



Supply-Demand Gap

Assignment Submission

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Problem Statement

Driver Cancellations and Non-Availability of cabs to and from Airport leading to loss of potential revenue.

Objective

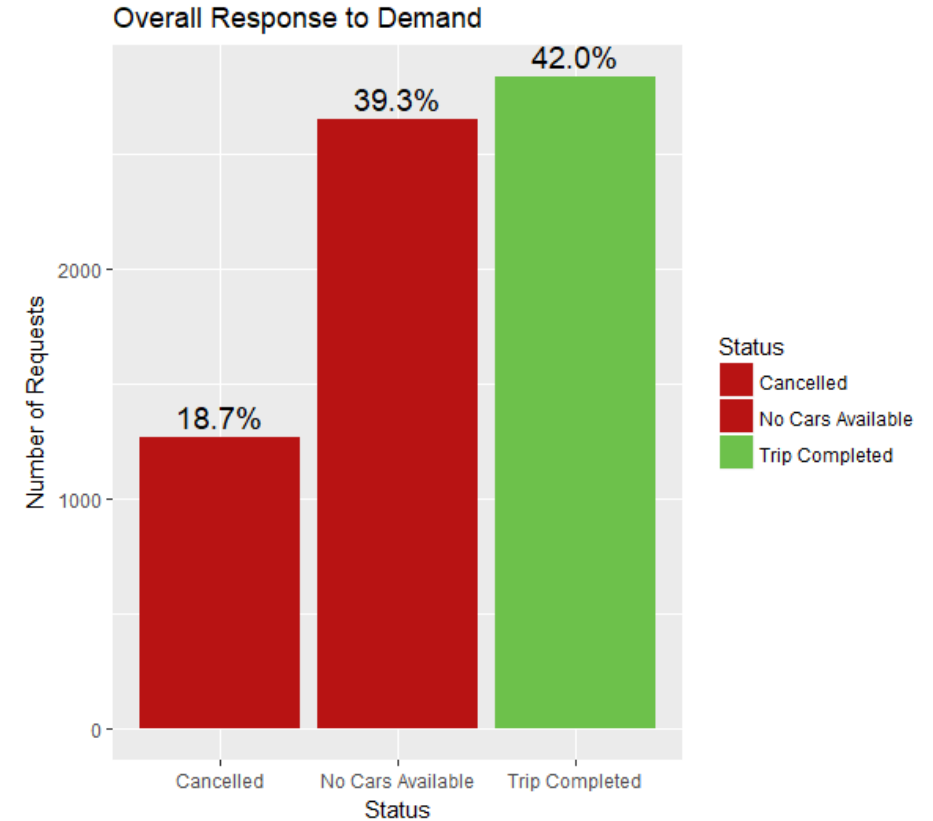
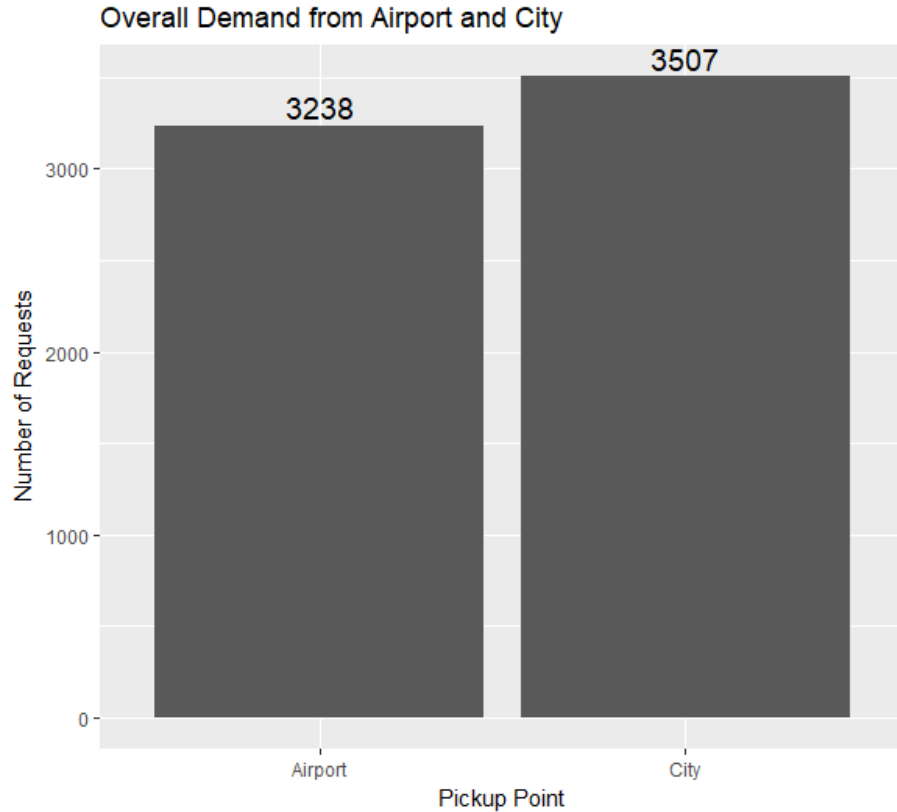
To identify the Supply-Demand gap in cabs from Airport to City and vice versa.

