Uber Supply-Demand Gap

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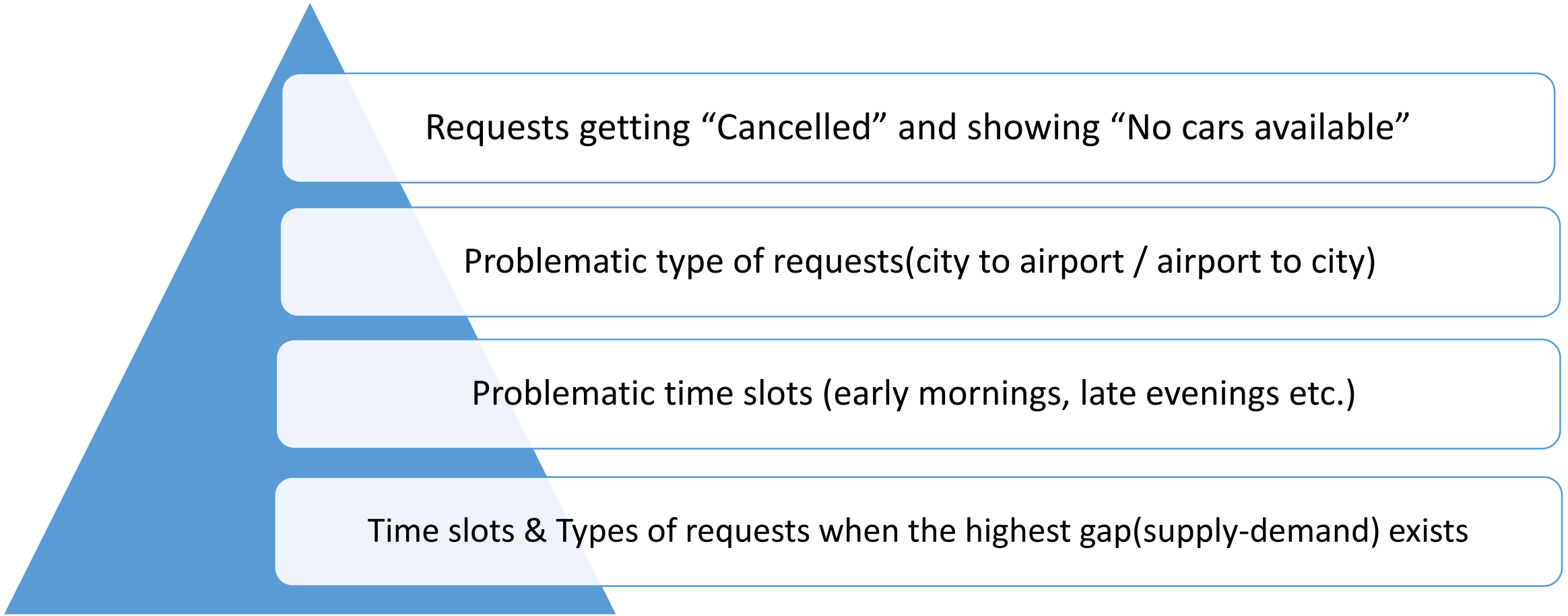
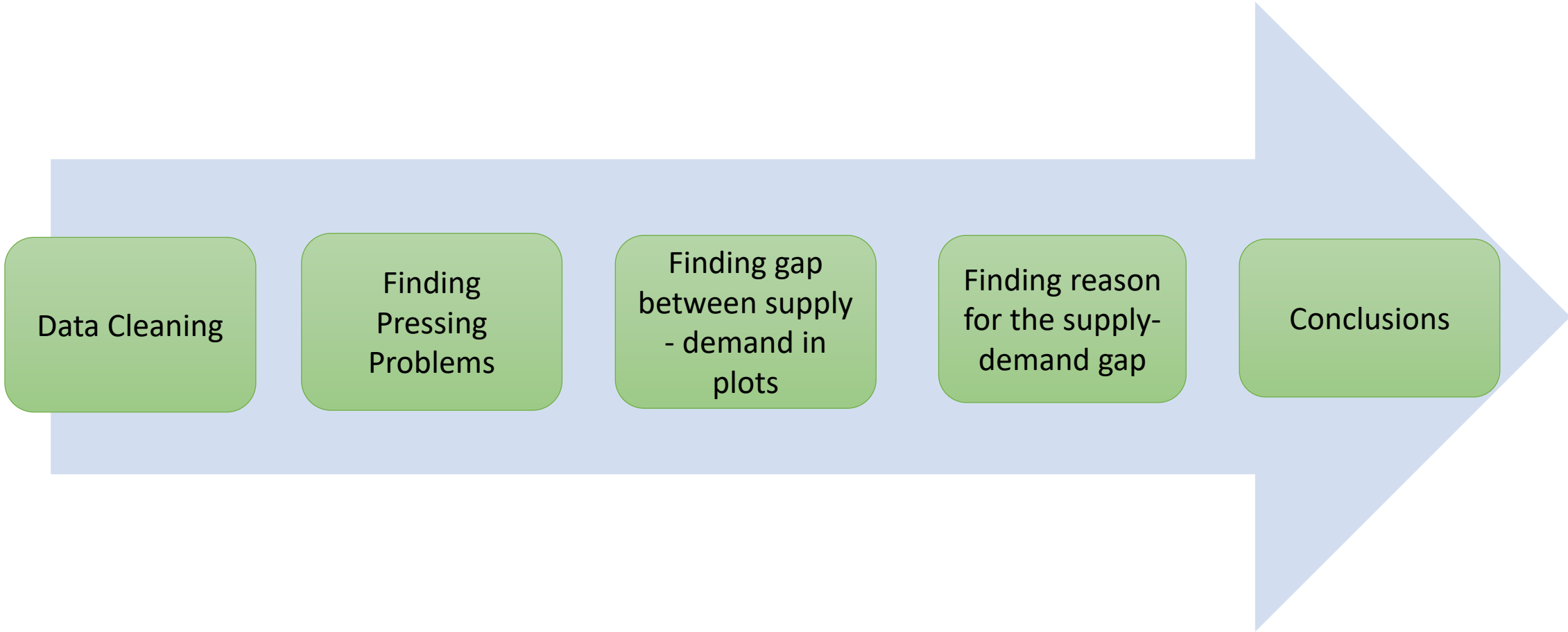
Pressing Problems of Uber



