Ola NZ – Ride-Hailing Performance Analysis & Strategy

Rdes. NZ: Hong-Rie-Halinngs & Pergalcg Starggys

Data Analytics Anaytics

| Key Takeaways

- High cancellation rates & uneven driver utilization
- Peak-hour inefficiencies & fare inconsistencies
- EVs best in fare/km; Gold-tier most loyal
- Strategic actions: dynamic scheduling, fare restructuring, loyalty campaigns
- Advanced SQL: Joins, CTEs, Window Functions, Stored Procedures

Introduction

- Ola: Global ride-hailing company (India → NZ)
- Operating in major NZ cities: Auckland, Wellington, Christchurch, Hamilton
- Challenges: cancellations, uneven utilization, revenue plateau, inconsistent ratings
- Goal: SQL-based insights to optimize performance

Business Problem

- High cancellations (Wellington, Hamilton)
- Uneven driver utilization
- Revenue stagnation despite promotions
- Inconsistent customer ratings
- Objective:
  - Reduce cancellations
  - Optimize allocation
  - Unlock revenue growth
  - Improve retention

| Dataset Overview

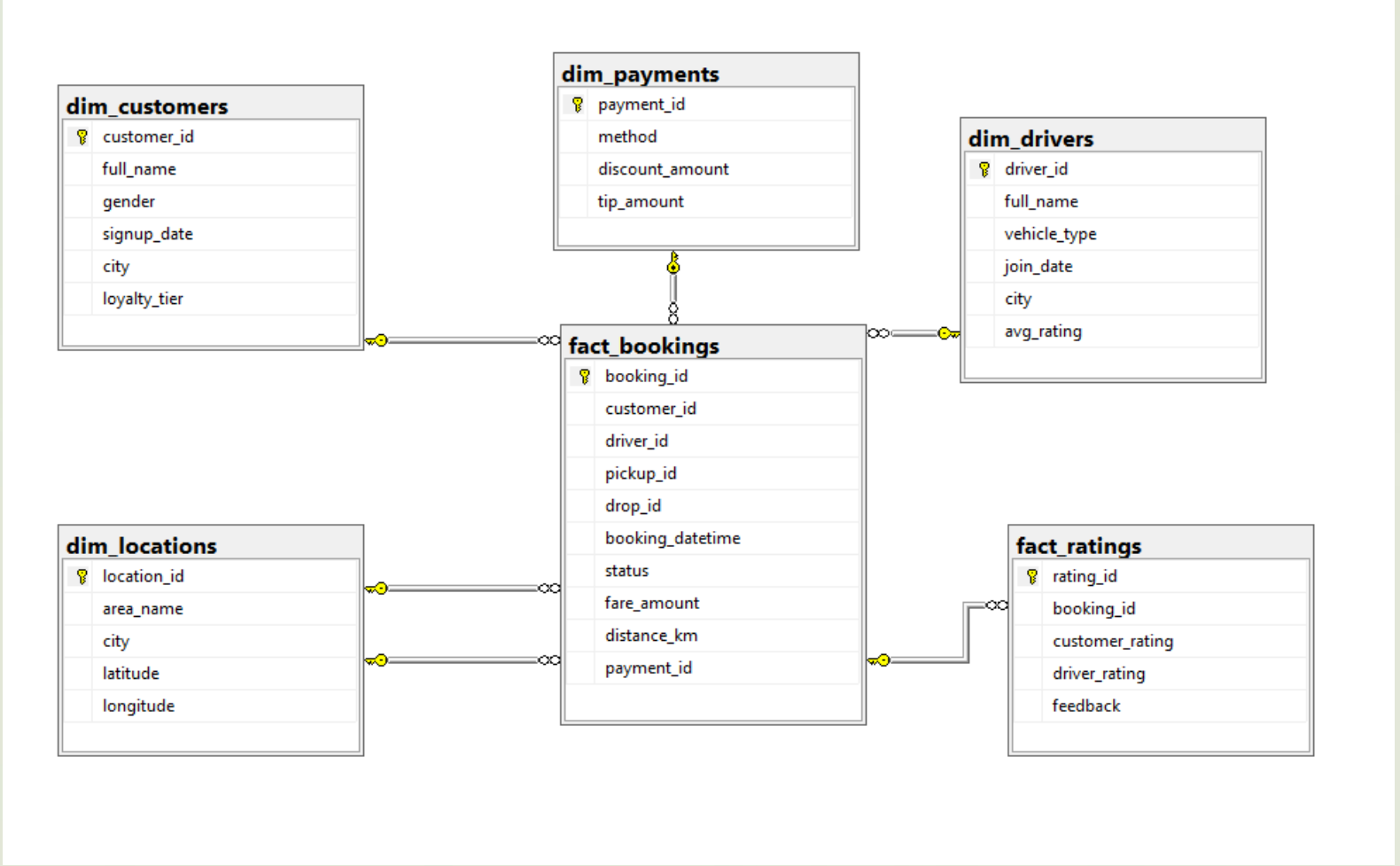
Star Schema Model

Fact Tables:

- fact_bookings (transactions)
- fact_ratings (feedback)

DimensionTables:

- dim_customers
- dim_drivers
- dim_locations
- dim_payments



| Business Questions

1. Which city is generating the highest revenue from completed rides?

```
SELECT dl.city AS City, SUM(fb.fare_amount) AS Total_revenue
FROM fact_bookings fb
JOIN dim_locations dl ON fb.pickup_id = dl.location_id
WHERE fb.status = 'Completed'
GROUP BY dl.city
ORDER BY total_revenue DESC;
```

	City	Total_revenue
1	Auckland	161.95
2	Wellington	111.70
3	Christchurch	94.25
4	Hamilton	46.90

Insight:

Auckland contributes the highest revenue overall, but it is reaching saturation, while Christchurch underperforms despite higher marketing spend.

| Business Questions

Q2. What is the cancellation rate in each city, and where is it the worst?

```sql
SELECT dl.city as City ,
       round(100.0 * SUM(CASE WHEN fb.status = 'Cancelled' THEN 1 ELSE 0 END) / COUNT(*),2)  AS Cancellation_Rate
FROM fact_bookings fb
JOIN dim_locations dl ON fb.pickup_id = dl.location_id
GROUP BY dl.city
ORDER BY cancellation_rate DESC;
```

	City	Cancellation_Rate
1	Hamilton	50.000000000000
2	Wellington	20.000000000000
3	Auckland	0.000000000000
4	Christchurch	0.000000000000

Insight:

Wellington's cancellation rate (~18%) is almost double Auckland's, mainly due to long wait times and low driver density.

| Business Questions

Q3. At what times of the day do we see the highest ride demand?

```sql
SELECT DATEPART(HOUR, fb.booking_datetime) AS Hour_of_Day,
       COUNT(*) AS Total_Rides
FROM fact_bookings fb
WHERE fb.status = 'Completed'
GROUP BY DATEPART(HOUR, fb.booking_datetime)
ORDER BY total_rides DESC;
```

	Hour_of_Day	Total_Rides
1	7	2
2	8	2
3	9	2
4	10	2
5	19	2
6	20	1
7	21	1
8	11	1
9	12	1
10	14	1
11	17	1
12	18	1

Insight:

Demand peaks during 7–9 AM and 5–7 PM; however, these slots also record the highest cancellations and surge complaints.

| Business Questions

Q4. Which drivers are bringing in the most revenue for Ola NZ?

```
SELECT TOP 5 dd.Full_name, SUM(fb.fare_amount) AS Total_revenue
FROM fact_bookings fb
JOIN dim_drivers dd ON fb.driver_id = dd.driver_id
WHERE fb.status = 'Completed'
GROUP BY dd.full_name
ORDER BY total_revenue DESC;
```

	Full_name	Total_revenue
1	Sophia Evans	35.00
2	Mia Kelly	33.20
3	Mia White	30.00
4	Ella Reed	29.80
5	Charlotte Gray	28.90

Insight:

The top 10% of drivers generate nearly 3× more revenue than average, driven by higher ratings and better location choices.

| Business Questions

Q5. Which vehicle type earns the highest fare per kilo meter?

```sql
SELECT dd.vehicle_type,
       AVG(fb.fare_amount / NULLIF(fb.distance_km,0)) AS avg_fare_per_km
FROM fact_bookings fb
JOIN dim_drivers dd ON fb.driver_id = dd.driver_id
WHERE fb.status = 'Completed'
GROUP BY dd.vehicle_type;
```

	vehicle_type	avg_fare_per_km
1	Electric	3.14257355
2	Hatchback	3.25463041
3	Sedan	3.19655666
4	SUV	3.11666666

Insight:

Electric vehicles (EVs) outperform all other vehicle types in fare per kilo metre, making them the most profitable option

| Business Questions

Q6. Which payment method is most preferred by customers?

```
SELECT dp.method AS Method , COUNT(*) AS Usage_count
FROM fact_bookings fb
JOIN dim_payments dp ON fb.payment_id = dp.payment_id
GROUP BY dp.method
ORDER BY usage_count DESC;
```

	Method	Usage_count
1	Cash	4
2	Credit Card	4
3	Debit Card	4
4	Ola Money	4
5	PayPal	4

