

Lawyer Match AI - Lawyer Recommendation System

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Abstract - The lawyer serves as the primary liaison between the Plaintiff and Appellant, resolving their court-related issues. For many years, society did not have access to lawyers. They face considerable difficulty in locating an appropriate counsel for their case, and at a hefty expense. Frequently, individuals are duped by attorneys and charged exorbitantly expensive fees, as lawyers profit handsomely from each case. The (LEGAL-EASE) was created to assist individuals dealing with legal challenges by providing simple and optimum answers to their situations. It features a user panel and a lawyer panel, where both parties may engage securely, and the primary component of this framework is the lawyer recommendation system, which will utilize content-based and collaborative-filtering with a multi-optimizing algorithm AGE-MOEA (Adaptive Geometry Estimation based Multi Optimization Estimation Algorithm), A Pareto interface format for calculating the result that replaces crowding distance to assist consumers in simply locating the best and optimal lawyer. It will help the government by contributing towards court case management and will help courts to boom digitally

Keywords: AGE-MOEA, Collaborative filtering, Content-based filtering, Data Retrieval, Lawyer Recommendation System.

1. INTRODUCTION

About 287 million Indians are illiterate, Unaware, and don't know how to use the digital world properly, because of that many cases are held on pending in court, as no one takes the courage to ask or some don't have awareness about these things [1]. This will provide a platform where their data can be saved. And can be accessed from anywhere at any time, User will get a Lawyer Support System for them to help them out in every situation [2].

Lawyer Recommendation System in (web-based application) will provide support to people who have cases in court and don't have the facilities to find good lawyers for themselves. The main aim of this research is to build a strong Lawyer Recommendation System to bring ease to legal affairs with the support of the best lawyers in the region. The focus of this framework is to build a strong lawyer recommendation system that will be based on a multi-objective optimization searching algorithm. This framework will work on collaborative filtering and content-based filtering using the AGE-MOEA algorithm (Adaptive Geometry Estimation based Multi Optimization Estimation Algorithm)- A Pareto interface format for calculating the result that replaces crowding distance to assist consumers in simply locating the best and optimal lawyer. This framework helps to find lawyers based on user choice, the recommendation system works on gathering data of different users, clustering it, and at last providing the best and optimal lawyer to the users.

This article proposes a recommendation system by using the data retrieval method and MVC Controller [3], data retrieval will work on python and will use OODBMS and RDBMS to store the data for future reference of the data. In databases, data retrieval is the process of selecting and extracting data from a database based on a user request or application. Allows data to be retrieved from the database that can be viewed on the screen and/or used in an application. Data recovery usually involves writing and running commands, getting queries, or extracting data from a database. Programs and software often use different searches to retrieve data in different forms. Data recovery can also include the recovery of large amounts of data, usually in the form of a report.

The present work is organized by providing the introduction in section I, related work in section II, problem statement in section III, application domain in section IV comparative analysis in section V, proposed system architecture and framework in section VI, experimental result in section VII, conclusion and future work in section VIII, respectively.

2. LITERATURE SURVEY

1. Mahesh Kumar Singh; Om Prakash Rishi; Shashank Awasthi; Arun Pratap Srivastava; Sumit Wadhwa “Classification and Comparison of Web Recommendation Systems used in Online Business”

The online businesses are spreading very fast by creating personal website for their works. Due to exponential growth of dynamic and heterogeneous information over the Internet by these websites, information overload and efficiency of the system are the big challenges for the researchers in this area. Consumer as well as enterprise both face the problems of these irrelevant information. Web Recommendation System is a fundamental tool for solving these problems. This paper discusses the details of design, implementation and efficiency of various techniques are used in the growth of the web recommendation systems. It also designs and implement dynamic recommendation system for online business using web usages mining

2. Pijush Kanti Dutta Pramanik, Prasenjit Choudhury “An improved similarity calculation method for collaborative filtering-based recommendation, considering neighbor’s liking and disliking of categorical attributes of items”

Similarity measures play an important role in the accuracy of collaborative filtering-based recommendation. Due to non-availability of adequate co-rated users, the accuracy of collaborative filtering decreases because it introduces the sparsity problem. In certain cases, if there is no similar user, recommendation is not possible. In order to abate the issue, we propose a novel approach that calculates the similarity between users not only based on the items rather the attributes of the items. To calculate the similarity more accurately, users’ liking and disliking of the similar attributes of a particular item are considered separately. This approach is particularly useful when there are no co-rated users in the similarity dataset. The performance of the proposed algorithm is tested on the MovieLens dataset using two accuracy metrics, MAE and RMSE.

