**Weekly Progress Report**

Name: **Naveen K**

Domain: **Data Science and Machine Learning**

Date of submission: **19/07/2025**

**Week Ending: 02**

### I. Weekly Activities & Progress

This week, my focus was divided into two main areas:

1. **Learning & Skill Enhancement:**

* Studied the Data Science & Machine Learning e-book provided in the portal.
* Covered essential topics: data science process, feature engineering, exploratory data analysis (EDA), and basics of machine learning models for forecasting.
* Gained deeper understanding of time series data, handling missing values, and data visualization techniques.

1. **Practical Application using Project Dataset:**

* Continued working with the traffic dataset.
* Explored patterns further by:
  + Analysing traffic volume by **day of week** and **hour of day**.
  + Visualizing holiday vs. normal day traffic.
  + Identifying potential outliers or unexpected peaks.
* Prepared the dataset by cleaning and formatting for next stage: building forecasting models

### II. Milestones Achieved

1. Completed reading and summarizing key chapters from the Data Science & Machine Learning book.
2. Created new visualizations to understand seasonality and daily patterns.
3. Added new features to dataset form given csv files (e.g., is\_weekend, is\_holiday).

### III. Challenges & Hurdles

* Understanding how to correctly handle missing data in time series context.
* Choosing the best visualization methods to highlight patterns clearly.
* Deciding which features will be most useful for forecasting.

### IV. Lessons Learned

* Importance of thorough data cleaning and pre-processing before modelling.
* How new features (day of week, holiday flags) can improve model performance.
* Learned to think critically about data patterns instead of just coding.

**V. Next Week's Goals:**

* Try to begin building first forecasting models.
* Evaluate models on historical data and check accuracy.
* Continue refining features and prepare visualizations for report.

**VI. Additional Comments:**

Nothing special to add this week — just continued learning and exploring the dataset step by step.