SMART INDIA HACKATHON 2025

InternSaathi
AI Recommender Engine for PM Internships

SMART INDIA HACKATHON 2025

TITLE PAGE

- **Problem Statement ID –SIH25034**
- **Statement Title- AI-Based Internship Recommendation Engine for PM Internship Scheme**
- **Theme- Smart Education**
- **PS Category- Software**
- **Team ID- NA**
- **Team Name- InternSaathi**

InternSaathi : AI Based Internship Recommendation Engine

InternSaathi
AI Recommender Engine for PM Internships

SMART INDIA HACKATHON 2025

Proposed Solution

- A web-based internship recommender platform that matches students to the most relevant internships using a lightweight TF-IDF + cosine similarity ML model.
- Users input skills, interests, location, and duration.
- System retrieves top 5 tailored internships from a curated database and displays them in a clean, multilingual UI.
- Optional account creation stores preferences for future recommendations and offline use.

How It Addresses the Problem

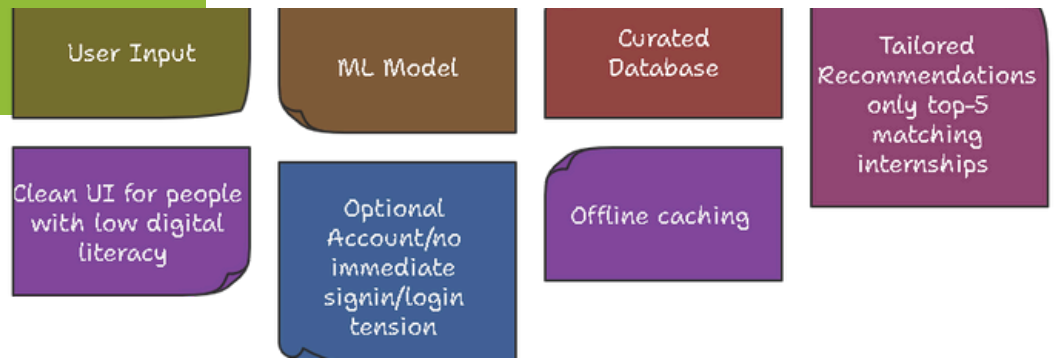
- Bridges the gap between students (especially in rural/low-connectivity areas) and quality internships.
- Runs efficiently on low-end devices and low-bandwidth networks, making it inclusive for all.
- Guided matching saves students' time and effort versus manual searching.
- Designed for low digital literacy users with simple UI, minimal text, and intuitive visual cues.
- Step-by-step video tutorial is provided in multiple languages to help first-time users navigate the platform easily.

Innovation & Uniqueness

- Lightweight + AI hybrid: combines simple rule-based filters with ML similarity for accuracy and speed (suggests only top-5 matching internships).
- Offline caching lets users access saved recommendations without internet.
- Multilingual support (7 Indian languages) for pan-India accessibility.
- Plug-and-play modular design enables integration into government portals like the PM Internship Portal.

Hers is video link for better understanding of proposed idea :
https://youtu.be/duoz7WoQN6M
Drive Link :
https://drive.google.com/file/d/1xjUL5arjgVFjzf-Q4PfOv80Dbg1TWQte/view?usp=sharing

Platform Features :



TECHNICAL APPROACH

SMART INDIA HACKATHON 2025

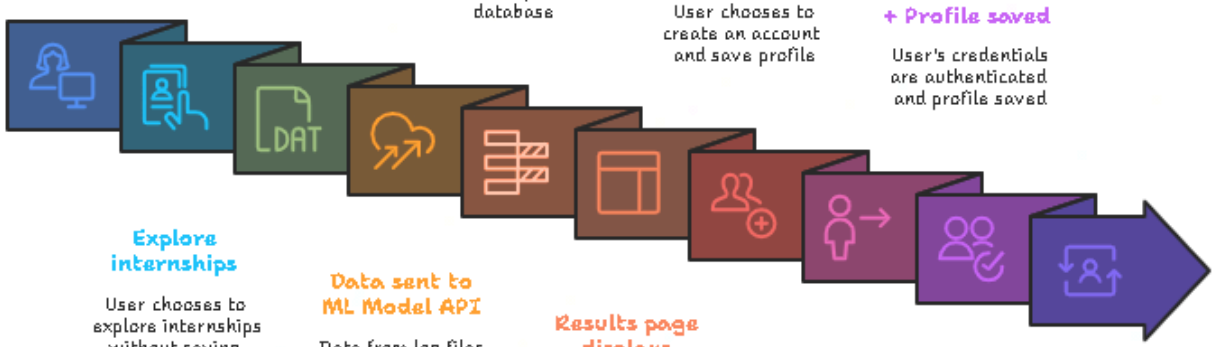
User opens main page
User accesses the platform through a browser

