

AI – LAWYER (CYBER)

A

MAJOR PROJECT REPORT

Submitted for the partial fulfilment of the requirements for the award of a Degree

B.TECH IN

COMPUTER SCIENCE & ENGINEERING



Submitted By:

Anupam Pandey (0101CS191026)

Anuj Singh (0101CS191025)

Arpita Yadav (0101 CS203D02)

Akash Kumar Singh (0101CS191012)

Guided By:

Dr. Manish Ahirwar

Professor, DoCSE

Dr. Rajeev Pandey

Professor, DoCSE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

UNIVERSITY INSTITUTE OF TECHNOLOGY

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA

BHOPAL – 462033

SESSION 2019-2023

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
UNIVERSITY INSTITUTE OF TECHNOLOGY, RGPV, BHOPAL



DECLARATION BY THE CANDIDATES

We hereby declare that the work which we are presenting in the Report of Minor Project entitled — “**AI LAWYER (CYBER)**” is our own work, submitted for the partial fulfilment of the requirements for the award of a bachelor's degree in Computer Science and Engineering. The work has been carried out at the University Institute of Technology, RGPV, Bhopal, in the session 2022-2023, and an authenticate record of our work which is carried out under the guidance of **Dr. Manish Ahirwar (Professor) & Dr. Rajeev Pandey (Professor)** DoCSE, University Institute of Technology, RGPV, Bhopal. I further declare that, to the best of our knowledge, the matter written in this project is not submitted or used for the award of any other Degrees.

Name of the students:

Date:

Anupam Pandey (0101CS191026)

Place: Bhopal

Anuj Singh (0101CS191025)

Arpita Yadav (0101CS203D02)

Akash Kumar Singh (0101CS191012)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
UNIVERSITY INSTITUTE OF TECHNOLOGY, RGPV, BHOPAL



CERTIFICATE

This is to certify that **Anupam Pandey, Arpita Yadav, Anuj Singh, And Akash Kumar Singh** of B.Tech 4th Year, CSE UIT(RGPV) have completed their **Major Project Synopsis** entitled “**AI Lawyer (Cyber)**” during the academic year **2022- 2023** under my supervision and guidance.

We approve this project for the submission, for the partial fulfilment of the requirements for the award of a degree in B.Tech. Computer Science and Engineering.

Dr. Manish Ahirwar

Professor, DoCSE

(Project Guide)

Dr. Rajeev Pandey

Professor, DoCSE

(Project Guide)

Head of Department

DoCSE, UIT-RGPV, Bhopal

Director

UIT, RGPV, Bhopal

ACKNOWLEDGEMENT

We would like to offer our heartfelt appreciation to our Project Guides, **Dr. Manish Ahirwar** and **Dr. Rajeev Pandey**, for their invaluable advice and assistance. This project would not have been feasible without their enthusiasm, hard work, and excellent counsel. Their thorough approach has increased the project's precision and clarity.

We are thankful to **Dr. Uday Chourasia**, Head of the Department of Computer Science & Engineering, University Institute of Technology, RGPV, Bhopal, for his unwavering support and inspiration for the project, ethics, and morals. The concepts we have acquired from him have always been a source of exponential inspiration for our path in this life.

We are also thankful to all other members and Staff of the Department who were involved in the project directly or indirectly for their valuable co-application.

We are grateful to all our co-workers for inspiring us and creating a nice atmosphere to learn and grow.

Name of the students:

Date:

Anupam Pandey (0101CS191026)

Place: Bhopal

Anuj Singh (0101CS191025)

Arpita Yadav (0101CS203D02)

Akash Kumar Singh (0101CS191012)

Table of Contents

Title	Page No.
DECLARAION.....	2
CERTIFICATE.....	3
ACKNOWLEDGEMENT.....	4
List of Figures.....	7
ABSTRACT	8
CHAPTER-1: ,.....	9-12
INTRODUCTION:.....	9
1.1 Overview.....	9
1.1.1 Lawyers	10
1.1.2 Common citizens	10
1.1.3 Police officers (Occasionally)	10
1.2 Objective of the project	10
1.3 Motivation	11
1.4 Future scope	12
1.5 Limitations.....	12
1.6 Organization of report	12
CHAPTER 2:,.....	13-25
LITERATURES SURVEY,.....	13
2.1 Survey Report.....	13
2.2 Cyber Law (IT Law) in India.....	14
2.3 THE INFORMATION TECHNOLOGY ACT, 2000.....	15
2.4 Existing work.....	22
2.5 Critical Paper Reviews.....	23-25
2.5.1 Paper -1	23
2.5.2 Paper -2	24
2.5.3 Paper -3	25
CHAPTER 3:	26- 30
PROBLEM DESCRIPTION	26
3.1 Problem Statement	26
3.2 Our Solution	27
3.3 Features	29
3.4 Impact it will create	29
3.5 Future Scope	30

CHAPTER 4:	31-37
PROPOSED WORK	31
4.1 Data collection and preparation	31
4.2 Functionalities	31
4.3 What happens when a general customer/Lawyer/Police enters the section number?	31
4.4 What happens when a general customer/Lawyer/Police enters the section description?	31
4.5 What happens when a Lawyer/Police enters the Case description?	32
4.6 ER-Diagram	32
4.7 Data Flow Diagram DFD	33
4.8 Use Case Diagram	34
4.9 General Flow of AI Lawyer	35
4.10 Normalization Flow	36
4.11 Calculation of Cosine Similarity Score	37
CHAPTER 5:	38-49
IMPLEMENTATION AND RESULTS	38
5.1 Working	39
5.2 Implementation	40-49
5.2.1 Core Functions	40
5.2.2 Statute Search	43
5.2.3 Relevant Statute Search	45
5.2.4 Relevant Case Search	47
5.2.5 Case Search	49
CHAPTER 6:	50-52
TOOLS AND TECHNOLOGY	50
6.1 Minimum requirements	50
6.1.1 Application	50
6.1.2 Development tool	50
6.1.3 Library	50
6.2 Frameworks	50-51
6.2.1 Python	51
6.2.2 Flask	51
6.2.3 Github	51
6.2.4 NLTK	52
CHAPTER 7:	53
CONCLUSION AND FUTURE WORK	53
7.1 Conclusion	53
7.2 Future Work	53
REFERENCE	54

List of Figures

S.No.	Figures	Page No.
01	Solution diagram	26
02	Process comparison Diagram	27
03	Flowchart - working.	28
04	Acts And Cases diagram	30
05	Section Case Mapping diagram	30
06	E-R Diagram	32
07	Data Flow Diagram	33
08	Use Case Diagram	33
09	General Flow of AI Lawyer	35
10	Normalization Flow	36
11	Calculation of Cosine Similarity Score	37

Abstract

The use of technology today has simplified people's lives. The majority of our work is dependent on technology. Technology is playing an increasingly significant role in completing tasks quickly in today's fast-paced world, but lawyers are still spending a lot of time manually collecting references from earlier, comparable cases. It causes them to waste their valuable time.

However, this project can help to quickly resolve this problem. This project's intended audience is not just restricted to lawyers, it includes regular citizens, police officers etc. Using this application is really simple just by entering the section number, lawyers can quickly find references to any law and section. Additionally, there is a second target group that includes common people and occasionally police officers who are less versed in legal provisions. They can use this application to investigate which section is genuinely relevant. This is an AI based application and also provides support for natural language so, this is also advantageous for those who have no background in laws and sections.

Our current focus is on IT ACT 2000 related cases and sections. This can be expanded in the future. In the future, we can incorporate every constitutional act. This application include features that will assist people in completing their task quickly and conveniently with a single click.

CHAPTER 1

INTRODUCTION

1.1 Overview

We are all aware that technology is advancing in virtually every industry. Whether it be in the banking, healthcare, or education sectors, etc. However, when we examine the corporate legal sector, in particular lawyers, we find that they still need to physically search through a large number of volumes in order to find precedent for similar instances. This is a labour-intensive process. And the common people, as well as occasionally police officers, who are not familiar with laws and sections, are uncertain as to which section is genuinely applicable and how to deal with it.

This issue is simply solvable with the aid of an application that can perform these duties for all of the intended audiences. And our project is that application that can address this problem.

By entering a section number, our "AI Lawyer" application will be able to search for case descriptions with applied sections. People can also use this programme if they have no knowledge in laws or sections and are unsure of which section applies to particular case. This programme may provide complete case information, including section that make up each case. This tool is AI-based and capable of processing natural language, making it simple to use for persons without a background in law.

We are currently concentrating on matters involving the IT Act 2000 and its related laws. However, this project might easily be expanded to include all of the constitutional provisions.

One can use this programme for learning and research as well. Due to the fact that this application includes all cases, laws, applied sections, and extensive descriptions.

1.1.1 Lawyers

A lawyer, sometimes known as an attorney, counsel, or counsellor, is a qualified expert who offers guidance on legal issues that may or may not call for court intervention. Going to court to present a client's case is a part of a lawyer's duties. Based on the arguments offered for and against the client, a judge or jury determines whether the client is correct or incorrect. They attend in court to represent clients or acquire crucial case data for the clients' case. They physically go through books to find situations that are comparable to the one at hand in order to obtain information. They lose a significant amount of time that could be spent on case preparation in the process of looking up past instances.

1.1.2 Common citizens

People without a background in law are less likely to know which law or a section will apply in a given situation. Due to a lack of understanding of the laws and relevant sections, average citizens frequently get framed in fraudulent accusations made by law practitioners. People need to be educated on the laws and sections in order to protect themselves against this type of fraud, or at the very least, to give them a simple way to do so.

1.1.3 Police officers (Occasionally)

Some government employees, such as police officers, do not always know which laws and sections is applicable with given case and how they can proceed with that. They can also learn about applicable laws and the section description by utilizing this application.

1.2 Objective of the project

This application's primary goal is to relieve lawyers of manual labour while educating the public about laws and sections. The following is a list of our project's main goals: -

- To enable lawyers to obtain references from earlier instances without having to perform any manual labour. They can quickly conduct a search by inputting a section number, or they can also do the same thing by using natural language.
- To make it easier for regular people to understand the law and its sections, such as which ones apply in which situations, in order to prevent themselves from being framed by law practitioners.
- To help government employees such as police officers sometimes, sometimes they also get confused between relevant sections and how they can proceed with that.

1.3 Motivation of work :

The key source of inspiration for us that prompted us to take the initiative to develop this application was witnessing others, particularly lawyers and regular citizens struggle. Everyone is aware that a lawyer needs strong arguments to support their position while presenting a case in court. One of our friends is a current NLU student. He had to throw out a large number of books to get references to previously occurring cases. He spends a lot of time on this, a time that he could be using to work on other case preparations.

Not just lawyers but also regular citizens who lack background. understanding of legal provisions are victims of legal professionals' deceptions. Law practitioners might readily frame them in bogus cases since they are unaware of laws and their provisions, and they believed that to be the case. Additionally, less experienced police officers have trouble understanding the relevant laws and sections and how to apply them.

Consequently, by observing people battling with this kind of issue simply due to lack of knowledge and to also spare their time. Our team made the decision to create an application that has all the capabilities that can assist people in completing their task quickly and conveniently with a single click. And the observation of people's struggles led to the development of this application and hence we considered this to be the topic of our major project.

1.4 Future scope :

Future expansion of this application is possible. As of right now, our attention is on cases involving a specific act (IT ACT 2000). However, we will be able to add a number of new features to this application in the future.

- This application may cover all constitutional provisions.
- This application can also be used to learn about various laws and sections and to conduct research.

1.5 Limitations :

This application is incredibly simple to use because it allows users to quickly search for instances that have section descriptions by simply entering the section. However, because this application is AI-based and capable of processing natural language, it will be simple to use even for individuals who are unfamiliar with the rules and sections. However, there is still a limitation of this,

This application's only restriction is that, for the time being, it only contains case and section references relating to the IT ACT 2000.

1.6 Organization of report

Chapter 2 Literature Survey:

This section summarises a number of earlier published scientific studies. We are attempting to incorporate some of the major conclusions from those publications into our application.

Chapter 3 : Problem Description:

This section explains the problem that this project solved in detail. It consists of the problems that lawyers, common citizens and occasionally police officers encounter regards to applicable laws and sections etc

Chapter 4 : Proposes Work:

An outline of the proposed work and our method for resolving the issue are given in this section. This section lists all of the screens and describes how the application will actually work.

CHAPTER 2

Literature Survey / Related Work

This chapter outlines topics such as Android, SDLC techniques, agile techniques, related work, journals, articles, conference papers, techniques for collecting requirements from various sources such as websites, and more. The rating includes the theme background, features, strengths & weaknesses.

2.1 Survey Report:

Impact of AI on Indian Legal System:

The Indian legal sector is not so dependent on technology. Even today, lawyers consider their centuries-old methods better. The problem that comes in a little bit is that of data management and it can be solved a little with the help of a computer, for now, this is the only use of computers in the Indian legal system.

