IMS Engineering College, Ghaziabad

AI POWERED LEGAL ASSISTANT SYSTEM

Subject Name: Mini project

Subject Code:KCS-554

COURSE: B.Tech (CSE)

SEMESTER: V

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(2023-24)

Vision and Mission of the Institute and Department

Vision of the Institute

To make IMSEC an Institution of Excellence for empowering students through technical education coupled with incorporating values and developing engineering acumen for innovations and leadership skills for the betterment of society.

Mission of the Institute

Mission 1: To promote academic excellence by continuous learning in core and emerging Engineering areas using innovative teaching and learning methodologies.

Mission 2: To inculcate values and ethics among the learners.

Mission 3: To promote industry interactions and produce young entrepreneurs.

Mission 4: To create a conducive learning and research environment for life-long learning to develop the students as technology leaders and entrepreneurs for addressing societal needs.

Vision of the Department

To provide globally competent professionals in the field of Computer Science & Engineering embedded with sound technical knowledge, aptitude for research and innovation, and nurture future leaders with ethical values to cater to the industrial & societal needs.

Mission of the Department

Mission 1: To provide quality undergraduate education in both the theoretical & applied foundations of Computer Science & Engineering.

Mission 2: Conduct research to advance the state of the art in Computer Science & Engineering and integrate the research results as innovations thereby nurturing entrepreneurial thinking, creating in pursuit of ideas.

Mission 3: To inculcate team building skills and promote life-long learning with high societal and ethical values.

Program Outcomes (POs)

S No.	Program Outcomes / Program Specific Outcomes
PO1.	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2.	**Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3.	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4.	**Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5.	**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6.	**The engineer and society:** apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7.	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8.	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9.	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10.	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11.	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12.	**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1: To analyze and demonstrate the recent engineering practices and strategies in real time world problems to meet the challenges for the future.

PSO2: Develop the ability to use computing concepts and techniques for efficient and effective computing mechanism to cater industrial career opportunities.

Program Educational Objectives (PEOs)

PEO1: Possess core theoretical and practical knowledge in Computer Science and Engineering for successful career development in industry, pursuing higher studies or entrepreneurship.

PEO2: Ability to imbibe lifelong learning for global challenges to impact society and environment.

PEO3: To demonstrate work productivity with leadership and managerial skills having ethics and human value in progressive career path.

PEO4: To exhibit communication skill and collaborative skill plan and participate in multidisciplinary fields of Computer Science & Engineering.

Course Outcomes

CO. No.	DESCRIPTION	COGNITIVE LEVEL (BLOOMS TAXONOMY)
C310.1	Developing a technical artifact requiring new technical skills and effectively utilizing a new software tool to complete a task	**K3**
C310.2	Writing requirements documentation, Selecting appropriate technologies, identifying and creating appropriate test cases for systems.	**K2, K4**
C310.3	Demonstrating understanding of professional customs & practices and working with professional standards.	**K2**
C310.4	Improving problem-solving, critical thinking skills and report writing.	**K4**
C310.5	Learning professional skills like exercising leadership, behaving professionally, behaving ethically, listening effectively, participating as a member of a team, developing appropriate workplace attitudes	**K4**

CO-PO-PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO 2
C310.1	3	3	3	3	3	2	1	2	2	2	2	3	3	3
C310.2	3	3	2	2	2	1	1	2	2	3	1	1	2	3
C310.3	1	1	1	1	1	3	2	3	2	2	2	2	2	1
C310.4	3	3	3	3	3	2	1	1	2	3	1	3	1	1
C310.5	1	1	1	1	1	2	2	3	3	3	3	1	1	1
C310	**2.20**	**2.2**	**2.0**	**2.0**	**2.0**	**2.0**	**1.4**	**2.2**	**2.2**	**2.6**	**1.8**	**2.0**	**1.8**	**1.8**

DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree ordiploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

