

PSCS_8 - "AI-powered Legal Assistant "

Batch Number: CSE - G39

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Name of the Program: CSE

Name of the HoD: Dr. Asif Mohammed H.B

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Problem Statement Number:

Organization: Presidency University

Category (Hardware / Software / Both) : Software

Problem Description: PSCS_8 - "AI-powered Legal Assistant"

Difficulty Level: Simple

Introduction

- This project presents a conversational legal assistant built with Python and NLP, hosted on Google Colab.
- Retrieval-based QA system provides accurate, real-time legal query responses.
- Built with ipywidgets, it offers a clean, interactive interface with real-time responses and structured answers.
- Reduces consultation time and cost, ideal for self-help, education, and pre-consultation.

Literature Survey

Paper Title	Authors	Findings	Drawbacks
AI-powered Legal Document Simplification	Rithik Raj Pandey et al	Uses GPT-3.5/4 for summarization, OCR for text extraction, and pattern recognition to identify clauses. Simplifies legal documents and supports chatbot integration.	Only works on public legal documents; may miss full legal context.
LLMs for Legal Drafting and Summarization	Awez Shaikh et al	Uses GPT and NLP for dynamic contract creation and summarization. Includes OCR and ensures customization with security.	May produce hallucinations and factual inaccuracies.
LawGPT 1.0 - Legal Assistant	Nguyen Ha Thanh	GPT-based multilingual legal assistant using transformers and attention mechanisms.	Not fine-tuned for legal specifics; lacks accuracy in complex queries.



Literature Survey

Paper Title	Authors	Findings	Drawbacks
AI for Contract Drafting and Document Automation	Imogen Vimala et al	Uses NLP and Collect.chat for chatbot-driven contract creation. Automates standard documentation tasks.	Limited to predefined formats; lacks legal reasoning capability.
Legal Document Simplification in India	G. Kiran Kumar et al	Uses OCR and NLP to simplify legal documents like PILs and affidavits, tailored for Indian legal context and languages.	Less effective with non-standard document formats.
ChatLaw: AI Legal Assistant	Jiaxi Cui et al	Applies RAG, and multi-agent system to simulate law firm environment and deliver legal answers.	High resource requirements; still prone to hallucination.
Legal LLMs and Challenges	Jinqi Lai et al	Reviews GPT, LawGPT, ChatLaw, and BERT in law; focuses on trust, interpretability, and risks.	Does not provide technical or implementable solutions.



Existing Method Drawback

- Poor-Quality and Biased Data.
- Wrong or Made-Up Answers.
- OCR Limitations.
- Privacy and Security Issues.
- Dataset Limitations.



Proposed Method

- **Purpose:** Develop an AI-powered Legal Assistant using a systematic approach for accuracy and efficiency.
- **Methodology:** Divided into 5 key stages:
 1. Data Gathering
 2. Preprocessing
 3. Model Development
 4. Document Retrieval
- **Functionality:** Understands legal terminology, extracts key information, and answers queries accurately.
- **Outcome:** Provides a reliable, context-aware tool for legal research and document management.



Proposed Method

1. Data Collection & Preprocessing

- Sources: Case laws, contracts, notices, public legal repositories
- Cleaning Steps: Remove special characters & formatting errors.

2. AI Model Development

- Embeddings via Hugging Face Transformers
- Dimensionality Reduction using PCA
- Similarity Search using FAISS + HNSW
- Conversational Retrieval

3. Document Retrieval

- Query Embedding → Similarity Matching
- Dynamic Filtering & Ranking : Relevance-based, Adaptive to user context

Objectives

Objective 1: Simplify Legal Language for Everyone

- Legal language is often too complex for non-lawyers.
- NLP will be used to convert legal terms into plain, everyday language.
- Helps individuals and small businesses understand rights, responsibilities, and contract terms clearly.

Objective 2: Improve Access to Affordable Legal Help

- Legal services are often costly and inaccessible.
- Helps reduce dependency on legal experts.
- Aims to equalize access to legal services.

