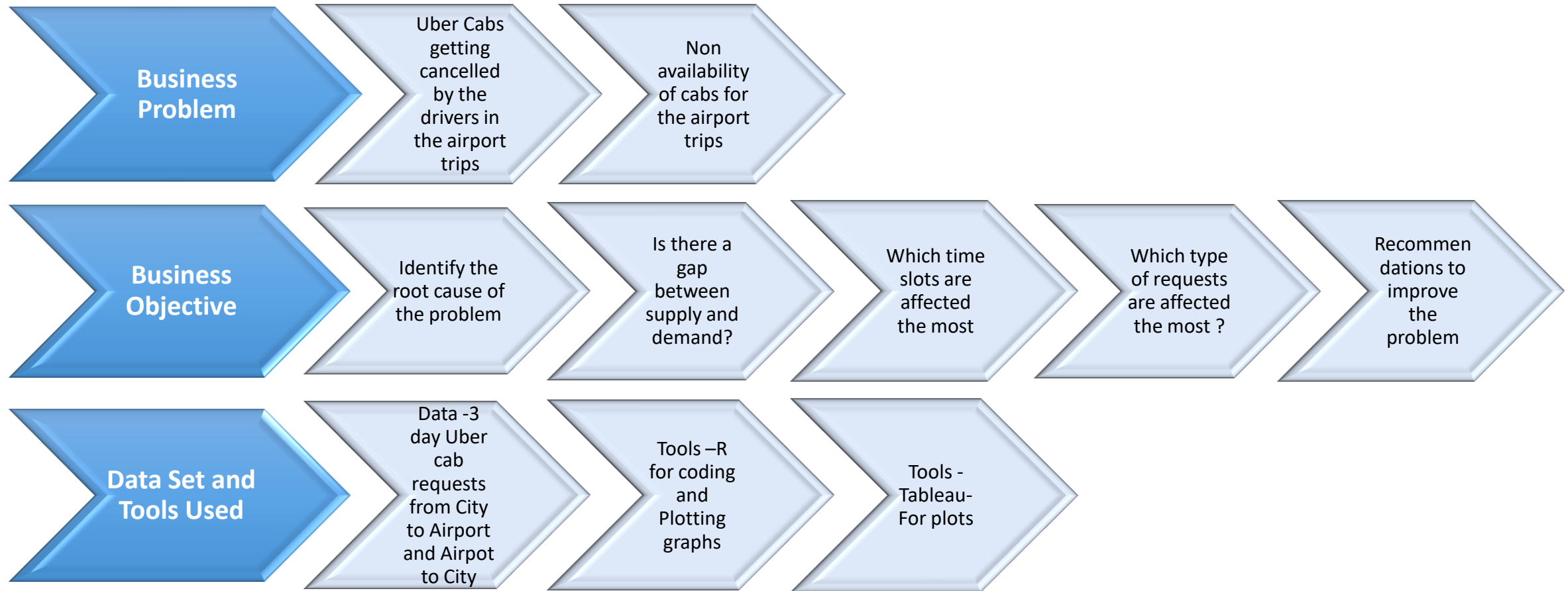


Uber Supply-Demand Gap CASE STUDY

Submitted By:

