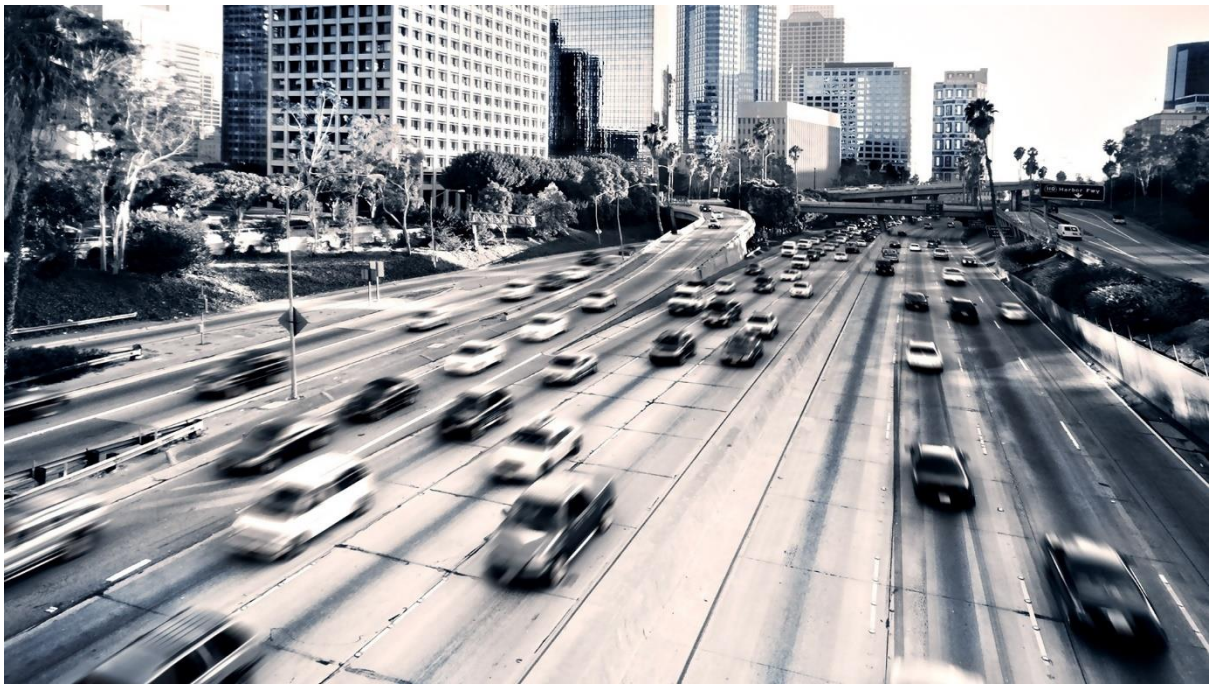
Uber Supply-Demand Gap



Business Understanding

You may have some experience of travelling to and from the airport. Have you ever used Uber or any other cab service for this travel? Did you at any time face the problem of cancellation by the driver or non-availability of cars?

Well, if these are the problems faced by customers, these very issues also impact the business of Uber. If drivers cancel the request of riders or if cars are unavailable, Uber loses out on its revenue.

Business Objectives

The aim of analysis is to identify the root cause of the problem (i.e. cancellation and non-availability of cars) and recommend ways to improve the situation.

Data Understanding

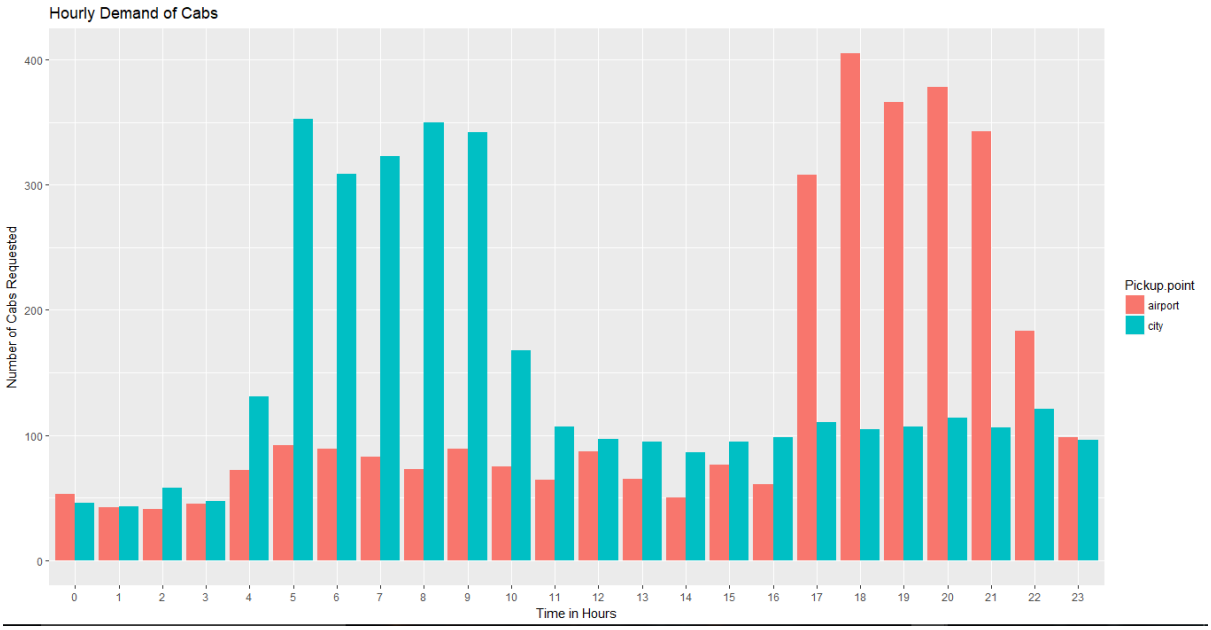
There are six attributes associated with each request made by a customer:

1. **Request id: A unique identifier of the request**
2. **Time of request: The date and time at which the customer made the trip request**
3. **Drop-off time: The drop-off date and time, in case the trip was completed**
4. **Pick-up point: The point from which the request was made**
5. **Driver id: The unique identification number of the driver**
6. **Status of the request: The final status of the trip, that can be either completed, cancelled by the driver or no cars available**

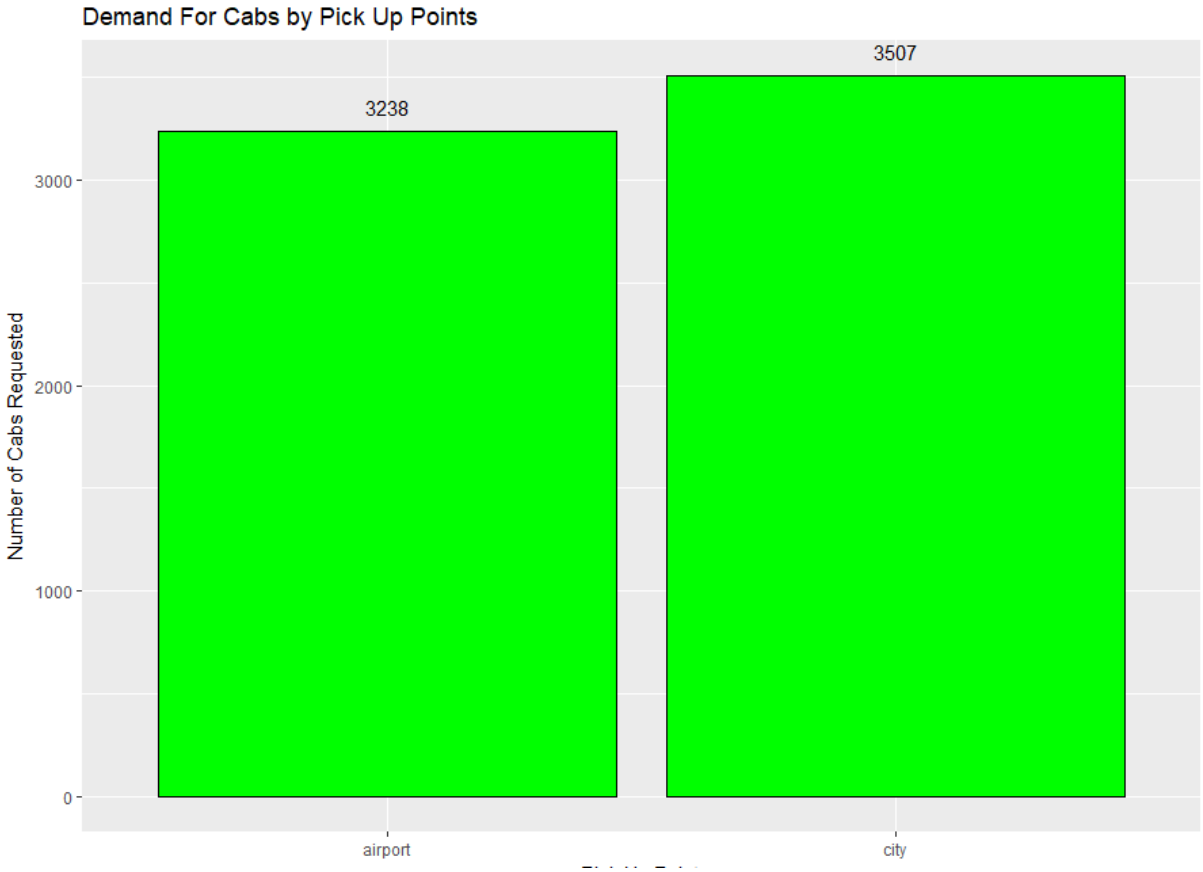
Data Analysis

Note: For this analysis, only the trips to and from the airport across 5 days are being considered.

