

blinkit



Power BI

Internship Under:

Classr **m**

Phone:

8981838547

Website:

<https://classroomtech.in>

LinkedIn:

<https://www.linkedin.com/company/classroom-tech/>

Duration:

3 months 1st April 2025 to 30th June 2025

SALES DATA ANALYSIS

blinkit

Ritu Barman

Guru Nanak Institute Of Technology

Master of Computer Application

3rd Semester



Acknowledgment

I would like to express my sincere gratitude to Classroom Tech for providing me with this opportunity to work on the Blinkit Sales Data Analysis project. I am deeply thankful to my mentor(s), faculty members, and my college for their constant guidance and encouragement throughout this internship period. I would also like to thank my classmates and family for their continuous support and motivation. This project has helped me enhance my skills in data analysis, visualization, and business intelligence using Power BI.

TABLE OF CONTENTS

- 01. Title slide**
- 02. Acknowledgment**
- 03. Table of Contents**
- 04. Objective / Problem Statement**
- 05. Dataset Overview**
- 06. Tools Used**
- 07. Methodology**
- 08. Detailed slide of each visualization**
- 09. Key Findings**
- 10. Conclusion**
- 11. Github Repository Link**

Objective / Problem Statement

The goal of this project is to analyze Blinkit's multi-dimensional sales, customer, inventory, and marketing data using Power BI. The aim is to build interactive dashboards and reports that help identify sales trends, customer behavior patterns, inventory gaps, delivery performance, and marketing effectiveness. This analysis will assist Blinkit in making informed business decisions and improving overall operational efficiency.

Questions Addressed in this report:

1. How can you import data from all 11 tables into Power BI?
2. How do you create relationships between the tables in Power BI?
3. Create a bar chart showing the number of orders placed per customer.
4. How do you calculate the total number of orders placed in a given month?
5. Create a pie chart showing the distribution of feedback categories from Table 1.
6. Create a table visualization showing customer details (customer_id, name, email) from Table 2.
7. How can you filter orders based on delivery status (on-time, delayed) from Table 3?
8. Create a column chart showing stock received over time for different products (Table 4 & Table 5).
9. How do you calculate the percentage of damaged stock per product?
10. Show a table with all campaigns (campaign_id, campaign_name, spend, revenue_generated) from Table 6.
11. Create a KPI visual to display the average order value (avg_order_value) from Table 2.
12. How do you calculate the total revenue generated from all campaigns in Table 6?
13. Create a stacked bar chart to compare order quantity per product (Table 7).
14. How do you calculate the total sales revenue per product?
15. Create a measure to calculate the total delivery time (actual_time - promised_time) in Table 3.

Questions Addressed in this report:

16. How do you visualize customer segments (Table 2) using a pie chart?
17. Create a heatmap showing the frequency of orders per pincode (Table 2).
18. How do you create a calculated column for delivery delays (`actual_delivery_time - promised_delivery_time`)?
19. Create a measure to calculate the Return on Ad Spend (ROAS) using (`revenue_generated / spend`) from Table 6.
20. Show a scatter plot of distance vs. delivery time to analyze delivery efficiency (Table 3).
21. Create a measure to calculate customer retention rate using `total_orders` from Table 2.
22. How do you create a forecast for future stock levels based on historical stock received data (Table 4 & Table 5)?
23. Create a report to identify the top 5 best-selling products based on quantity ordered (Table 7).
24. Create a measure to calculate gross profit using `margin_percentage` from Table 9.
25. How do you build a dashboard to track order trends across different categories (Table 9)?
26. Build a time-series analysis of daily order counts using `order_date` from Table 8.
27. How do you use DAX to find the most frequently ordered product?
28. Create a matrix visualization to show order quantity per product category (Table 9).
29. How do you calculate customer lifetime value using `avg_order_value` and `total_orders` (Table 2)?
30. How do you create a funnel chart to track the campaign conversion process (Table 6)?

Questions Addressed in this report:

31. Create a dynamic slicer for filtering orders by delivery status (on-time vs delayed).
32. Use Power BI parameters to filter data dynamically for a selected date range.
33. Create a drill-through report to analyze feedback details (Table 1).
34. How do you set up row-level security to restrict access by customer segment (Table 2)?
35. Use Power Query to clean and transform customer data before loading it into Power BI.
36. How do you merge stock data from Table 4 & Table 5 to create a unified stock report?
37. Build a Power BI alert that triggers when stock levels go below the minimum threshold (Table 9).
38. Create a report to track customer orders by store_id (Table 8).
39. How do you use bookmarks to create different views of the dashboard?
40. Build a map visualization showing order density per area (Table 2).

Questions Addressed in this report:

41. How do you create a Power BI paginated report for detailed order invoices?
42. Use a measure to calculate product-wise discount percentages using price and MRP (Table 9).
43. Create a real-time dashboard to monitor ongoing deliveries and status updates (Table 3).
44. How do you implement drill-down functionality for order trends by customer segment?
45. Use DAX to calculate the top N campaigns with the highest ROAS (Table 6).
46. How do you use AI Insights in Power BI to analyze customer feedback sentiment (Table 1)?
47. Create a Power Automate flow to send an alert when a new campaign is added (Table 6).
48. How do you use decomposition tree visualization to analyze product sales?
49. Implement what-if parameters to simulate different marketing budgets and their impact on ROAS.
50. Create a Power BI report that links emoji-based ratings (Table 11) to product categories (Table 9).

DATASET OVERVIEW:

Dataset name: Blinkit Sales Dataset

Source: Kaggle

The main tables include:

- Customer Feedback – feedback category and ratings
- Customer Details – customer ID, name, email, segment
- Orders – order ID, delivery status, delivery time
- Stock In & Stock Out – stock received and sold data
- Campaigns – campaign name, spend, revenue generated
- Products & Product Financials – product names, prices, MRP, margins
- Store Orders – store-wise order details
- Delivery Details – delivery distance, promised time, actual time
- Ratings – emoji-based product ratings

Key columns like `customer_id` and `product_id` were used to build relationships.

Data cleaning and transformation were done in Power BI for consistency.

Tools Used:

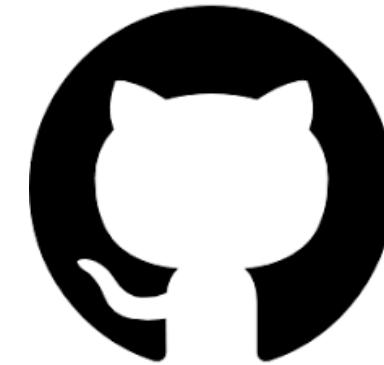
Power BI:

- Used for data cleaning, data modeling, creating calculated columns & DAX measures.
- Designed interactive dashboards, charts, tables, KPIs, slicers, drill-throughs, maps, and advanced visuals.
- Applied AI Insights, What-If Parameters, Forecasting, and Alerts for deeper analysis.



GitHub:

- Used as a version control tool to store and manage the Power BI file (.pbix), raw datasets, and the final report files.
- Acts as an online repository for sharing the project with mentors and peers.



Methodology :

- Data Cleaning & Preparation:

Imported all 11 tables into Power BI using the Get Data option.

Verified data types and column consistency for each table.

Handled missing values and removed duplicate records where needed.

Merged related tables (like Stock In & Stock Out) for unified reports.

Applied Power Query transformations for clean, structured data.

- Relationship Setup:

Created logical relationships between tables using keys like customer_id and product_id.

Ensured referential integrity for accurate cross-table analysis.

Used the Model View in Power BI to manage all links visually.

- **Visualization & Analysis:**

Built bar charts, pie charts, KPI cards, matrices, scatter plots, heatmaps, funnel charts, decomposition trees, and maps.

Created DAX measures for calculations like average order value, gross profit, ROAS, retention rate, and delivery delays.

Added dynamic slicers, drill-throughs, bookmarks, and parameters for interactive analysis.

Used forecasting, What-If scenarios, and AI Insights for advanced insights.

