

Uber Supply Demand Gap Analysis

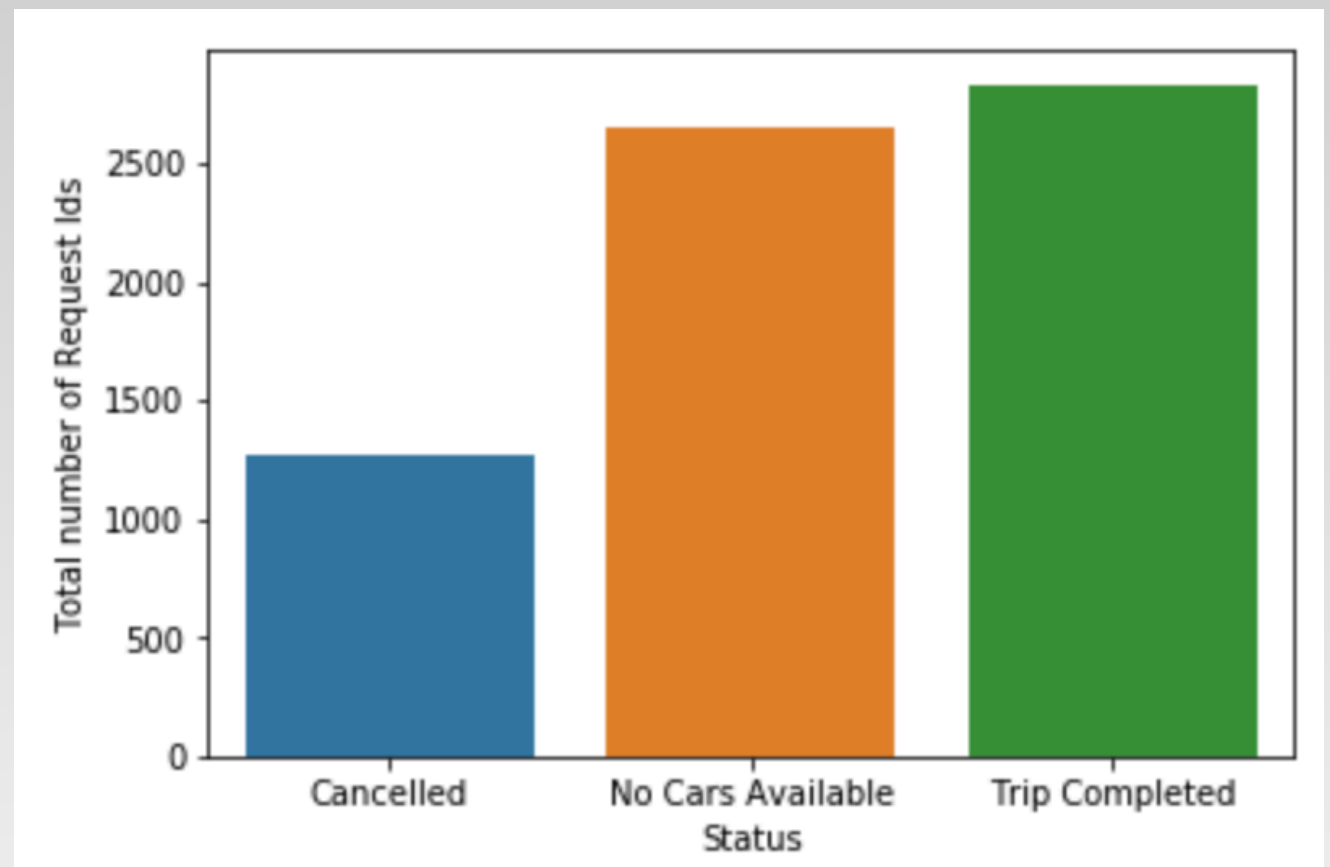
- Ashok Gorantala

Results Expected:

1. Visually identify the most pressing problems for Uber.
 - Hint: Create plots to visualise the frequency of requests that get cancelled or show 'no cars available'; identify the most problematic types of requests (city to airport / airport to city etc.) and the time slots (early mornings, late evenings etc.) using plots
2. Find out the gap between supply and demand and show the same using plots.
 - Find the time slots when the highest gap exists
 - Find the types of requests (city-airport or airport-city) for which the gap is the most severe in the identified time slots
3. What do you think is the reason for this issue for the supply-demand gap? Write the answer in less than 100 words. You may accompany the write-up with plot(s).
4. Recommend some ways to resolve the supply-demand gap.

