

UBER SUPPLY-DEMAND GAP CASE STUDY

SUBMISSION

Business Objective

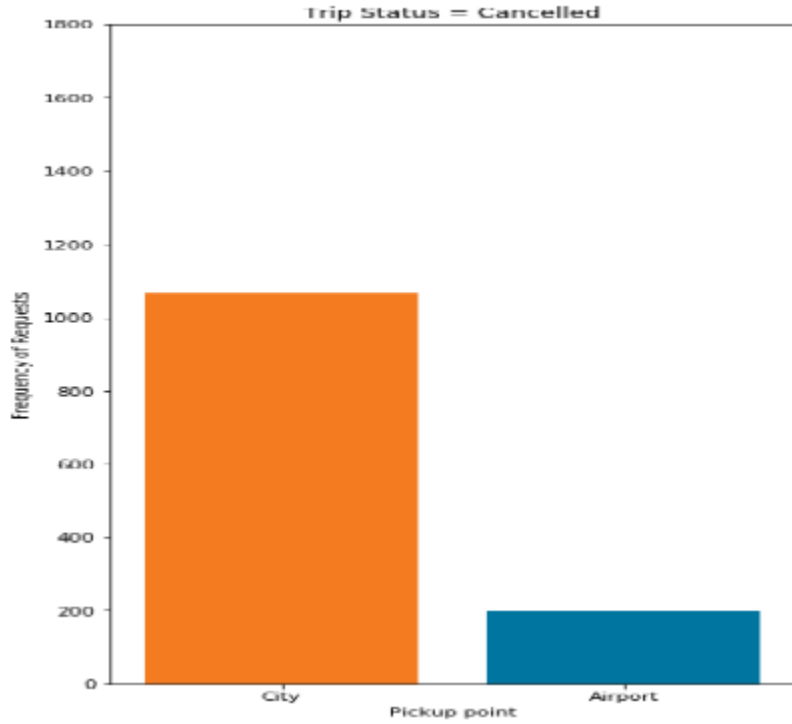
- To identify the root cause of the problem i.e. Cancellation and Non-Availability of Cars.
- To provide possible hypothesis of the problem and recommended ways to resolve the problem.

Data Cleaning and Assumptions

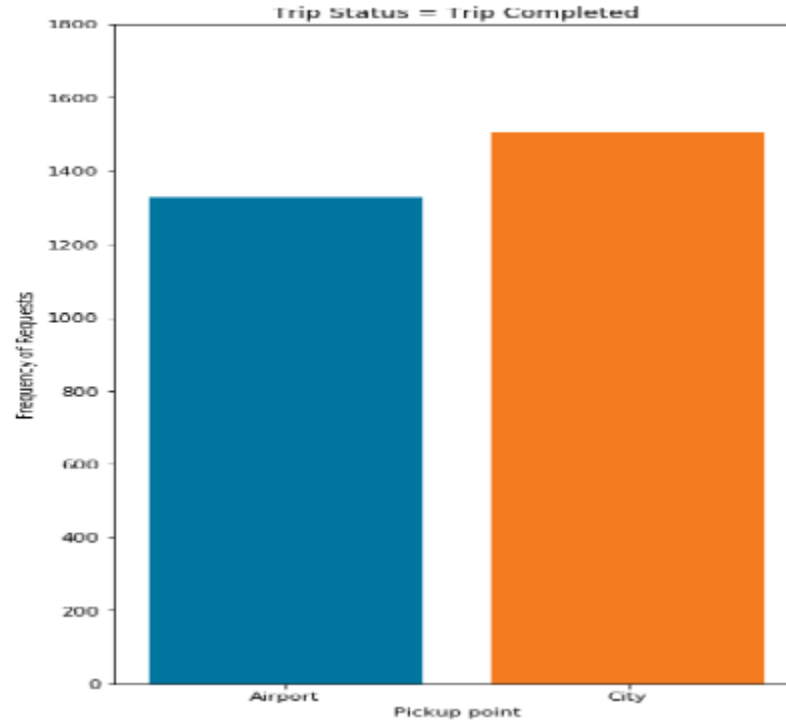
- Assumed Timeslots are mentioned below:
 1. Early Morning: 4AM to 8AM
 2. Morning: 8AM to 12PM
 3. Afternoon: 12PM to 4PM
 4. Evening: 4PM to 8PM
 5. Night: 8PM to 12AM
 6. Late Night: 12AM to 4AM
- Removed time precision till seconds to create uniform data for analysis.