- **Publishing & Alerts:**

Configured Row-Level Security to restrict access by customer segments.

Set up Power Automate flows for real-time alerts (e.g., new campaign added).

Used Power BI Service features like alerts for stock level monitoring.

1. How can you import data from all 11 tables into Power BI?

- Purpose:

To show how I imported multiple tables into Power BI from the source files using the “Get Data” option.

- Methodology:

Used the “Get Data” feature to connect to multiple CSV files.

Loaded all 11 tables: Customer Feedback, Orders, Products, Stock, Campaigns, etc.

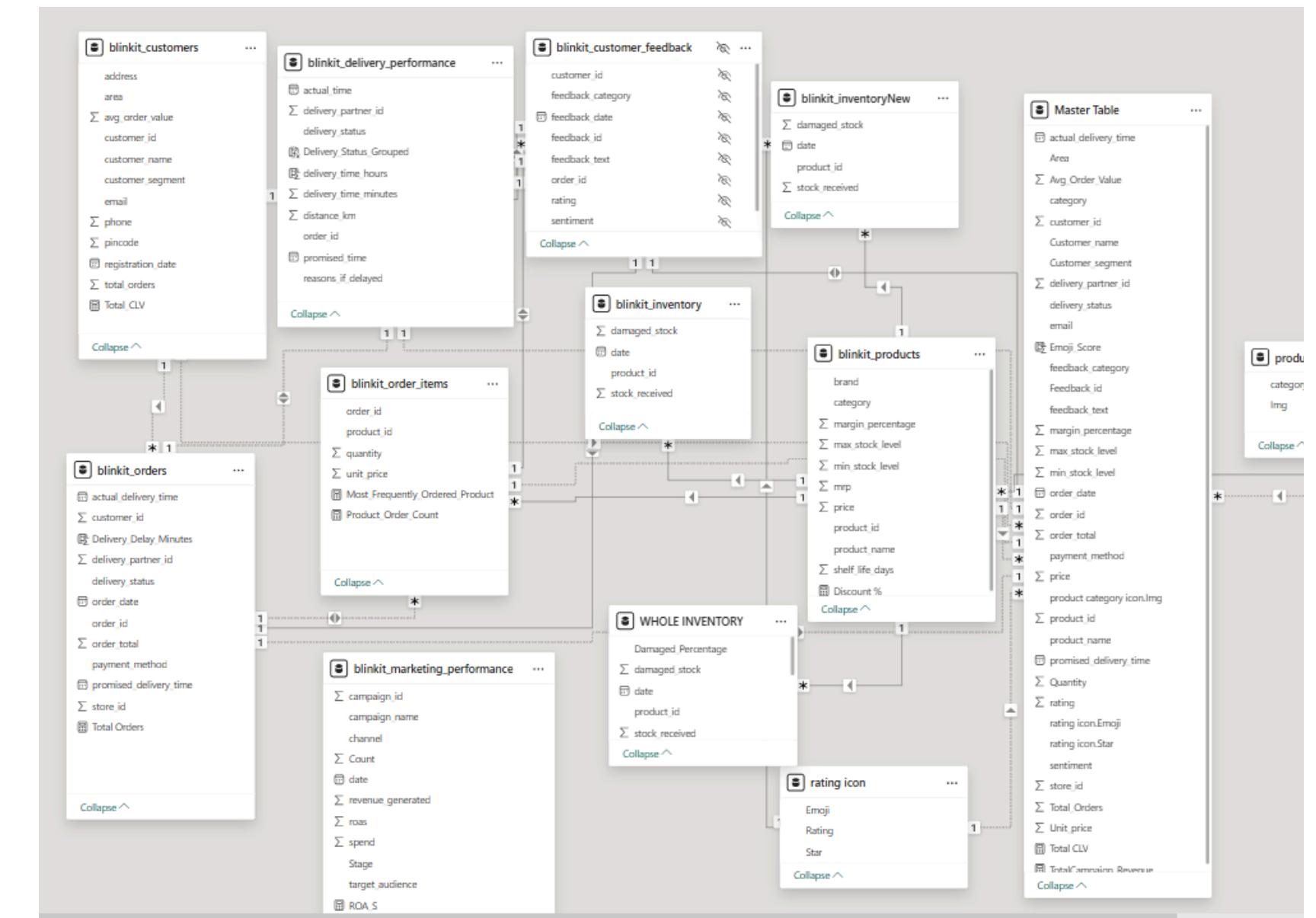
Verified data types and previewed tables before loading.

 Search

- >  blinkit_customers
- >  blinkit_delivery_performance
- >  blinkit_inventory
- >  blinkit_inventoryNew
- >  blinkit_marketing_performance
- >  blinkit_order_items
- >  blinkit_orders
- >  blinkit_products
- >  Master Table
- >  product category icon
- >  rating icon

2. How do you create relationships between the tables in Power BI?

- Visual: Screenshot of your Model View in Power BI showing lines connecting tables (e.g., customer_id, product_id).
- Purpose:
To explain how tables are connected using common keys for accurate cross-table analysis.
- Methodology: Created relationships by dragging primary and foreign keys between tables.
- Example: Connected customer_id from Orders to Customer Details.
Ensured referential integrity for correct joins.



3. Create a bar chart showing the number of orders placed per customer.

- Purpose:

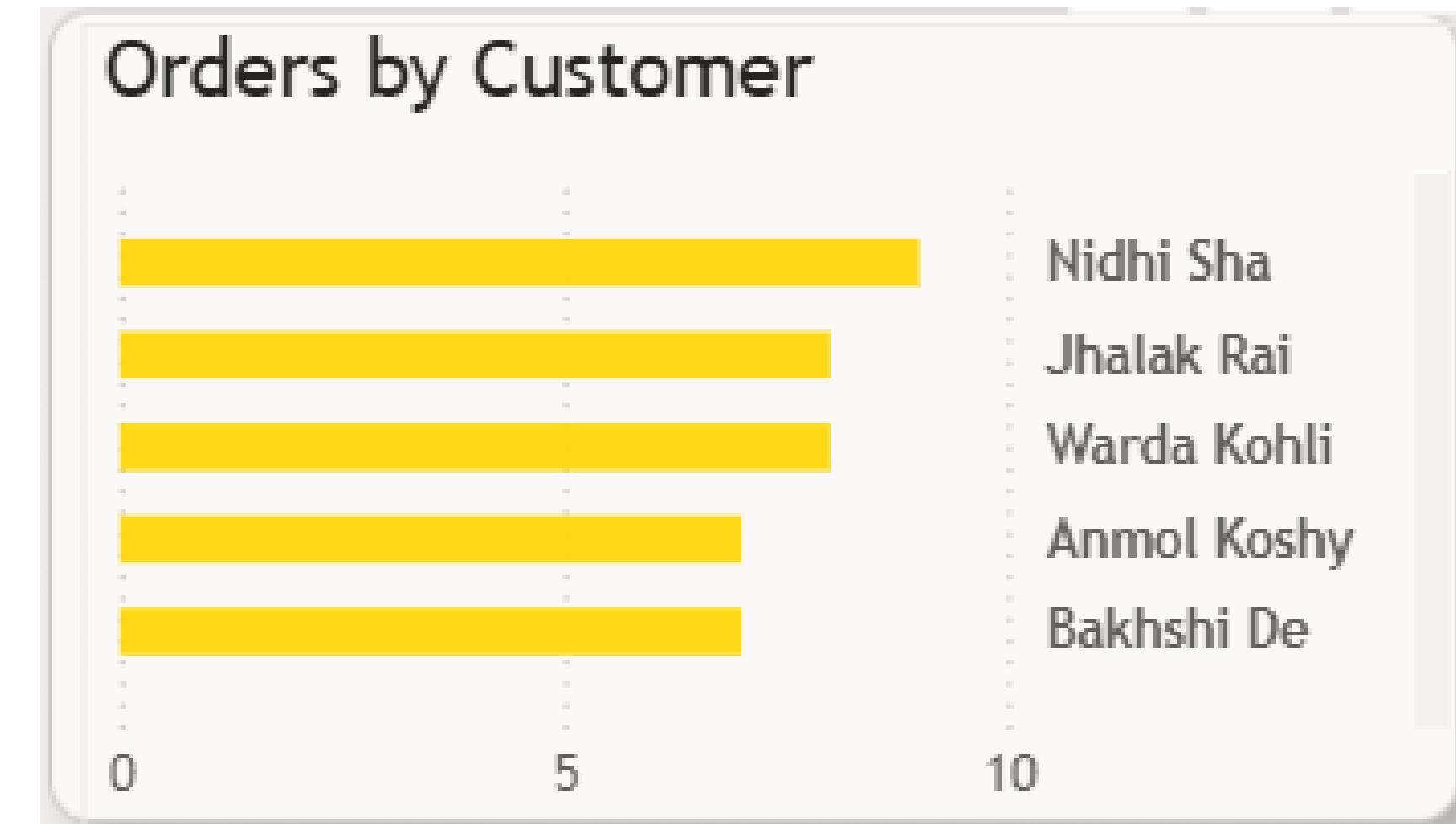
To identify which customers place the most orders.

