CAPSTONE PROJECT

PMGSY INTELLIGENT CLASSIFICATION

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OUTLINE

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PROBLEM STATEMENT

The **Pradhan Mantri Gram Sadak Yojana (PMGSY)** is a flagship rural development program in India, aimed at providing all-weather road connectivity to unconnected rural habitations. Over time, PMGSY evolved into multiple schemes (PMGSY-I, PMGSY-II, RCPLWEA, etc.) with different objectives and funding mechanisms.

Manually classifying projects into their correct scheme is **time-consuming, error-prone, and not scalable.**

Proposed Solution: An AI-based system to automatically classify road/bridge projects into the correct PMGSY scheme based on **physical and financial features** using IBM Cloud Lite services.

TECHNOLOGY USED

- Flask (Web Interface for Predictions)
- **IBM Cloud Lite Services**
- Python
- Pandas, NumPy (Data Preprocessing)
- Scikit-learn (Machine Learning)
- IBM AutoAI (Automated Model Building & Deployment)

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model

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WOW FACTORS

- Fully automated **classification** of PMGSY projects with high accuracy
- **User-friendly web interface** for real-time predictions
- **Deployed on IBM Cloud** with an accessible API endpoint
- Eliminates manual classification errors
- Supports policy makers and planners with faster decision-making

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END USERS

- Ministry of Rural Development
- State Government Departments
- Infrastructure Planners
- Policy Analysts
- Data Science Teams in Government Projects

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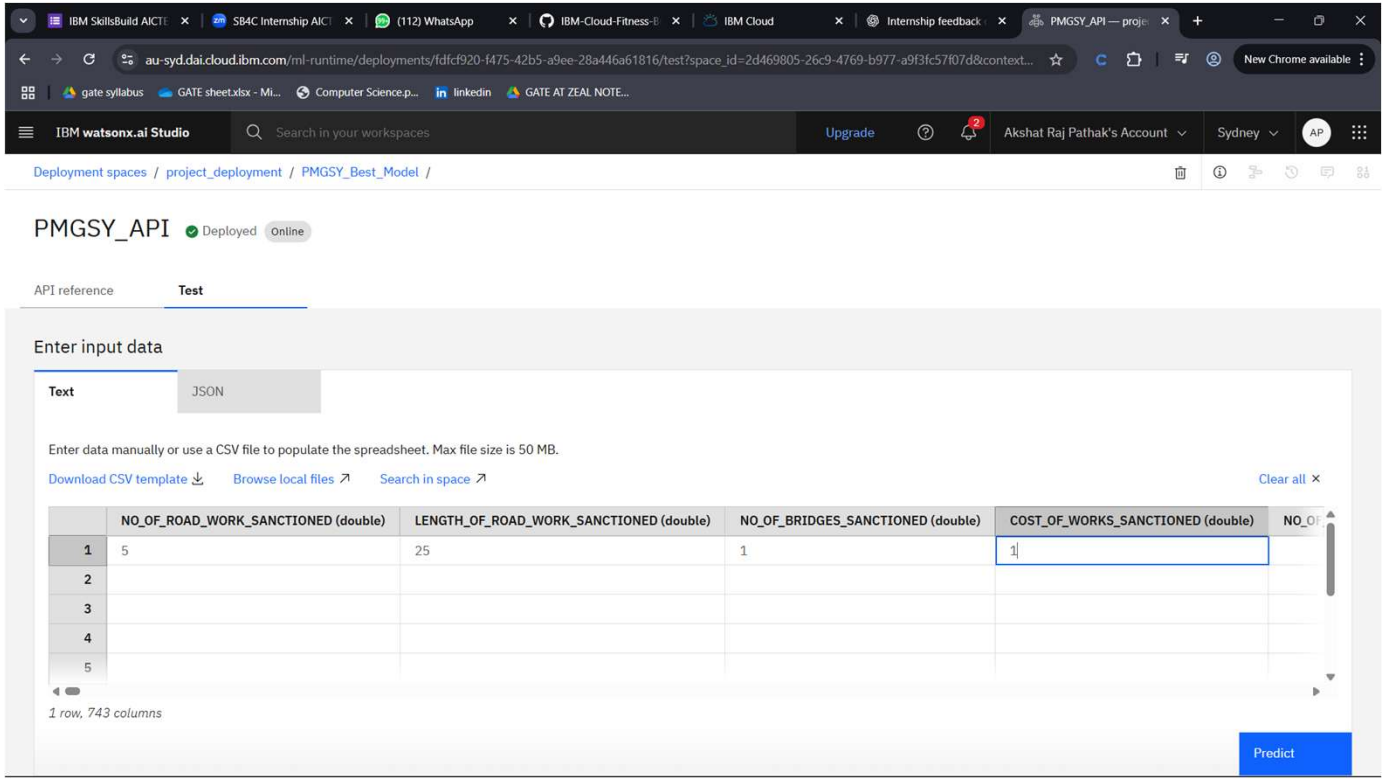
RESULTS