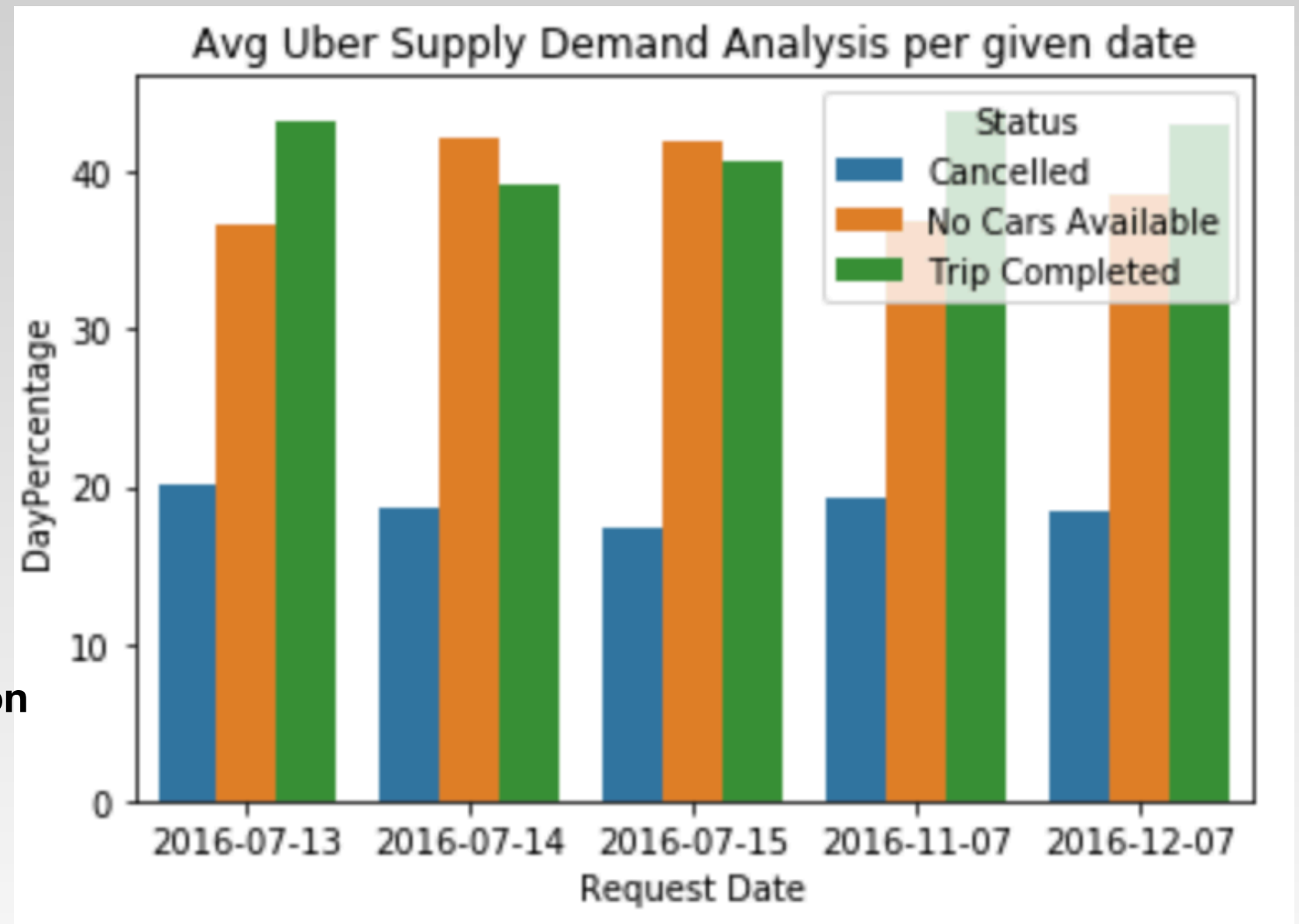
Total Number of Supply Gap for given dates:

	Status	Request id
0	Cancelled	1264
1	No Cars Available	2650
2	Trip Completed	2831



From above analysis, for the given Five days total number of supply gap is (Cancelled + No Cars Available) = 5481

