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Legal Aid Provider Portal using RAG and AI

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Abstract- ***Access to legal information remains a major challenge in India due to the complexity of legal language, lack of awareness among citizens, and the high cost associated with professional legal consultation. Many individuals are unable to understand their legal rights and procedures, which often leads to exploitation or misuse of authority. With the rapid advancement of Artificial Intelligence (AI), especially in Natural Language Processing (NLP), it has become possible to design intelligent systems capable of providing real-time assistance in various domains, including law. This paper presents the design and implementation of an AI-based system named Legal Aid Provider Portal, which aims to provide accurate, accessible, and structured legal guidance to users. The system is built using Indian legal documents such as the Constitution of India, Bharatiya Nyaya Sanhita (BNS), and Bharatiya Nagarik Suraksha Sanhita (BNSS). It integrates Retrieval Augmented Generation (RAG) with Large Language Models (LLMs) to ensure that responses are grounded in real legal data and not generated based on general knowledge alone. The proposed system architecture focuses on scalability, efficiency, and low latency, enabling users to receive responses within 1–3 seconds. The system also ensures improved accuracy by retrieving relevant legal sections before generating responses. Experimental observations demonstrate that the system performs better than traditional rule-based and generic AI chatbots in terms of accuracy, reliability, and contextual understanding. This work contributes towards improving legal awareness and making legal assistance more accessible to the general public.***

I. INTRODUCTION

The legal system is one of the most essential components of any society, as it ensures justice, equality, and protection of rights. However, understanding legal procedures and rights is often difficult for common citizens due to the complexity of legal frameworks and terminology. In India, legal documents such as the Constitution, Bharatiya Nyaya Sanhita (BNS), and Bharatiya Nagarik Suraksha Sanhita (BNSS) contain extensive provisions that require professional interpretation. Traditional legal consultation involves visiting lawyers or legal advisors, which may not always be feasible due to high costs, time constraints, and limited accessibility in rural areas. As a result, many individuals lack awareness of their legal rights, leading to poor decision-making and vulnerability in legal situations. With the emergence of Artificial Intelligence (AI), especially in Natural Language Processing (NLP), it has become possible to develop intelligent systems capable of understanding human language and providing meaningful responses. AI-based legal assistants can help users by simplifying legal language, providing instant guidance, and improving accessibility to legal knowledge. This project introduces the Legal Aid Provider Portal, an AI-powered system that combines legal document retrieval with AI-based response generation. The system is designed to provide accurate and structured legal guidance based on real legal data. By doing so, it bridges the gap between legal knowledge and common citizens and contributes to digital transformation in the legal domain.

II. RELATED WORK

Several approaches have been explored in the development of AI-based assistance systems across various domains. These approaches can be broadly categorized into rule-based systems, AI chatbots, machine learning systems, and retrieval-based systems. Rule-based systems are one of the earliest approaches used in legal assistance applications. These systems operate based on predefined rules and decision trees. While they provide predictable and controlled outputs, they are limited in handling complex queries and lack scalability. Updating such systems requires manual modification of rules, making them inefficient for large-scale applications. AI-based chatbots powered by Large Language

Models (LLMs) have gained popularity due to their ability to generate human-like responses. These systems can handle a wide range of queries and provide conversational interaction. However, they often rely on general knowledge and may produce inaccurate or misleading responses when applied to domain-specific fields such as law. This issue is commonly referred to as "hallucination" in AI systems. Machine learning-based systems are used in legal applications for tasks such as case prediction, document classification, and legal analytics. While these systems can process large datasets and identify patterns, they require extensive labeled data for training and lack real-time interaction capabilities. Retrieval Augmented Generation (RAG) is an advanced approach that combines information retrieval with AI-based generation. In this method, relevant documents are first retrieved from a database and then used as context for generating responses. This approach significantly improves accuracy, reduces hallucination, and ensures that responses are grounded in actual data. Due to these advantages, RAG is highly suitable for legal assistance systems.

III. SYSTEM ARCHITECTURE

The proposed system follows a modular and layered architecture to ensure scalability, efficiency, and accuracy. The system is designed to process user queries, retrieve relevant legal information, and generate structured responses.

A. System Overview The Legal Aid Provider Portal is a web-based platform that allows users to interact with an AI-powered legal assistant through a chat interface. The system processes user queries and provides responses based on Indian legal documents.