Most Problematic Types of Requests

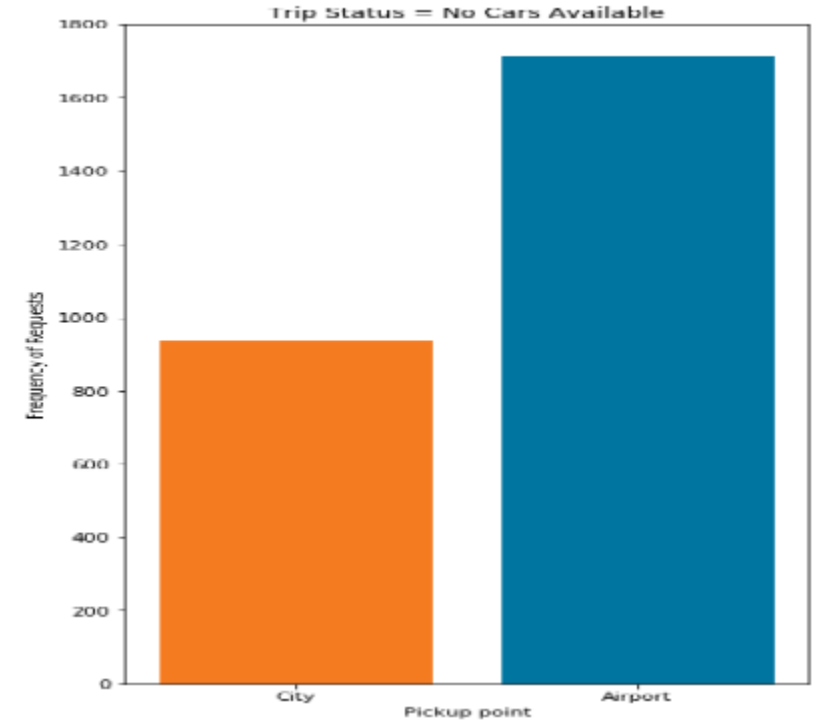
Frequency of Trip Status from Airpoty/City



Higher Proportion of Cancelled trips originating from City



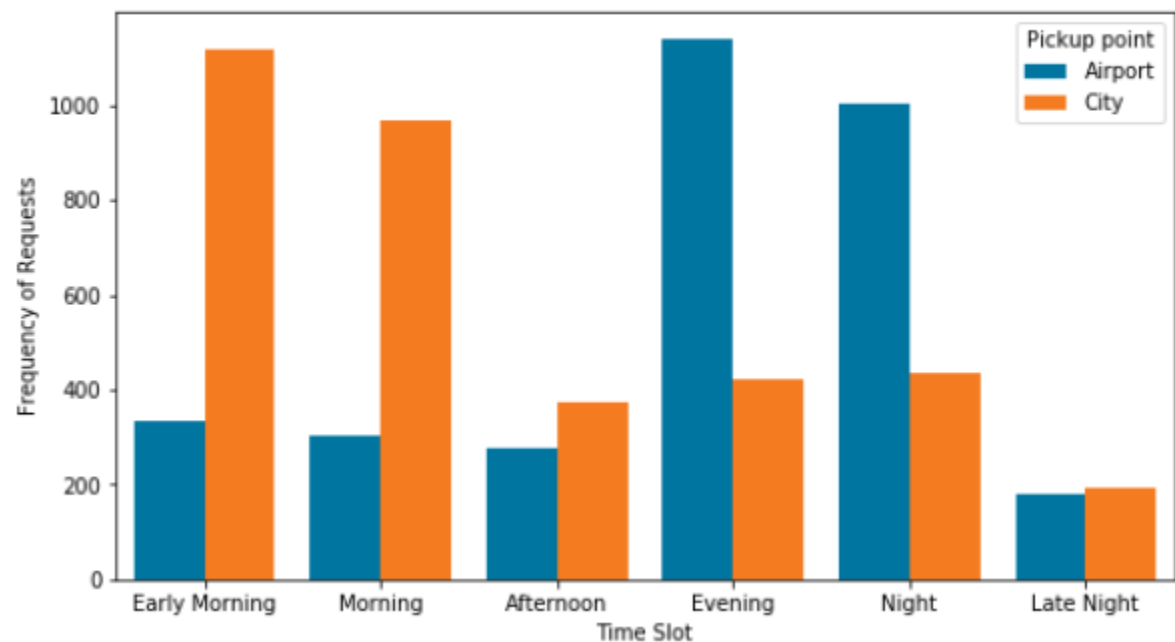
Higher proportion of Trips Completed starting from City.