Analytical Approach to find Uber supply-demand gap



Data Cleaning:

• As major part of analysis is data cleaning ,Analysis begins with importing the data from Uber Request data file into python using the pandas library by read_csv command.

•Converted the column values of Request_timestamp, Drop_timestamp of data frame of object type to datetime datatype.

•Extracted the hour from Request_timestamp, Drop_timestamp columns as Request_hour,Drop_hour.

•Created new column Duration by finding difference between Request_timestamp, Drop_timestamp to analyse more.

• Hence crucial part Data cleaning is completed then this final Uber data frame is used for analysis to find pressing problems and supply-demand gap of Uber.

- **Pressing Problems of Uber**

1. One of the most pressing problem of UBER is trips getting "Cancelled" and “No cars available”.

2. Problematic request is when pickup point is "Airport" as there are more requests which shows “No cars available” and when the pickup point is "City" there are more requests which are "cancelled" than "No cars available“.

3. Problematic time slots are Early morning ,Morning Rush hours, evening and late evening/night,afternoon where more requests are happening.

Timings I considered for time slots-> i) Early Morning - 5AM to 7AM

ii) Morning – 8AM to 11AM

iii) Afternoon – 12PM to 4PM

iv) Evening – 5PM to 7PM

v) Late evening/night – 8PM to 11PM

vi) Midnight – 12AM to 4AM

4. Time slots when the highest gap exists are Early morning ,Morning Rush hours, evening and late evening/night i.e highest difference between supply-demand.