Research Questions

- Identify the most pressing problems for Uber.
- What is the gap between supply and demand to and from Airport.
- What might be the reason for this supply-demand gap?
- Recommend some ways to improve the supply-demand gap.

Data Used for Analysis

- The data used is only to and from Airport
- Analysis has been done on data of **5 days**.



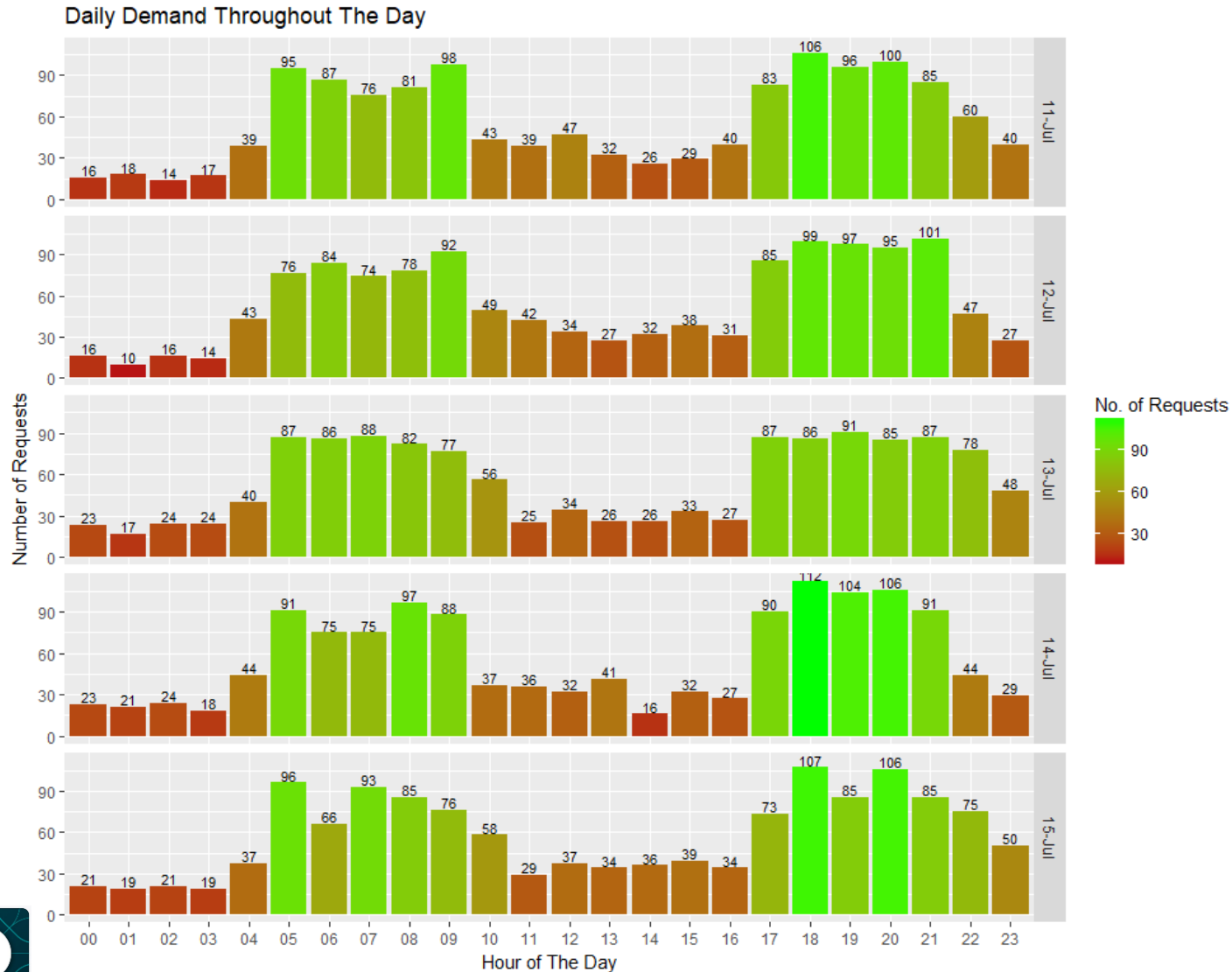
The **Demand** for cabs is equivalent both from Airport to City and vice versa.

