Lawbot: An Enhanced Legal Information Retrieval System using RAG

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Abstract. Over 1.4 billion people are governed by one of the most comprehensive legal systems in the world, the Indian legal system. The gaps in legal information and resources are what contribute to the exploitations and barriers to availing justice. A large section of the public still remains legally illiterate. This lack of legal education is more common among low-income groups, marginalized communities, and the rural population. Furthermore, the absence of understandable legal information delays the judicial process which adds to the backlog of millions of pending cases. One AI-powered Legal Bot is designed to resolve this issue. It aims to provide real-time, region-specific legal aid to users in the form of chatbots which will be able to assist users anytime and anywhere. The bot features retrieval augumented generation and BERT-based natural language processes to accurately respond to legal queries. Some of the major functions include real-time chat with legal bloggers, legal document summarization, up-to-the-minute news access, legal blogs, and consumer rights assistance to name a few. The AI powered chatbot is secured with reliable authentication protocols and knowledge bases that provide accurate yet efficient info to users. Unlike traditional legal resources which require an expert account for unclear information, the chatbot translates incomprehensible legal documents into easy, actionable steps. By decreasing the dependency on legal professionals and automating repetitive inquiries for common concerns, the chatbot streamlines access to legal assistance, empowers individuals to make informed decisions, and enhances overall legal literacy. This AI-driven approach makes an inclusive and efficient legal ecosystem, ensuring that legal awareness is both preventative and accessible to all.

Keywords: Document Summarization, Information Retrieval, Legal Literacy, Natural Language Processing, RAG.

1 Introduction

The Indian legal framework, one of the most sophisticated in the globe, caters to a population of more than 1.4 billion citizens. Yet, a large number of the population are legally illiterate, without knowledge of their rights, legal remedies,

and due processes. Such ignorance and lack of knowledges brings down people of rural masses, women, and marginalized classes as they are often taken advantage of. They are often used by moneylenders, bribe-seeking officials, and intermediaries. Lacking sufficient legal consciousness, people cannot exercise their rights, protect themselves against discriminatory legal actions, or enter the legal system with efficiency. Legal literacy in India is still remedial, not preventative, as citizens come to know their rights only after a legal violation has occurred. Estimates indicate that some 70% of rural Indians are illiterate, with even more having no knowledge of their legal rights and protections. [1].

Legal illiteracy also increases delays in the judicial system because common citizens have trouble understanding legal processes or submitting required documents and following lengthy case proceedings. Over 80,000 cases are pending in the Supreme Court, and millions more in the High Courts and District Courts, many that stem from preventable legal misunderstandings [2]. It is seen that most legal conflicts can be resolved by mediation or early legal action instead of becoming protracted to court fights because of ignorance. The absence of legal education at the school level also contributes to this crisis, as most people only experience the legal system after they are involved in conflicts.

To address this issue, interactive legal literacy programs have emerged as a potential solution. Paper [3], discusses the legal illiteracy in India. It provides interactive legal literacy sessions as a solution to this problem. These sessions, Panchayat Shivir, focused on tribal communities in Rajasthan, where people struggle to understand the Tribal Self-Rule Law, which governs local governance and resource management. These initiatives interact directly with the people in order to close the gap between themselves and the intricacies of the legal world. This leads to a more legally informed population.

As stated by [4], normal citizens of the nation who are educated but not lawyers believe legal terminology is alien to them since it is too difficult to read or interpret without professional assistance.

Legal literacy is an important problem in this country because most people are denied access to reliable, understandable, and location specific information on the laws of the country. Common legal materials, including official government websites, law textbooks, and face-to-face meetings with lawyers tend to show a necessity of possessing a high degree of legal education, economic means, or access to legal experts. This would be a major impediment for people who require legal assistance but do not possess the ability to obtain it. Our suggested AI-driven chatbot fills this void by providing affordable, real-time legal support in the areas of consumer rights, property and finance conflicts.

2 Literature Survey

2.1 Comparative Analysis of Legal Chatbots

Various efforts have been made to enhance legal literacy and access among unaware legal proceedings in India, ranging from community-level efforts to AI-based assistive solutions. Work done in the field is discussed in this section,

ranging from interactive legal awareness programs to AI-based legal assistants, along with their merits and demerits.

