Uber Supply-Demand Gap
EDA

Aim:

The aim of this documentary is to analyze the gap between supply and demand in Uber's ride-hailing service. We will use a dataset containing information on ride requests and driver activities to understand how well Uber meets customer demand.

Introduction:

Uber has revolutionized the transportation industry by providing a convenient way for people to get rides through a mobile app. However, balancing the supply of drivers and the demand for rides is a constant challenge. This documentary explores the dynamics of Uber's supply and demand, highlighting the factors that contribute to gaps between them.

Problem Statement:

Despite Uber's popularity, there are times when riders experience long wait times or cannot find a ride. This documentary seeks to investigate the reasons behind these supply and demand imbalances, examining how often and where they occur, and what impact they have on both riders and drivers.

Methodology:

To analyze Uber's supply and demand gap, we will use a dataset that includes the following information:

Requested ID: Unique identifier for each ride request.

Driver ID: Unique identifier for each driver.

Drop Timestamps: The time when passengers are dropped off.

Request Timestamps: The time when ride requests are made.

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EDA

Pickup Points: Locations where riders are picked up.

Status: Status of the ride request (e.g., completed, canceled)

Analysis (Data Sheets Pertaining to It)

Table 1: Uber Ride Request Data

	Request id	Pickup point	Driver id	Status	Request timestamp	Drop timestamp
1	619	Airport	1	Trip Completed	11-07-2016 11:51:00	11-07-2016 13:00:00
2	867	Airport	1	Trip Completed	11-07-2016 17:57:00	11-07-2016 18:47:00
3	1807	City	1	Trip Completed	12-07-2016 09:17:00	12-07-2016 09:58:00
4	2532	Airport	1	Trip Completed	12-07-2016 21:08:00	12-07-2016 22:03:00
5	3112	City	1	Trip Completed	13-07-2016 08:33:16	13-07-2016 09:25:47
6	3879	Airport	1	Trip Completed	13-07-2016 21:57:28	13-07-2016 22:28:59
7	4270	Airport	1	Trip Completed	14-07-2016 06:15:32	14-07-2016 07:13:15
8	5510	Airport	1	Trip Completed	15-07-2016 05:11:52	15-07-2016 06:07:52
9	6248	City	1	Trip Completed	15-07-2016 17:57:27	15-07-2016 18:50:51
10	267	City	2	Trip Completed	11-07-2016 06:46:00	11-07-2016 07:25:00
11	1467	Airport	2	Trip Completed	12-07-2016 05:08:00	12-07-2016 06:02:00
12	1983	City	2	Trip Completed	12-07-2016 12:30:00	12-07-2016 12:57:00
13	2784	Airport	2	Trip Completed	13-07-2016 04:49:20	13-07-2016 05:23:03
14	3075	City	2	Trip Completed	13-07-2016 08:02:53	13-07-2016 09:16:19
15	3379	City	2	Trip Completed	13-07-2016 14:23:02	13-07-2016 15:35:18
16	3482	Airport	2	Trip Completed	13-07-2016 17:23:18	13-07-2016 18:20:51
17	4652	City	2	Trip Completed	14-07-2016 12:01:02	14-07-2016 12:36:46
18	5335	Airport	2	Trip Completed	14-07-2016 22:24:13	14-07-2016 23:18:52
19	535	Airport	3	Trip Completed	11-07-2016 10:00:00	11-07-2016 10:31:00
20	960	Airport	3	Trip Completed	11-07-2016 18:45:00	11-07-2016 19:23:00
21	1934	Airport	3	Trip Completed	12-07-2016 11:17:00	12-07-2016 12:23:00
22	2083	Airport	3	Trip Completed	12-07-2016 15:46:00	12-07-2016 16:40:00
23	2211	Airport	3	Trip Completed	12-07-2016 18:00:00	12-07-2016 18:28:00
24	3096	Airport	3	Trip Completed	13-07-2016 08:17:29	13-07-2016 09:22:37
25	3881	Airport	3	Trip Completed	13-07-2016 21:54:18	13-07-2016 22:51:23
26	5254	City	3	Trip Completed	14-07-2016 21:23:03	14-07-2016 22:25:19
27	5434	City	3	Trip Completed	15-07-2016 02:41:38	15-07-2016 03:24:43
28	5916	City	3	Trip Completed	15-07-2016 10:00:43	15-07-2016 10:53:06