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CERTIFICATE

This is to certify that Mini Project Report entitled " **AI-POWERED LEGAL ASSISTANT SYSTEM**" which is submitted by **Anshul Kumari, Shipika Singh, Ayush Rawat, Akshat Raj, Akhil Sharma** in partial fulfillment of the requirement for the award of degree B. Tech. in Department of Computer Science and Engineering of Dr. APJ Abdul Kalam Technical University, Uttar Pradesh, Lucknow is a record of the candidate's own work carried out by him/her under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

Supervisor : Mr. Manoj Yadav

Date : 15-12-2024

ACKNOWLEDGEMENT

I would like to express my gratitude to Mr. Manoj Yadav, my Supervisor for this project. I would like to thank him for constant support, enthusiastic encouragement and useful critiques. I would like to thank our **Director, Prof. (Dr.) Vikram Bali** and **HOD, Computer Science and Engineering, Prof. (Dr.) Sonali Mathur** for providing me this opportunity.

ABSTRACT

The AI-Powered Legal Assistant System is an innovative technological solution designed to transform and streamline legal processes. Leveraging the capabilities of artificial intelligence (AI), this system offers a sophisticated and efficient platform that assists legal professionals in various aspects of their work. The system comprises advanced natural language processing (NLP), machine learning, and knowledge representation techniques to enhance its functionality.

Beyond document creation and legal research, the system provides support for various legal tasks, including contract analysis, due diligence, and risk assessment. Its versatility empowers legal professionals to focus on strategic aspects of their work while automating routine tasks.

The AI-Powered Legal Assistant System represents a paradigm shift in the legal industry, fostering increased efficiency, accuracy, and accessibility. As legal professionals embrace the benefits of AI, this system stands at the forefront, revolutionizing the practice of law by augmenting human expertise with cutting-edge technology.

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CHAPTER 1

INTRODUCTION

The AI Powered Legal Assistant System is a project aimed at leveraging artificial intelligence (AI) technologies to assist and streamline various tasks within the legal domain. This system combines advanced natural language processing (NLP), machine learning (ML), and other AI techniques to enhance the efficiency, accuracy, and accessibility of legal processes.

Key Features:

Here's an overview of the key components and features of the AI Powered Legal Assistant System:

1. Natural Language Processing (NLP):

- The system incorporates sophisticated NLP algorithms to understand and interpret legal documents, contracts, and other textual information.
- It can extract relevant information, identify key terms, and comprehend the context of legal language.

2. Document Analysis:

- The AI system can analyze legal documents, contracts, and case files to extract pertinent details.
- It may identify clauses, key dates, obligations, and potential legal risks within the documents.

3. Legal Research:

- The system is equipped with the capability to conduct comprehensive legal research by analyzing vast databases of legal documents, court decisions, and statutes.

- It can provide relevant precedents, case law, and legal references to assist legal professionals in their research.

4. Contract Review and Drafting:
- AI algorithms can review contracts, ensuring they adhere to legal standards and compliance requirements.
- The system may assist in drafting legal documents, suggesting language based on established norms and best practices.

5. Decision Support:
- The AI legal assistant provides decision support to legal professionals by offering insights, highlighting potential risks, and recommending courses of action based on historical legal cases and outcomes.

6. Legal Case Management:
- The system aids in managing legal cases by organizing and categorizing information, tracking deadlines, and generating reminders for crucial events.

7. User Interaction:
- The AI system is designed for user-friendly interaction, allowing legal professionals to query the system using natural language and receive relevant information and recommendations.

8. Security and Compliance:
- Given the sensitive nature of legal information, the system ensures robust security measures to protect data confidentiality and complies with legal and ethical standards.

9. Continuous Learning:
- The AI system can continuously learn and improve its performance over time

by analyzing feedback, adapting to changes in legal regulations, and incorporating new data.

10. Integration with Legal Systems:
- The AI Powered Legal Assistant System can integrate with existing legal management software and systems to enhance interoperability and streamline workflows.

