## Document Processing Application

**Overview**

This application is a document processing tool built using Streamlit. It enables users to upload text-based documents (PDF, TXT, CSV) and process them using Large Language Models (LLMs) from Ollama. The application offers the following functionalities:

* **File Upload & Processing**
* **Text Summarization**
* **Conversational Q&A over Documents**
* **Structured Data Extraction**
* **Audio-Based Search (Speech-to-Text Integration)**
* **PDF Preview**

**Application Flow**

1. **File Upload & Processing:**
   * Users upload multiple files (PDF, TXT, CSV).
   * Files are processed and converted into textual content.
   * Metadata (file name, page numbers) is attached to each document.
   * Extracted text is stored in session state (st.session\_state.raw\_documents).
2. **Text Summarization:**
   * A summarization chain (load\_summarize\_chain) is created using the Ollama LLM.
   * The model processes the extracted text and generates a summary.
   * Summary is displayed in the UI.
3. **Conversational Q&A:**
   * User inputs a query related to the uploaded documents.
   * A FAISS vector store is created using document embeddings.
   * Retrieval-based Question Answering (RetrievalQA) is implemented using Ollama.
   * The response is displayed along with conversation history.
4. **Structured Data Extraction:**
   * User provides a set of keys for structured data extraction.
   * The model extracts structured information based on the provided template.
   * Extracted data is formatted and displayed in JSON format.
5. **Audio-Based Search:**
   * User provides an audio file containing a question.
   * Speech-to-text conversion is performed using an external speechtotext module.
   * The converted text is used to query the document repository.
   * The system retrieves the most relevant answer.
6. **PDF Viewer:**
   * Uploaded PDFs are rendered in a PDF viewer.