



AI-Based Financial Law Analyser and Collaborator: Bridging Legal Accessibility Through Artificial Intelligence

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Abstract: AI-Based Financial Law Analyser and Collaborator, an intelligent digital platform designed for ease in understanding and management of financial legal matters, uses advanced techniques in Artificial Intelligence like NLP, OCR, and Legal-NER. The system thus processes complex legal documents, identifies relevant financial laws, and provides a crisp summary, including drafts for potential defences. It enhances accessibility by having multilingual support. Moreover, it includes the lawyer discovery module that links users with qualified legal professionals based on the nature of the case, area of expertise, and applicable jurisdiction.

Built using Python, Flask, LangChain, and React, the platform ensures both processing efficiency and a seamless, interactive user experience. Automating document interpretation, performing legal research, and lawyer matchmaking not only greatly cut costs but also democratize access to justice. This is a flagship project on how Artificial Intelligence can change financial legal assistance, making legal insight more understandable, actionable, and affordable for all.

Keywords: Legal tech, AI, NLP, legal informatics, semantic search, chatbots Introduction

I. INTRODUCTION

Legal information remains inaccessible and incomprehensible to a large section of society in India. The majority of people spend large amounts of money on litigation, and, quite often, their entire case hinges on the expertise, reputation, and availability of lawyers. Finding the ideal legal expert specializing in financial law and practicing within the right jurisdiction is often very time-consuming and complex. This, overall, contributes to the huge gap in effectively and confidently engaging with legal processes.

The AI-Based Financial Law Analyser and Collaborator aims to address these challenges by offering intelligent, AI-driven solutions for the analysis, interpretation, and resolution of financial legal matters. This digital platform leverages automation to simplify the complexity of financial law and facilitates connections between users and the most suitable legal professionals, thus empowering them with better clarity and assurance before proceedings.

Primary features of the system include:

- Automated Case Sheet Analysis - Summarizes long and complicated legal documents into readable text that is easily understandable by its users.
- Relevant Law Identification: Automatically identifies and highlights the financial laws and regulations relevant to the case in question.
- Defence Text Generation: It uses information from previous case judgments to construct logical, persuasive legal arguments.

Lawyer Connection System: A semantic search-enhanced knowledge base connects users with lawyers based on their area of practice, jurisdiction, and experience to improve both the quality and access to legal support.

II. RELEVANT LITERATURE

Bettercall: Artificial Intelligence-Driven Lawyer:

BetterCall is a research initiative aimed at enhancing access to judicial and legal information in India using an AI-driven chatbot. By employing Natural Language Processing, the system converts legal documents into vector embeddings, allowing users to perform semantic searches rather than relying solely on keyword matching. It functions as a virtual legal



support tool, enabling informed decision-making and promoting greater legal awareness among users. The platform gathers information from verified legal sources and uses cosine similarity to identify relevant documents. These are processed through a Large Language Model (LLM) to generate clear and understandable responses. Experimental results showed that BetterCall performed with high accuracy across multiple domains, including family, property, labor, and criminal law, demonstrating its versatility and reliability in handling various legal scenarios.

A Framework for Accessing the Law through Artificial Intelligence:

This study introduces a Virtual Legal Assistant (VLA) designed to address the overwhelming backlog of cases pending in Indian courts. The system provides an interactive AI interface that enables legal professionals to explore case law databases efficiently, eliminating the need for manual, time-consuming research. To assist in case preparation, the VLA ranks legal precedents based on their “winning probability”, employing algorithms such as RP-Score and Mean Reciprocal Rank (MRR). By prioritizing the most relevant cases, it supports lawyers in selecting precedents that strengthen their legal arguments. Overall, the framework demonstrates how AI can streamline legal research and enhance the effectiveness of judicial processes.