There is a huge gap in **Supply** as only about **42%** of the requests are fulfilled.

There is a gap of **58%** in the supply of cabs.

About **39.3%** shortage in cabs availability in the concerned areas and **18.7%** trips cancelled.





Irrespective of days, it is clearly seen that the demand is high demand of cabs mainly in:

- Morning (5am to 10am)
- Late Evening and Night (5pm to 11pm)

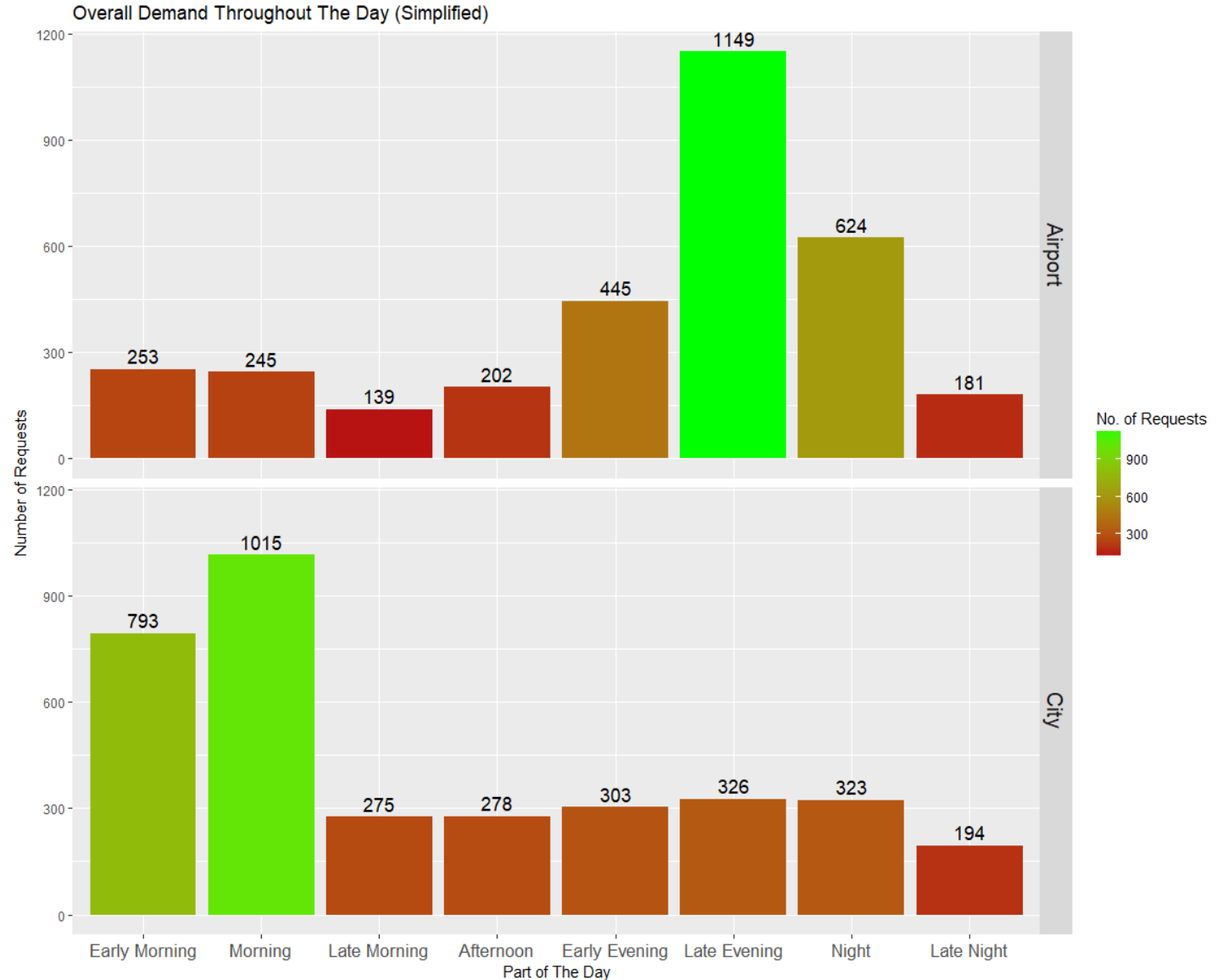


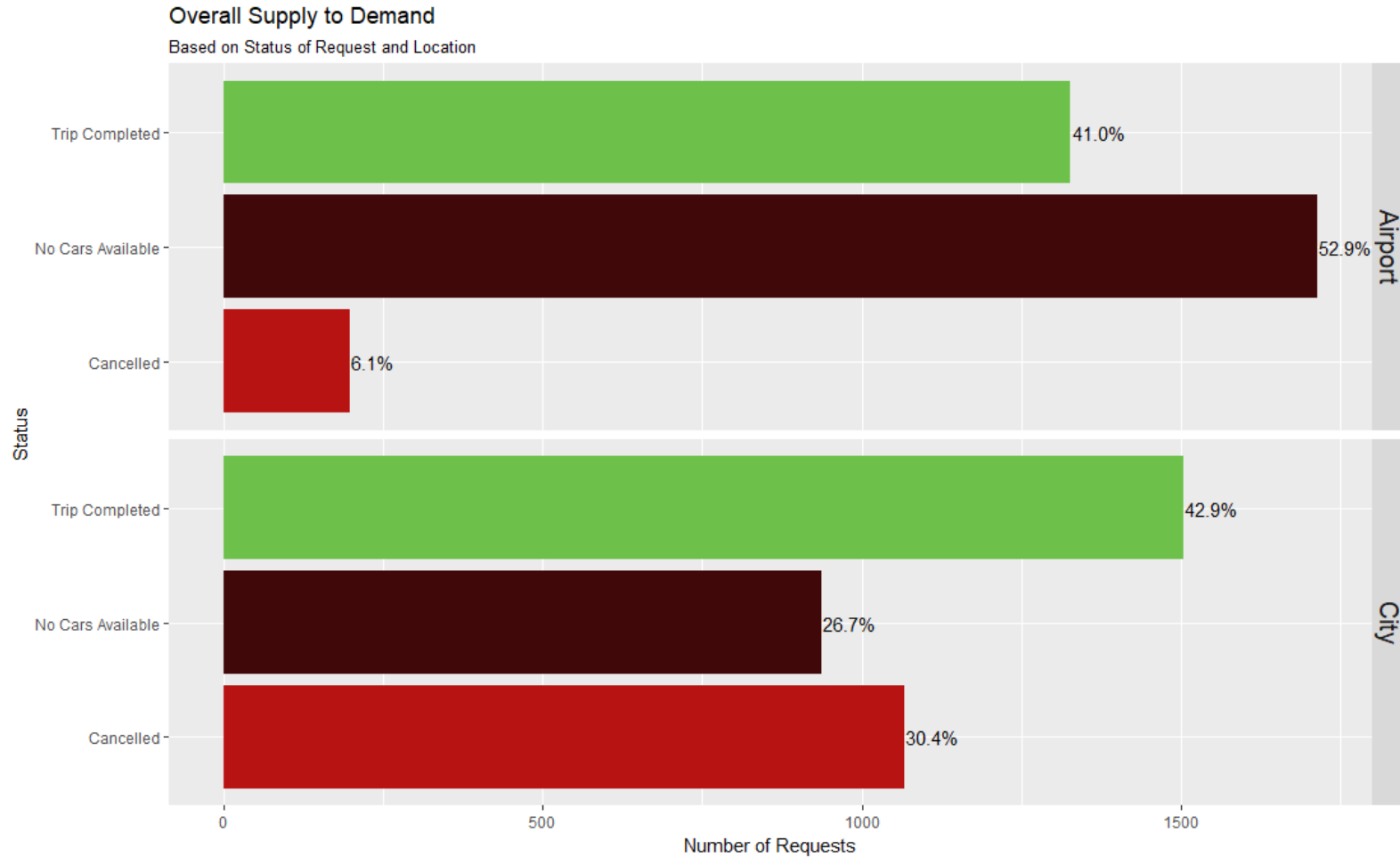
There is a high demand of cabs from **City to Airport** in the **Early Morning and Morning** hours.

