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# IBM SKILLSBUILD PROJECT NSAP ELIGIBILITY PREDICTION

**Presented By:**

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# OUTLINE

- Problem Statement
- Proposed System/Solution
- System Development Approach
- Algorithm & Deployment
- Result
- Conclusion
- Future Scope
- References

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# PROBLEM STATEMENT

To develop an AI-powered prediction system that identifies the most suitable NSAP welfare scheme for individuals based on their demographic and socio-economic attributes. The system should assist government bodies in efficiently mapping beneficiaries to appropriate schemes.

# PROPOSED SOLUTION

The proposed system leverages IBM Watson x Auto AI to automate the classification of beneficiaries under the National Social Assistance Program (NSAP). By analyzing demographic and regional data such as state, district, and gender statistics, the model predicts the most suitable NSAP scheme (scheme code) for each case

## Key Components:

### ■ Data Collection:

Historical NSAP beneficiary data is sourced from open government platforms like data.gov.in.

### ■ Data Preprocessing:

Auto AI handles missing values, encodes categorical variables, and selects relevant features.

### ■ Model Building:

Multiple machine learning models are auto-generated and evaluated. The best one is selected based on accuracy and performance.

### ■ Deployment:

The trained model is deployed as an API using IBM Watson Machine Learning, allowing real-time predictions.

### ■ Interface:

Users can input new data through the Auto AI UI or REST API to receive instant scheme Recommendations.

### ■ Result:

This solution reduces manual effort, improves consistency, and offers a scalable approach to support public welfare distribution using AI.

# SYSTEM APPROACH

The system uses IBM Watson x Auto AI to build an end-to-end machine learning pipeline with minimal manual intervention. Historical NSAP data is uploaded to IBM Cloud Object Storage, where Auto AI handles data preprocessing tasks like feature selection, encoding, and splitting.

Multiple model pipelines are generated and evaluated automatically. The best-performing model (e.g., Random Forest) is selected and deployed using IBM Watson Machine Learning (WML). The deployed model is accessed through a test UI or API, enabling real-time predictions based on user input.

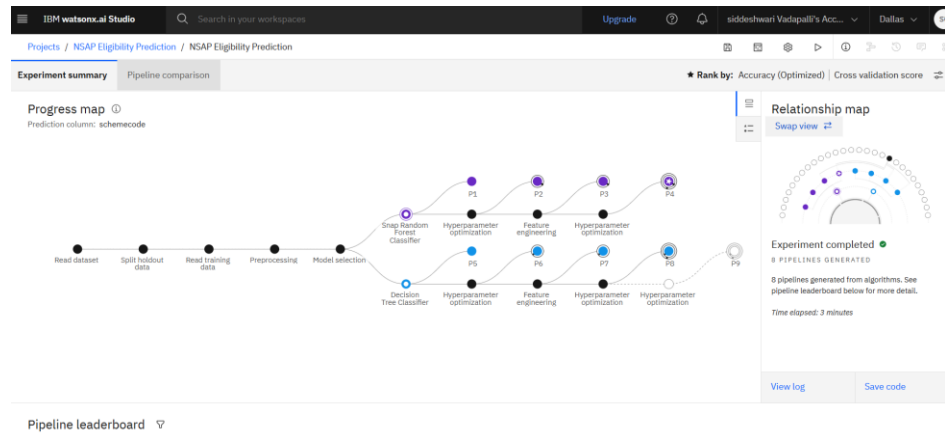
This approach ensures accuracy, scalability, and ease of deployment using a low-code, cloud-native platform

# ALGORITHM & DEPLOYMENT

- In the Algorithm section, describe the machine learning algorithm chosen for predicting bike counts. Here's an example structure for this section:
- **Algorithm Selection:**
  - Provide a brief overview of the chosen algorithm (e.g., time-series forecasting model, like ARIMA or LSTM) and justify its selection based on the problem statement and data characteristics.
- **Data Input:**
  - Specify the input features used by the algorithm, such as historical bike rental data, weather conditions, day of the week, and any other relevant factors.
- **Training Process:**
  - Explain how the algorithm is trained using historical data. Highlight any specific considerations or techniques employed, such as cross-validation or hyperparameter tuning.
- **Prediction Process:**
  - Detail how the trained algorithm makes predictions for future bike counts. Discuss any real-time data inputs considered during the prediction phase.

