

Uber Supply - demand Gap Analysis

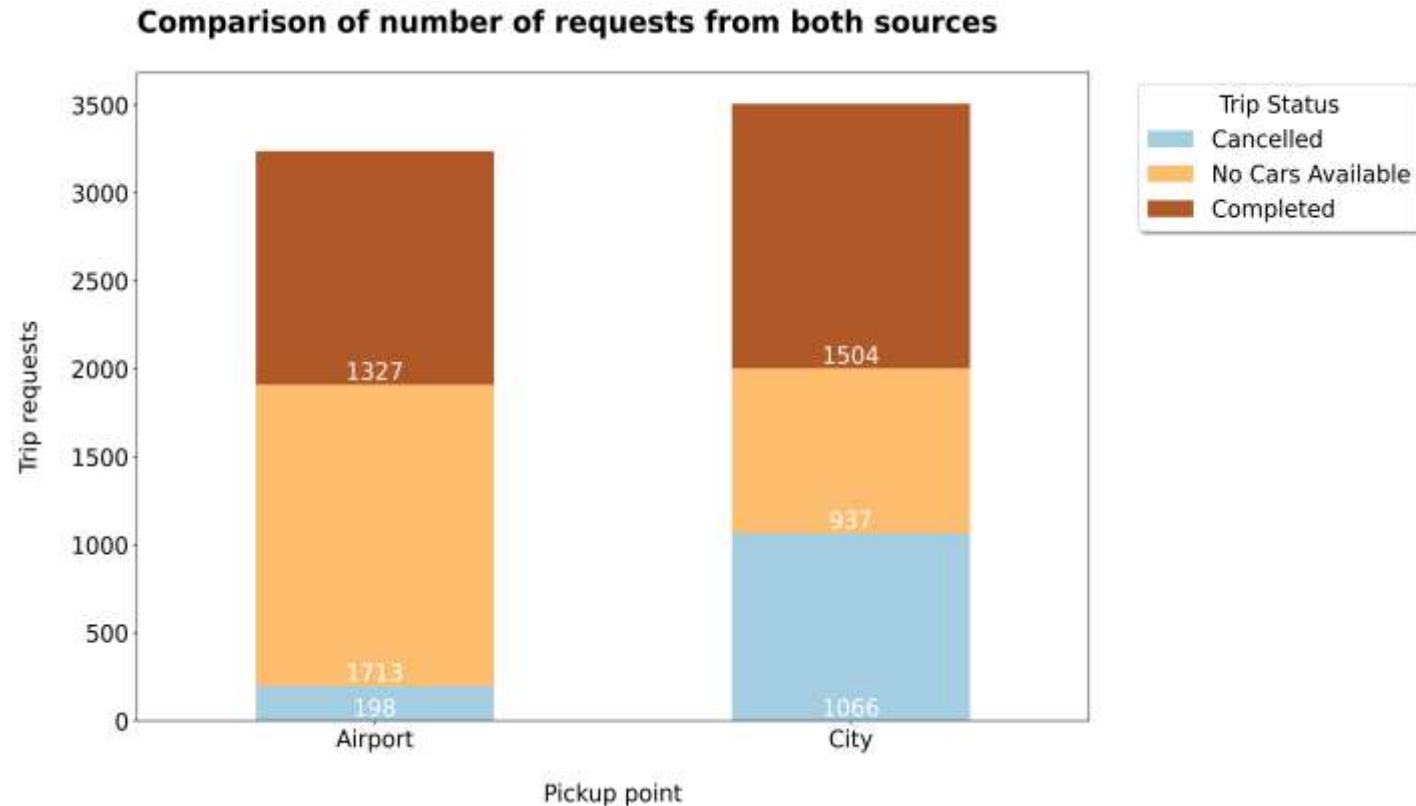
By Lokesh

Problem Statement

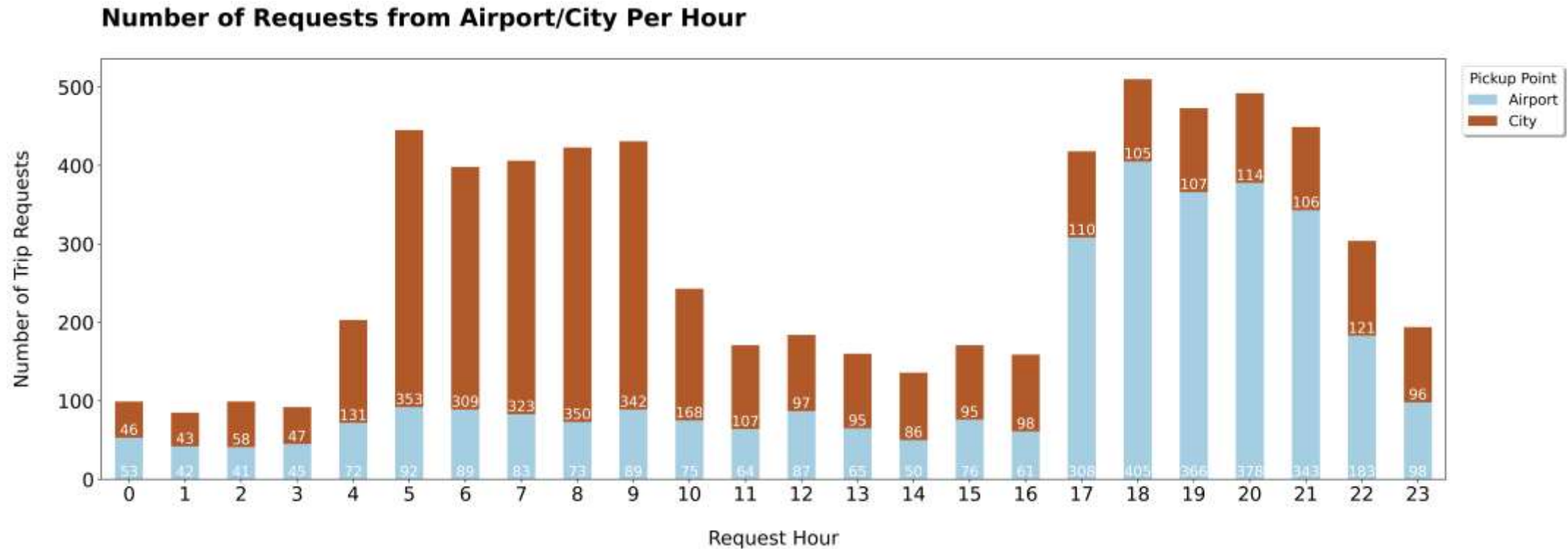
- Uber is facing - driver cancellation and non-availability of cars leading to loss of potential revenue.
- The aim of the analysis is to identify the root cause of the problem (i.e. cancellation and non-availability of cars) and recommend ways to improve the situation. As a result of your analysis, you should be able to present to the client the root cause(s) and possible hypotheses of the problem(s) and recommend ways to improve them.

Observations: Pickup vs Status

- Observation 1 - Trips requests from the City has higher number of cancellations compared to the one's starting from the Airport
- Observation 2 - Trips requests from the Airport register higher number of No Car Availability compared to the one's requested from the City
- Observation 3 - Successful trips originating is slightly higher from the City compared to the Airport

