

blinkit

Sales and Operational Analysis of Blinkit using SQL

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Table Of Contents

- 01 Introduction
- 02 Objective
- 03 Dataset Overview
- 04 Key Business Questions
- 05 SQL Queries & Analysis
- 06 Key Insights Summary
- 07 Data-Driven Suggestions
- 08 Conclusion



Introduction



Blinkit:

Blinkit (formerly Grofers) is a leading quick-commerce platform in India, delivering groceries and essentials within 10 minutes, focused on speed, convenience, and customer satisfaction.



Project Focus

SQL analysis of Blinkit's business data for insights on sales, inventory, delivery, customer behavior, and feedback.



Project Purpose

Transform raw data into actionable insights for smarter business decisions.



Objectives

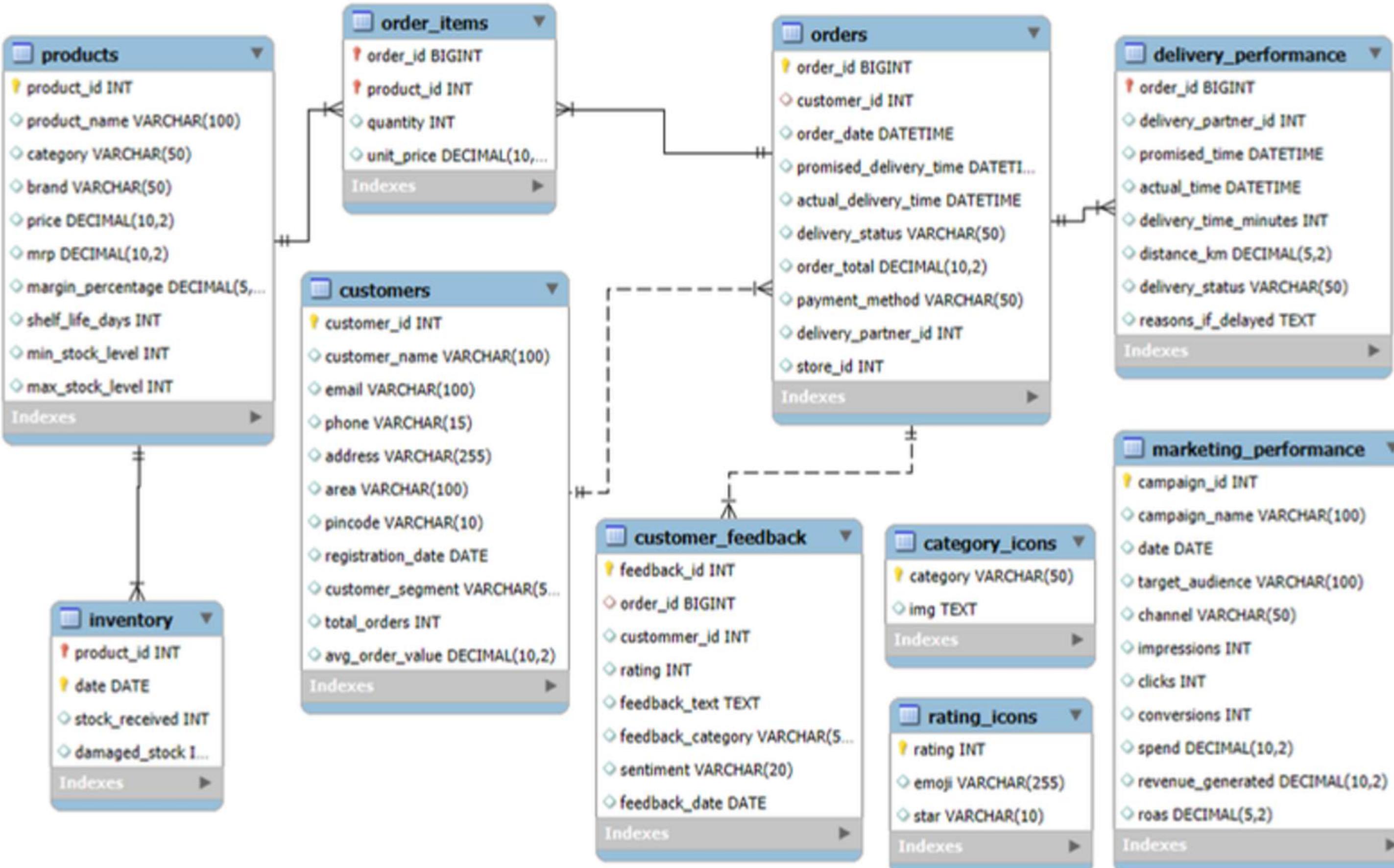
This project aims to analyze Blinkit's business data using SQL to uncover key insights that support better decision-making and business growth.