The legal system of India is very large and there are changes in it from time to time, so the difficulty is to find desired information out of the heap. The only help that artificial intelligence can do in this work is, with the help of a computer, we can find the information we need within a few seconds.

It is not that AI is an unknown thing. Many AI startups related to the Indian legal system have started such as SpotDraft, CaseMine, and NearLaw. Instead of the full use of AI, in these startups, only natural language processing has been used so that we can get the desired information quickly by inputting a keyword in any language.

There is a myth about AI in the Indian Legal System that AI can replace Lawyers. Those who think that AI or Robots can replace lawyers, then their thinking is absolutely wrong. It seems impossible from both the technical and the legal view because the extensiveness of the Indian Legal System makes it very difficult to

train AI models, and as per the Legal view, there's a lot more than just the decision making in the law sector. Hence AI or Robots cannot replace lawyers. However, there can be many helpful applications of AI in the Indian Legal System.

2.2 Cyber Law (IT Law) in India

Cyber Law also called IT Law is the law regarding Information technology including computers and the internet. It is related to legal informatics and supervises the digital circulation of information, software, information security, and e-commerce.

IT law does not consist of a separate area of law rather it encloses aspects of contract, intellectual property, privacy, and data protection laws. Intellectual property is a key element of IT law. The area of software license is controversial and still evolving in Europe and elsewhere.

According to the Ministry of Electronics and Information Technology, Government of India :

Importance of Cyber Law:

1. It covers all transactions over the internet.
2. It keeps eye on all activities over the internet.
3. It touches every action and every reaction in cyberspace.

Area of Cyber Law:

Cyber laws contain different types of purposes. Some laws create rules for how individuals and companies may use computers and the internet while some laws protect people from becoming the victims of crime through unscrupulous activities on the internet. The major areas of cyber law include:

1. *Fraud* :

Consumers depend on cyber laws to protect them from online fraud. Laws are made to prevent identity theft, credit card theft, and other financial crimes that happen

online. A person who commits identity theft may face confederate or state criminal charges. They might also encounter a civil action brought by a victim. Cyber lawyers work to both defend and prosecute against allegations of fraud using the internet.

2. ***Copyright :***

The internet has made copyright violations easier. In the early days of online communication, copyright violations were too easy. Both companies and individuals need lawyers to bring an action to impose copyright protections. Copyright violation is an area of cyber law that protects the rights of individuals and companies to profit from their creative works.

3. ***Defamation :***

Several personnel uses the internet to speak their mind. When people use the internet to say things that are not true, it can cross the line into defamation. Defamation laws are civil laws that save individuals from fake public statements that can harm a business or someone's reputation. When people use the internet to make statements that violate civil laws, that is called Defamation law.

4. ***Harassment and Stalking :***

Sometimes online statements can violate criminal laws that forbid harassment and stalking. When a person makes threatening statements again and again about someone else online, there is a violation of both civil and criminal laws. Cyber lawyers both prosecute and defend people when stalking occurs using the internet and other forms of electronic communication.

5. ***Freedom of Speech :***

Freedom of speech is an important area of cyber law. Even though cyber laws forbid certain behaviors online, freedom of speech laws also allows people to speak their minds. Cyber lawyers must advise their clients on the limits of free speech including

laws that prohibit obscenity. Cyber lawyers may also defend their clients when there is a debate about whether their actions consist of permissible free speech.

6. *Trade Secrets :*

Companies doing business online often depend on cyber laws to protect their trade secrets. For example, Google and other online search engines spend lots of time developing the algorithms that produce search results. They also spend a great deal of time developing other features like maps, intelligent assistance, and flight search services to name a few. Cyber laws help these companies to take legal action as necessary to protect their trade secrets.

7. *Contracts and Employment Law :*

Every time you click a button that says you agree to the terms and conditions of using a website, you have used cyber law. There are terms and conditions for every website that are somehow related to privacy concerns.

2.3 THE INFORMATION TECHNOLOGY ACT, 2000

ARRANGEMENT OF SECTIONS

CHAPTER I :: PRELIMINARY

SECTIONS

1. Short title, extent, commencement and application.
2. Definitions.

CHAPTER II :: DIGITAL SIGNATURE AND ELECTRONIC SIGNATURE

3. Authentication of electronic records.
- 3A. Electronic signature.

CHAPTER III :: ELECTRONIC GOVERNANCE

4. Legal recognition of electronic records.
5. Legal recognition of electronic signatures.

6. Use of electronic records and electronic signatures in Government and its agencies.

6A. Delivery of services by service provider.

7. Retention of electronic records.

7 A. Audit of documents, etc., maintained in electronic form.

8 . Publication of rule, regulation, etc., in Electronic Gazette.

9 . Sections 6, 7 and 8 not to confer the right to insist documents should be accepted in electronic form.

10. Power to make rules by Central Government in respect of electronic signature.

10A. Validity of contracts formed through electronic means.

CHAPTER IV :: ATTRIBUTION, ACKNOWLEDGEMENT AND DESPATCH OF ELECTRONIC RECORDS

11. Attribution of electronic records.

12. Acknowledgment of receipt.

13. Time and place of despatch and receipt of electronic record.

CHAPTER V :: SECURE ELECTRONIC RECORDS AND SECURE ELECTRONIC SIGNATURE

14. Secure electronic record.

15. Secure electronic signature.

16. Security procedures and practices.

CHAPTER VI :: REGULATION OF CERTIFYING AUTHORITIES

17. Appointment of Controller and other officers.

18. Functions of Controller.

19. Recognition of foreign Certifying Authorities.

20. [Omitted.].

21. Licence to issue electronic signature Certificates.

22. Application for licence.

23. Renewal of licence.

24. Procedure for grant or rejection of licence.

25. Suspension of licence.

26. Notice of suspension or revocation of licence.

SECTIONS

27. Power to delegate.

28. Power to investigate contraventions.

29. Access to computers and data.

30. Certifying Authority to follow certain procedures.

31. Certifying Authority to ensure compliance of the Act, etc.

32. Display of licence.

33. Surrender of licence.

34. Disclosure.

CHAPTER VII :: ELECTRONIC SIGNATURE CERTIFICATES

35. Certifying authority to issue electronic signature Certificate.

36. Representations upon issuance of Digital signature Certificate.

37. Suspension of Digital Signature Certificate.

38. Revocation of Digital Signature Certificate.

39. Notice of suspension or revocation.

40CHAPTER VIII :: DUTIES OF SUBSCRIBERS

41. Generating key pair.

40A. Duties of subscriber of Electronic Signature Certificate.

41. Acceptance of Digital Signature Certificate.

42. Control of private key.

CHAPTER IX :: PENALTIES, COMPENSATION AND ADJUDICATION

43. Penalty and compensation for damage to computer, computer system, etc.

43A. Compensation for failure to protect data.

44. Penalty for failure to furnish information, return, etc.

45. Residuary penalty.

46. Power to adjudicate.

47. Factors to be taken into account by the adjudicating officer.

CHAPTER X :: THE APPELLATE TRIBUNAL

48. Appellate Tribunal.

49. [Omitted.].
50. [Omitted.].
51. [Omitted.].
52. [Omitted.].
- 52 A. [Omitted.].
- 52 B. [Omitted.].
- 52 C. [Omitted.].
- 52 D. Decision by majority.
53. [Omitted.].
54. [Omitted.].
- 55 . Orders constituting Appellate Tribunal to be final and not to invalidate its proceedings.
56. [Omitted.].
57. Appeal to Appellate Tribunal.
58. Procedure and powers of the Appellate Tribunal.
59. Right to legal representation.
60. Limitation.
61. Civil court not to have jurisdiction.
62. Appeal to High Court.
63. Compounding of contraventions.

SECTIONS

64. Recovery of penalty or compensation.

CHAPTER XI :: OFFENCES

65. Tampering with computer source documents.
66. Computer related offences.
 - 66A. Punishment for sending offensive messages through communication service, etc.
 - 66 B. Punishment for dishonestly receiving stolen computer resources or communication devices.
 - 66 C. Punishment for identity theft.
 - 66 D. Punishment for cheating by personation by using computer resources.

- 66 E. Punishment for violation of privacy.
- 66F. Punishment for cyber terrorism.
- 67. Punishment for publishing or transmitting obscene material in electronic form.
- 67 A. Punishment for publishing or transmitting of material containing sexually explicit act, etc., in electronic form.
- 67 B. Punishment for publishing or transmitting of material depicting children in sexually explicit acts, etc in electronic form.
- 67C. Preservation and retention of information by intermediaries.
- 68. Power of Controller to give directions.
- 69. Power to issue directions for interception or monitoring or decryption of any information through any computer resource.
- 69 A. Power to issue directions for blocking for public access of any information through any computer resource.
- 69B. Power to authorise to monitor and collect traffic data or information through any computer resource for cyber security.
- 70. Protected system.
- 70 A. National nodal agency.
- 70B. Indian Computer Emergency Response Team to serve as national agency for incident response.
- 71. Penalty for misrepresentation.
- 72. Penalty for Breach of confidentiality and privacy.
- 72A. Punishment for disclosure of information in breach of lawful contract.
- 73. Penalty for publishing electronic signature Certificate false in certain particulars.
- 74. Publication for fraudulent purposes.
- 75. Act to apply for offence or contravention committed outside India.
- 76. Confiscation.
- 77. Compensation, penalties or confiscation not to interfere with other punishments.
- 77 A. Compounding of offences.
- 77B. Offences with three years imprisonment to be bailable.
- 78. Power to investigate offences.

CHAPTER XII :: INTERMEDIARIES NOT TO BE LIABLE IN CERTAIN CASES

79. Exemption from liability of intermediary in certain cases.

CHAPTER XII :: A EXAMINER OF ELECTRONIC EVIDENCE

79A. Central Government to notify the Examiner of Electronic Evidence.

CHAPTER XIII :: MISCELLANEOUS

80. Power of police officers and other officers to enter, search, etc.

81. Act to have an overriding effect.

81A. Application of the Act to electronic cheque and truncated cheque.

82. Controller, Deputy Controller and Assistant Controller to be public servants.

SECTIONS

83. Power to give directions.

84. Protection of action taken in good faith.

84A. Modes or methods for encryption.

84 B. Punishment for abetment of offences.

84C. Punishment for attempting to commit offences.

85. Offences by companies.

86. Removal of difficulties.

87. Power of the Central Government to make rules.

88. Constitution of Advisory Committee.

89. Power of Controller to make regulations.

90. Power of the State Government to make rules.

91. [Omitted.].

92. [Omitted.].

93. [Omitted.].

94. [Omitted.].

95. [Omitted.].

96. [Omitted.].

97. [Omitted.].

98. [Omitted.].

2.2 Existing Work:

2.2.1 CaseMine.et,al[]

They have been continuously and tirelessly looking for ways to innovate legal research. Harnessing the power of Artificial Intelligence, our unique system of document analysis captures the essence of your legal research. CaseIQ, our AI enabled research tool extracts the facto - legal matrix of any document uploaded onto it. As a result, the authorities that are retrieved are clinching precedents - as they mirror the context of the document uploaded on to CaseIQ.

Using technology to analyse the various aspects of jurisprudence, CaseMine augments your legal research in a multidimensional manner. Our Importance Matrix feature shows you those parts of a judgment which have been relied upon by other judges-thus allowing you to skim through a judgment in minutes. CiteText, another feature, effectively reduces the time taken by you in following up on a particular authority. Use our virtual Representation to discover the latest judgment on any legal proposition in a few seconds.

Their aim is to add value and efficacy to your research - while simultaneously reducing the time consumption.

The screenshot displays the CaseMine web interface. At the top, there is a search bar with the text "Enter keywords or case title" and a search icon. To the right of the search bar are navigation links: "Select Case/Topic", "CaseIQ™", "Research Center", and a language selector "AR" with a flag icon. Below the search bar, there are three tabs: "JUDGMENTS", "VISUAL", and "ARGUMENTS". A "Refine" button is visible in the top right corner of the main content area. On the left side, there is a sidebar with a "Drag & Drop your brief" section, which includes options for "DOC", "TXT", and "PDF". Below this, there are buttons for "Add FILE", "Add URL", and "Add TEXT". A file named "brief.pdf" is shown as uploaded. Below the sidebar, there is a "CITATIONS FOUND" section with a list of citations, including "REPORTERS COM. v. AM. TELEPHONE TELEGRAPH". The main content area displays a search result for "IN MATTER OF AN APPLICATION OF U.S." with details such as "COURT NAME: UNITED STATES DISTRICT COURT, E.D. NEW YORK", "DATE: 22 AUG, 2011", "CITED BY: 47", and "CORAM: 1". The text of the judgment is visible, mentioning "reasonable expectation of privacy" and "cell-site-location records". A "Show CiteTEXT" button is located at the bottom of the result. On the right side, there is a "FILTERS" and "SUGGESTIONS" panel. The "ANALYTICS" section includes "JudgeIQ™ (Beta)" with a search box for "Judge Name" and "MotionIQ™ (Beta)" with a "select" dropdown and an "All" button. Below this, there are filters for "COURTS", "ACTS", and "YEAR", each with a plus sign and a "C" icon.

