



• Legal Act and IPC Section Prediction System Using Complaint Text Analysis

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PROJECT GUIDE

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ASSISTANT PROFESSOR

Overview

- Problem Statement & Descriptions – 1 slide
- Literature Review, Research Gap – 2 slides
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Problem Statement & Description

Background:

- Due to limited access to legal experts at police stations, law enforcement personnel often lack the knowledge to accurately apply legal sections and acts when drafting FIRs. These errors can result in delayed or flawed investigations, which ultimately impact justice.

Problem:

Navigating the complexities of the **Indian Penal Code (IPC)** is a challenge for most citizens, especially when seeking legal clarity in **regional languages**. The sheer volume and legal jargon make it difficult for individuals to access and understand relevant laws, leading to a **widespread gap in legal awareness** and hindering the effective use of legal rights.

Solution:

- To address this gap, our project leverages **AI-powered multilingual capabilities** to create an intuitive **Legal-AI Assistant**. This platform seamlessly processes **natural language complaints**, predicts **relevant IPC sections** through a **fine-tuned machine learning model**, and provides **automated summarization** and **translation** for simplified understanding. By transforming complex legal language into user-friendly, **context-aware responses**, our system bridges the gap between **legal knowledge** and **public accessibility**, empowering individuals to make informed legal decisions with confidence.

Literature/Existing Solutions Review

Sl. No	Title	Authors Affiliations	Journal Name / Year	Observations
1	Text Similarity Algorithms to Determine Indian Penal Code Sections for Offence Report	Ambrish Srivastav, Shaligram Prajapat	International Journal of Artificial Intelligence, Vol. 11, No. 1, March 2022	DSS using NLP and similarity metrics like TF-IDF, cosine similarity, and embeddings for IPC mapping.
2	LegalReasoner: A Multi-Stage Framework for Legal Judgment Prediction via Large Language Models and Knowledge Integration	Xuran Wang et al., University of Pennsylvania, Georgia Tech, UT Dallas	IEEE Access, 2023	Enhances judgment prediction using knowledge infusion, retrieval, and multi-hop reasoning, improving accuracy by 7.8%.
3	A Survey of Text Similarity Approaches	Wael H. Gomaa, Aly A. Fahmy	International Journal of Computer Applications, Volume 68 – No.13, April 2013	Covers traditional and modern methods for computing textual similarity using NLP and deep learning.
4	JusticeAI: A Multimodal System for Judicial Rulings in Smart Courts	Nagwan Abdel Samee et al.	IEEE Access, 2024	Uses CDKF architecture with ECHR dataset, achieving 83% accuracy in predicting court rulings.

Literature/Existing Solutions Review

Sl. No	Title	Authors / Affiliations	Journal Name / Year	Observations
5	A Novel Method of Indian Penal Code Section Classification for Offence Incident Report	Ambrish Srivastav, Shaligram Prajapat	IEEE Access,2022	Develops a new IPC corpus and uses hybrid NLP methods to improve IPC classification.
6	A Two-Stage NLP-Based Framework for Assessing Sentiments on Indian Supreme Court Judgments	Isha Gupta, Indranath Chatterjee, Neha Gupta	International Journal of Information Technology,2013	Uses LDA and sentiment analysis to assess public opinion on court judgments.
7	IPC Chatbot: A Chatbot for Indian Penal Code	Murugesan J, Dinesh M, et al.	IJCRT,2022	Provides IPC-related information using static CSV databases without true NLP or semantic translation.
8	Keyword-based Closed Domain Question Answering System for IPC Sections and Amendment Laws	Rohini P. Kamdi, Avinash J. Agrawal	International Journal of Intelligent Systems Technologies and Applications	QA system relying on structured queries; achieves 94% precision but lacks semantic depth.