Key focus areas:



- Identify top-performing products by revenue and units sold.
- Evaluate overall and monthly sales performance.
- Detect inventory issues by analyzing damaged stock.
- Analyze delivery efficiency and delay reasons.
- Understand customer behavior and top segments.
- Assess customer satisfaction through ratings and feedback.
- Measure marketing effectiveness via revenue and ROAS.

Dataset Overview





Key Business Questions

Blinkit aims to identify key business areas for improvement through data analysis. The following questions guide our insights and help uncover growth opportunities.

- **How can Blinkit increase sales revenue?**
- **How can it reduce inventory damage/loss?**
- **How can it improve on-time delivery rates?**
- **How can it retain top customers?**
- **How can it enhance customer satisfaction?**
- **How can it maximize marketing ROI?**



SALES ANALYSIS



Top 5 revenue-generating products with brand?



```
SELECT p.product_name, p.brand,  
SUM(oi.quantity*oi.unit_price) AS revenue  
FROM products p  
JOIN order_items oi  
ON p.product_id=oi.product_id  
GROUP BY p.product_name, p.brand  
ORDER BY total_revenue DESC  
LIMIT 5;
```

product_name	brand	revenue
Baby Food	Karnik PLC	65212.70
Mangoes	Mandal-Kar	56464.65
Bread	Roy-Char	55182.94
Vitamins	Sundaram Inc	51830.35
Vitamins	Gole-Doshi	51790.96

Top 5 products by units sold with brand?



```
SELECT p.product_name, p.brand, SUM(oi.quantity) AS total_units_sold
FROM products p
JOIN order_items oi
ON p.product_id=oi.product_id
GROUP BY p.product_name, p.brand
ORDER BY total_units_sold DESC
LIMIT 5
```

product_name	brand	total_units_sold
Baby Food	Karnik PLC	70
Baby Wipes	Lall LLC	68
Toilet Cleaner	Gaba, Sodhi and Choudhary	62
Mangoes	Mandal-Kar	61
Pain Reliever	Basu and Sons	60

Overall total sales and average monthly sales



```
SELECT
  (SELECT SUM(order_total) FROM orders) AS overall_total_sales,
  (
    SELECT ROUND(AVG(monthly_revenue), 2)
    FROM (
      SELECT
        DATE_FORMAT(order_date, '%Y-%m') AS sales_month,
        SUM(order_total) AS monthly_revenue
      FROM orders
      GROUP BY sales_month
    ) AS monthly_sales
  ) AS avg_monthly_sales;
```

overall_total_sales	avg_monthly_sales
11009308.50	524252.79



INVENTORY ANALYSIS

Highest Damaged Stock for Each Year with Product Name and Brand

```
● ● ●

WITH YearlyDamagedStock AS (
    SELECT
        YEAR(i.date) AS year,
        SUM(i.damaged_stock) AS total_damaged_stock, p.product_name, p.brand
    FROM inventory i
    JOIN products p ON i.product_id = p.product_id
    GROUP BY year, p.product_name, p.brand
),
RankedDamagedStock AS (
    SELECT
        year, total_damaged_stock, product_name, brand, ROW_NUMBER() OVER (PARTITION BY year
        ORDER BY total_damaged_stock DESC) AS rn
    FROM YearlyDamagedStock
)
SELECT
    year, total_damaged_stock, product_name, brand
FROM RankedDamagedStock
WHERE rn = 1
ORDER BY year;
```

Highest Damaged Stock for Each Year with Product Name and Brand

year	total_damaged_stock	product_name	brand
2024	206	Orange Juice	Chana LLC
2023	186	Frozen Vegetables	Kara, Sodhi and Bassi

A close-up photograph of two people's hands holding a large, rectangular cardboard box. The box has some printed text on it, including 'ITEM N' and 'MEAS'. The person on the left is wearing a dark long-sleeved shirt and a ring. The person on the right is wearing a light-colored t-shirt, a brown leather watch, and a ring. They are both holding the box with their thumbs pointing towards each other. In the background, there are green vertical panels, possibly part of a shipping container or a warehouse wall.

DELIVERY ANALYSIS

Average delivery time for all orders



```
SELECT AVG(delivery_time_minutes) AS avg_delivery_time  
FROM delivery_performance;
```

avg_delivery_time
4.4430

Count of deliveries based on delivery status



```
SELECT delivery_status, COUNT(*) AS total_deliveries  
FROM delivery_performance  
GROUP BY delivery_status  
ORDER BY total_deliveries DESC;
```

delivery_status	total_deliveries
On Time	3470
Slightly Delayed	1037
Significantly Delayed	493

The most common reasons for delivery delays



```
SELECT reasons_if_delayed, COUNT(*) AS delay_count
FROM delivery_performance
WHERE delivery_status='slightly delayed' OR
delivery_status='significantly delayed'
GROUP BY reasons_if_delayed
ORDER BY delay_count DESC;
```

reasons_if_delayed	delay_count
Traffic	1530

A color photograph of a woman in an orange and white sari smiling and handing a white cloth bag to a man in a light green polo shirt. They are in a well-lit grocery store aisle with shelves of products in the background.