Anjali Nair

Overview



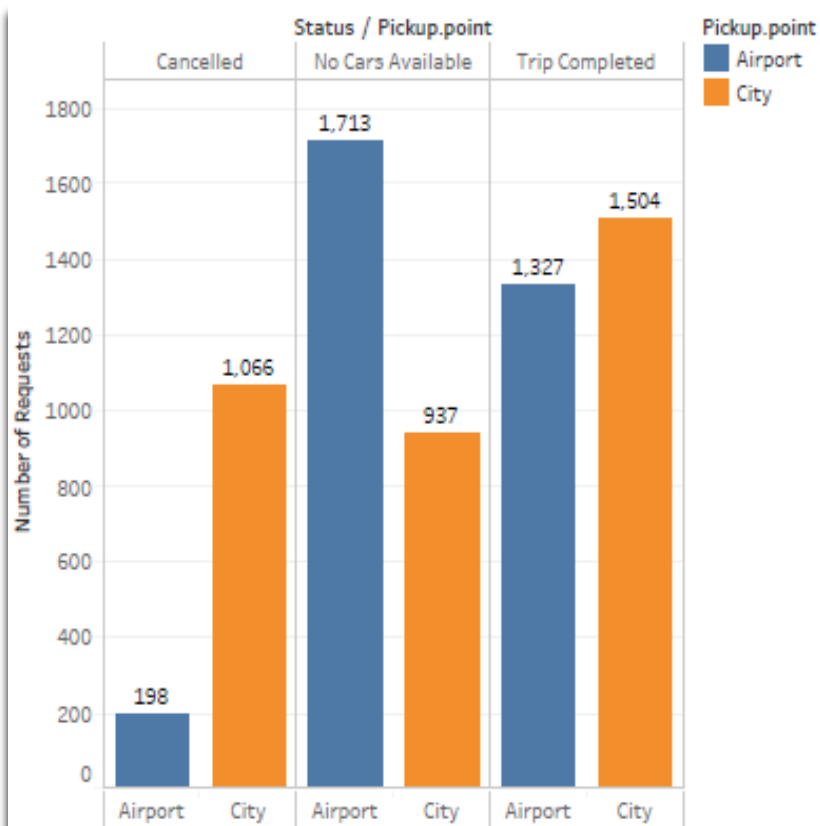
Problem solving methodology

Data Preparation

- **Loading the data set in R**
- **Data Cleaning and Standardization**
 - Standardizing the time stamps of requests and Drops
 - Splitting the timestamps into “Date” and “Time” for ease of Time Slot Analysis
 - Checking for any blank cell values .
 - Convert time to POSIXct class for plotting
- **Things to note**
 - Only trip from Airport<->City and
 - Trips from City <-> Airport has been considered

Root Cause Analysis

Number of Requests Vs Status



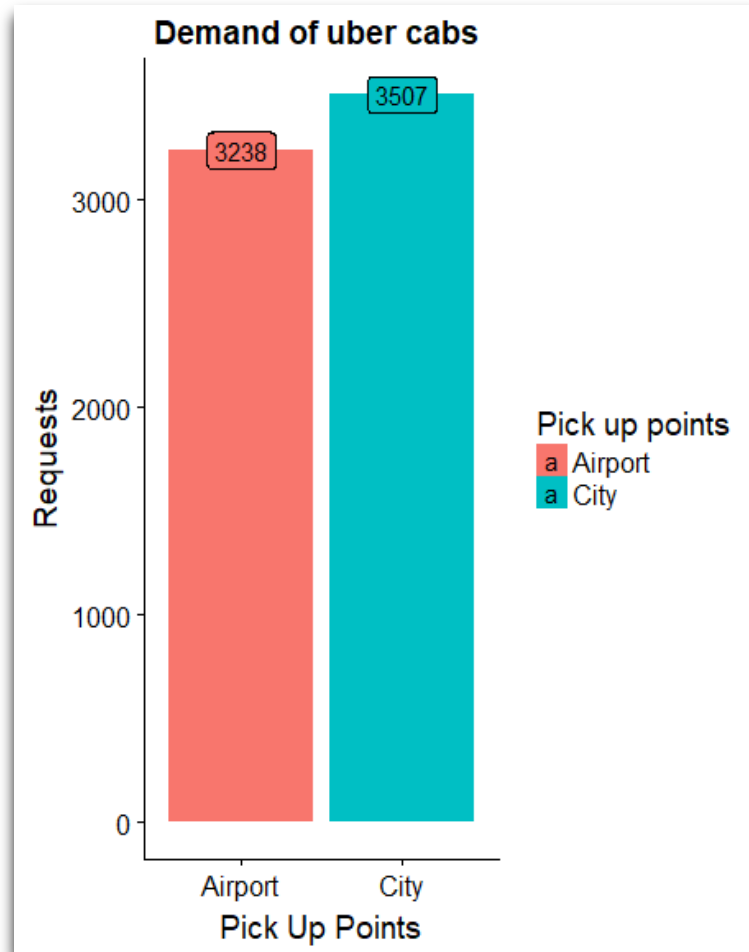
Pick Up Points	Canceled	Not Available	Completed	Not Completed(incl. Canceled as well)	Total
Airport To City	198 (6.11%)	1713 (52.9%)	1327 (40.9%)	1911 (59%)	3238
City To Airport	1066(30.39%)	937 (26.67)	1504 (42.88%)	2003 (57%)	3507