NyayGuru NyayGuru [5], an AI-powered legal assistant, enhances legal literacy and access in India by providing multilingual and legal advice at a fairly low price. It offers 24/7 assistance being a chatbot, fosters preventive legal literacy and helps in reducing dependency on legal intermediaries or middle-men. But it is handicapped in terms of the absence of case-sensitive advice, its possible unreliability, disadvantage of digital inaccessibility, and ethical dilemma. It can provide generic guidance without knowing definite contexts.

IndiaGPT Supported by context-based AI, IndiaGPT [6] guides the users towards legal rights, procedures, and case laws. But it is limited in its application. It lacks any sort of tailored or case-specific advice, and relies heavily on AI-provided responses. It is also vulnerable to online accessibility issues, hence becoming a secondary tool and not a replacement for legal professionals. It also uses old information making its advice less valuable.

LawbotPro LawbotPro [7] is an AI-based legal software with experience in automated legal document preparation, case law research, and procedural guidance. It helps the users to write legal contracts, research precedents, and be aware of the procedures of courts, thus facilitating easier handling of law. LawbotPro promotes access to justice via low-cost, artificial intelligence-driven legal services, reducing dependency on expensive legal services. It is vulnerable for including potential AI bias, lack of human judgment, and it faces a challenge in the determination of complex cases of law. Its demerits surely validate the need for human control over legal matters. LawbotPro does not utilize exact legal sources or historical case precedents.

We can see how different AI-powered chatbots have emerged in the legal sphere, all of which attempt to address legal literacy by robot-legal advice. However, these alternatives have varying limitations on how far they can provide legally valid, jurisdictionally appropriate, and user-appropriate legal advice. Table 1 includes a comparison of existing legal chatbots and the system proposed here.

2.2 Related Work

There are numerous researches undertaken to process case data in order to make judgement prediction depending on various suggested framework. An Indian Virtual Legal Assistant [8], is an AI-based system that will help users in legal questions with the help of analyzing legal cases in the past and give suggestions. The VLA is divided into four primary components: Text Analytics, Knowledge Base, Question Generation Engine and Chabot Interface with Speech Recognition. They help it understand, process, and answer legal questions appropriately. It

Table 1: Comparative Analysis of Legal Chatbots

Feature	Nyayguru	IndiaGPT	LawbotPro	Proposed System
Context Awareness	Limited	Outdated Data	Moderate	High
Legal Reference Inclusion	Yes	No	No	Yes
Regional Adaptation	No	Partial	No	Yes
User Interaction	NLP-based	NLP-based	Conversational	Personalized Assistance
Case-Specific Advice	No	No	Partial	Yes
Customization & Training	No	No	Limited	Continuous Learning
Time Efficiency	Requires Manual Search	Lacks Accuracy	Faster Responses	Optimized for FAQs

ranks cases in a decreasing order based on relevance and employs a KNN-based method to categorize legal cases.

There is Chinese legal judgement prediction [9] in which researchers incorporate physiological attributes and fact description of incidents to forecast the judgement. The Chinese Legal Consultation System (CLCS), [10], combines legal ontology and artificial intelligence (AI) to improve legal information retrieval. The system builds a legal knowledge base upon both statutes ontology (top-down approach) and case ontology (bottom-up approach), enabling for semantic understanding and legal case retrieval. The CLCS uses Genetic Algorithms (GA) in conjunction with K-Nearest Neighbors (KNN) to enhance case similarity identification, ensuring proper retrieval of relevant legal precedents and statutes efficiently. The suggested approach was implemented on emotional damage compensation cases, showing enhanced retrieval accuracy in comparison to keyword-based searching.

Paper [11] suggests an ontology-based knowledge block summation approach for Chinese judgment classification. It identifies principal legal concepts with the help of ontologies and improves classification with Word Mover's Distance (WMD) and K-Nearest Neighbors (KNN) for better efficiency and accuracy.

Another work [14] constructs a use case of GNNs legal cases as nodes, connected with citations, laws, and time for classification and link prediction. GraphSAGE is utilized for binary classification of case outcomes and relation prediction among cases. Various text embeddings (random, XLNet, hierarchical) and edge types (directed, reverse-directed, undirected) were tested for better performance.