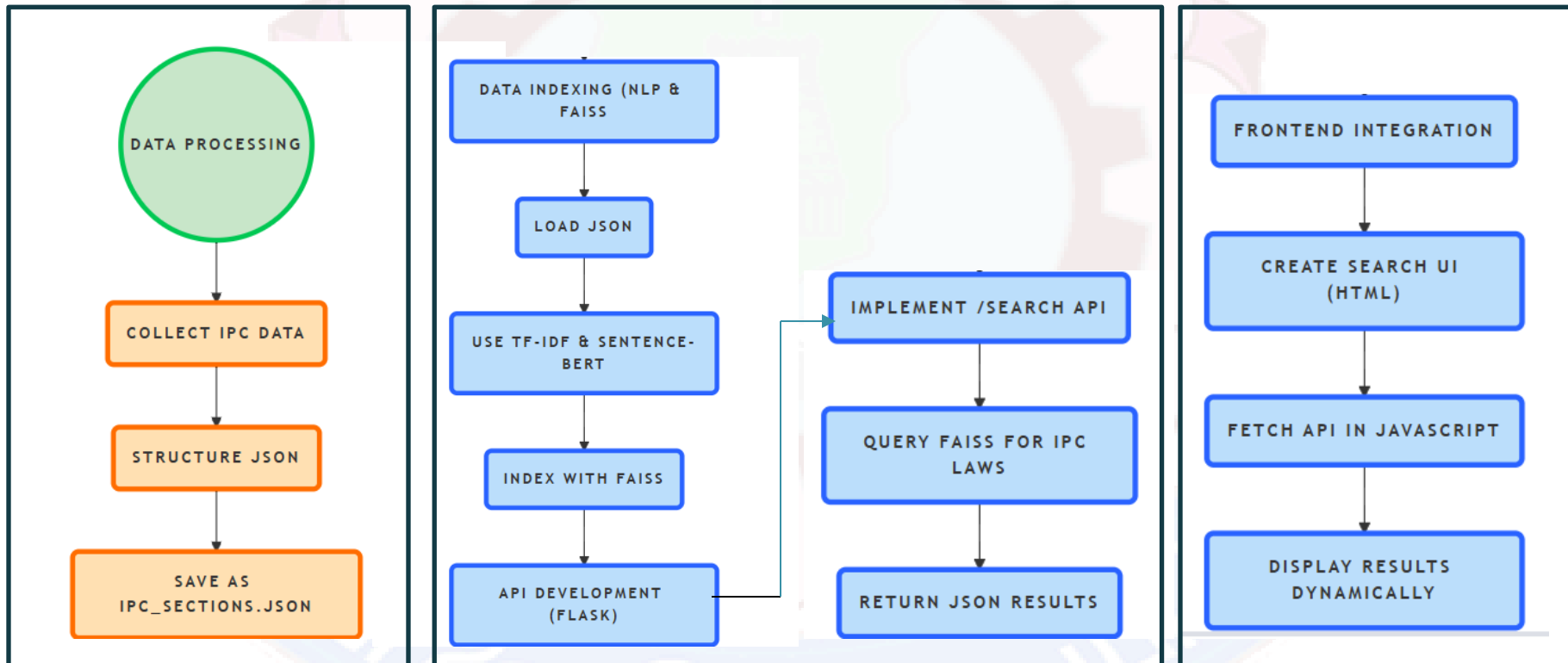
Research Gaps Identified

- Lack of fine-tuned AI models specifically for Indian Penal Code section prediction.
- Insufficient integration of multilingual translation in legal tools.
- Absence of real-time summarization and semantic understanding for public use.

Objectives

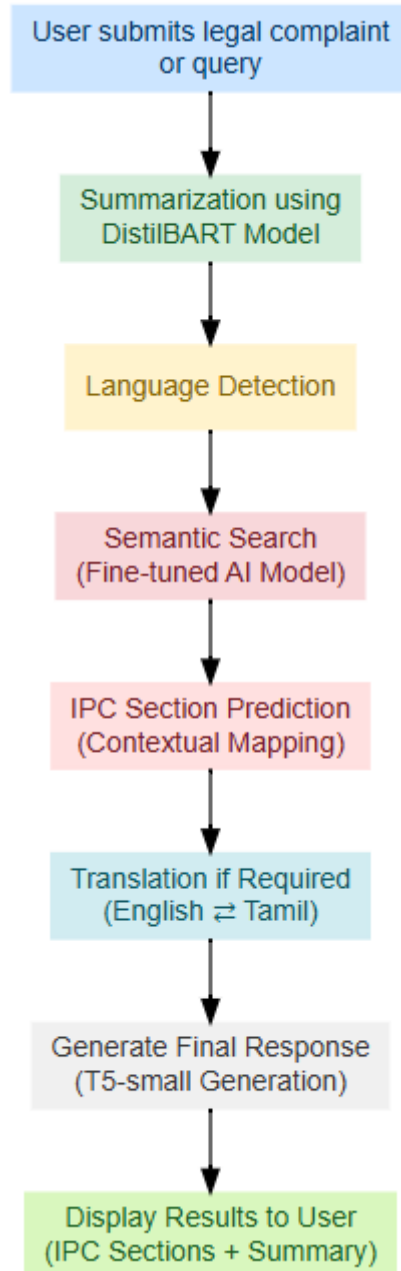
- To develop an **API endpoint** that efficiently processes **complaints** or **text inputs** and accurately returns relevant **IPC sections**, legal acts, and case laws, thereby enhancing the **speed** and **effectiveness** of FIR filing.
- To implement **bilingual functionality** in both **Tamil** and **English**, ensuring greater **accessibility** and **ease of use** for police personnel across diverse linguistic regions.
- To significantly improve the **accuracy** of the existing model and optimize the **system architecture** through the integration of **machine learning techniques**, delivering more **precise** and **reliable** legal recommendations.
- To enhance **legal knowledge accessibility** within police stations, particularly in regions with **limited legal expertise**, by providing access to everyone in requirement of legal assistance on FIR Drafting.