- **Inferences /Findings**-In Airports there is a shortage of 1713 cabs which is 52.9% of the total requests coming to airports
- In City 1066 cab requests to airports got cancelled ,which is 30.39% and 937 (26.71%) requests were unfulfilled due to non availability of cabs.
- Hence we can conclude that in Airports the most pressing problem is the shortage of cabs
- In City the pressing problems are
 - The drivers seem to cancel the requests to airports 30.39% times which is not a small number.
 - In City cancellation is more than airport .Drivers are reluctant to go to the airport
 - Even in City we can see there is a shortage of cabs by 26.71% ,though it is
 - Not as much as in the case of airport.
- In Both cases requests not completed (cancelled and Not Available) are more Than requests completed

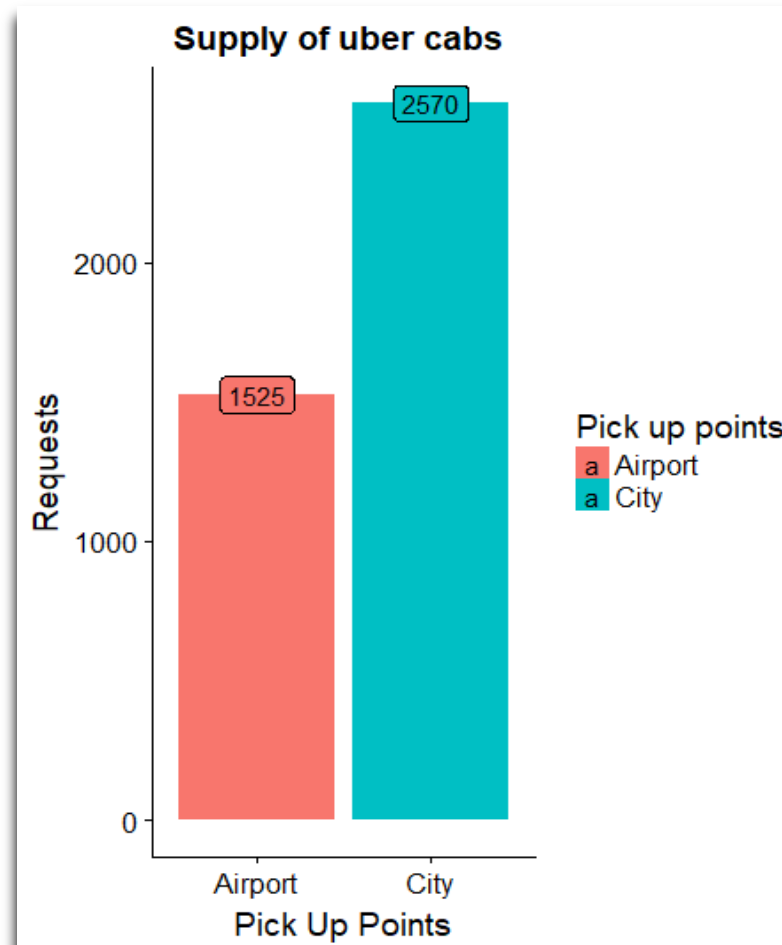
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Demand and Supply Gap

a.