The project aims to revolutionize legal practices by providing a powerful tool that not only automates routine tasks but also augments the decision-making capabilities of legal professionals.

1.1 OBJECTIVE

Develop a user-friendly web app for easy legal document creation. Secure authentication prevents misuse. A query portal provides visual and clear legal guidance. Encourage community interaction and continuous improvement based on user feedback.

1.2 SCOPE

The scope of a vehicle security system encompasses a wide range of technologies and methodologies designed to protect vehicles from theft, unauthorized access, and vandalism. The evolution of vehicle security systems has been driven by advancements in technology, ranging from traditional mechanical solutions to sophisticated electronic and digital systems. The scope of vehicle security systems includes: Traditional Mechanical Solutions: Steering Wheel Locks: Physical devices that attach to the steering wheel to prevent it from turning. Gearshift Locks: Devices that immobilize the gearshift, making it difficult for the vehicle to be driven. Electronic Immobilizers: Engine Immobilizers: Prevent unauthorized starting of the engine without the correct key or electronic code.

CHAPTER 2

TOOLS & TECHNOLOGIES

2.1 SYSTEM REQUIREMENT

HARDWARE REQUIREMENT

1. Pentium IV processor or higher
2. RAM (or above)
3. 40 GB or more HARDDISK
4. Mouse/Keyboard

SOFTWARE REQUIREMENT

1. OS-Windows 11
2. Python Interpreter
3. PyCharm IDE
4. MySQL Workbench

2.2 TECHNICAL DESCRIPTION

2.2.1 Visual Studio Code (VS Code)

Visual Studio Code (VS Code) is a versatile and widely adopted source code editor developed by Microsoft, ideal for inclusion in project reports. Notable for its lightweight design and cross-platform compatibility, VS Code supports Windows, macOS, and Linux. This editor excels in providing essential coding features such as syntax highlighting, IntelliSense, and integrated Git support. Its strength lies in a rich extension marketplace, allowing developers to tailor their environments with a diverse array of extensions for different languages and frameworks. In project reports, highlighting the efficiency, extensibility, and collaborative tools within Visual Studio Code emphasizes its role in enhancing the development workflow.

2.3 FRONT END DESCRIPTION

2.3.1 JAVASCRIPT

JavaScript is a versatile and widely used programming language crucial for any project report involving web development. As a client-side scripting language, it empowers developers to create dynamic and interactive web pages. JavaScript is supported by all modern web browsers, allowing for seamless integration into web applications. It enables functionalities like form validation, DOM manipulation, and asynchronous requests through AJAX, enhancing the user experience. With the advent of frameworks like Node.js, JavaScript has also become a server-side language. Its flexibility and broad community support make JavaScript a fundamental tool for front-end and back-end development, playing a pivotal role in modern web projects.

2.3.2 CSS

Cascading Style Sheets (CSS) is a fundamental technology for web making it a noteworthy inclusion in project reports. CSS serves as the styling language for HTML, enabling the presentation and layout of web pages. It allows developers to define the visual aspects of a website, including fonts, colors, spacing, and responsive design for various devices. CSS plays a crucial role in enhancing the user interface and experience by providing a consistent and visually appealing appearance. Its modular and cascading nature facilitates easy maintenance and ensures separation of content and presentation, contributing to the overall structure and aesthetics of web projects.

2.3.3 HTML

Hypertext Markup Language (HTML) is a foundational technology integral to any project involving web development, making it an essential element in project reports. HTML is the standard markup language used to create the structure of web pages. It defines the various elements on a webpage, such as headings, paragraphs, images, links, and forms. As the backbone of web content, HTML provides the necessary framework for presenting information on the internet. Its simplicity, versatility, and compatibility with different browsers make HTML a cornerstone for creating and organizing content in web projects, forming the basis for further enhancements with

CSS and interactivity with JavaScript.

