

Bhasha Bandhu Hackathon

Innovating for a Multilingual Judiciary

Team/Individual Name: Nirnay

Team/Individual bio: 1. Srisha KS

2. Spandan Ray

3. Advikta K

4. Swatantra Tiwari

Date : 26-7-2025



BHASHA BANDHU

Innovating for a Multilingual Judiciary

Supported by  Microsoft



Problem Statement

“Limited awareness of digital legal platforms restricts access to justice in underserved areas.”

Problem: Legal resources are hard to access in rural & underserved areas.

People struggle to find legal help due to poor infrastructure and digital unawareness.

Challenges:

1. **Lack of awareness** – Many don't know about online legal tools.
2. **Language barriers** – Most legal content is in English, excluding non-English speakers.
3. **Complex documents** – Legal texts are technical and hard to understand.
4. **Limited legal aid** – Few lawyers are available in rural areas.
5. **Constant exploitation** – People get exploited as they don't know their rights.

Impact:

Citizens can't exercise their rights, leading to injustice and financial losses.

Here is an in depth review on literacy in Rural India by our team:

[here](#)









Solution

About Our Solution – Nirnay

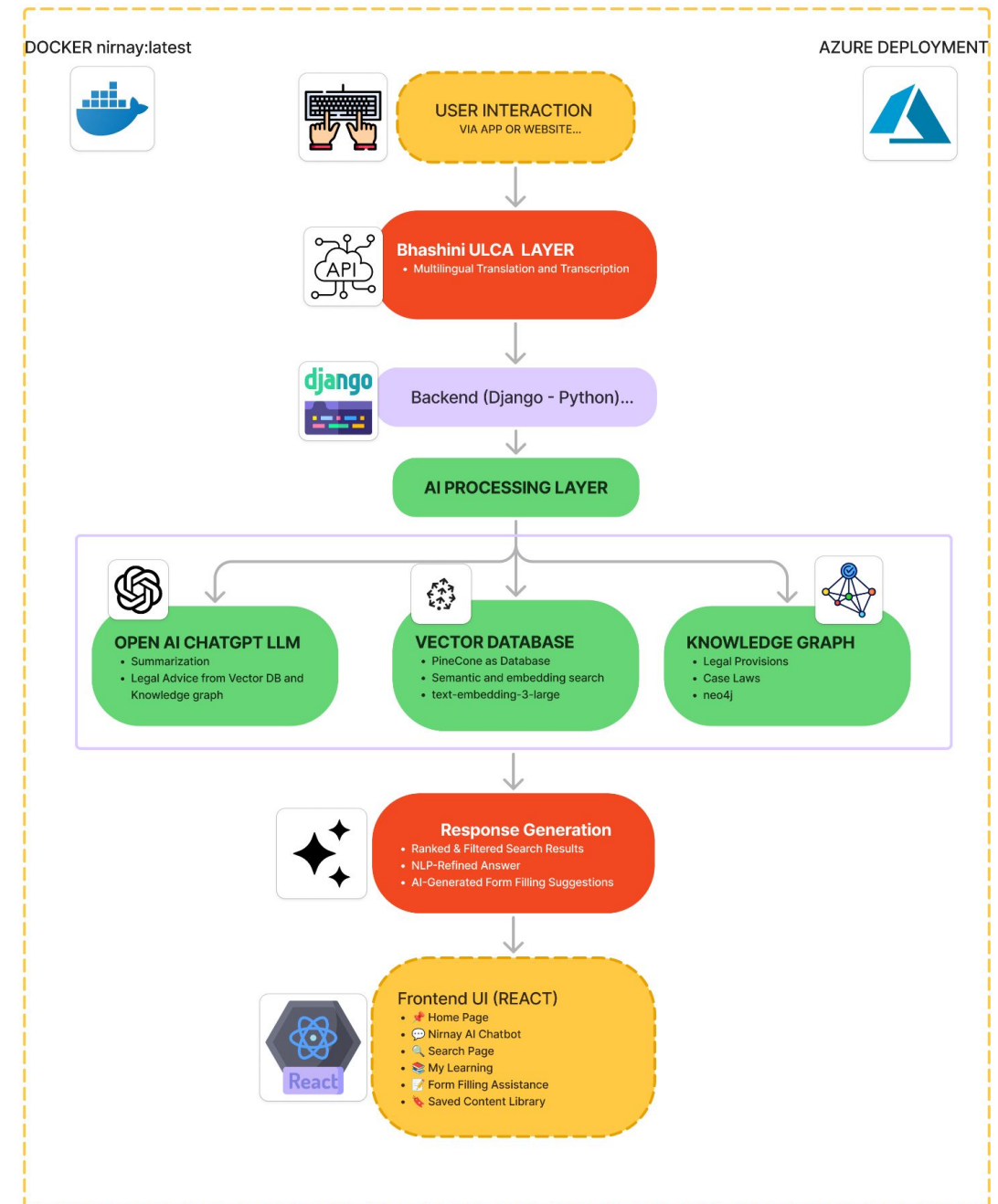
Nirnay is an **AI-powered multilingual legal platform** available as both a **website** and a **mobile app**. It provides **instant legal assistance**, **case search**, and **AI-driven bite-sized learning** to make legal knowledge accessible to everyone.