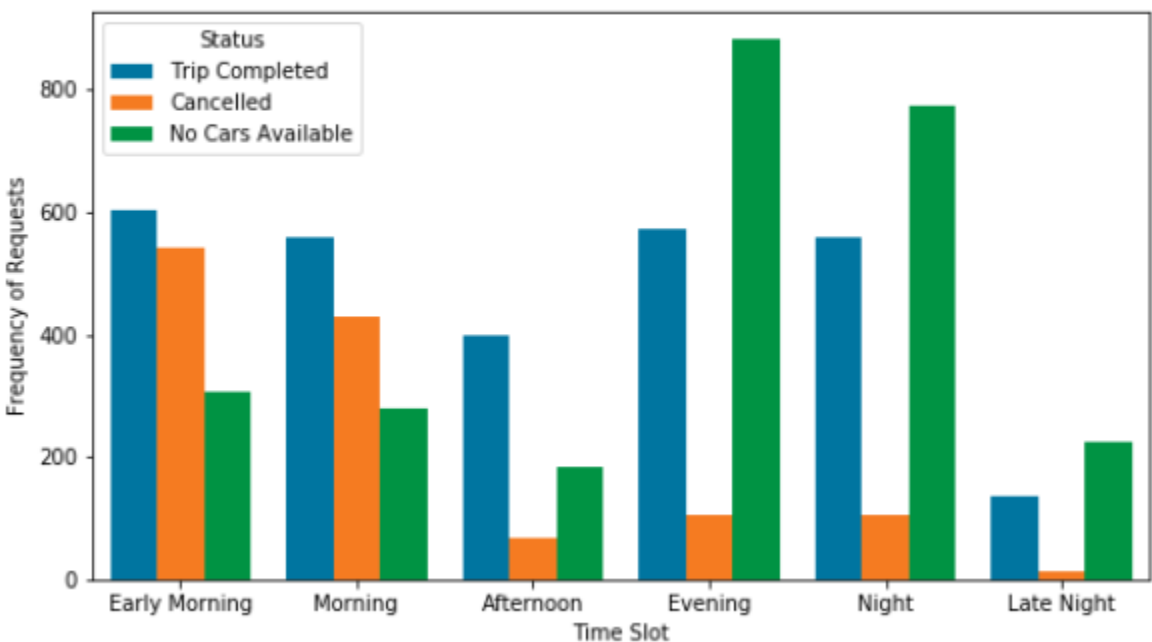
Huge proportion of cars Not available at airport