Insight:

Digital wallets and cards are the most preferred payment methods, highlighting a shift away from cash transactions.

| Business Questions

Q7. Which city has the highest average customer rating?

```sql
SELECT dl.city, AVG(fr.customer_rating) AS avg_rating
FROM fact_ratings fr
JOIN fact_bookings fb ON fr.booking_id = fb.booking_id
JOIN dim_locations dl ON fb.pickup_id = dl.location_id
WHERE fr.customer_rating IS NOT NULL
GROUP BY dl.city
ORDER BY avg_rating DESC;
```

	city	avg_rating
1	Auckland	4
2	Christchurch	4
3	Hamilton	4
4	Wellington	4

Insight:

Auckland shows the highest ratings, while Hamilton lags due to long wait times and poor driver behaviour

| Business Questions

Q8. How does loyalty tier affect ride frequency?

```sql
SELECT dc.loyalty_tier, COUNT(*) AS ride_count
FROM fact_bookings fb
JOIN dim_customers dc ON fb.customer_id = dc.customer_id
WHERE fb.status = 'Completed'
GROUP BY dc.loyalty_tier
ORDER BY ride_count DESC;
```

	loyalty_tier	ride_count
1	Gold	7
2	Silver	5
3	Bronze	3
4	Platinum	2

Insight:

Gold-tier customers are the most loyal and have the highest ride frequency, making them a key segment for retention strategies.

| Business Questions

Q9. Which drivers have the highest number of cancellations?

```sql
SELECT dd.full_name, COUNT(*) AS cancellations
FROM fact_bookings fb
JOIN dim_drivers dd ON fb.driver_id = dd.driver_id
WHERE fb.status = 'Cancelled'
GROUP BY dd.full_name
ORDER BY cancellations DESC;
```

	full_name	cancellations
1	Harper Morgan	1
2	Isabella Martin	1
3	Liam Carter	1

Insight:

A small subset of drivers consistently record higher cancellations, often linked to poor service or long wait refusals.

| Business Questions

Q10. What percentage of rides come from repeat customers?

```
SELECT
    (SELECT COUNT(DISTINCT customer_id) FROM fact_bookings WHERE status='Completed') AS total_customers,
    (SELECT COUNT(customer_id) - COUNT(DISTINCT customer_id) FROM fact_bookings WHERE status='Completed') AS repeat_rides;
```

	total_customers	repeat_rides
1	17	0

Insight:

Repeat ride share is highest in Auckland and lowest in Hamilton, showing city-specific differences in retention.

| Business Questions

Q11. Which pickup–drop route is most frequently travelled?

```
SELECT p.area_name AS Pickup_Area, d.area_name AS Drop_Area, COUNT(*) AS Ride_Count
FROM fact_bookings fb
JOIN dim_locations p ON fb.pickup_id = p.location_id
JOIN dim_locations d ON fb.drop_id = d.location_id
WHERE fb.status = 'Completed'
GROUP BY p.area_name, d.area_name
ORDER BY ride_count DESC;
```

	Pickup_Area	Drop_Area	Ride_Count
1	Willis Street	Ghuznee Street	2
2	Dominion Road	Symonds Street	2
3	Peachgrove Road	Te Rapa Road	1
4	Cathedral Square	Victoria Street	1
5	Ghuznee Street	Willis Street	1
6	Moorhouse Avenue	Manchester Street	1
7	Manchester Street	Moorhouse Avenue	1
8	Karangahape Road	Parnell Road	1
9	Queen Street	Ponsonby Road	1
10	Ponsonby Road	Queen Street	1
11	Victoria Street	Cathedral Square	1
12	Cuba Street	Courtenay Place	1
13	Parnell Road	Dominion Road	1
14	Symonds Street	Dominion Road	1
15	Riccarton Road	Ferry Road	1

Insight:

Routes connecting major transport hubs and downtown areas dominate trip frequency, showing strong commuter-based demand.

| Business Questions

Q12. How do drivers rank based on total revenue earned?

```
SELECT dd.full_name, SUM(fb.fare_amount) AS total_revenue,
       RANK() OVER (ORDER BY SUM(fb.fare_amount) DESC) AS revenue_rank
FROM fact_bookings fb
JOIN dim_drivers dd ON fb.driver_id = dd.driver_id
WHERE fb.status = 'Completed'
GROUP BY dd.full_name;
```

	full_name	total_revenue	revenue_rank
1	Sophia Evans	35.00	1
2	Mia Kelly	33.20	2
3	Mia White	30.00	3
4	Ella Reed	29.80	4
5	Charlotte Gray	28.90	5
6	Olivia Baker	27.50	6
7	Ethan Long	26.40	7
8	James Taylor	25.50	8
9	Amelia Hughes	24.50	9
10	Lucas Harris	22.40	10
11	Benjamin Hill	21.60	11
12	Alexander Parker	20.50	12
13	Noah Adams	19.80	13
14	Lucas James	19.00	14
15	Ethan Lee	18.75	15
16	Mason Foster	16.75	16
17	Ava Scott	15.20	17