- Insights:

Some customers like Aachal Mangat and Aachal Nazareth have higher order volumes.

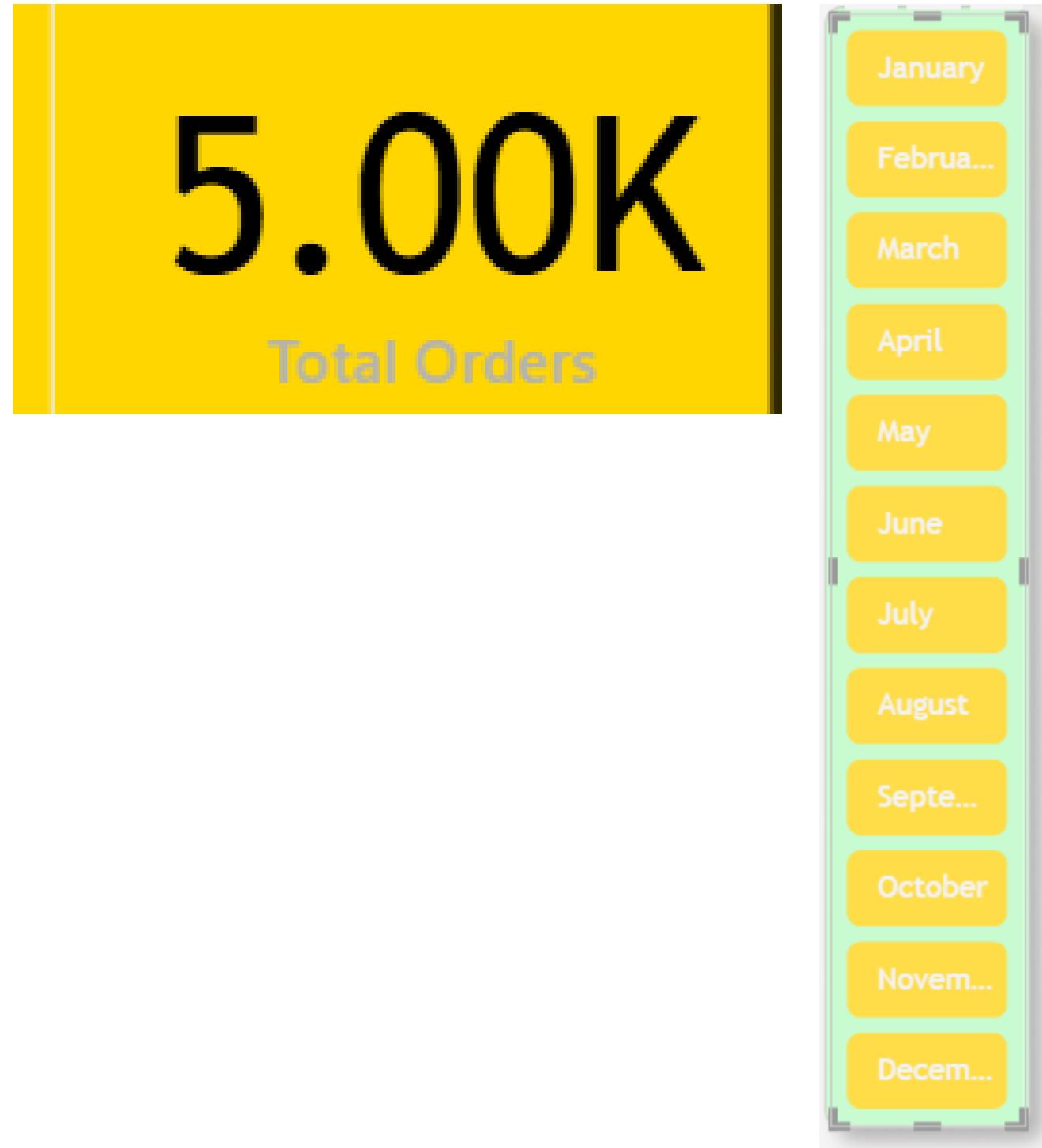
This helps identify loyal, high-value customers.

Can be used to target promotions.



4. How do you calculate the total number of orders placed in a given month?

- Purpose:
To track how order volumes fluctuate month by month.
- Insights:
Order volumes peak during festival seasons.
Identifies seasonal trends in customer demand.
Helps plan inventory and marketing campaigns.



5. Create a pie chart showing the distribution of feedback categories from Table 1.

- Purpose:

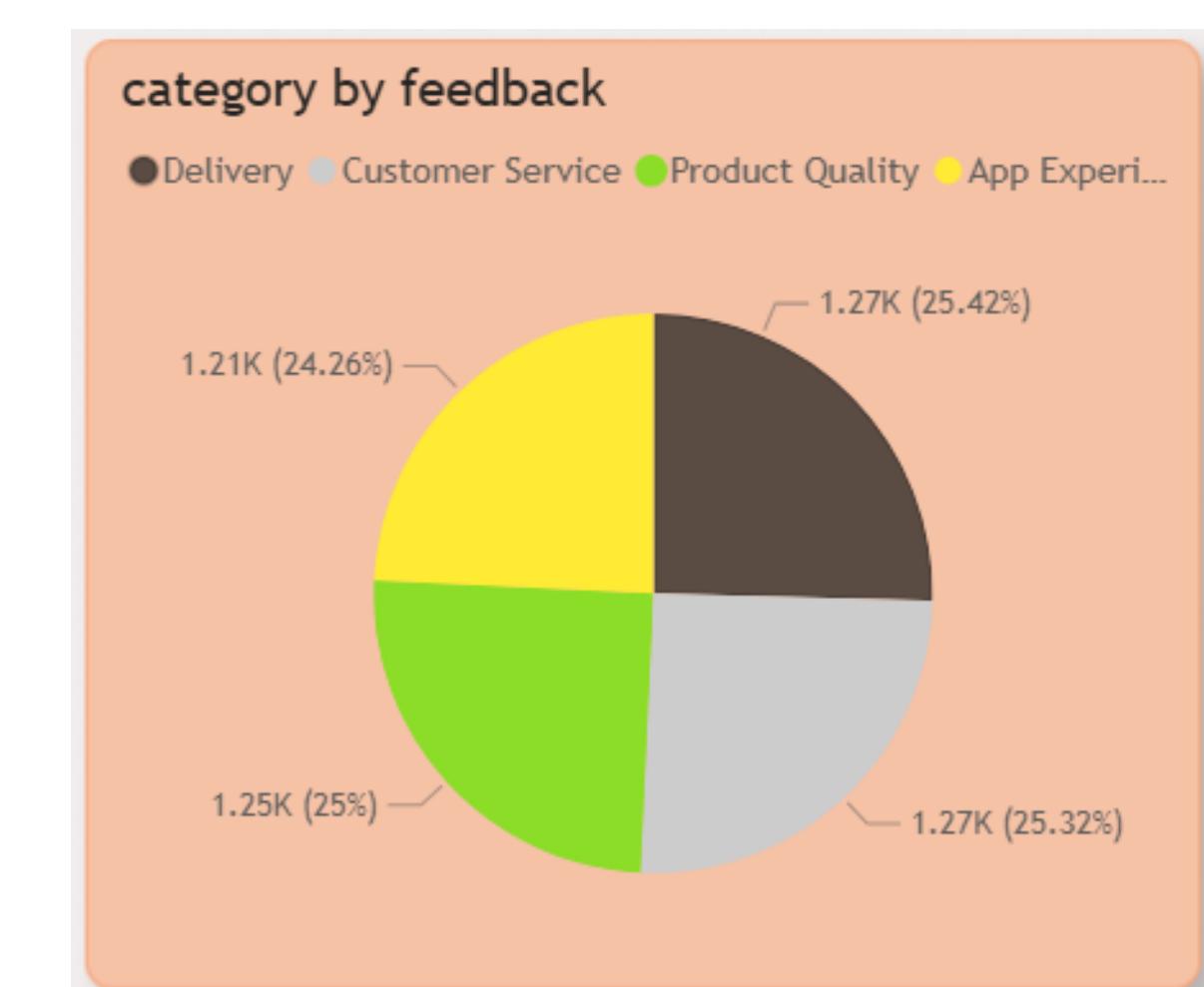
To analyze which areas receive the most customer feedback.