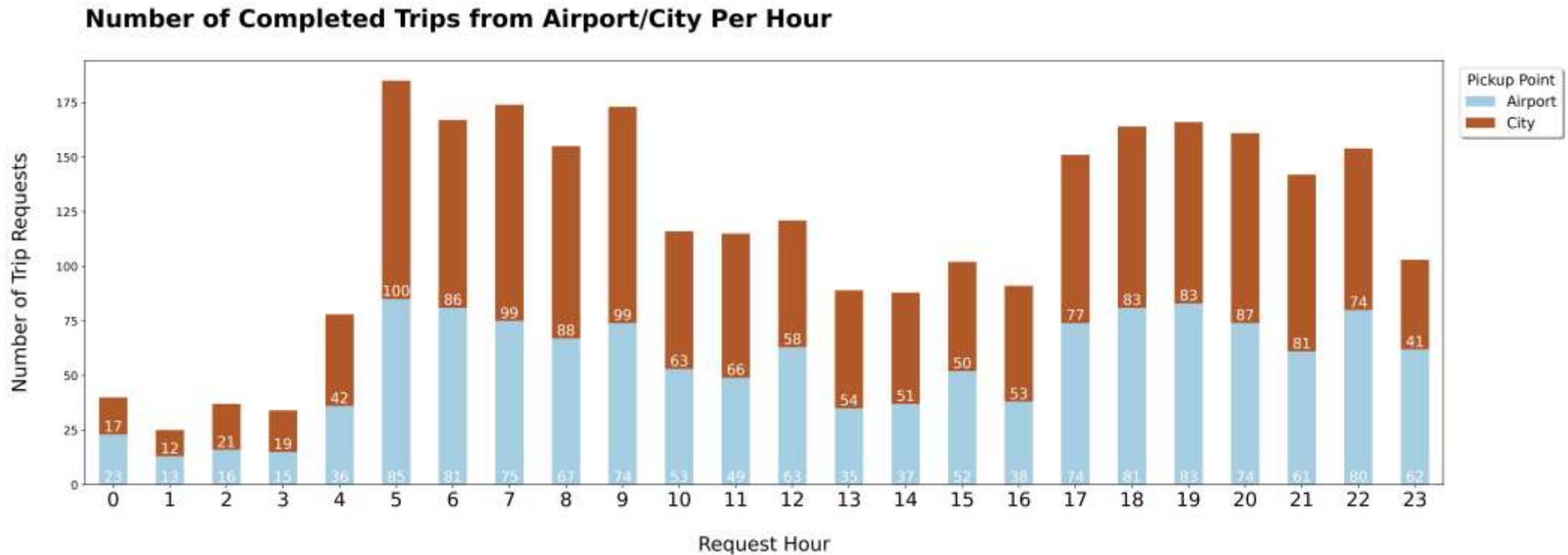


Hourly Request



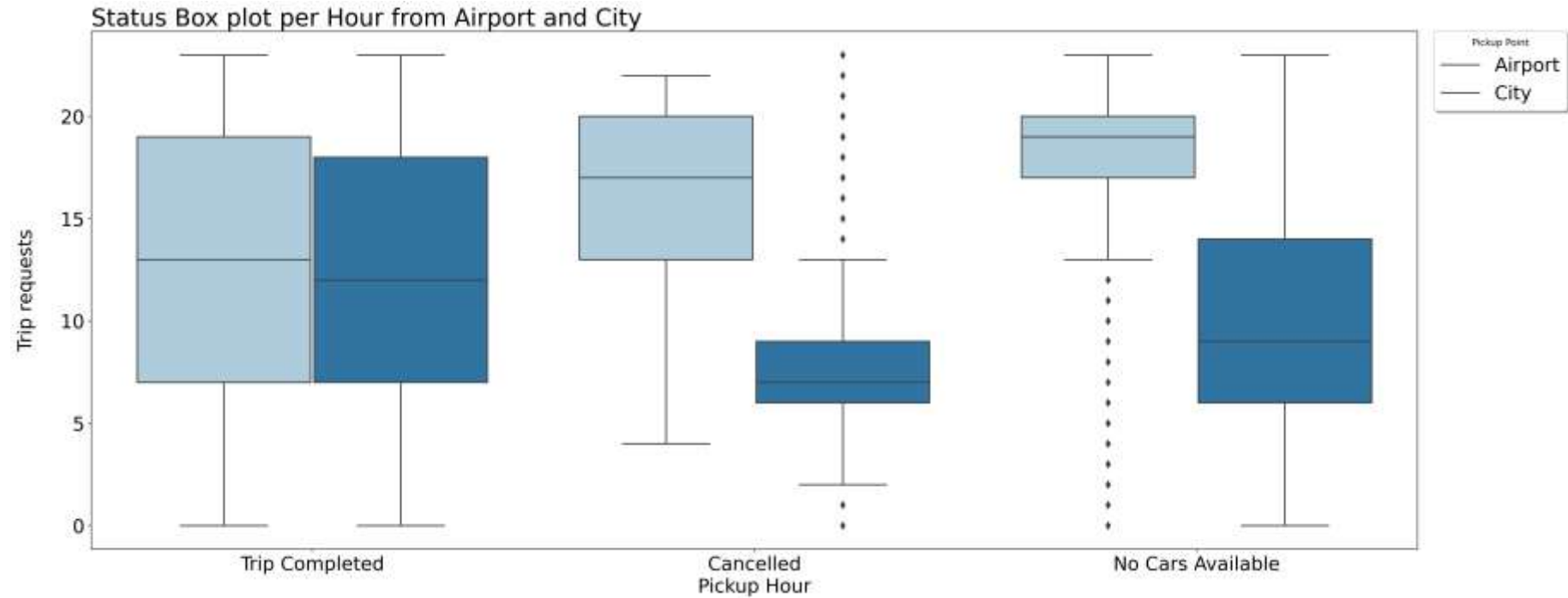
- Observation 4 - Number of Trips Requests is higher from the Airport during the Early Mornings(4-6 AM) and Mornings(7-11 AM)
- Observation 5 - Number of Trips Requests is higher from the City during the Evenings(5-6 PM) and Night(7 PM - Midnight)