B. Architecture Components The system consists of the following key components:

1. User Interface Layer: This layer provides a chat-based interface for users to input queries and view responses. It is designed to be simple, responsive, and user-friendly.
2. Backend Layer: The backend is implemented using FastAPI, which handles API requests, processes user inputs, and manages communication between different components of the system.
3. Retrieval Layer: This layer is responsible for searching and retrieving relevant legal information from the database. Legal documents are preprocessed and stored in a structured format to enable efficient search operations.
4. AI Processing Layer: This layer uses a Large Language Model (LLM) to generate responses based on the retrieved legal context. It ensures that responses are meaningful and easy to understand.
5. Data Layer: The data layer stores legal documents such as the Constitution, BNS, and BNSS. These documents are organized into sections and indexed for fast retrieval.

C.RAG METHODOLOGY
Retrieval Augmented Generation (RAG) is the core technique used in this system to improve accuracy and reliability. Working Process, the user submits a legal query through the interface The query is processed and converted into a searchable format The system retrieves relevant legal sections from the database The retrieved content is passed as context to the AI model The AI model generates a structured response This approach ensures that responses are based on actual legal data rather than general knowledge. As a result, the system reduces errors and provides more reliable and context-aware answers.

IV. IMPLEMENTATION

The system is implemented using modern technologies to ensure performance and scalability.

A. Backend Implementation The backend is developed using Python and FastAPI, which provides high performance and supports asynchronous operations.
B. Frontend Implementation The frontend is developed using HTML, CSS, and JavaScript, providing a chat-based interface for user interaction.
C. Data Processing Legal documents are converted from PDF format into text, divided into sections, and stored in a structured format.

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V. RESULTS AND PERFORMANCE EVALUATION

The system is evaluated based on response time, accuracy, and user experience.

A. Response Time The system provides responses within 1–3 seconds, making it suitable for real-time applications.
B. Accuracy The use of RAG ensures high accuracy by grounding responses in legal documents.
C. Comparative Analysis System Accuracy Speed Reliability Rule-Based Low Fast Low Generic AI Medium Proposed System High Fast High

Table I. Performance Evaluation

Parameter	Observation
Response Time	1–3 seconds
Accuracy Level	High (due to legal grounding)
UI Performance	Smooth and responsive
Scalability	High (modular architecture)
Reliability	High (context-based answers)

Table II. System Modules and Functions

Module Name	Function Description
User Interface	Accepts user queries and displays responses
Backend (FastAPI)	Processes requests and manages system logic
Retrieval Module	Searches relevant legal documents
AI Model (LLM)	Generates structured responses
Database Layer	Stores legal documents for retrieval

Table III. Comparison of Existing Systems

System Type	Method Used	Accuracy	Scalability	Limitation
Rule-Based System	Predefined Rules	Low	Low	Cannot handle complex queries
AI Chatbot	LLM (General Knowledge)	Medium	High	May generate incorrect answers
ML-Based System	Machine Learning	Medium	Medium	Requires large training data
RAG-Based System	Retrieval + AI	High	High	Depends on document quality
Proposed System	RAG + Legal Documents	Very High	High	Needs regular updates

VI. FUTURE WORK

The proposed system can be further enhanced by adding multilingual support to allow users to interact in regional languages such as Hindi and Kannada, thereby improving accessibility. A voice-based interface can also be integrated to enable speech-based queries, making the system more user-friendly. Additionally, incorporating case-based reasoning and integrating with official legal service platforms can improve the accuracy and practical relevance of the responses. Further optimization of the retrieval mechanism using advanced search techniques can enhance system performance. These improvements will make the system more efficient, scalable, and widely usable.

VII. CONCLUSION

The Legal Aid Provider Portal presented in this work demonstrates how Artificial Intelligence can be effectively utilized to improve accessibility to legal information and enhance awareness among citizens. One of the major challenges in the legal domain is the difficulty faced by common people in understanding complex legal language and procedures. This system addresses that issue by providing a simple, user-friendly platform where users can obtain structured and meaningful legal guidance in real time.

The integration of Retrieval Augmented Generation (RAG) with Large Language Models ensures that the responses generated by the system are grounded in actual legal documents such as the Constitution of India, Bharatiya Nyaya Sanhita (BNS), and Bharatiya Nagarik Suraksha Sanhita (BNSS). This significantly improves the accuracy, reliability, and contextual relevance of the responses while reducing the risk of incorrect or misleading information.

The proposed architecture, which includes a frontend interface, FastAPI-based backend, retrieval module,

and AI processing layer, is designed to be scalable, efficient, and responsive. The system is capable of delivering results within a short time frame, making it suitable for real-time applications. Additionally, the use of structured legal data and optimized retrieval techniques ensures consistent performance.

Although the system is not intended to replace professional legal advice, it serves as an effective preliminary assistance tool that empowers users to understand their legal rights and take informed decisions. Overall, this project highlights the potential of AI-driven solutions in transforming the legal domain and making legal services more accessible to the general public.

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