Another Chatbot-based IR [13] employs FAQ datasets and StarSpace for intent classification. Response accuracy is enhanced through supervised learning using StarSpace and word embeddings. BERT fine-tunes a multilingual legal Q&A model, boosted by a hybrid IR + NLP process. Although [12] learned its

chatbot from legal documents, with legal expert-created Q&A pairs and ChatGPT, LlamaIndex served to perform fast indexing of large legal texts and vectorization for retrieval. Assessed with 50 legal queries, having performance measures comprising accuracy (82%) and F1-score (79%).

TaxGuru [15] critiques the long-standing inaction in creating a High Court Bench in Western Uttar Pradesh, shedding light on how more than 10 crore citizens have significant geographical obstacles (700–800 km distance) to reach justice. It denounces the central government's indifference despite seven decades of clamor, focusing on systemic disparities in India's judicial infrastructure. Ghosh et al. [16] discusses conflicts between India's proposed Uniform Civil Code and tribal customary laws in the Northeast, arguing that blanket uniformity risks eroding tribal autonomy. This work advocates for context-sensitive legal frameworks that reconcile constitutional mandates with regional diversity.

UNESCO conducted a global survey of 500+ judicial operators reveals AI's dual role: enhancing efficiency in legal research but posing risks to human rights. Calls for ethical guidelines to govern AI use in courts, stressing the requirement for judicial training [17].

Smith et al. [18] conducted a benchmark study revealing limitations of LLMs in legal reasoning, especially in the application of precedents to new cases. It detects a 35% accuracy decline in tasks involving logical consistency, calling for restraint in using AI for subtle judgments.

In a paper [19], India's disjointed AI regulations in fintech were evaluated, observing loopholes in the Digital Personal Data Protection Act (2023) to fill gaps in algorithmic bias. Proposes sector-specific compliance schemes to harmonize innovation and consumer protection.

Paper [20] puts spotlight on transparency as the key to legal AI systems, urging bias audits and explainable architectures. It forewarns opaque algorithms from detracting public confidence in court decisions.

A work [21], delves into AI-facilitated client profiling in legal tech, exhibiting 40% increase in efficiency when predicting cases and questions data privacy ethics as well as risks of reinforcing socioeconomic inequalities via skewed profiling.

The European Commission [22] contrasts GDPR and CCPA compliance issues with AI personalization, with jurisdictional tensions in cross-border data processing. It recommends encryption and standardized reporting to address legal risks.

ACC reports 60% reduction in legal research cost through domain-specific AI tools. It mentions that specific modules perform better than general models but need regular human monitoring [23]. Wang et al. [24] presents LegalBench, a benchmark rating 20 LLMs on 162 legal reasoning tasks. This research finds models do better in statutory recall but perform poorly in ethical judgment.

A paper in [25] contrasts extractive vs. abstractive summarization of legal documents, preferring hybrid approaches for precision. Identifies segment-level summaries (facts, rulings) as essential for practitioner use.

Zakir et al. [26] reports a detailed review of AI in legal research, reporting 50% quicker case law retrieval but warning of ethical concerns such as surveillance

and biased training data. Along the same lines, the research in [27] suggests incorporating pro bono clinics into law school education, demonstrating a 30% boost in student proficiency and outreach to marginalized clients. Emphasizes the limitations of this model in the absence of state support.

Some workshop proceedings on AI in legal IR, promoting multilingual NLP tools for Global South jurisdictions. It points out interpretability gaps in transformer models for non-English texts [28].

Paper [29] summarizes NLP innovation in legal scholarship, foreseeing multimodal AI (text + audio/video) as the next horizon. Alerts against excessive reliance on LLMs for statutory interpretation.

Research in [30] assesses Kenya's legal empowerment initiatives, registering a 25% increase in land-rights wins for marginalized communities. Identifies digital literacy constraints hinder AI tool uptake.

Research [31] examines NLP in law, with 90% accuracy in extracting contract clauses. Criticizes "black-box" models for obstructing judicial accountability.