Inputs saved temporarily
User's search queries are stored in log files

ML Model fetches internships
ML model retrieves top 5 internships from database

Save profile
User chooses to create an account and save profile

User authentication + Profile saved
User's credentials are authenticated and profile saved



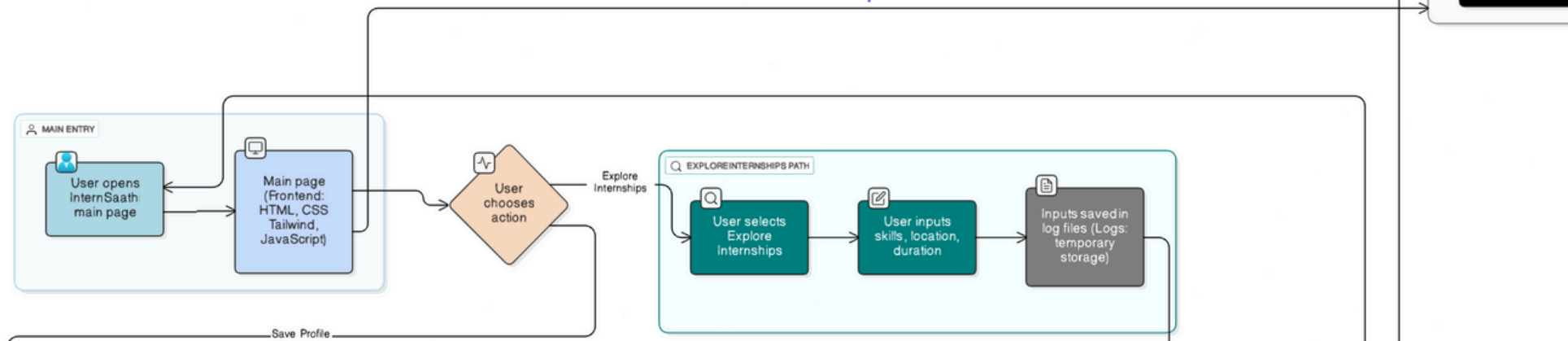
Explore internships
User chooses to explore internships without saving profile

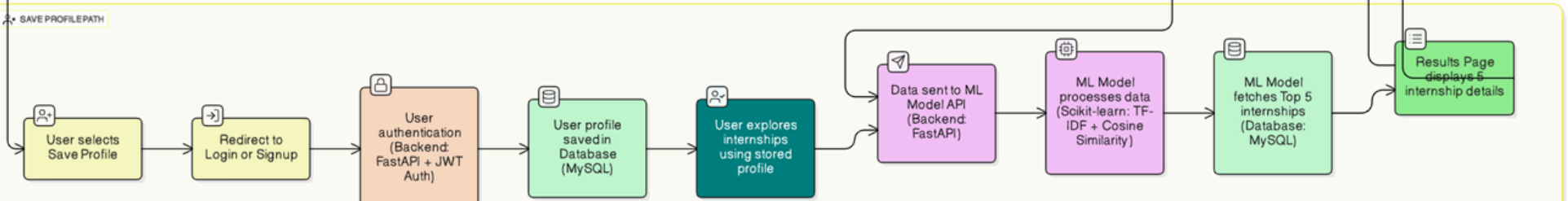
Data sent to ML Model API
Data from log files is sent to the ML model

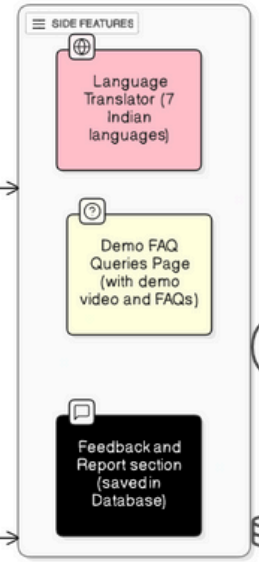
Results page displays internships
Top 5 internships are displayed on the results page