Plot showing demand
 Airport<->City & City<->Airport



Plot showing Supply Airport<->City & City<->Airport

Inferences/Findings

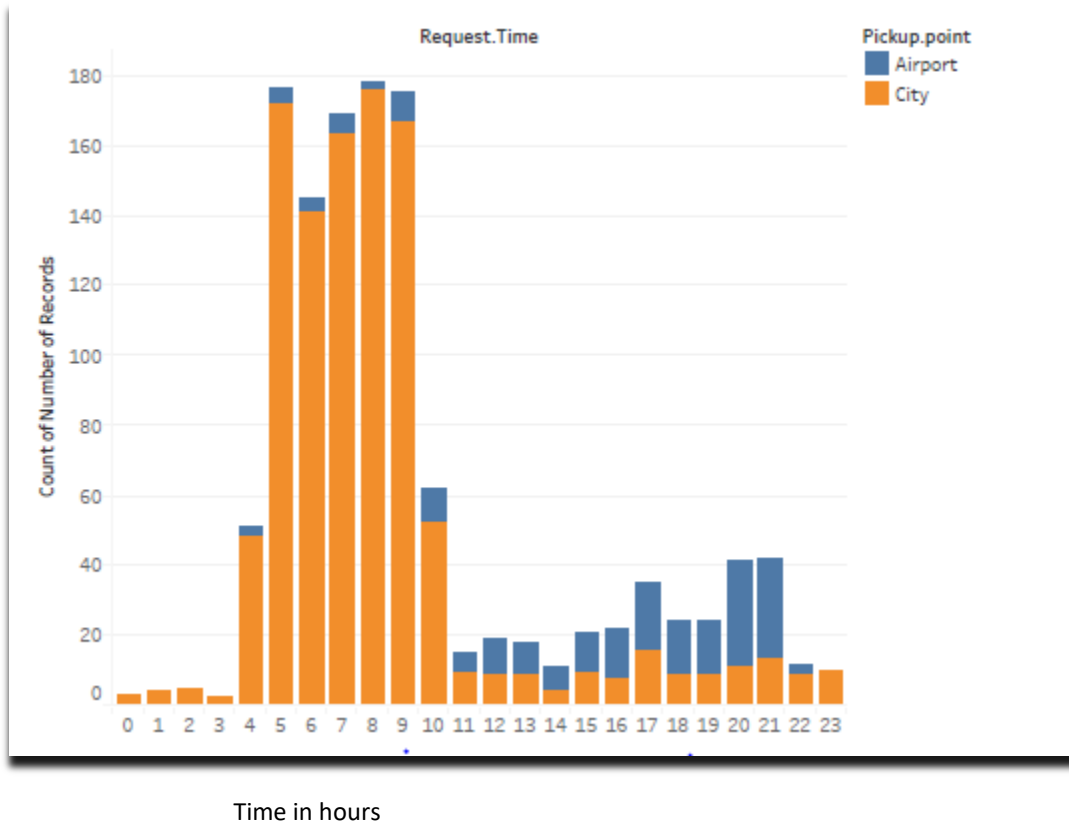
- From both the graphs it is clear that
 - In airport there is a huge supply shortage the figures from previous slide support the same.
 - In city the supply shortage is present but it is not acute.

Note-

- Supply has been calculated considering cancelled cabs as well as in this case cabs were available.
- The figures present in the plot and the table are the count of the requests

