UBER Assignment

Supply Vs Demand Gap Analysis

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Intro

- **Have you ever used Uber or any other cab service for travel?**
- **Did you at any time face the problem of cancellation by the driver or non-availability of cars?**

Well, if these are the problems faced by customers, these very issues also impact the business of Uber. If driver cancels the request of riders or if cars are unavailable, Uber loses out on its revenue.

The company is experiencing a spike in "**unfulfilled requests**" .There is a **supply-demand imbalance**, and the result is a lot of very **unhappy customers.**

In nutshell, the company wants to **analyse and overcome** the problem of **supply-demand** gap.

Problem Solving Methodology

- For Analysis, only the trips **to and from the airport** are being considered.

- The aim of 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.

Key Metrics used–

1. **Completed Requests** – Tells about the reliability of the Pickup points.
2. **Time Slots** – How many requests are getting completed at different time-slots from City and Airport?
3. **Idle Time** – How much time a driver has to wait to get the next trip from airport?
4. **Supply Demand Gap** – Gives an overview of the imbalance of supply and demand

Analysis Result

Approximately **42 %** of the overall trips are getting **completed**. [i.e. More than **50 %** of the requests have **Cancelled** or "**No cabs available**" Status]

- **Cab Cancellation** rate is very high for "**City to Airport**" requests. These two time slots are highly affected :-

1. **Early Morning** - [4 am to 8 am] – **8 %** of total requests
2. **Morning** – [8am to 12 pm] – **6 %** of total requests

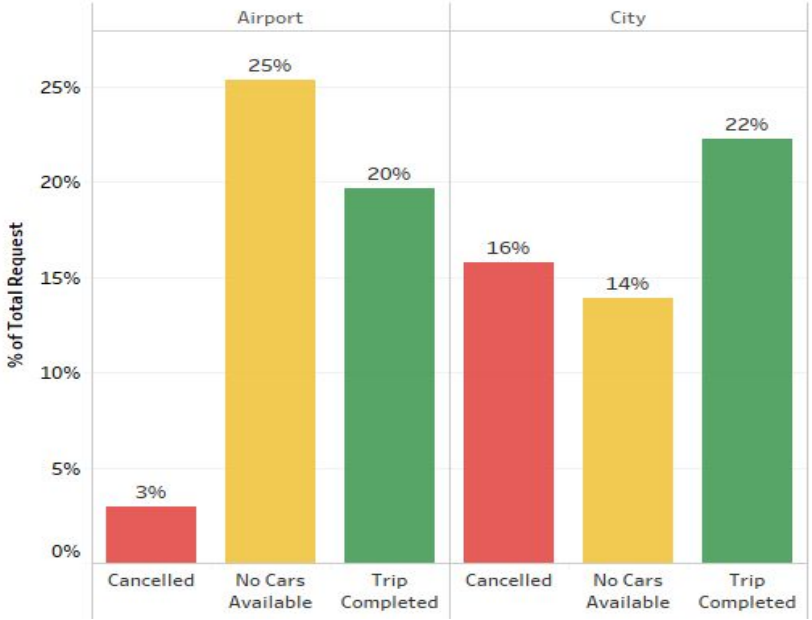
- "**No Cabs Available**" is mostly higher for "**Airport to City**" requests. These two time slots are highly affected :-

1. **Evening** - [4 pm to 8pm] – **12 %** of total requests
2. **Night** – [8pm to 12am] – **10 %** of total requests

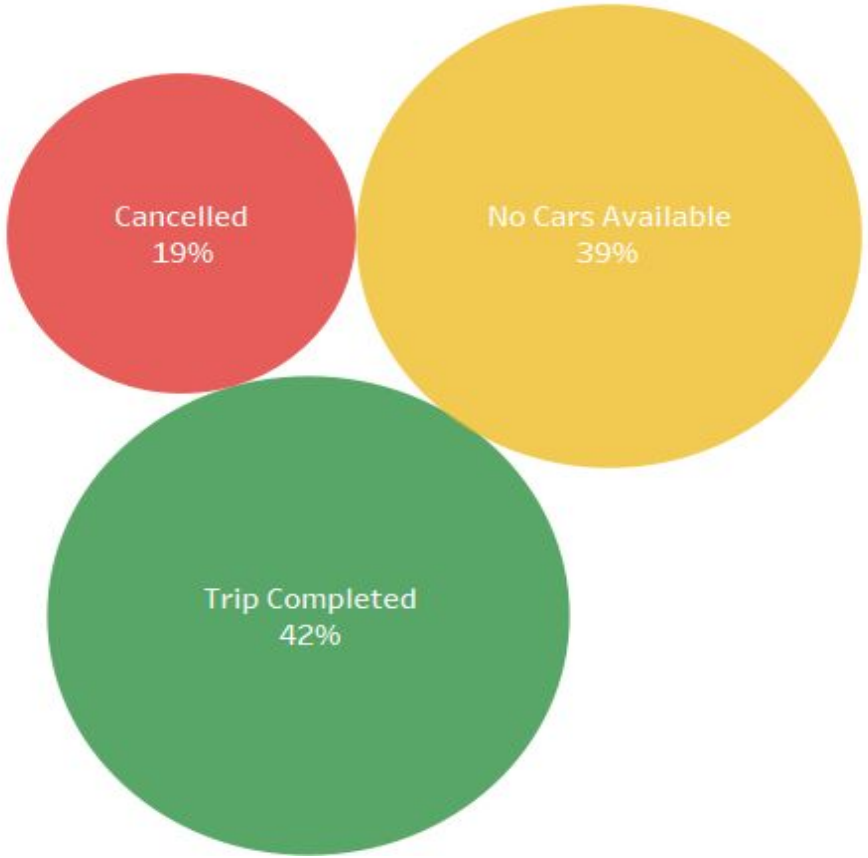
- "**Airport to City**" requests during **Evening** time slot is severely affected by "**Supply-Demand**" imbalance.

