Conversational AI Assignment 2

Group : 70

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Problem Statement:

- Implement Basic RAG
- Implement Advanced RAG using `Memory-Augmented Retrieval`

Setup the application:

1. Run below command from the root of the directory to create a virtual environment

   ```
   python -m venv ./venv
   ```

2. Activate the virtual environment.

   For linux/mac:

   ```
   source ./venv/bin/activate
   ```

   For Windows:

   ```
   .\venv\Scripts\activate
   ```

3. Install Dependencies:

   ```
   pip install -r requirements.txt
   ```

4. Run the application:

   ```
   streamlit run Group_70_rag_app.py
   ```

This will start the **Web-UI** at `http://localhost:8501/`

Usage:

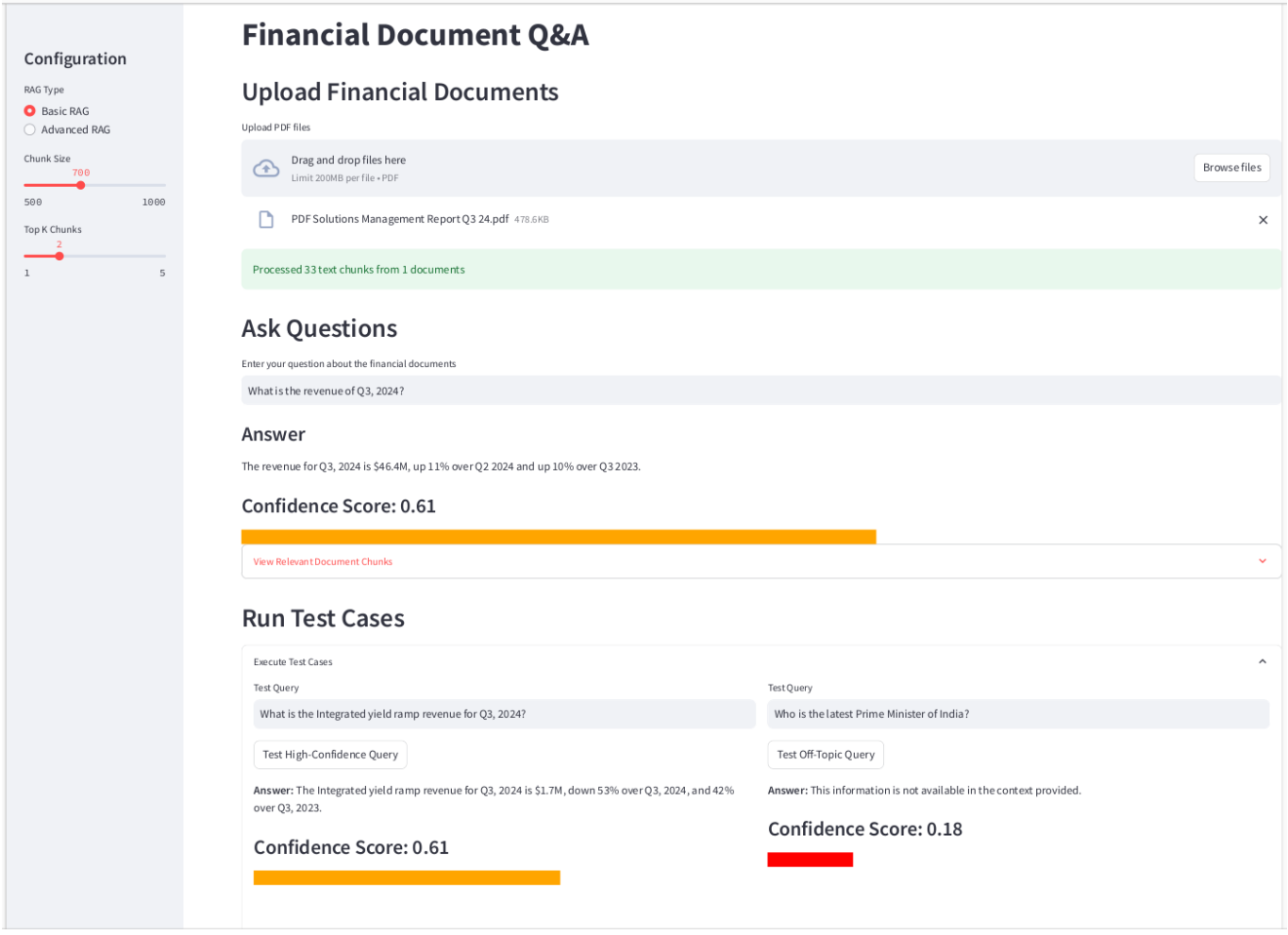
1. On the UI select either of the two options Basic RAG or Advanced RAG on the side panel.
2. Upload a PDF file containing the company financial data. Optionally you can also select the `chunk size` on the side panel to chunk the data into specific chunk sizes, before uploading the documents.

