Enhancing Public Transportation: A Data-Driven Analysis

**Project Definition:**

i)The project aims to leverage data analysis to assess the efficiency of public transportation services, focusing on aspects like on-time performance, passenger satisfaction, and overall service quality.

ii) By analyzing data collected from various sources, this project seeks to provide valuable insights that can guide improvement initiatives and enhance the public transportation experience for commuters. Key components of this project include defining analysis objectives, sourcing transportation data, designing informative visualizations using IBM Cognos, and integrating code for data analysis.

**Design Thinking:**

**Analysis Objectives:** To achieve meaningful results and drive actionable insights, it is crucial to define clear and specific objectives for our public transportation data analysis. Our primary analysis objectives include

**1.On-Time Performance Assessment:** Evaluate the punctuality and reliability of public transportation services by assessing adherence to schedules and identifying common causes of delays.

**2.massenger Satisfaction:** Measure passenger satisfaction through surveys and feedback analysis, focusing on key factors such as cleanliness, safety, accessibility, and customer service.

**3.Service Efficiency:** Analyze operational data to understand how efficiently resources are utilized, with a focus on optimizing routes and minimizing operational costs.

**4.Data Collection:** Effective data collection is the foundation of our analysis. We will employ a multi-pronged approach to gather comprehensive transportation data, including:

**1.Schedules and Real-Time Updates:** Collect official schedules and real-time data on vehicle locations and movements to assess on-time performance.

**1.a)Passenger Feedback:** Implement surveys, feedback mechanisms, and social media sentiment analysis to capture passenger opinions and experiences.

**2.b)Operational Data:** Gather data on fleet maintenance, fuel consumption, operational costs, and resource allocation to assess service efficiency.

**4.Visualization Strategy:** To present our findings effectively and make data-driven decisions, we will employ a visualization strategy that involves creating informative dashboards and reports using IBM Cognos. Our strategy includes

**1.Dashboard Design:** Develop interactive dashboards that provide at-a-glance insights into on-time performance, passenger satisfaction, and service efficiency

**2.Data Storytelling:** Create visual narratives that convey the impact of our analysis, making it easy for stakeholders to understand and act on the findings.

3.**Customized Reports:** Generate detailed reports for deeper dives into specific aspects of the analysis, catering to different stakeholders' needs.

**4.Code Integration:** Incorporating code into our analysis process can enhance the quality and depth of our findings. We will use code for tasks such as:

1. **Data Cleaning:** Automate data cleaning processes to ensure the accuracy and consistency of our datasets.
2. **Transformation:** Implement code for data transformation and feature engineering to extract relevant insights.
3. **Statistical Analysis:** Utilize code for advanced statistical analysis, including predictive modeling and hypothesis testing.