Successful trips

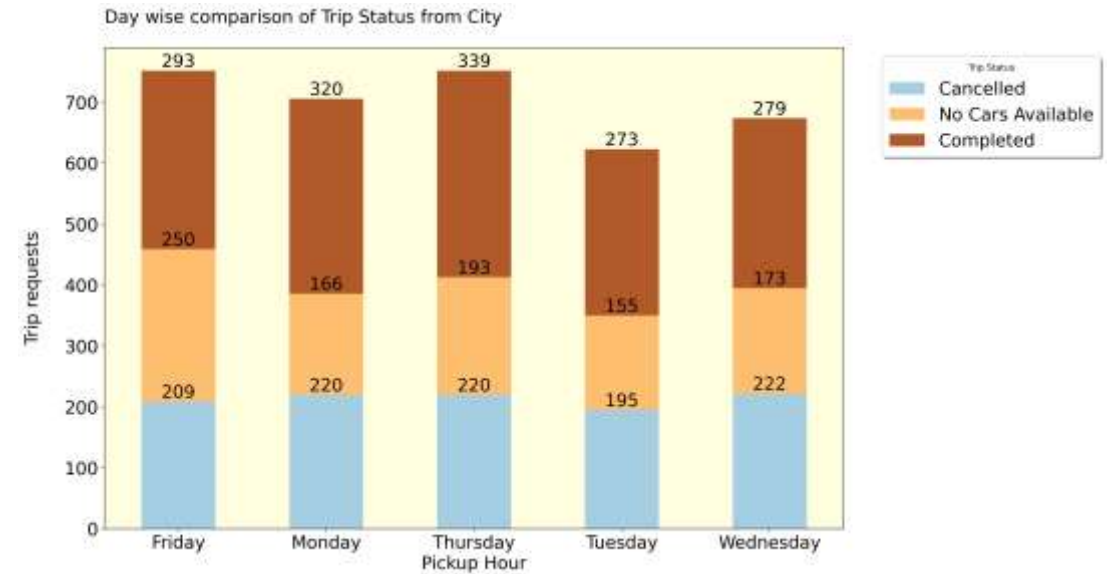
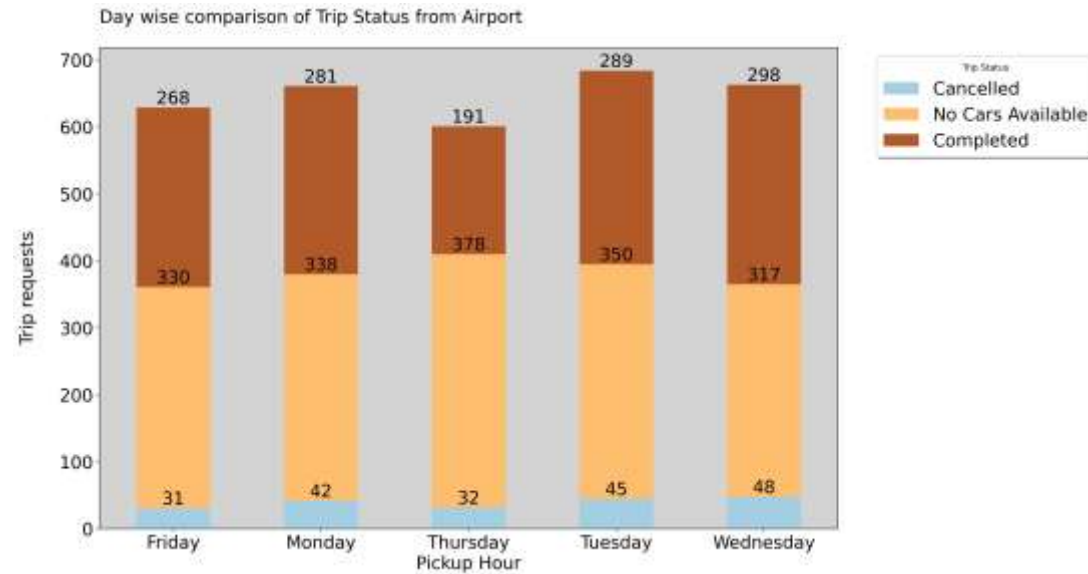


Observation 6 - The heaviest load was during the 5th hour of the day during the week. This time period has total successful requests of only 185. The total number of Drivers is 300. This basically means that there are free drivers and cars available at this time but are either cancelling the requests or not taking any requests for some reason