- Insights:

Feedback is evenly spread across delivery, service, and product quality.

Positive ratings dominate — most are 5-star.

Helps prioritize areas for service improvement.



6. Create a table visualization showing customer details (customer_id, name, email) from Table 2.

- Purpose:

To display the detailed customer information for reference and segmentation.

- Insights:

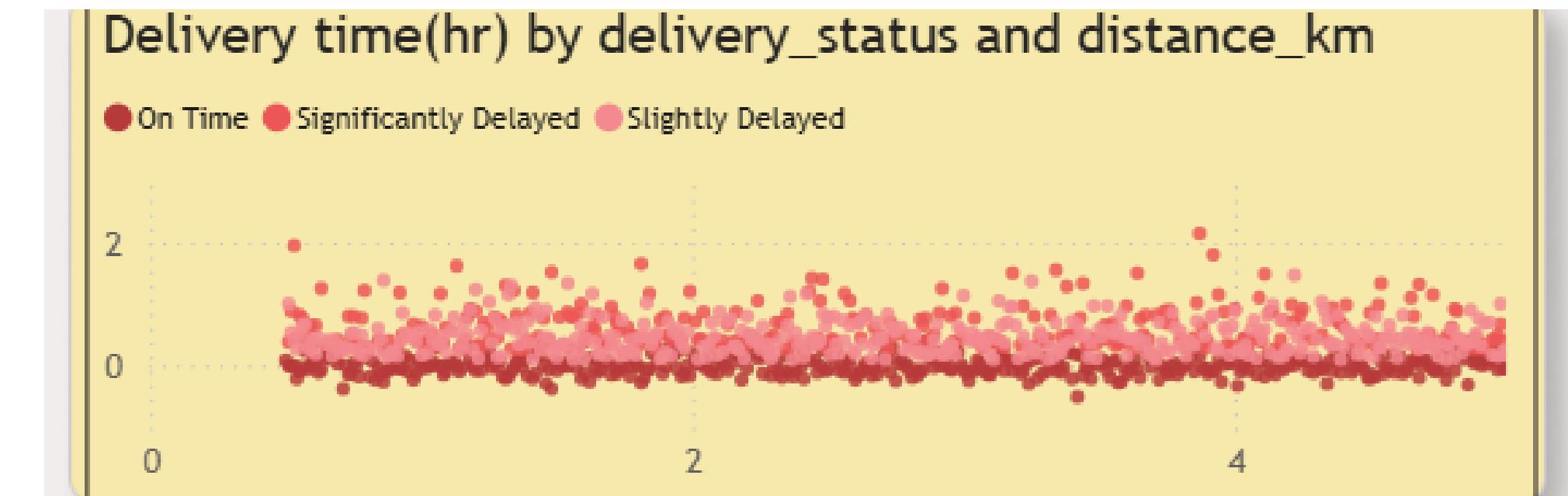
Includes unique customer IDs, names, and email addresses.

Can be used for personalized marketing.

Helps track individual customer order history.

customer_id	customer_name	email
45383958	Aachal Mangat	yasti56@example.org
14161586	Aachal Nazareth	aadhya71@example.org
15487049	Aadhyaa Cherian	rushil71@example.com
87222820	Aadhyaa Padmanabhan	nkala@example.org
65618148	Aadhyaa Palla	forumshan@example.org

7. How can you filter orders based on delivery status (on-time, delayed) from Table 3?



- Purpose:
To filter and analyze orders based on whether they were delivered on time or delayed.
 - Insights:
Majority of orders are delivered on time.
Delayed orders can be further analyzed for reasons.
Helps in improving logistics and delivery operations.

Create a column chart showing stock received over time for different products (Table 4 & Table 5).

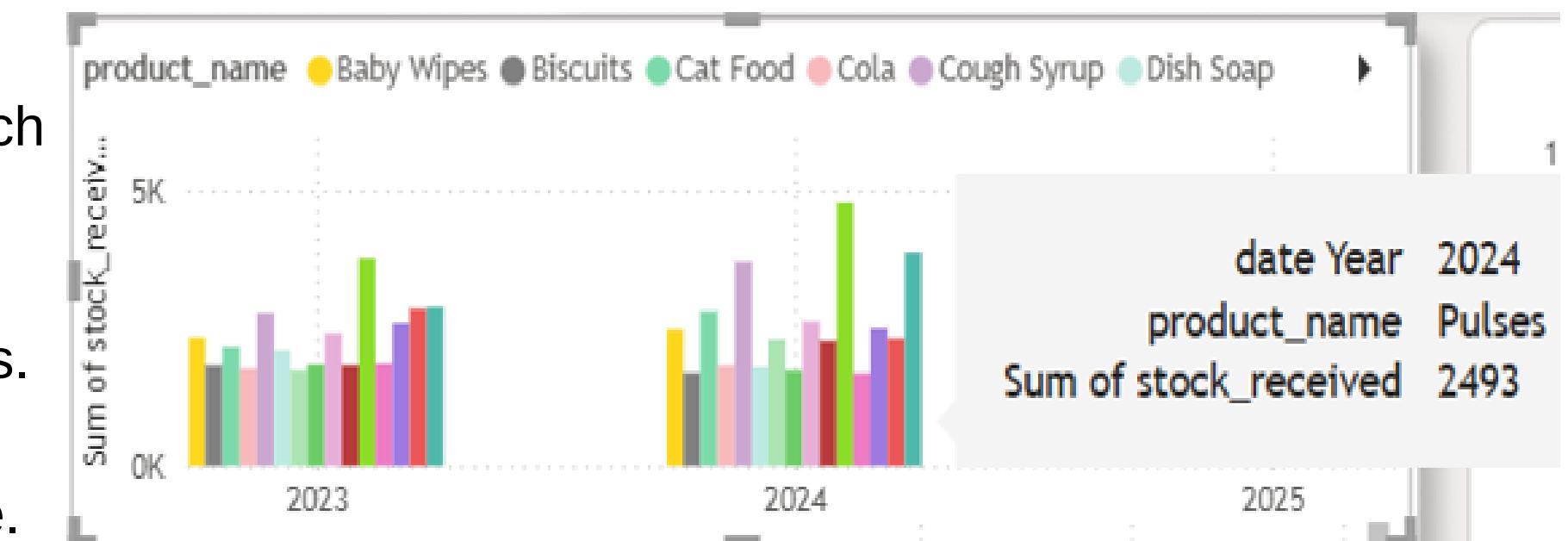
- Purpose:

To monitor how much stock was received each month for different product categories.