3 Our Approach

For a solution to combat legal illiteracy and capacitate marginalized people, our strategy integrates technology-solution with people-centered learning. Through creating a Legal Bot that can aid consumers and research interns in knowing their rights, the strategy is geared towards being convenient and interactive. This strategy makes use of easily accessible digital technologies and localized scenario-based learning so that legal empowerment can be adequately achieved. The subsequent sections present the specific strategies and steps that were used in this effort.

3.1 Features of Lawbot

The chatbot delivers real-time, region-specific legal advice by combining jurisdiction-based legislation, providing users with accurate, current guidance. Through context-aware NLP, it accurately interprets questions, delivering clear legal answers without bombarding users with jargon. It automates replies to frequent consumer rights queries, taking the workload off legal experts and enabling them to concentrate on complicated cases. In contrast to static legal websites or broad search engines, the chatbot provides context-specific, actionable advice in real time. In democratizing access to legal information, it makes people able to make better decisions, raises awareness of the law, and mitigates overreliance on expensive consultations, fostering a fairer and more accessible legal environment.

- Consumer Rights Assistance: Assist users by providing answers to frequently asked questions and translating legal terminology into simple, actionable guidance, allowing users to make informed choices.
- Finance and Property Law Support for Research Interns: For law interns, the bot serves as a source of information on finance and property law.

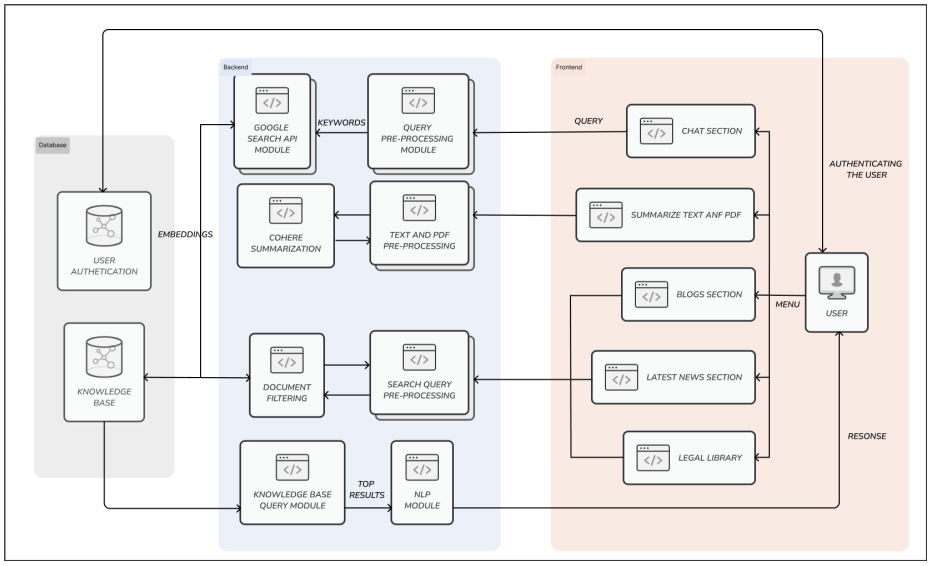

Fig. 1: System Architecture of Lawbot

- 24/7 Availability: As an automated system, the bot is always available, which is especially helpful for those living in rural communities or who have limited access to legal experts.
- Scenario-Based Assistance: Through the examination of historical legal cases and presenting them in simple-to-understand styles, the bot assists users in better understanding how certain laws relate to their own circumstances.
- Blog and News Section: The bot has a blog or news section through which users are furnished with current legal news, articles, and discussions, enabling them to remain aware of recent developments in law and regulations.
- Text Summarizer: Users can paste text or upload legal documents, and the bot summarizes the content to enable easy rapid understanding of the main points and key information.

3.2 Architecture

Our proposed solution follows the System Architecture as shown in in Fig. 1. The architecture is built to incorporate several components that collaborate to provide context-sensitive legal advice. The primary modules are as follows:

User Input Processing The user chooses an option from the menu like chat-based queries, document summarization, blogs, news, or the legal library. The user input is preprocessed to normalize the text format and eliminate stopwords using spaCy and NLTK tokenization methods. The input is then routed to the corresponding module depending on its intent.