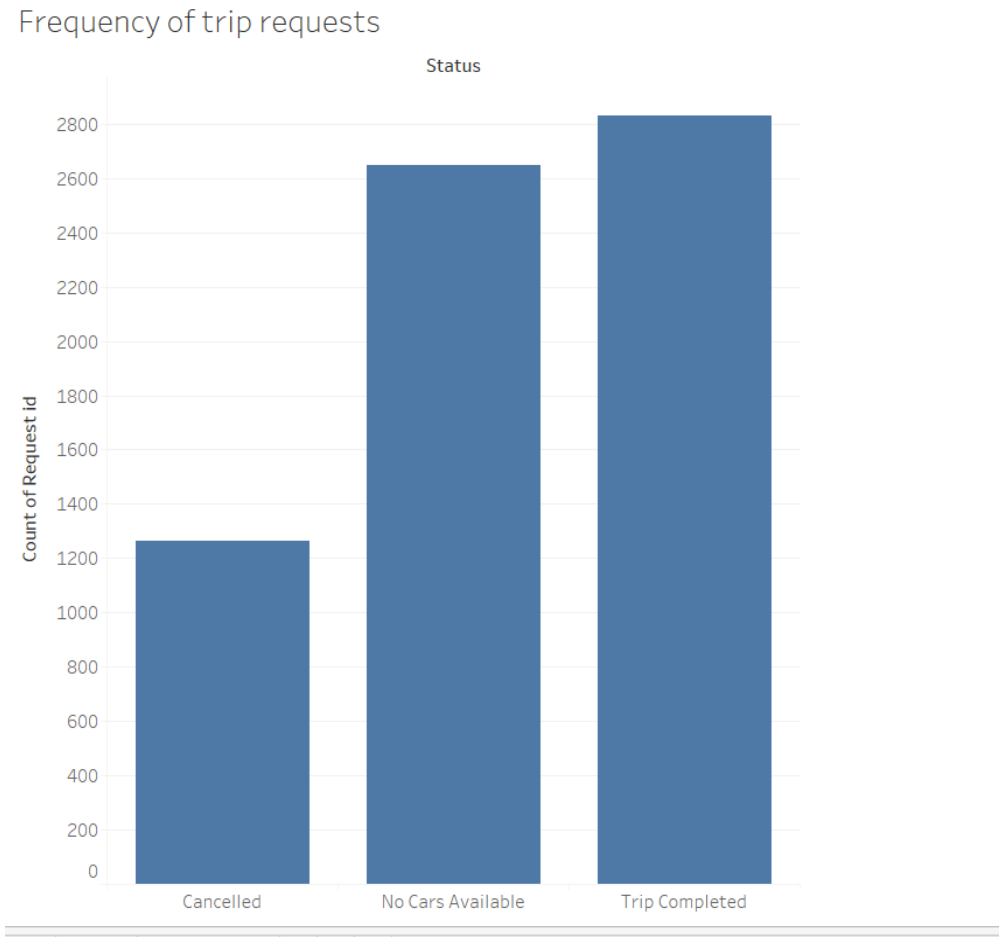
5. In Afternoon slot, there is gap but supply is more than demand. In midnight also, gap between supply and demand exists but not severe.

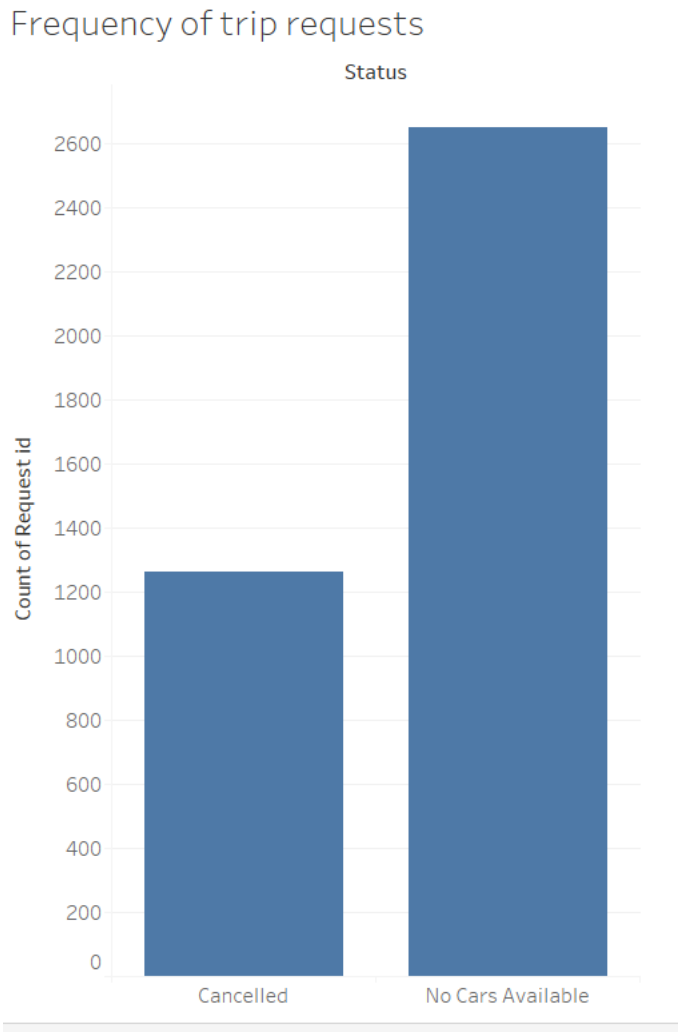
6. If the pickup point is city, then in morning rush hours and mornings there are more requests which are getting cancelled.