- Insights:

Shows seasonal or monthly restocking trends.
Helps plan future purchases.

Identifies months with higher inventory intake.



9. How do you calculate the percentage of damaged stock per product?

- Purpose:

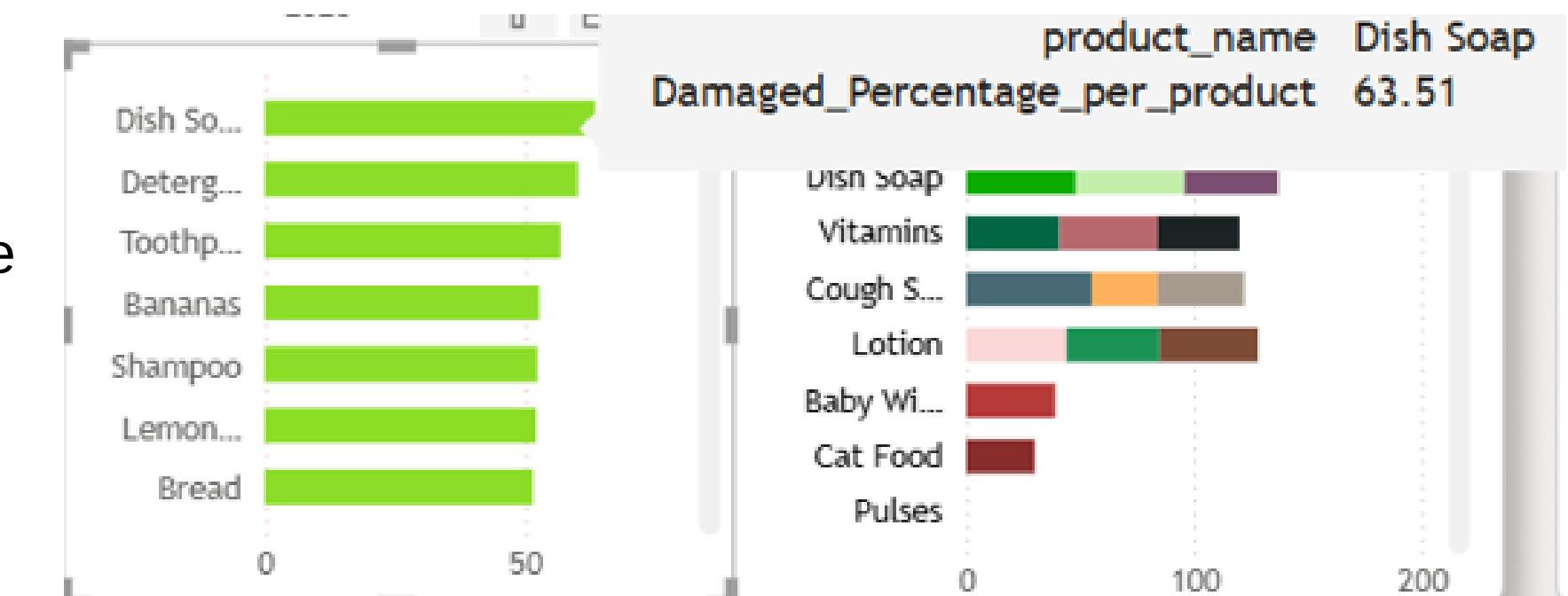
To calculate and visualize the percentage of damaged stock per product.

- Insights:

Important for quality control.

Helps identify products with frequent damage.

Improves supplier accountability and storage practices.



10. Show a table with all campaigns (campaign_id, campaign_name, spend, revenue_generated) from Table 6.

- Purpose:
To compare different marketing campaigns based on spend and revenue generated.
- Insights:
Highlights which campaigns brought the highest returns.
Useful for planning future marketing budgets.
Shows healthy ROAS across all campaigns.

Campaign Name	Spend	revenue generated
App Push Notification	5,366,967.60	10,663,110.00
Category Promotion	5,551,749.00	10,747,366.11
Email Campaign	5,432,189.01	10,805,355.66
Festival Offer	5,390,061.42	10,521,191.73
Flash Sale	5,495,063.46	10,668,261.06
Membership Drive	5,370,209.40	10,574,853.75
New User Discount	5,500,364.43	10,811,580.51
Referral Program	5,454,076.53	11,074,147.80
Weekend Special	5,398,833.87	10,714,355.49

11. Create a KPI visual to display the average order value (avg_order_value) from Table 2.

- Purpose:

To track the average value of each order placed.

- Insights:

Shows the total average order value across the period.

Helps understand customer spending behavior.

Useful for revenue forecasting.



12. How do you calculate the total revenue generated from all campaigns in Table 6?

- Purpose:

To calculate the total revenue generated from all marketing campaigns.

- Insights:

Shows the effectiveness of campaigns in generating sales.

Helps assess marketing ROI.

Basis for future budget decisions.

96.58M

Revenue Generated

13. Create a stacked bar chart to compare order quantity per product (Table 7).

- Purpose:

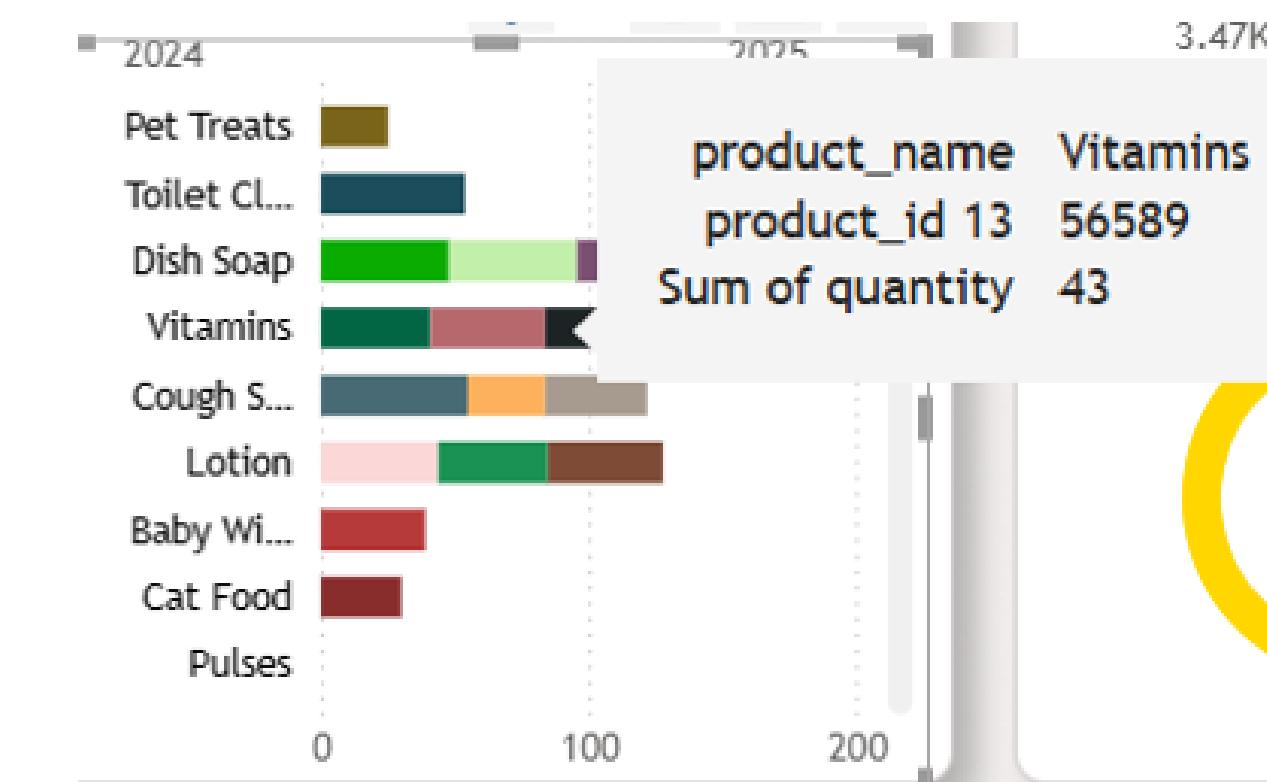
To compare how different products contribute to total order quantity.