2.3.4 BOOTSTRAP

Bootstrap is a popular front-end framework widely employed in web development projects, making it a noteworthy inclusion in project reports. Developed by Twitter, Bootstrap offers a collection of pre-designed HTML, CSS, and JavaScript components, facilitating the creation of responsive and visually appealing web pages. Its grid system, responsive utilities, and extensive library of UI components streamline the development process, ensuring consistency across various devices and browsers. Bootstrap simplifies the design and prototyping phases, allowing developers to create modern, mobile-friendly interfaces efficiently. Its widespread adoption, documentation, and active community support make Bootstrap an invaluable tool for enhancing the aesthetics and functionality of web projects.

2.4 BACKEND DESCRIPTION

2.4.1 PYTHON

Python is a very popular general-purpose interpreted, interactive, object-oriented, and high-level programming language. Python is dynamically-typed and garbage-collected programming language. It was created by Guido van Rossum during 1985- 1990. Like Perl, Python source code is also available under the GNU General Public License (GPL).

Python supports multiple programming paradigms, including Procedural, Object Oriented and Functional programming language. Python design philosophy emphasizes code readability with the use of significant indentation

Python is Open Source which means its available free of cost. It is simple and so easy to learn It is versatile and can be used to create many different things. It has powerful development libraries include AI, ML etc. It is Interpreted - It is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP. It is Interactive − You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.

Python is Object-Oriented i.e it supports Object-Oriented style or technique of

programming that encapsulates code within objects. It is a Beginner's Language −it is a great language for the beginner level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

2.4.2 DJANGO

Django is a high-level Python web framework that proves crucial in web development projects, making it an important topic for project reports. Known for its emphasis on simplicity, efficiency, and the "Don't Repeat Yourself" (DRY) principle, Django provides a robust framework for building scalable and maintainable web applications. It follows the Model-View-Controller (MVC) architectural pattern and comes with a built-in Object-Relational Mapping (ORM) system for database management. Django's features include a powerful admin interface, authentication system, and extensive documentation, allowing developers to rapidly build feature-rich web applications. Its versatility, security features, and adherence to best practices make Django an excellent choice for projects requiring a solid and scalable web **framework.**

CHAPTER 3
LITERATURE SURVEY

1. A. Dixit and A. Agarwal The author used group learning rather than focusing on one method. The average accuracy score found was 85%, which is 15% more accurate than the accuracy of the KNN model with the worst performance. Even with the dataset and values provided, the writers only used a small portion of the data. The remaining information was insufficient and did not provide any additional markers that could be used to differentiate between false and real news.[1]

2. Abdullah, N. A., and Ahmed, A. Phishing websites can be distinguished from legitimate websites by their URLs. The suggested technique might be able to identify authentic and fake websites by examining the Uniform Resource Locators (URLs) of suspect web pages. (URLs). To recognize phishing sites, a number of traits are looked for in URLs. To stop such incidents, the identified attacks are submitted to the relevant authorities. [2]

3. S. S. Birunda, R. K. Devi, and others For the purpose of finding FN from various sources, a novel score-based structure has been created. The most prominent false and actual characteristics were extracted from news stories using the TF-IDF method. Using the site url attributes that the source gave, the sources' Credibility Scores were calculated. The retrieved text-based characteristics and the multi-source Credibility Score were merged to determine how reliable the news was. The effectiveness and applicability of the proposed framework are evaluated and contrasted with other classifiers. [3]

4. W. Cheng and others, In order to weight MSSE (Minimum Sum of Squared Errors) models for integrated forecasting, this paper combines ARIMA (Autoregressive Integrated Moving Average) time-series models with BP (Back Propagation) neural networks.[4]

CHAPTER 4

IMPLEMENTATION

System architecture:

The architectural diagram displays the system design for the AI powered legal assistant system for users. The architectural system of AI powered legal assistant system are as shown in fig. 4.1