CUSTOMER ANALYSIS

Top 3 customers by total revenue, and how many orders have they placed



```
SELECT c.customer_id, c.customer_name, COUNT(o.order_id) AS total_orders,  
SUM(order_total) AS total_revenue  
FROM customers c  
JOIN orders o  
ON c.customer_id=o.customer_id  
GROUP BY c.customer_id, c.customer_name  
ORDER BY total_revenue DESC  
LIMIT 3;
```

customer_id	customer_name	total_orders	total_revenue
22210238	Rayaan Krishna	6	21686.80
77869660	Nidhi Sha	9	19052.94
8791577	Warda Kohli	8	19028.36

Which customer segment places the highest number of orders ?



```
SELECT c.customer_segment,COUNT(o.order_id) AS total_orders  
FROM customers c  
JOIN orders o  
ON c.customer_id=o.customer_id  
GROUP BY c.customer_segment  
ORDER BY total_orders DESC;
```

customer_segment	total_orders
Regular	1320
Premium	1268
New	1222
Inactive	1190

FEEDBACK ANALYSIS



What is average customer rating overall ?



```
SELECT ROUND(AVG(rating),2) AS average_rating  
FROM customer_feedback;
```

average_rating

3.34

Which feedback categories are receiving the most positive customer feedback?



```
SELECT feedback_category,  
COUNT(sentiment) AS number_of_positive_feedback  
FROM customer_feedback  
WHERE sentiment='positive'  
GROUP BY feedback_category  
ORDER BY number_of_positive_feedback DESC
```

feedback_category	number_of_positive_feedback
Delivery	420
Customer Service	418
App Experience	404
Product Quality	378

Count of feedback entries by sentiment type (Positive, Neutral, Negative)



```
SELECT sentiment, COUNT(*) AS feedback_count  
FROM customer_feedback  
GROUP BY sentiment  
ORDER BY feedback_count DESC;
```

sentiment	feedback_count
Neutral	1738
Negative	1642
Positive	1620

MARKETING ANALYSIS



Which marketing campaign generated the most revenue ?



```
SELECT campaign_name,  
SUM(revenue_generated) AS total_revenue_generated  
FROM marketing_performance  
GROUP BY campaign_name  
ORDER BY total_revenue_generated DESC  
LIMIT 1
```

campaign_name	total_revenue_generated
Referral Program	3691382.60

Which campaigns achieved the best ROAS (Return on Ad Spend)?



```
SELECT campaign_name,  
ROUND(SUM(revenue_generated)/SUM(spend),2) AS  
overall_roas  
FROM marketing_performance  
GROUP BY campaign_name  
ORDER BY overall_roas DESC  
LIMIT 1;
```

campaign_name	overall_roas
Referral Program	2.03

Key Insights



Product & Sales Performance

(What's generating revenue?)

- "Baby Food" (Karnik PLC) leads in revenue (₹65,212.70) and units sold (70).
- Strong overall sales at ₹1.1 crore, with average monthly sales of ₹5.24 lakhs..



Delivery & Customer Order Patterns

(How are orders being placed and delivered?)

- Average delivery time is efficient at 4.44 minutes.
- Most deliveries are "On Time" (3,470), but traffic is the #1 delay reason.
- "Regular" customers place the highest number of orders (1,320).





Customer Feedback & Marketing Effectiveness

(What are customers saying, and what's working?)

