

DATA ANALYSIS AND FORECASTING

KOVAI.CO

KEY INSIGHTS :

1.Strong Seasonal Patterns Across All Major Routes:

The ridership clearly rises and falls in a repeating yearly pattern across Local, Light Rail, Rapid, and School routes, showing strong seasonality. The School route especially stands out, with sharp increases during school months and noticeable drops during vacation periods, which matches real-world academic schedules.

2.A Significant Structural Break Occurred Around Early 2020:

All services show a sharp and sudden drop in early 2020, which aligns with the onset of COVID-19 restrictions and major changes in travel behavior. The histograms also reflect this shift, with one cluster showing normal ridership before and after COVID, and another showing the dramatically reduced ridership during 2020–2021.

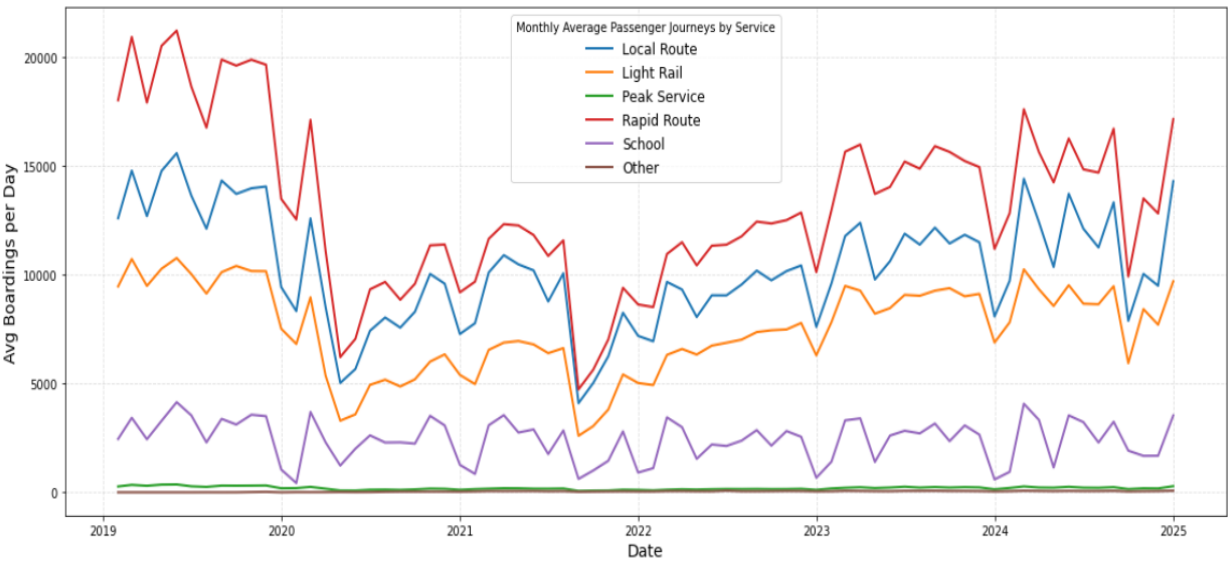
3.Rapid Route is the Dominant: The Rapid Route consistently carries the highest number of passengers and shows large swings throughout the timeline. Its wide distribution range suggests it responds strongly to seasonal changes and external events, making it the most sensitive and heavily used service.

4.Peak Service and Other Routes Have Very Low and Stable Ridership: Both Peak Service and Other routes remain almost flat over time, showing minimal changes in usage. Their distributions are tightly packed at low values, indicating these services cater to small, stable groups of passengers.

5.Strong Recovery and Growth After 2022: Ridership across the major services begins climbing steadily from mid-2022, showing a clear return of demand. By 2023–2024, the Local and Rapid routes even surpass their pre-2020 levels, suggesting strong recovery and possibly increased adoption..

MONTHLY AVERAGE PASSENGER JOURNEYS BY SERVICE:

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FORECASTING FOR NEXT 7-DAYS:

Forecasted Data for All Columns:

	Local Route	Light Rail	Peak Service	Rapid Route	School	Other
1918	9361.871158	6806.741508	149.095414	11009.606260	123.988159	46.413074
1919	9139.726231	6389.874937	159.567493	10599.417299	97.591889	47.991300
1920	8611.645853	6299.336909	131.241489	10106.686239	72.537886	44.051186
1921	7484.269918	5872.524834	84.575772	9019.121105	41.827149	41.312344
1922	3392.416454	4246.422919	3.552445	5563.069451	0.226679	23.961049
1923	2556.534221	3380.500242	3.213659	4526.586549	0.123868	24.425913
1924	6273.310741	5166.018795	64.856418	7806.936112	28.603480	33.584234

THANK YOU!