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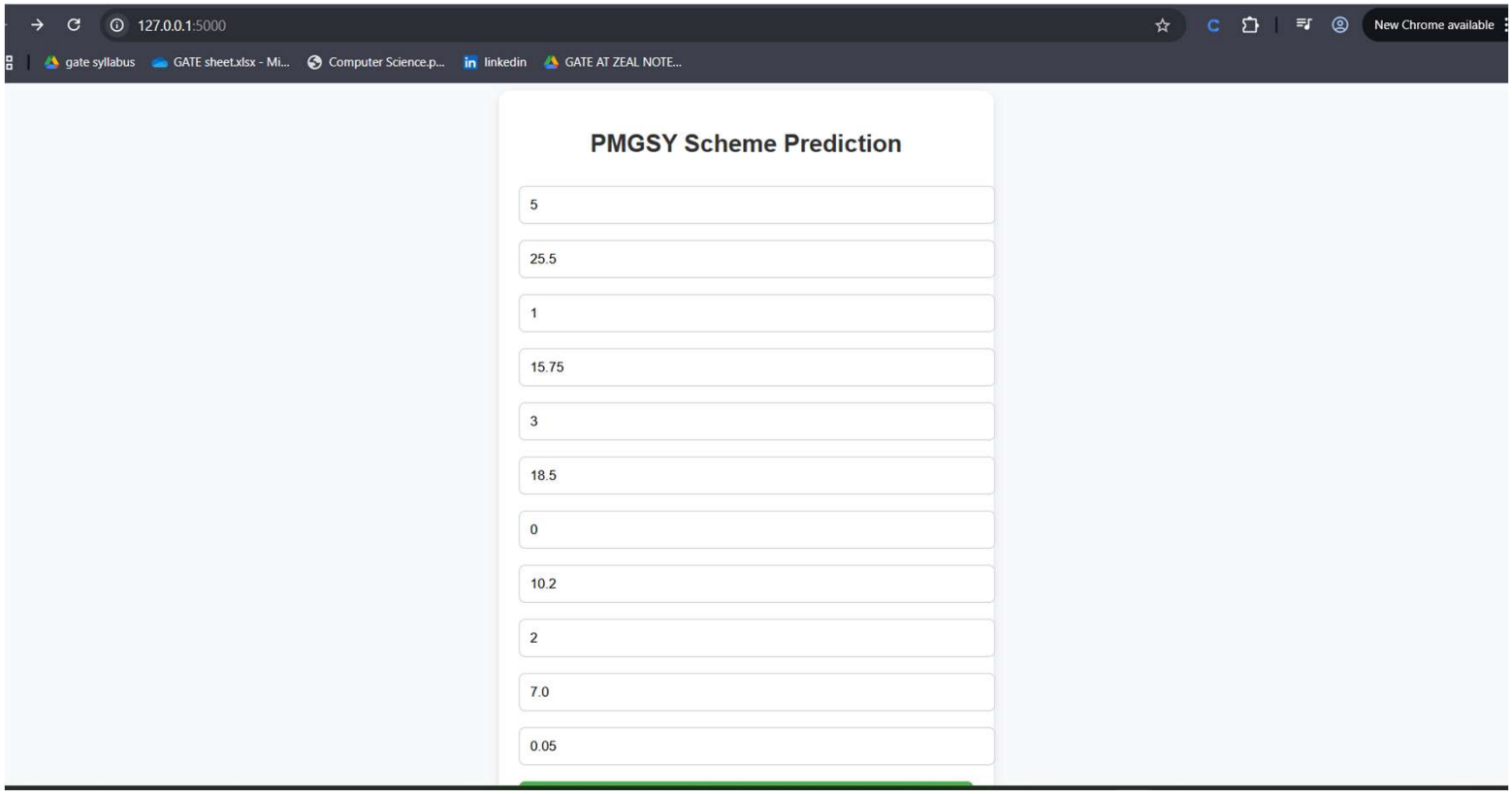
RESULTS