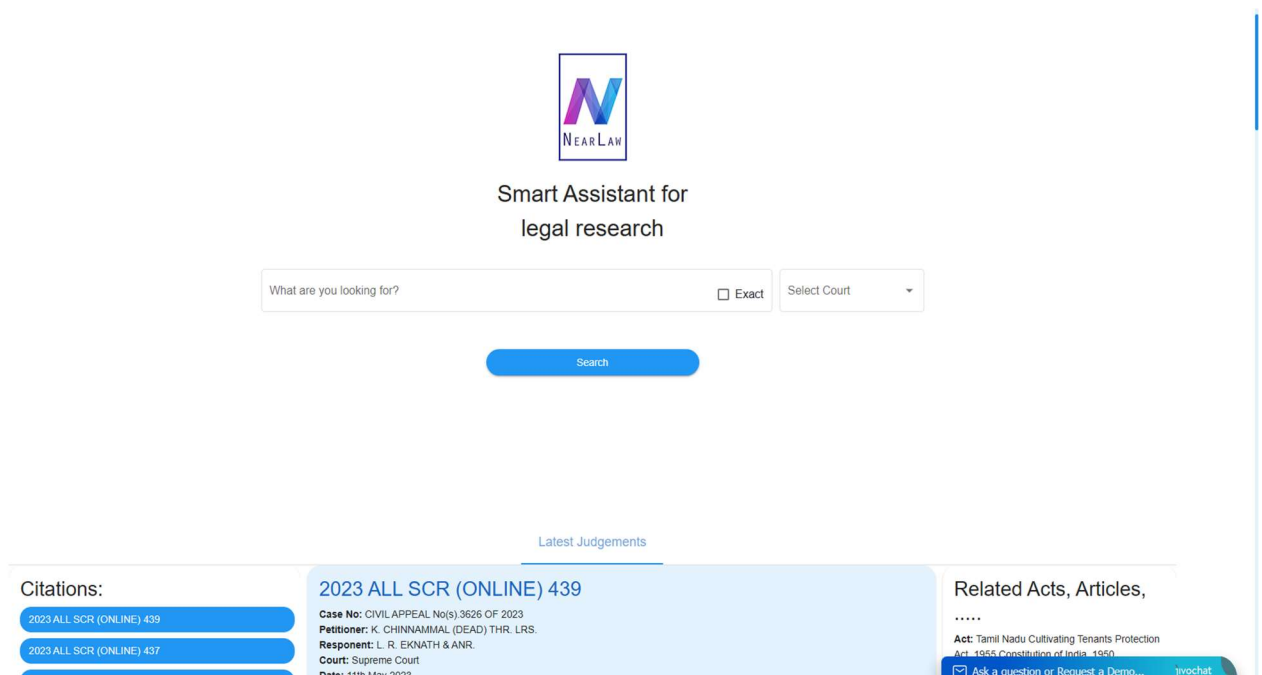
2.2.2 NearLaw

NearLaw is a big data analytics platform utilizing AI/ML for legal data to provide key insights for legal professionals. Over 60,000+ lawyers and legal professionals are registered on NearLaw e-judgments. 350,000+ legal decisions/documents are hosted on the platform. Expanding products and markets to serve legal professionals worldwide.

NearLaw App is an law library encyclopedia of 300,000+ judgments (10,000+ Supreme Court judgements in Free version) and orders from the Supreme Court of India, Bombay High Court judgments.

This unique legal app enables Judges, Advocates, Lawyers (Law Firm, Inhouse Counsel, Independent Practitioners), Chartered Accountants (CA), Company Secretaries (CS), Academicians / Professors, Legislators, Law students, Law College Administrators, Corporate houses, Media persons, Litigants and Others to carry on legal research using a smart phone or android phone.

Also provides a database of judgments and acts for lawyers and law students can ask a legal query.



The screenshot displays the NearLaw interface. At the top center is the NearLaw logo, a stylized 'N' in purple and blue. Below it, the text reads "Smart Assistant for legal research". A search bar contains the placeholder text "What are you looking for?". To the right of the search bar is a checkbox labeled "Exact" and a dropdown menu labeled "Select Court". Below the search bar is a blue "Search" button. Underneath the search bar, there is a section titled "Latest Judgements". On the left, under "Citations:", there are three blue buttons with the text "2023 ALL SCR (ONLINE) 439", "2023 ALL SCR (ONLINE) 437", and "2023 ALL SCR (ONLINE) 438". The main content area shows details for "2023 ALL SCR (ONLINE) 439":
Case No: CIVIL APPEAL No(s).3626 OF 2023
Petitioner: K. CHINNAMMAL (DEAD) THR. LRS.
Respondent: L. R. EKNATH & ANR.
Court: Supreme Court
Date: 11th May 2023
On the right, under "Related Acts, Articles," there is a list of acts, including "Act: Tamil Nadu Cultivating Tenants Protection Act, 1955, Constitution of India, 1950". At the bottom right, there is a blue button that says "Ask a question or Request a Demo..." and a chat icon labeled "jivochat".

2.3 Critical Paper Reviews:

2.3.1 Artificial Intelligence and Law: Harry Surden

(Georgia State University Law Review, Vol. 35, 2021 University of Colorado Law Legal Studies Research Paper No. 19-22.)

The goal of this article was to provide a realistic, demystified view of AI and law. As it currently stands, AI is neither magic nor is it intelligent in the human-cognitive sense of the word. Rather, today's AI technology is able to produce intelligent results without intelligence by harnessing patterns, rules, and heuristic proxies that allow it to make useful decisions in certain, narrow contexts. However, current AI technology has its limitations. Notably, it is not very good at dealing with abstractions, understanding meaning, transferring knowledge from one activity to another, and handling completely unstructured or open-ended tasks. Rather, most tasks where AI has proven successful (e.g., chess, credit card fraud, tumor detection) involve highly structured areas where there are clear right or wrong answers and strong underlying patterns that can be algorithmically detected. Knowing the strengths and limits of current AI technology is crucial to the understanding of AI within law. It helps us have a realistic understanding of where AI is likely to impact the practice and administration of law and, just as importantly, where it is not.

2.3.2 Scope of Artificial Intelligence in Law: Bhupender Singh Dabass

(Department of Law, Institute of Law and Research, Faridabad, Haryana).

Artificial intelligence techniques are gaining importance owing to augmented client demands on ruling firms to be extra proficient and a mounting aversion to recompense for what they consider as progression stage toil. This paper discusses the current trends of legal AI and suggested techniques that can be applied in the time to come. In future, one can come up with the implementation

of deep learning and machine learning techniques on legal documents using the Matlab software. Using classification with deep learning we can come up with tax commandment classifier based on in print available Supreme Court, High Court and district court verdict in which courtyard declared twofold resolve for the precise legal issue. Also one can make a classifier by asking a questionnaire based on psychology to define criminals into categories of hard core, general, professional killers and others using their replies to questions.

2.3.3 Prof. Massimo Durante : Department of Law, University of Turin, Turin, Italy.

Artificial intelligence (AI) has a growing normative impact on our daily lives. The use of AI in plentiful applications is already challenging many areas, issues, and concepts of established law. Much of the law that exists today logically evolved to account for human actions. As AI systems become smarter, more autonomous, and lacking in transparency in their decision-making, courts will face increasingly complex dilemmas in applying law to AI: in some cases, new law will be required; in others, existing law will need to be reformed. We urge developing a legal framework for law and AI in which to generate discussion on how the law can be used not only to spur innovation in AI but also to safeguard the rights of all parties involved as AI proliferates more deeply into society.

This Special Issue aims at promoting original and high-quality papers on the impact of AI on law from a multidisciplinary perspective. In particular, the Guest Editors seek papers on AI regulation, human rights considerations, constitutional law challenges, governance of algorithms, legal personality and AI, issues of privacy and data protection, AI and legal analytics, copyright and other fields of intellectual property law (e.g., patents), international humanitarian law, and criminal law. The issue also welcomes papers on classical topics related to AI and law, such as computational methods for negotiation and contract formation,

machine learning and data analytics applied to the legal domain, intelligent legal tutoring systems, or intelligent support systems for law and forensics.

CHAPTER-3

PROBLEM DESCRIPTION

3.1 Problem Statement:

In the current scenario to refer to a previous case in which similar conditions were faced and judgement/verdict has been given or something is acknowledged/defined, a law practitioner (like lawyers) has to do manual labour of finding that. So, there is a need to automate this thing so that valuable time of lawyers can be saved and they can focus more on their case preparation with the right material instead of struggling to find them.

Also, there is another problem for common people that they do not understand sections of laws, so if anyone threatens them in the name of framing them in false cases against them, they simply believe that to be true OR sometimes government employees like police officers do not exactly know or understand which sections of law are applicable (if any) and how to proceed with them. So, with the fast everchanging world as now there is the need for advanced technologies like Artificial Intelligence to help in these issues.

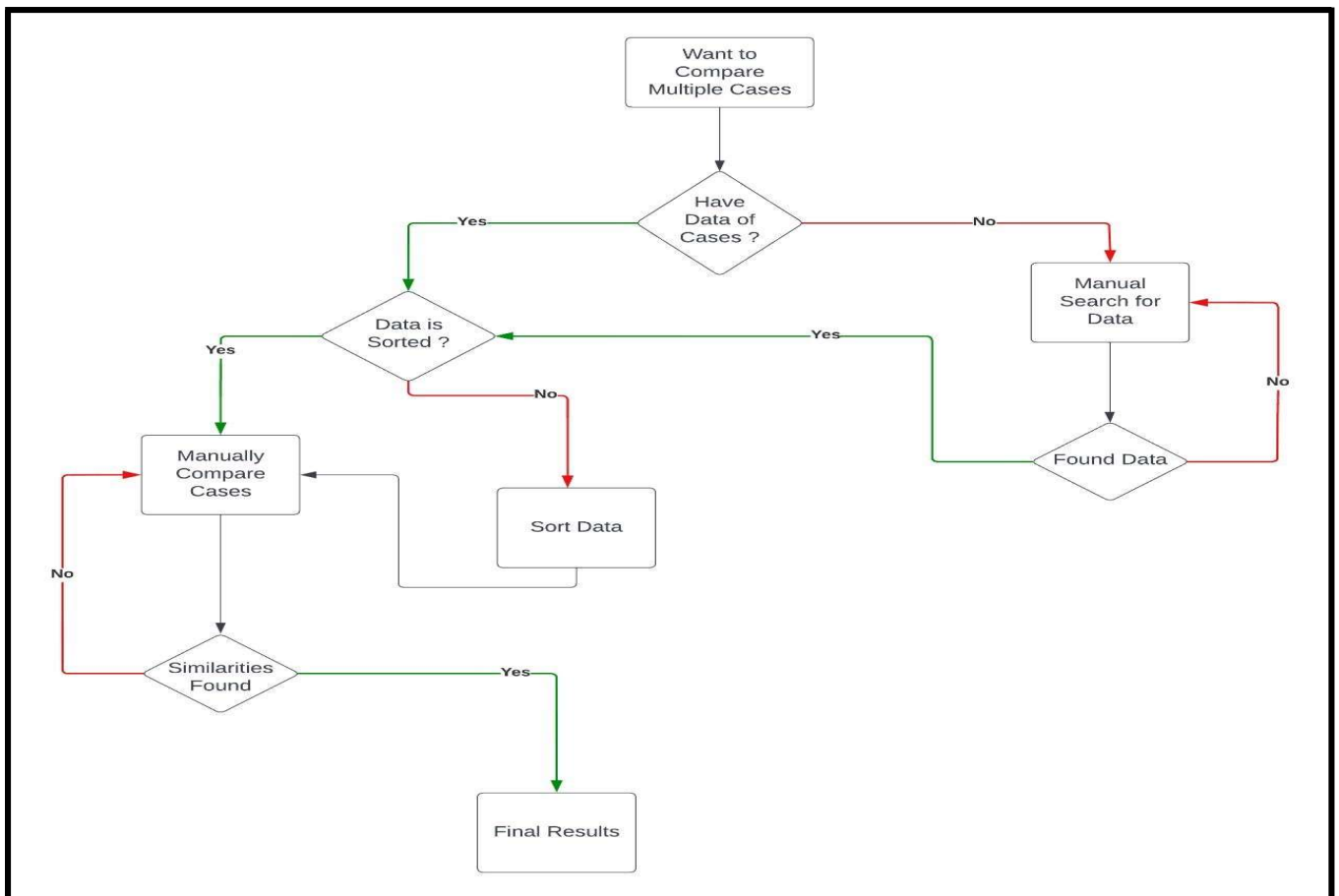


Figure.1

3.2 Our Solution: Our solution to this problem is an AI enabled software application that will have following features:

1. Users will be divided into 2 categories –
 - Law Practitioners
 - Common People
2. Law practitioners will be able to search a case reference by:
 - Applied Sections
 - Description of Case
 - Similar Case Arguments
3. Common People will be able to search applicable law by:
 - Common Language Case Description
 - Description of Case
4. It will also have the feature to connect to real lawyers in case any specific guidance is needed of which AI is not capable of.