Visual Analysis - I

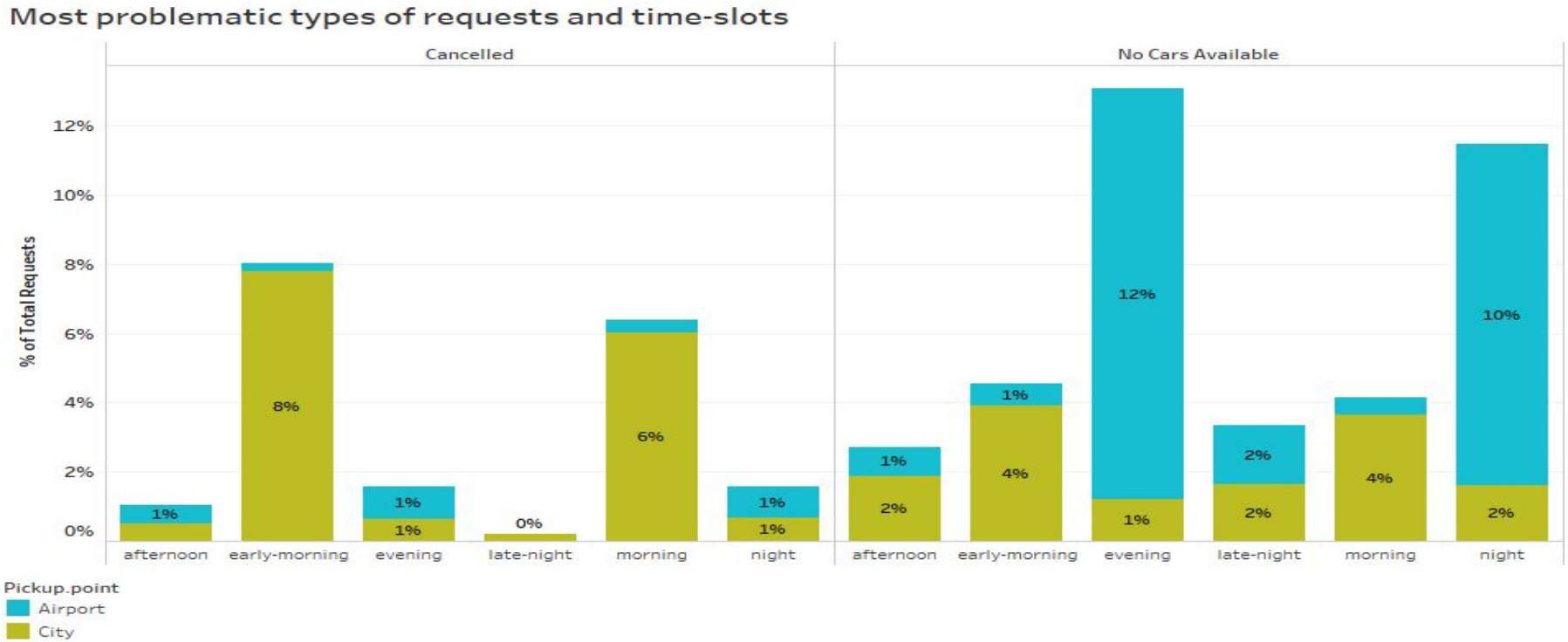
Frequency of requests segmented by Pickup Point - Airport and City



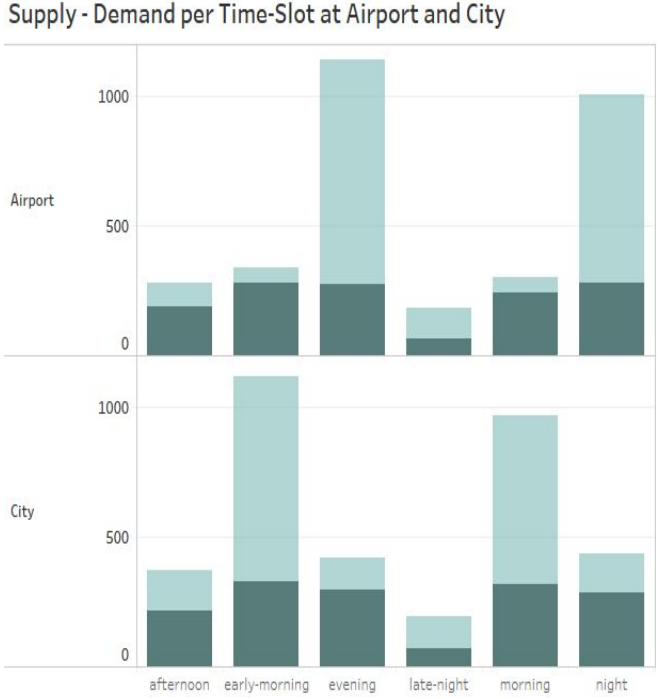
Over-all frequency of requests as per Status