Design/ Diagram




Methodology/Modules

- Module 1: User Complaint Submission
- Module 2: Summarization using DistilBART
- Module 3: Language Detection
- Module 4: IPC Section Prediction (Fine-tuned AI)
- Module 5: Translation (NLLB-200)
- Module 6: Result Display




Results and Discussion

**Income Tax Department**
Government of India

Section - 1

INDIAN PENAL CODE
[45 OF 1860]
[AS AMENDED BY CRIMINAL LAW (AMENDMENT) ACT, 2013]
CHAPTER I
INTRODUCTION

Preamble.
Whereas it is expedient to provide a general Penal Code for India; it is enacted as follows:—
Title and extent of operation of the Code.
1. This Act shall be called the Indian Penal Code, and shall extend to the whole of India [***].

**Income Tax Department**
Government of India

Section - 2

Punishment of offences committed within India.
2. Every person shall be liable to punishment under this Code and not otherwise for every act or omission contrary to the provisions thereof, of which he shall be guilty within India.

Punishment of offences committed beyond, but which by law may be tried within, India.
3. Any person liable, by any Indian law, to be tried for an offence committed beyond India shall be dealt with according to the provisions of this Code for any act committed beyond India in the same manner as if such act had been committed within India.

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INDIAN PENAL CODE IN TEXT DOCUMENT