7. If the pickup point is Airport, then in early evenings and evenings there are more requests which shows "NO cars available".

All the above problems are shown clearly in plots.

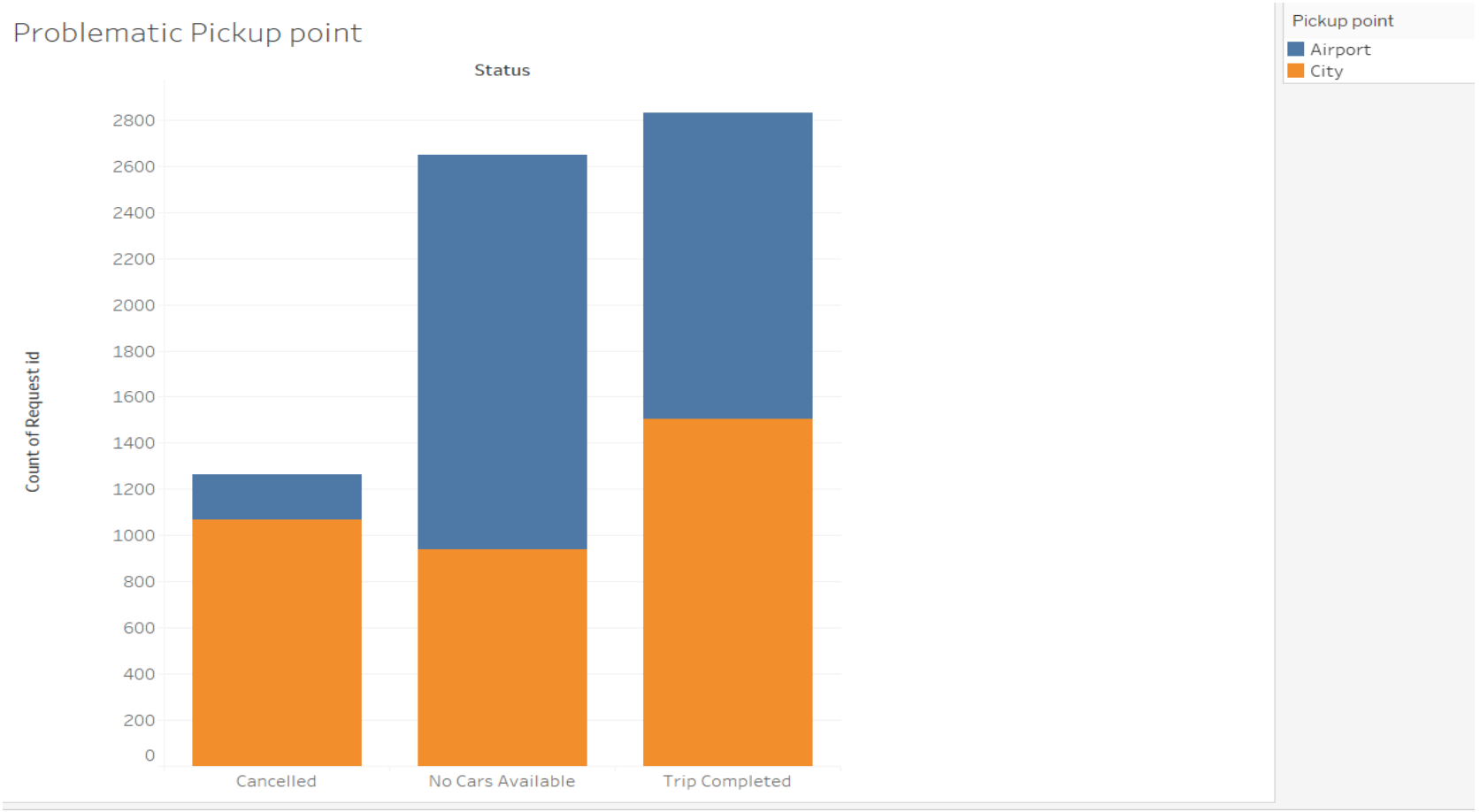
Problematic trip requests





1.From above plots, Problematic trip requests is “Cancelled” and “No cars available” status as Trip completion is not a problem.