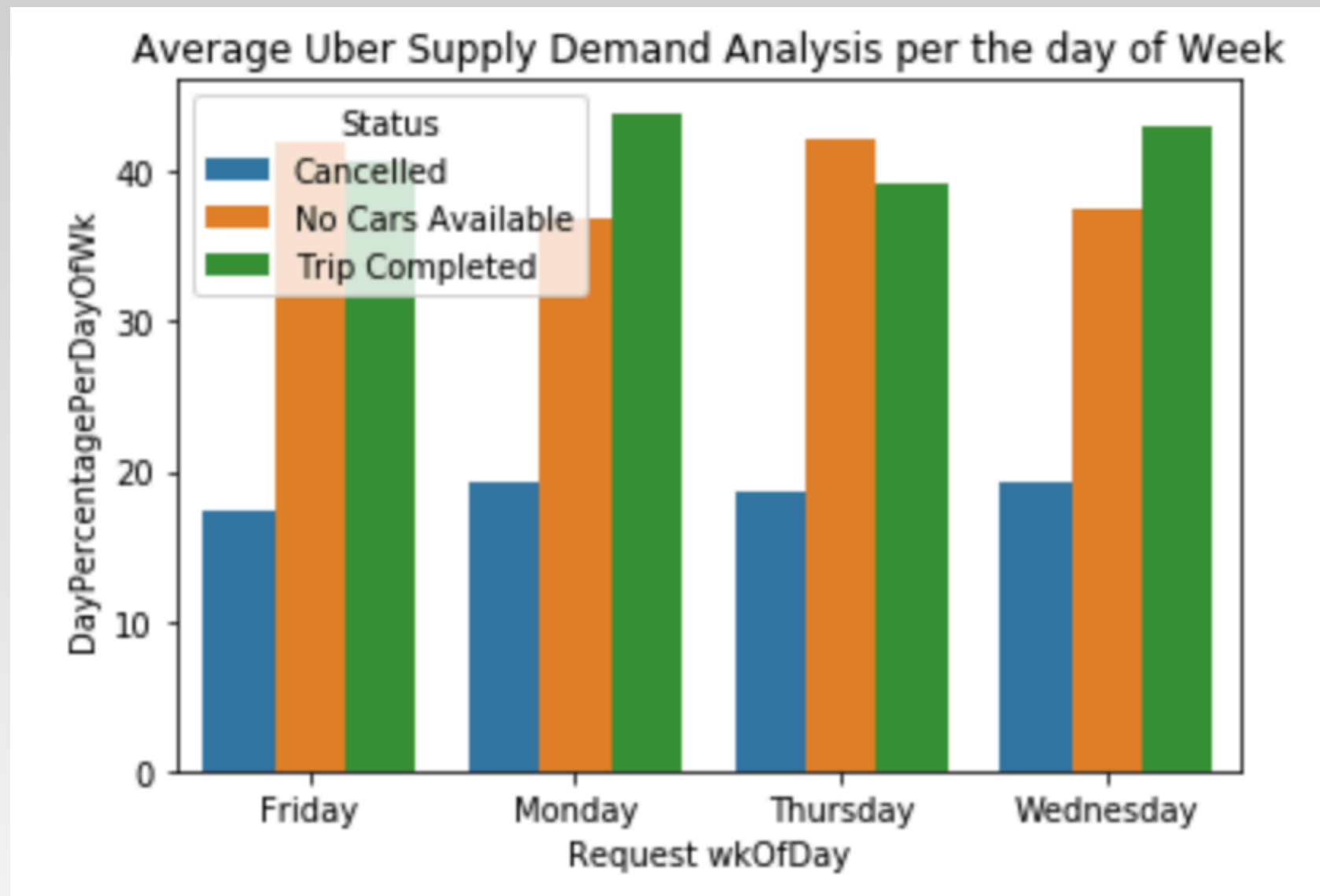
Analysing Supply Demand Gap Over the dates given



Where as the sampling dates took on
2016-11-07 ==> Monday
2016-12-07 ==> Wednesday
2016-07-13 ==> Wednesday
2016-07-14 ==> Thursday
2016-07-15 ==> Friday

So, taking the day of the week to analyse the Supply Demand analysis

Analysing Demand Supply Gap on the day of the Week



In overall,

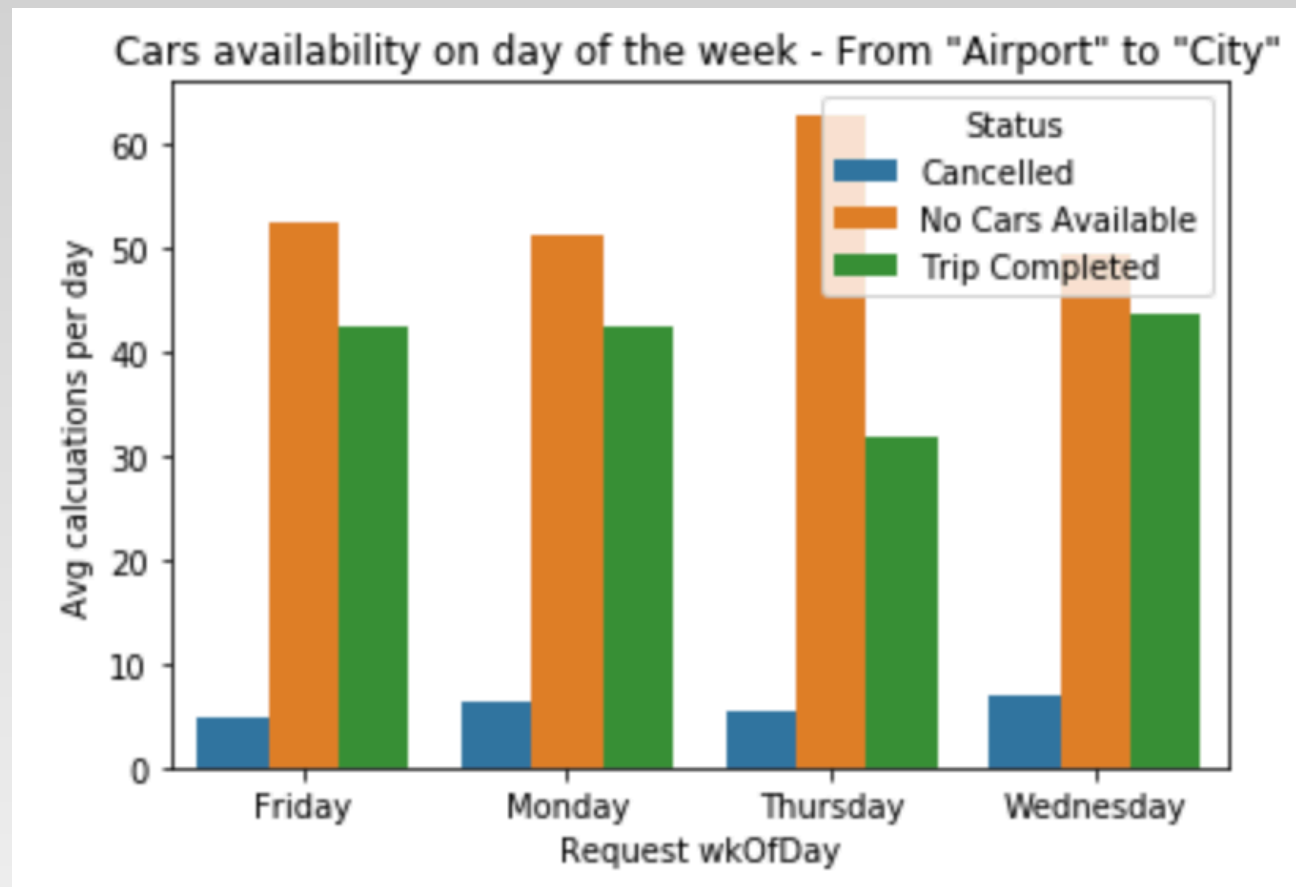
Point 1: Thursday and Friday having most cars unavailability