Analysis based on each time of the day

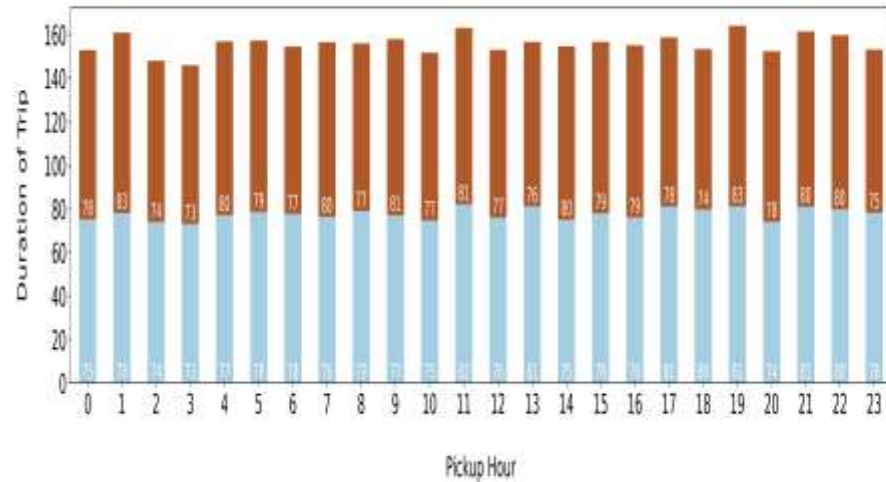


Day wise comparison of Trips

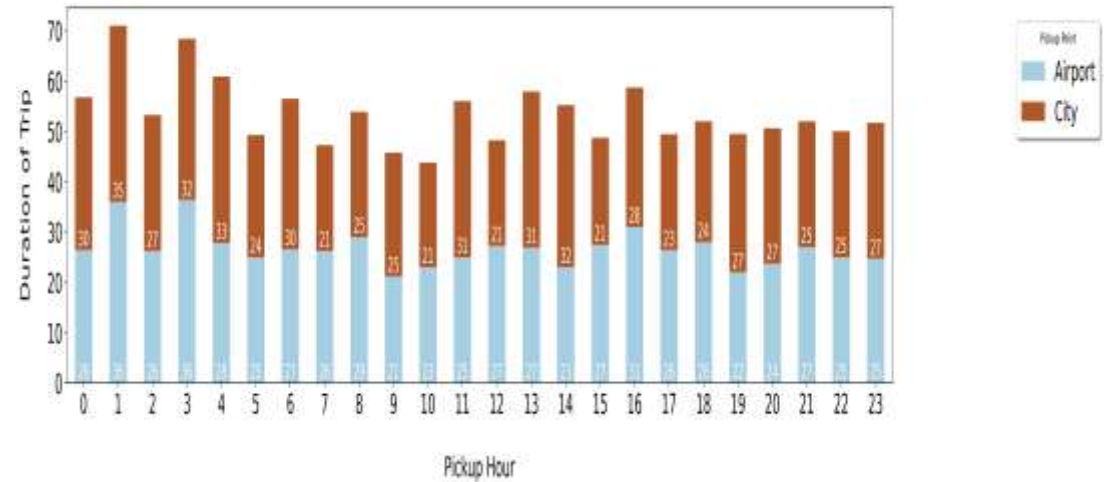


