Uber Supply-Demand Gap Analysis

Project Overview:

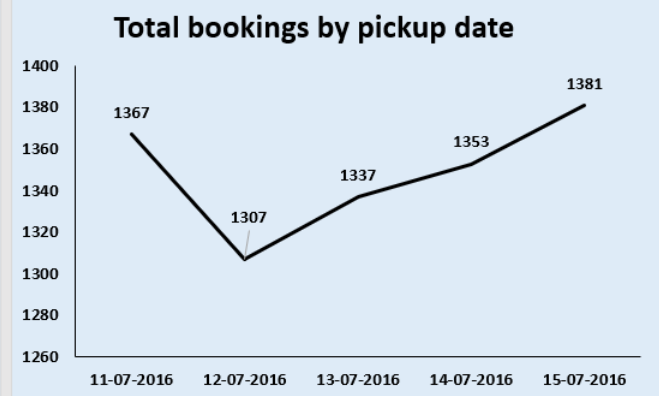
This project focuses on identifying and resolving the supply-demand gap for Uber cab requests in an urban setting. By analyzing booking logs and driver activity, the analysis aims to pinpoint operational inefficiencies and provide data-driven recommendations.

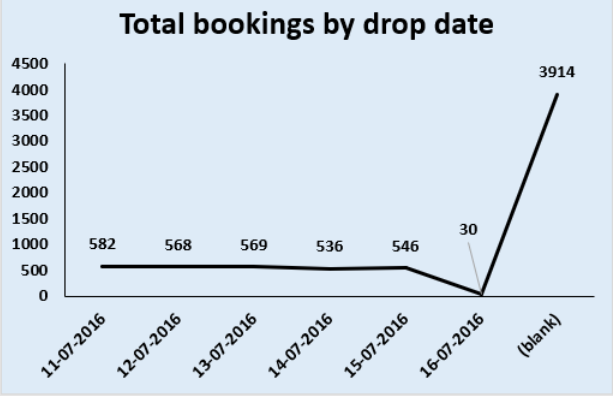
Problem Statement:

Uber faces significant gaps in fulfilling customer demand, particularly during specific time slots and at certain locations. The aim is to uncover when and where the gap occurs and identify the primary causes like trip cancellations and unavailability of cars.

Charts & Findings:

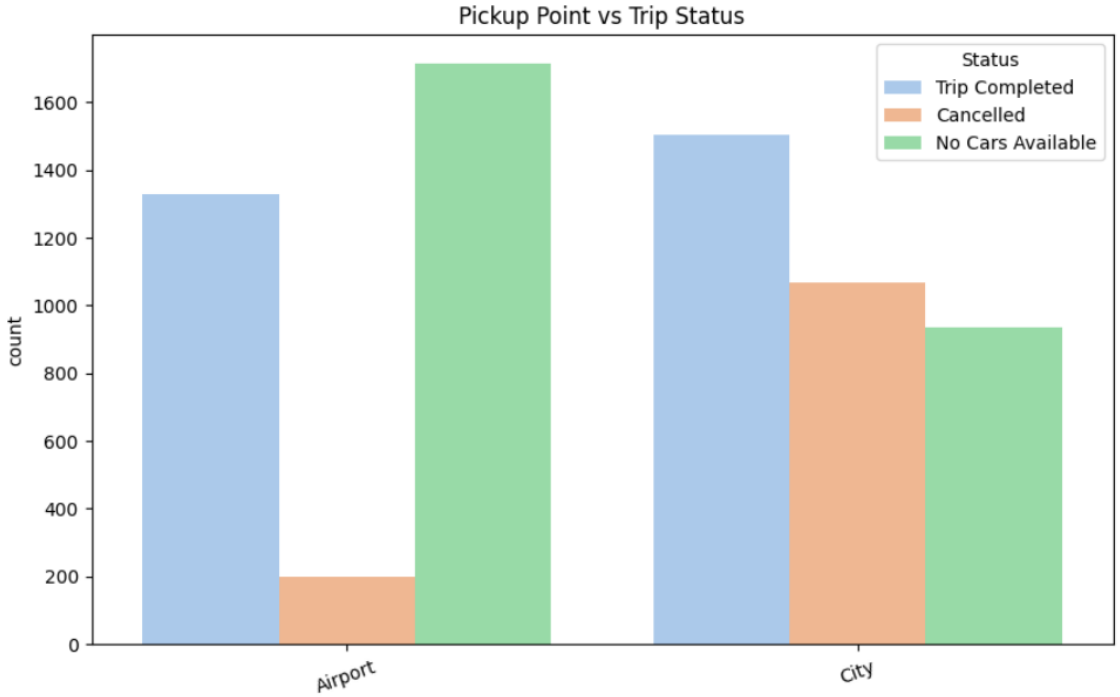
Total Bookings by Pickup & Drop Date:





