**PHASE-1**

**Design Thinging**:

1. **Objective:** Define objectives such as analysing Project traffic controls, traffic management, transportation facilities
2. **Analysis Approach:** Plan the steps to extract, clean, and analysis the dataset to drive insights
3. **Visualization Selection:** Determine suitable visualization types(bar chars, pie charts,heatmaps)

To represent demographic distributions effectively.

**Concepts using in Public Transportation Analysis:**

**1.Ridership Patterns:** Analyzing data on passenger counts, peak hours, and popular routes helps identify patterns in ridership. This information can be used to adjust schedules and allocate resources efficiently.

**2.Route Optimization:** By analyzing travel times, traffic patterns, and passenger demand, data analysis can help optimize bus, train, or tram routes. This ensures that routes are efficient and serve areas with the highest demand.

**3.Predictive Modeling:** Predictive models can forecast ridership based on various factors such as weather, events, or holidays. These models are essential for planning resources and staff according to expected demand.

**4.Fare Analysis:** Studying fare collection data can reveal trends in ticket purchases, fare evasion, and payment methods. This information is vital for revenue management and implementing fare policies.

**5.Service Reliability:** Data analysis can assess the punctuality and reliability of public transportation services. Delays and disruptions can be analyzed to identify their causes, enabling improvements in service reliability.

**6.Customer Feedback Analysis:** Analyzing feedback from passengers, whether through surveys or social media, provides qualitative data that complements quantitative data. This holistic approach helps in understanding the passenger experience comprehensively.

**7.Accessibility Analysis**: Data analysis can assess the accessibility of public transportation for people with disabilities or those residing in underserved areas. This analysis informs decisions related to infrastructure upgrades and service expansion.

**8.Environmental Impact:** Public transportation analysis can include evaluating the environmental impact of different modes of transit. This data is valuable for promoting eco-friendly transportation options and sustainability initiatives.

**9.Policy Evaluation:** Governments and transportation authorities can evaluate the effectiveness of policies such as subsidies, incentives for public transportation usage, and congestion pricing through data analysis.

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