**INTERNSHIP COMPLETION REPORT**

**RAG BASED AI**

**Introduction:**

The provided Python script demonstrates the implementation of an interactive question-answering system using a vector index. The system utilizes a Hugging Face language model and allows users to ask questions, receiving relevant responses from a pre-indexed set of documents.

**Setup:**

The script begins with the installation of necessary Python packages and imports required libraries. It configures quantization parameters and defines functions for converting messages to prompts.

**Model Initialization:**

The script initializes a Hugging Face language model with specified parameters, including a quantization configuration for efficient computation. The model is configured for generating responses to user queries.

**Vector Index Creation:**

A vector index is created using the provided documents in the 'files' directory. The index is stored persistently to facilitate future retrieval. The document retrieval is handled by the vector index, providing efficient similarity-based search.

**Query Engine:**

A query engine is created based on the vector index, allowing users to ask questions interactively. The script includes a function, `ask\_question`, to query the engine and retrieve relevant responses.

**Interactive Mode:**

The script provides an interactive mode where users can input questions. The system responds with relevant information based on the pre-indexed documents. The interactive mode continues until the user decides to exit.

**Example Query:**

An example query, "What are the locations given?" is showcased, demonstrating how the system can answer user queries.

**Usage:**

To utilize the interactive question-answering system, users can input their questions during the interactive mode.

**Conclusion:**

The script offers a robust framework for building an interactive question-answering system. By leveraging a vector index and a Hugging Face language model, the system provides efficient and accurate responses to user queries.

**Conclusion:**

In conclusion, the provided Python script combines powerful language modeling and vector indexing to create an interactive question-answering system. The system is versatile and can be applied to various domains where efficient retrieval of information is crucial.