Results and Discussion

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  "Section": 1,
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  "Section": 2,
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},
{
```

DATA EXTRACTION INTO JSON DATASET from TEXT DOCUMENT

Results and Discussion

IPC Legal Assistant

Enter your legal complaint/story:

The case of the prosecution was that Musammat Sobha an old woman aged about 70 resided with her son-in-law Sattan Jadav and grandson Jugeshwar.", "She possessed about 3 1/2 to 4 bighas of land & she had given Jugeshwar on the occasion of his marriage about 1 1/2 bighas of land.", "The remaining lands were cultivated by Sattan on her behalf.", "The Appellant was not directly related to the old woman, but his wife was related to her, the latter being a sister of the maternal

Analyze IPC Sections

- Enter any Legal Query
- Click Analyse IPC Section

IPC CHATBOT

Abstract (Generated Summary)

Musammat Sobha an old woman aged about 70 resided with her son-in-law Sattan Jadav and grandson Jugeshwar . "The prosecution case was that early in the morning of the 11th December 1952 it was discovered that the old woman was dead. On dissection of the body the Civil Surgeon found a patch of echymosis, 3 .in diameter on the left side of the chest over the second and third intercostal space along the mammary line. The injury had caused a fracture of the third rib and the chest bone near it (sternum) attached to the third .

- The Query is summarized to provide an Abstract

Results and Discussion

Result (Top 5 IPC Sections)

Based on the summarized legal story, the top 5 most relevant sections of the Indian Penal Code (IPC) would likely be:

1. **Section 302:** Punishment for murder: This section deals with the culpable homicide resulting in death. If the prosecution can prove that Sattan Jadav or Jugeshwar caused the death of Musammat Sobha intentionally, with the knowledge that their act was likely to cause death, they would be charged under this section. The fractured rib and sternum suggest potential blunt force trauma, which could be evidence of a violent act leading to death.
2. **Section 304:** Punishment for culpable homicide not amounting to murder: If the prosecution can prove that the death was caused due to a rash or negligent act, without the intention to cause death, but with the knowledge that the act is likely to cause death, this section would apply. For example, if the injury was inflicted accidentally during a fight or due to severe negligence in handling the old woman.
3. **Section 304A:** Causing death by negligence: This section addresses situations where death is caused by negligence or rashness, but without any intention to cause harm. If the prosecution argues that the death was caused due to gross negligence in caring for the elderly woman, leading to her death, this section would be applicable. The context lacks sufficient information to determine if this applies.

4. **Section 323:** Punishment for voluntarily causing hurt: This section covers the infliction of simple hurt. The physical injury (fracture) clearly indicates hurt. This would be a lesser charge compared to murder or culpable homicide if the prosecution could not prove the intent to kill.

5. **Section 325:** Punishment for voluntarily causing grievous hurt: If the court deems the fracture of the rib and sternum to be grievous hurt (meaning it resulted in serious bodily injury), then this section would be a more serious charge than **Section 323**. This depends on the medical evidence presented demonstrating the extent and lasting impact of the injury.

Important Note: This analysis is based solely on the limited information provided. The actual charges would depend on a thorough investigation, medical evidence, witness testimonies, and the overall circumstances surrounding the death of Musammat Sobha. A proper legal determination requires a full examination of all evidence by a court of law.

TOP 5 IPC SECTION PREDICTION

Results and Discussion

IPC Legal Assistant

Enter your legal complaint/story:

பரிந்துரைக்கப்பட்ட வழக்கில் குற்றச்சாட்டு பின்வருமாறு உள்ளது: "மஸுமத்தோப் சோபா, சுமார் 70 வயதாக உள்ள முதியவர், தனது மாமியார் சத்தான் ஜாதவ் மற்றும் பேரன் ஜுகேஷ்வருடன் வசித்தார். அவள் 3 1/2 முதல் 4 பிகாஸ் நிலம் கொண்டிருந்தார். அதில் கிராமணக்கின் போது

Analyze IPC Sections

Abstract (Generated Summary)