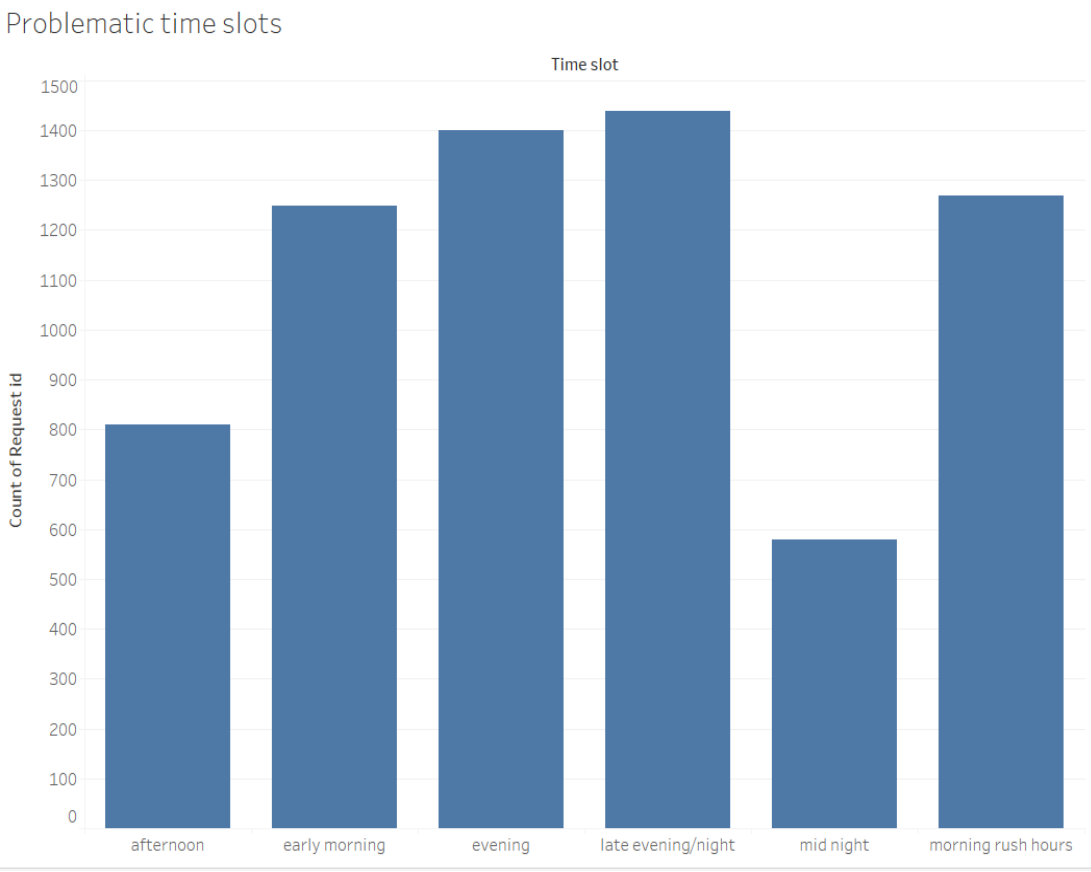
Problematic types of requests(Pickup point)