AI-Powered Legal Documentation Assistant:

This work presents an AI platform that focuses on copyright, trademark, and banking law. It integrates legal experience with AI chatbots, machine learning, and NLP in order to perform the automatic drafting, summarization, and editing of documents with the use of models such as BERT, GPT, and spaCy. The approach improved efficiency and accuracy, with users reporting reduced editing time and a higher level of satisfaction in document handling.

How Do Attorneys Design and Build LegalTech Products?:

This qualitative study investigates how lawyers develop LegalTech solutions. It finds that most projects originate from practical needs rather than business strategies and have been built as digital platforms using flexible iterative methods. The study shows a shift in which legal professionals combine entrepreneurial thinking with technology to modernize legal service delivery and redefine professional practice.

III. SYSTEM DESIGN AND METHODOLOGY

The solution uses semantic search to deliver accurate, context-aware legal information, unlike traditional keyword search that fails to understand intent or word relationships. It operates in two phases—Training and Application—and uses a full stack with Next.js frontend, Python/Flask backend, and Docker for easy deployment and scalability. Semantic embeddings enable the system to understand the meaning behind legal queries and match them with relevant laws, even when phrased differently. The Docker-based, modular design ensures stability, smooth multi-user performance, and easy updates as the platform grows.

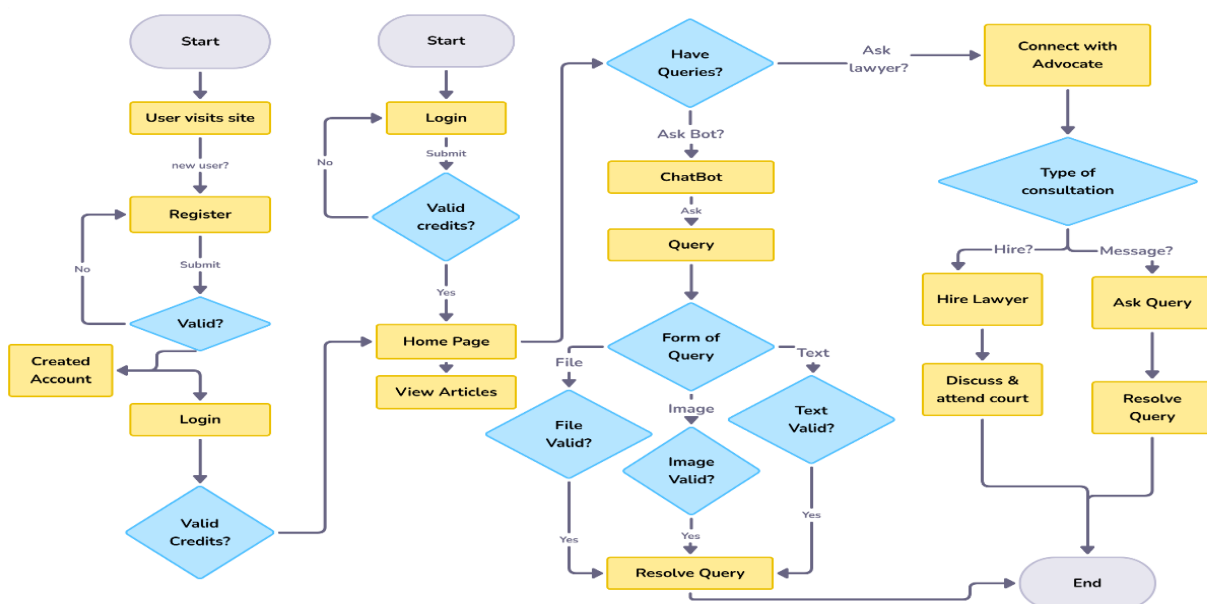


Fig 1. Generic user flow diagram



A. Training Stage:

Training is a very important phase in formulating the legal knowledge base of the framework, as shown in the workflow diagram.

