CAPSTONE PROJECT

IMPROVED SOURCE OF DRINKING WATER

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OUTLINE

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PROBLEM STATEMENT

- Access to safe and improved sources of drinking water remains a critical issue in India, especially in rural and underdeveloped regions. Despite ongoing efforts under the Sustainable Development Goals (SDGs), inequalities persist across states and socio-economic groups.

- This project analyzes data from the 78th Round of the Multiple Indicator Survey (MIS) to assess the percentage of the population with access to improved drinking water sources. It also explores related indicators such as use of clean cooking fuel and migration trends. By identifying patterns and disparities, this study provides insights for evidence-based policymaking.

PROPOSED SOLUTION

The solution leverages IBM Cloud Lite services to analyze and visualize patterns in water accessibility. Using MIS 78th Round data, it highlights regional and social disparities in access to improved water sources.

Key Features:

- Clean and process MIS survey data
- Identify low-access regions and at-risk groups
- Use IBM Watson Studio for analytics and dashboards
- Provide actionable insights for government and NGOs

SYSTEM APPROACH

Technologies Used:

- IBM Cloud Object Storage to store MIS dataset
- IBM Watson Studio analysis
- Python libraries for visualization

Development Steps:

- Data upload and storage in IBM Cloud
- Cleaning and preprocessing using Python
- Analysis of key indicators like water source,region
- Visualization and insights generation

ALGORITHM & DEPLOYMENT

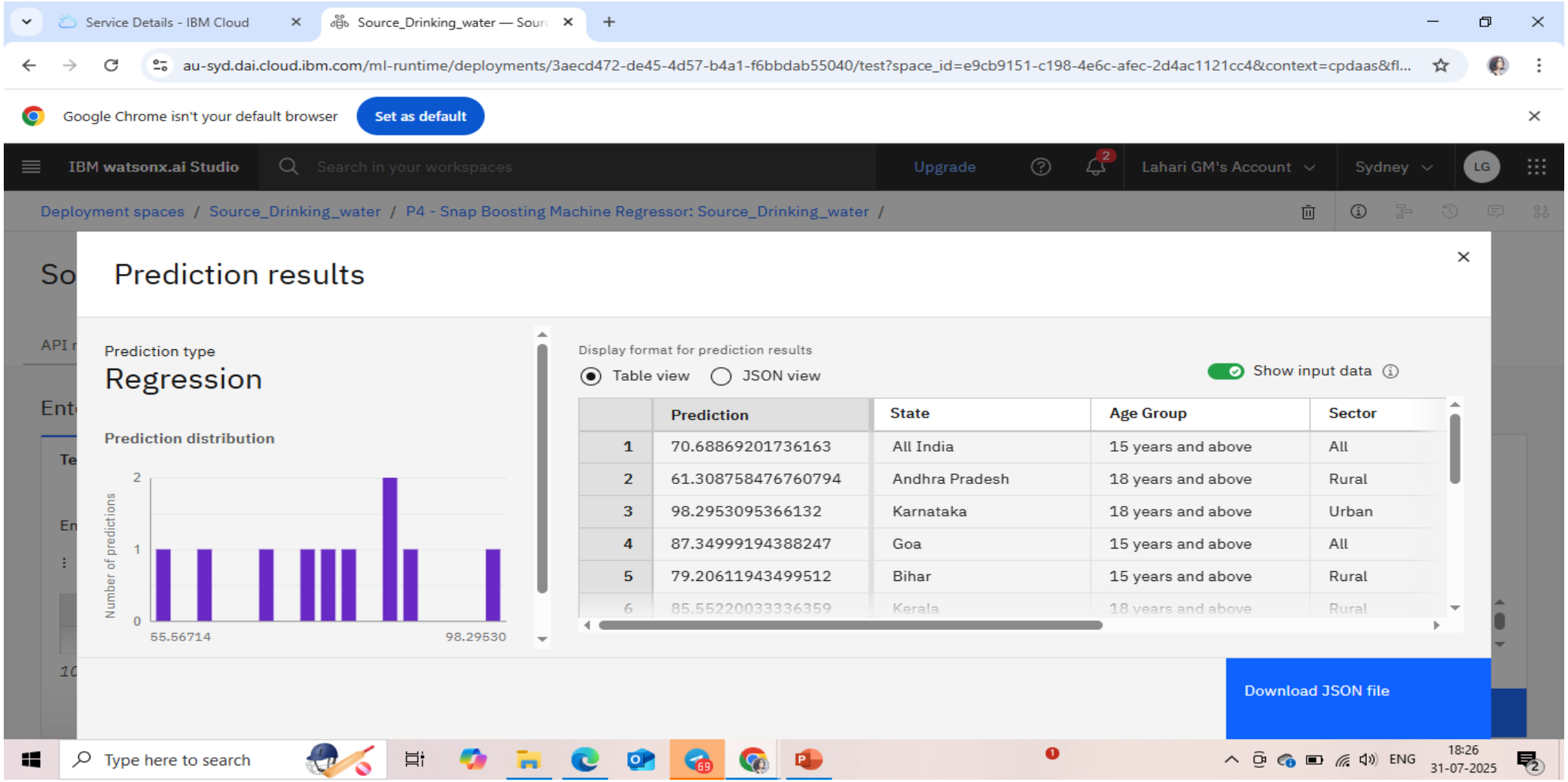
Algorithm:

- Grouping and summarization of MIS data based on water source
- Comparative analysis across rural vs urban, gender, income, caste

Deployment:

- Notebook created in IBM Watson Studio
- Visuals and reports generated using built-in visualization tools
- Final output shared in screenshot format in pdf