Redirect to login/signup
User is redirected to login/signup page

Explore internships using stored profile







Tech Stack

Authentication
JWT-based login/signup system

Database
MySQL with Python for data storage

ML Model
Recommendation system using Scikit learn

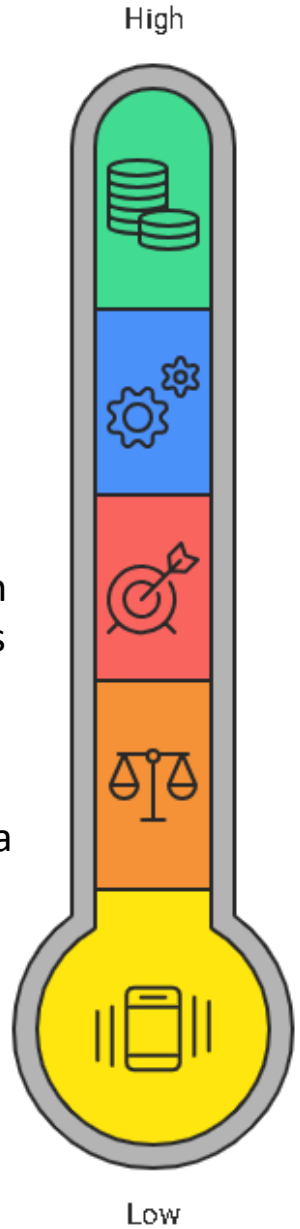
Backend
FastAPI framework for server-side logic

Frontend
HTML, CSS, JS for responsiveness

FEASIBILITY AND VIABILITY

Analysis of Feasibility:

- **Technological Feasibility:**
- The solution leverages lightweight rule-based / ML-light models, ensuring smooth operation on low-end mobile devices and low-bandwidth networks.
- **Regulatory Compliance:**
- Adheres to Digital India, Data Privacy, and Govt IT Guidelines. Stores only minimal user data (skills, education, location) with encryption, ensuring data security and sovereignty.
- **Market Viability:**
- With millions of students across rural and urban India seeking internships, the solution addresses a large-scale gap in guided opportunities.
- **Operational Flexibility:**
- Modular design allows easy integration into the existing PM Internship Portal without major infra changes. Can be extended later for scholarships, apprenticeships, skilling programs.
- **Economic Viability:**
- Minimal infra requirements → runs on basic cloud/server setup. Low maintenance overhead makes it cost-effective for government deployment at scale.



Viability

Minimal infrastructure reduces investment costs

Flexibility

Integrates easily into existing systems

Viability

Addresses gap in internship resources

Compliance

Adheres to Indian regulations and guidelines

Lightweight Models

Operates smoothly on low-end devices

Strategies for Overcoming Challenges:

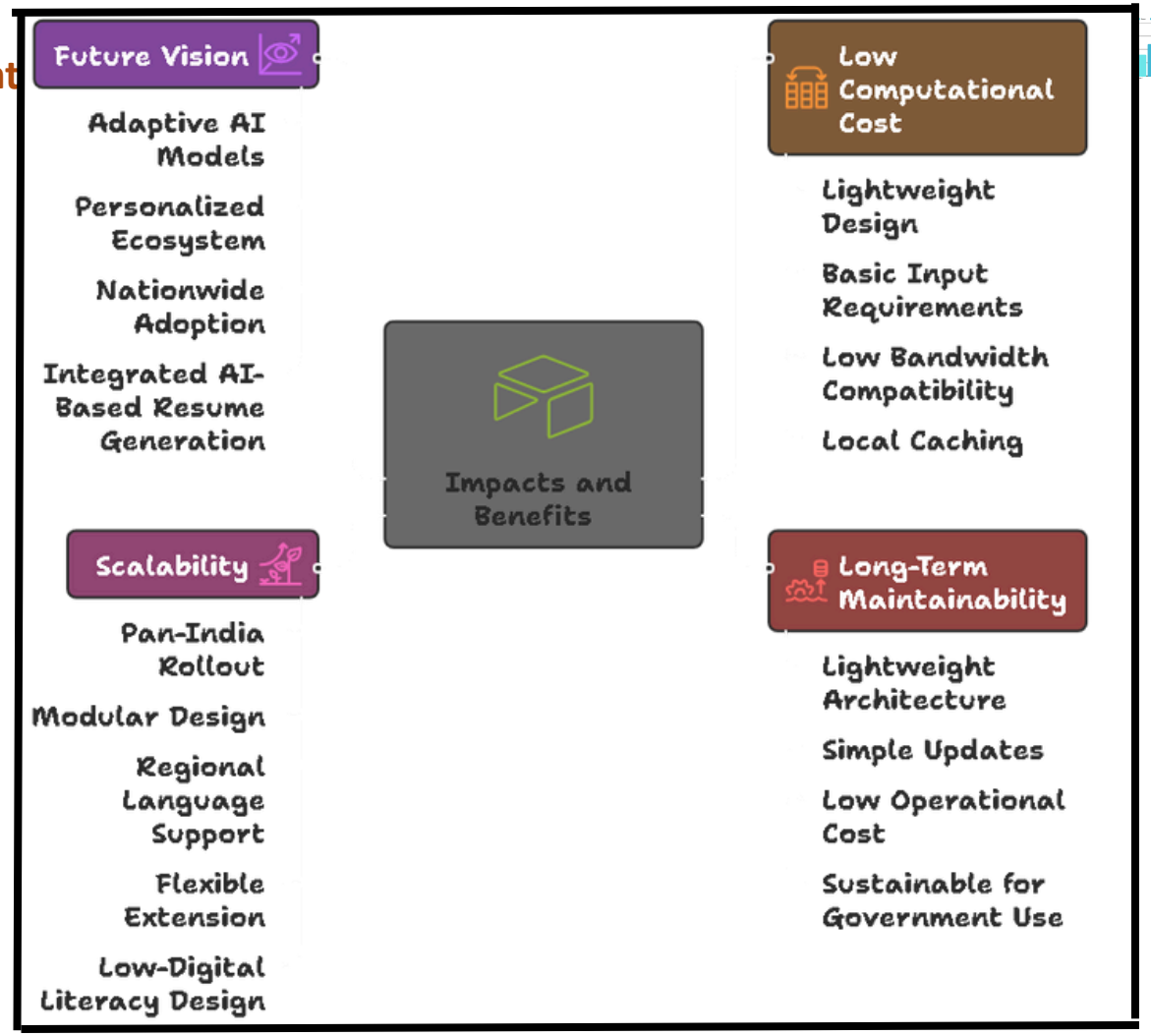
- **Offline Usability**: Local caching to store candidate preferences and recommendations for use in low-connectivity areas.
- **Regional Language Support:** Integrating multilingual UI/UX for pan-India accessibility.
- **Lightweight Algorithms**: Rule-based and ML-light models for recommendations, reducing compute load.
- **Scalability**: Cloud-ready microservice design for future nationwide adoption.
- **User Simplicity: Visual cards, icons, minimal text → easy for low-digital-literacy users.**