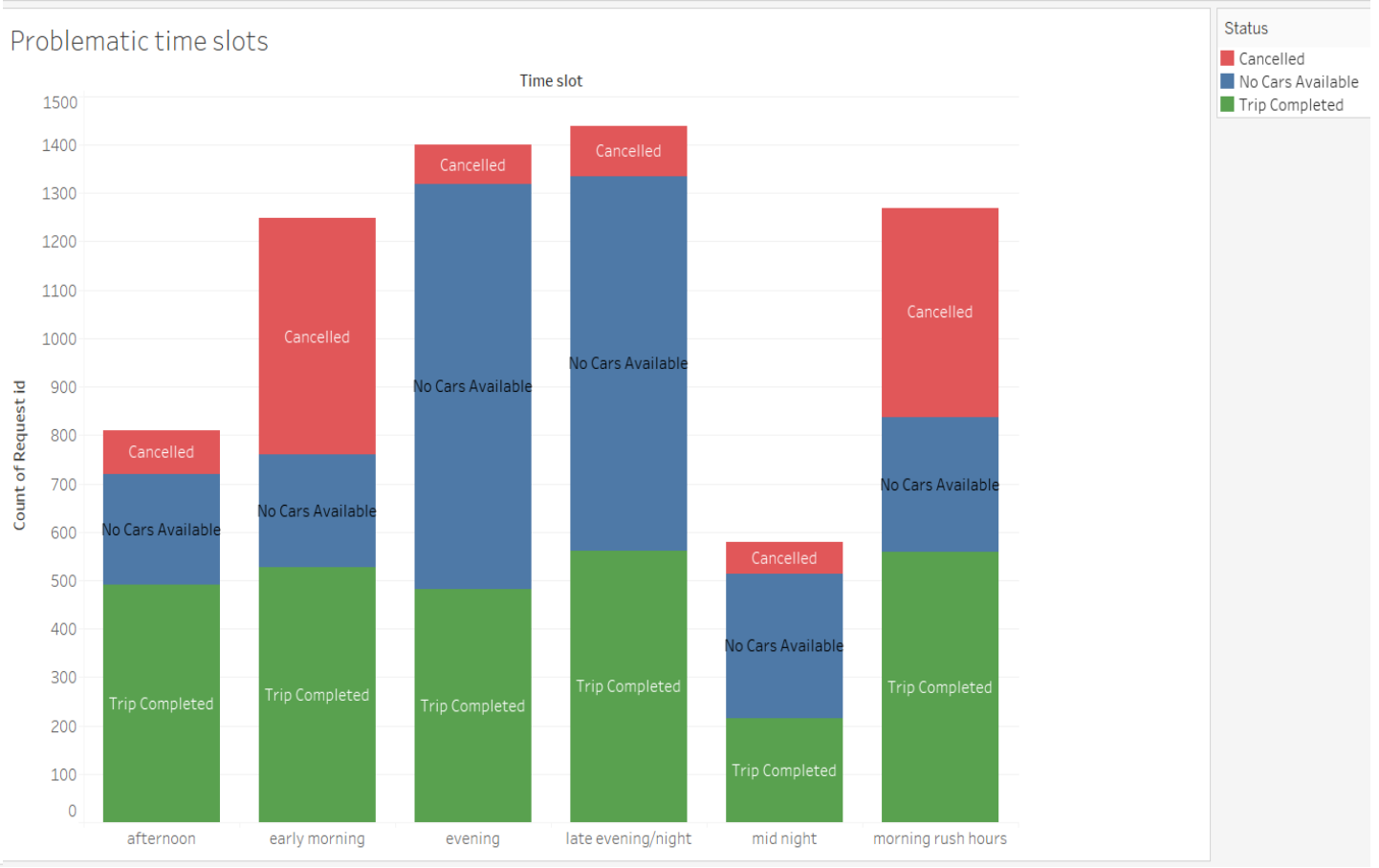


Problematic pickup Points are airport and city based on cancellations And No cars available.

Problematic Pickup point -> Airport(No cars available are more)
Problematic Pickup point -> City(Cancellations are more)