It consists of five main steps:

1. **Data Collection:** Legal information is scraped from credible and dependable web-based sources, such as official Indian legislation websites, using web-scraping methods.
2. **Data Preprocessing and Cleaning:** The obtained data goes through extensive cleaning in which important metadata like act names and section numbers are organized and fine-tuned.
3. **Tokenization and Data Chunking:** The data is chunked down into smaller sections to retain contextual integrity, as the overall precision and dependability of a model rely on such context.
4. **Embedding Generation:** The chunks of data are transformed into a numerical format called vector embeddings using a pre-trained transformer model.
5. **Database Storage:** The vector embeddings are stored in a database along with their corresponding text and metadata, which allows for efficient interaction and retrieval during user queries.

B. Definition Phase:

It lays down the path of the user query completely. The complete design of the system shows a user interacting with the legal assistant that gets to process the documents with the help of different modules.

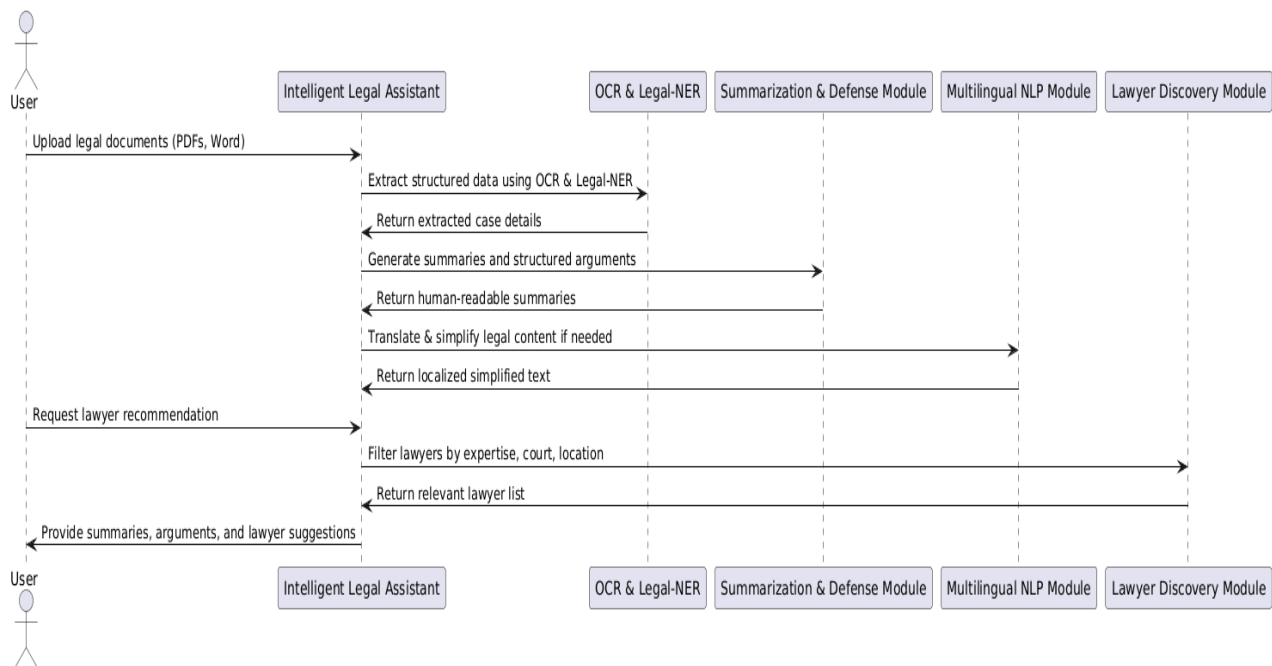


Fig 2. High level design

1. **A User Query Input:** The user provides a legal query through the frontend interface, which then clearly transmits that to the backend for processing.
2. **Embedding Generation:** The Large Language Model of the system embeds a vector related to the user's query and is usually in a high-dimensional space.
3. **Similarity Calculation:** The system does a cosine similarity calculation to find vector embeddings in the database that are closest to the embedding of the user query. This retrieves the most relevant legal sections.
4. **Ontology and Response Generation:** The legal sections retrieved along with their metadata are integrated with knowledge in the ontology database about legal definitions. All this integration is done to allow the language model to give a full, human-like response.
5. **Response Delivery:** The final response, containing aggregated legal information and relevant explanations, is returned to the user through the frontend interface, completing the query-and-response cycle.