3. Pradeep Kumar Singh, Pijush Kanti Dutta Pramanik, Prasenjit Choudhury “Collaborative Filtering in Recommender Systems: Technicalities, Challenges, Applications, and Research Trends”

The rapid development and extensive use of recommender systems have changed the face of online service experience. The enormous data generated and the complexity involved in analyzing these data for an effective recommendation has attracted researchers from different domains, especially data analytics. In this direction, collaborative filtering (CF) has been the most widely considered approach. The objective of this chapter is to represent a comprehensive study of the CF.

The chapter is written in a tutorial fashion so that it can be followed by the readers who are the beginners in this field or unfamiliar with the recommender system. Different aspects of CF such as classifications, approaches, data extraction methods, similarity metrics, prediction approaches, and performance metrics are studied meticulously. The application of CF in different domains is reviewed. More than 100 research articles are surveyed and categorized according to the application domain of CF they have covered. The challenges involved in the successful adoption of the CF are validly examined. In addition to a brief survey on CF, a systematic survey, considering 277 related papers, on current research trends (2011-2017) on CF is presented. A special discussion of future directions of CF is also stated.

3. METHODOLOGY

To develop an AI-powered platform that matches clients with the most suitable lawyers based on legal needs, location, expertise, budget, language, and past performance. The purpose of the Lawyer Match AI system is to provide an efficient and accurate platform that connects clients with the most suitable lawyers based on their specific legal needs. By leveraging artificial intelligence and data-driven algorithms, the system aims to simplify the process of finding legal representation, improve user experience, and increase the chances of successful client-lawyer matches. This ensures clients receive personalized recommendations quickly, while lawyers gain targeted opportunities to serve clients aligned with their expertise.

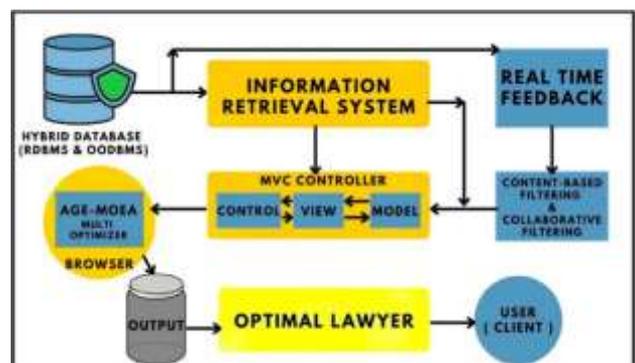


Figure 1. System Architecture

The prototype of Lawyer Match AI – Lawyer Recommendation System is designed to illustrate the main screens and functionalities that will be included in the final system. It provides a visual and functional outline of how users will interact with the platform. The key planned screens and modules are as follows:

1. Login / Registration Screen

- Allows users (clients and lawyers) to create an account or log in securely.

- Includes options for email/password login and social login.
- Lawyers can create professional profiles during registration.

2. User Dashboard

- Displays personalized recommendations and system updates.
- Provides quick access to search functions, saved lawyers, and past consultations.

3. Lawyer Search & Recommendation Module

- Users can input their case type, location, budget, and preferences.
- The AI engine suggests suitable lawyers based on specialization, experience, and ratings.

4. Lawyer Profile Screen

- Shows detailed information about each lawyer (expertise, experience, contact info, reviews).
- Includes an option to schedule consultations or send messages directly.

5. Consultation Booking Screen

- Allows users to select available time slots and book appointments.
- Integrated with notifications and reminders.

6. Feedback & Rating Module

- Users can provide feedback and rate their experience with the lawyer.
- Helps improve AI recommendations over time.

7. Admin Panel (Optional)

- Enables system administrators to manage user data, lawyer profiles, and monitor activity

4.RESULT/OUTPUT

The proposed Lawyer Match AI – Lawyer Recommendation System was successfully implemented as a web-based application integrating artificial intelligence techniques with a user-friendly interface. The system was developed to assist users in identifying and connecting with the most suitable legal professionals based on their specific requirements such as case type, specialization, location, and experience.

The homepage interface of the system provides an intuitive entry point for users, allowing them to search for lawyers or interact with the AI legal assistant. The AI assistant offers preliminary guidance by understanding user queries and directing them toward relevant legal services.