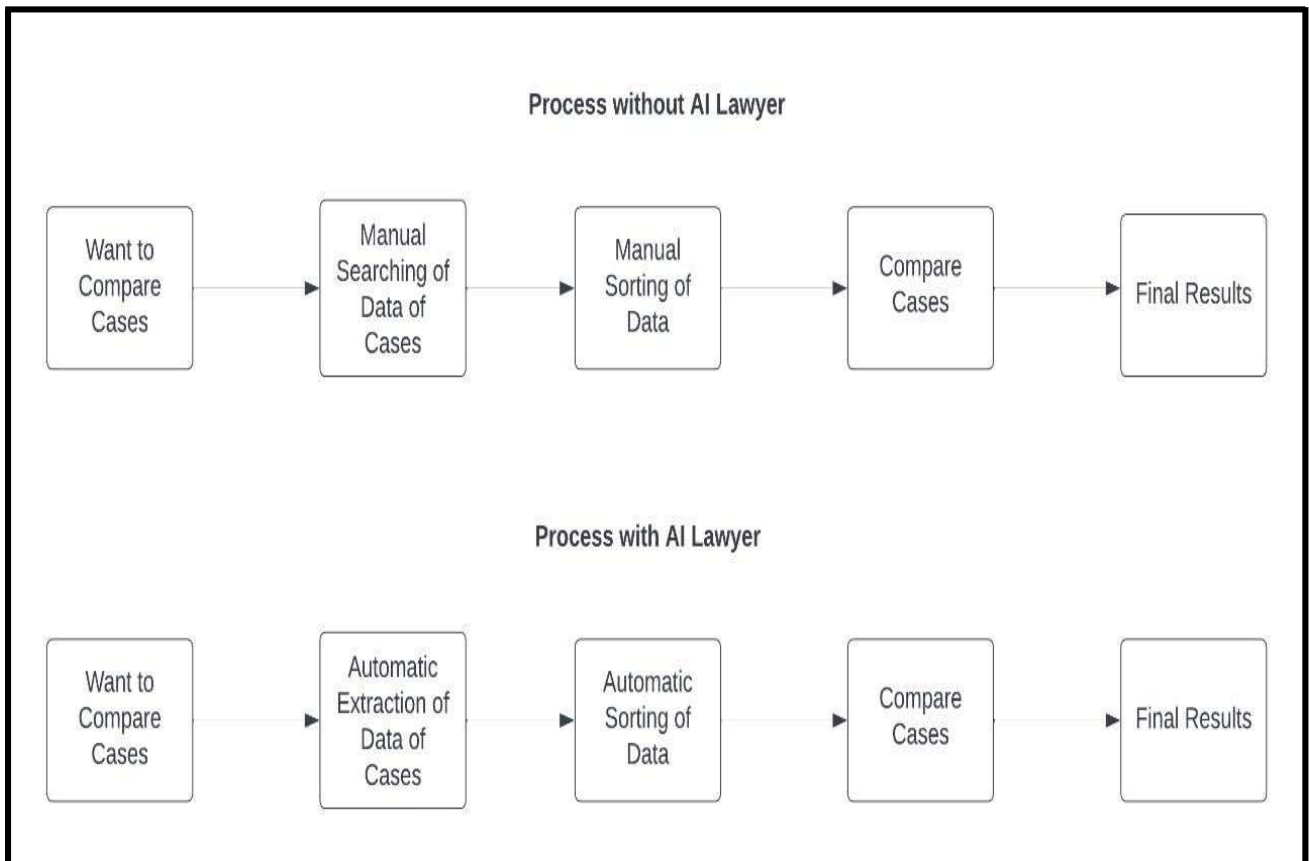


Figure.2

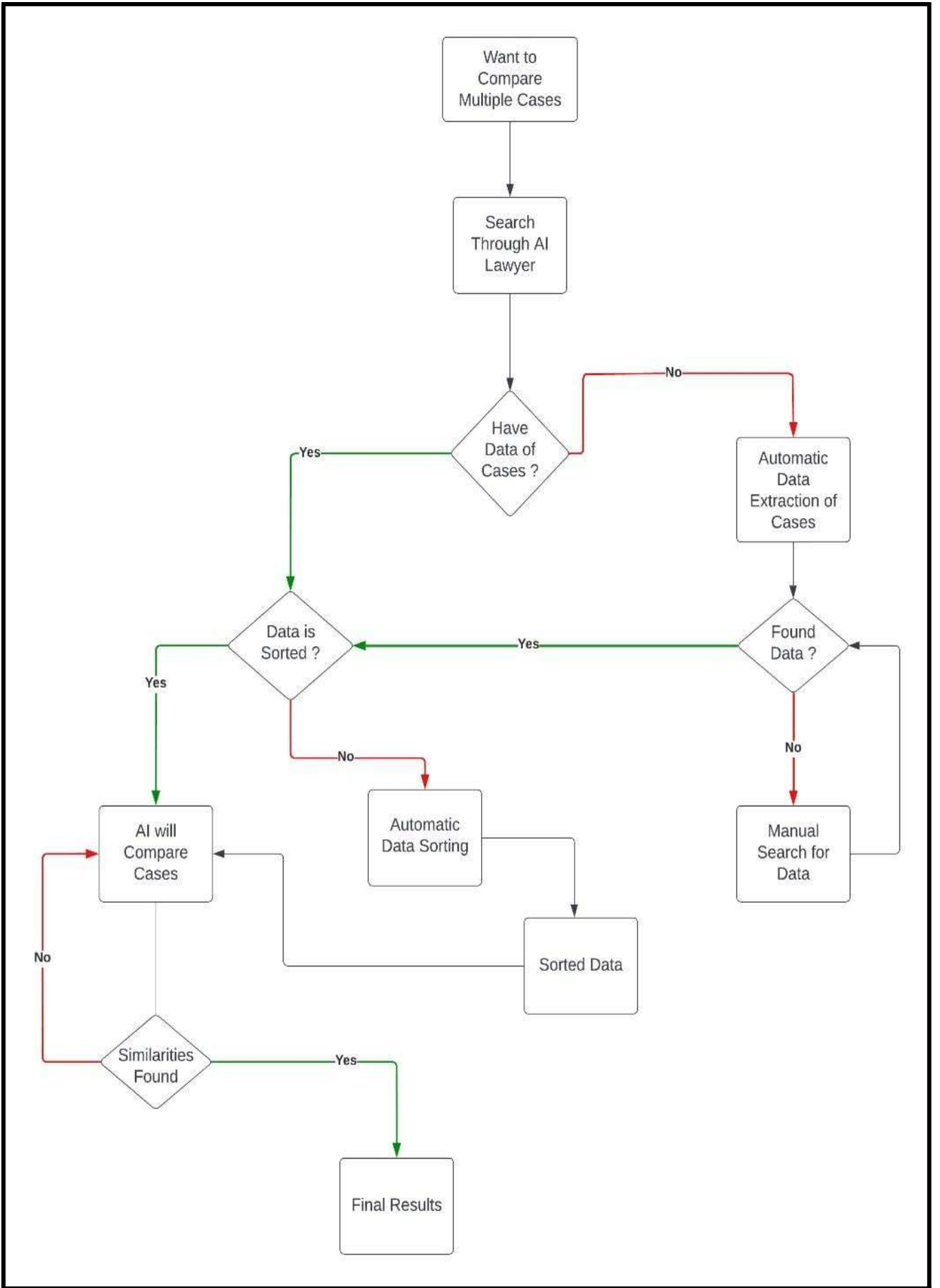


Figure.3

3.3 Features:

1. Search by:
 - A case.
 - Sections of a law.
 - A law.
 - Underlying event's description.
 - Underlying event's description in common language.
 - Similar arguments of a case.
2. Information about all the laws.
3. Interaction with real lawyers (if needed).

3.4 Impact it will Create:

1. It can help if anyone wants to fight their case themselves by providing them proper content to argue about.
2. This will help in saving of invaluable time of court because lawyers will be better prepared with right content to argue and if they ever need more content, they can quickly search for it.
3. In this way they can also focus more on their case preparation instead of argument finding.
4. This will be helpful in educating people about laws so they can be better protected from misuse of laws by law practitioners.

3.5 Future Scope:

Currently our team is focused on IT ACT 2000 & related cases but in future:

1. It can be expanded to all acts of constitution.
2. It can be used to study or research about laws and their sections by definitions available and their uses in real life cases.

CHAPTER-4

PROPOSED WORK

4.1 Data Collection and Preparation

Two types of data will be needed:

1. Sections of IT law and their descriptions
2. Cases related to cyber crime in India

Both will be fetched from the internet using a web scraper developed in python. The collected data will be pre-processed and saved into SQL database as two tables namely Acts and Cases respectively.

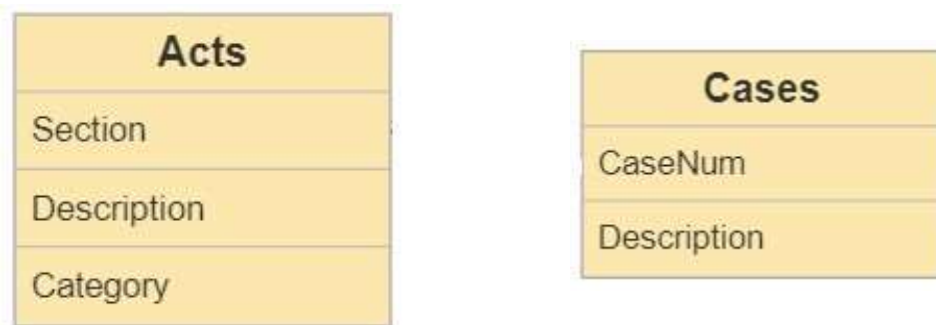


Figure.4

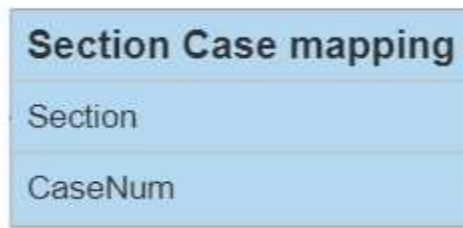
The Acts table has three columns:

1. Section : Contains the section number (**PRIMARY KEY**)
2. Description : Contains a short description about the section
3. Category : Chapter name of the section

The Cases table has two columns :

1. CaseNum : The case number in legal records. (**PRIMARY KEY**)
2. Description : Description of the case including crime and judgment

The cases table is then further processed to extract the section numbers implied in the respective cases to create a new table “Section Case Mapping”.



Section Case mapping
Section
CaseNum

Figure.5

The Section Case mapping contains two fields :

1. Section : Contains the section number implied in the cases. (**PRIMARY KEY**)
2. CaseNum : Contains the case number of the corresponding case that has the section number implied.

4.2 Functionalities

There are mainly two actors which will be interacting with the AI Lawyer :

1. General public
2. Lawyers and police

The general public can only use the functionality of finding sections and description by the section number or short description of the offense.

Lawyers and police persons get an additional functionality of getting similar cases and their judgments by searching based on short descriptions about cases.

4.3 What happens when a general customer/Lawyer/Police enters the section number?

When the user enters the section number, a backend query is run in the SQL database taking user input as parameter and fetches the description of the corresponding section.

If the user enters any invalid input, the AI Lawyer will gracefully handle it and prompt the user to enter valid input.

4.4 What happens when a general customer/Lawyer/Police enters the section description?

When the user enters the section description, the input is passed to the AI Lawyer and similarity score is calculated against every section in Act. Then the AI Lawyer returns the top 3 most similar acts as the output to the user. The similarity score is calculated by using NLP in python.

If the user enters any invalid input, the AI Lawyer will gracefully handle it and prompt the user to enter valid input.

4.5 What happens when a Lawyer/Police enters the Case description?

When the user enters the case description, the input is passed to the AI Lawyer and a similarity score is calculated against every case. Then the AI Lawyer returns the top 3 most similar cases based on the calculated scores as the output to the user.

The similarity score is calculated by using NLP in python.

If the user enters any invalid input, the AI Lawyer will gracefully handle it and prompt the user to enter valid input.

