PUBLIC TRANSPORTATION ANALYSIS

Project Definition:

The project involves analyzing public transportation data to assess service efficiency, on time performance, and passenger feedback. The objective is to provide insights that support transportation improvement initiatives and enhance the overall public transportation experience. This project includes defining analysis objectives, collecting transportation data, designing relevant visualizations in IBM Cognos, and using code for data analysis.

Design Thinking Report: Enhancing Public Transport Efficiency

1. Analysis Objective:

The primary objective of our analysis is to optimize public transport efficiency by dissecting various components critical to its functioning. We seek to understand and improve ridership patterns, route effectiveness, and overall user experience.

2. Data Collection:

GPS Data:

Utilizing real-time GPS data from public transport vehicles will allow us to track their routes, stops, and travel times. This data will be invaluable in identifying bottlenecks and areas of inefficiency.

Ridership Data:

Collecting data from ticketing systems or smart card transactions will provide insights into ridership patterns, peak hours, and popular routes. This information is pivotal in tailoring transport services to match demand.

User Feedback:

Incorporating user feedback through surveys and social media channels will provide qualitative data on passenger experiences. Understanding user pain points and preferences is crucial in designing a more user-centric public transport system.

External Influences:

Gathering real-time data on traffic conditions and weather forecasts will aid in assessing external factors affecting transport operations. This proactive approach allows for better management during adverse conditions.

3. Visualization Strategy:

Interactive Maps:

Developing interactive maps will allow stakeholders to visualize current transport routes, identify congestion points, and assess the effectiveness of existing infrastructure.

Real-time Dashboard:

Creating a dashboard that presents real-time ridership statistics provides decision-makers with a comprehensive overview, enabling them to make informed choices promptly.

Heat Maps:

Utilizing heat maps to visually represent peak travel times and areas with high passenger demand helps in identifying trends and optimizing service frequency.

Infographics:

Implementing infographics will simplify the communication of improvement strategies and their potential impact, fostering better understanding among stakeholders and the public.

4. Code Integration:

Optimization Algorithms:

Developing algorithms that predict optimal routes based on historical and real-time data will contribute to more efficient transport planning.

Machine Learning Models:

Integrating machine learning models to forecast peak travel times and adjust service frequency dynamically ensures that the transport system remains responsive to changing demands.

API Integration:

Utilizing APIs for the seamless integration of third-party data, such as weather forecasts and traffic updates, enhances the accuracy and relevance of our analyses.

Mobile App Development:

Creating a user-friendly mobile app for commuters provides real-time updates, personalized travel suggestions, and an avenue for direct interaction, enhancing the overall user experience.

By adopting a design thinking approach encompassing comprehensive data collection, effective visualization strategies, and intelligent code integration, we aim to create a robust framework for enhancing public transport efficiency, meeting the evolving needs of the community while providing a more seamless and enjoyable transit experience.