Point 2: Monday and Wednesdays serving most number of successful trip

Point 3: Of all days, Cancellation are steady at below 20%

Analysing Demand Supply Gap over the day of week - Side by Side

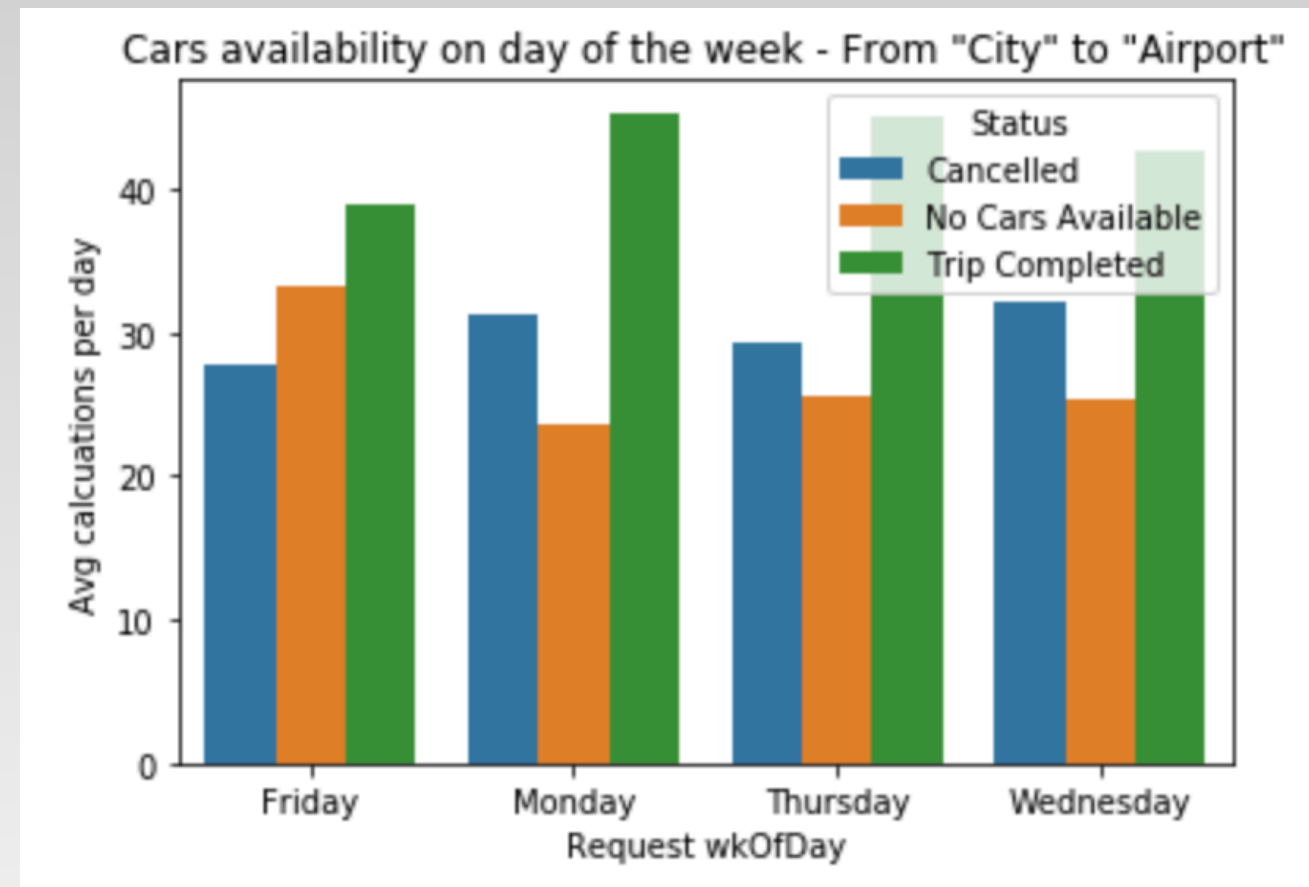
From Airport to City



Observations:

1. Cancellations at Airport is much less compared to City
2. Usually Thursdays at airport having more cars unavailability and less successful trips compared to other days

