AICTE Internship - Week 2 Report

Organization: Shell & Edunet Foundation

Theme: Artificial Intelligence and Green Technology

Intern: Srushti Bhujbal

WEEK 2 TASK: Model Training and Evaluation

Objective:

Splitting the dataset, training the model, predicting streetlight behavior, and comparing results to check model accuracy.

Process Summary:

1. The dataset (34,310 records) was split into 80% training and 20% testing data.
2. Model used: RandomForestClassifier with 150 estimators.
3. Trained on time and weather-based features: hour, month, cloud, precipitation, visibility.
4. Predictions were compared with actual values to assess performance.
5. Evaluation metric: Accuracy Score.

Results:

- Model Accuracy: 97.5%
- Cross-validation confirms consistent performance.
- Model generalizes well across unseen samples.

Visualization:

The following plot compares Actual vs Predicted Streetlight Status.

Blue = Actual | Red = Predicted

Environmental Impact:

The AI-based prediction helps minimize unnecessary power usage during non-nighttime or clear weather

conditions. This promotes energy efficiency and supports smart city sustainability initiatives.

Conclusion:

The Random Forest model achieved excellent accuracy in predicting streetlight ON/OFF states based on environmental factors.

It successfully demonstrates AI's potential to optimize energy usage and contribute to greener infrastructure.

Next Steps (Week 3 Preview):

Model deployment via Flask app.

Real-time prediction integration.

Interactive dashboard for visualization.