There is a high demand of cabs from **Airport to City** in the **Late Evening and Night** hours.

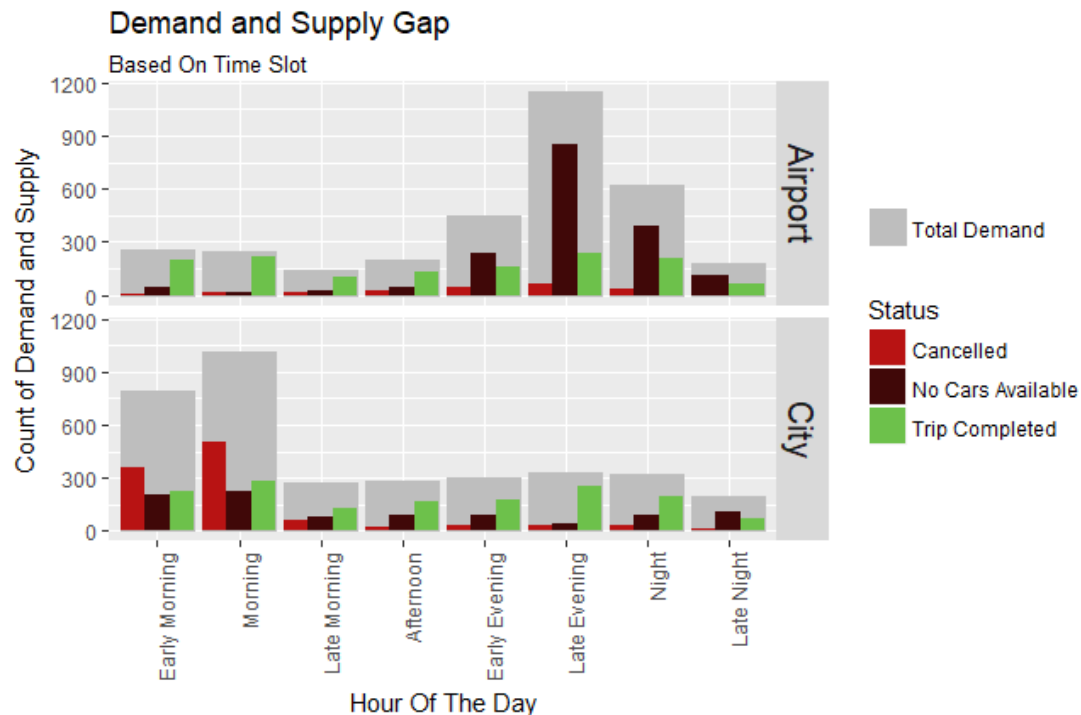
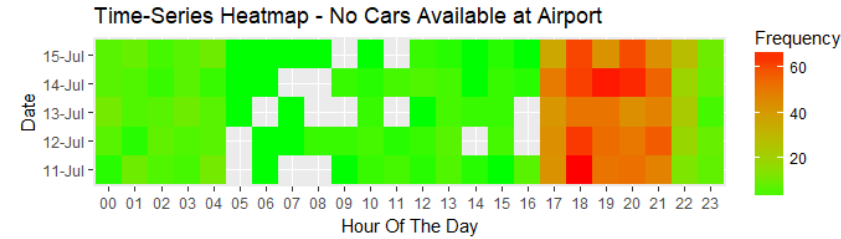
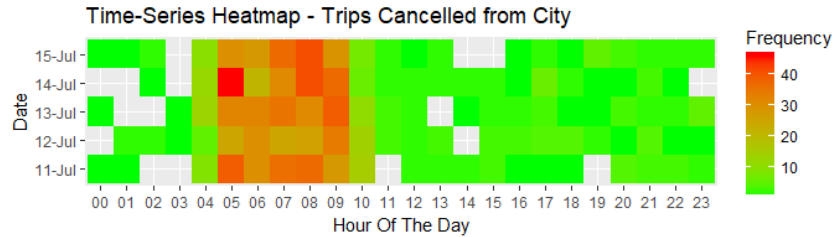
This means there are chance of having :