From City to Airport

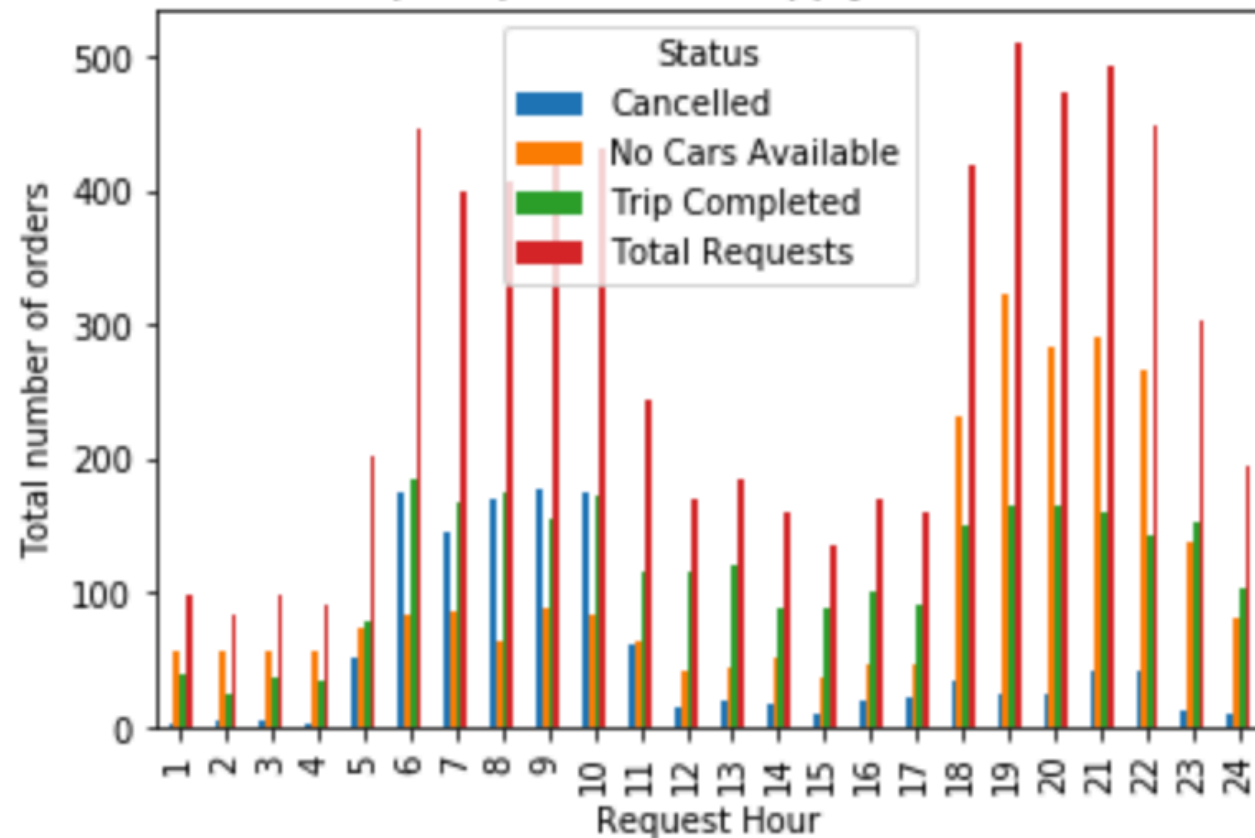


Observations:

