a software engineer?"
        - "How do I transition from a non-tech to a tech career?"
        - "What are the top universities for data science?"
    - Validate that the bot retrieves accurate context and provides meaningful guidance.

Usage Instructions

How to Use the Career Guidance Bot

The Career Guidance Bot is designed to assist users with career-related queries by leveraging OpenAI's GPT-4 and Pinecone's semantic search capabilities. Follow these usage instructions for an optimal experience:

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1. **Access the Streamlit Application**:
    - Once the app is running (via streamlit run app.py), open the URL displayed in the terminal (e.g., http://localhost:8501).
    - You will be greeted by the chatbot interface with a welcome message.

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2. **Explore Chat Suggestions**:

- The bot provides **suggested questions** for easy navigation.
- Suggestions are displayed in a dropdown menu at the top of the interface.
    - Example suggestions:
        - "What are the best skills to learn in 2024?"
        - "How do I prepare for a software engineering role?"
        - "Tips for improving my resume for tech jobs."
- Select a suggestion, and it will automatically populate the input field.

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3. **Submit Your Query**:
    - Type a custom question or edit a suggested question in the input box labeled "Enter your query."
    - Click the **Send** button to submit the query.

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4. **View Chat History**:
    - The interface displays a **Chat History** section, showing a threaded conversation with the bot.
    - Each message is tagged as either:
        - **User**: Your query.
        - **Bot**: The bot's response.

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5. **Interpret Responses**:
    - The bot provides meaningful and contextual answers to your questions.
    - If applicable, the response may include:
        - Career tips.
        - Skills or roles required for specific jobs.
        - Steps to transition to a new career.

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6. **Reset or Continue**:
    - Continue the conversation by asking follow-up questions, or restart the app to begin a new session.
    - Note: The bot retains the last few chat interactions for context.

7. **Debugging or Issues**:
    - If the bot doesn’t respond correctly:
        - Check the terminal for any error messages.
        - Ensure your API keys (OpenAI & Pinecone) are valid and correctly configured.
        - Restart the app using the streamlit run app.py command.

Conclusion

The **Career Guidance Bot** is a powerful and innovative application designed to provide personalized career advice using cutting-edge AI technologies. Through the seamless integration of OpenAI's GPT-4 model and Pinecone's vector database, this bot showcases the potential of Generative AI in addressing real-world challenges.
This document has outlined clear and comprehensive instructions for setting up, executing, and using the bot, ensuring that users can easily deploy and interact with the application. By following the steps provided, users can harness the bot's capabilities to access meaningful insights, career suggestions, and personalized recommendations, making the career decision-making process more informed and efficient.The **Career Guidance Bot** is not just a tool for career exploration; it is a demonstration of how AI can be used to simplify complex queries and deliver actionable results. As the technology evolves, this project can serve as a foundation for further development, offering even more robust features and expanding its reach across various domains.We hope that this application inspires innovation and provides a valuable resource for users seeking career guidance. Thank you for exploring and implementing the **Career Guidance Bot**.