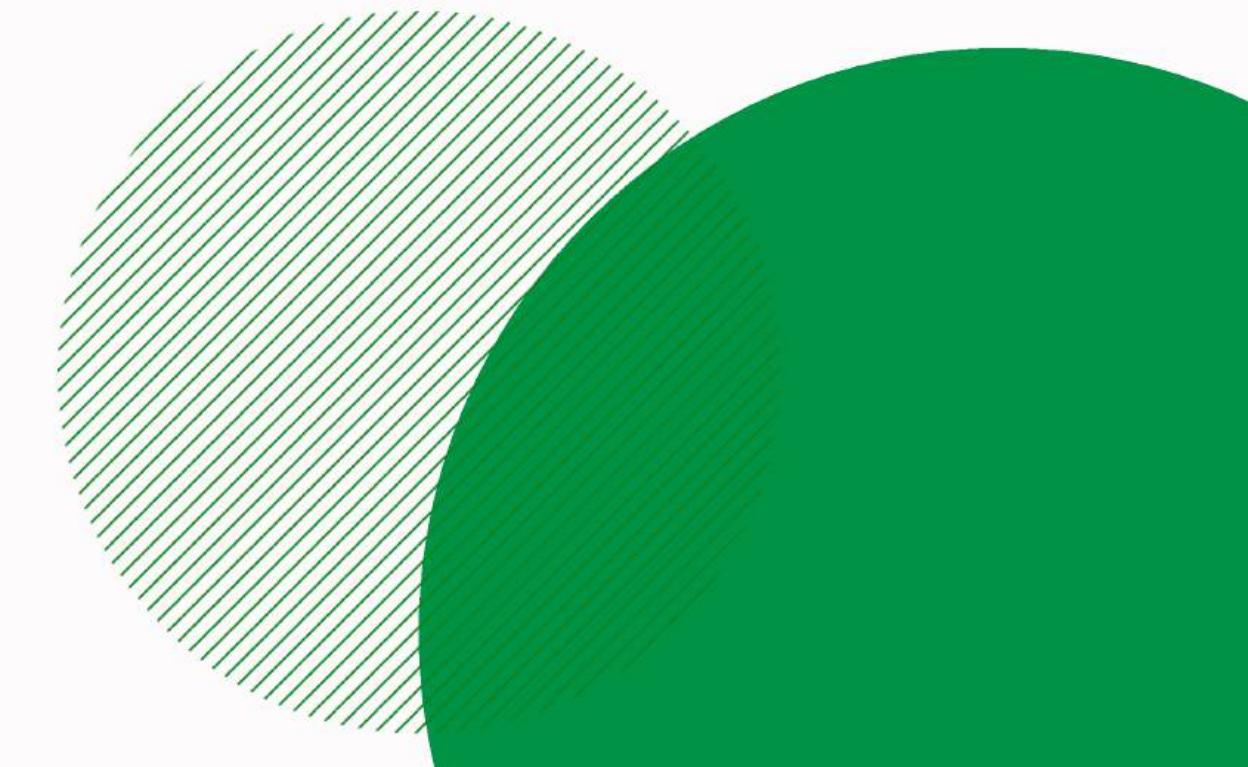
- Average customer rating is 3.34/5, with "Product Quality" being the lowest-rated category.
- "Referral Program" is the most successful marketing campaign, generating (₹36,91,382.60) in revenue and the best ROAS (2.03).



Inventory Management

(Which stock is getting damaged?)

- "Orange Juice" (2024) and "Frozen Vegetables" (2023) were the highest damaged stock items in their respective years.



Data-Driven Suggestions



Product Focus:

- Invest more in stocking and marketing top-selling and high-revenue products like Baby Food, Mangoes, and Vitamins.

Inventory Optimization:

- Investigate and address handling/storage issues for highly damaged items (e.g., frozen and perishable goods).

Traffic Mitigation:

- Partner with logistics providers or optimize delivery times/routes to reduce traffic-related delays.

Customer Loyalty:

- Offer loyalty programs and personalized deals for “Regular” and “Premium” customers to increase retention.

App & Service Enhancement:

- Improve app performance and customer service based on feedback categories with high positive response.

Marketing Strategy:

- Allocate more budget towards high-performing campaigns like Referral Programs, and cut spend on low-ROAS campaigns.

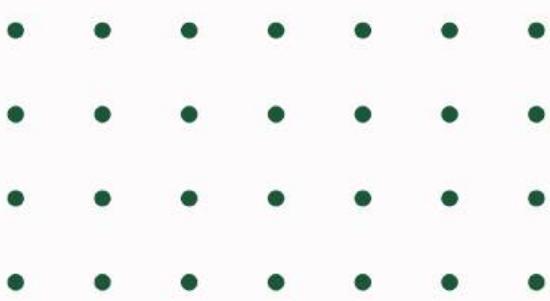


Conclusion

This project demonstrates how SQL-driven analysis can uncover valuable insights to optimize Blinkit's operations. The data revealed that products like Baby Food significantly drive revenue, and the Referral Program stands out as the most successful marketing campaign in terms of both revenue and ROAS.

On the other hand, challenges such as delivery delays due to traffic and damaged inventory items like Orange Juice and Frozen Vegetables highlight areas needing attention. Additionally, with an average customer rating of 3.34 and a large share of neutral and negative feedback, there is clear scope for enhancing customer experience.

Overall, these insights emphasize the importance of leveraging data for better decision-making, improving operational efficiency, and ultimately helping Blinkit grow in a competitive e-commerce landscape.





THANK
YOU