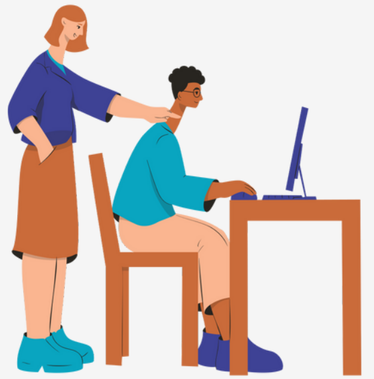
DATA ANALYSIS

BY Hemanathan R N

LinkedIn

📌 Problem Statement:

Ride-hailing services like Ola have revolutionized urban transportation, offering convenience to millions. Understanding ride patterns, cancellations, and revenue distribution is key to optimizing operations. This project analyzes Ola ride data using SQL and Power BI to uncover insights on ride trends, booking statuses, payment preferences, and customer-driver interactions. By identifying demand patterns and rating trends, this analysis helps enhance service efficiency, customer satisfaction, and business performance.



🎯 Objectives

Analyze Ride Volume Trends – Examine ride volume over time to identify demand patterns.

Understand Booking Status – Analyze successful, canceled, and incomplete rides along with reasons.

Evaluate Customer & Driver Ratings – Compare ratings across different vehicle types.

Assess Revenue Distribution – Analyze total booking value and revenue by payment methods.

Identify Top Customers & Vehicles – Determine high-value customers and top vehicle types by ride distance.

Instructions

📊 Dataset Overview

Number of records : 103025
Number of Columns : 20

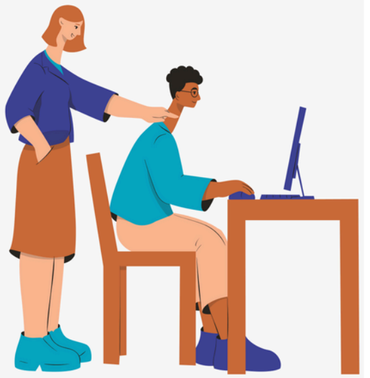
Data Cleaning:

Null (None)Value:

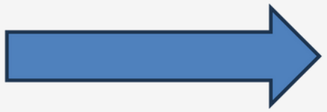
Categorized ride performance – Created metrics for ride distance,

cancellations, and revenue.

Perform Dax Query



SQL Queries



Basic Queries

1. Retrieve all successful bookings:

```
Create view Successful_bookings as
Select * from bookings where Booking_status ="Success";

select * from Successful_bookings;
```

Date	Time	Booking_ID	Booking_Status	Customer_ID	Vehicle_Type	Pickup_Location	Drop_Location
2024-07-25 22:20:00	22:20:00	CNR2940424040	Success	CID225428	Bike	Magadi Road	Varthur
2024-07-30 19:59:00	19:59:00	CNR2982357879	Success	CID270156	Prime SUV	Sahakar Nagar	Varthur
2024-07-02 9:02:00	9:02:00	CNR1797421769	Success	CID939555	Mini	Rajajinagar	Chamarajpet
2024-07-13 4:42:00	4:42:00	CNR8787177882	Success	CID802429	Mini	Kadugodi	Vijayanagar
2024-07-23 9:51:00	9:51:00	CNR3612067560	Success	CID476071	Bike	Tumkur Road	Whitefield
2024-07-29 23:33:00	23:33:00	CNR4787583516	Success	CID923404	Prime Plus	Hosur Road	Jayanagar
2024-07-26 4:03:00	4:03:00	CNR7943634301	Success	CID647026	Prime Plus	Kammanahalli	Rajajinagar
2024-07-27 13:18:00	13:18:00	CNR4524472111	Success	CID540929	Auto	Cox Town	Yelahanka
2024-07-16 9:54:00	9:54:00	CNR8181602032	Success	CID167642	Bike	Indiranagar	MG Road
2024-07-02 10:25:00	10:25:00	CNR8090918544	Success	CID640151	Bike	Magadi Road	HSR Layout
2024-07-05 23:42:00	23:42:00	CNR3196156650	Success	CID243275	Bike	Electronic City	Langford Town
2024-07-09 11:11:00	11:11:00	CNR9975925287	Success	CID162055	Prime SUV	Magadi Road	RT Nagar