Problematic time slots

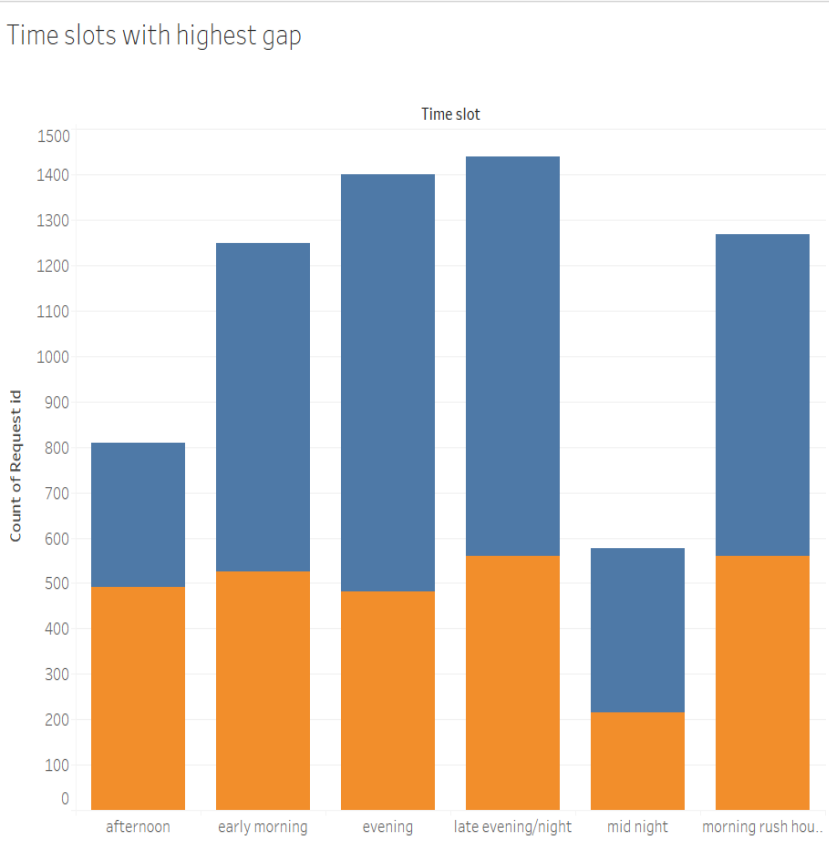


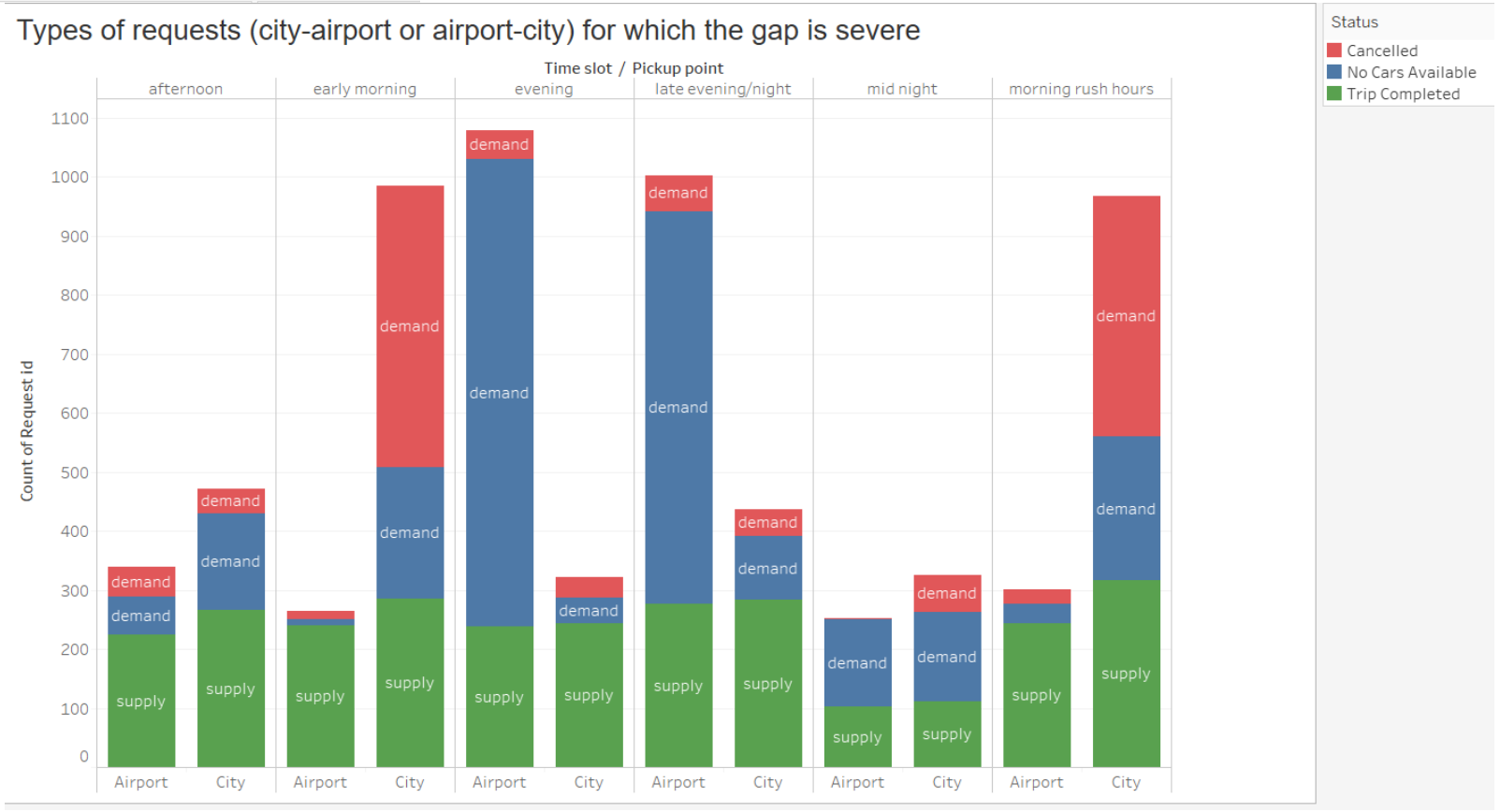


As we know problem is cancellations and no cars available, so as per that, the most problematic time slots Will be earlymorning,morning,evening,late evening/night,midnight.

Afternoon is not a problem timeslot as trip completions are more than cancelled and No cars available.

Time slots and types of requests with highest gap between supply and demand





In morning,earlymorning, late evening,evenings there is highest gap exists. Gap exists in afternoon also but the supply is more than demand so no issues in afternoon slot, in midnight slot we can observe there is gap between demand and supply but not much severe compared to other time slots.

supply-demand gap is high in requests made from "City to Airport" during Early Morning, Morning time slots and gap is also high in requests made from "Airport to City" during Evening,late evening/night time slots.

Reason for supply-demand gap

- I think the reason for the this supply-demand gap is mainly because lets say a driver drops a customer in Airport after that he is getting trip requests after long time means the idle time of driver is maybe high at airport due to lack of flights coming to airport during that time and also he cant go back to city without any customer.
- But sometimes driver has to go back to city empty as he cant wait at airport so long because driver may think he will lose other trips in city. So,during those time slots like mornings and early mornings when driver gets a request to airport,driver is not taking rides to airport thinking about the duration to go to Airport and also drivers expect more rides in city radius only in those timeslots,also as the most of the flights like international flights will not be in those timings.