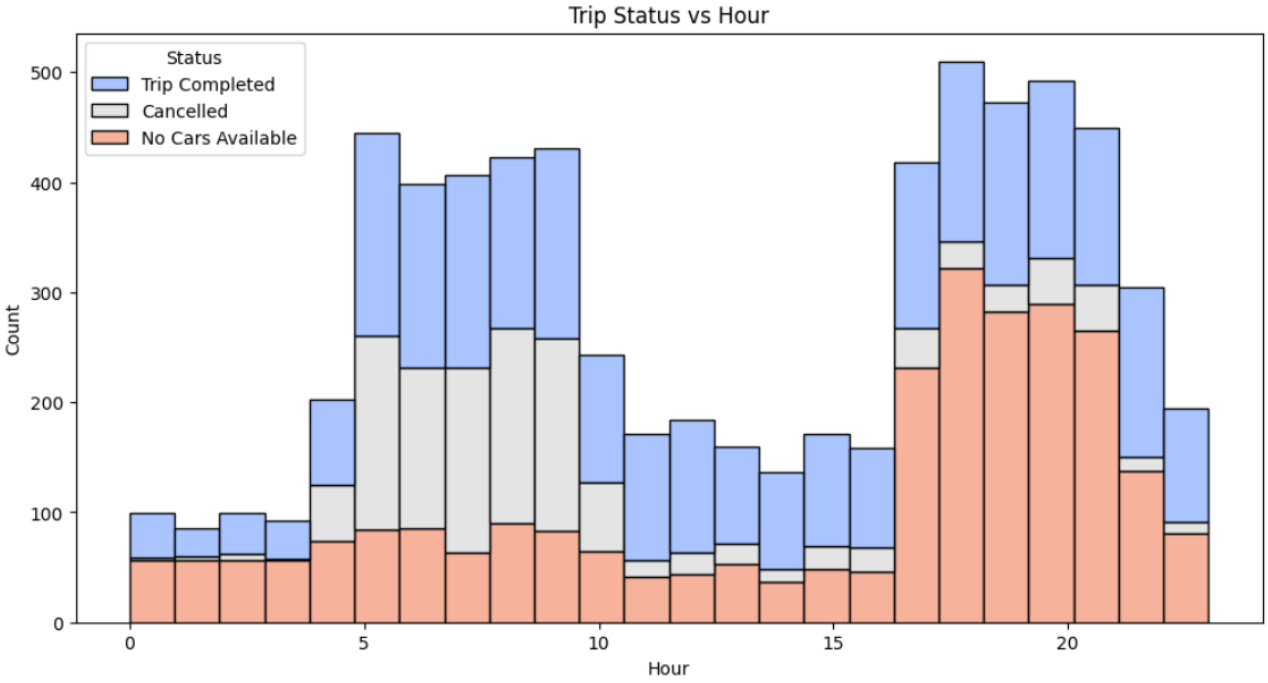
Insight: Pickup bookings increase gradually from July 12 to 15, while drop date data shows a spike on an undefined date, suggesting missing or delayed data entries.

Pickup Point vs Trip Status:



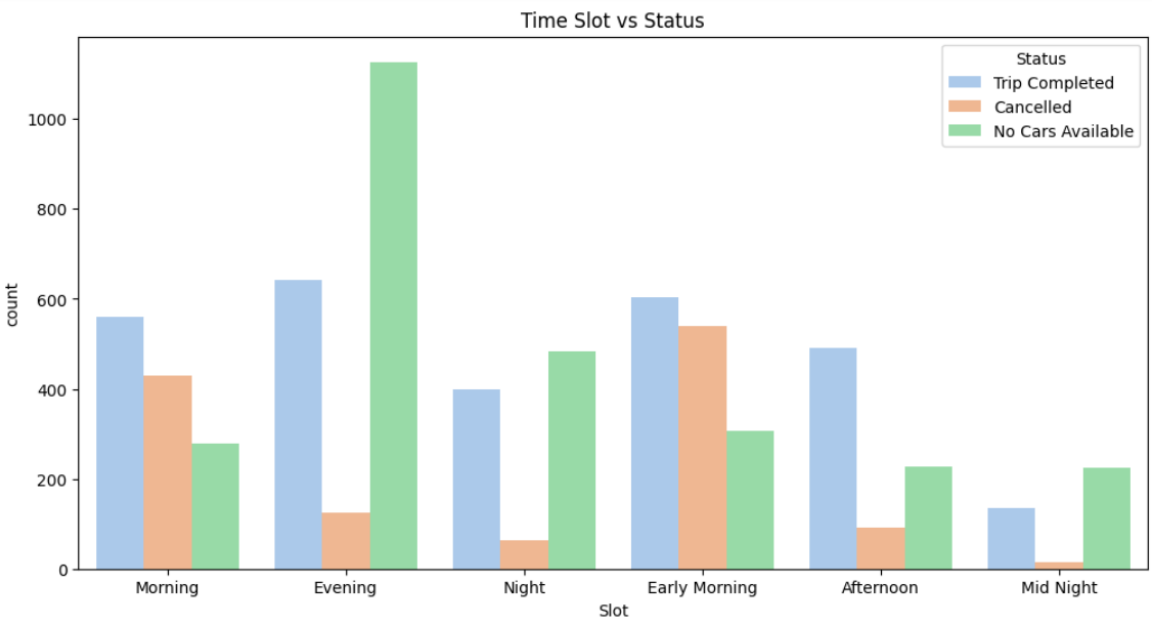
Insight: From the city, trip cancellations are high, whereas at the airport, 'No Cars Available' is the major issue.

Trip Status vs Hour:



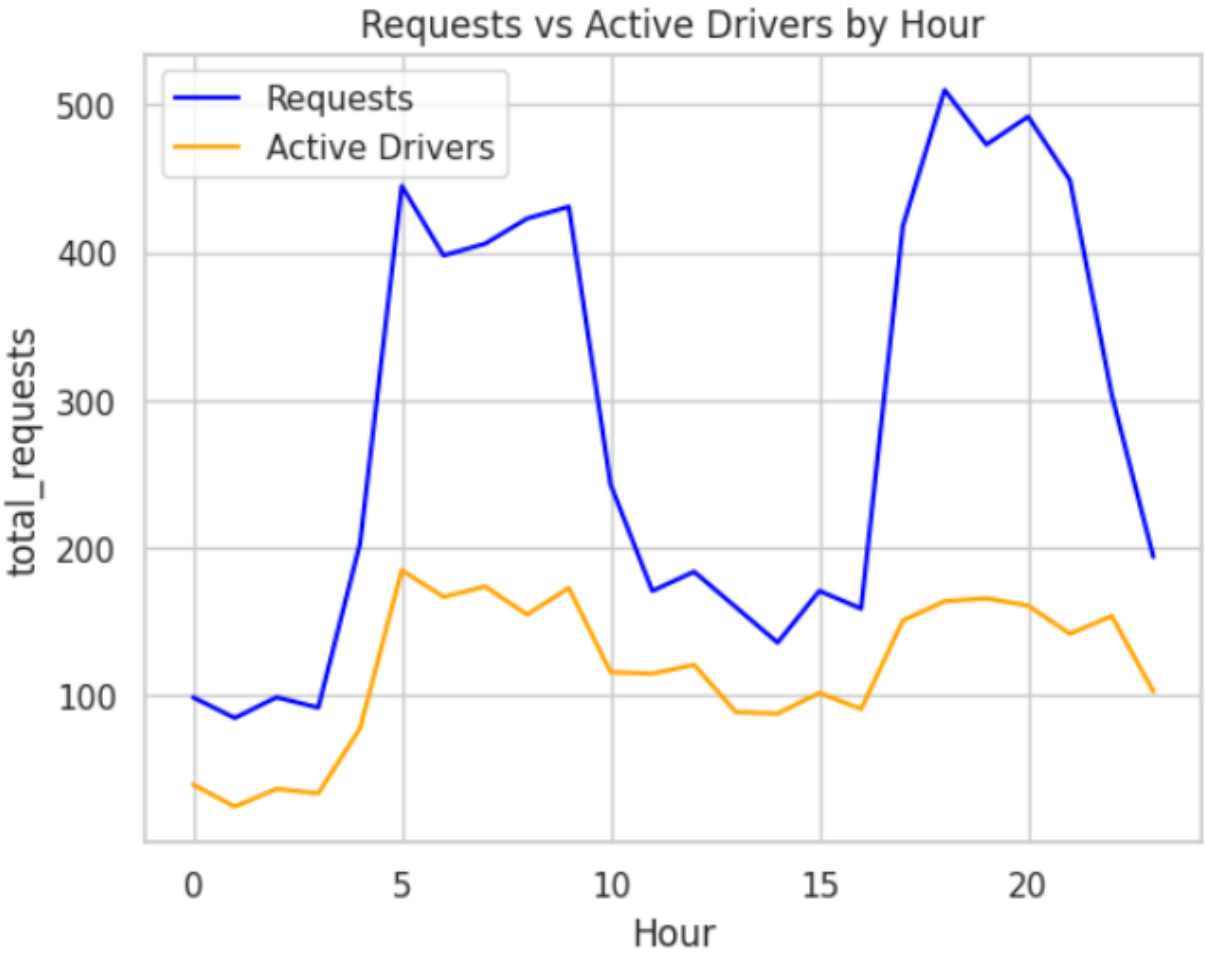
Insight: Early morning (5-9 AM) and evening (5-9 PM) hours show high volumes of failed trips, mostly due to cancellations in the morning and no car availability in the evening.