# RESULT

## AutoAI Pipeline



## Test Data Input

Deployment spaces / NSAP Eligibility Prediction / P4 - Snap Random Forest Classifier: NSAP Eligibility Prediction /

### NSAP Eligibility Prediction

Deployed Online

API reference Test

#### Enter input data

Text JSON

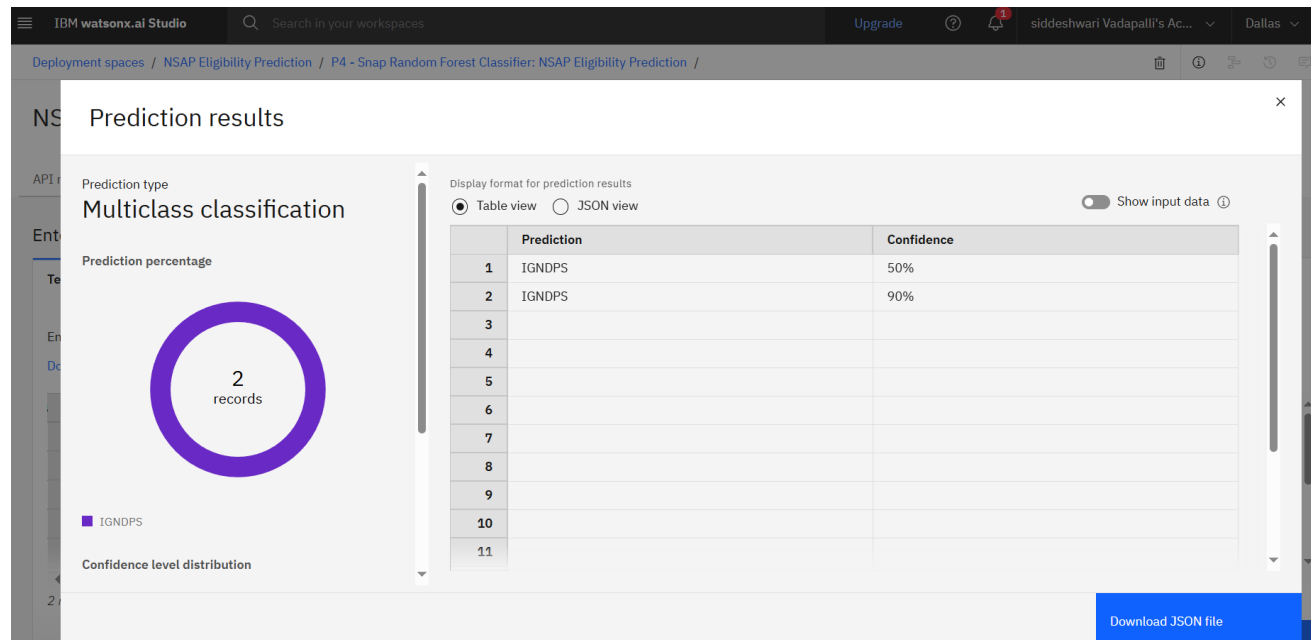
Enter data manually or use a CSV file to populate the spreadsheet. Max file size is 50 MB.

[Download CSV template](#) [Browse local files](#) [Search in space](#) [Clear all](#)

	fnyear (other)	lgdstatcode (double)	statename (other)	lgddistrictcode (double)	districtname (other)	totalbeneficiaries (double)	totalmale (double)	totalfemale (double)
1	2025	2	karnataka	567	Bidhar	45	36	36
2	2025	1	MANIPUR	245	THOUBAL	78	27	10
3								
4								
5								

2 rows, 15 columns

Predict



## Prediction Results

# CONCLUSION

The NSAP Eligibility Prediction system successfully demonstrates how AI and automated machine learning can be applied to streamline public welfare decision-making.

By using IBM Auto AI, the project achieves:

- Accurate classification of beneficiaries into the correct NSAP scheme based on input demographics.
- Automated data preprocessing, model selection, and deployment without manual coding.
- Quick deployment using IBM Watson Machine Learning, enabling real-time scheme recommendations.

This project showcases the power of no-code AI platforms in solving real-world social challenges efficiently and at scale.



# FUTURE SCOPE

To enhance and expand the current system, the following improvements can be considered:

- Explainable AI (XAI): Integrate tools like SHAP or LIME to explain how features impact predictions.
- Multilingual UI: Build a web or mobile interface that supports regional languages for broader accessibility.
- Real-Time Data Integration: Pull data from live sources like SECC or Aadhaar-linked portals for continuous updates.
- Confidence Thresholds: Set up prediction thresholds to flag uncertain cases for manual review.
- Mobile App or Portal: Offer a lightweight app for field officers or beneficiaries to access predictions.
- Auto Retraining: Schedule automatic retraining of the model as new data becomes available.

# REFERENCES

1. **National Social Assistance Program (NSAP)**  
<https://nsap.nic.in/>
2. **Open Government Data Platform – NSAP Beneficiaries Dataset**  
<https://data.gov.in/catalog/national-social-assistance-programme-nsap-beneficiaries>
3. **IBM Watson x Auto AI Documentation**  
<https://www.ibm.com/docs/en/watsonx>
4. **IBM Cloud – Watson Studio**  
<https://cloud.ibm.com/catalog/services/watson-studio>
5. **IBM Cloud – Watson Machine Learning**  
<https://cloud.ibm.com/catalog/services/machine-learning>
6. **Auto AI Overview by IBM**  
<https://www.ibm.com/cloud/learn/autoai>

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# GIT HUB LINK

<https://github.com/siddesh-wari/NSAP-Scheme-Eligibility.git>

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This certificate is presented to  
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(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 17 Jul 2025 (GMT)

**Learning hours:** 20 mins



**THANK YOU**