   Note: Sample file `Group_70_sample_data_Q3_24.pdf` has been provided for reference.
3. Enter any query in the query box and hit enter to generate resopnse.

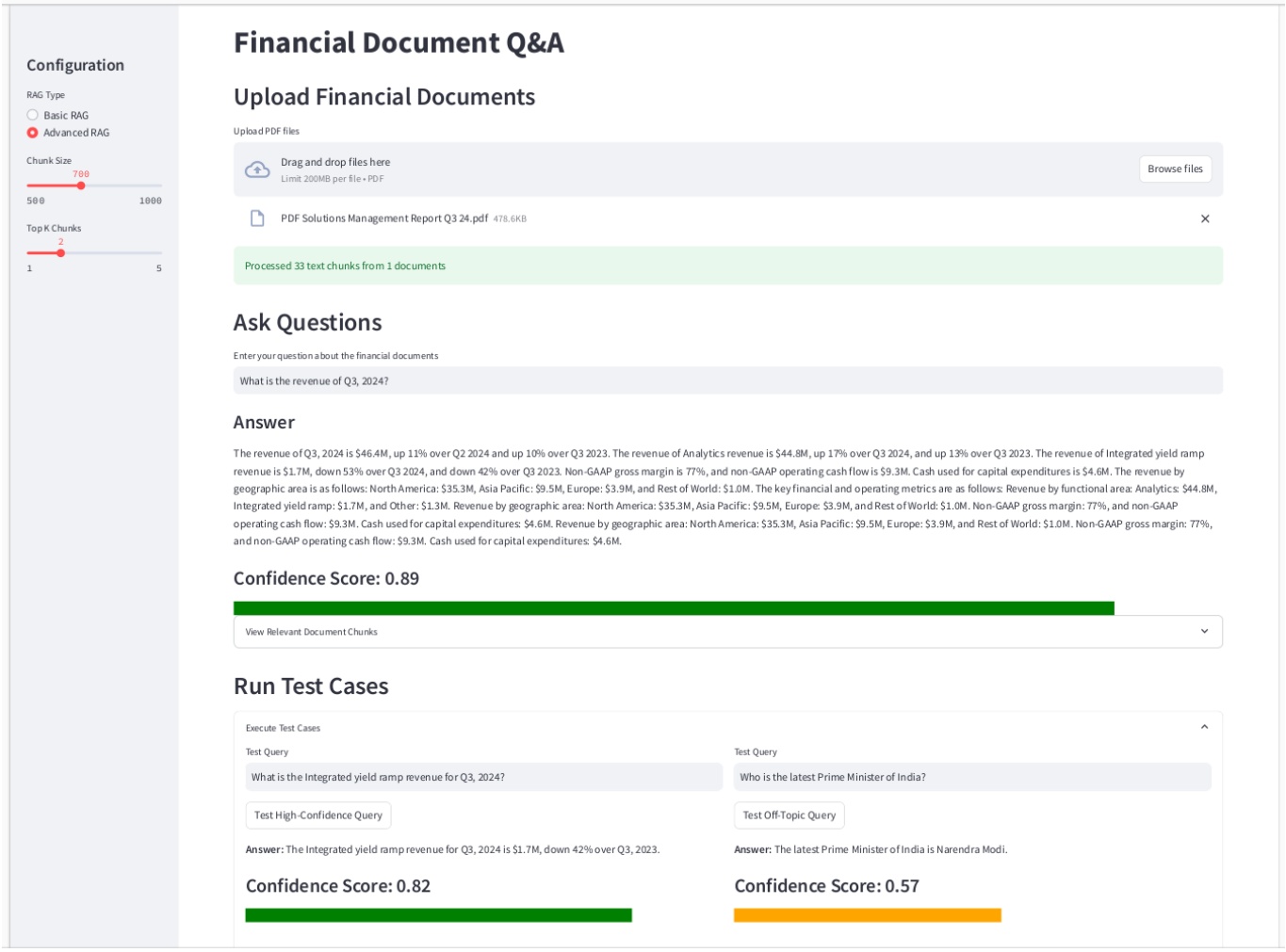
   Note: Optionally you can also select the number of chunks to refer dynamically by selecting the `top_k` parameter from the sidebr.
4. `Answer`, along with the `confidence scores` will be shown on the UI. Also,`top retrieved documents` will be available for exploration under an expander tab.
5. We have also provided a Test Case execution option, where you can test the application agains pre-configured high confidence and low confidence test case scenario.

Reference Screenshots

- Basic RAG with sample test questions



- Advanced RAG with sample questions



Snippets of Basic and Advanced RAG implementations:

- Basic RAG implementation is available under BasicRAG class in the code.
- Advanced RAG implementaion is available under AdvancedRAG class in the code.