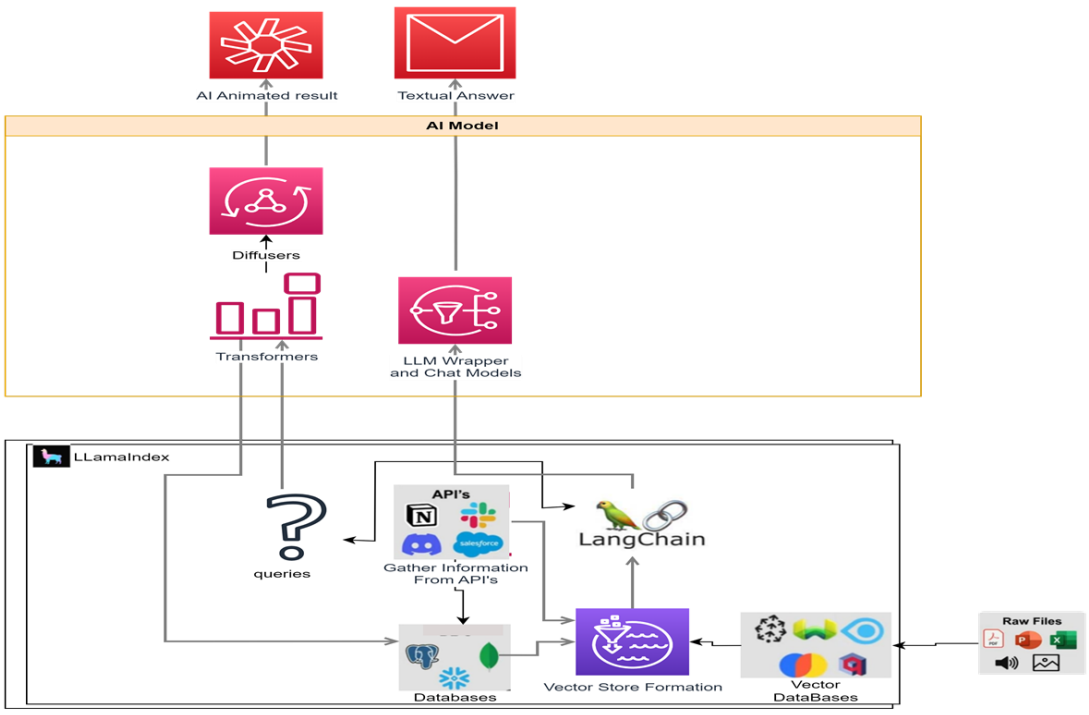

Fig. 4.1 system architecture of AI based legal assistant system

CODE:

The implementation of code is as shown in fig. 4.2 and fig. 4.3

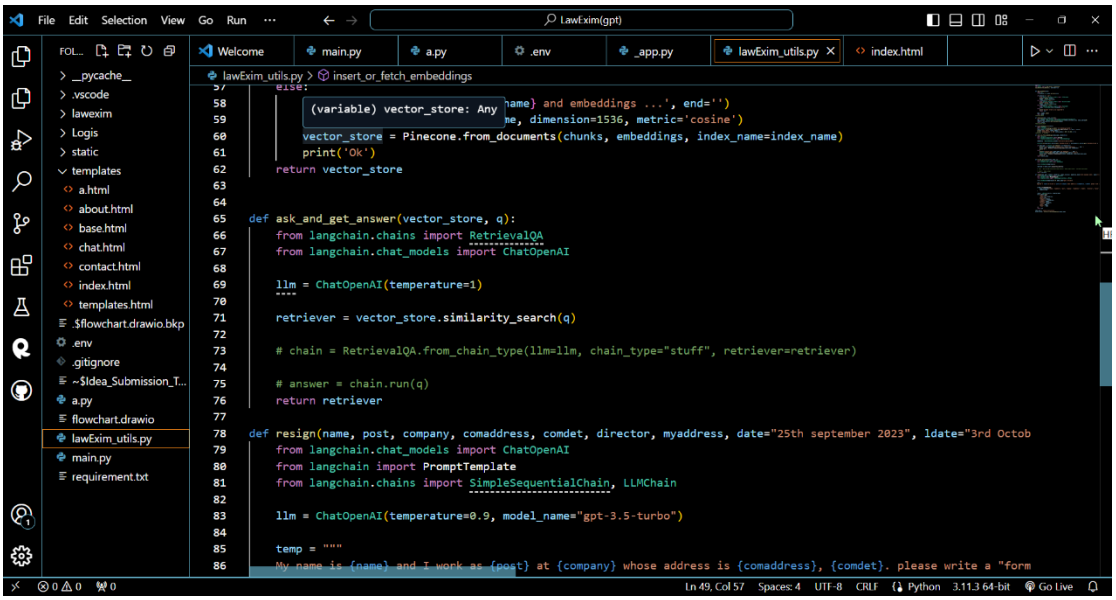

Fig. 4.2 code implementation

Fig 4.3 code implementation

HOME PAGE:

The implementation of Home page is as shown in fig. 4.4.

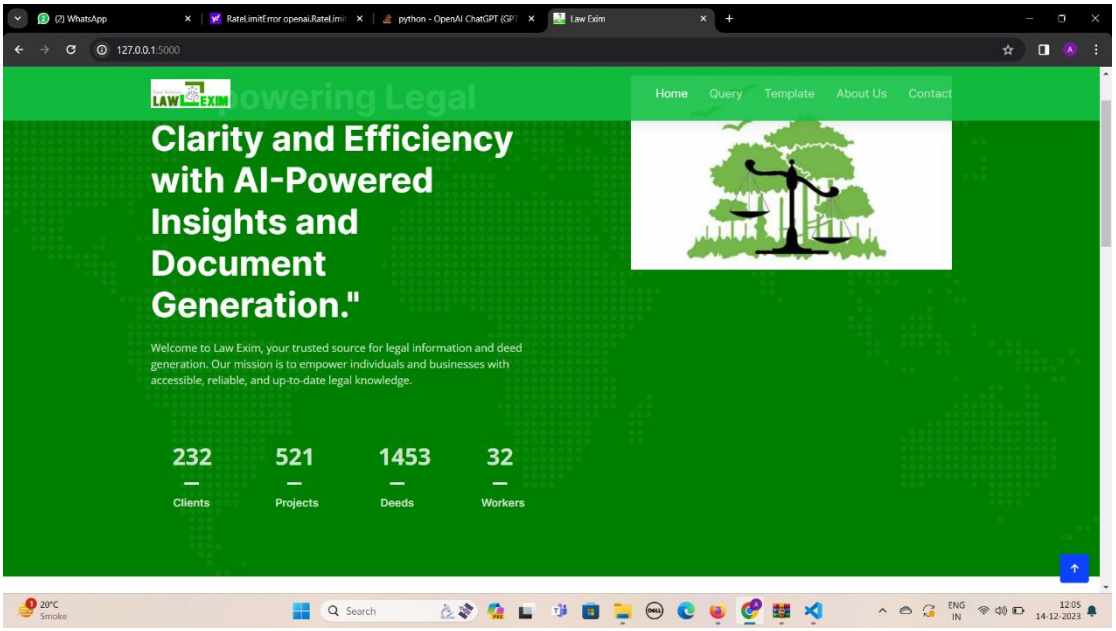

Fig: 4.4 Home page

ABOUT US:

The implementation of About Us page is as shown in fig. 4.5.