Analysis on Trip Duration

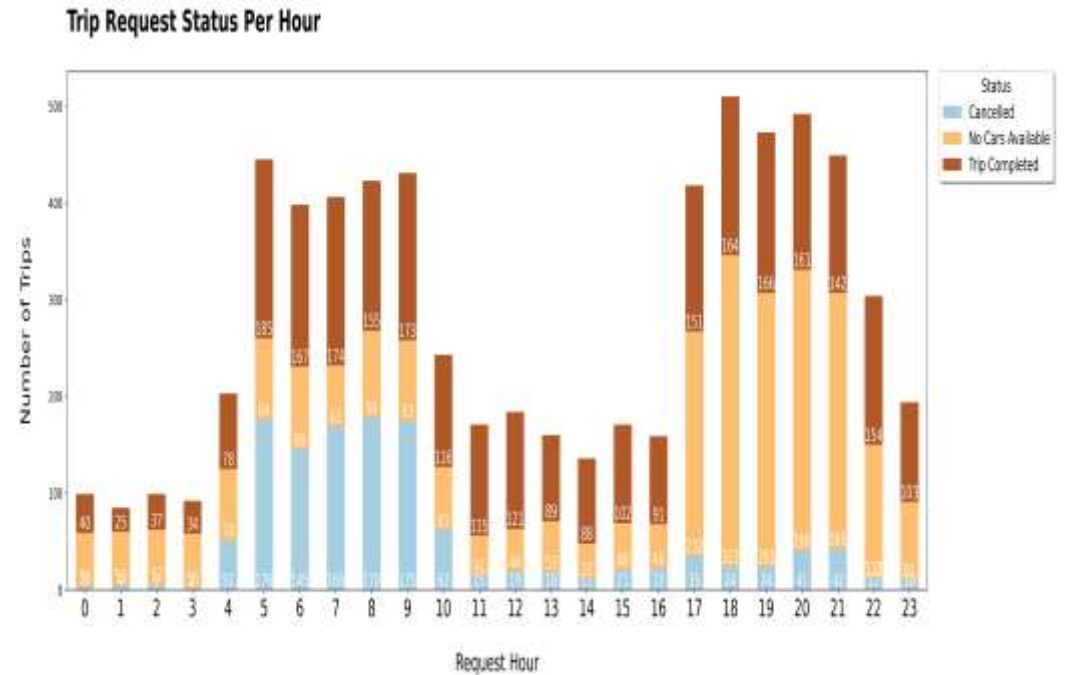
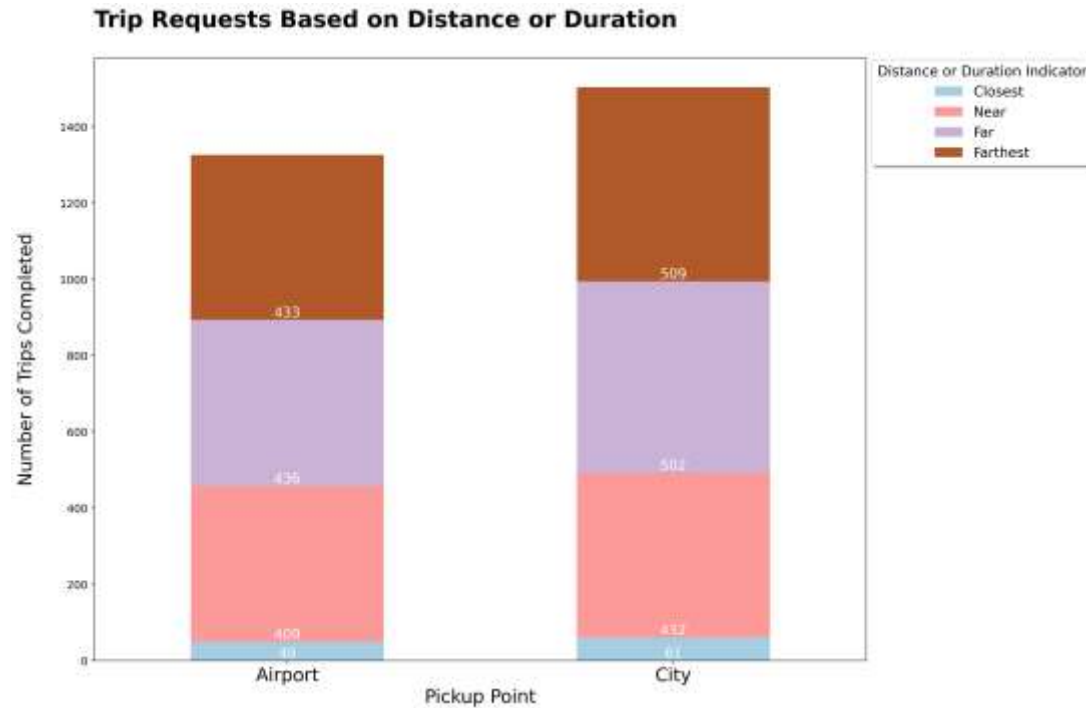
Maximum Duration of Trips from Airport and City