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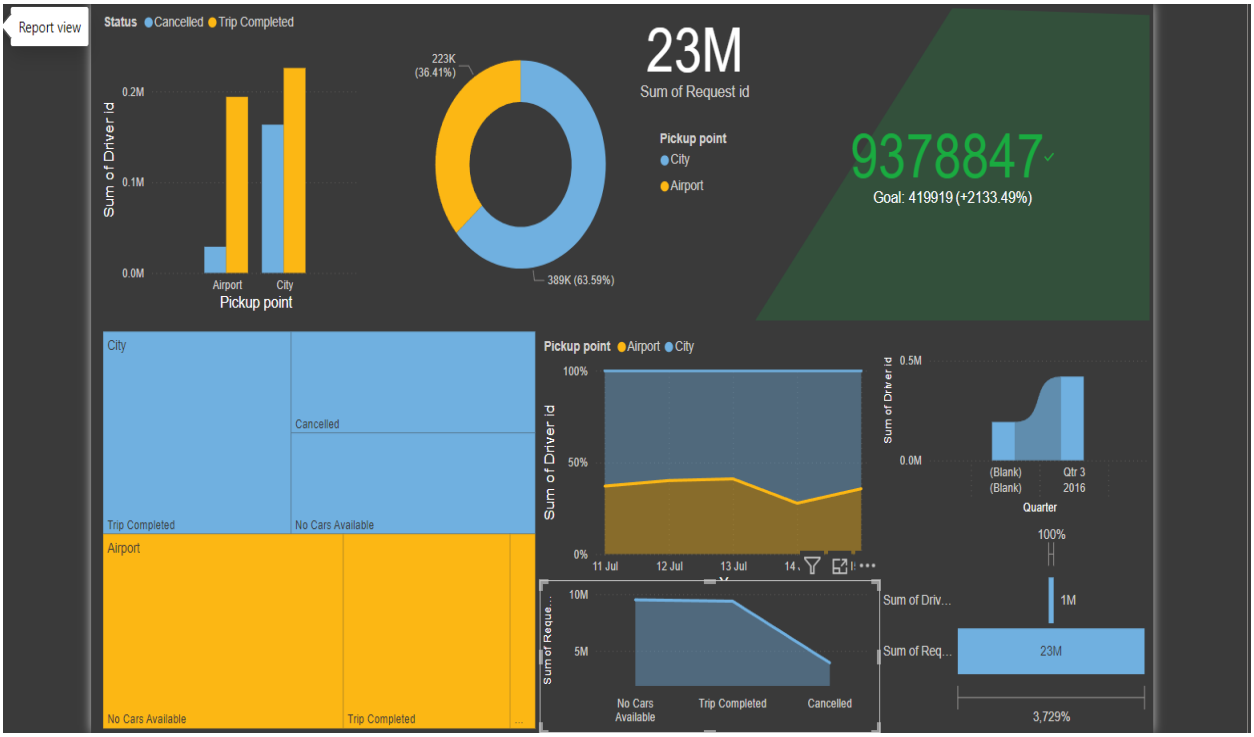

Insights:

Supply and Demand Patterns:

The data reveals peak times when demand for rides significantly exceeds the supply of available drivers, leading to longer wait times or unfulfilled requests.

Geographical Hotspots:

Certain pickup points consistently show higher demand, indicating areas where Uber might need more drivers to meet customer needs.

Request Status Analysis:

A significant number of ride requests are canceled or result in no-shows, suggesting potential issues in the matching process between drivers and riders.

Recommendations:

Uber Supply-Demand Gap
EDA

Dynamic Driver Allocation:

Implement algorithms to predict high-demand areas and times, ensuring more drivers are available where and when they are needed most.

Incentives for Drivers:

Offer incentives for drivers to be active during peak hours or in high-demand locations to reduce the gap between supply and demand.

Improved Matching Process:

Enhance the ride matching process to minimize cancellations and no-shows, perhaps through better communication or stricter policies on cancellations.

Conclusions:

Balancing supply and demand are crucial for Uber's success. This analysis highlights the need for strategic adjustments in driver allocation, incentives, and the ride matching process. By addressing these areas, Uber can improve its service efficiency, leading to better experiences for both riders and drivers.