REPORT

Model Used:

- **Linear Regression**: It's a simple technique that helps find a pattern between past data (days) and future data (usage). The model looks at the trend and predicts future values.

Model Performance:

- **MAE (Mean Absolute Error)**: This tells us how close the model's predictions are to the actual values. Lower MAE means the model is more accurate.

- **Results:**

  - **Local Route**: The model was very accurate (low MAE).

  - **School**: The model was also quite accurate (low MAE).

  - **Rapid Route**: The model didn't do as well (higher MAE).

  - **Services with steady usage** (like "School") are easier to predict and have lower errors.

  - **Services with fluctuating usage** (like "Rapid Route") are harder to predict and have higher errors.

7-Day Forecast:

- **What was predicted:**

  - **Local Route** and **School**: The model predicted steady increases in usage over the next 7 days.

  - **Rapid Route**: The forecast was less accurate because its usage tends to change a lot.

Key Insights:

Steady vs. Fluctuating Usage:

- Steady services like School and Local Route have consistent usage and are easier to predict.

- Fluctuating services like Rapid Route and Peak Service have more unpredictable usage, making them harder to forecast accurately.

Time Impact:

- As days pass, services like Local Route show a steady increase in usage, making time a useful predictor.

Predictability:

- Services with stable patterns (like School) are more accurate in forecasts.

- Fluctuating services (like Rapid Route) are harder to predict due to sudden spikes and drops.

Forecasting Accuracy:

- Predictions for stable services are more reliable.

- For variable services, the model struggles and gives less accurate forecasts**.**

Conclusion:

- **Linear regression** works well when predicting usage for services with steady usage (like **School**).

- For services with fluctuating usage, like **Rapid Route**, the model might not give very accurate results.