Key Features:

-  **Multilingual Support** : Accessible in multiple regional languages using **Bhashini API**.
-  **AI-Integrated Legal Aid** : Uses **OpenAI-powered chatbot (Nirnay AI)** to assist users with legal queries.
-  **Bite-Sized Learning** : AI-curated **quizzes and interactive lessons** for better legal awareness.
-  **Smart Legal Search** : AI-powered **search engine with Knowledge Graph & Vector DB** for fast, relevant results.
-  **AI-Assisted Form Filling** : Helps users fill complex legal forms using **natural language and speech input**.
-  **Offline Access & Saved Content** : Enables **local storage** for users in **network-prone areas**.

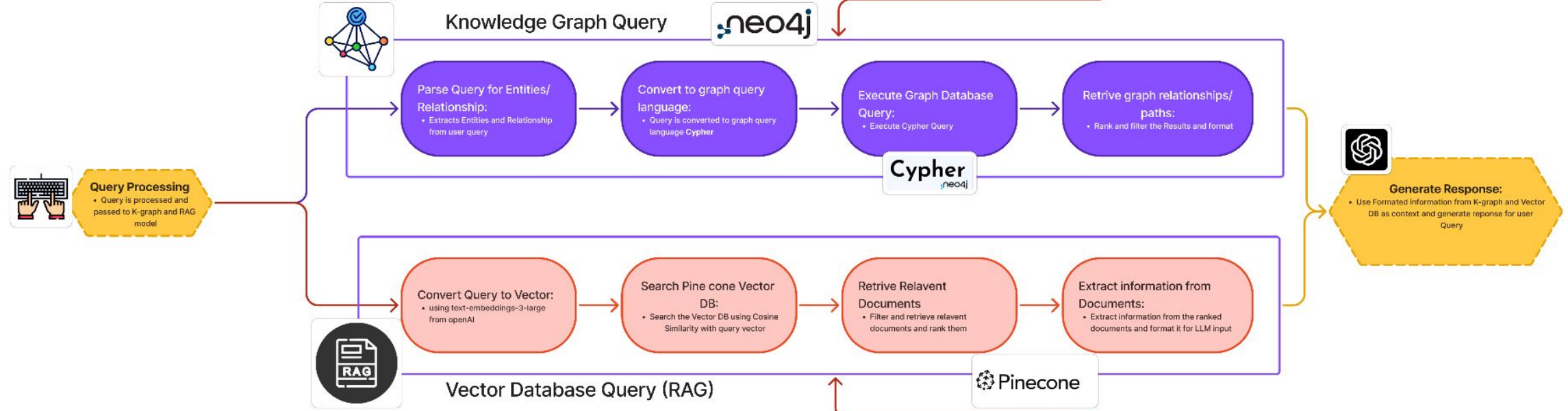
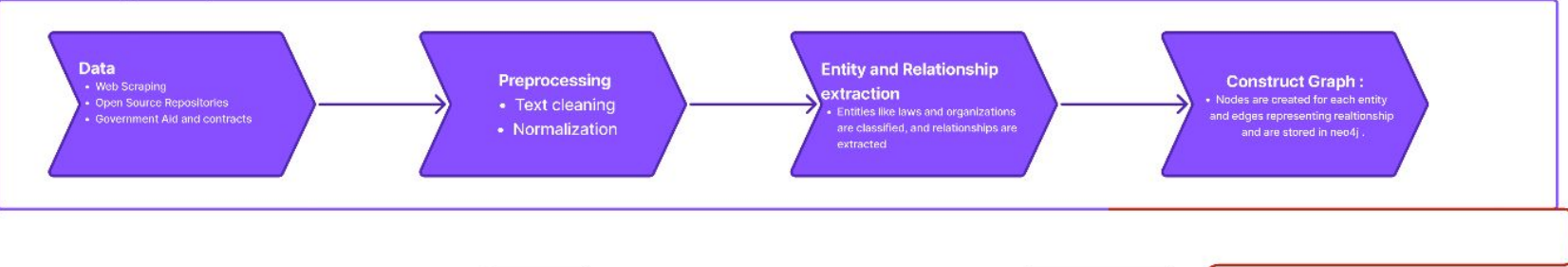
OUR PROTOTYPE : <https://nirnayai.onrender.com/>