- more Outbound flights in the **Early Morning and Morning**.
Hence more customers going to Airport and **less customers coming to City**.
- more Inbound flights in the **Late Evening and Night**.
Hence more customers coming to City and **less customers going to Airport**.





- **Airport to City :**
 - 52.9% face Non-Availability
✓ Shortage of cabs around Airport
- **City to Airport :**
 - 30.4% requests Cancelled
✓ Cabs denying services
 - 26.7% face Non-Availability
✓ Shortage of cabs in city

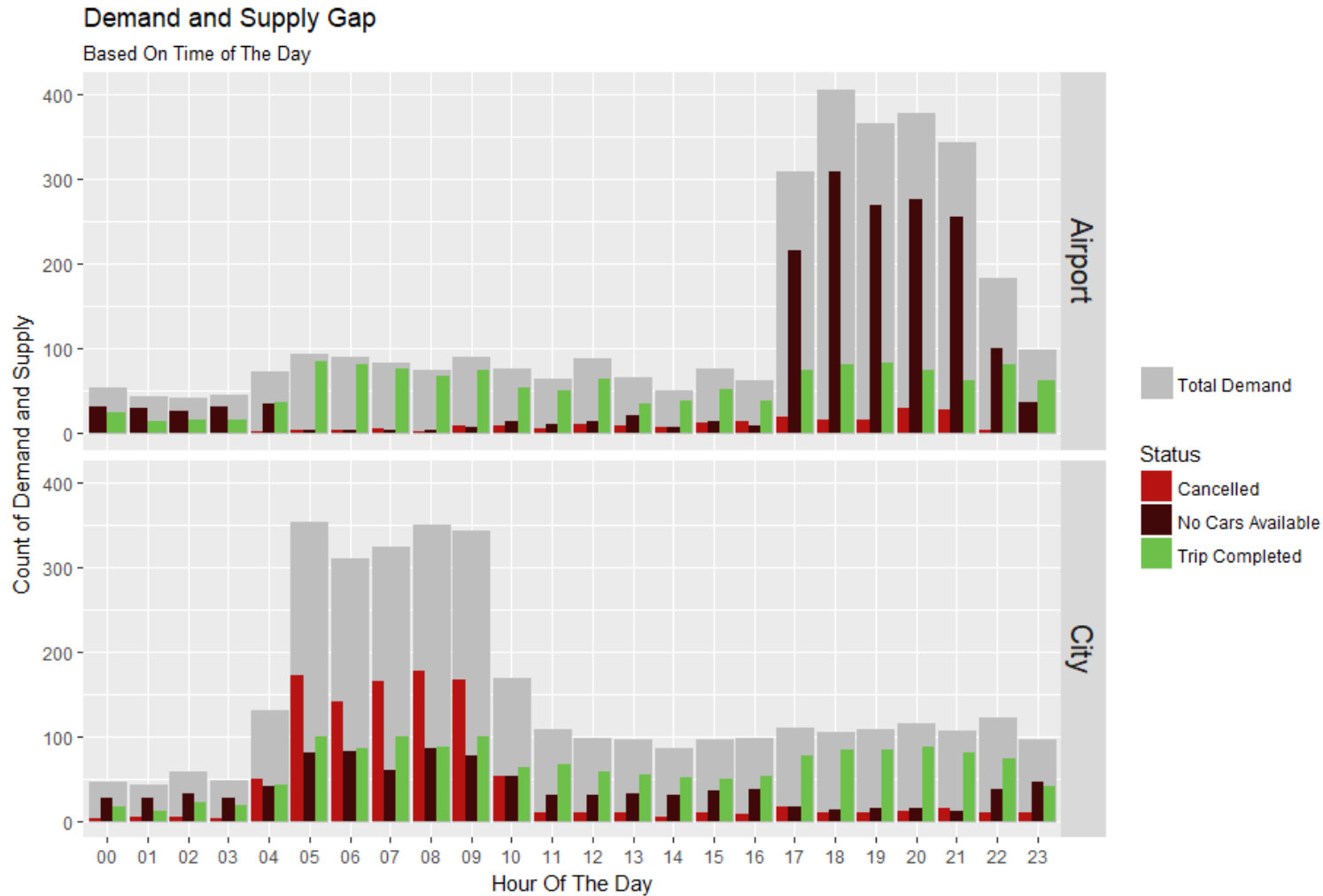


Heatmaps show us that the responses to the demand is similar everyday throughout the available data.

The bar graph also show us the following:

- **Airport to City** (Late Evening and Night) :
 - High Demand
 - Low Supply
 - ✓ Not enough cabs go towards Airport to meet the demands
- **City to Airport** (Early Morning and Morning) :
 - High Demand
 - Low Supply
 - ✓ Cabs denying services as not enough demand from Airport to meet the influx of cabs
 - ✓ Also not enough cabs to meet the demand





What is the reason for this supply-demand gap?

- The flow of traffic is one-directional due to flight timings.
 - ✓ Early Morning and Morning : High demand from City, but low demand from Airport. Hence it's risky/less opportunity for drivers to get return trip to City and the trips are cancelled.