Time Slot vs Trip Status:



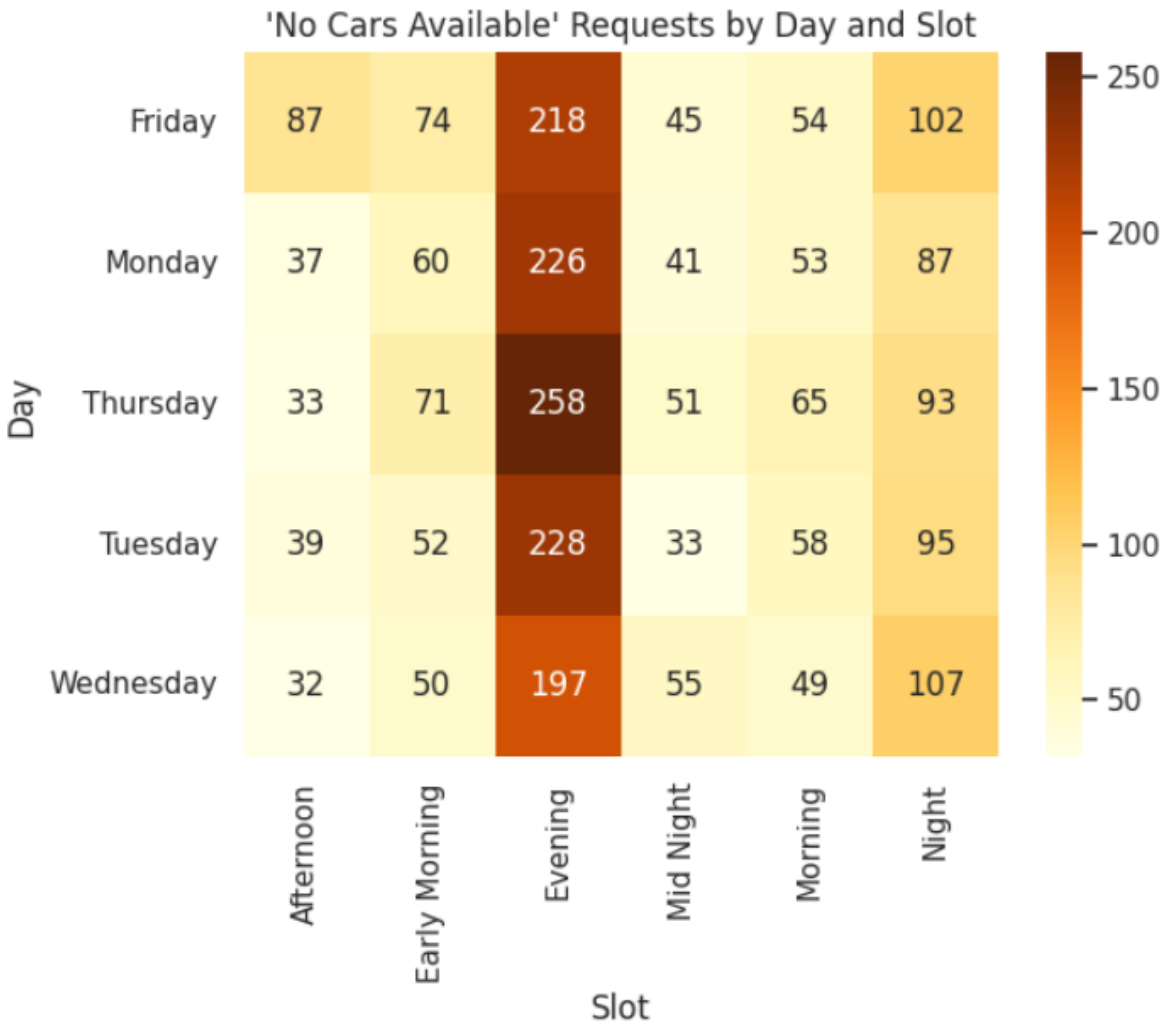
Insight: Evening time slots have the most unfulfilled requests, while early mornings are dominated by cancellations.

