**DAILY PUBLIC TRANSPORT SERVICE:**

4-KEY INSIGHTS:

1. Weekday vs Weekend Travel Behavior:

This insight highlights how travel preferences change across weekdays — with **Local Route usage higher on weekdays** and **Light Rail peaking during weekends**, indicating a possible shift to leisure travel.

1. Mid-Month Travel Spike:

This insight shows a **consistent increase in Rapid Route journeys around the 14th–17th of each month**, suggesting monthly patterns like salary credit, shopping, or events driving the spike.

**FACEBOOK PROPHET ALGORITHM FOR TIME SERIES FORECASTING**

Facebook Prophet is an open-source forecasting tool developed by Facebook's Core Data Science team. It is designed for business forecasting tasks and is optimized for time series data with strong seasonal patterns, holiday effects, and missing data. Prophet is built on a generalized additive model (GAM) framework, making it robust and easy to use.

Prophet decomposes time series data into three main components:

1. **Trend** (Long-term growth or decline)
2. **Seasonality** (Periodic patterns: daily, weekly, yearly)
3. **Holidays/Events** (Irregular occurrences affecting trends)

**KEY MODAL PARAMETERS:**

**Trend Parameters:**

growth, n\_changepoints

**Seasonality Parameters:**

seasonality\_mode, yearly\_seasonality, weekly\_seasonality, daily\_seasonality,seasonality\_prior\_scale

**Holiday & Event Parameters:**

Holidays, holiday\_prior\_scale