	Supply	Demand
Airport To Ciy	1525	3238
City To Airport	2570	3507

Time Slot Cancelled Requests



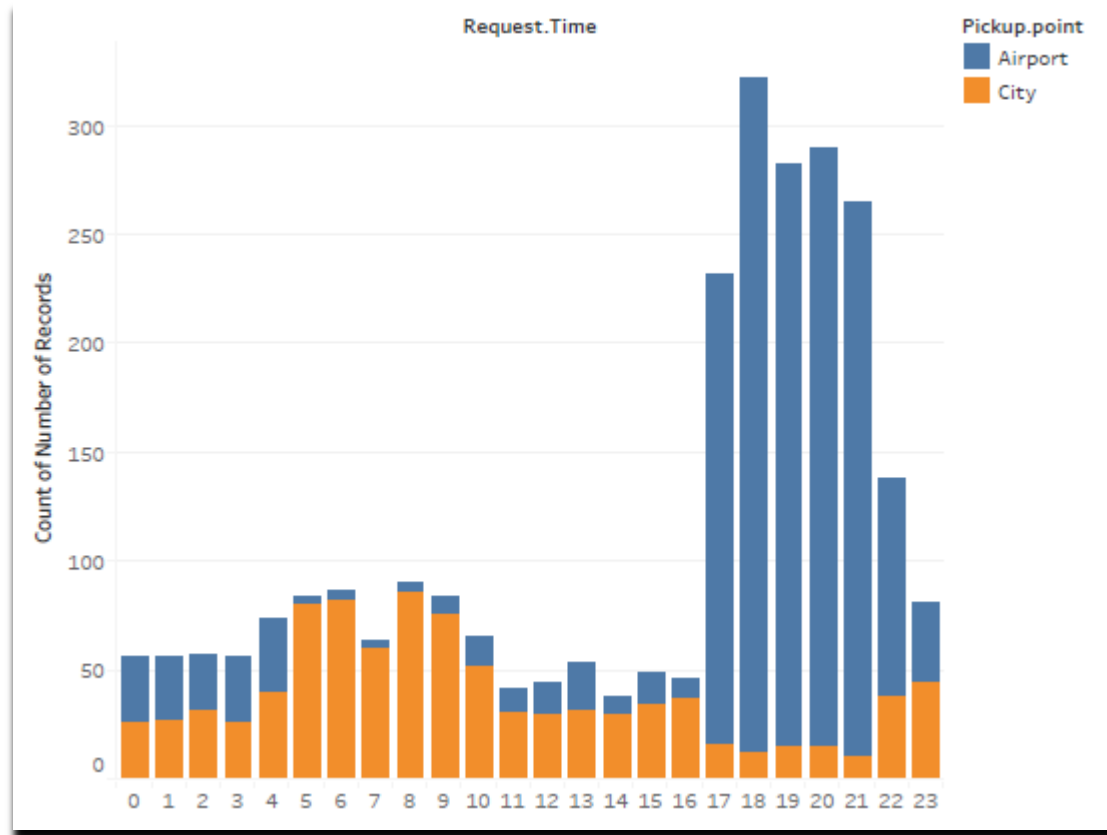
Inferences/Findings

- From the plot it is clear that “Cancellation” happens majorly in cities. This can happen due to driver’s reluctance to trips to airports.
- Majority Cancellations happen in the City between 4 AM and 10 AM in the morning hours .
- This can happen due to 2 reasons
 - This is a busy time in City
 - Drivers if they come to Airport ,they might miss out on the potential city rides as they might not get return rides from the airports
- Cancellations in airport happen between 16 PM to 21 PM

Note-With the given data it is impossible to calculate the wait time or idle time