- Insights:

Top-selling products clearly stand out.

Shows category dominance.

Helps with inventory planning.



14. How do you calculate the total sales revenue per product?

- Purpose:
To see which products generate the highest revenue.
- Insights:
Profit leaders can be prioritized for promotions.
Low performers can be reviewed.

₹ 4.97M
Total Sales

Category
Baby Care
Cold Drinks & Juices
Dairy & Breakfast
Fruits & Vegetables
Grocery & Staples
Household Care
Instant & Frozen Food
Personal Care
Pet Care
Pharmacy
Snacks & Munchies

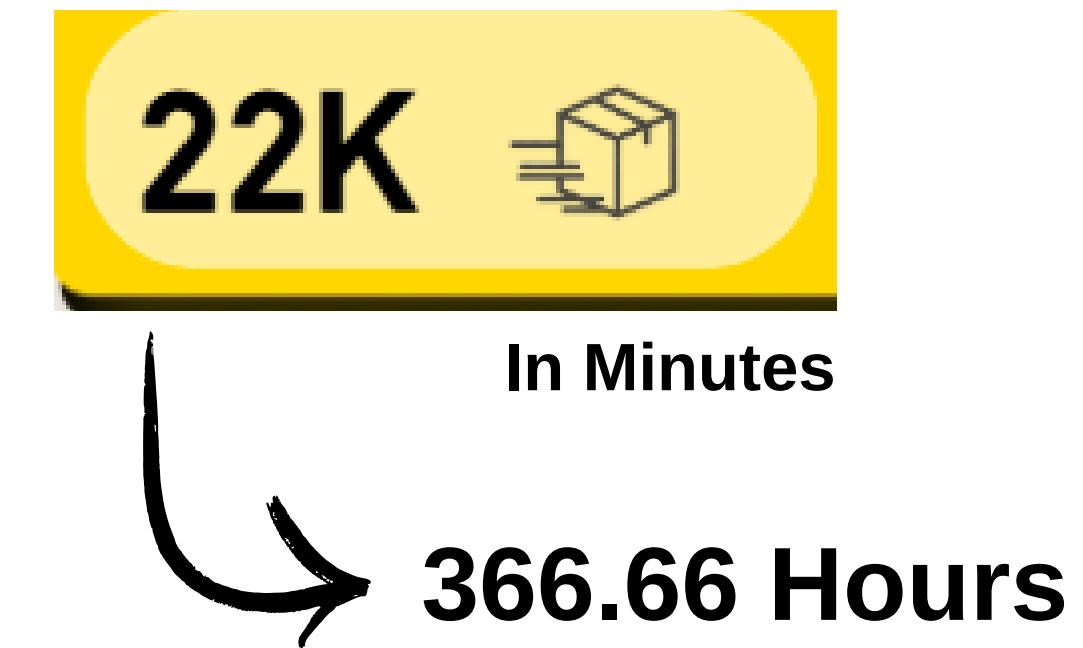
15. Create a measure to calculate the total delivery time (actual_time - promised_time) in Table 3.

- Purpose:

To measure how much time was actually spent on deliveries compared to the promised time.

- Insights:

Shows on-time vs. delayed performance.
Helps logistics teams reduce delays.



16. How do you visualize customer segments (Table 2) using a pie chart?

- Purpose:

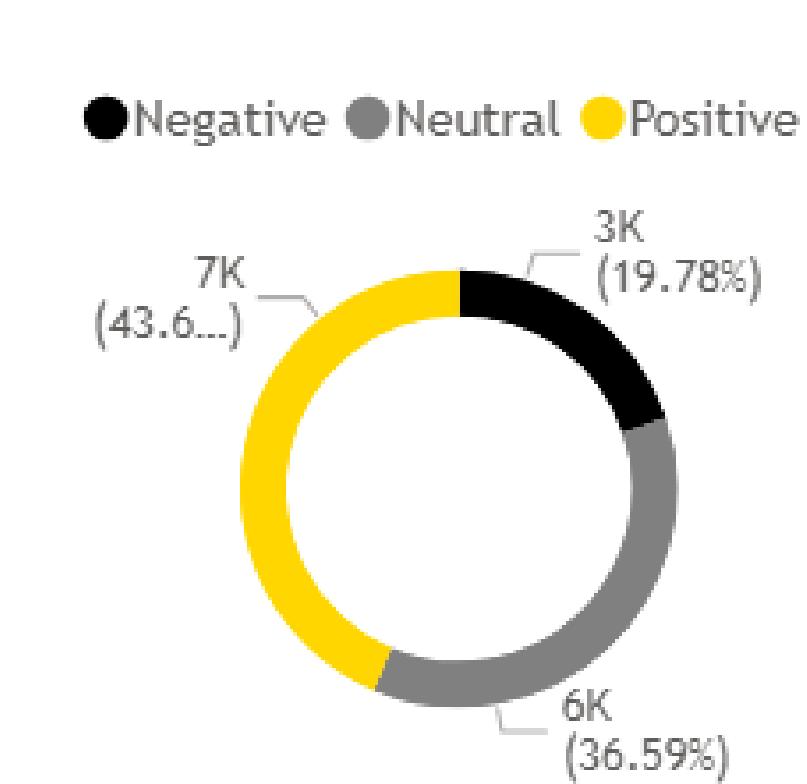
To visualize how customers are split across segments.

- Insights:

Shows the share of loyal vs. new customers.

Useful for targeted campaigns.

Helps improve retention strategies.



17. Create a heatmap showing the frequency of orders per pincode (Table 2).

- Purpose:

To find areas with highest order density.

- Insights:

Helps plan delivery zones.

Can identify high-demand areas.

pincode	Count of Orders
40488	5
40785	1
41866	1
41927	5
41954	4
42216	2
42350	1

18. How do you create a calculated column for delivery delays (actual_delivery_time - promised_delivery_time)?

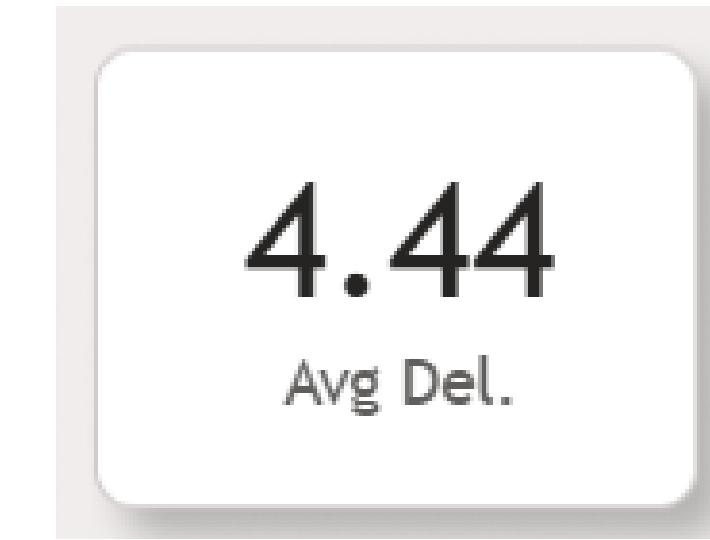
- Purpose:

To calculate delay by subtracting promised time from actual delivery time.

- Insights:

Shows which orders were delayed.

Basis for performance KPIs.