Objective 3: Offer Interactive Legal Assistance via Chatbot

- Smart chatbot for legal queries and document requests
- Uses conversational AI and context-aware retrieval
- Assists in legal document creation like an intelligent assistant

Outcomes/ Results Obtained

- **Automated Legal Document Generation** – Generates plain-language legal response based on user input.
- **Improved Accessibility to Legal Resources** – Enables individuals and small businesses to create legal documents without legal expertise.
- **Time and Cost Savings** – Saves time and reduces legal expenses.
- **Integration with Legal Databases** – Aligns documents with current legal standards using public legal resources.



Outcomes/ Results Obtained

AI Legal Assistant

Your AI-Driven Legal Document Assistant

Ask

Chat History:

Clear History

AI Chatbot Interface

Outcomes/ Results Obtained

Welcome to AI Law Assistant! Type 'exit' to stop.

What is our Fundamental Duty as per the Constit

Clear History

User: What is our Fundamental Duty as per the Constitution of India?

Legal Assistant: - As per the Constitution of India, one of the Fundamental Duties of every citizen is to abide by the Constitution and respect its ideals and institutions, the National Flag, and the National Anthem. Additionally, it is the duty of every citizen to uphold and protect the sovereignty, unity, and integrity of India.

Chatbot responding to a legal query on fundamental rights



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Outcomes/ Results Obtained

AI Legal Assistant

Your AI-Driven Legal Document Assistant

Ask

Chat History:

User:

What is the most fundamental law in the Indian Constitution?

Legal Assistant:

- The most fundamental law in the Indian Constitution is the section on Fundamental Rights, which is detailed in Part III of the Constitution. These rights are considered essential for the development of the individual and the nation, and they include rights such as the right to equality, freedom, protection against discrimination, and the right to constitutional remedies, among others.

Clear History

Response to a query on Fundamental Law by the Assistant

Outcomes/ Results Obtained

AI Legal Assistant

Your AI-Driven Legal Document Assistant

Ask

Chat History:

User:

What are the Directive Principles of State Policy?

Legal Assistant:

- The Directive Principles of State Policy are guidelines or principles given to the federal institutes governing the state of India, to be kept in consideration while framing laws and policies. They are enshrined in Part IV of the Indian Constitution, from Articles 36 to
- These principles are not justiciable, meaning they are not enforceable by any court, but they are considered fundamental in the governance of the country, aiming to create social and economic conditions under which citizens can lead a good life. They are intended to ensure that the government acts in a manner that promotes the welfare of the people by securing and protecting a social order in which justice, social, economic, and political, shall inform all the institutions of national life.