PLOT-1 Hourly Demand of Cabs



PLOT-2 Demand of Cabs by pickup points

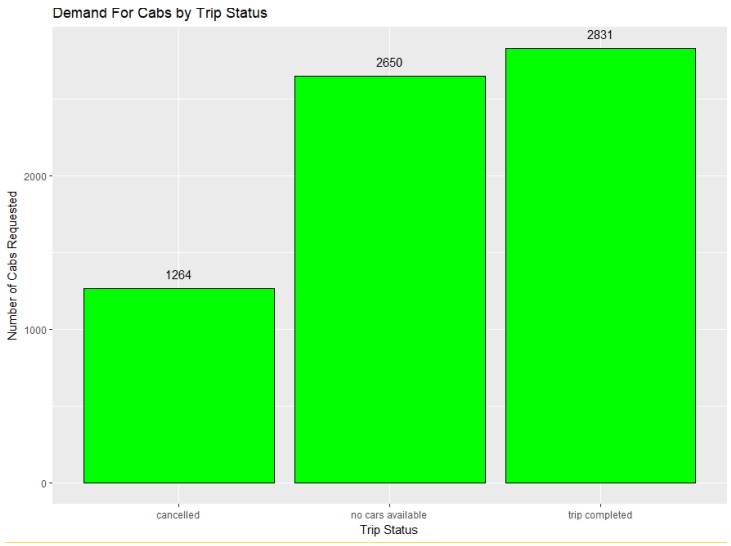


Demand for Airport-City is 3328 cab requests.

Demand for City-Airport is 3507 cab requests.

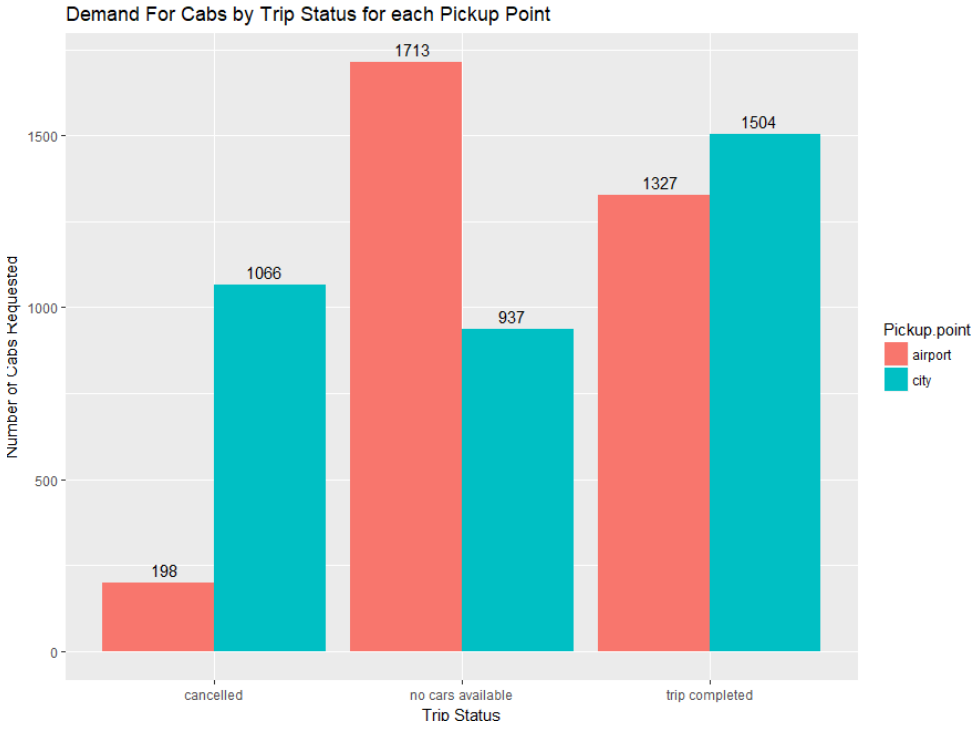
Conclusion: Clearly, More requests are from city-airport as compared to airport-city.