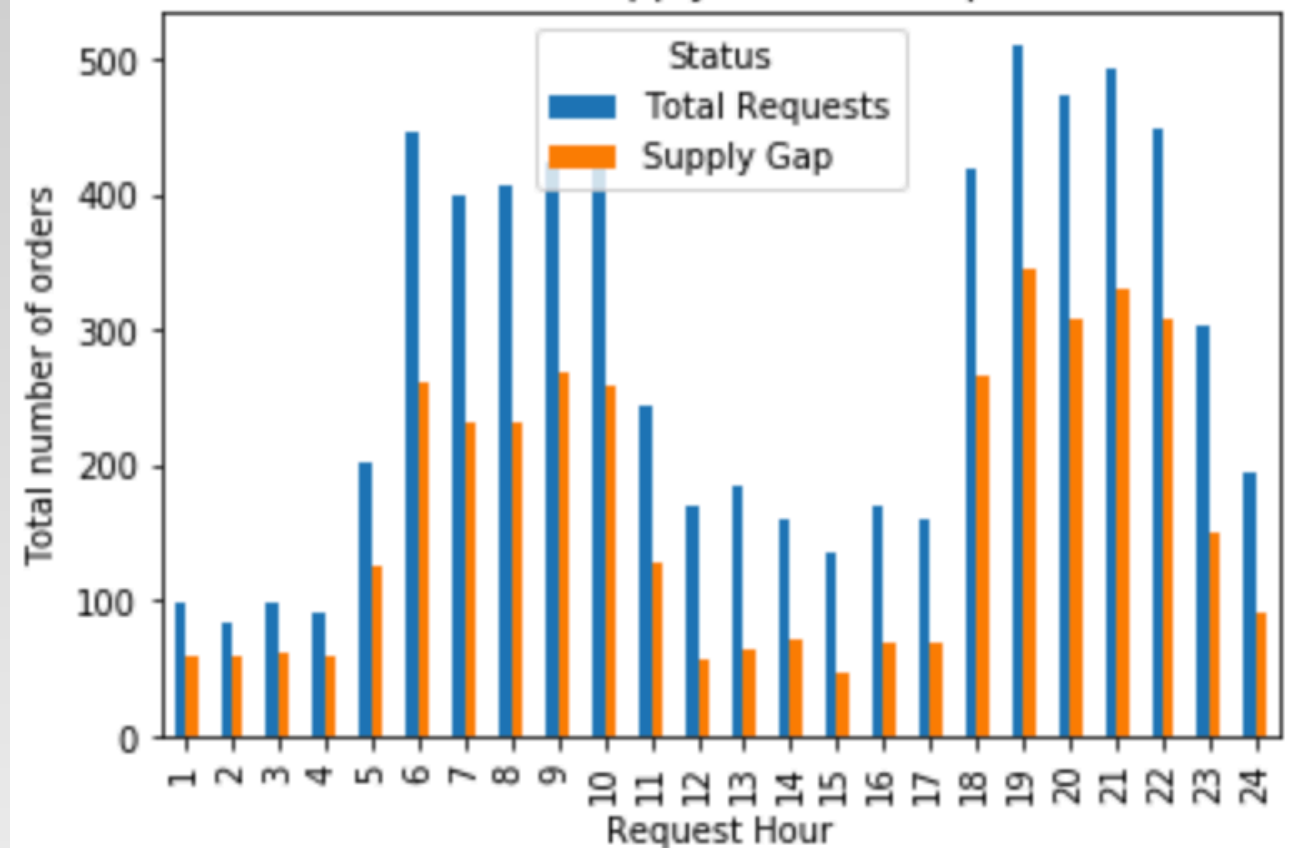
1. Usually successful trips are more from City to Airport; compared to Airport to City
 1. Question to Ask: Why cars are returning empty
2. Cancellations to go to the airport are more; compared to no cars availability
3. Monday being the huge money maker from City to Airport

Analysing typical cars supply demand stats throughout the day

Total pickup orders Vs Supply Demand Plot



Exact Supply Demand Gap

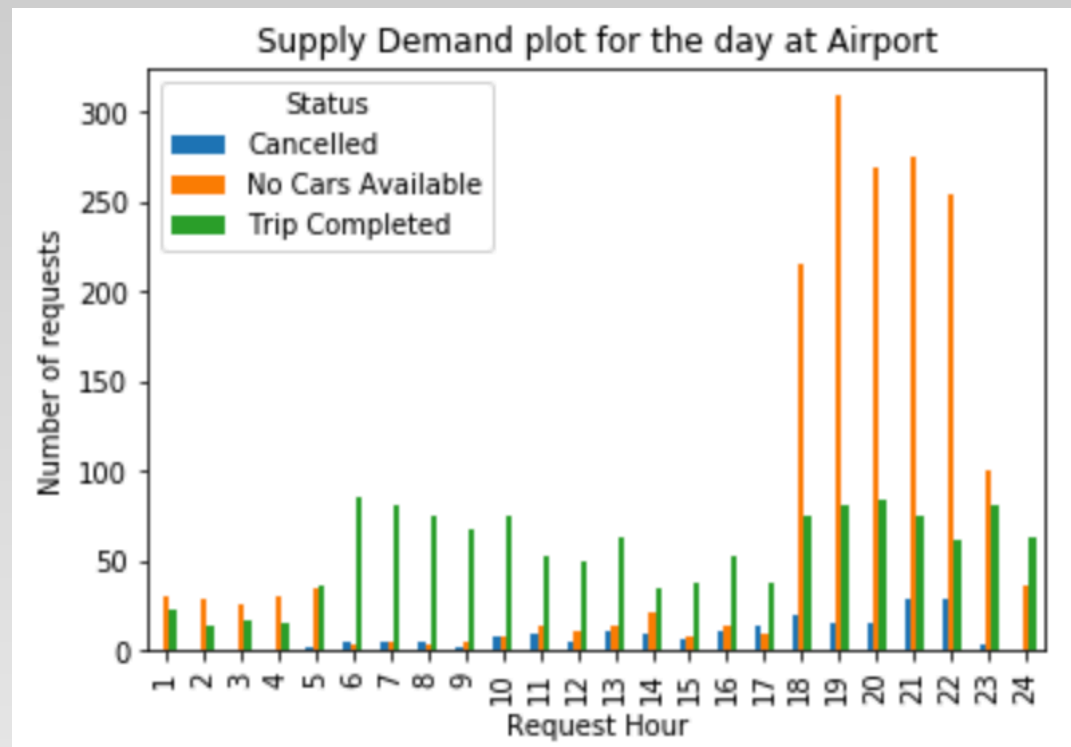


Observations:

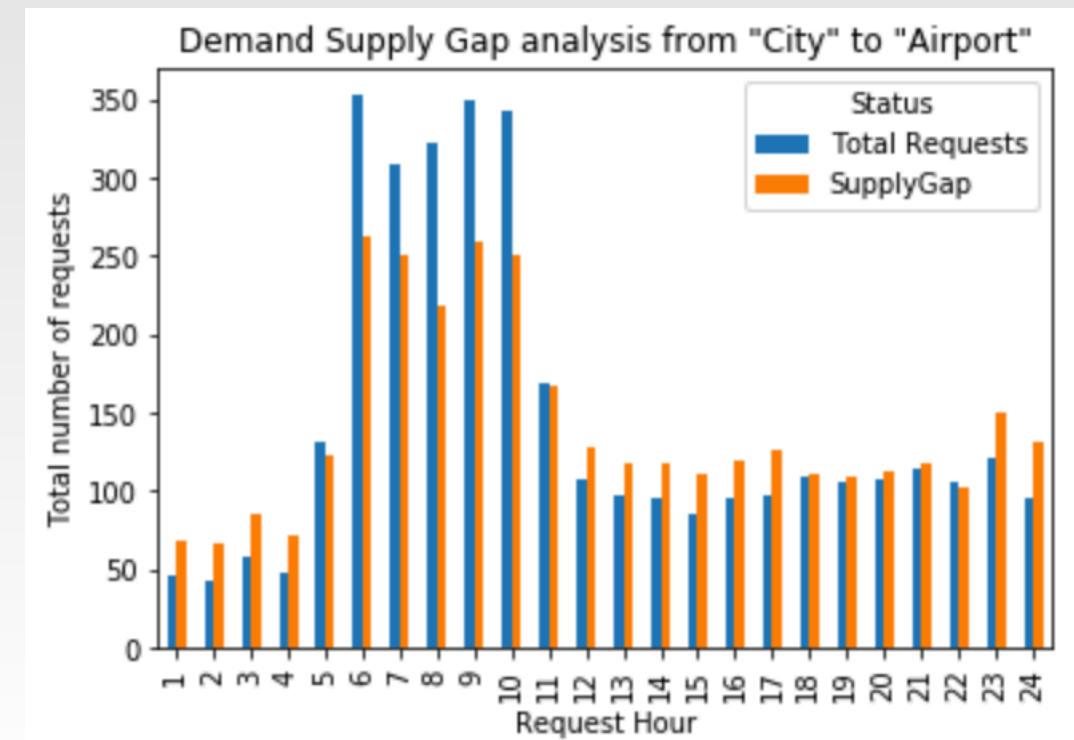
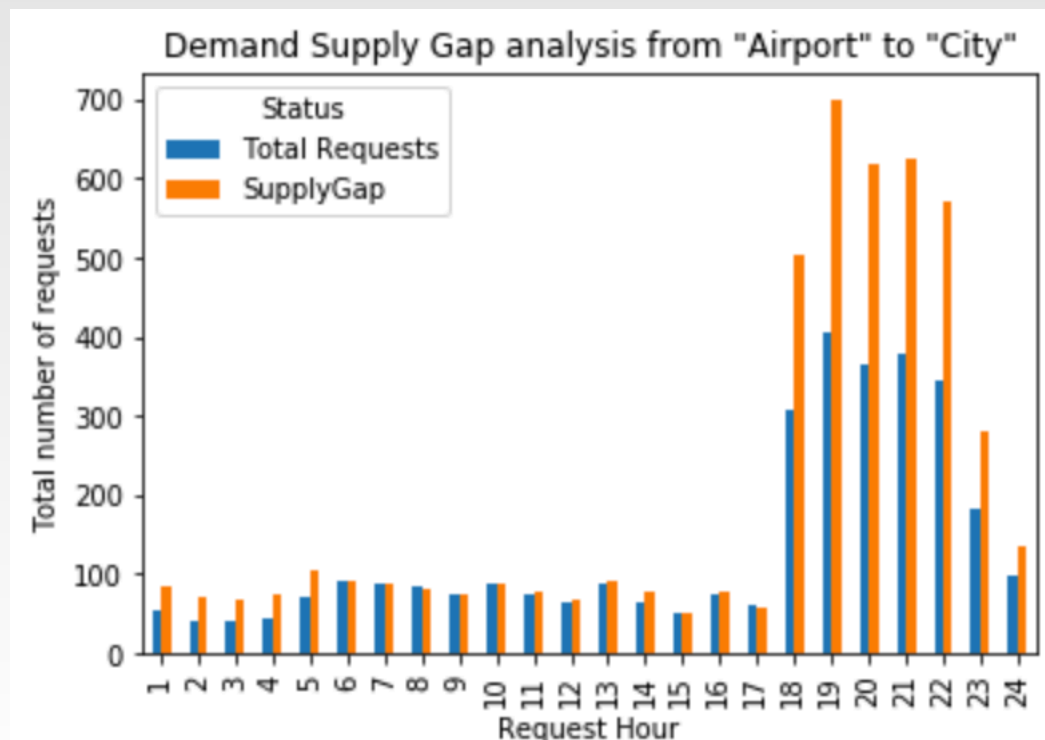
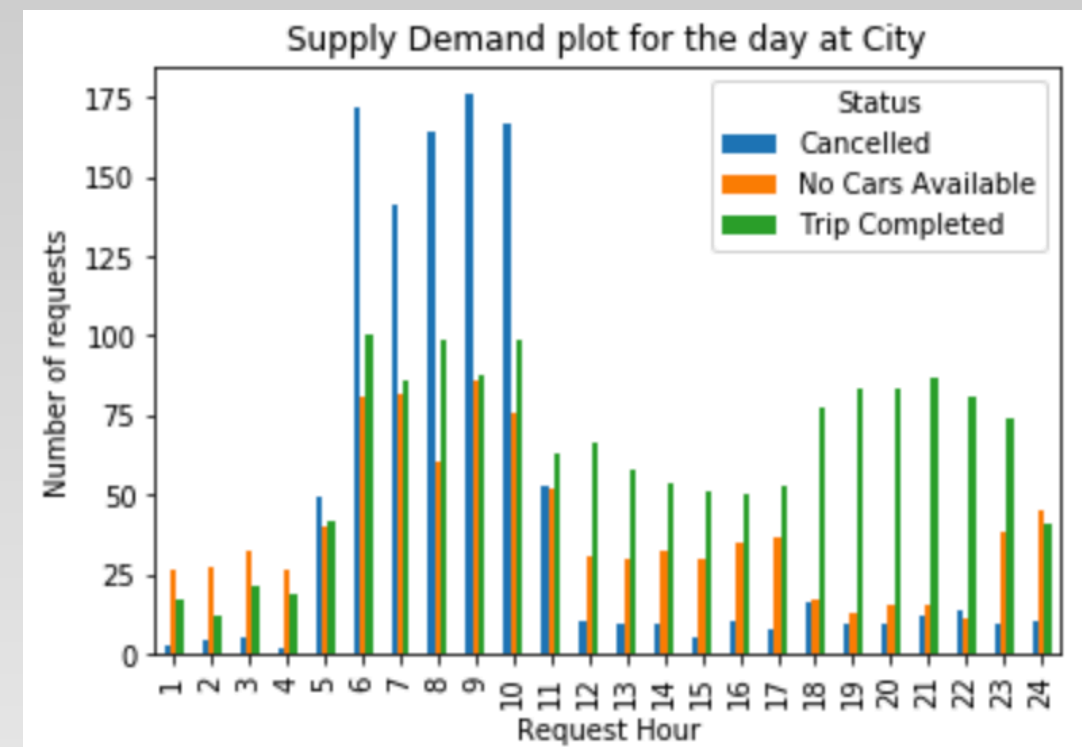
1. Most number of Pickup orders are received from 4AM onwards till 11AM; and then 5AM onwards till 11PM
2. In morning high peak time slot, we have more number of Cancellations and have same level number of Successful Trips too.
3. Whereas in evening high peak time slot, we have more cars unavailability whereas Successful trips are being maintained at steady level throughout the hours of day