 - ✓ Late Evening and Night : High demand from Airport but not enough cars around as less number of cars go towards airport in evening.
- There is a shortage of cabs in general. At the peak times there is about **26%** chance of Non-Availability of cabs both to and from Airport.



- It was found the demand at peak times is mostly unidirectional and demand at destination around that was not enough for return trips for drivers.
 - ✓ It is recommended to provide incentives to drivers for trips to and from Airport during these rush hours (i.e. 5am to 11am and 5pm to 11pm).
 - ✓ During these rush hours customers can be charged higher for trips to and from Airport.
- It was also observed that there is a shortage of cabs in general. Though the reason of shortage from Airport is not enough organic supply to the airport, but from city as well, overall about 26.7% requests face Non-Availability of cabs.
 - ✓ Avg. Non-Availabilty hourly:
 - Airport = 71
 - City = 39
 - ✓ Hence based on the available data a new fleet of 40-70 cabs can added to Uber services.
- The average time of travel is 52.4 minutes for these trips.
 - ✓ Incentive based on distance of trips will encourage drivers to take these trips. This would make a better financial sense for drivers.
 - ✓ Accordingly longer trips should be charged.
- Incentivising these trips will in turn meet more customer demands, resulting in better profits for Uber.
- Educating drivers about these demand-supply gap.