Most Problematic Types of Requests and Time Slots

Frequency of Cabs Requests vs Frequency of Trip Status Throughout the Day

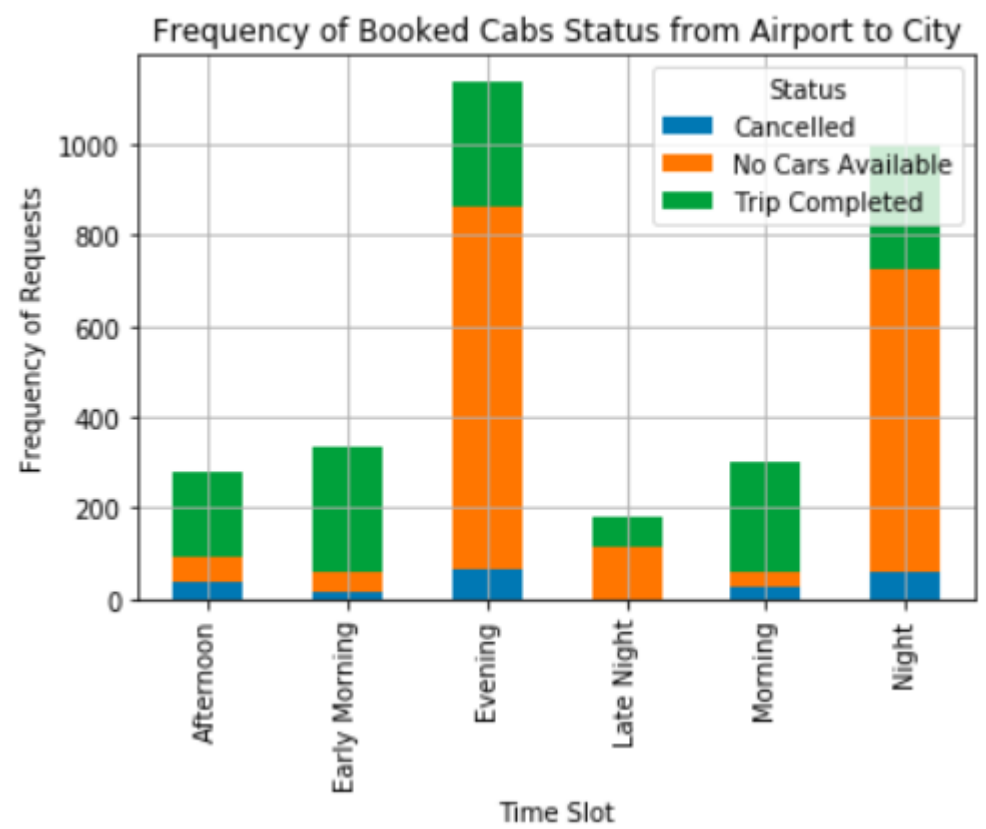


Huge Demand from City – Early Morning and Morning
Huge Demand from Airport – Evening till Night



Higher Number of Cancellation – Early Morning and Morning
Huge Number of Cars Not Available – Evening till Night

Airport to City Trips



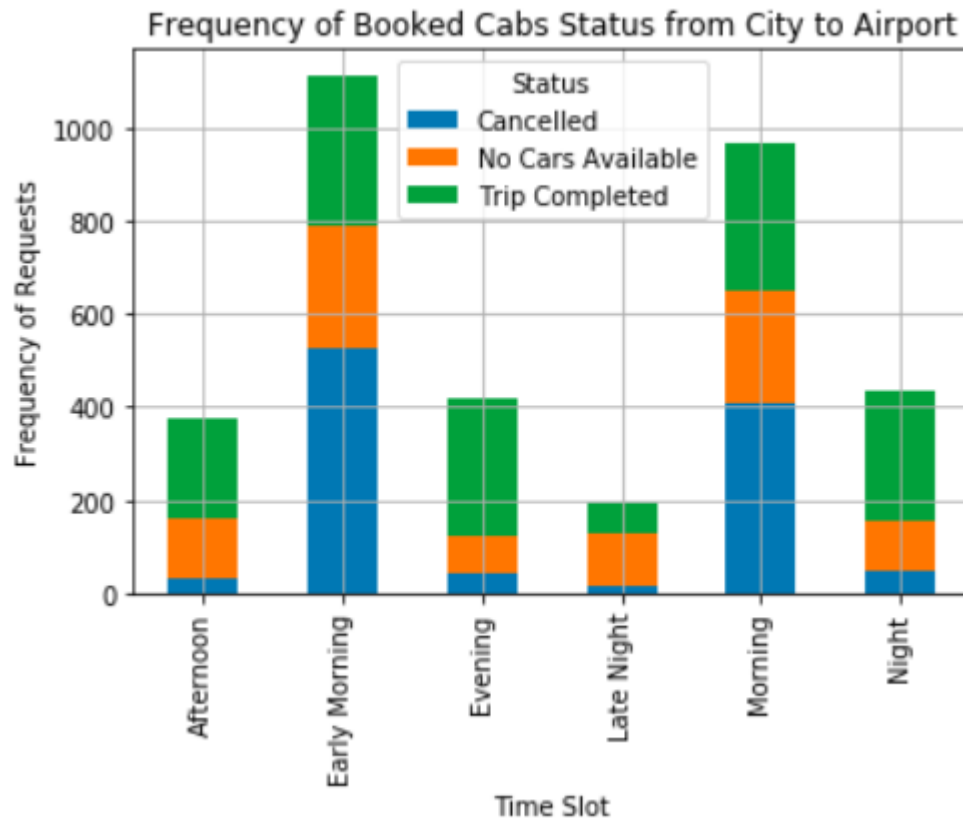
Highest Demand in Evening time followed by Night time. But non-availability of cars are the major reason of non completion of trips

Statistics of Cab Requests Status from Airport to City

Status	Cancelled	No Cars Available	Trip Completed
req_slot			
Afternoon	36.0	55.0	187.0
Early Morning	15.0	44.0	277.0
Evening	63.0	801.0	276.0
Late Night	NaN	114.0	67.0
Morning	24.0	34.0	243.0
Night	60.0	665.0	277.0

Statistics shows that almost 800 trips were missed in evening and 660 trips were missed in Night due to non availability of cars. And only a lower proportion of requests were fulfilled.