PLOT-3 Demand for Cabs by trip status



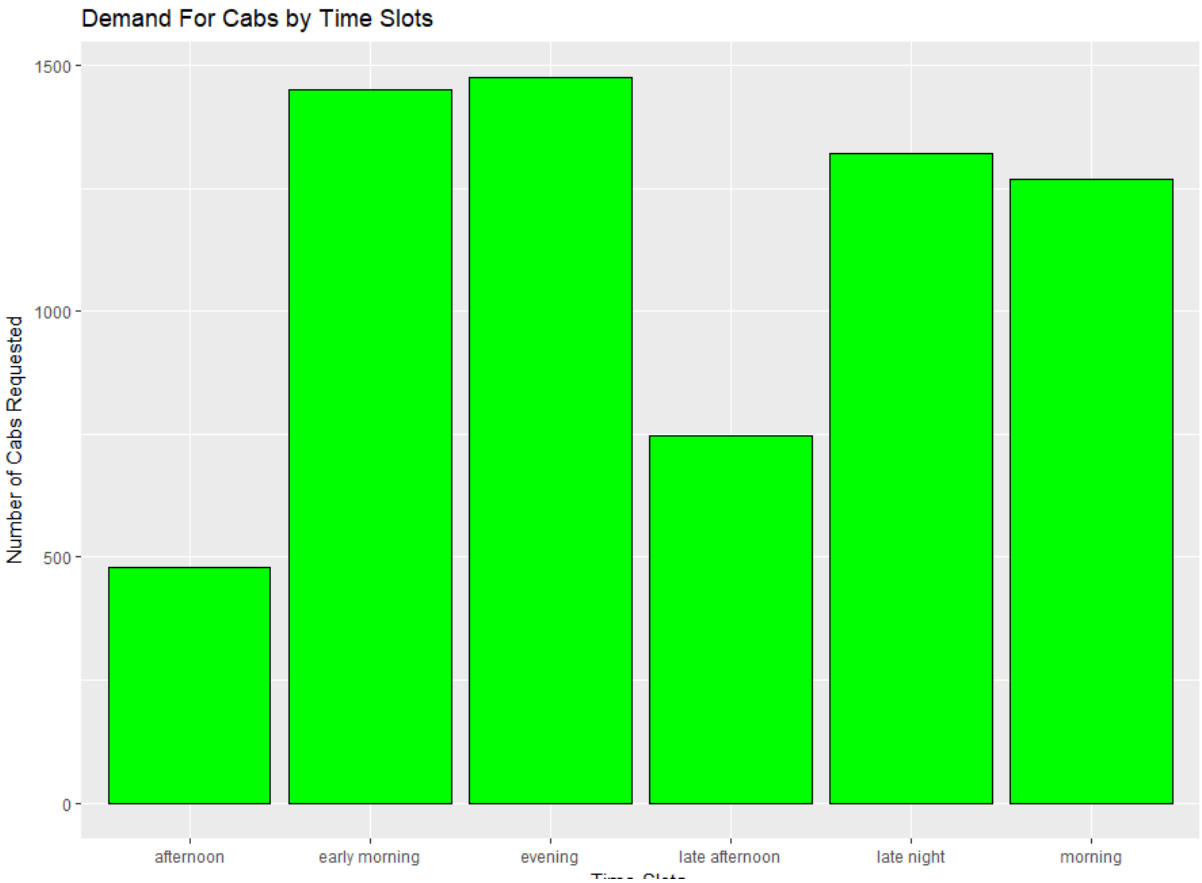
Conclusion: More cabs are not available or being cancelled as compared to actual number of trips completed. No cars available is a more problematic condition as compared to cancelled cabs.

PLOT-4 Demand for Cabs by trip status for each pickup points



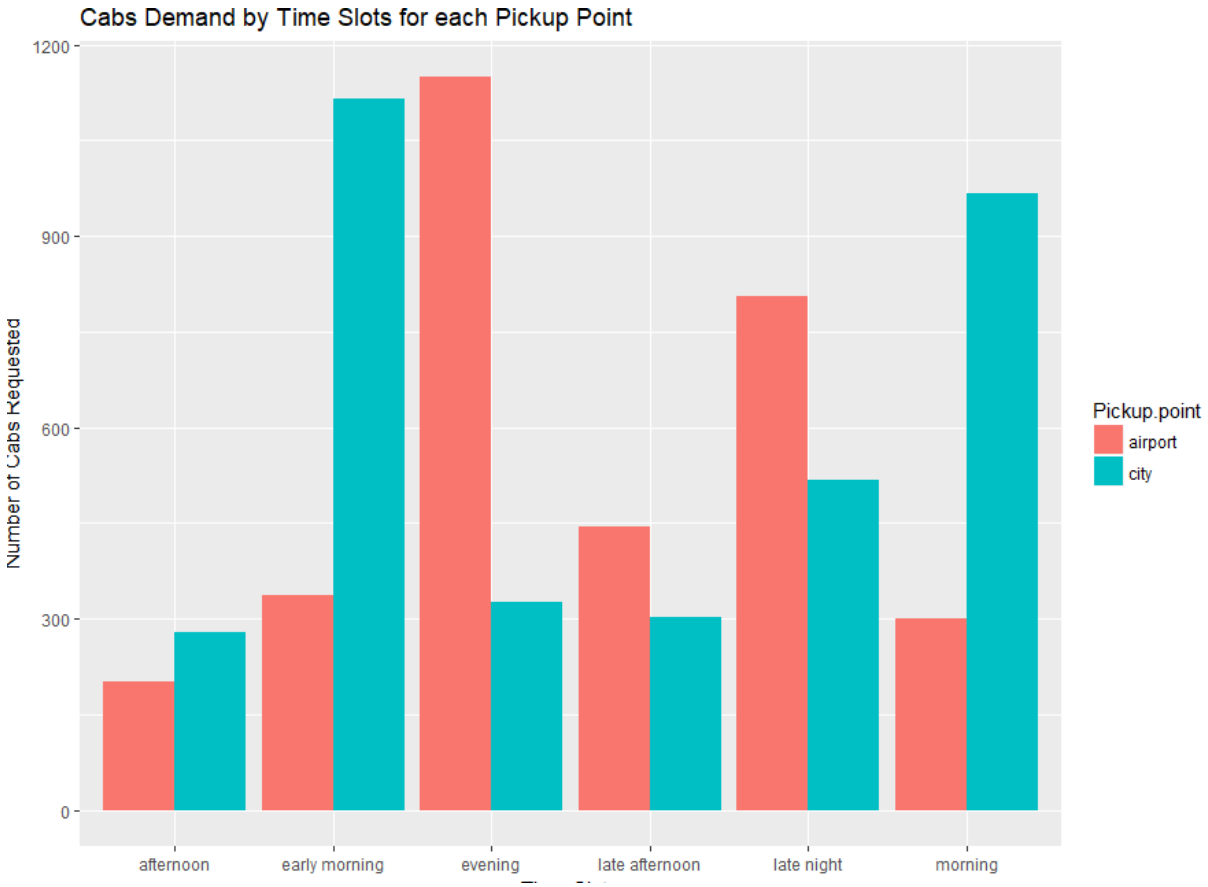
Conclusion: More cars are cancelled for city-airport trips as compared to airport-city. More cars are unavailable for airport-city trips as compared to city-airport.