4.6 ER - Diagram



Figure.6

4.7 DFD

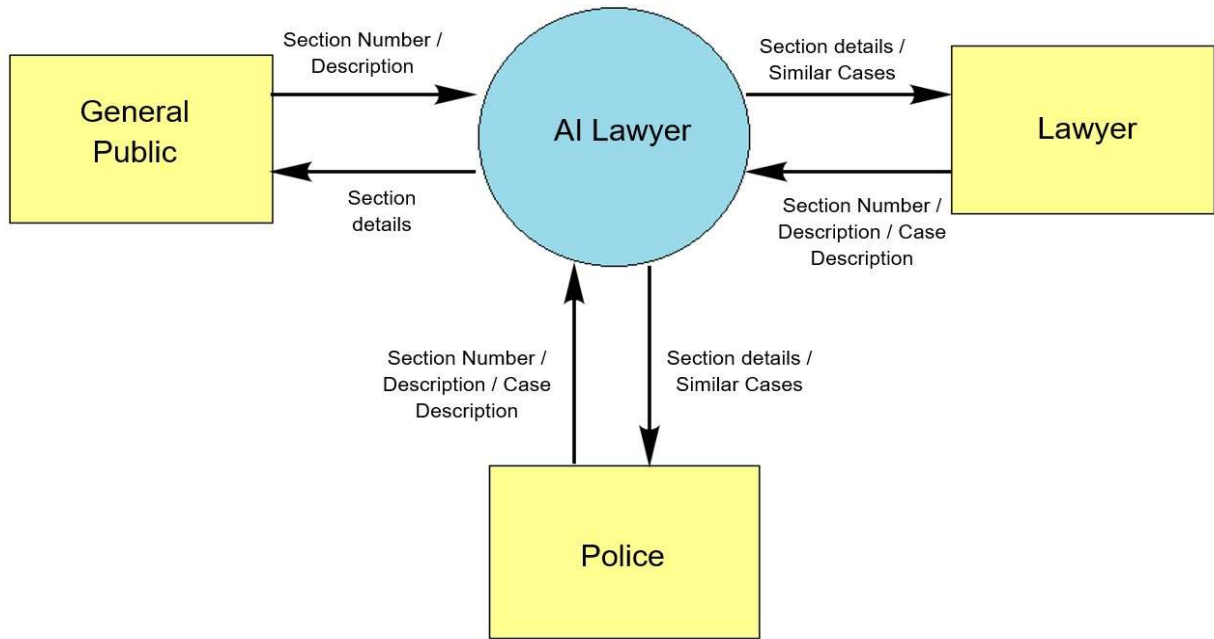


Figure.7

4.8 Use Case Diagram

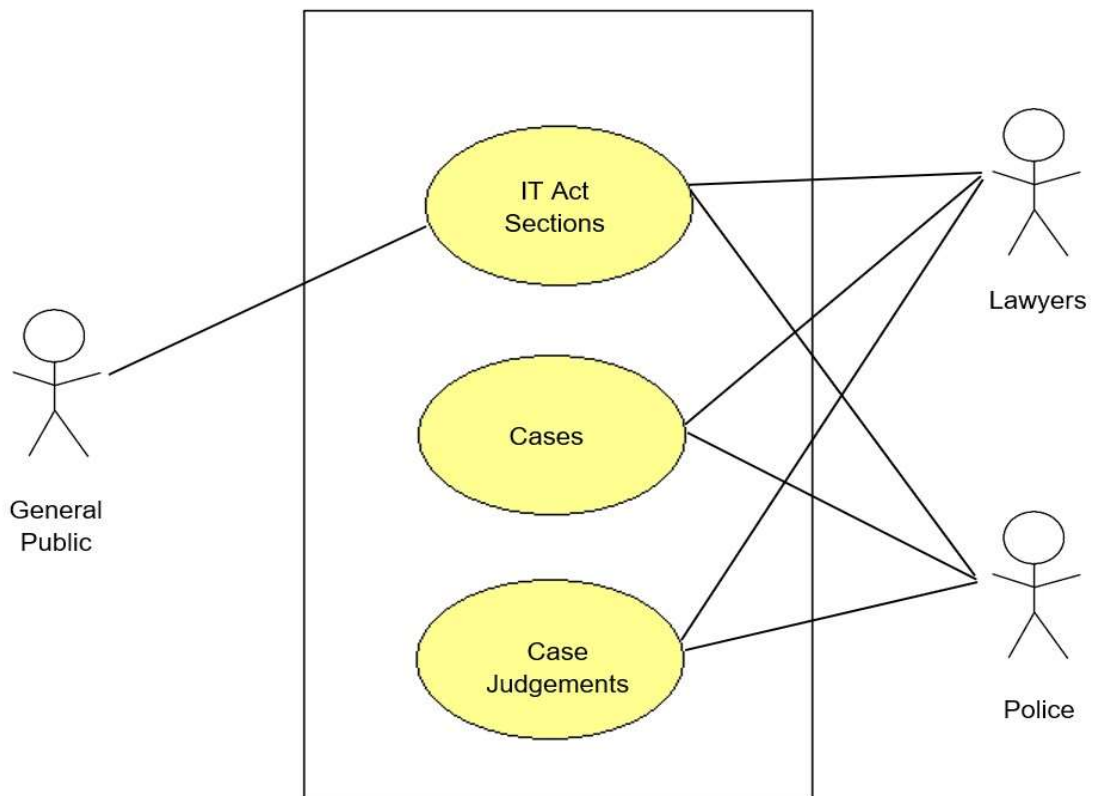


Figure.8

4.9 General flow of AI Lawyer

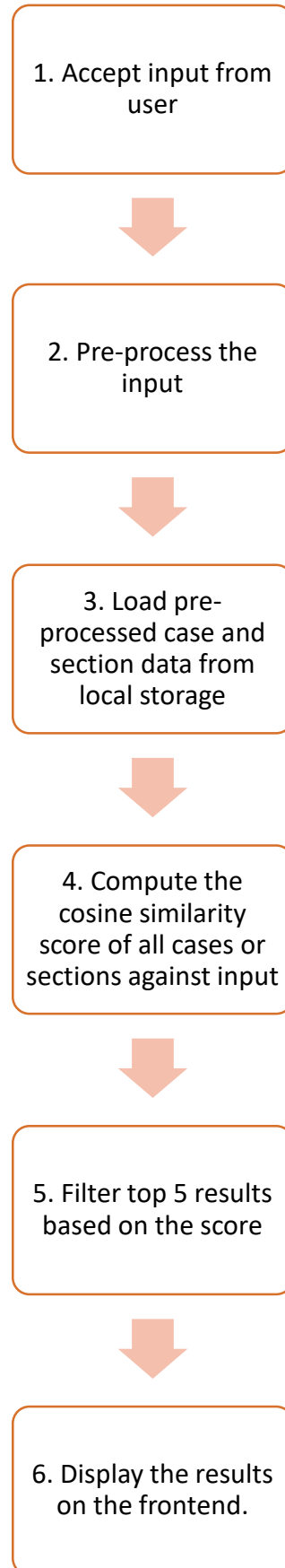


Figure.9

4.10 Normalization Flow

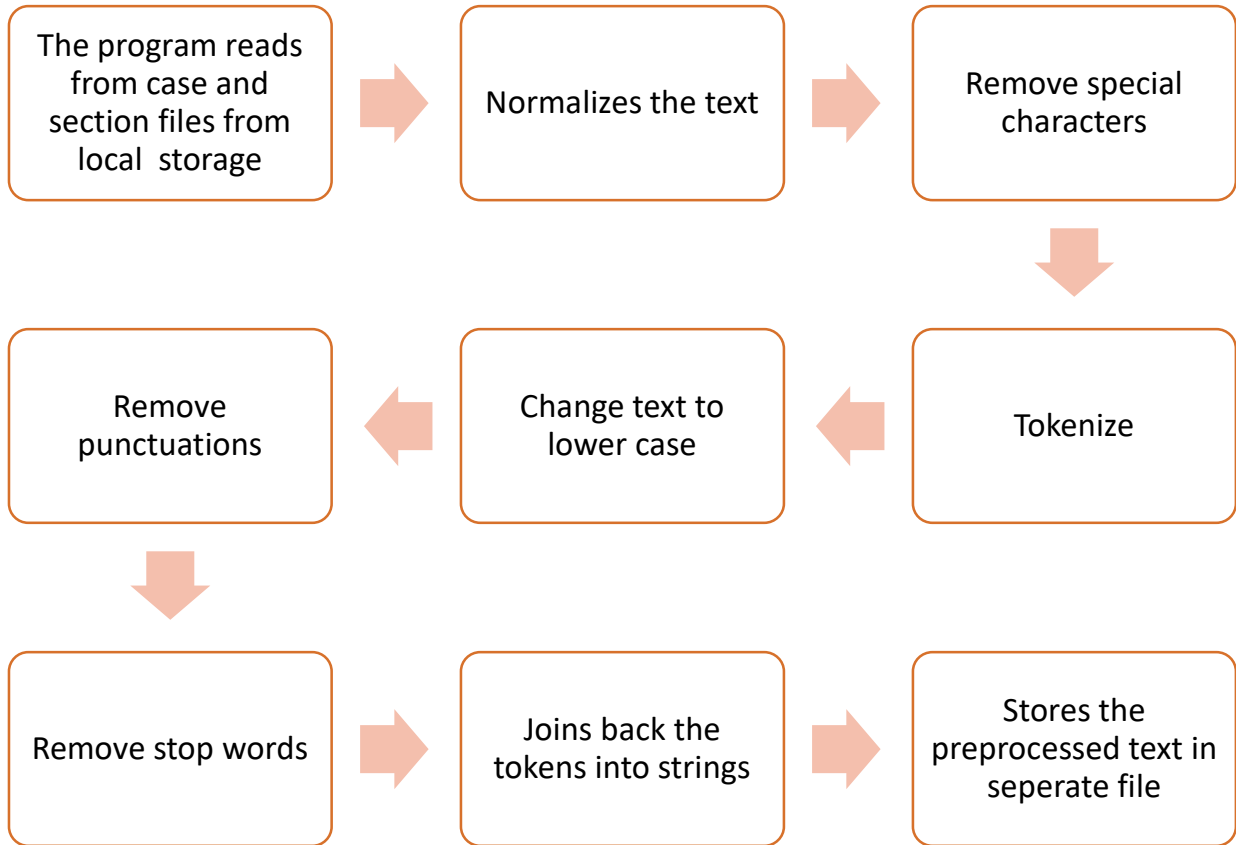


Figure.10

4.11 Calculation of Cosine Similarity Score

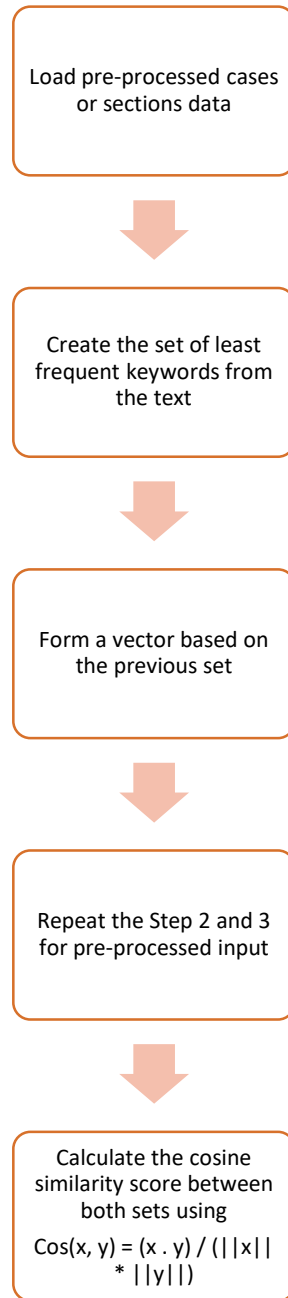


Figure.11

where,

- $x \cdot y$ = product (dot) of the vectors 'x' and 'y'.
- $||x||$ and $||y||$ = length of the two vectors 'x' and 'y'.
- $||x|| * ||y||$ = cross product of the two vectors 'x' and 'y'.

CHAPTER 5

IMPLEMENTATION AND RESULTS

5.1 WORKING:

The program uses the Flask web framework to create a web application that serves various search functions for legal documents. The application has several routes that handle different types of search requests. Here is a detailed explanation of each route:

`home` route: This route handles GET requests to the root path ('/') and the '/home' path. It returns an HTML template named "home.html" which takes in a 'request' parameter.

`serve_pdf` route: This route handles GET requests to the '/pdf/<path:path>' path. It serves a PDF file located at the path specified in the URL.

`serve_text` route: This route handles GET requests to the '/text/<path:path>' path. It serves a text file located at the path specified in the URL. If the path does not contain the string "data/statute_docs/IT_ACT_2000/", then the route prepends this string to the path.

`search_rel_cases` route: This route handles both GET and POST requests to the '/search/rel_cases' path. If the request is a POST request, it retrieves a search query parameter from the request form and calls a function named `rel_cases_search` to perform a search for relevant cases. The function returns a dictionary of the top case PDF files. The route then renders an HTML template named "result_rel_cases.html" that displays the top case PDF files. If the request is a GET request, the route renders an HTML template named "search_rel_cases.html" that contains a form for entering a search query.

`search_rel_statutes` route: This route handles both GET and POST requests to the `/search/rel_statutes` path. If the request is a POST request, it retrieves a search query parameter from the request form and calls a function named `rel_statutes_search` to perform a search for relevant statutes. The function returns a list of the top documents. The route then renders an HTML template named `result_rel_statutes.html` that displays the top documents. If the request is a GET request, the route renders an HTML template named `search_rel_statutes.html` that contains a form for entering a search query.