IV. RESULTS AND DISCUSSION

The AI-Based Financial Law Analyser and Collaborator successfully met its objectives of simplifying financial legal processes using Artificial Intelligence. The system analyzed the legal documents with OCR and summarized them using



NLP, where it quickly identified relevant financial laws and produced understandable outputs. During testing, it performed well in document interpretation and response generation with consistent accuracy and speed.

The semantic search mechanism provided context-aware results, effectively linking a user's query with suitable legal provisions and past judgments. Users found it intuitive to use and appreciated features such as lawyer discovery and multilingual support for easy accessibility and usability.

Overall, the results reflect that the system reduces manual legal research dependency and decreases expensive consultations by automating document analysis and matching with experts. It improves access to justice and knowledge of the law by depicting complex data in a simplified manner. The project thus proves that AI can play an important role in transforming financial legal aid into an effective, inexpensive, and user-friendly format.

V. CONCLUSION AND FUTURE WORK

The AI-Based Financial Law Analyzer and Collaborator has shown great effectiveness in improving access to legal and judicial information within India. It streamlines communication between clients and legal experts, thereby enhancing collaboration, accessibility, and overall efficiency. As a dynamic analytical system, it encourages active user participation and delivers impactful, real-time interaction. Its document-processing pipeline efficiently transforms complex legal files into clear and organized summaries, minimizing information overload and saving valuable time for users.

Future enhancements will focus on strengthening and expanding the platform's functionality. Planned updates include extending the legal database to cover additional financial and general laws, introducing user-level verification to ensure the authenticity of advocates, and integrating secure communication options such as private chat, video consultations, and encrypted document sharing. In addition, a user feedback mechanism will be implemented to help the AI model continuously learn and improve in accuracy and personalization. These developments aim to ensure the platform's long-term sustainability, reliability, and role as an accessible solution that promotes legal awareness and empowerment within the community.

REFERENCES

- [1]. M. Dhore, A. Vimal, A. Agrawal, R. Bajaj and R. Barde, "Bettercall: AI based legal assistant," in 2024 5th International Conference on Image Processing and Capsule Networks (ICIPCN), pp. 248-256, 2024.
- [2]. N. Jain and G. Goel, "An Approach to Obtain Legal Advice with the Help of Artificial Intelligence," 2020 8th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), pp. 768771, 2020.
- [3]. P. Aishwarya, K. Rohini and P. D. Reddy, "AI-Powered Legal Documentation Assistant," International Journal of Engineering Innovations and Management Strategies, vol. 1, no. 6, 2024.
- [4]. C. Dubois, "How do lawyers engineer and develop legaltech projects?: A story of opportunities, platforms, creative rationalities, and strategies," Law, Technology and Humans, vol. 3, no. 1, pp. 68-81, 2021.
- [5]. V. Socratianurak et al., "LAW-U: Legal Guidance Through Artificial Intelligence Chatbot for Sexual Violence Victims and Survivors," in IEEE Access, vol. 9, pp. 131440-131461, 2021.
- [6]. K. Nikolskaia and V. Naumov, "Artificial Intelligence in Law," in 2020 International Multi-Conference on Industrial Engineering and Modern Technologies (FarEastCon), pp. 1-4, 2020.
- [7]. Sameera A. Abdul-Kader and Dr. John Woods, "Survey on Chatbot Design Techniques in Speech Conversation Systems" International Journal of Advanced Computer Science and Applications(ijacs), 6(7),2015
- [8]. Ashish Vaswani, Noam Shazeer, Niki Parmar, Jakob Uszkoreit, Llion Jones, Aidan N. Gomez, Lukasz Kaiser, and Illia Polosukhin