City to Airport Trips



Highest Demand from city in early morning and morning hours. But here, trip cancellation is the major reason of non completion of trips

Statistics of Cab Requests Status from City to Airport

Status	Cancelled	No Cars Available	Trip Completed
req_slot			
Afternoon	33	127	213
Early Morning	526	263	327
Evening	42	82	296
Late Night	14	111	69
Morning	406	245	316
Night	45	109	283

Statistics shows that almost 500 trips were cancelled, 263 trips were missed to non availability of Cars early morning followed by 406 trips cancellation and 245 trips were missed in Morning time. And only a lower proportion of requests were fulfilled.

Supply-Demand Gap Metric

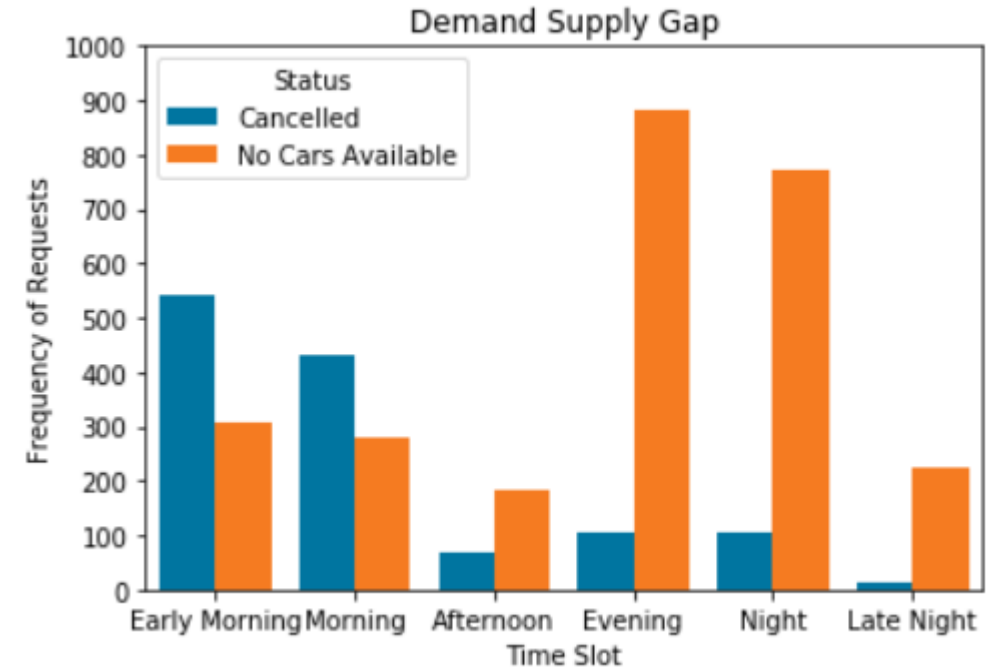
- Supply Demand Gap = Total Trips Requested – Total Cabs provided, that means
- Supply Demand Gap = Total Trips Requested – Total Rides Completed
- Total Trips Requested = Trips completed + Cancelled trips + No cars available trips
- Total rides completed = Trips completed
- Thus,