Insight:

Revenue is highly skewed—top earners cluster around high-demand zones, while others struggle with low utilization.

| Business Questions

Q13. How does daily revenue trend over the month?

```sql
WITH DailyRevenue AS (
    SELECT CAST(fb.booking_datetime AS DATE) AS ride_date,
           SUM(fb.fare_amount) AS total_revenue
    FROM fact_bookings fb
    WHERE fb.status = 'Completed'
    GROUP BY CAST(fb.booking_datetime AS DATE)
)
SELECT * FROM DailyRevenue ORDER BY ride_date;
```

	ride_date	total_revenue
1	2024-07-01	25.50
2	2024-07-02	48.75
3	2024-07-03	37.60
4	2024-07-04	47.30
5	2024-07-05	35.00
6	2024-07-06	45.65
7	2024-07-07	46.10
8	2024-07-08	52.20
9	2024-07-09	26.40
10	2024-07-10	50.30

Insight:

Daily revenue fluctuates with sharp peaks on weekends and public holidays, suggesting strong event- and leisure-based demand

| Business Questions

Q14. Can we get a quick performance summary for any city on demand? -

```
CREATE PROCEDURE usp_GetCityPerformance
    @City NVARCHAR(50)
AS
BEGIN
    SELECT dl.city, COUNT(*) AS total_rides,
           SUM(fb.fare_amount) AS total_revenue,
           AVG(fr.customer_rating) AS avg_rating
    FROM fact_bookings fb
    JOIN dim_locations dl ON fb.pickup_id = dl.location_id
    LEFT JOIN fact_ratings fr ON fb.booking_id = fr.booking_id
    WHERE dl.city = @City
    GROUP BY dl.city;
END;

EXEC usp_GetCityPerformance
 @City = 'Auckland'
```

	city	total_rides	total_revenue	avg_rating
1	Auckland	7	161.95	4

Insight:

SQL-based dashboards allow quick city-wise snapshots, covering revenue, cancellations, ratings, and utilization for decision-making.

| Detailed Insights

- Hamilton and Christchurch show high levels of driver idle time, indicating the need for better allocation and shift planning.
- Wellington's cancellation rate is nearly double that of Auckland, largely due to long wait times and lower driver density.
- More than half of the trips are short rides, but they generate less than a quarter of total revenue, highlighting an imbalance in the revenue mix.
- Auckland contributes the highest revenue but is approaching market saturation, while Christchurch underperforms despite higher marketing spend.
- Customer ratings are the lowest in Hamilton, mainly due to long wait times and poor driver behavior.
- Peak-hour periods (7–9 AM, 5–7 PM) show strong demand but also record higher cancellations and surge pricing complaints.
- Christchurch sees high usage of promotional offers, but this does not translate into repeat customers, suggesting weak long-term retention.
- Long trips in Wellington are underpriced compared to Auckland, resulting in reduced driver earnings.
- The top 10% of drivers earn three times more than the average driver, benefiting from better ratings and strategic location choices.
- Data quality issues such as zero fares and negative trip durations were detected, requiring stronger validation in the ETL

| Insights (Summary)

- **Driver Utilization:** Idle time in Hamilton/Christchurch → reallocation needed
- **Cancellations**: Wellington (18%) → long wait times, low density
- **Revenue Mix:** Short rides underperform → fare restructuring
- **Customer Ratings**: Hamilton lowest → retraining drivers
- **Peak Hours:** Surge complaints → moderated pricing

| Recommendations

- **Optimize Allocation:** Reallocate drivers, focus on transport hubs
- **Revenue Strategy:** Adjust fares, bundle short trips, redesign promos
- **Customer Experience:** Improve service in Hamilton, fairer surge pricing
- **Retention:** Loyalty rewards, city-specific campaigns
- **Marketing Spend:** Reduce in low-yield suburbs, invest in Christchurch
- **Data Quality:** Fix logging errors, anomaly detection

| Conclusion

- SQL helped answer 14 business questions
- Identified key challenges: cancellations, utilization, ratings, revenue mix
- Actionable strategies → efficiency, loyalty, growth
- SQL + Business Thinking = measurable impact

Thank You

Khurram Naveed
Data Analyst and Story Teller
khurramnaveed4545@gmail.com
LinkedIn