UAE RAG
ChatBot

Overview:-

The UAE Real Estate RAG (Retrieval-Augmented Generation) Chatbot is a web-based application that helps users find real estate properties in the UAE based on their queries. It uses Azure OpenAI for generating embeddings and responses, Pandas for data handling, Streamlit for the user interface, and Ngrok for exposing the app to the internet.

Features used:-

- Property Search: Users can input queries (e.g., "Find me a 3-bedroom villa in Dubai") to find relevant properties.
- Embedding-Based Retrieval: Uses Azure OpenAI's text-embedding-ada-002 model to generate embeddings for property descriptions and queries.
- Cosine Similarity: Finds the most relevant properties by comparing query embeddings with property embeddings.
- Natural Language Responses: Uses GPT-4 to generate human-like responses based on the retrieved properties.
- Web Interface: Built with Streamlit for an intuitive user experience.
- Public Access: Deployed using Ngrok for easy access via a public URL.

Starting with:-

1. Install Required Libraries (openai pandas streamlit scikit-learn pyngrok).
2. Configure Azure OpenAI (key endpoint version).
3. Read, clean and Prepare the Dataset.
4. Generate embeddings to the data (vectors).
5. Find Relevant Properties
6. Generate a Response according to user queries.
7. Create a web interface for the chatbot using Streamlit.
8. Run the Streamlit App with Ngrok.

Example queries:-

Examples are in the video attached on GitHub.

https://github.com/Ramezz00/UAE-RAG_ChatBot

Problems I faced:-

No Properties Found: Check if the description column is properly cleaned and remove all the rows that contain empty values

Embedding Generation Errors: Verify that the Azure OpenAI API key and endpoint are correct and ensure that the API integration syntax is written right.

Ngrok Connection Issues: Ensure the Ngrok auth token is valid and ensure to terminate the tunnel used every run.