`search_statute` route: This route handles both GET and POST requests to the `/search/statute` path. If the request is a POST request, it retrieves a search query parameter from the request form and calls a function named `statute_search` to perform a search for statutes. The function returns a list of the top documents. The route then renders an HTML template named `result_statutes.html` that displays the top documents. If the request is a GET request, the route renders an HTML template named `search_statutes.html` that contains a form for entering a search query.

`search_case` route: This route handles both GET and POST requests to the `/search/case` path. If the request is a POST request, it calls a function named `case_search` to perform a search for cases and retrieve a list of URLs. The route then renders an HTML template named `result_cases.html` that displays the list of URLs. If the request is a GET request, the route renders an HTML template named `search_cases.html` that contains a form for entering a search query.

The script sets up logging using the Python logging module and creates a Flask app object. Finally, the script starts the app if the script is executed directly. The app runs in debug mode with the `debug=True` argument.

The Python program provides functionality to search for relevant cases and statutes based on a user query. The program uses Flask, Pandas, and other libraries to handle the requests and perform various operations.

The main function of the program is *rel_search*, which is used to search for relevant documents based on a given query and document type. The function first loads preprocessed documents and creates a TF-IDF matrix. It then computes the cosine similarity between the query and each document and returns the top documents based on the similarity score.

The program provides two search functions: *rel_cases_search* and *rel_statutes_search*. *rel_cases_search* searches for relevant cases based on a user query and returns a list of dictionaries representing the top documents. *rel_statutes_search* searches for relevant statutes based on a user query and returns a list of dictionaries representing the top documents.

The program also provides a function *case_search* that returns a list of judgement URLs, and *statute_search* that extracts section numbers from a user query and returns a list of dictionaries representing the relevant sections of statutes.

5.2.1 Implementation of Core Functions

Import Statements

The code begins with importing various modules required for the functions. These modules include:

- ``string``: provides a collection of ASCII characters.
- ``re``: provides support for regular expressions.
- ``unicodedata.normalize``: provides functions to normalize Unicode strings.
- ``nltk.tokenize.word_tokenize``: used for tokenizing text into words.
- ``nltk.corpus.stopwords``: provides a list of commonly used stop words in English.
- ``nltk.stem.WordNetLemmatizer``: used for lemmatizing words in text.
- ``PyPDF2``: provides support for reading PDF files.
- ``data``: a custom module that provides additional data.
- ``os``: provides functions to interact with the operating system.
- ``logging``: provides a logging system for debugging purposes.

Function: get_section_details()

This function takes in a ``section_num`` parameter, which is a string representing the section number of a legal document. The function searches for the text file containing the section of the legal document, reads the contents of the file, and returns it as a string.

The function works as follows:

1. It sets the ``folder_path`` variable to the directory path of the legal document text files.
2. It retrieves a list of all the files in the directory using ``os.listdir()``.
3. It filters the list to include only the text files using a list comprehension.
4. It loops through each file in the filtered list.
5. For each file, it extracts the section number from the file name using a regular expression pattern.
6. If the extracted section number matches the input ``section_num``, the function opens the file and reads its contents.
7. It logs the contents of the file and returns it as a string.

Function: extract_sections()

This function takes in a ``query`` parameter, which is a string representing a legal document query. The function searches the query string for section numbers and returns them as a list.

The function works as follows:

1. It defines several regular expression patterns to match different section number formats.
2. It initializes an empty list to hold the section numbers.
3. It searches the query string for section numbers using each pattern in turn.

4. If a pattern matches, the function extracts the section numbers and adds them to the list.
5. If no patterns match, it returns an empty list.
6. It logs the section numbers and returns them as a list.

Function: preprocess_text()

This function takes in a ``text`` parameter, which is a string representing the text to be preprocessed. The function normalizes, tokenizes, lemmatizes, and removes stop words from the input text, and returns the preprocessed text as a string.

The function works as follows:

1. It normalizes the input text using Unicode normalization.
2. It removes special characters using regular expressions.
3. It tokenizes the text into individual words using ``nltk.tokenize.word_tokenize()``.
4. It converts the tokens to lowercase.
5. It removes punctuation using ``string.punctuation``.
6. It removes stop words using ``nltk.corpus.stopwords()``.
7. It lemmatizes each word using ``nltk.stem.WordNetLemmatizer()``.
8. It joins the tokens back into a string and returns the preprocessed text.

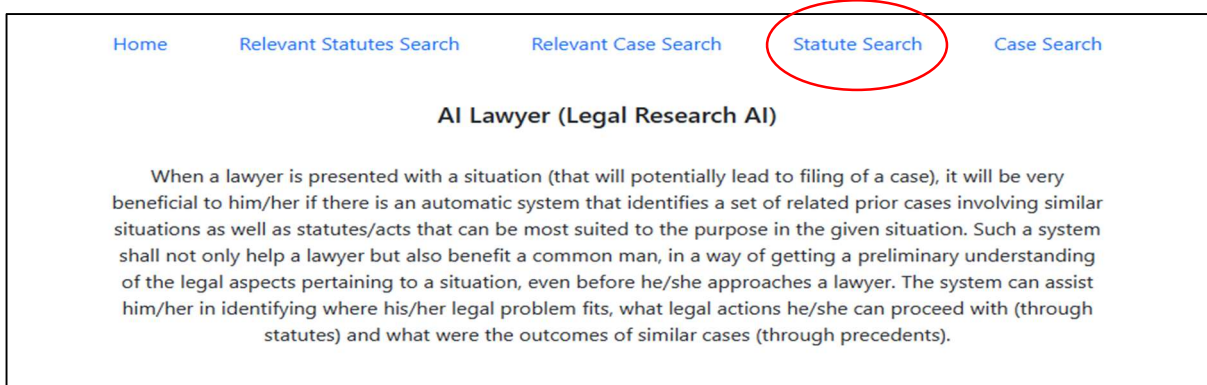
Function: extract_pdf_text()

This function takes in a ``pdf_file_path`` parameter, which is a string representing the file path of a PDF file. If the PDF file is password protected, it also takes in a ``password`` parameter. The function opens the PDF file, extracts the text content using a PDF parsing library like PyPDF2 or pdfminer, and returns the extracted text as a string.

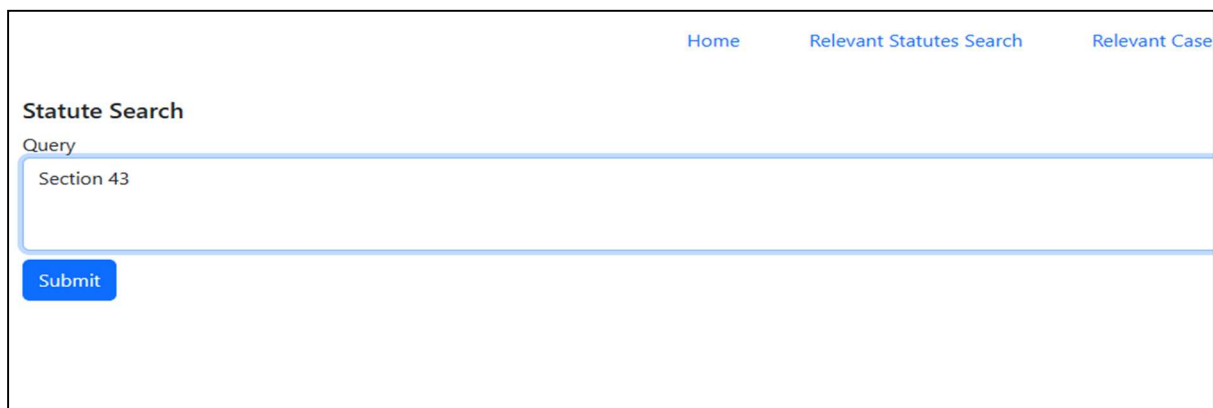
Finally, we return the text string representing the extracted text content of the PDF file.

5.2.2 Searching Sections based on Section Number

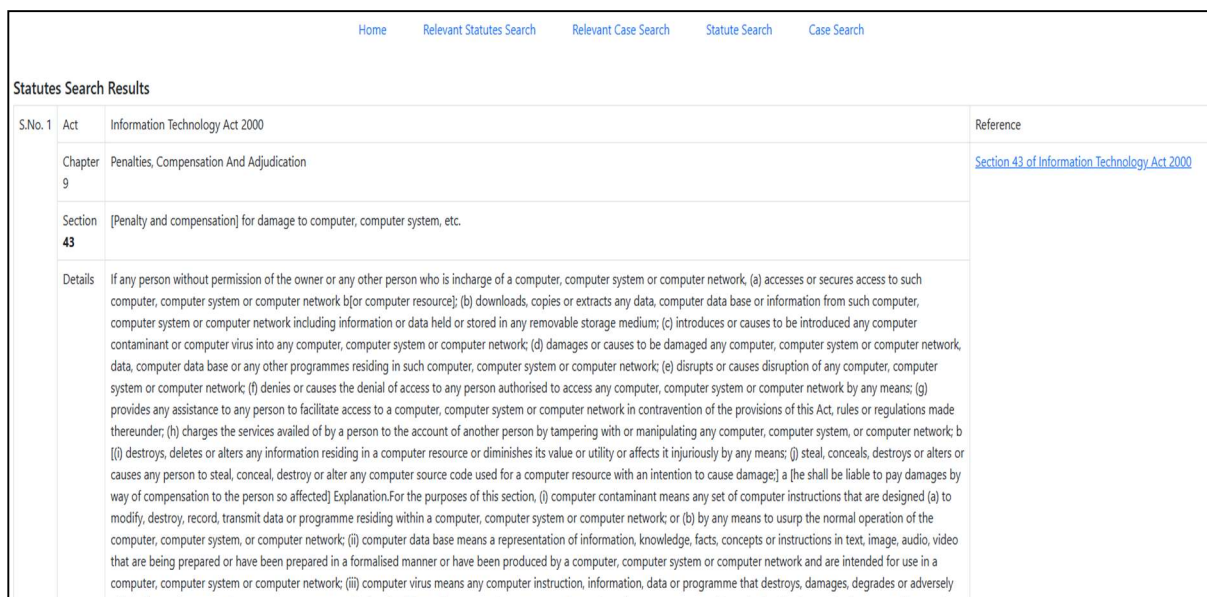
1. Navigate to the Statute Search page by clicking on the corresponding link



2. Input the desired section number to search for more information.

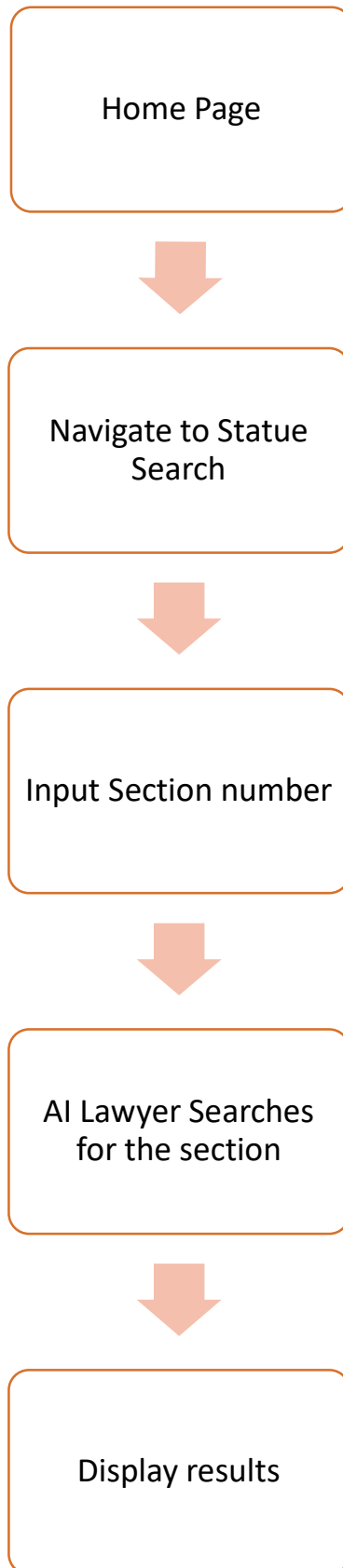


3. The AI Lawyer conducts a search for the specified section number in the database.
4. The screen displays the relevant details for the selected section.



