Team5 Project Plan

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Topic: Urban Mobility Data Management System

Data Model: Relational + Graph + Document

Target platform: Azure SQL

Objectives/Scope:

1. Analyze Peak and Off-Peak Periods for Optimal Resource Allocation (Relational)
Objective: To discern high and low-traffic times through in-depth analysis of passenger counts in taxis, facilitating the optimization of resource allocation and scheduling. Description: Identifying peak and off-peak periods will empower transportation service providers to deploy vehicles strategically, minimizing wait times, and maximizing efficiency during periods of high demand.

2. Assess and Compare the Adoption Rates of Different Payment Methods (Document)
Objective: To evaluate and contrast the frequency of taxi trips associated with diverse payment methods, including credit cards, digital wallets, and cash. Description: This assessment will provide valuable market insights, enabling service providers to tailor payment options based on customer preferences and enhance overall payment processing efficiency.

3. Examine Weekly and Monthly Passenger Distribution Patterns (Relational)
Objective: To evaluate the distribution of passengers over weeks and months, uncovering trends and patterns that can inform strategic decision-making. Description: Analyzing weekly and monthly passenger distribution will aid in developing targeted marketing campaigns, optimizing staffing levels, and adjusting pricing strategies based on seasonal variations in demand.

4. Evaluate Service Providers' Performance Across Various Metrics (Relational)
Objective: To comprehensively evaluate the performance of taxi service providers using diverse metrics such as punctuality, customer satisfaction, and trip completion rates.

Description: This evaluation aims to ensure high service quality, foster healthy competition among providers, and enhance overall customer experience within the urban mobility landscape.

5. Monitor Payment Processing Efficiency and Maintain Transaction Records (Document)
Objective: To continually monitor the efficiency of payment processing systems and uphold accurate records of transactions. Description: Ongoing monitoring will guarantee seamless financial operations, reduce discrepancies, and enhance financial transparency, fostering trust and reliability in the taxi service ecosystem.

6. Identify Optimal and Suboptimal Locations for Taxi Pickups and Drop-offs (Graph)
Objective: To identify the most and least congested areas for taxi pickups and drop-offs, facilitating strategic positioning of vehicles for improved service responsiveness. Description: This analysis will contribute to reducing passenger wait times, minimizing congestion, and enhancing overall transportation efficiency in urban areas.

7. Determine Maximum and Minimum Trip Distances for Route Optimization (Graph)
Objective: To identify the maximum and minimum trip distances between various locations serviced by taxis, aiding in route optimization, fuel efficiency, and pricing models. Description: Understanding trip distance variations will enable service providers to optimize routes, reduce operational costs, and offer competitive pricing while maintaining profitability.

Visualization Tools: Tableau and Power BI