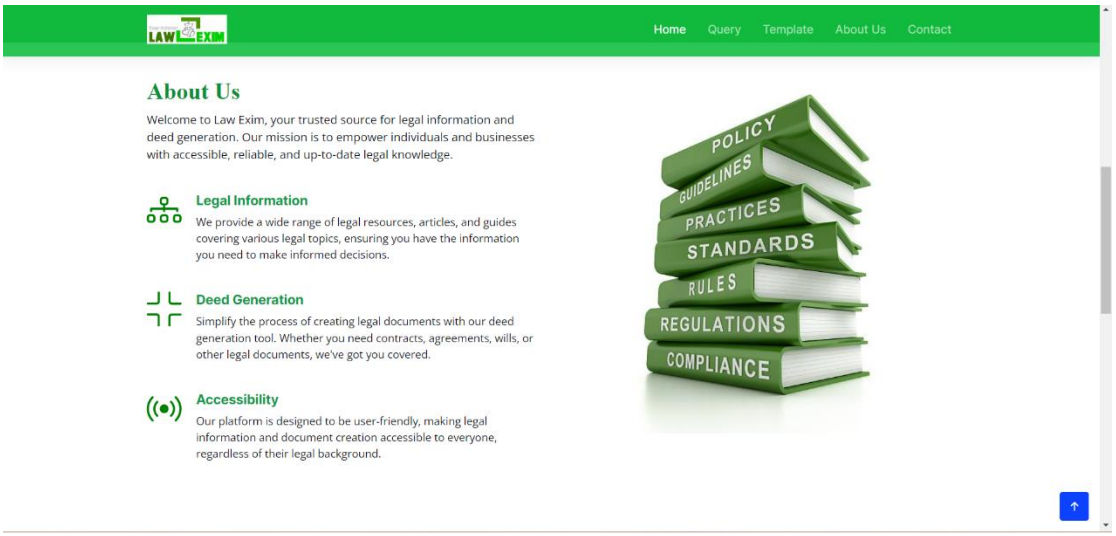

Fig. 4.5 About us

QUERY:

The implementation of Query page is as shown in fig. 4.6.

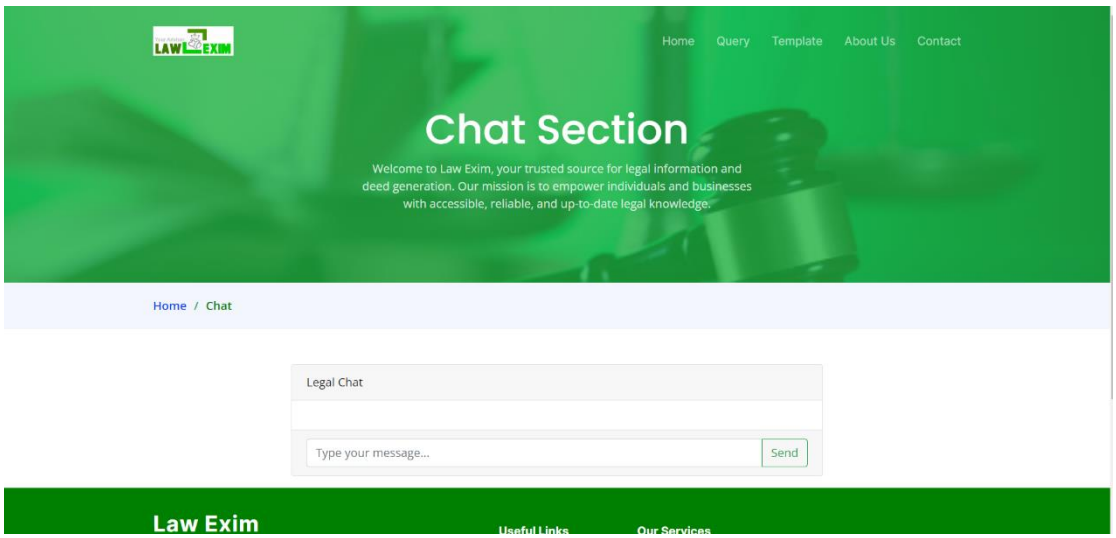

Fig. 4.6 Query

TEMPLATE PAGE:

The implementation of Template page is as shown in fig. 4.7.