பரிந்துரைக்கப்பட்ட வழக்கில் குற்றச்சாட்டு பின்வருமாறு உள்ளது: "மஸுமத்தோப் சோபா, சுமார் 70 வயதாக உள்ள முதியவர், தனது மாமியார் சத்தான் ஜாதவ் மற்றும் பேரன் ஜுகேஷ்வருடன் வசித்தார். அவள் 3 1/2 முதல் 4 பிகாஸ் நிலம் கொண்டிருந்தார், அதில் திருமணத்தின் போது ஜுகேஷ்வருக்கு 1 1/2 பிகாஸ் நிலம் அளித்திருந்தார். மீதமுள்ள நிலங்களை சத்தான் அவள் behalf க்காகக் கவனித்து விவசாயம் செய்தார்." "பரிந்துரைக்கப்பட்டவர் முதியவருக்கு நேரடியாக உறவானவர் அல்ல, ஆனால் அவன் மனைவி அந்த முதியவருடன் உறவுடையவள், அவளது மாமா பாட்டியின் சகோதரி அவனது மனைவியின் அம்மா." என்றாலும்,

Result (Top 5 IPC Sections)

வழக்கின் சுருக்கத்தின் அடிப்படையில், இந்திய தண்டனைச் சட்டத்தின் (IPC) பின்வரும் 5 பிரிவுகள் தொடர்புடையதாக இருக்கலாம்:

- 1. பிரிவு 302:** கொலை: இந்த பிரிவு, ஒருவரை கூர்மையாக கொன்றதற்கு ஆயுள் தண்டனை அல்லது மரண தண்டனை விதிக்கிறது. வழக்கின் விவரங்களில், முதியவர் மஸுமத்தோப் சோபாவுக்கு ஏற்பட்ட மார்பு காயங்கள் மற்றும் எலும்பு முறிவுகள் கடுமையான தாக்குதலால் ஏற்பட்டதாக மருத்துவ அறிக்கை குறிப்பிடுகிறது. இறப்புக்கு காரணமான காயங்களை பரிந்துரைக்கப்பட்டவர் ஏற்படுத்தியதாகவும் சந்தேகம் எழுந்துள்ளது. எனவே, இது கொலை குற்றச்சாட்டுக்கு தகுதியானதாக இருக்கலாம்.
- 2. பிரிவு 304:** தவறான கொலை: ஒருவரின் மரணத்தைத் தவறாக ஏற்படுத்தினால், இந்த பிரிவின் கீழ் குற்றம் சாட்டப்படும். இந்த வழக்கில், பரிந்துரைக்கப்பட்டவர் முதியவரை தாக்கியிருந்தால், அதன் விளைவாக அவர் இறந்திருந்தால், இது தவறான கொலை குற்றச்சாட்டாகக் கருதப்படலாம். ஆனால், இறப்பிற்கு நேரடி காரணம் நிச்சயமாக தெரியவில்லை எனவே இது கொலைக்கு விட குறைவான குற்றச்சாட்டாக இருக்கலாம்.
- 3. பிரிவு 406:** கேவலமான நம்பிக்கை மோசடி: ஒருவர் தன்னிடம் ஒப்படைக்கப்பட்ட சொத்தை நேர்மையற்ற முறையில் தக்கவைத்துக் கொண்டால், இந்த பிரிவின் கீழ் குற்றம் சாட்டப்படும். முதியவரின் நிலத்தை பரிந்துரைக்கப்பட்டவர்
- 4. பிரிவு 420:** மோசடி: ஒருவரை மோசடி செய்து பணம் அல்லது சொத்துக்களை பெற்றால், இந்த பிரிவின் கீழ் குற்றம் சாட்டப்படும். முதியவரின் நிலம் விற்பனை செய்தது மோசடி செய்ததன் விளைவாக இருந்தால், இந்த பிரிவின் கீழ் குற்றம் சாட்டப்படலாம். முதியவர் எளிய மனப்பான்மை கொண்டவர் என்று கூறப்படுவதால், அவரை மோசடி செய்திருக்கலாம் என்ற சந்தேகம் உள்ளது.
- 5. பிரிவு 201:** ஆதாரங்களை அழித்தல்: குற்றச் சம்பவத்தின் ஆதாரங்களை அழித்தால், இந்த பிரிவின் கீழ் குற்றம் சாட்டப்படும். பரிந்துரைக்கப்பட்டவர் கோபி துணியை வாங்கி வந்ததும், இறந்த உடலை சமாதானம் செய்ய விரும்பியதும் ஆதாரங்களை அழிக்கும் நோக்கத்துடன் இருக்கலாம் என்று சந்தேகிக்கப்படுகிறது.

இந்த ஐந்து பிரிவுகளும் வழக்கின் உண்மை தன்மையை பொறுத்து தீர்மானிக்கப்படும். மேலும் விசாரணைகள் மற்றும் ஆதாரங்கள் இந்த குற்றச்சாட்டுகளை உறுதிப்படுத்த அல்லது தள்ளுபடி செய்ய உதவும்.

Sustainable Development Goals

1. Primary SDG Aligned: SDG 16 – Peace, Justice, and Strong Institutions

“Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable institutions at all levels.”

16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



2. SDG 9 – Industry, Innovation, and Infrastructure

“Build resilient infrastructure, promote sustainable industrialization and foster innovation.”

→ We introduce AI innovation into the legal system, making justice technology accessible and scalable

Individual Contribution

Team Member-1

- Handled the **Natural Language Processing (NLP)** tasks for the project.
- Developed and integrated the **summarization model** using HuggingFace's distilbart-cnn-12-6.
- Implemented **language detection** using langdetect to correctly identify Tamil and English inputs.
- Contributed to dataset creation** by preparing sample prompts and expected Gemini outputs for training/testing

Team Member-2

- Focused on **fine-tuning the API integration** with Google Gemini AI.
- Designed and optimized the **prompt engineering** part to make Gemini generate accurate and contextually relevant IPC sections.
- Integrated and refined **frontend-backend communication** using Flask routes and templates to ensure smooth user interaction.
- Worked on **post-processing** of Gemini responses, including **highlighting sections** and **formatting** outputs for better readability.

Conclusions and Future Work:

Conclusion:

- Built a multilingual Legal-AI Assistant bridging public-legal knowledge gaps.
- Achieved accurate IPC prediction, summarization, and translation for user-friendly legal access.

Future Work:

- Enable voice input and output for accessibility.
- Expand coverage to more Indian regional languages.
- Integrate with verified legal aid organizations.
- Launch a mobile application for broader public reach.

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THANK YOU

வினாயே உயிர்