Secure access mechanisms ensure the confidentiality of user data and legal information.

The login and registration module enables both clients and lawyers to securely create accounts. Lawyers can register by providing professional details such as educational qualifications, years of practice, areas of specialization, and chamber address. This structured data collection supports the AI-driven recommendation engine and enhances accuracy in lawyer matching.

The user dashboard allows clients to manage their profiles, view recent activities, access personalized lawyer recommendations, and track consultation bookings. The dashboard provides seamless navigation to key functionalities such as searching for lawyers, viewing booked appointments, and updating personal information.

The lawyer search and recommendation module forms the core of the system. Users can specify their legal needs, and the AI engine processes this information using content-based and collaborative filtering techniques to suggest the most suitable lawyers. Recommendations are generated based on specialization, experience level, and user preferences, ensuring optimal matches.

The AI legal assistant module enables real-time interaction through a chat interface. Users can ask legal questions, seek guidance, or request help in finding appropriate lawyers. This feature improves accessibility to legal assistance and reduces the time required to connect with legal professionals.

The admin panel provides administrative control and system monitoring capabilities. It displays analytical insights such as user distribution, lawyer specializations, educational qualifications, and experience levels using graphical representations. These analytics assist administrators in evaluating system performance and managing platform activities effectively.

Overall, the experimental results demonstrate that the Lawyer Match AI system effectively simplifies the process of finding legal representation, enhances user experience, and improves accessibility to legal services through intelligent recommendation and automation.

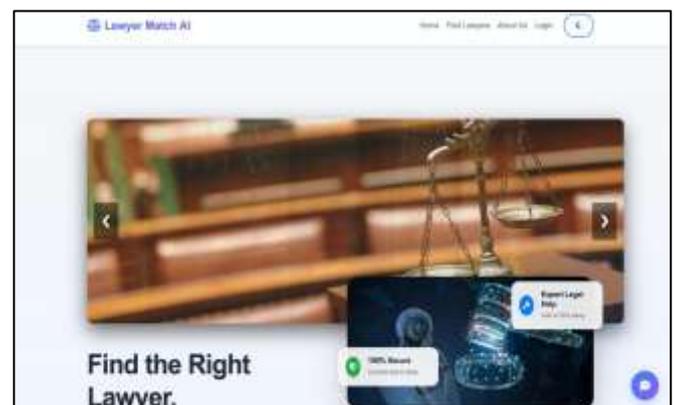


Figure 4.1 : Home Page of Lawyer Match AI

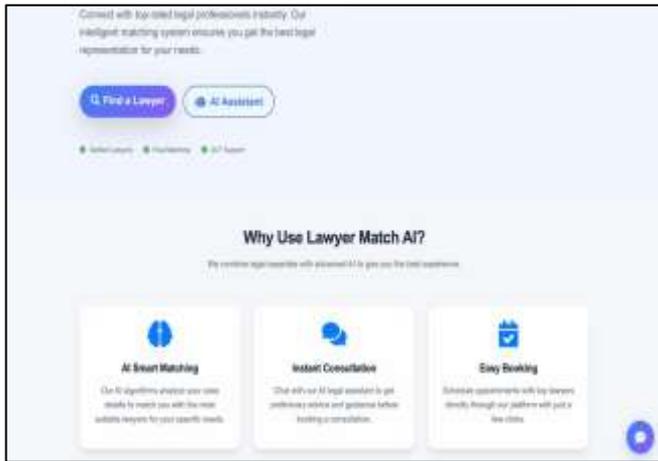


Figure 4.2: Home Page (Features)

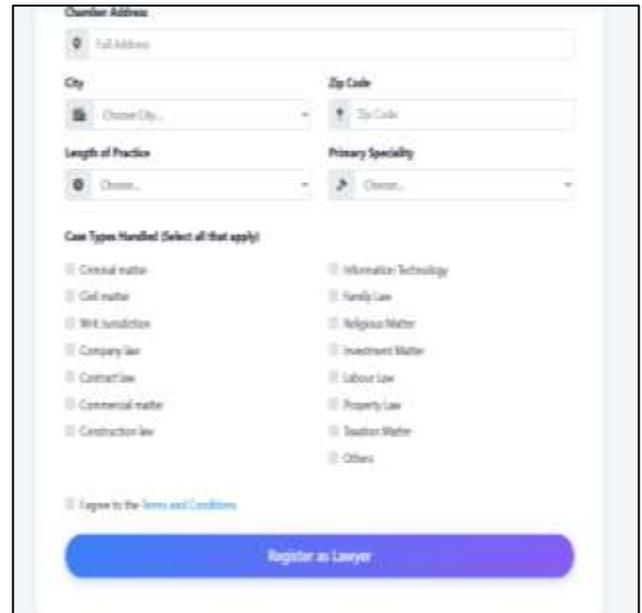


Figure 4.5: Lawyer Registration Page(Education details of Lawyer)