Requests vs Active Drivers by Hour:



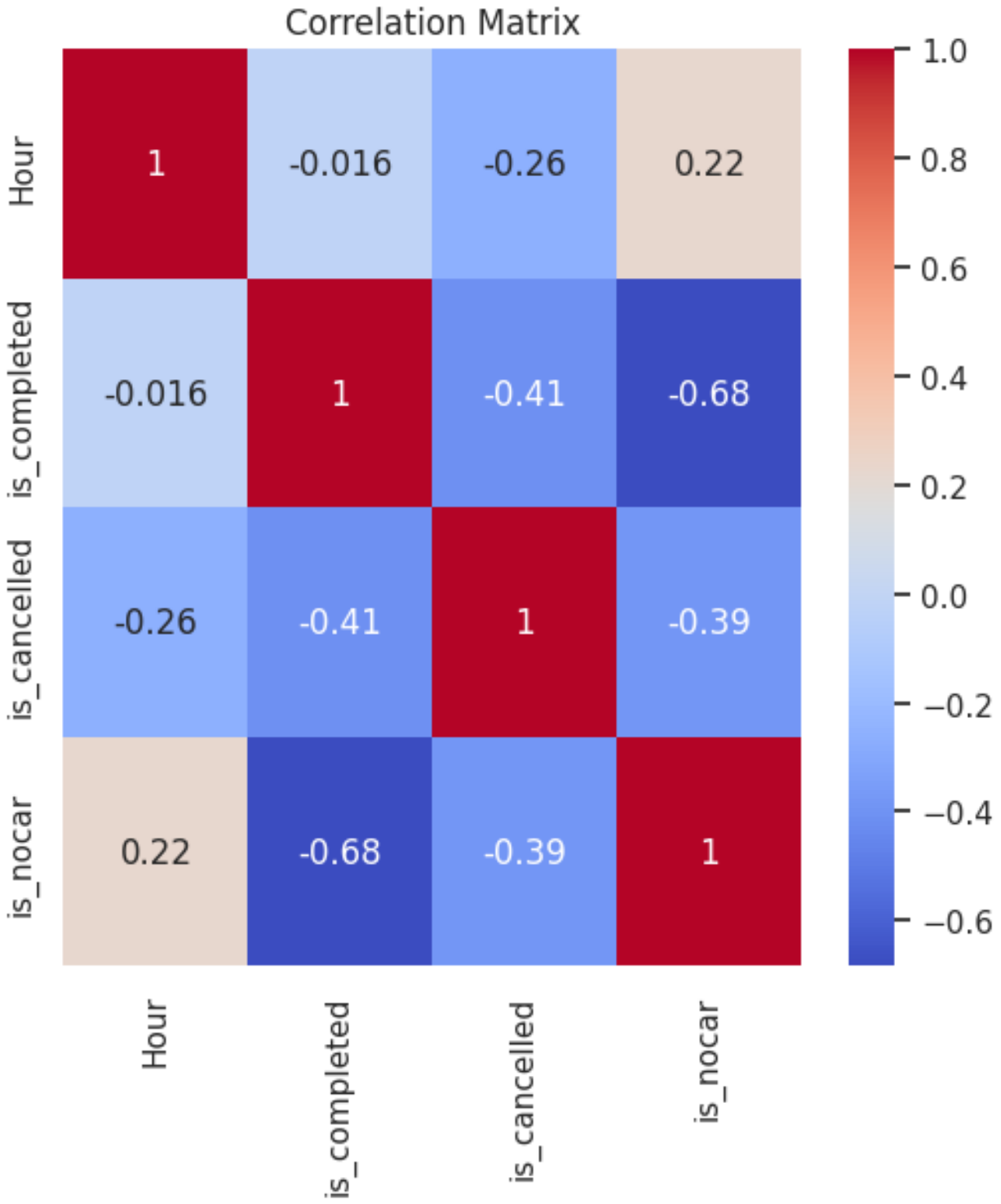
Insight: There's a clear mismatch between ride requests and available drivers during peak hours (7-9 AM and 5-9 PM).

