Project Statement:

Client: A Leading Bus Transportation Company

Project Name : Optimization of Bus Ticketing Demand and Forecasting

Business Problem:
The bus service struggles with inefficient resource allocation, overbooked or underutilized trips, and customer dissatisfaction due to misaligned schedules and unpredictable demand patterns.
These issues lead to revenue loss, increased operational costs, and poor customer experiences, such as frequent cancellations or routes operating with minimal occupancy.

Objective:
Maximize prediction accuracy for future ticket sales and passenger demand.
Minimize operational costs by optimizing trip schedules and resource allocation.

Constraints:
Ensure full compliance with applicable data privacy regulations (e.g., GDPR, CCPA).
Maintain the interpretability and usability of the predictive model to facilitate actionable insights and informed business decision-making.

Success Criteria :
Business Success Criteria:
Achieve at least a 15% improvement in customer satisfaction scores based on feedback surveys.

Machine Learning Success Criteria:
Achieve a Mean Absolute Percentage Error (MAPE) of less than 10% in demand forecasting.

Economic Success Criteria:
Reduce operational costs (e.g., fuel, staffing) by at least 15% through optimized resource allocation.