2. Find the average ride distance for each vehicle type:

```
Create view Avg_rideby_vehicle as
Select vehicle_type, round(avg(ride_distance),2) as Average_Distance from bookings
group by vehicle_type;

select * from Avg_rideby_vehicle;
```

vehicle_type	Average_Distance
Prime Sedan	15.76
Bike	15.53
Prime SUV	15.27
eBike	15.58
Mini	15.51
Prime Plus	15.45
Auto	6.24

3. Get the total number of cancelled rides by customers:

```
Create view Rides_cancelled_bycustomers as
Select count(*) as Total_cancelled_rides from bookings
where Booking_status ="Canceled by Customer";

Select * from Rides_cancelled_bycustomers;
```

Total_cancelled_rides
10499

4. List the top 5 customers who booked the highest number of rides:

```
Create view Top5customers_id as
select customer_id, count(Booking_id) as Rides_taken from
bookings
group by customer_id
order by Rides_taken desc
limit 5;

select * from Top5customers_id;
```

customer_id	Rides_taken
CID954071	5
CID539191	4
CID189965	4
CID268274	4
CID952434	4

5. Get the number of rides cancelled by drivers due to personal and car-related issues:

```
Create view Rides_Cancelled_by_driver as
Select Count(*) as Rides_Cancelled_by_driver from bookings where Booking_status ="Canceled
by Driver" and
Canceled_Rides_by_Driver="Personal & Car related issue";

select * from Rides_Cancelled_by_driver;
```

Rides_Cancelled_by_driver
6542

6. Find the maximum and minimum driver ratings for Prime Sedan bookings:

```
Create view MAx_MIn_Rating as
select max(Driver_Ratings), min(Driver_Ratings) from bookings where vehicle_type="Prime Sedan";

select * from MAx_MIn_Rating;
```

max(Driver_Ratings)	min(Driver_Ratings)
5	3

7. Retrieve all rides where payment was made using UPI:

```
Create view UPI_Transaction as
select * from bookings where payment_method="UPI";

select * from UPI_Transaction;
```

Date	Time	Booking_ID	Booking_Status	Customer_ID	Vehicle_Type	Pickup_Location	Drop_Location	V_TAT	C_TAT
2024-07-30 19:59:00	19:59:00	CNR2982357879	Success	CID270156	Prime SUV	Sahakar Nagar	Varthur	238	130
2024-07-13 4:42:00	4:42:00	CNR8787177882	Success	CID802429	Mini	Kadugodi	Vijayanagar	231	90
2024-07-27 13:18:00	13:18:00	CNR4524472111	Success	CID540929	Auto	Cox Town	Yelahanka	126	35
2024-07-16 9:54:00	9:54:00	CNR8181602032	Success	CID167642	Bike	Indiranagar	MG Road	70	95
2024-07-02 10:25:00	10:25:00	CNR8090918544	Success	CID640151	Bike	Magadi Road	HSR Layout	126	95
2024-07-09 11:11:00	11:11:00	CNR9975925287	Success	CID162055	Prime SUV	Magadi Road	RT Nagar	42	30
2024-07-19 21:18:00	21:18:00	CNR4443921904	Success	CID654618	Mini	Tumkur Road	Koramangala	231	50
2024-07-25 3:44:00	3:44:00	CNR7194303296	Success	CID538245	Mini	Mysore Road	Hennur	175	50
2024-07-15 17:11:00	17:11:00	CNR6494005067	Success	CID805360	Auto	Yelahanka	Malleshwaram	84	60
2024-07-14 5:25:00	5:25:00	CNR7142279862	Success	CID378034	eBike	Yeshwanthpur	JP Nagar	210	45
2024-07-03 0:58:00	0:58:00	CNR5176704322	Success	CID296026	Prime Plus	KR Puram	Hennur	287	40
2024-07-10 21:56:00	21:56:00	CNR7547352327	Success	CID976231	Prime Plus	Hulimavu	Rajarajeshwa...	210	105
2024-07-06 15:02:00	15:02:00	CNR1568684278	Success	CID709612	Prime Plus	Bannerghatta ...	Majestic	42	90
2024-07-17 3:30:00	3:30:00	CNR1050003752	Success	CID993137	Bike	Chamarajpet	Shivajinagar	308	110
2024-07-01 2:45:00	2:45:00	CNR9758857830	Success	CID528642	Prime Plus	HSR Layout	Magadi Road	308	70
2024-07-02 4:17:00	4:17:00	CNR8080410192	Success	CID416746	eBike	Jayanagar	JP Nagar	91	120