No Cars Available Heatmap:



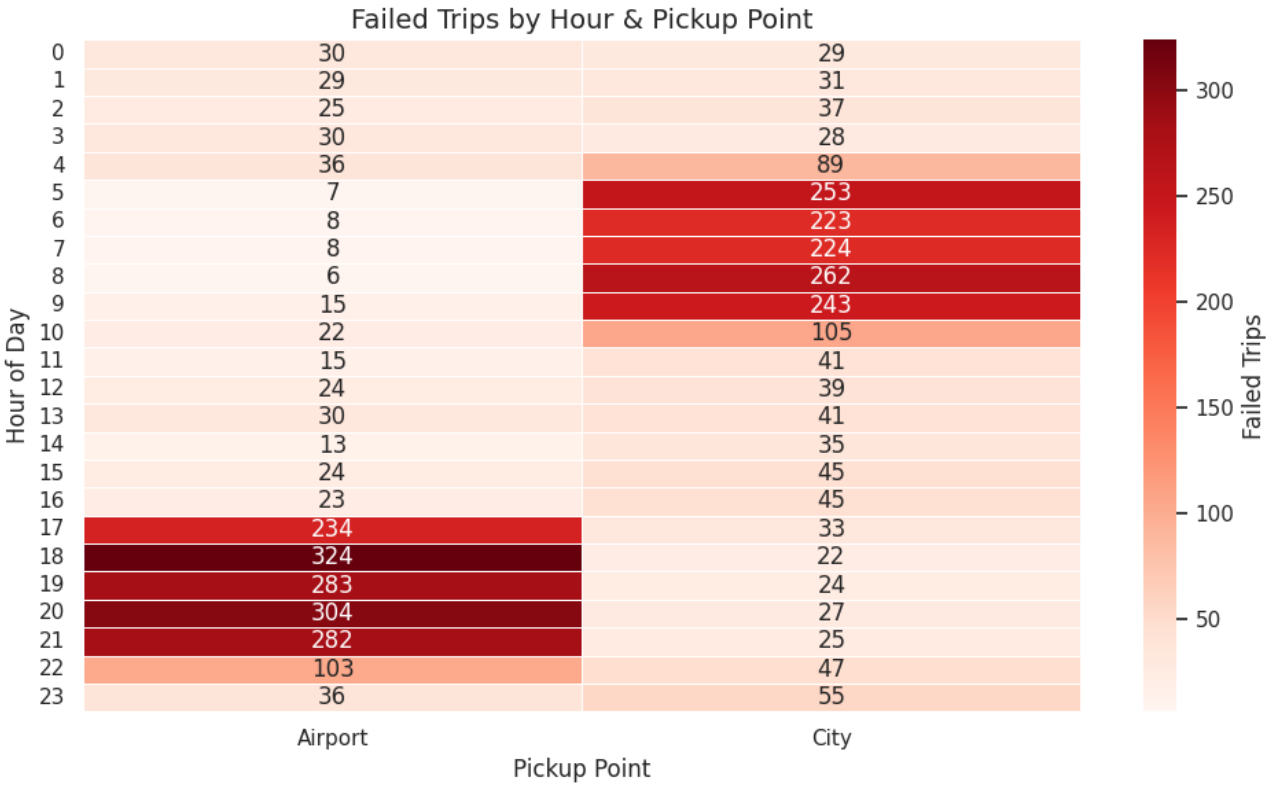
Insight: The 'No Cars Available' issue is especially prevalent in the evening slot across all weekdays.

Correlation Matrix:



Insight: There is a strong negative correlation between completed trips and both cancellations (-0.41) and no car availability (-0.68).

Failed Trips by Hour & Pickup Point:



Insight: Morning hours at the city pickup point and evening hours at the airport show the highest trip failures.

Business Recommendations:

- Increase driver availability during peak hours (7-9 AM and 5-9 PM) to meet high demand.
- Deploy more vehicles near the airport in evening slots to reduce 'No Cars Available' incidents.
- Introduce cancellation deterrents such as driver incentives or penalties for repeated cancellations.
- Incorporate real-time driver-passenger mapping using historical demand data for better distribution.
- Improve user experience by setting accurate ETAs and offering alternative travel options during high-failure slots.
- Regularly audit and cleanse booking data to eliminate incomplete or blank entries.