Developing a chatbot fine-tuned on a custom context based on French language models (LLMs): case of study FSTT.

Objective: The proposed objective for the establishment of a smart chatbot based on Retrieval Augmented Generation (RAG), LangChain, and Vector Databases, fine-tuned in a small french corpus (FSTT et Cours FSTT), demonstrates a comprehensive and ambitious project. To further improve it in an academic way, consider the following refinements:

Data Collection:

Collect data about FST de Tanger, you can make scraper to scrape the data about FSTT, courses studied in FSTT, activities.

Introduction and Motivation:

Clearly articulate the motivation behind choosing RAG, LangChain, and Vector Databases for the chatbot.
Provide a brief literature review on the existing chatbot technologies, especially in Arabic language processing.
Clearly define the scope and limitations of your chatbot.

Methodology:

Elaborate on the step-by-step methodology for implementing Retrieval Augmented Generation (RAG), LangChain, and Vector Databases.
Provide references to the original papers and research studies supporting the choice of these technologies.
Discuss the fine-tuning process, detailing how the selected corpus (Quran, Islamic education, Medical assistance, Machine or Deep learning in Arabic) contributes to the chatbot's effectiveness.

Backend Development:

Explain in detail the choice of FastAPI or Flask for the backend, justifying the decision based on factors like performance, scalability, and ease of development.
Discuss how DevOps tools will be integrated into the development lifecycle for continuous integration and deployment.

Single Page Application (SPA):

Clarify the reasons for choosing a Single Page Application architecture for the backend.
Discuss the benefits and challenges associated with SPA in the context of your chatbot.

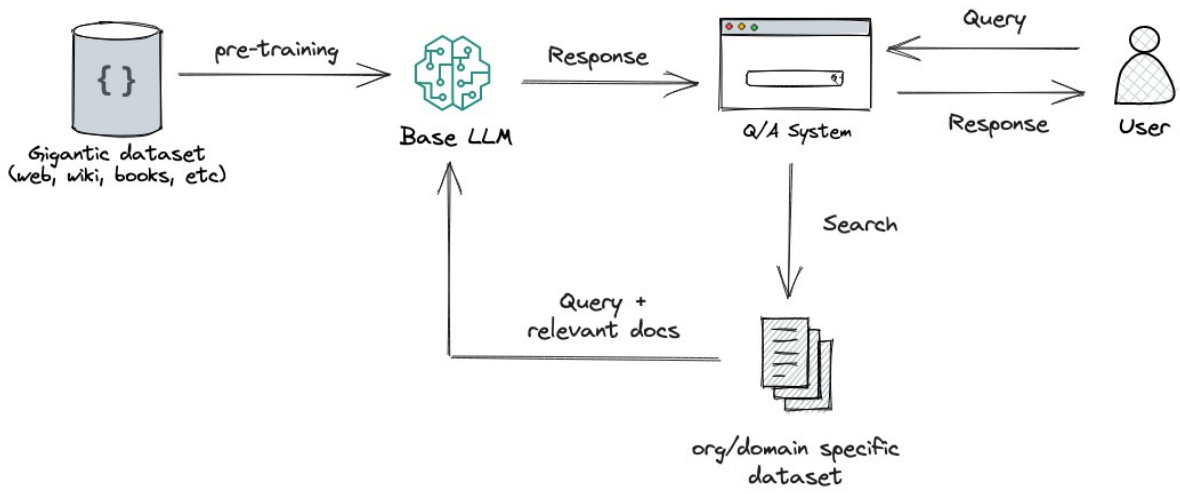
Language Model Training:

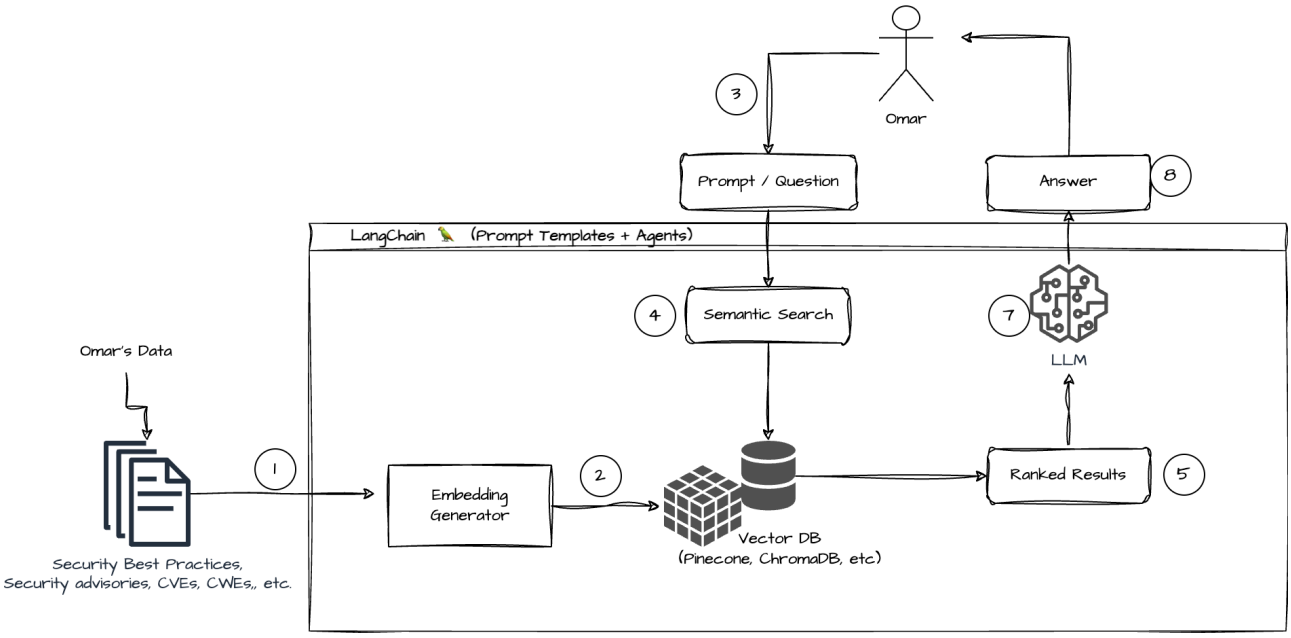
Provide insights into the process of fine-tuning the language models for Arabic, considering linguistic nuances and cultural contexts.
Discuss any challenges encountered during the fine-tuning process and proposed solutions.

User Interface (UI) Design:

If applicable, detail the UI/UX design for the chatbot's frontend.

Discuss accessibility considerations and how the UI design aligns with the cultural preferences of the target audience.





Tools : LLMs (GPT, Falcon, Mistral, LLama2 ….), Lang chain, Vector database (Casandra, elasticsearch, chroma, drant), LLMOps, Fine tuning, LoRA /QLoRA, Quantization (float 32 – int 8) , peft (help to freeze most of wight of LLMs), Prompt Template, Angular, Fast Api, Docker, Arabic NLP.