GITHUB : <https://github.com/SpandyX007/nirnay.ai.git>

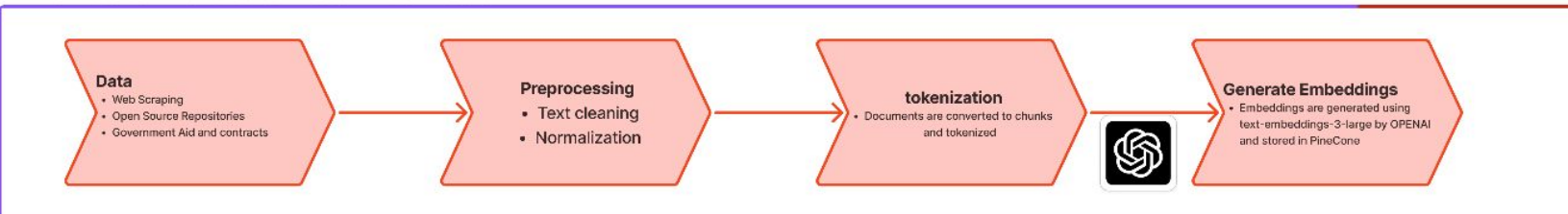


Nirnay AI

Knowledge Graph Data Initialization



RAG Vector Database Data Initialization



Use of Azure OpenAI & Bhashini API

Azure

- Utilized **Docker Containers** to run the platform, ensuring **scalability** and **efficient deployment**.
- These containers are deployed on **Azure Cloud Services** for **reliability** and **performance**.

OpenAI

- Integrated **ChatGPT** as the **LLM** to extract insights from the **Knowledge Graph** and **Vector Database** using **Retrieval-Augmented Generation (RAG)**.
- Leveraged **text-embeddings-3-large** by OpenAI to generate **high-quality embeddings** for both **data** and **query processing** in the RAG pipeline.

Bhashini API

- Implemented a **translation and transcription layer** to enhance **multilingual support**.
- Enabled **Speech-to-Text (STT)** and **Text-to-Speech (TTS)** capabilities for accessibility.
- Used **ULCA API keys** from **Bhashini** to achieve seamless **language translation** and **speech processing**.



Techstack/Technology Used

Backend

- **Django** – Core API & Business Logic
- **Django REST Framework** – API Development
- **PostgreSQL** – user details Database

Frontend

- **React**– UI & Client-Side Logic
- **Java** – Android Application

AI & APIs

- **OpenAI** – LLM & Embeddings (RAG)
- **Pinecone** – Vector Database
- **Neo4j** – Knowledge Graph
- **Bhashini API** – Translation & Speech (STT & TTS)

Libraries & Tools

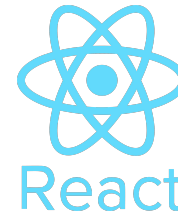
- **Cypher** – Neo4j Querying
- **PyTorch** – AI Processing
- **OpenAI** – API inference

Deployment

- **Docker** – Containerization
- **Azure** – Cloud Hosting & Scaling

django

{ **REST:API** }



Unique Selling Proposition

Unique Selling Propositions (USP):

1. **AI-Powered Legal Knowledge & Retrieval**
 - Seamless integration of **Vector DB (Pinecone)** and **Knowledge Graph (Neo4j)** for precise legal information retrieval using **RAG (Retrieval-Augmented Generation)**.
2. **Legal Aid Assistance via LLM Queries**
 - ChatGPT-powered system **analyzes user queries** and **suggests suitable legal aid**, including **lawyers, legal resources, and case precedents**.
3. **Offline Case & Learning Storage**
 - Enables **local storage of legal cases & learning material**, ensuring accessibility in **low-network or network-prone areas**.
4. **Multilingual & Voice-Powered Assistance**
 - **UI translation** into multiple languages and **speech-based interaction** using **Bhashini API (STT & TTS)**, making legal resources accessible to diverse users.

Business Potential

Business Model:

As a **rural development-focused** initiative, the platform prioritizes **social impact over profits** while maintaining sustainability.

Primary Business Model: Government Ad Revenue

- **Displaying government scheme ads** to inform rural users about **beneficial programs**.
- **Why this works:** There is a **strong correlation between our users and government scheme beneficiaries**, making ad placements **highly relevant and impactful**.
- **Beneficiary correlation:** Identifying and connecting eligible users with relevant government schemes.

Secondary Business Model: Lawyer Commission

- Charging a **commission from lawyers** who gain clients through the platform, ensuring accessibility to **legal aid while sustaining operations**.

ಧನ್ಯವಾದಗಳು
આભાર
પ્રત્યક્ષ
મન
ਨਹਿ
ਤੁਹਾਡਾ ਧੰਨਵਾਦ
धन्यवाद
Thank you
ਧੰਨ੍ਯਵਾਦਮੂਲੁ
धन्यवाद