Analysing typical Supply Demand plot for the course of day from/to Airport/City

From Airport to City



From City to Airport



Analysis:

Observations:

1. As per the previous slide, we are having a very high-volume of requests for Airport starting from City in early morning from 5AM onwards till 10AM; whereas as from Airport to City in evening starting from 5PM onwards till 10PM
2. As we are having high volume in mentioned time-slots, we do having a huge supply gap too

From Airport to City

1. No cars availability is high at airport from 5PM onwards till 10PM; whereas successful trips are maintained at steady number

From City To Airport

1. Number of cancellations are high at City towards Airport from time 5AM onwards till 10AM with good increase in Successful trips compared to rest of the day. And, luckily cars availability is less than Successful trips.

Plausible Reasons for Supply Gap:

1. Number of cancellations are more at wee hours at City to Airport. This means, drivers are feeling the pain of having traffic towards Airport
2. At late evenings no cars are available towards City from Airport; this means that less number of Successful trips towards Airport too. Somehow drivers are avoiding hefty traffic time-slots.

Recommendations

1. Thursday and Friday having more number of unavailability of cars
2. Usually Thursdays at airport having more cars unavailability and less successful trips compared to other days
 - **Recommendation 1: Take appropriate precautions to make few drivers to available on “must” basis on Thursday’s and Friday’s. And, support with an extra monetary for these days.**
3. Usually successful trips are more from City to Airport; compared to Airport to City
 1. Question to Ask: Why cars are returning empty
 - **Very clearly evident that Drivers are going back to City without taking passengers. Reason being, drivers don’t want to wait in High Paying parking lots to pick the passengers. Even if they wait, the money they get from trip is equal to the parking they spent. That is why, have designated FREE parking slots for Uber drivers; where they can wait until Pickup request comes and then go to pick the passenger.**
4. Cancellations at City are more rather than No cars availability more at Airport
 - **Cancellations to go to Airport more, especially wee hours of the day. Let Uber drivers know that the total time for ride to airport will also share some increase in their total money.**
 - **That means, Passenger has to pay some slight amount of extra money for the traffic time to reach airport and same should be given to Uber Driver.**
5. In overall, supply gap is very huge at Airport in evening times
 - **For given sampled dates, more number of Pickup requests been substantially higher and so does, the supply gap. Other way of speaking, successful trips to the Airport are also less compared to pickup requests.**
 - **Having a pool of drivers readily available at Airport at evening times will help the passengers.**
 - **Again, free parking slots can be used for this one.**