IMPACT AND BENEFITS

- **POTENTIAL IMPACT ON THE TARGET AUDIENCE:**

Sustainabillty :

- **Low Computational Cost** : **Lightweight , rule based machine learning design** ensures less computational cost .
- **Works in low bandwidth** , rural and tribal regions **since it only takes basic candidate inputs** (skills , education , location , interest) , **no heavy pdfs or large uploads are needed ,**
- **can use local caching** to store preferences and give results in low internet areas
- **Long-Term Maintainability with Minimal Resource Overhead :**
- **Light weight Architecture**
- **Simple Updates**
- **Low operational Cost**
- **Sustainable for Government Use**



Scalability :

- **Pan - India rollout** with modular design for easy integration into existing PM internship Scheme Portal .
- **Regional language support** for inclusivity and accessibility .
- **Flexible to extend to other schemes** (scholarships ,skilling)
- Designed for areas with **low - digital literacy .**

Future Vision:

- Transition to adaptive AI models that **improve with candidate feedback ,**
- Personalized ecosystem with **career guidance and skills-gap** analysis
- **Nationwide adoption** : empowering millions of first generation learners with better opportunities .
- **Integrated AI - based resume generation feature**

RESEARCH AND REFERENCES

- Ml model integration with FastAPI : https://www.google.co.in/url?sa=t&source=web&rct=j&opi=٨٩٩٧٨٤٤٩&url=https://medium.com/٪٤٠abhishekshaw٠٢٠/deploying-machine-learning-models-with-fastapi-٦٢f٨eda٦٤٩bf&ved=٢ahUKEwjs٥OaondaPAxWRyjgGHVdeBYcQFnoECB٤QAQ&usg=AOvVaw٢FEi٠an٦QoKDKKPv٨rv٦c٩
- FastAPI documentation : https://fastapi.tiangolo.com
- Machine Learning Fundamentals: Cosine Similarity and Cosine Distance : https://medium.com/geekculture/cosine-similarity-and-cosine-distance-٤٨eed٨٨٩a٥c٤
- Building An Internship Recommendation System — I (Introduction): https://medium.com/@ishannangia/building-an-internship-recommendation-system-i-introduction-٨ab٤٢٨١٣١٤٨٣
- Meeting the Needs of Migrants With Low Digital Literacy in New York City: https://medium.com/documentedny/meeting-the-needs-of-migrants-with-low-digital-literacy-in-new-york-city-١eb٣٠٧٩a١٤٢