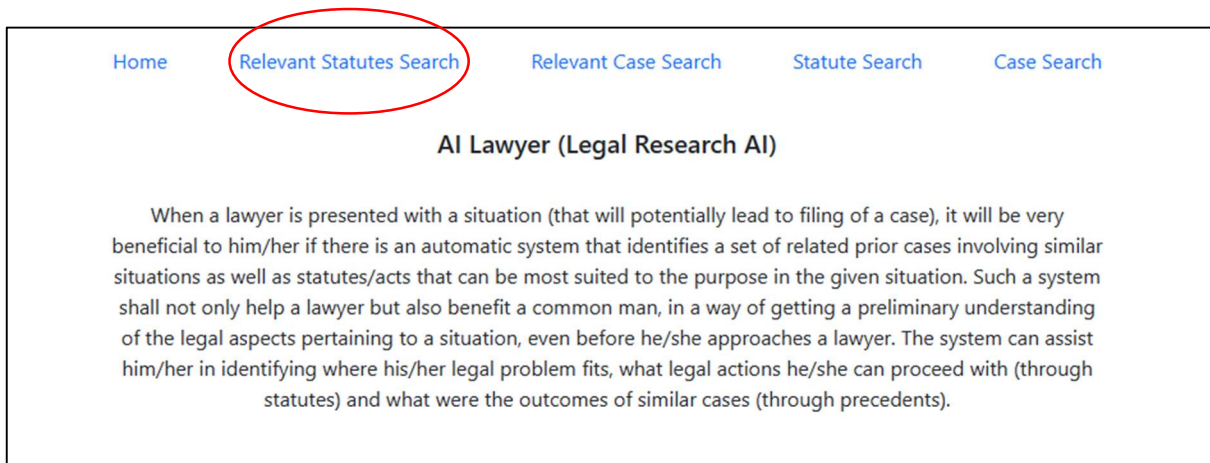
S.No.	Act	Reference
1	Information Technology Act 2000	
	Chapter 9 Penalties, Compensation And Adjudication	Section 43 of Information Technology Act 2000
	Section 43 [Penalty and compensation] for damage to computer, computer system, etc.	
	Details If any person without permission of the owner or any other person who is in charge of a computer, computer system or computer network: (a) accesses or secures access to such computer, computer system or computer network [or computer resource]; (b) downloads, copies or extracts any data, computer data base or information from such computer, computer system or computer network including information or data held or stored in any removable storage medium; (c) introduces or causes to be introduced any computer contaminant or computer virus into any computer, computer system or computer network; (d) damages or causes to be damaged any computer, computer system or computer network, data, computer data base or any other programmes residing in such computer, computer system or computer network; (e) disrupts or causes disruption of any computer, computer system or computer network; (f) denies or causes the denial of access to any person authorised to access any computer, computer system or computer network by any means; (g) provides any assistance to any person to facilitate access to a computer, computer system or computer network in contravention of the provisions of this Act, rules or regulations made thereunder; (h) charges the services availed of by a person to the account of another person by tampering with or manipulating any computer, computer system, or computer network; b [(i) destroys, deletes or alters any information residing in a computer resource or diminishes its value or utility or affects it injuriously by any means; (j) steal, conceals, destroys or alters or causes any person to steal, conceal, destroy or alter any computer source code used for a computer resource with an intention to cause damage;] a [he shall be liable to pay damages by way of compensation to the person so affected] Explanation.For the purposes of this section, (i) computer contaminant means any set of computer instructions that are designed (a) to modify, destroy, record, transmit data or programme residing within a computer, computer system or computer network; or (b) by any means to usurp the normal operation of the computer, computer system, or computer network; (ii) computer data base means a representation of information, knowledge, facts, concepts or instructions in text, image, audio, video that are being prepared or have been prepared in a formalised manner or have been produced by a computer, computer system or computer network and are intended for use in a computer, computer system or computer network; (iii) computer virus means any computer instruction, information, data or programme that destroys, damages, degrades or adversely	

STATUTE SEARCH



5.2.3 Searching Sections based on Section Description

1. Navigate to the required page by clicking on "Relevant Statutes Search" link.

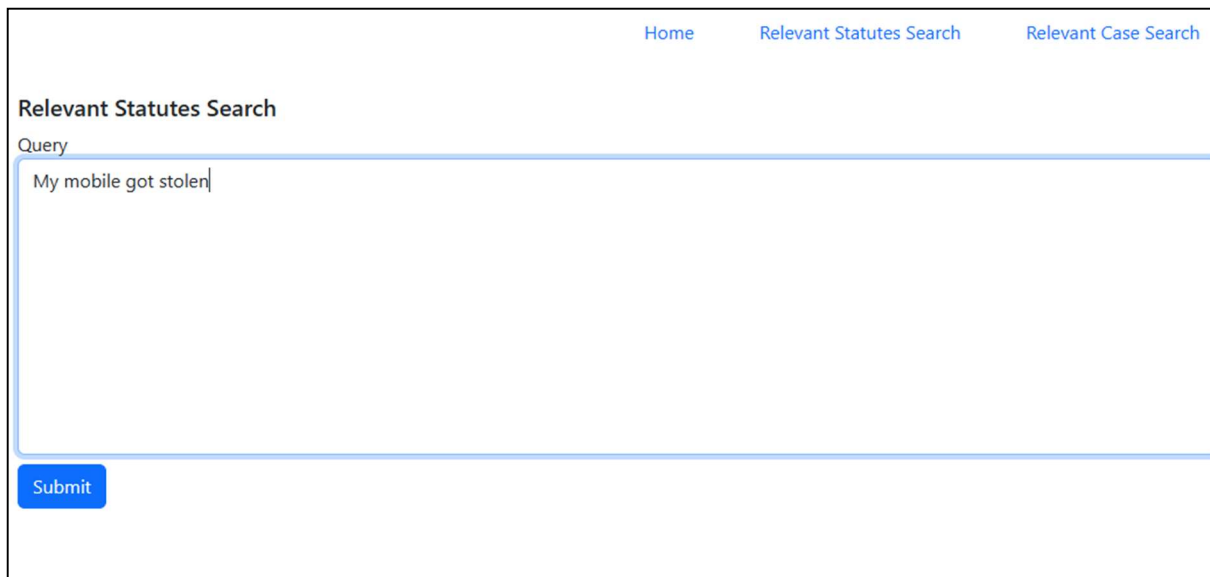


Home **Relevant Statutes Search** Relevant Case Search Statute Search Case Search

AI Lawyer (Legal Research AI)

When a lawyer is presented with a situation (that will potentially lead to filing of a case), it will be very beneficial to him/her if there is an automatic system that identifies a set of related prior cases involving similar situations as well as statutes/acts that can be most suited to the purpose in the given situation. Such a system shall not only help a lawyer but also benefit a common man, in a way of getting a preliminary understanding of the legal aspects pertaining to a situation, even before he/she approaches a lawyer. The system can assist him/her in identifying where his/her legal problem fits, what legal actions he/she can proceed with (through statutes) and what were the outcomes of similar cases (through precedents).

2. Input the description for the section that needs to be searched.



Home Relevant Statutes Search Relevant Case Search

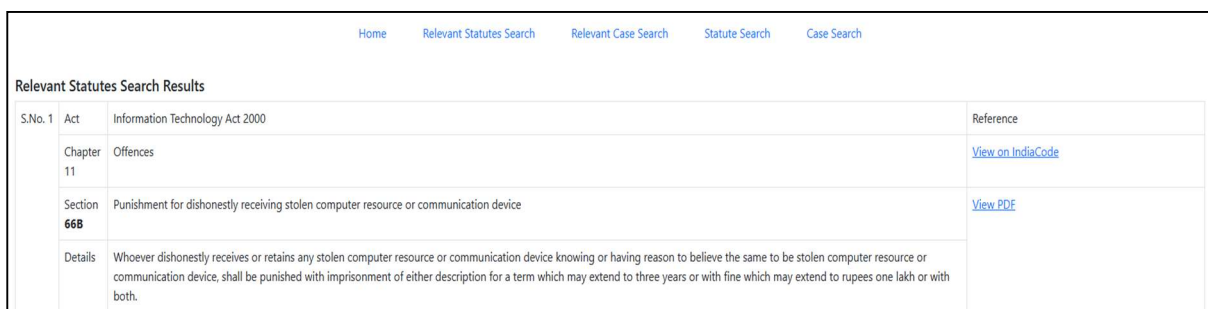
Relevant Statutes Search

Query

My mobile got stolen

Submit

3. The AI lawyer then searches the database for relevant section details.
4. The screen displays the top 5 sections that are found to be relevant to the input description.

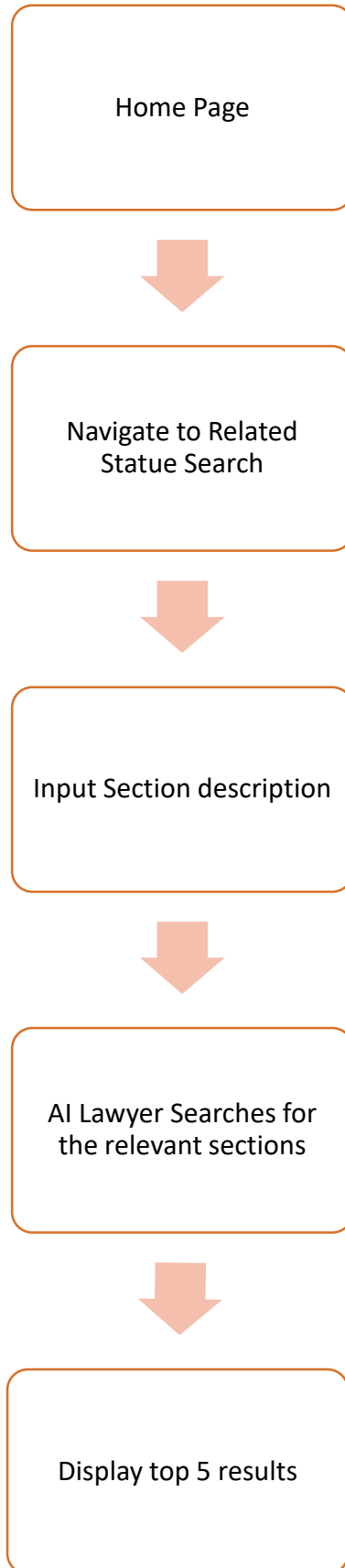


Home Relevant Statutes Search Relevant Case Search Statute Search Case Search

Relevant Statutes Search Results

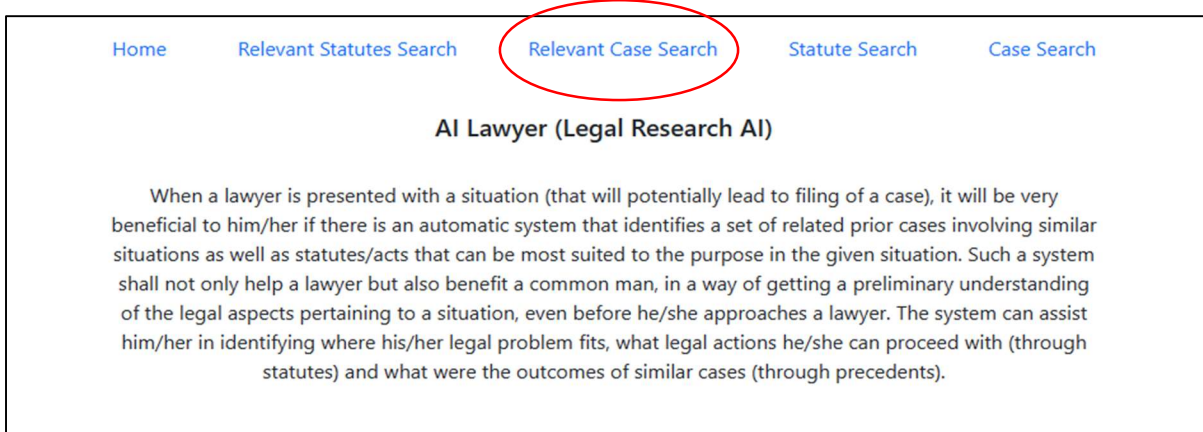
S.No.	Act		Reference
1	Information Technology Act 2000		
	Chapter 11	Offences	View on IndiaCode
	Section 66B	Punishment for dishonestly receiving stolen computer resource or communication device	View PDF
	Details	Whoever dishonestly receives or retains any stolen computer resource or communication device knowing or having reason to believe the same to be stolen computer resource or communication device, shall be punished with imprisonment of either description for a term which may extend to three years or with fine which may extend to rupees one lakh or with both.	

Related Statute Search



5.2.4 Searching Relevant Cases based on case description

1. Navigate to the required page by clicking on the "Relevant Case Search" link.



2. Input the description for the case that needs to be searched.

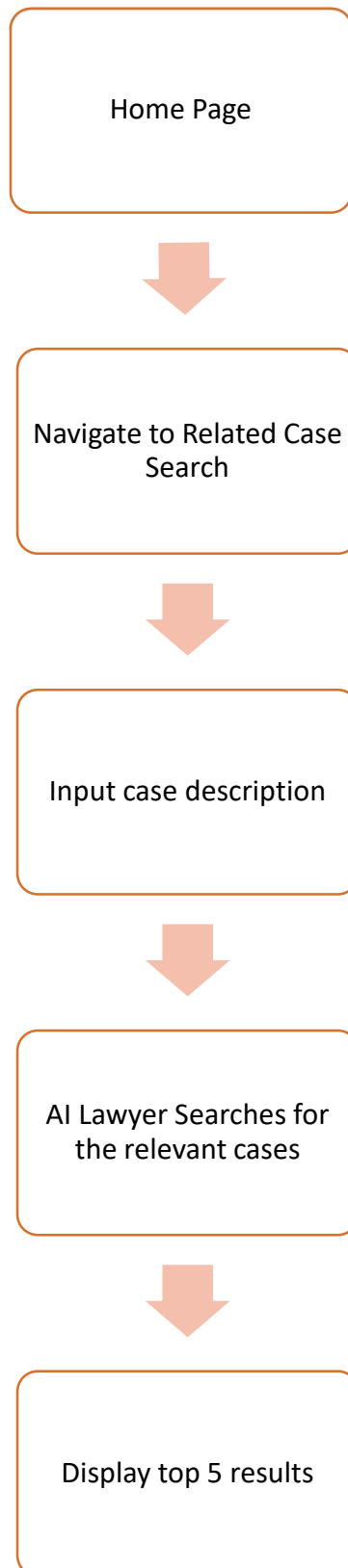
The screenshot shows the "Relevant Case Search" form. The navigation bar includes Home, Relevant Section Search, Related Case Search, Section Search, and Case Search. The form title is "Relevant Case Search". Below the title is a "Query" input field containing the text: "Someone trying to misrepresent me in social media and use my identity to mislead people and do frauds in my name." A blue "Submit" button is located at the bottom left of the form.