RESULT



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IBM watsonx.ai Studio | Search in your workspaces | Upgrade | Lahari GM's Account | Sydney

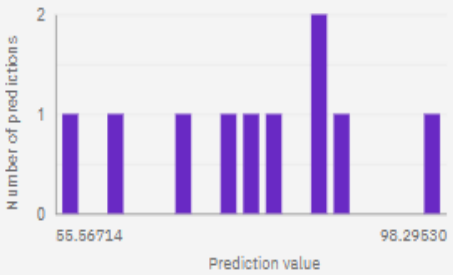
Deployment spaces / Source_Drinking_water / P4 - Snap Boosting Machine Regressor: Source_Drinking_water /

Prediction results

Prediction type

Regression

Prediction distribution



Display format for prediction results

(•) Table view ( ) JSON view

Show input data

	Prediction
1	70.68869201736163
2	61.308758476760794
3	98.2953095366132
4	87.34999194388247
5	79.20611943499512
6	85.55220033336359
7	74.33629221928909
8	89.9106060018203
9	55.56714426144191
10	80.77499740192663
11	
12	

Download JSON file

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CONCLUSION

- This study revealed significant disparities in access to improved drinking water sources, especially in rural and economically weaker regions.

- Using IBM Cloud tools ensured reliable data handling and insightful visualization. These findings can aid stakeholders in addressing water accessibility gaps and achieving SDG goals.

FUTURE SCOPE

- Include data from future MIS rounds for trend analysis
- Integrate real-time monitoring data (IoT sensors, remote sensing)
- Expand to other SDG-related indicators like sanitation
- Collaborate with local governments for field validation

REFERENCES

- Multiple Indicator Survey (78th Round) – AI Kosh Dataset
- Sustainable Development Goals (SDG 6) – UN Data
- IBM Cloud Documentation
- Python for data analysis

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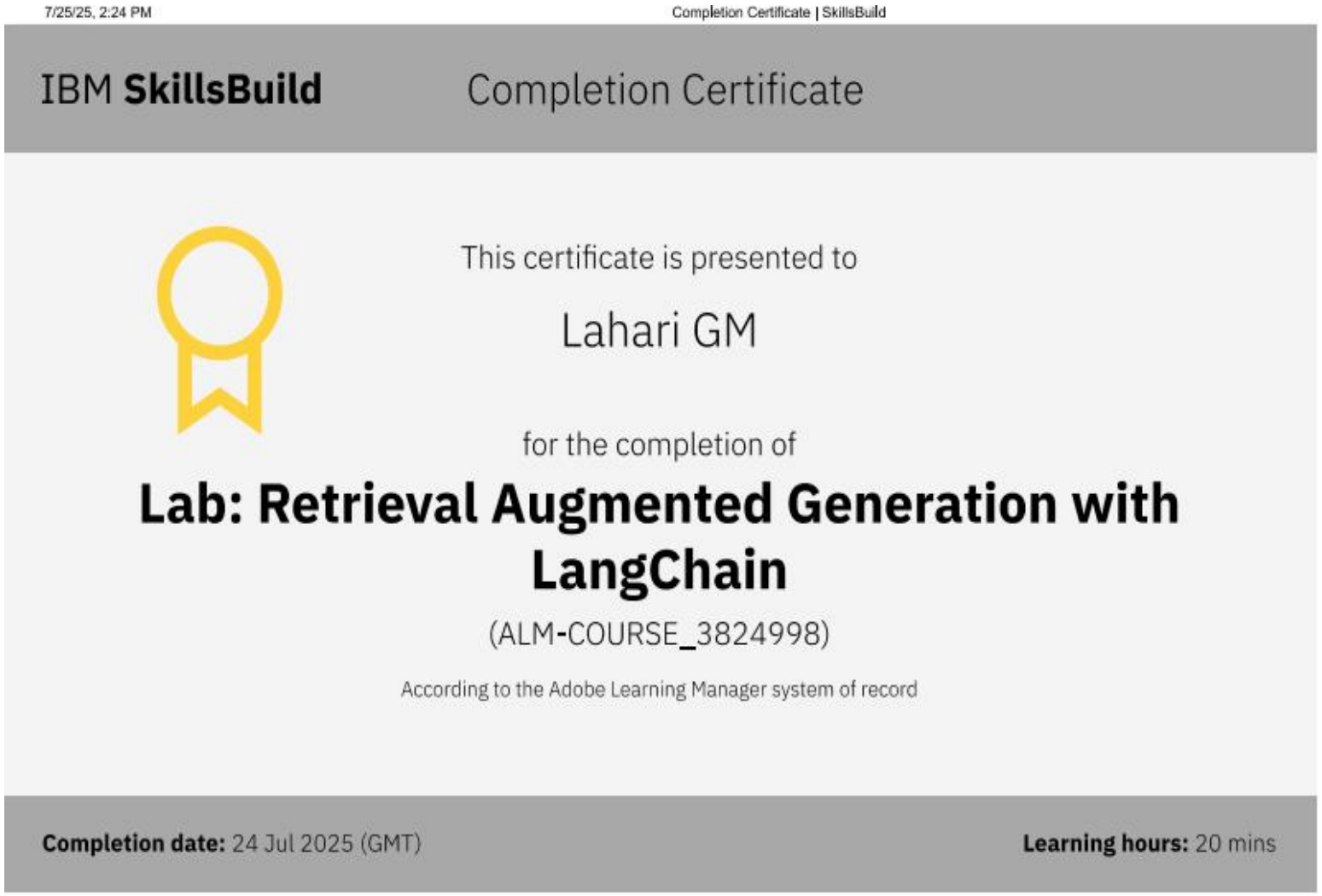

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THANK YOU

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