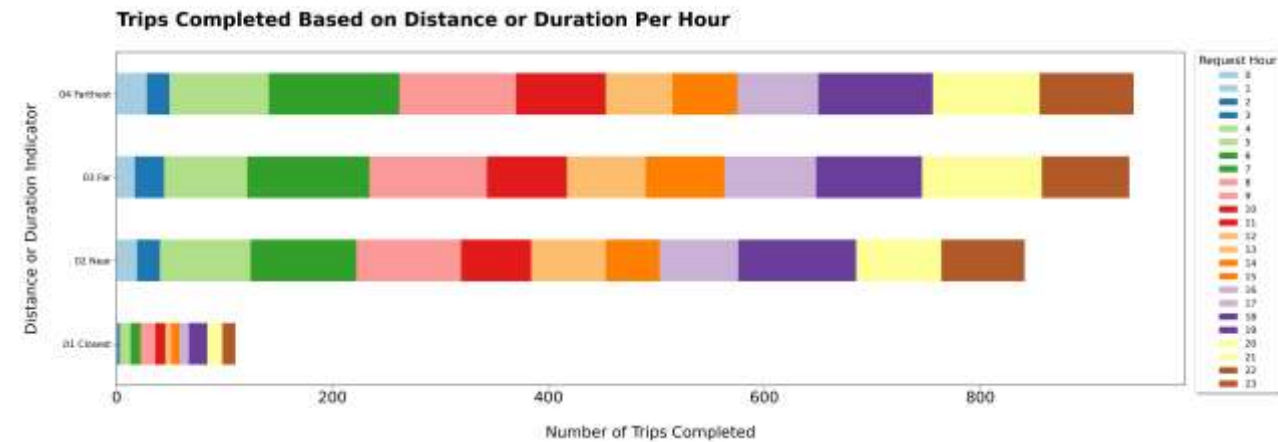
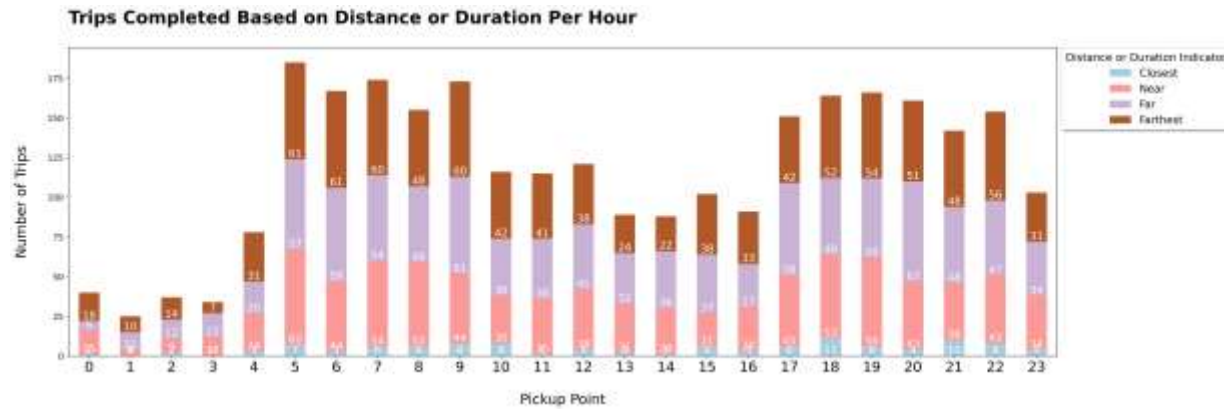
Minimum Duration of Trips from Airport and City