Clear History

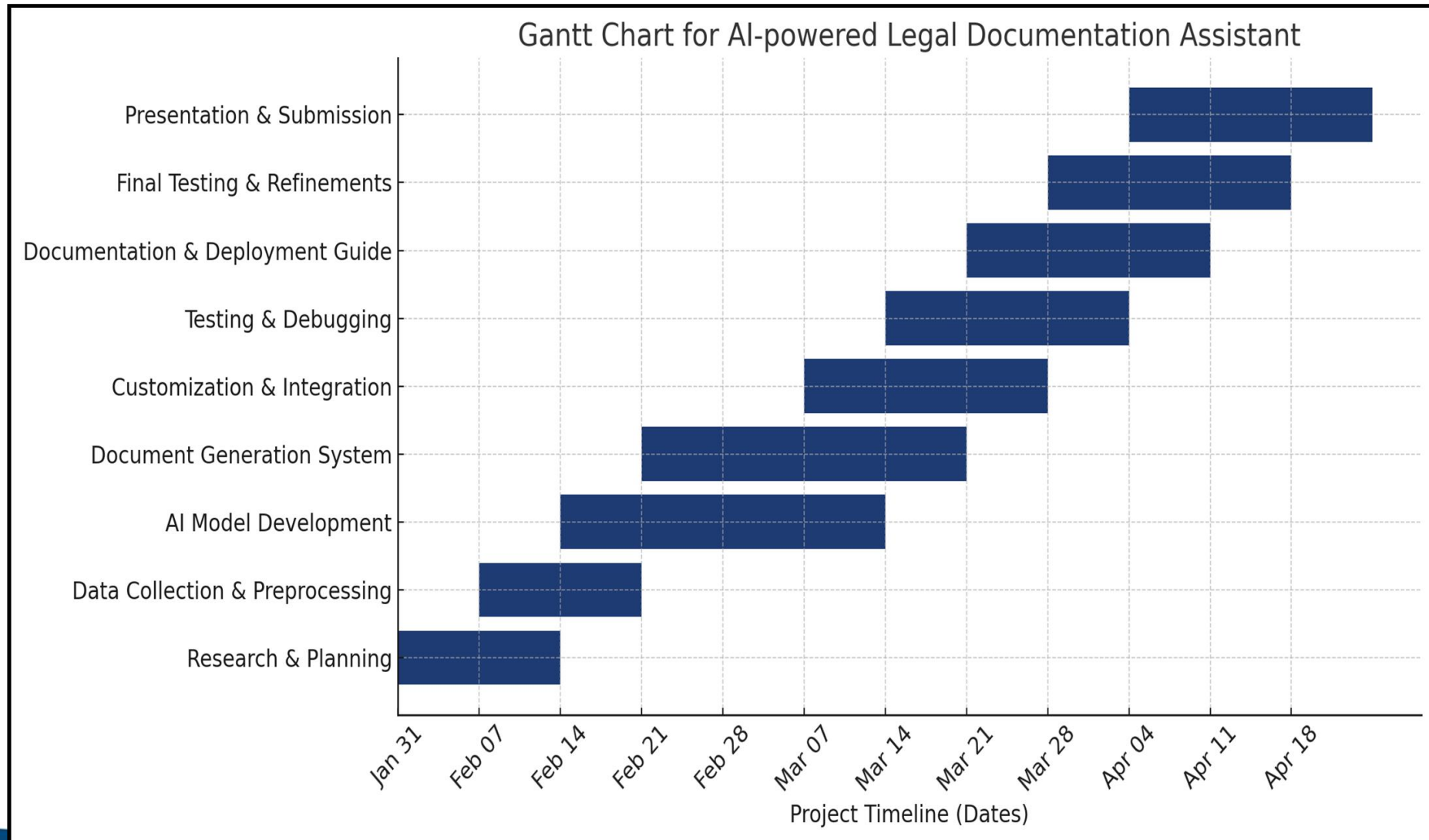
Response to a query on Directive Principles by the Assistant

Conclusion

- Simplifies legal drafting by generating accurate, easy-to-understand documents using NLP and machine learning.
- Designed for efficiency, usability, and compliance.
- Integrates with legal resources to stay aligned with legal standards.
- Reduces time, effort, and cost, improving legal access for individuals and small businesses in India.



Timeline of the Project (Gantt Chart)



GitHub Link

The GitHub link provided should have public access permission.

<https://github.com/vaishnavi-c-2025/AI-powered-Legal-Documentation-Assistant>



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Project work mapping with SDG



Project work mapping with SDG

1. SDG 16: Peace, Justice and Strong Institutions

Our project strengthens justice and legal institutions by making legal knowledge more accessible and understandable to the public. It empowers citizens to exercise their rights, understand legal procedures, and access justice digitally, especially those with limited resources.

2. SDG 10: Reduced Inequalities

By offering free and easy-to-use legal assistance, our project helps bridge the gap between those who can afford legal services and those who cannot. It reduces inequalities in access to justice and legal literacy, supporting inclusion and social equity.

3. SDG 9: Industry, Innovation and Infrastructure

Our AI-powered legal assistant introduces innovation in the legal sector, promoting digital transformation. It builds intelligent infrastructure for legal services and fosters growth in AI-driven legal tech solutions.

4. SDG 4: Quality Education

The project contributes to legal education by helping users learn about constitutional rights, laws, and legal terms. It supports lifelong learning and awareness, especially in academic and community learning environments.

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