19. Create a measure to calculate the Return on Ad Spend (ROAS) using (revenue_generated / spend) from Table 6.

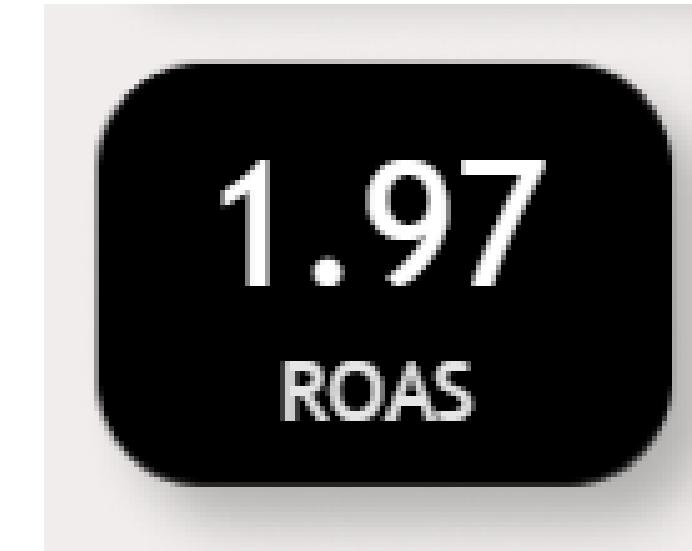
- Purpose:

To measure how much revenue was earned per unit of ad spend.

- Insights:

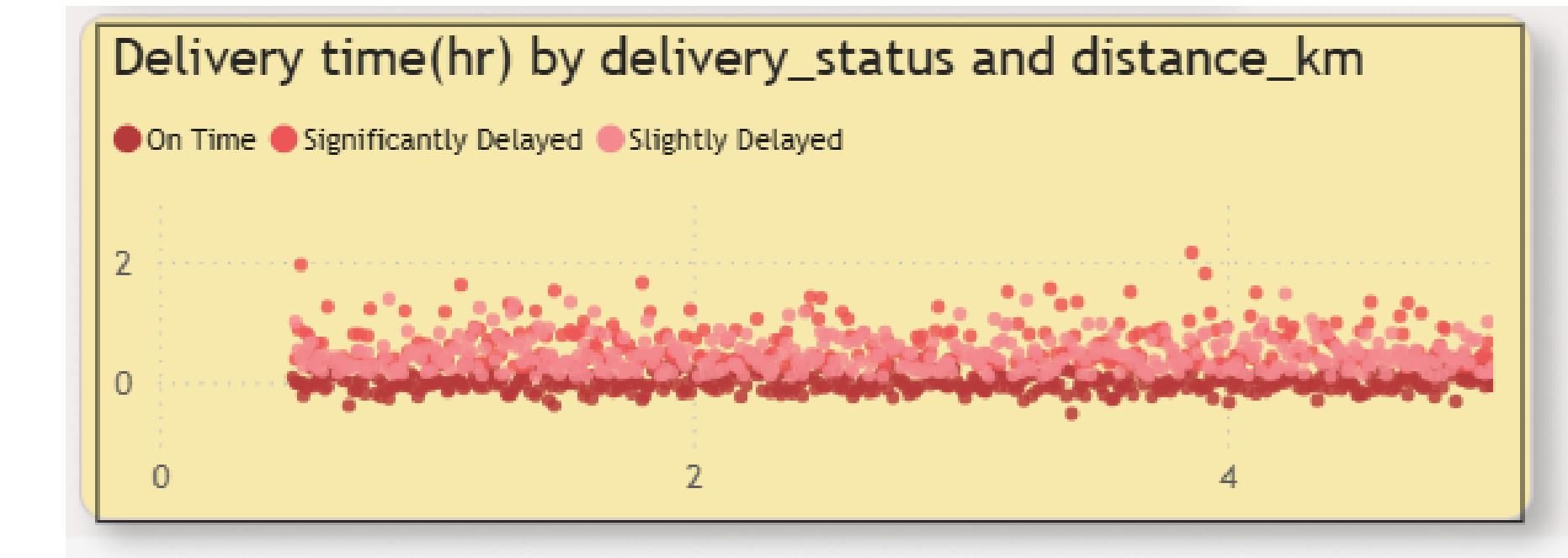
Shows marketing efficiency.

Can compare campaigns easily.



20. Show a scatter plot of distance vs. delivery time to analyze delivery efficiency (Table 3).

- Purpose:
To check how distance impacts delivery time.
- Insights:
Longer distances slightly increase delivery time.
Useful for route optimization.



21. Create a measure to calculate customer retention rate using total_orders from Table 2.

- Purpose:

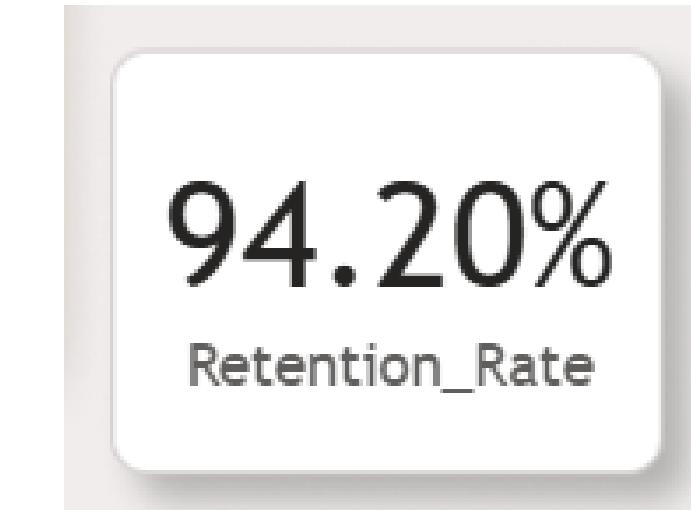
To measure the percentage of repeat customers.

- Insights:

High retention shows strong customer loyalty.

Indicates good service and satisfaction.

Basis for loyalty program ideas.



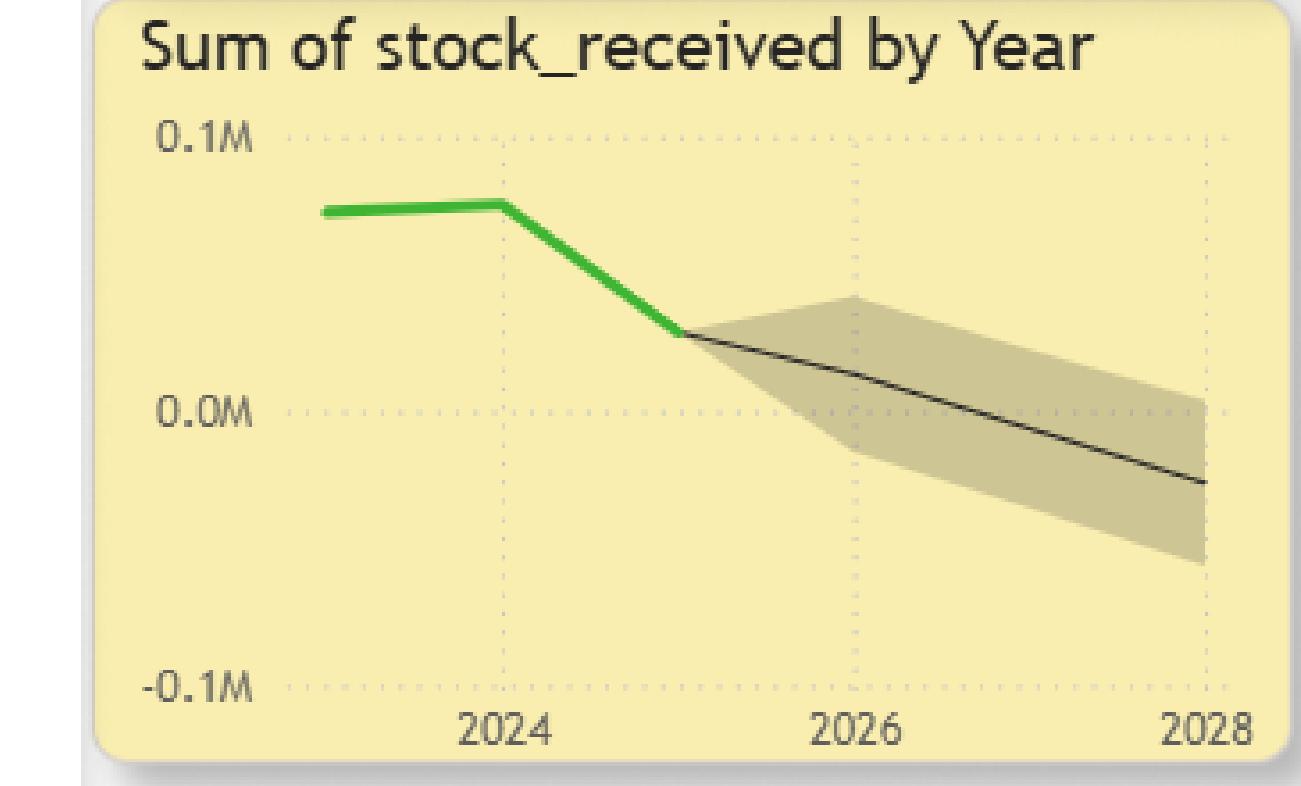
22. How do you create a forecast for future stock levels based on historical stock received data (Table 4 & Table 5)?