8. Find the average customer rating per vehicle type:

```
Create view AVG_customer_rating as
select Vehicle_Type ,round(avg(Customer_Rating),2) as
Customer_Rating from bookings
Group by Vehicle_Type;

select * from AVG_customer_rating;
```

Vehicle_Type	Customer_Rating
Prime Sedan	4
Bike	3.99
Prime SUV	4
eBike	3.99
Mini	4
Prime Plus	4.01
Auto	4

9. Calculate the total booking value of rides completed successfully:

```
Create view Completed_BV as
select sum(booking_value) as total_successful_value from bookings
where booking_status="Success";

select * from Completed_BV;
```

total_successful_value
35080467

10. List all incomplete rides along with the reason:

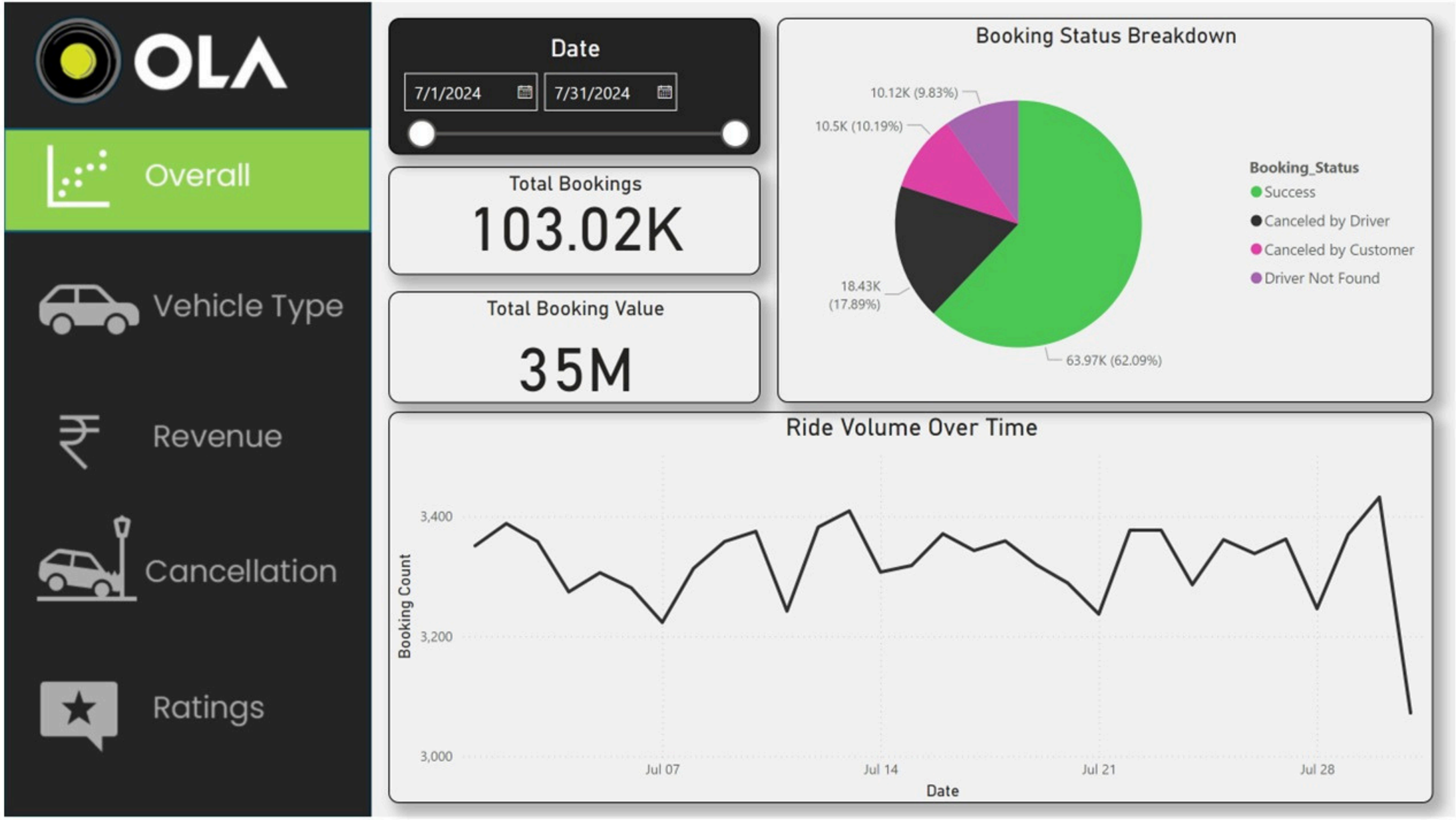
```
create view Incomplete_rides as
select booking_id, Incomplete_Rides_Reason from
bookings where Incomplete_Rides="yes";

select * from Incomplete_rides;
```

