

1- INTRODUCTION & MOTIVATION

In a business environment where legal compliance is paramount, our project introduces a tailored virtual legal assistant to support enterprises. Examples like Volkswagen's multi-billion-dollar fines highlight the critical need for proactive legal risk management. According to a 2021 study by the *Cercle Montesquieu*, common risks managed by legal departments include **data protection** (82% of requests), **combating corruption** and **money laundering** (62%), **corporate social responsibility** (62%), and **contract management**. However, according to various studies and analyses, **approximately 50 to 60% of businesses lack full-time, in-house legal teams**. By harnessing Gen AI and retrieval augmented generation, our virtual assistant offers instant legal expertise, proactive compliance monitoring, and precise recommendations, empowering businesses to navigate complex legal landscapes confidently. By adopting our solution, enterprises can effectively **manage legal risks**, **optimize operational costs**, and **enhance their corporate reputation**. By leveraging the potential of our innovative approach, they pave the way for successful implementation, learning and adapting along the journey to ensure optimal outcomes and sustained compliance.

2- ANALYSIS & DESCRIPTION OF THE GROUP WORK

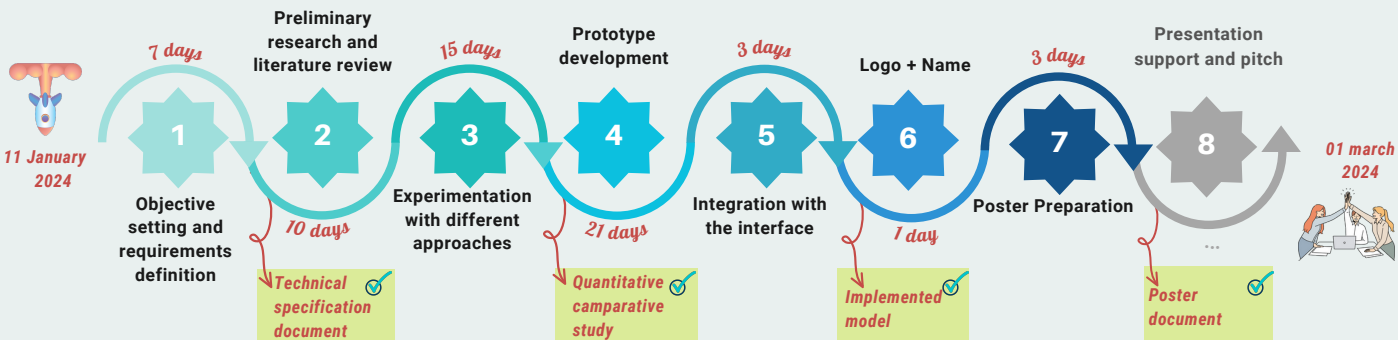
PROBLEMATIC

How can we enhance **legal compliance** for businesses through technology by boosting accuracy while **optimizing** existing legal resources?

GOAL

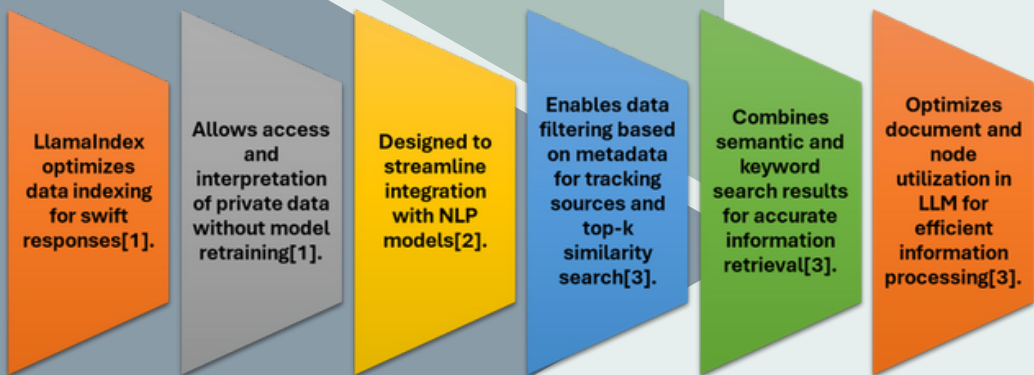
The project aims to introduce a **virtual legal assistant** for enterprises, enhancing legal compliance through instant **legal expertise** and **proactive compliance monitoring**. This initiative helps businesses manage risks, reduce costs, and enhance their reputation.