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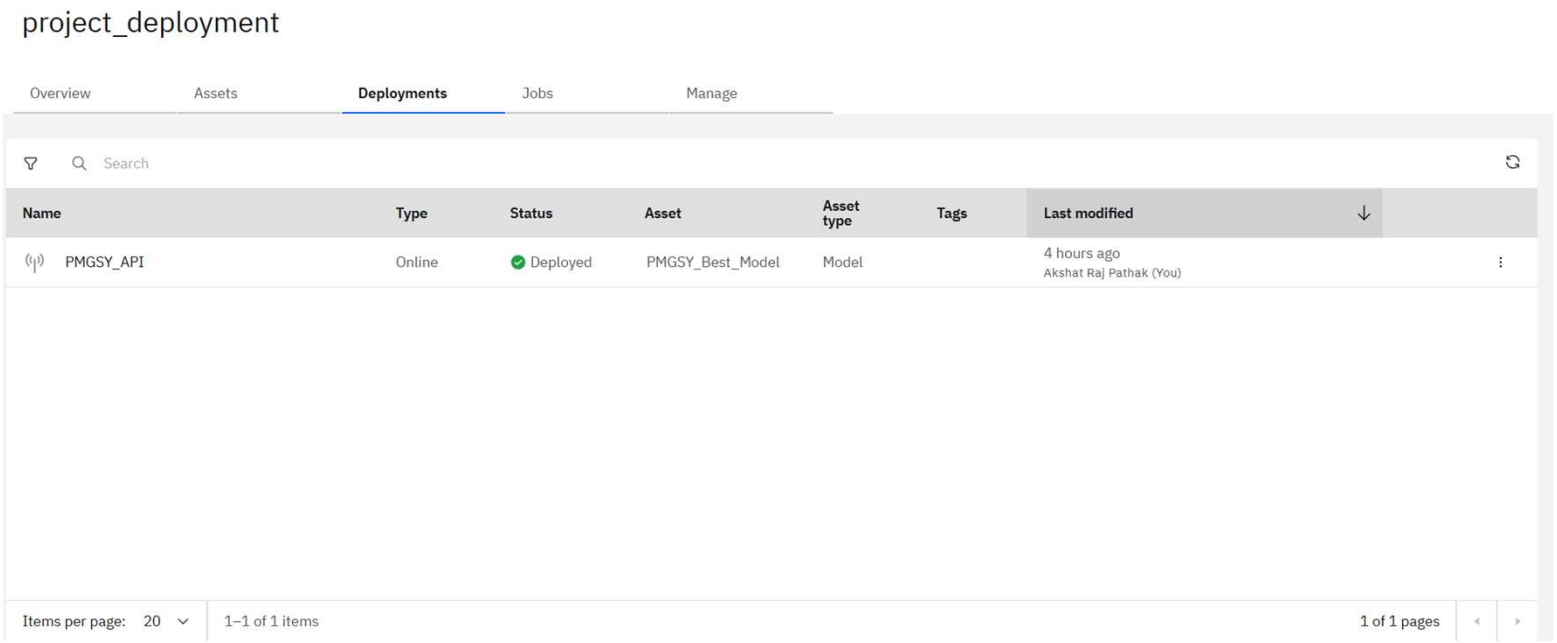
RESULTS



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CONCLUSION

- **Accuracy:** ~86
- Fully deployed on **IBM Cloud** as a public API endpoint
- Simple form interface built using **Flask** for predictions
- Reduced manual classification time drastically

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FUTURE SCOPE

- Integrate **Geospatial Data (GIS)** for more accurate classification
- Add **real-time data entry** from field engineers
- Deploy as a **mobile app** for on-site classification
- Integrate with Government dashboards for **policy analysis**

IBM CERTIFICATIONS

- S

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Akshat Raj Pathak

for the completion of

Getting Started with Artificial Intelligence

(PLAN-E624C2604060)

According to the Your Learning Builder - Plans system of record

Completion date: 17 Jul 2025 (GMT)

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IBM **SkillsBuild** Completion Certificate

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Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 17 Jul 2025 (GMT)

Learning hours: 20 mins

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GITHUB LINK

- https://github.com/akshatrajpathak/PMGSY

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THANK YOU

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