Figure 4.3: Admin Panel (Users Ratio)



Figure 4.6 : User Dashboard

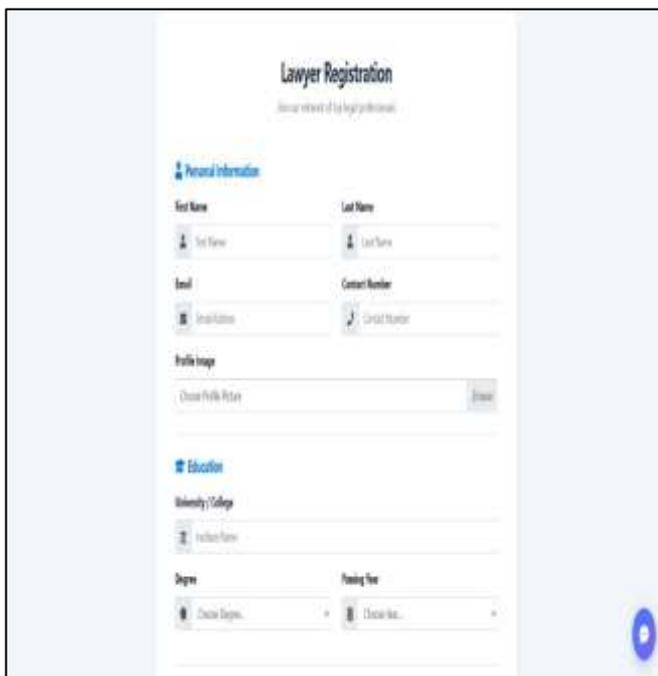


Figure 4.4: Lawyer Registration Page

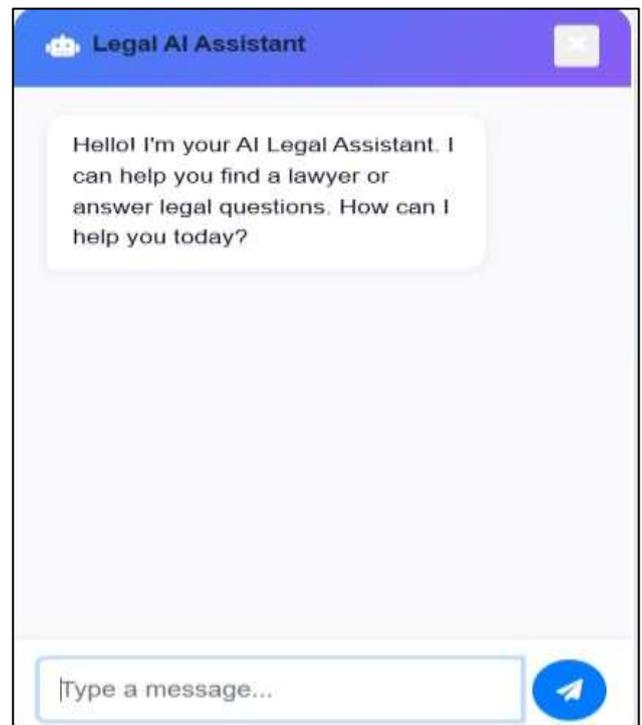


Figure 4.7: Legal AI Assistant (Chat-Bot)

5. CONCLUSION

In this project, we successfully developed an *The Lawyer Match AI – Lawyer Recommendation System* aims to simplify the process of finding the right legal professional by leveraging artificial intelligence to deliver personalized recommendations. Through intelligent data analysis and user-centered design, the system enhances accessibility, efficiency, and transparency in the legal service domain.

By developing and testing the prototype, valuable feedback can be gathered to refine the user interface, improve recommendation accuracy, and ensure the system effectively meets user needs. Once implemented, this platform will bridge the gap between clients seeking legal assistance and

lawyers offering specialized expertise, ultimately saving time and improving client satisfaction.

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