- As we observe that supply-demand gap is more in evenings and late evenings/night also due to no cars available. As drivers are not accepting the more requests to airport. Even some accept requests to go to airport from city, as said before their idle time is high at airport and leaving without customers. so the customers receiving "No cars available" during that time slots.

Ways to solve supply-demand gap

- Allot few drivers specifically for airport services and provide some extra incentives or other who opt for airport services. Few drivers have to be selected based on his/her rating and extra feedback given by customer(if any).
- Collaborating with some flight companies or any other companies that gives flights estimated departure/arrival timings and based on that can assign separate cabs at airport or any other places so that they can increase cabs availability at those places during those times.

  Ex: Few applications are able to track the trains and alert the user before his station comes. They get the data about each from authorized one which is IRCTC. In same way, uber can also make partnership with airport authorities or the companies and can just know the flight departure/arrival timings(no need of tracking flight) and arrange more cabs during those times.
- Uber can add a feature like pre-booking for airport customers. Like if customer is sure of travelling by flight he can use this pre-booking feature by entering flight arrival/departure time and according to that uber can make sure there is availability of cabs at airport or to airport.
- Uber can also reduce cancellations by driver/customer by taking few steps like:
  - Uber can start customer care centre and know the exact reason for cancellations and check if its valid reason has been put up in app or not. Based on that, they can charge money.
  - If more cancellations are by driver then Uber customer care can intimate the driver that cancellations are increasing by him and can tell him that Uber will charge money and reduce trip requests if the limit of cancellations reaches and reason for cancellation is not valid.