Analysis on Trip Request

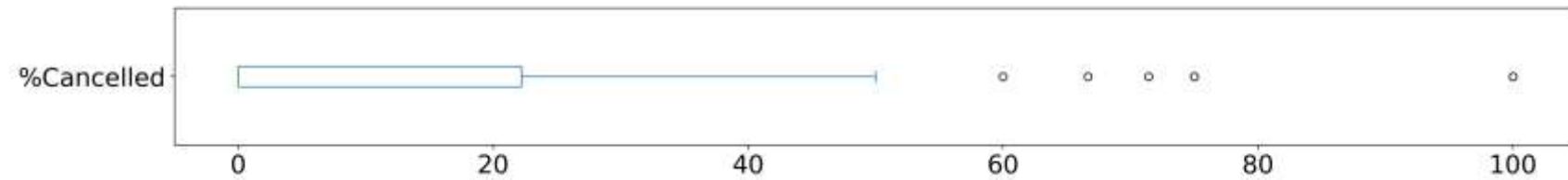


Trip completion status based on Distance & Duration

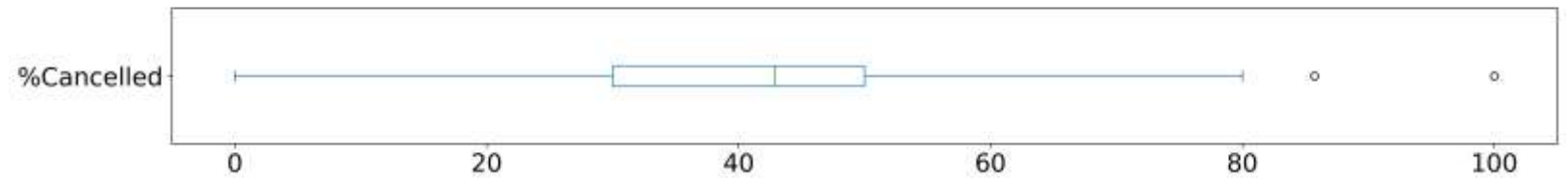


Trip Cancellation Analysis

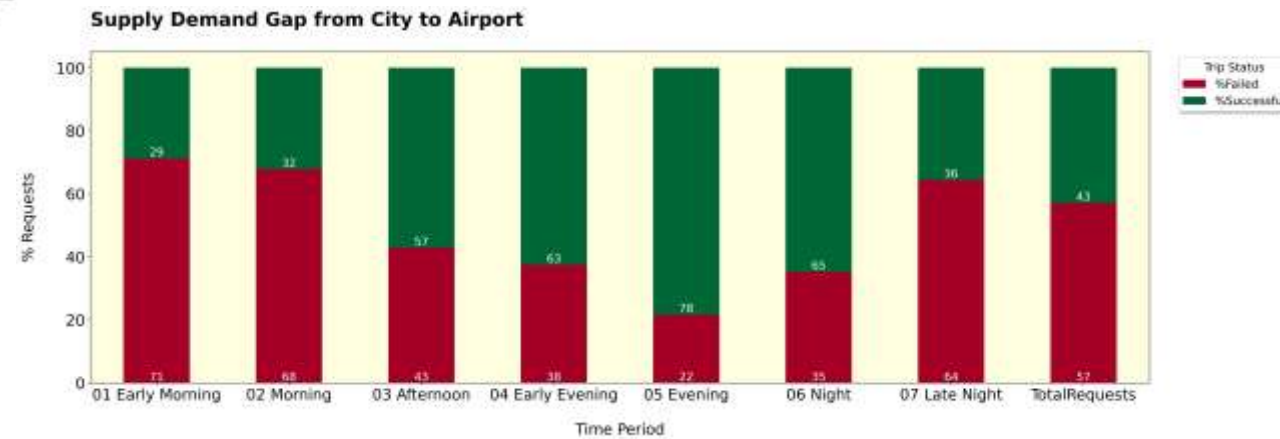
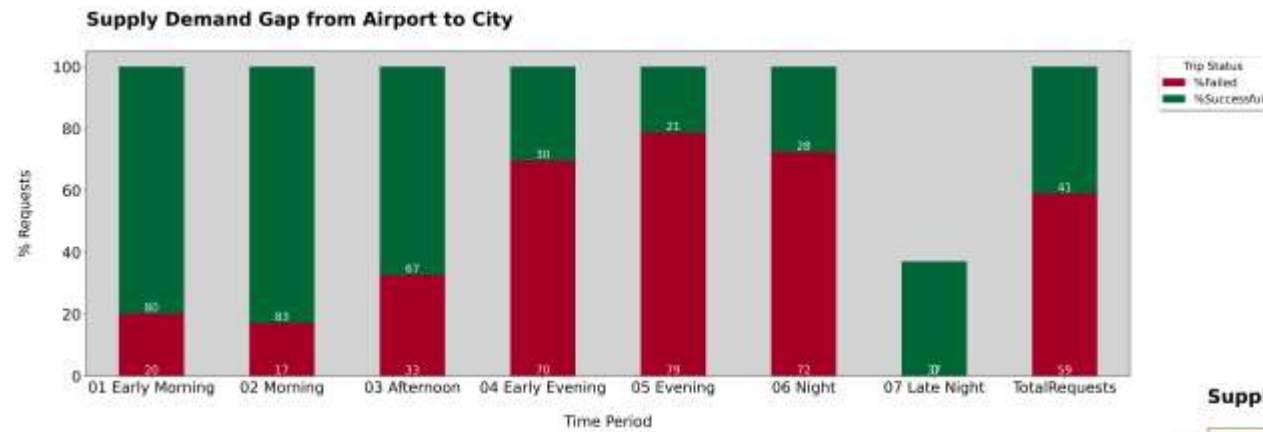
%Cancelled from Airport Across all Drivers



