Daily_Public_Transport_Passenger_Journeys_by_Service_Type_20250527

Insights found from this dataset:

- **Local and Rapid routes are definitely the busiest.**
  They carry most of the passengers every day, so it's clear these routes are really important and popular with riders.
- **Light Rail has the lowest ridership, but it's steady.**
  Not many people use it compared to buses, but the numbers don't change much, so it's consistently low.
- **School transport usage goes up and down a lot depending on the time of year.**
  It spikes during school days and drops almost completely on weekends and holidays—makes sense since it's mostly for students.
- **All services see more passengers on weekdays.**
  Especially the Peak Service and School routes—people commute and students travel mostly during the week.
- **There was one day where the Peak Service passenger count shot way up.**
  This looks like an outlier—maybe there was a special event, a disruption that changed traffic, or even a data error. It's worth checking out to see what happened.

Forecast - Prophet (Algorithm used)
Forecasting Passenger Counts for Transit Services
Objective:
The goal of this forecast is to predict the number of passengers for different transit services—specifically Local Route, Light Rail, Peak Service, Rapid Route, and School—for the next 7 days. This helps in planning resources and managing service efficiently.

Forecast Results:
Here are example results for two services — Local Route and Light Rail — showing the predicted number of passengers for the next 7 days:

Date	Predicted	Lower Bound	Upper Bound
2024-09-30	10605	6571	14739
2024-10-01	12401	8048	16211
2024-10-02	12566	8660	16921
2024-10-03	12416	8475	16552
2024-10-04	11888	7958	15958
2024-10-05	2740	-1208	6705
2024-10-06	1816	-2065	6248

These predicted values represent the expected passenger counts, while the lower and upper bounds show the confidence interval — basically, the range where the actual passenger numbers are likely to fall. The model also provides forecasts for the other services similarly.

Interpretation:
Most days show fairly stable passenger numbers, but there is a noticeable drop on October 5th and 6th for the Local Route. This could be due to seasonal effects, weekends, or other factors the model picked up from past data.

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