Supply-Demand Gap = Cancelled Trips + NO Cars Available Trips

Supply-Demand Gap Analysis

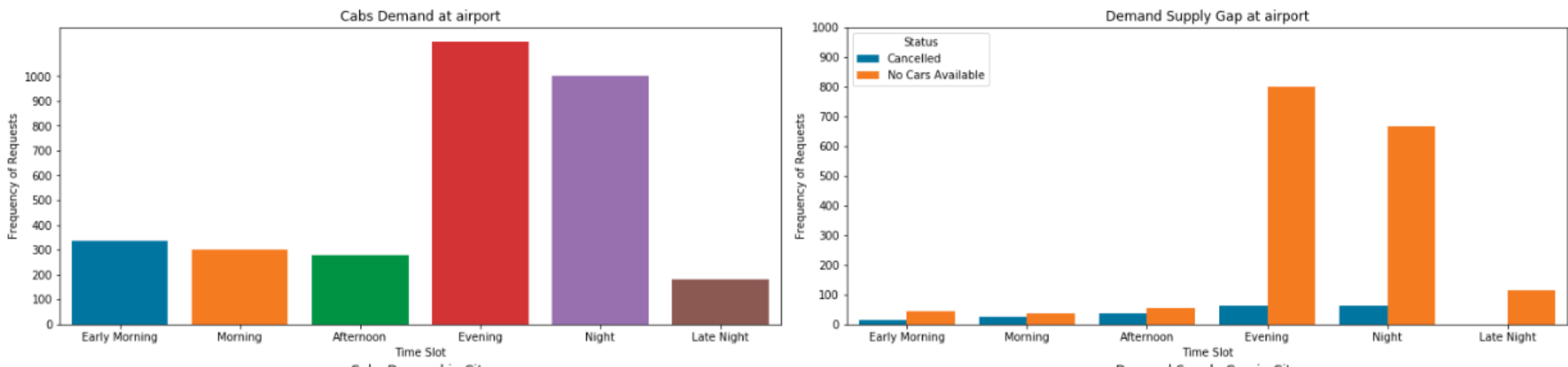
At an overall level,

- We are losing the trips in a huge proportion in Evening and Night due to non availability of cars.
- Most of the trips are cancelled in early morning and morning hours.



Supply-Demand Gap Analysis

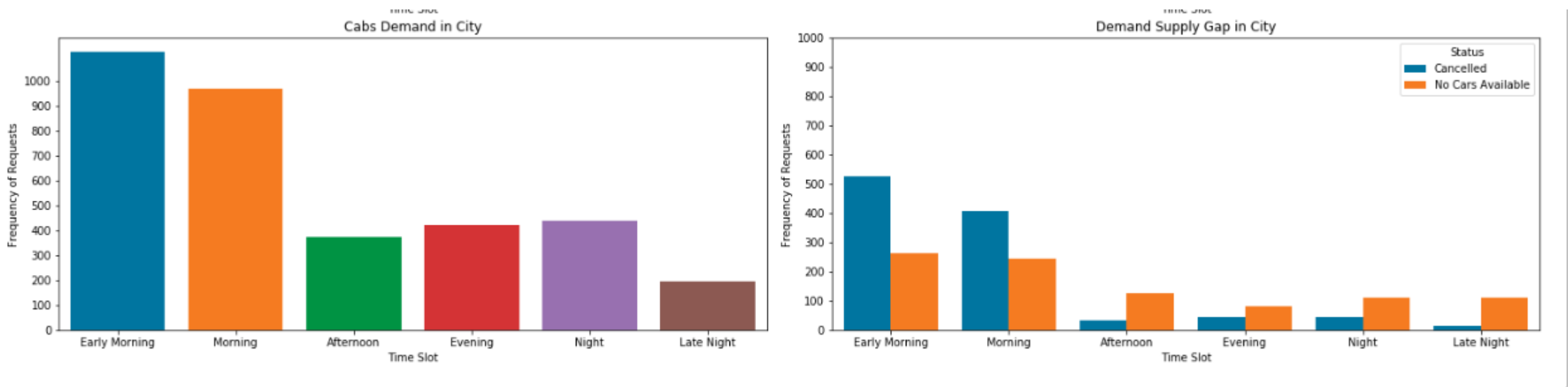
Trips Originated from Airport



There is a huge demand at airport in evening and night hours.
But most of the requests are not fulfilled due to non availability of Cabs at that time.

Supply-Demand Gap Analysis

Trips Originated from City



Huge demand in city during early morning and morning hours.
But most of the requests are not fulfilled due to cancellation or non availability of Cabs at that time.

Reasons of Supply-Demand Gap

- Drivers don't want to take Airport trips or long distance rides. As in the same time, they can finish many short distance trips which would finish their target of the day and higher earning.
- There is more waiting time at airport. As they can not come back without any ride. It also will lead to waste their time especially in early morning and morning hours as there are not many requests from airport at that time.
- Everybody want to go home in night after a long tiring day, which has become reason of no cars at airport in night and late night hours.

Ways to Solve problem of Supply-Demand Gap

- Instead of Number of trips completed as a target, target should be distance travelled in a day.
- Drivers should work in shifts. So that there can be cabs availability at all times to fulfil the requests.
- Early morning, morning, night and late night shifts should hold extra allowances. So that more drivers will be encouraged to work in that shift and it will also solve problem of supply demand in problematic hours.
- Airport trips should hold incentives to reduce the chances of trip cancellation.