PLOT-5



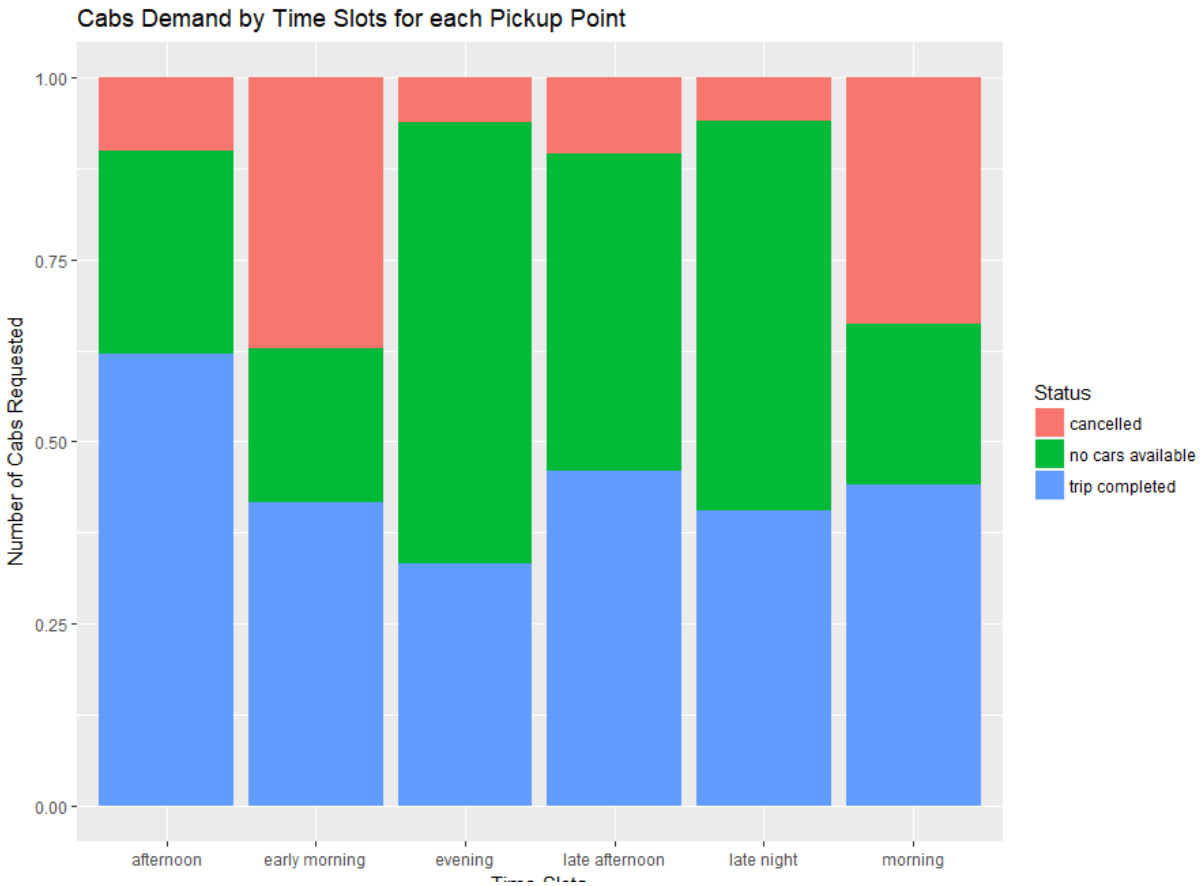
Conclusion: Most cabs are requested in the evening. There are also significant requests for cabs at early morning, morning and late night.

