

Insurance Policy QueryMaster

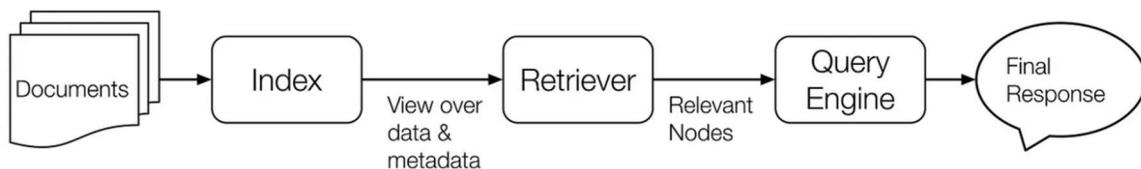
Project Goal: The project's goal is to build a robust generative search system capable of effectively and accurately answering questions from various policy documents. You may use LangChain or LlamaIndex to build the generative search application.

Problem Statement: The user requires a chatbot to clarify his/her queries on the Insurance Policy.

Dataset: <https://cdn.upgrad.com/uploads/production/585ca56a-6fe1-4b93-903c-1c1a1de74bf1/Principal-Sample-Life-Insurance-Policy.pdf>

Model Used: Llama Index + Open AI (gpt3.5-turbo)

Solution Architecture:



Llama Components Used:

Documents: The `download_loader` function from `llama_index` is typically used to download and initialize a specific document loader. This allows the system to handle different file types and sources effectively.

Index: The `VectorStoreIndex` class in `llama_index` is used for indexing documents and efficiently retrieving relevant information based on queries. It works by creating vector representations of document sections and storing them for quick access.

Retriever:

The **VectorIndexRetriever** is a component of the LlamaIndex framework, designed to facilitate efficient and accurate retrieval of information from a vector store index. Here are some key aspects of its usage:

1. **Semantic Search:** It leverages semantic search capabilities, meaning it uses the semantic meaning of the query rather than relying solely on keyword matches. Both the stored documents and the user query are converted into vector embeddings, and a similarity search is performed to find the most relevant documents.
2. **Top K Retrieval:** The retriever can return the 'top k' most relevant results. This parameter, `top_k`, controls the number of results returned, allowing for flexibility based on the specific needs of the application.
3. **Integration with Vector Stores:** LlamaIndex integrates with multiple vector stores, offering flexibility in how data is indexed and retrieved. This supports a range of use cases, from simple document retrieval to complex, query-driven data exploration
4. Query Engine: - **Generic Interface** used which allows you to ask questions in natural language and returns rich responses.

Implementation Steps;

- 1) Data loading and Pre-process the documents
- 2) Indexing and Query Engine Setup
- 3) LLM Integration
- 4) Setup Query and Response pipeline with clear citation and % score relevance of answer

Sample Responses

Enter your query (type 'exit' to stop): What is the minimum eligibility for policy?

Response: To be eligible for the policy, the entity must be actively engaged in business for profit as defined by the Internal Revenue Code or established as a legitimate nonprofit corporation as per the Internal Revenue Code. Additionally, the Policyholder must make at least 50% of the required premium contributions for all Members, including disabled Members if applicable.

Citation: {'page_label': '17', 'file_name': 'Principal-Sample-Life-Insurance-Policy.pdf'}

Answer Relevance: {83.6} %

Enter your query (type 'exit' to stop): when should premium be paid ?

Response: Premiums should be paid on the first of each Insurance Month, with the first premium due on the Date of Issue of the Group Policy.

Citation: {'page_label': '20', 'file_name': 'Principal-Sample-Life-Insurance-Policy.pdf'}

Answer Relevance: {83.59} %

Enter your query (type 'exit' to stop): What if i miss due date for payment ?

Response: The policy will terminate if the total premium due has not been received by the end of the Grace Period. Failure to pay the premium within the Grace Period will be considered notice to discontinue the policy.

Citation: {'page_label': '23', 'file_name': 'Principal-Sample-Life-Insurance-Policy.pdf'}

Answer Relevance: {76.59} %

Enter your query (type 'exit' to stop): What is accidental benenfit in policy ?

Response: Accidental benefit in the policy covers bodily injuries or losses resulting from exposure to the elements or other accidents, including cases where the Member experiences paralysis of one arm and one leg on the same side of the body.

Citation: {'page_label': '55', 'file_name': 'Principal-Sample-Life-Insurance-Policy.pdf'}

Answer Relevance: {83.64} %

Enter your query (type 'exit' to stop): when do i get disqualified from policy ?

Response: You will be disqualified from the policy if you are eligible under any other Group Term Life Insurance policy underwritten by The Principal.

Citation: {'page_label': '26', 'file_name': 'Principal-Sample-Life-Insurance-Policy.pdf'}

Answer Relevance: {82.0} %

Enter your query (type 'exit' to stop): exit

Exiting the query loop