booking_id	Incomplete_Rides_Reason
CNR5176704322	Customer Demand
CNR9312632867	Vehicle Breakdown
CNR7924302885	Customer Demand
CNR1640228587	Other Issue
CNR7623690602	Other Issue
CNR9590311980	Customer Demand
CNR5863244684	Customer Demand
CNR9526078867	Customer Demand
CNR7154043084	Customer Demand
CNR3193710797	Other Issue
CNR7073850950	Customer Demand
CNR9952584604	Customer Demand
CNR5433575259	Vehicle Breakdown
CNR3575066041	Vehicle Breakdown
CNR7537935962	Customer Demand
CNR2722435581	Vehicle Breakdown
CNR5495479048	Other Issue

OLA

Data Visualization

OLA OVERVIEW



VEHICLE TYPE

OLA

Overall

Vehicle Type

Revenue

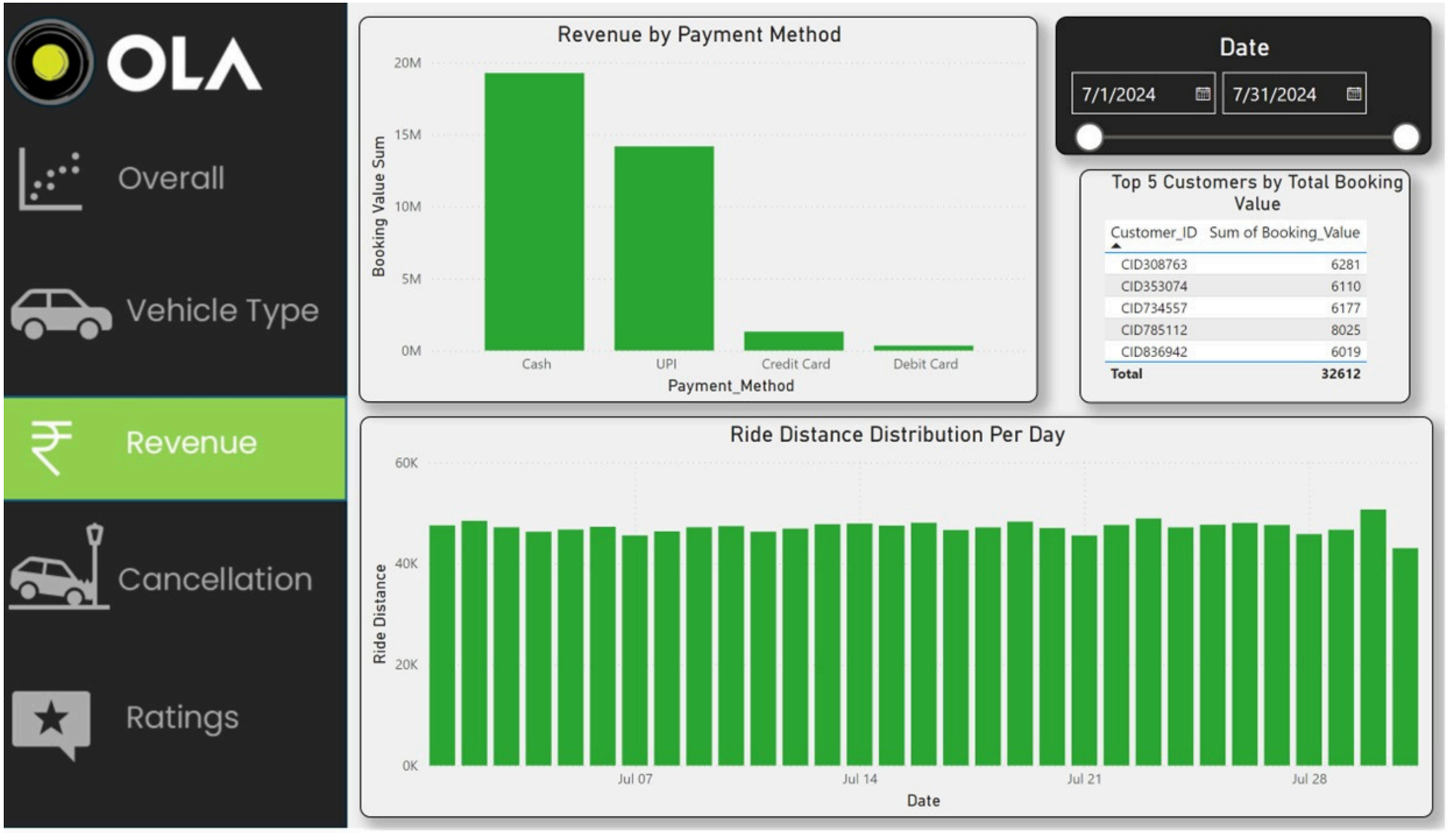
Cancellation

Ratings

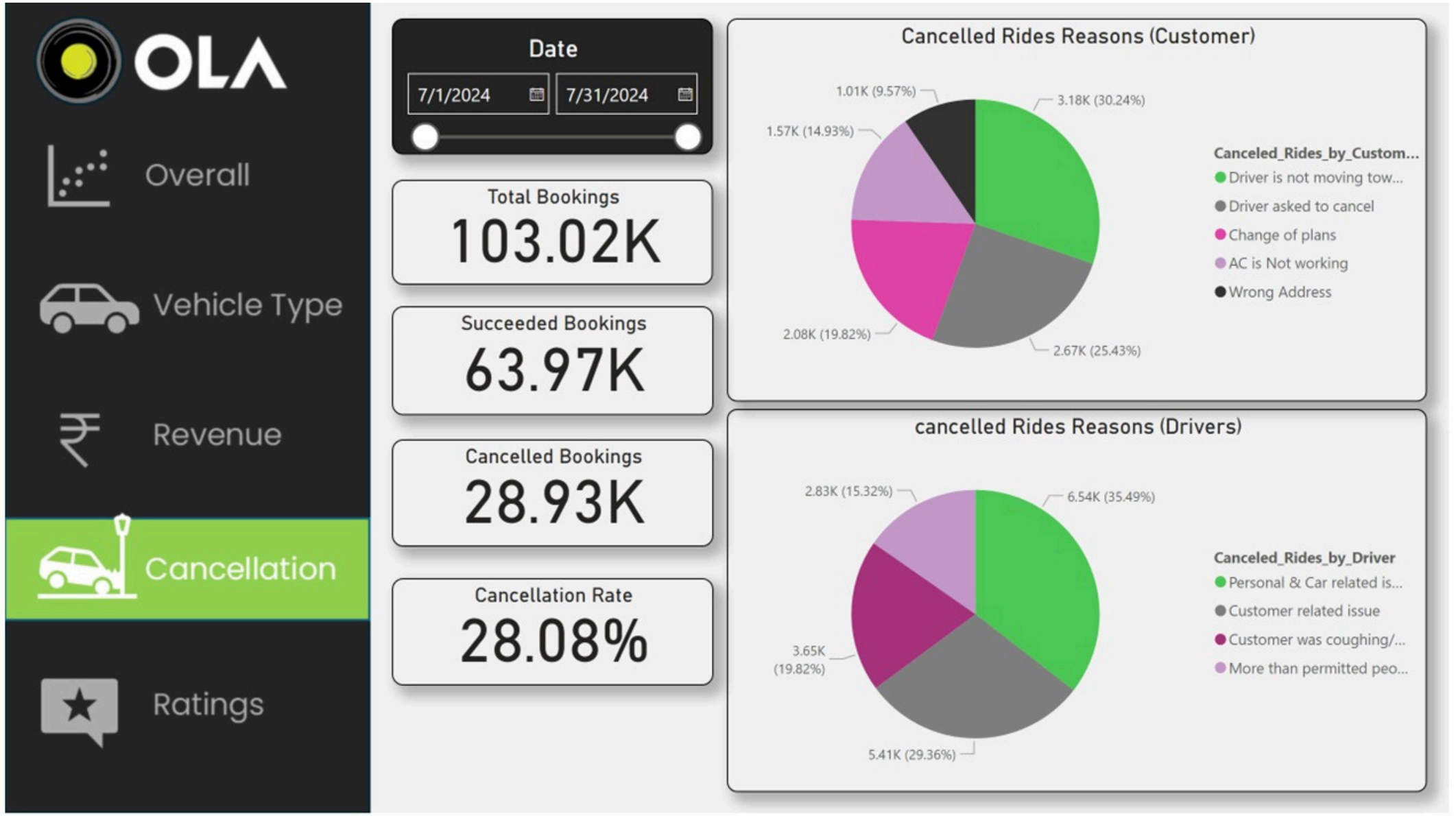
7/1/2024

Vehicle Type	Total Booking Value	Success Booking Value	Avg. Distance Travelled	Total Distance Travelled
Prime Sedan	8.30M	5.22M	25.01	235K
Prime SUV	7.93M	4.88M	24.88	224K
Prime Plus	8.05M	5.02M	25.03	227K
Mini	7.99M	4.89M	24.98	226K
Auto	8.09M	5.05M	10.04	92K
Bike	7.99M	4.97M	24.93	228K
E-Bike	8.18M	5.05M	25.15	231K