Query Processing and Information Retrieval (RAG) The extracted text is then passed through an LLM-based NLP model to produce well-formatted responses. BERT-based legal question-answering models are used to fine-tune responses according to jurisdictional demands. User authentication and access control are in place to ensure secure provision of personalized legal advice. The query text is then passed on to the *Kanoon API* for external legal information. The system then uses RAG to combine retrieved data with generative NLP, providing more accurate and context-sensitive outputs. User authentication provides secure access to data.

Legal Document Summarization Lawyers and users frequently handle long legal contracts, policies, and case law texts. To enable faster understanding, the chatbot offers automated document summarization of legal documents, such as text-based PDFs and scanned legal documents.

Processing Text-Based PDFs: Parsed using *PyMuPDF (fitz)* for document parsing in a structured manner. Summarized using *Cohere's abstractive summarization model*, producing human-like summaries.

Processing Scanned PDFs (OCR-Based):

- *Tesseract OCR* performs text extraction from image-based legal documents.
- Text extracted is then normalized and tokenized prior to summarization.
- Summarization uses *extractive approaches (TextRank, BM25)* for key phrase selection and *abstractive approaches (Pegasus, GPT-4)* for condensed, human-readable text generation.

This module greatly minimizes effort needed to review voluminous contracts, case decisions, and statutory sections so that users can concentrate on essential legal nuances.

Legal Information Retrieval The chatbot uses real-time legal news and blog search with the following:

- Google News API to fetch articles of recent legal cases.
- Lexical & Semantic Search using BM25 + BERT embeddings for ranking relevant articles.

The Knowledge Base Query Module caches structured legal knowledge in FAISS embeddings, which supports fast retrieval of relevant statutes, case laws, and legal precedents. This module makes sure users get highly pertinent legal updates, case studies, and regulatory information based on their queries.

Knowledge Base and Authentication The system keeps precomputed legal embeddings in the FAISS (Facebook AI Similarity Search). The system relies on Graph-based Knowledge Representation, connecting case laws to similar precedents and employs JWT-based authentication and OAuth2 for security of users. This permits safe access to case histories, individual legal consultancy, and past chatbot interactions.

4 Results and Discussions

This section outlines the implementation and evaluation of Lawbot. As a measure of the effectiveness, we undertook a survey of user feedback and expert assessment with participation from lawyers, legal experts, law professors, and law students. The research sought to quantify accuracy, usability, and practical utility.

4.1 Implementation

Preprocessing in the LawBot system consists of cleaning, normalizing, tokenizing, stopword removal, lemmatization, POS tagging, and using Named Entity Recognition (NER) to identify legal entities. Keyword extraction via TF-IDF and TextRank emphasizes significant terms, whereas text is represented as vectors using techniques such as TF-IDF, Word2Vec, GloVe, and BERT for model input. The deployment integrates machine learning, deep learning, and NLP technologies: abstractive (T5, BART) and extractive (TextRank, LSA) summarization; hybrid chatbot with transformer models and rule-based logic; TF-IDF, Logistic Regression, and BERT embeddings for intent classification; RAG, Sentence-BERT, and FAISS for semantic search; and citation graph for legal case relations. The architecture is designed to deliver accurate, scalable, and domain-specific legal advice.

Fig. 2 demonstrates the LawBot's reaction when a user inputs a legal question, asking for news articles and case summaries on the subject. The first figure shows how relevant legal news is retrieved, and the second figure illustrates the retrieval of corresponding case laws. This interface enables users to retrieve aggregated legal information from various sources in an instant, giving a complete response in real time.

Fig. 3 illustrates the summarization functionality of LawBot, wherein a user had uploaded a Non-Disclosure Agreement (NDA) to be summarized. The chatbot ran the document through and produced a short summary, breaking down complex legal jargon into a format that is easy to comprehend. The system also has a chat history, which enables users to monitor past conversations for reference purposes. The interface also has voice input and output capabilities, allowing users to interact hands-free and making it easier for users with varying needs.

4.2 Performance Evaluation

We tested the chatbot using real-world questions to confirm that its responses were correct and in accordance with legal standards. We asked 20 legal professionals, including practicing attorneys and instructors, a questionnaire. Table 2 presents the chatbot's performance results.