%Cancelled from City Across all Drivers



Supply- Demand Gap



Overall observation

- Observation 1 - Trips requests from the City has higher number of cancellations compared to the one's starting from the Airport
- Observation 2 - Trips requests from the Airport register higher number of No Car Availability compared to the one's requested from the City
- Observation 3 - Successful trips originating is slightly higher from the City compared to the Airport
- Observation 4 - Number of Trips Requests is higher from the Airport during the Early Mornings(4-6 AM) and Mornings(7-11 AM)
- Observation 5 - Number of Trips Requests is higher from the City during the Evenings(5-6 PM) and Night(7 PM - Midnight)
- Observation 6 - The cancellation and Car Availability pattern is almost the same each day, with no specific day standing out for trips from Airport. This basically means that there are free drivers and cars available at this time but are either cancelling the requests or not taking any requests for some reason
- Observation 7- The cancellation and Car Availability pattern is almost the same each day, with no specific day standing out for trips from City
- Observation 8 – The heaviest load was during the 5th hour of the day during the week. This time period has total successful requests of only 185. The total number of Drivers is 300.
- Observation 9 – Trip Requests are higher from the Airport in the evening time and most of the requests do not get serviced with “No Cars Available” as the primary reason. Not as many cancellations at this time. But significantly higher number of failed requests (Cancelled/No Cars Available)
- Observation 10 –Trip Requests are higher from the City in the morning time and most of the requests do not get serviced with “Cancellation” as the primary reason. Requests not being serviced for “No Cars Available” is nearly half of the requests failing for the reason being “Cancellation”

- Observation 11 – From the above visualizations, we can see that the number of cars is not available between 7 am to 2 pm in the city and the airport between 5 pm to 8 pm. No. of cancelled cabs in the city are happening from 6 to 9 am and in the airport between 1 to 8 pm
- This basically means that if we assume that if 104 drivers would have accepted to service these trips, the demand would have still fallen short of supply and about $242/5 \sim 50$ requests/day would still go un-serviced.
- Observation 12 - There were 346 failed trip Requests during the 18th hour. During the same hour, there were about 104 Drivers waiting for the next trip but were probably cancelling the requests or preferred to service customers not through Uber.
- Observation 13 – This basically means that if we assume that if 104 drivers would have accepted to service these trips, the demand would have still fallen short of supply and about $242/5 \sim 50$ requests/day would still go un-serviced.
- Observation 14 – Most trips get completed in the same hour as they were requested.
- May be the requests that get cancelled are for 1 other reason and that being the distance of the trip.
- Observation 15 – There are a few drivers who have a cancellation rate of 100%, meaning they don't want to travel on this route at all.
- Observation 16 – About 40 drivers are in transit in between hours, so they are not available to take requests either.
- Uber may need to register more number of drivers to fill this gap. Also provide some form of added benefit to the drivers to accept these requests.
- May be the requests that get cancelled are for 1 other reason and that being the distance of the trip.
- Observation 17 - Almost all trips getting completed are longer than 30 minutes.
- Observation 18 - Trip requests with durations greater than 45 minutes and 60 minutes have almost the same number of count.

Recommendation

1. There are drivers but are not accepting requests on Uber platform. To solve this, we may incentivize them for accepting requests during the peak periods.
2. Even if the drivers started accepting requests, there will be a gap, as there are only 300 drivers divided for trips from Airport and City. Uber needs to register a greater number of drivers to fill this gap. Run a campaign/ad to register a greater number of drivers with Uber. Provide sign-up bonus to new drivers.
3. Most trips completed are above 30 minutes duration. It is possible the shorter trips are not getting accepted or are being cancelled as the drivers feel there isn't enough advantage for them, and they lose more fuel, plus lose long-distance customers at the same time. Penalize drivers for excessive cancellations. Some drivers have 100% cancellation rate, meaning they cancel all trips once they find out it's not in their benefit.
4. Bonus to drivers who maintain a high rate of non-cancellation. Work with such drivers more and ask them for referrals and provide further incentives to such drivers.
5. Some requests may also be getting cancelled for locations that tend to have high traffic. Charge customers higher during this period and pass on that extra money to the drivers.
6. Some drivers seem to be accepting customers through other channels. They may be working with customers directly because then they can charge a higher price. They may be registered to other Uber competitors as well. Conduct survey to understand how many drivers are working with Uber competitors as well.