3. The AI lawyer then searches the database for relevant case details.
4. The screen displays the top 5 cases that are found to be relevant to the input description.

The screenshot shows the "Related Case Search Results" table. The navigation bar includes Home, Relevant Section Search, Related Case Search, Section Search, and Case Search. The table has two main sections, S.No. 1 and S.No. 2, each with a table of case details and a "Judgement" column containing a "View PDF" link.

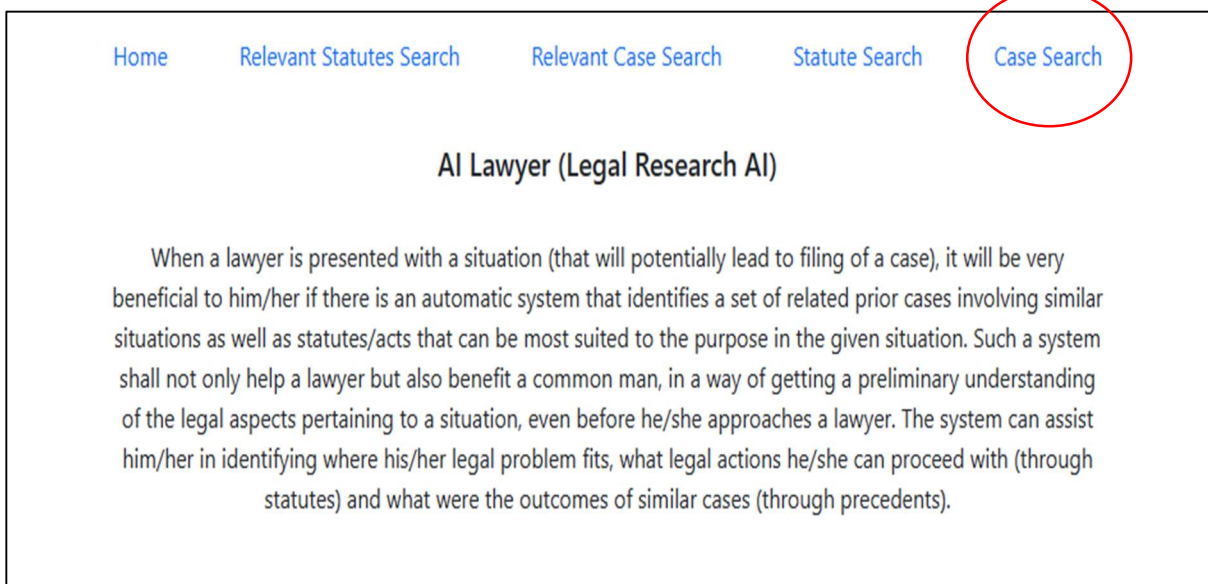
S.No.	Court	Case Number	Judgement
1	High Court of Karnataka	CRLP/3273/2017	View PDF
	CNR Number	KAHC010286542017	
	Title	DR MANJUNATHA Y C Vs STATE BY GULPET POLICE STATION	
	Date of Registration	11-04-2017	
	Date of Judgment	28-02-2023	
	Judgment By	R. NATARAJ	
	Nature of Disposal	ALLOWED	
2	Calcutta High Court	CRM (DB)/4614/2022	View PDF
	CNR Number	WBCHCA0579262022	
	Title	MD HOFFAIN @ MD HAFSAIN AND ORS V. STATE OF WEST BENGAL	

Related Case Search

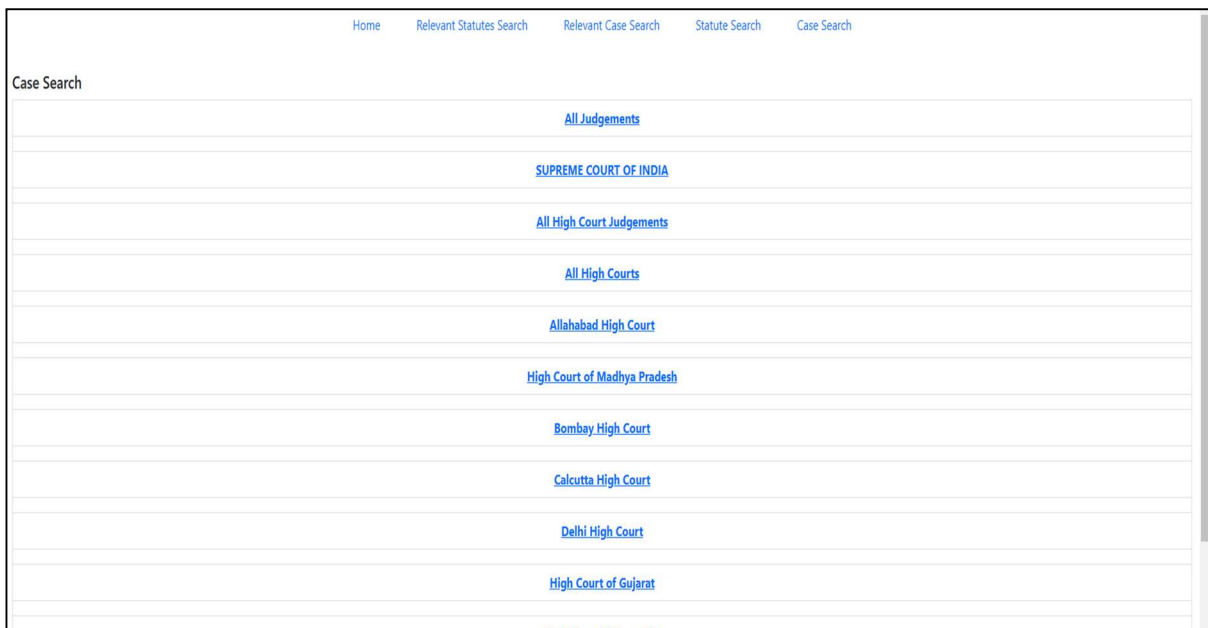


5.2.5 Searching for a particular case on official websites

1. Navigate to the “Case Search” page.



2. Visit the official website as per your choice and follow the search procedure there.



CHAPTER 6

TOOLS AND TECHNOLOGIES

6.1.1 Minimum Requirements for Running Application

- 1) 4GB of RAM
- 2) AMD or INTEL 64-bit processor
- 3) 1.5GB Hard Disk Space
- 4) Windows/Mac/Linux/Android Operating System
- 5) Python Interpreter

6.1.2 Minimum Requirements for Running Development Tools

- 1) Internet Connection
- 2) Windows/Mac/Linux/Android Operating System
- 3) 8GB of RAM
- 4) AMD or INTEL 64-bit processor
- 5) 1.5GB Hard Disk Space
- 6) Python Interpreter

6.1.3 Required 3rd Party Python Libraries for Running Development Tools

- 1) Flask
- 2) NLTK
- 3) Pandas
- 4) NumPy
- 5) PyPDF2

6.2.1 Python Platform:

Python is an open-source programming language that is widely used for a variety of applications such as web development, data analysis, machine learning, and automation. Python can be run on multiple platforms, including Windows, macOS, Linux, cloud platforms, and mobile platforms.

Python provides a rich set of libraries and frameworks that simplify the development process. These libraries and frameworks are designed to work seamlessly with the Python language, providing support for a wide range of functionalities such as data manipulation, machine learning, and web development.

Python also has a large and active community of developers who contribute to the development of the language and its associated tools. This community provides support through forums, mailing lists, and online resources, making it easy for new developers to get started with Python.

Python is known for its readability, ease of use, and simplicity. Its syntax is designed to be intuitive and expressive, making it easy for developers to write clean and concise code. Python is also highly scalable and can be used for small projects as well as large-scale applications.

In summary, Python is a powerful and flexible programming language that can be run on a variety of platforms, providing a rich set of libraries and frameworks for developing a wide range of applications. Its ease of use and simplicity make it a popular choice for both beginners and experienced developers.

6.2.2 Flask Framework:

Flask may be a small internet framework written in Python. it's classified as a microframework as a result of it doesn't need explicit tools or libraries. it's no information abstraction layer, type validation, or the other parts wherever pre-existing third-party libraries offer common functions. However, Flask supports extensions which will add application options as if they were enforced in Flask itself. Extensions exist for object-relational mappers, type validation, transfer handling, varied open authentication technologies and several other common framework connected tools.

6.2.3 Git and GitHub (For Version Control)-

GitHub is that the world's biggest community of open supply developers. it is a platform that encourages developers to figure along and communicate. GitHub encompasses a variety of helpful options that enable development groups to figure on identical project and simply produce new software package versions while not busybodied with recent ones, however it does not stop there. once new system advancements, as an example, square measure finished, they will simply be incorporated into existing applications. GitHub additionally makes it terribly simple to join forces on coders that power and end even the tiniest bits of the system.

You may work on comes with people from all round the world mistreatment GitHub.

6.2.4 NLTK:

NLTK stands for Natural Language Toolkit, which is a Python library for natural language processing (NLP). It provides a suite of tools and resources for processing and analyzing text data, including tasks such as tokenization, part-of-speech tagging, parsing, semantic analysis, and machine learning for NLP.

NLTK includes a wide range of corpora, lexicons, and other linguistic data that can be used for training and testing NLP models. It also includes a variety of pre-built NLP models for different languages, as well as algorithms and tools for building custom models.

NLTK is widely used in academia and industry for NLP research, education, and development. It has a large and active community of contributors and users, and is known for its ease of use and versatility.

CHAPTER 7

CONCLUSION AND EXPECTED FUTURE WORK

7.1 Conclusion :-

- 1) The Final conclusion of AI Lawyer is that, it provides us with the facility to Search the Law/act by entering the act no (IT ACT).
- 2) It provides us with the facility to Search the Related Cases by entering problem Query.
- 3) It provides us with the facility to Search the Related Articles/law by entering problem Description (query).
- 4) It provides us with the facility to Search the Case information by selecting the court.

7.2 Future Work :-

Future expansion of this application is possible. As of right now, our attention is on cases involving a specific act (IT ACT 2000). However, we will be able to add a number of new features to this application in the future.

7.2.1 Add other acts (Other Than IT Act) also:

This application may cover all constitutional provisions. This is today only limited to cyber laws or IT Act.

7.2.2 Add other cases data:

More data will produce more information to learn from and produce better results so more cases data will improve learning of AI model.

7.2.3 Design and use better AI Model:

The better model will have better efficiency and hence will produce better results, the better model will be trained on more data so the accuracy will also improve.

References

- [1] GitLab, "GitLab DevSecOps 2021 survey report - New Research On How Developers Work," [Online].
Available: https://learn.gitlab.com/c/2021-devsecops-report?x=u5RjB_
- [2] Python Software Foundation, "Python Docs," 2017 [Online].
Available: <https://www.python.org/doc/>
- [3] Indian government, "The Information Technology Act, 2000," [Online].
Available: https://www.indiacode.nic.in/handle/123456789/1999?view_type=bro_wse&sam_handle=123456789/1362
- [4] Arghya Mondal, "Impact of AI on Indian Legal System," 2020 [Online].
Available: <https://www.legalserviceindia.com/legal/article-10548-impact-of-artificial-intelligence-on-indian-legalsystem.html#:~:text=Accurate%20analysis%20of%20legal%20data,data%20efficiently%20within%20short%20period.>
- [5] H. Surden, "Artificial Intelligence and Law," 2016 [Online].
Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3411869
- [6] B. S. Dabass, "Scope of Artificial Intelligence in Law," 2018 [Online].
Available: <https://www.preprints.org/manuscript/201806.0474/v1>
- [7] Dr. Adv. Neeta Deshpande, "Critical Assessment of IT Act, 2000," [Online].
Available: <https://www.ijtsrd.com/papers/ijtsrd18693.pdf>
- [8] Steven Bird et al., "NLTK Docs," 2015 [Online].
Available: <https://buildmedia.readthedocs.org/media/pdf/nltk/latest/nltk.pdf>