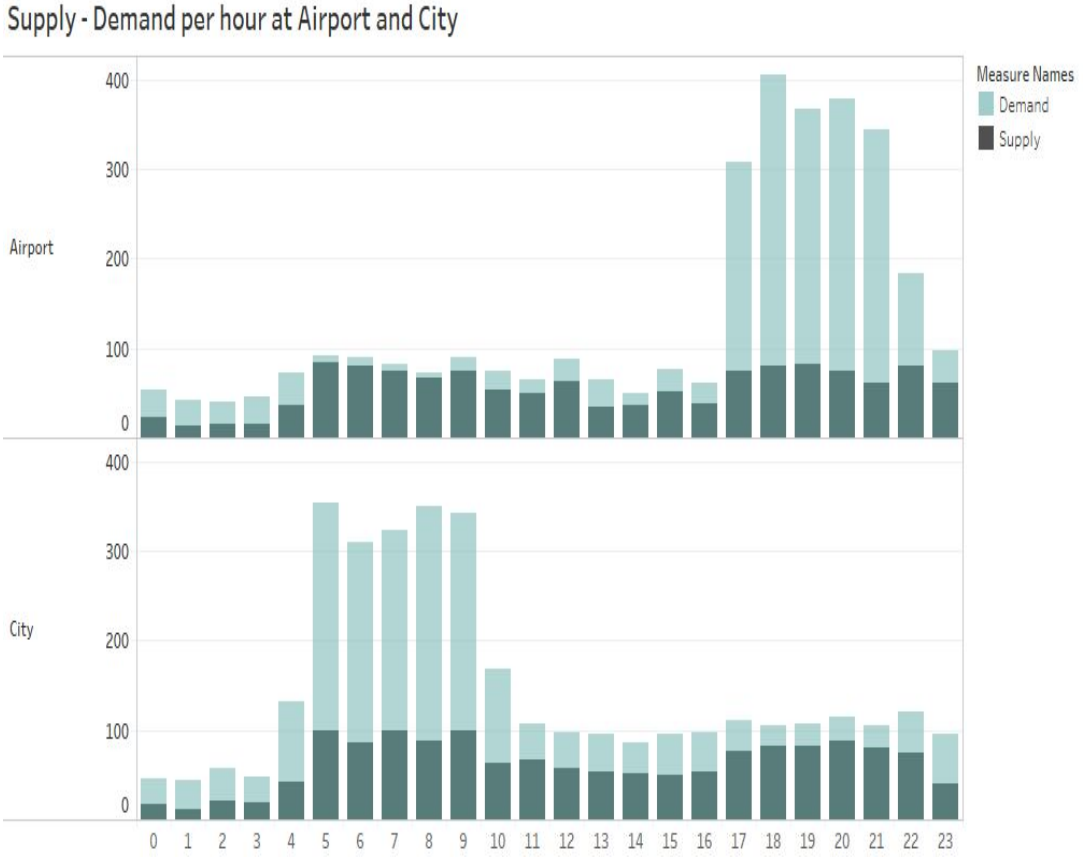


Visual Analysis - II



Visual Analysis - III





Root Cause & Hypothesis

Reasons for higher rate of Cancellation –

1. Airport trips from city takes long time to reach airport .Again ,driver has to wait for the next trip. It makes no economic sense if he comes back empty.
2. Based on flight patterns, there is a huge variance on the next trip a driver will get. [e.g. If a driver reached airport at 5 am to drop a customer then he have to wait for 2-3 hours to get the next trip back to city from airport. Because at this airport, all the domestic flights will start arriving from 8am onwards.]

Reasons for "No Cabs Available" –

1. Most of the drivers will logged out for the day before midnight .Hence, supply decreases.

Recommendation

What is Supply and Demand ?

- **Supply** refers to the number of cab requested having status "**Trip Completed**".
- **Demand** refers to total number of requests for cabs irrespective of the status.

Supply-Demand Gap :-

At some point, too much of a **demand** for the product will cause the **supply** to diminish.

How to Overcome Supply-Demand Gap for UBER:-

1. We can introduce **Dynamic pricing** of the fare during peak hours to avoid **Cancellation** by drivers.
2. We can provide **incentives** to the drivers to stay longer in the system to avoid "**No Cabs available**" Status.