PLOT-6



Conclusion: Most of the airport-city cab requests are in the evening. Most of the city-airport cab requests are in the early morning.

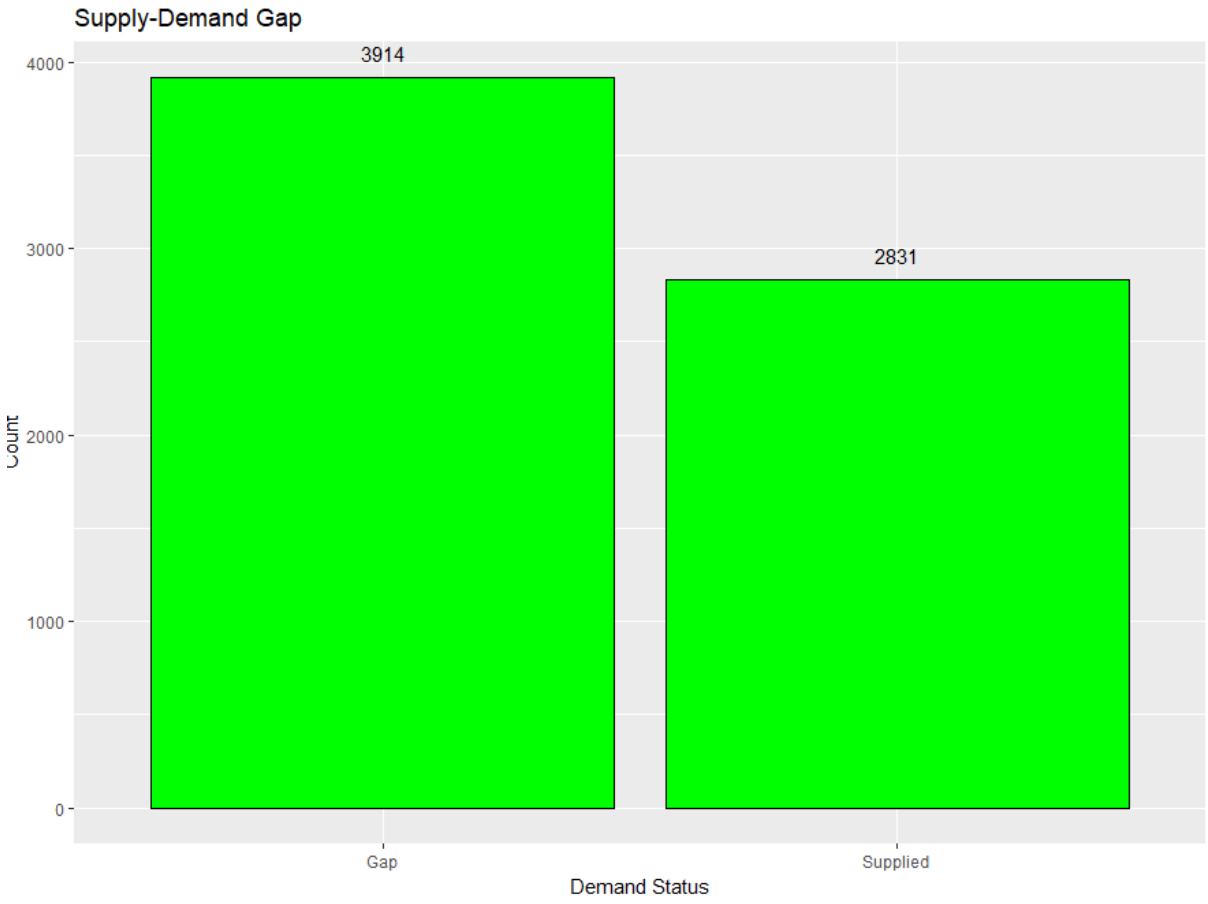
PLOT-7



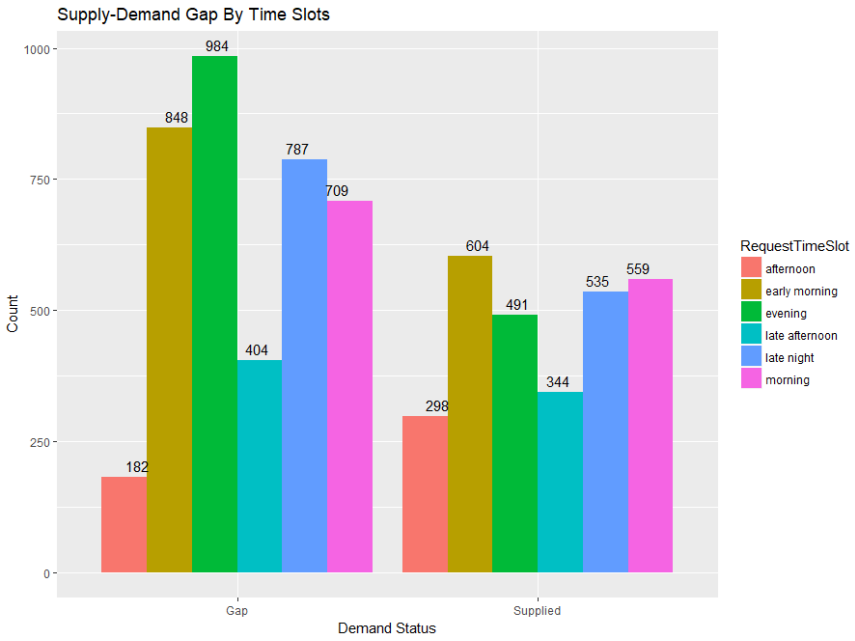
Conclusion: Most of the cabs are unavailable at in the evening and most of the cabs are cancelled in the early morning. From PLOT-6 and PLOT-7 we conclude that airport-city trips are more problematic as compared to city-airport trips.

Supply-Demand Analysis

PLOT-8 Overall Supply-Demand Gap

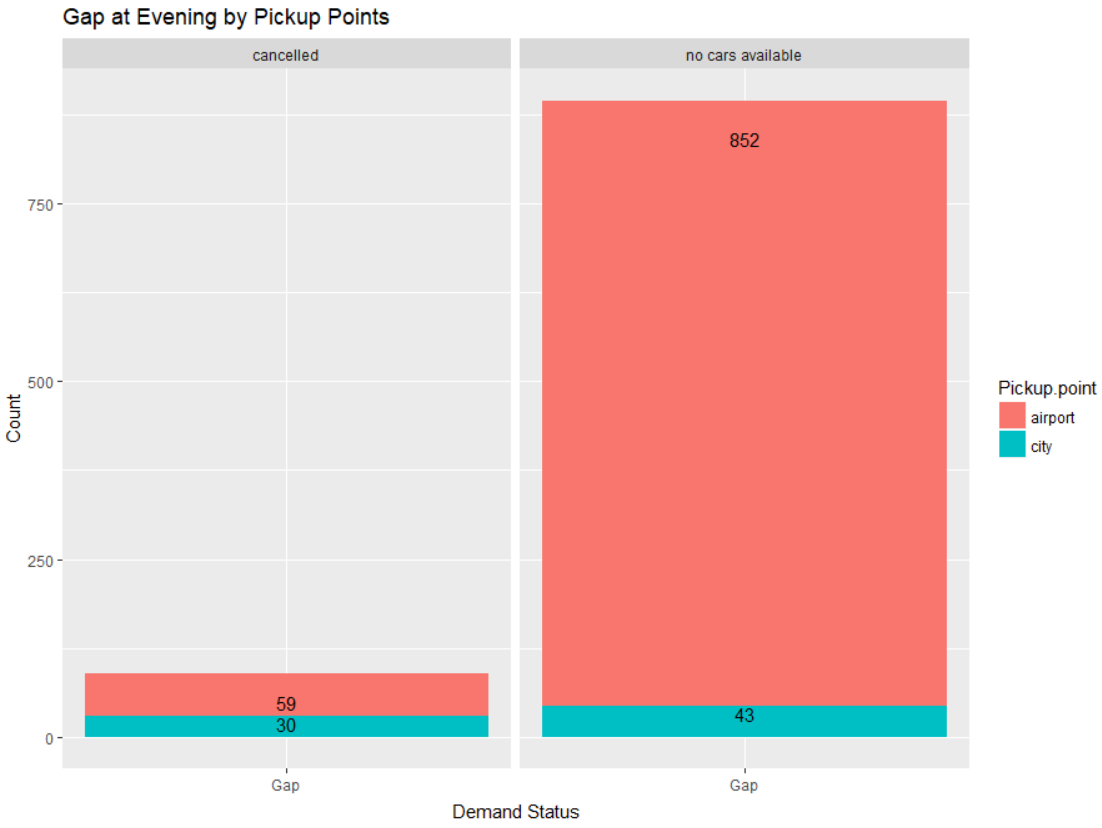


PLOT-9 Supply-Demand Gap by Time Slots



Conclusion: Demand-Supply Gap exists highest at evening time slot followed by early morning.

PLOT-10 Supply-Demand Gap at Evening by pickup points



Conclusion: Demand-Supply Gap exists highest at the evening for airport-city trips because of no cars availability.

Problem#1(Most Severe): Demand-Supply Gap exists highest at the evening for airport-city trips because of no cars availability.

Reason: At the airport Incoming flights are more and outgoing flights are less during Evening r slot. As the outgoing flights are less, the cabs coming to the airport are also very less during that time. This is drastically reducing the availability of cabs at airport in the evening time slot. As the incoming flights are more, the passengers are also more in the evening. These passengers are not getting sufficient cabs to leave the airport in the evening. This is leading to a huge supply demand gap at the airport in evening time slot.

