

Assignment

Task:

Design and develop a Retrieval-Augmented Generation (RAG) based chatbot that enables users to interact with and query information from PDF documents.

Attachments:

Three PDFs are provided for this assignment. These files should serve as the knowledge base for your RAG pipeline:

- PDF_1
- PDF_2
- PDF_3

Sample Validation Questions

Your chatbot should be able to answer user queries based on the provided PDFs. Please use the following examples to validate your solution:

- **Q:** What is the maximum operating temperature of T70-C-0102?
A: 280 °F
- **Q:** What is the operating temperature of P-1203 A/B?
A: 39 °C
- **Q:** What is the Material of Construction of Shell of T70-C-0102?
A: Base material is SA-516 GR 70N and the cladding is SS 316 L

Requirements:

- Develop a working chatbot that can:
 - Process and index the provided PDFs.
 - Accept user queries in natural language.
 - Retrieve contextually relevant answers from the PDFs.
- UI is not required. The chatbot can be tested and evaluated directly via the command line.
- The focus is on delivering a functional solution. Achieving perfect accuracy is not mandatory, but the system should reasonably demonstrate the RAG approach.

Technical Notes:

- Use OpenRouter to access APIs for embeddings and LLM models.
- You may create a free account on OpenRouter to obtain API access. Please note there is a request limit—plan accordingly.
- Refer this for further information - [OpenRouter Quickstart Guide | Developer Documentation | OpenRouter | Documentation](#)

Timeline:

You have 7 days from the date of receiving this assignment to complete and submit your solution.

Submission Guidelines

- Deliverables:
 - Source code files (organized and well-documented).
 - Instructions for running the chatbot (README).
- Execution:
 - The chatbot should run from the command line.
- Environment Setup:
 - Include a requirements.txt (or equivalent) listing dependencies.
 - If applicable, provide setup instructions (e.g., virtual environment, API key configuration).
- Optional (but appreciated):
 - Short notes on the design approach and key implementation choices.