PROJECT PIPELINE

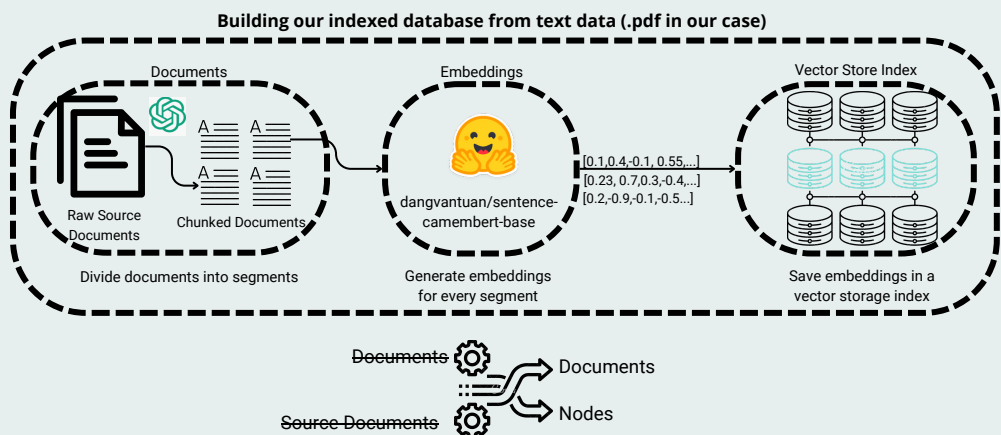


3- OVERVIEW OF THE PROPOSED FRAMEWORK

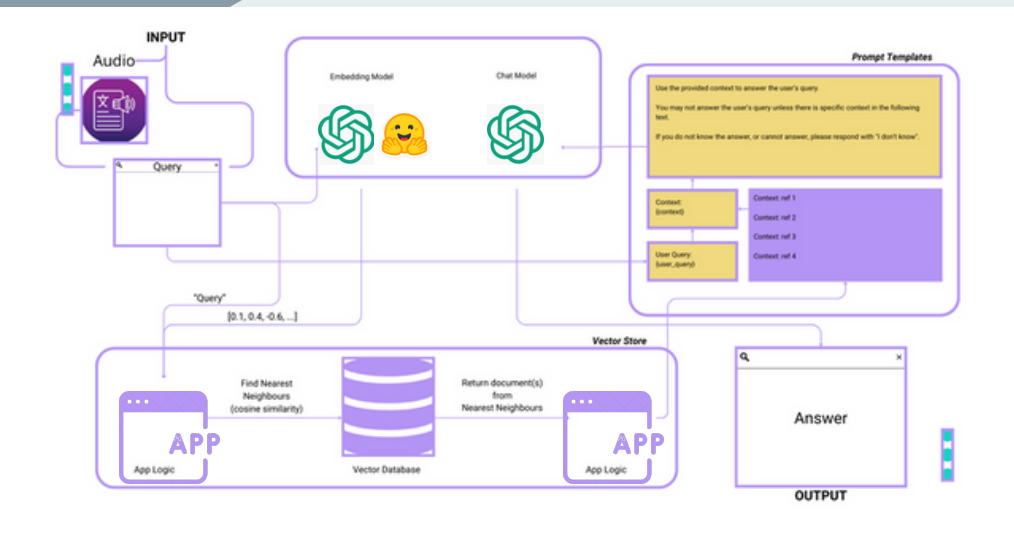
A- CHOICE OF TECHNOLOGY : WHY LLAMAINDEX ?



B- TERMINOLOGY



C- MODEL ARCHITECTURE



The model takes as input audio or text prompt then uses RAG to encode input prompts, retrieves relevant information from a knowledge source, and generates responses based on both the input and retrieved context.

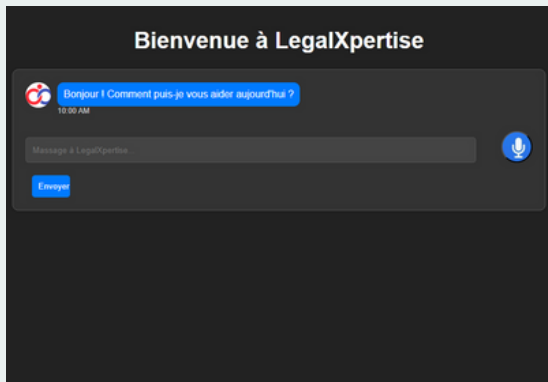
D- RESULTS AND DISCUSSION

Name	Correctness	Relevancy	Faithfulness	Semantic_similarity
Sentence Window Retriever w FT Embeddings (GPT3.5 turbo)	4.40	0.8	0.8	0.95
Base Retriever with base embeddings	4.05	0.8	0.8	0.96
Sentence Window Retriever w FT Embeddings (GPT4)	4.2	1.0	0.9	0.97

The use of advanced retrieval systems utilizing fine-tuned embeddings from models like GPT-4 can significantly enhance the accuracy, relevance, and faithfulness of the information retrieved. The GPT-4 based retriever, with fine-tuned embeddings using the *dangvantuan/sentence-camembert-base* model in *HuggingFace*, not only achieves high correctness but also ensures that the content is highly relevant and faithful to the source material, with semantic similarity scores that surpass other methods.

4- CONCLUSION & PERSPECTIVES

Goals	Added value	Perspectives
<ul style="list-style-type: none"> Contribute to the democratization of legal services Instill confidence in users by providing reliable legal information and guidance 	<ul style="list-style-type: none"> Assist businesses in reducing legal risks by providing proactive regulatory monitoring, and ensuring compliance Generation of an annotated database thanks to feedback from lawyers 	<ul style="list-style-type: none"> Continuous model performance improvement Consider forming strategic partnerships with legal institutions to strengthen the platform's credibility



The platform is customized to meet the demands of corporate professionals, ensuring ease of use. It facilitates executives in receiving and generating responses to diverse legal inquiries, whether through text or audio messages. Users can seamlessly interact with the system to address **various legal scenarios**, **streamlining decision-making processes**. Additionally, professionals have the flexibility to personalize their interface settings, optimizing response generation for enhanced efficiency.

BIBLIOGRAPHY

- [1] LlamaIndex: Adding Personal Data to LLMs, DataCamp, <https://www.datacamp.com/tutorial/llama-index-adding-personal-data-to-llms>
- [2] A complete Guide to LlamaIndex in 2024
- [3] Turn your enterprise data into production-ready LLM applications, <https://www.llamaindex.ai/>
- [4] https://adala.justice.gov.ma/fr/resources/Textes_Juridiques