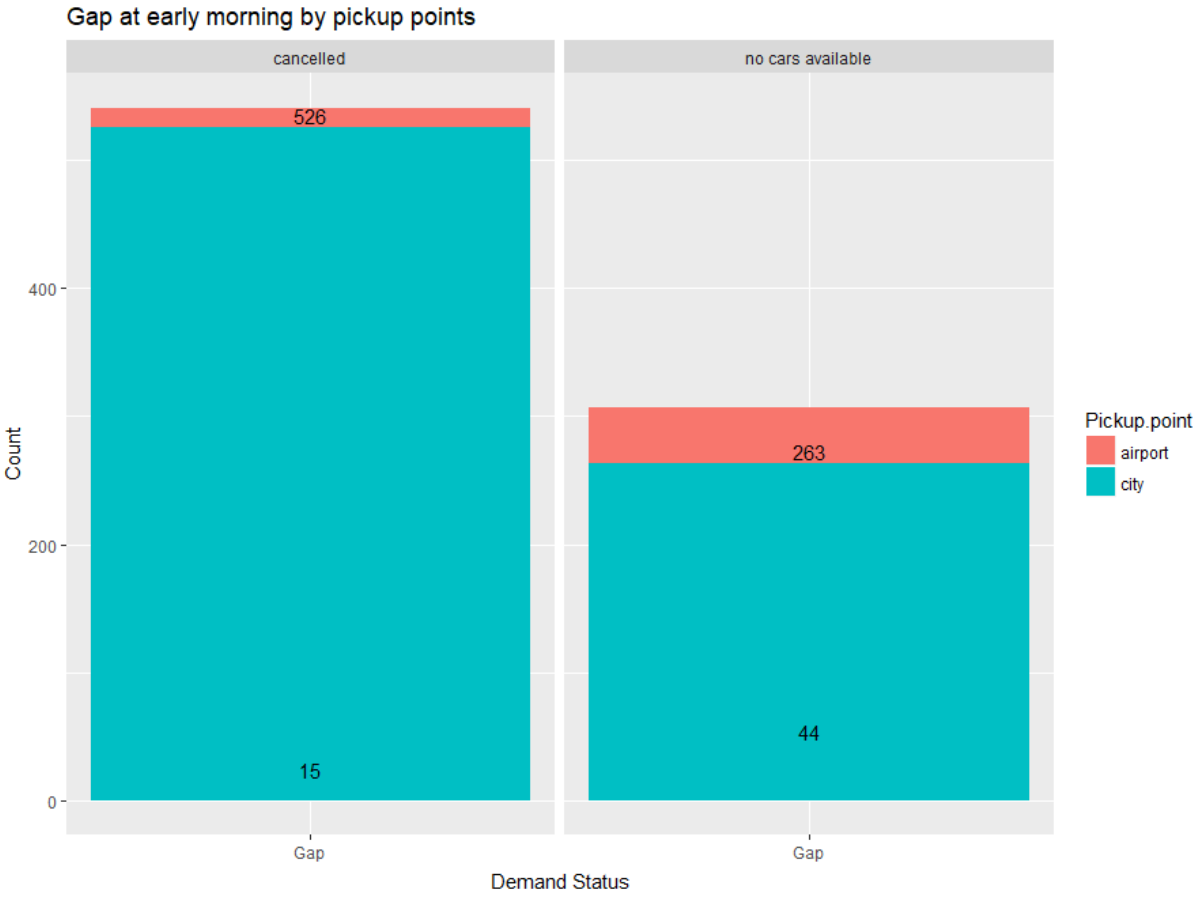
Recommendations:

1. Reducing the percentage charged from cab drivers for utilizing Uber services for making a trip to city.

2. Charging more money from the customers for trips to the city and rewarding the drivers accordingly.

3. Share this data with cab drivers and customers to better understand the issue. We can send a message to drivers and customers early so that they can get to the specific area and ready to go when the demand hits.

PLOT-11 Supply-Demand Gap at Early morning by pickup points



Conclusions: Demand-Supply Gap exists highest for city-airport trips in the early morning because of cancellation of requests.

Problem#2: Demand-Supply Gap exists highest for city-airport trips in the early morning because of cancellation of requests.

Reason: A large number of flights leave the airport during Morning rush time slot. There are very less incoming flights in the Morning rush. A driver who reaches airport during that time has to spend idle time to pick a customer back to the city. The driver could utilize this idle time for other trips if he chooses not to go to the airport. Otherwise he has to return back empty seated which is a waste of gas mileage for him. Due to this a large number of service requests were cancelled in morning rush resulting in huge supply demand gap.

Recommendations:

1. Reducing the percentage charged from cab drivers for utilizing Uber services for making a trip to city.

2. Charging more money from the customers for trips to the city and rewarding the drivers accordingly.

3. Share this data with cab drivers and customers to better understand the issue. We can send a message to drivers and customers early so that they can get to the specific area and ready to go when the demand hits.