Also note in the plot the time is denoted in hours

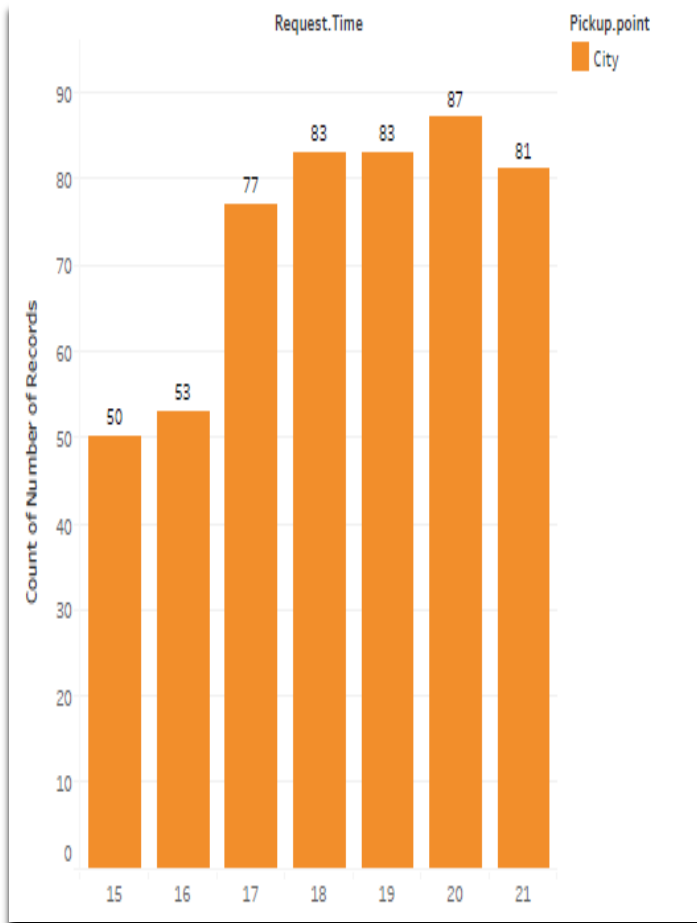
Time Slot –Cabs not Available



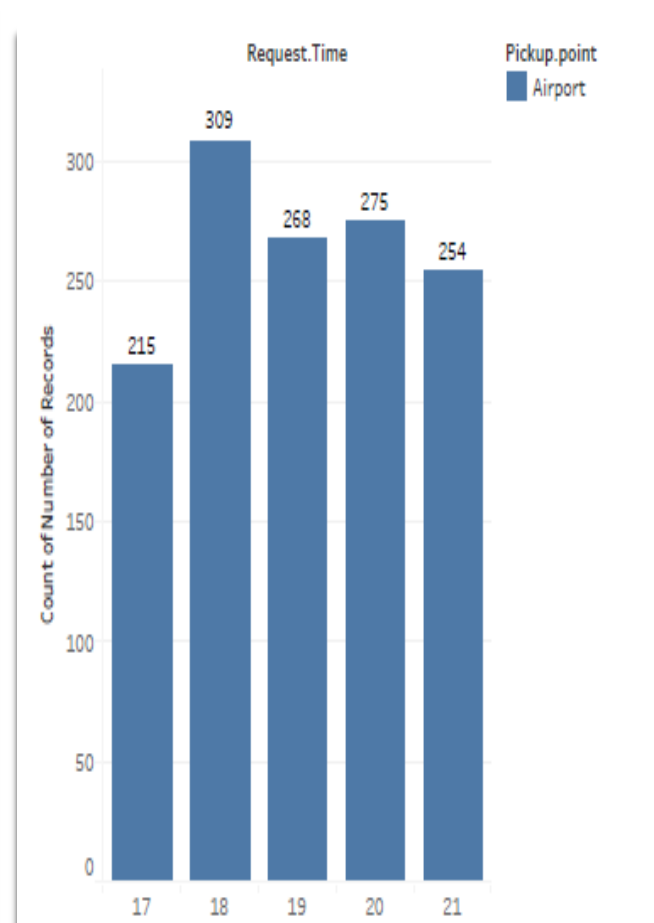
Inferences/Findings

- Airport** –Cabs are not available during evening time between 17:00 to 21:00 hours
- City**-Cabs are not available during the morning hours of 4:00 to 10:00 .May be due to major Cabs being serviced

Reason of the Supply Demand Gap



Cabs coming into airport from city
Between 15:00 to 21:00



Cabs requests from airport
Which are not met

The reason of the supply demand gap can be due to

- Less Cabs deployed in Airport ,from our plot on Slide 7 its clear that there is a deficit cabs supply in airports during evening time from 17:00 hours to 21:00 hours . This can be due to drivers being busy at city as it is peak time (office hours and demand in city is more during that time)
- If we see the inflow of cabs coming into airport between 15.00 to 21:00 (which is around 514) which is less to meet the demand from airport (which is 1321) .
- Hence we can also conclude more number if flights arrive during evening time frame as compared to departures.
- Also cabs are not available from city in morning hours ,this can be due to more demand of cabs in city during those hours.

Recommend Ways to Solve

- Deploy more cabs from airport around 17:00 to 21:00 when most of the requests are coming in.
- Deploy dedicated cabs from city in the morning hours from 04:00 to 10:00 AM
- As we have seen more requests o airport get cancelled in city ,this can be due to the reluctance of drivers to go to airport and wait until he gets next ride from airport .If we deploy dedicated cabs to airport (may be with some extra surcharge to customers) from city this issue can be addressed to some extent.
- May be we can arrange a survey with the drivers who are cancelling the requests ,to understand if there is some other problem besides this.