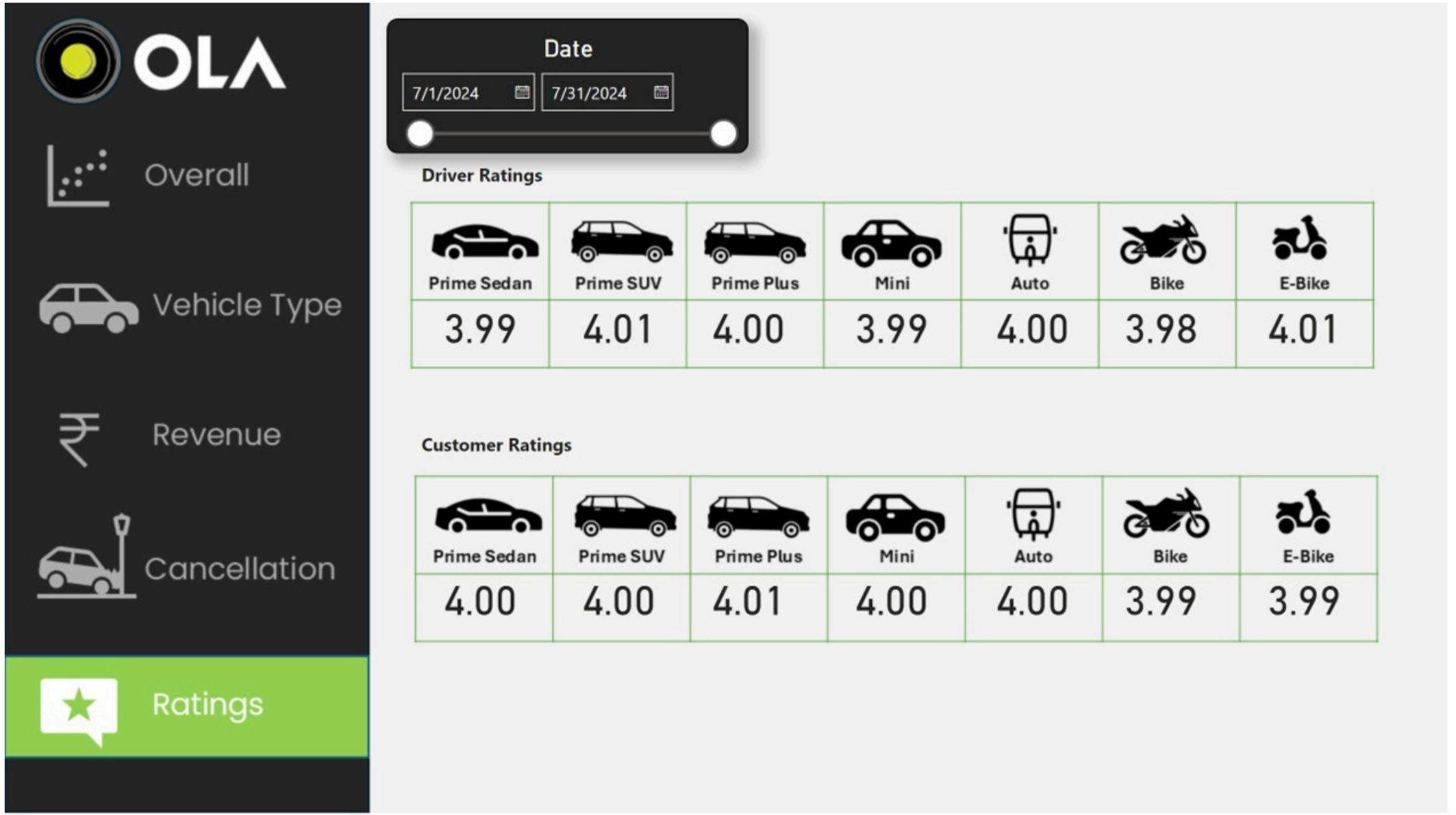
REVENUE


OLA
Overall
Vehicle Type
Revenue
Cancellation
Ratings
Revenue by Payment Method
20M
15M
10M
5M
0M
Booking Value Sum
Cash
UPI
Credit Card
Debit Card
Payment_Method
Date
7/1/2024
7/31/2024
Top 5 Customers by Total Booking Value
Customer_ID
Sum of Booking_Value
CID308763 6281
CID353074 6110
CID734557 6177
CID785112 8025
CID836942 6019
Total 32612
Ride Distance Distribution Per Day
60K
40K
20K
0K
Ride Distance
Jul 07
Jul 14
Jul 21
Jul 28
Date

CANCELLATION



RATINGS


OLA
Overall
Vehicle Type
Revenue
Cancellation
Ratings
Date
7/1/2024
7/31/2024
Driver Ratings
Prime Sedan
3.99
Prime SUV
4.01
Prime Plus
4.00
Mini
3.99
Auto
4.00
Bike
3.98
E-Bike
4.01
Customer Ratings
Prime Sedan
4.00
Prime SUV
4.00
Prime Plus
4.01
Mini
4.00
Auto
4.00
Bike
3.99
E-Bike
3.99

INSIGHTS

Ride Volume & Booking Trends

- Peak ride demand observed at specific times, helping optimize fleet availability.
- Most rides were successfully completed, while cancellations were mainly due to driver or customer-related reasons.

Customer & Driver Ratings

- Prime Sedan had the highest customer ratings, while budget vehicles showed more fluctuations.
- Driver ratings varied significantly, impacting overall ride experience and service quality.

Revenue & Payment Methods

- Digital payments, especially UPI, contributed the most to total booking revenue.
- Cash payments were less frequent but still accounted for a notable share of transactions.

Cancellation Analysis