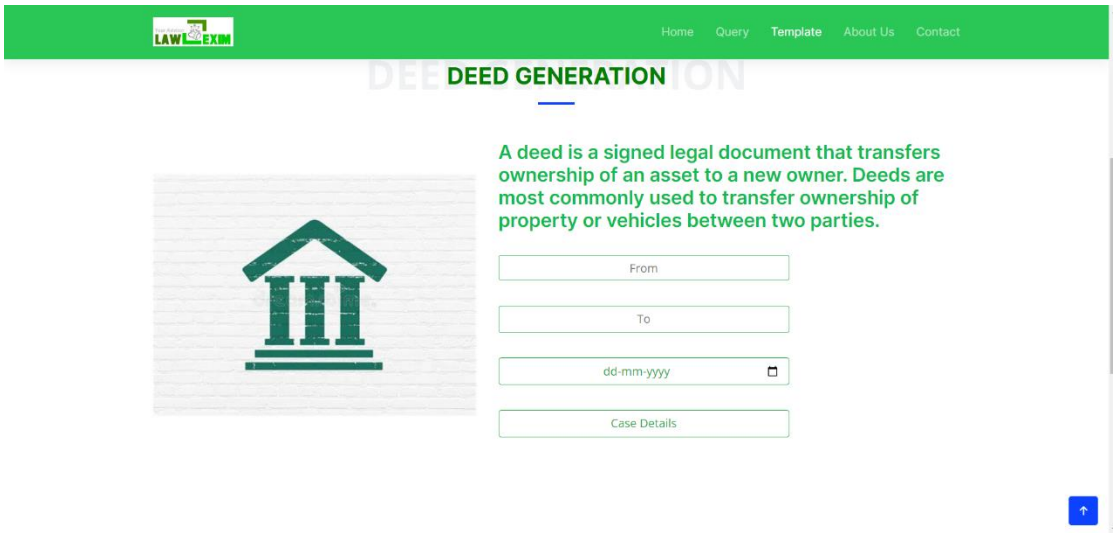

Fig. 4.7 Template page

CHAPTER 5
CONCLUSION

Conclusion

In conclusion, an AI-powered Legal Assistant System holds significant promise in revolutionizing the legal industry by leveraging advanced technologies to enhance efficiency, accuracy, and accessibility. The integration of artificial intelligence (AI) and natural language processing (NLP) into legal workflows can offer valuable support to legal professionals, researchers, and even the general public.

In essence, an AI-powered Legal Assistant System has the potential to reshape the legal landscape by combining the strengths of artificial intelligence with legal expertise. While challenges exist, the careful integration of technology with a focus on ethical and transparent practices can contribute to a more efficient, accessible, and equitable legal ecosystem.

Future Scope

This web application can be modify as a platform for public to connect with lawyers.
A lawyer can train his/her experience to the app and get a source of passive income by entertaining small scale cases with our platform.
For common public and new lawyers this will be more easy platform to connect.

REFERENCES

[1] Agarwal, A., & Dixit, A. (2020). Fake News Detection: An Ensemble Learning Approach. 2020 4th International Conference on Intelligent Computing and Control Systems (ICICCS). doi:10.1109/iciccs48265.2020.9121

[2] Ahmed, A. A., & Abdullah, N. A. (2016). Real-time detection of phishing websites. 2016 IEEE 7th Annual Information Technology, Electronics and Mobile CommunicationConference (IEMCON). doi:10.1109/iemcon.2016.7746247

[3] Birunda, S. S., & Devi, R. K. (2021). A Novel Score-Based Multi-Source Fake News Detection using Gradient Boosting Algorithm. 2021 International Conference on Artificial Intelligence and Smart Systems (ICAIS). doi:10.1109/icais50930.2021.93958

[4] Bhutani, B., Rastogi, N., Sehgal, P., & Purwar, A. (2019). Fake News Detection Using Sentiment Analysis. 2019 Twelfth International Conference on Contemporary Computing (IC3). doi:10.1109/ic3.2019.8844880