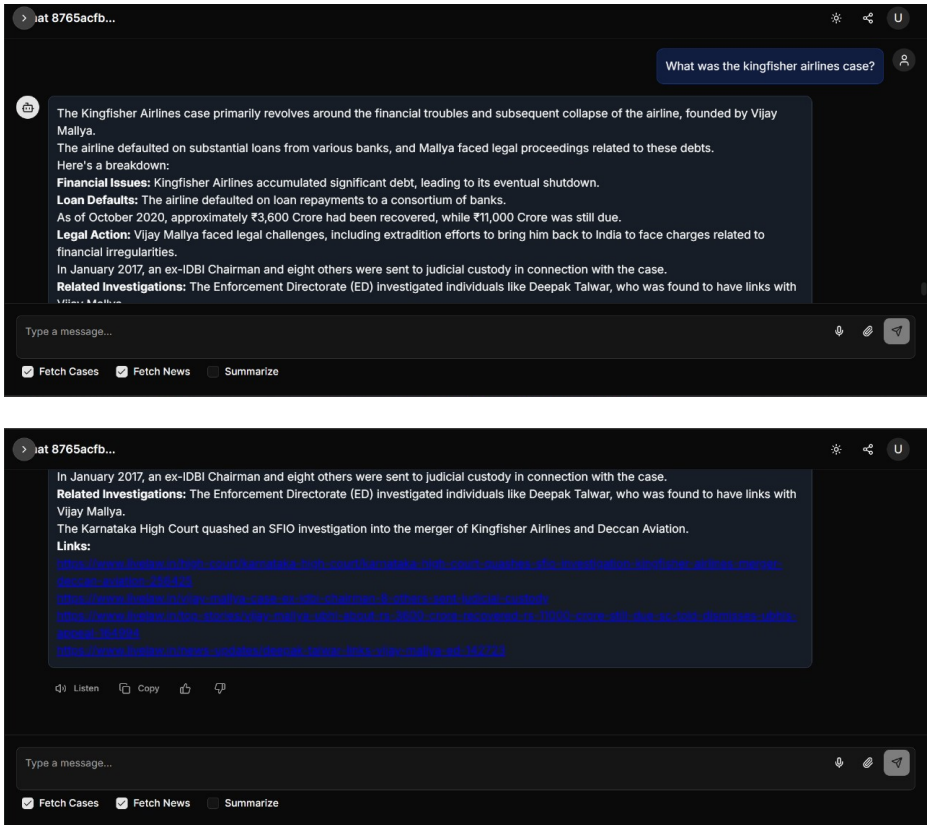

Fig. 2: LawBot interface showing responses for both news and case law retrieval

4.3 User Survey

100 participants were surveyed to test the Lawbot's performance.

The major areas of the Lawbot were measured on a 5-point scale. The following measures were tested:

- Ease of Navigation: The respondents gave the interface an average rating of 4.50/5.
- Relevance of Responses: The responses were found to be very relevant, with an average rating of 4.54/5.
- Response Time Satisfaction: The responses were found to be very relevant, with an average rating of 4.54/5.
- Accuracy of Lawbot: The accuracy was rated at an average of 4.39/5.
- Overall User Rating: The prompt review returned an average rating of 4.06/5.

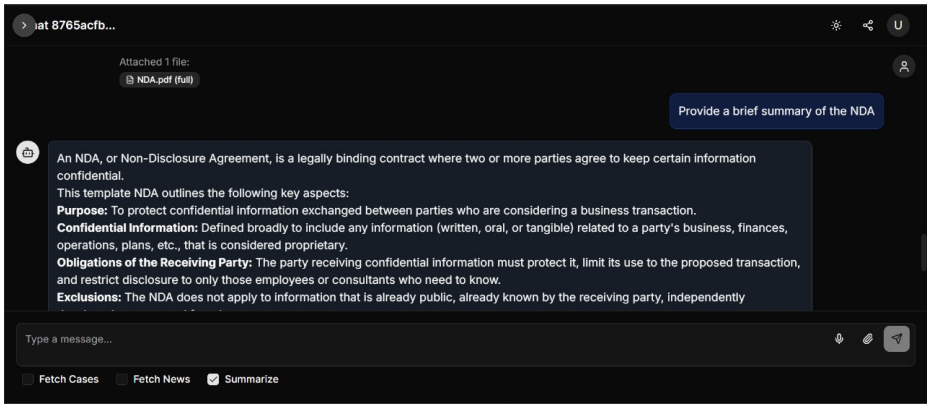

Fig. 3: LawBot summarizing an uploaded Non-Disclosure Agreement (NDA)