- Drivers mostly canceled rides due to personal or vehicle-related issues.
- Customers primarily canceled rides due to fare concerns or change of plans.

Top Customers & Vehicles

- A small group of high-value customers accounted for a significant share of completed rides.
- Prime Sedan and SUVs led in ride distance, indicating customer preference for comfort.

Ride Distance & Ratings Correlation

- Longer rides generally received higher ratings, suggesting better customer satisfaction.
- Short-distance trips had more rating variability, likely due to pricing and service expectations.

RECOMMENDATIONS

Optimize Fleet & Ride Availability

- Adjust vehicle allocation based on peak demand patterns.
- Implement surge pricing or driver incentives during high-demand periods.

Minimize Cancellations

- Introduce policies to reduce driver and customer cancellations.
- Offer incentives for drivers to decrease cancellations due to personal or vehicle-related issues**.**

Enhance Customer & Driver Experience

- Improve service quality for lower-rated vehicle categories.
- Provide driver training and rating-based incentives to enhance overall ride experience.

Improve Revenue & Payment Strategies

- Promote digital payments like UPI to increase transaction efficiency.
- Implement loyalty rewards or discounts for frequent riders to boost retention.

Utilize Data for Business Growth

- Continuously analyze ride trends, cancellation reasons, and rating patterns.
- Use predictive analytics to optimize operations and forecast future demand.