Table 2: Evaluation Metrics for the Legal Chatbot (Average Scores)

Metric	Avg. Score
Accuracy	84.78%
Relevance	85.8%
Detail	95.3%
Ease of Interaction	96.26%
Legal References Provided	82.86%
Usefulness of Legal Library	82.86%
Quality of Blog Posts	83.88%

Table 3 encapsulates these project evaluation metrics to provide a compiled analysis of users' interest.

Table 3: Evaluation Metrics for Lawbot Survey (Average Scores)

Metric	Avg. Score
Ease of Navigation	90.0%
Relevance of Responses	90.8%
Response Time Satisfaction	84.4%)
Accuracy of Lawbot	87.8%
Overall User Rating (Review)	81.2%

4.4 Analysis of Results

The assessment of LawBot points to its strength as a legal aid system, able to answer user questions and summarize lengthy documents in understandable terms.

The convergence of news fetching, case law extraction, and document summarization—merged in a single interface—demonstrates the system's potential to integrate varied legal information sources, simplifying the research experience for users.

Functionally, the dual capability of the chatbot to answer natural language questions and parse uploaded documents is a considerate integration of conversational AI and document analysis. This convergence increases its usage potential, serving not just those who want instant answers but also those who need document insights as professionals.

The user interface, as shown in the figures, provides an intuitive experience, enhanced by features like chat history and voice input/output. These design choices improve accessibility and usability, particularly for users unfamiliar with legal jargon or those requiring assistive technologies.

Both legal expert and general user feedback indicate the system performs well against user expectations in ease of use and relevance of responses. The strong ratings in usability and interaction quality indicate an interface well designed for interaction without overloading users with technical complexity.

Yet, professional feedback also suggests room for improvement, especially in addressing subtle legal questions or providing richer case analysis. Although the system is good at general information retrieval and summarization, adding more advanced reasoning features and broadening its legal knowledge base would make it even more useful for professional legal tasks.

Overall, the review attests to LawBot being an effective and user-friendly legal aide, providing useful assistance in legal information retrieval and understanding. With ongoing advances in domain-specific knowledge fusion and dialogue depth, it has the potential for wider applications in both educational and professional legal environments.

5 Future Work

We do not want to substitute the legal system but assist users. Lawyers can decide whether the chatbot provides good counsel on consumer rights, property cases, and financial disputes. We wish to collaborate with legal professionals and lawyers who can communicate with users one-to-one to help them with more reliable advice. Transparency features, including explainable AI (XAI), will also enable users to see how legal information is created. Bias audits will provide neutrality, and compliance checks will bring outputs into line with the laws of a specific jurisdiction. These measures will make the chatbot credible and ensure it is a valuable and ethical legal tool.

6 Conclusion

Our project, Lawbot is an important initiative towards accessible, comprehensible, and actionable legal information for the masses. It can help people understand legal documents, find answers to their legal queries and gain advice. It

uses sophisticated natural language processing with a domain based knowledge base focussing on consumer rights, finance and property laws, the chatbot effectively responds to queries. The addition of a legal document summarizer, news addition, and cases acts to improve user engagement and authoritativeness. This allows users to gain deeper knowledge in simple language and understand the problem thoroughly.

The project also illustrates the potential of explainable AI in the legal space by including legal experts to be present for inquiry. This promotes transparency and trust in the chatbot's outputs and also allows collaboration of AI and human. Improvements through feedback collected from users, intuitive interface design and strong backend integration which allows for information retrieval further makes for a user-friendly experience. As the legal landscape changes, LawBot can be scaled and recontextualized to new spaces, acting as a basis for future legal tech developments.

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