- Purpose:

To predict future stock needs based on past trends.

- Insights:

Helps prevent stockouts or overstock.
Supports procurement planning.



23. Create a report to identify the top 5 best-selling products based on quantity ordered (Table 7).

- Purpose:

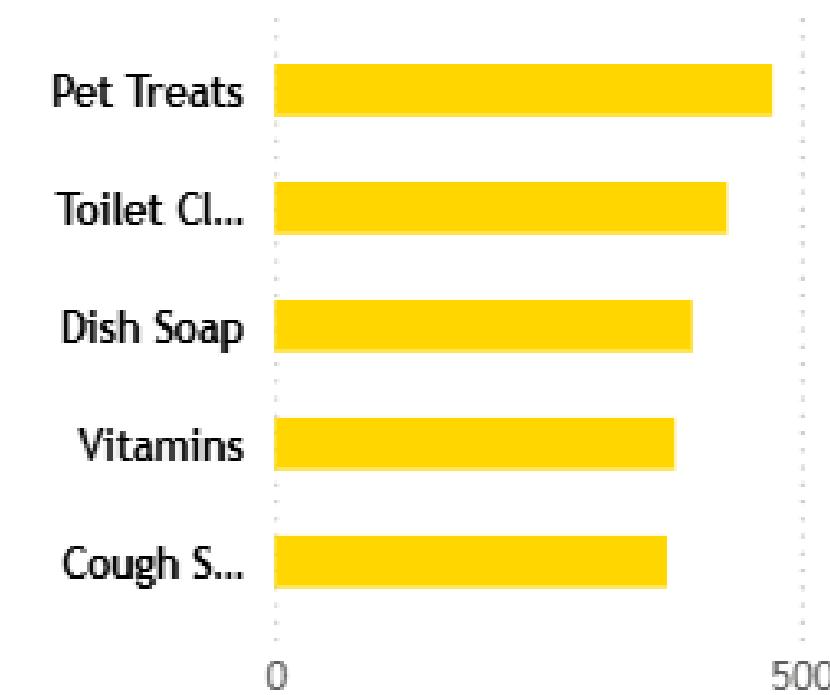
To highlight the highest-selling products.

- Insights:

Focus for promotions or bundling.

Indicates what customers buy most.

Quantity by Top 5 Product



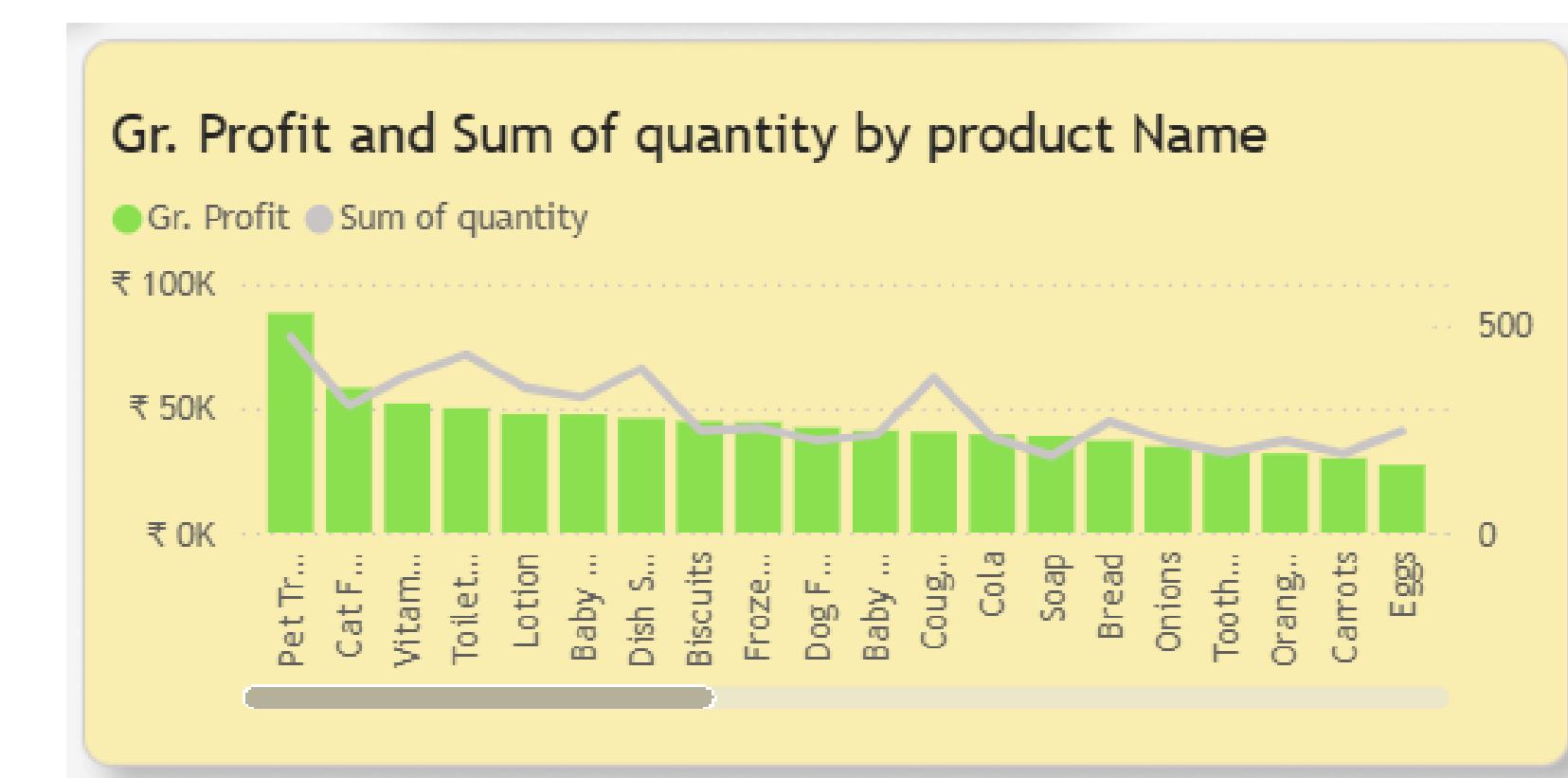
24. Create a measure to calculate gross profit using margin_percentage from Table 9.

- Purpose:

To calculate profit using margin %.

- Insights:

Identifies high-margin products.
Useful for pricing decisions.



25. How do you build a dashboard to track order trends across different categories (Table 9)?

- Purpose:

To track how orders vary by product category.

- Insights:

Reveals strong vs. weak categories.

Supports category-specific marketing.

category	Current Stock	Order Status
Baby Care	6174	↻ Reorder
Cold Drinks & Juices	6838	↻ Reorder
Dairy & Breakfast	9121	✓ In Stock
Fruits & Vegetables	8446	✓ In Stock
Grocery & Staples	10633	✓ In Stock
Household Care	6264	↻ Reorder
Instant & Frozen Food	6434	↻ Reorder

27. How do you use DAX to find the most frequently ordered product?

- Purpose:

To find the single highest-demand product.

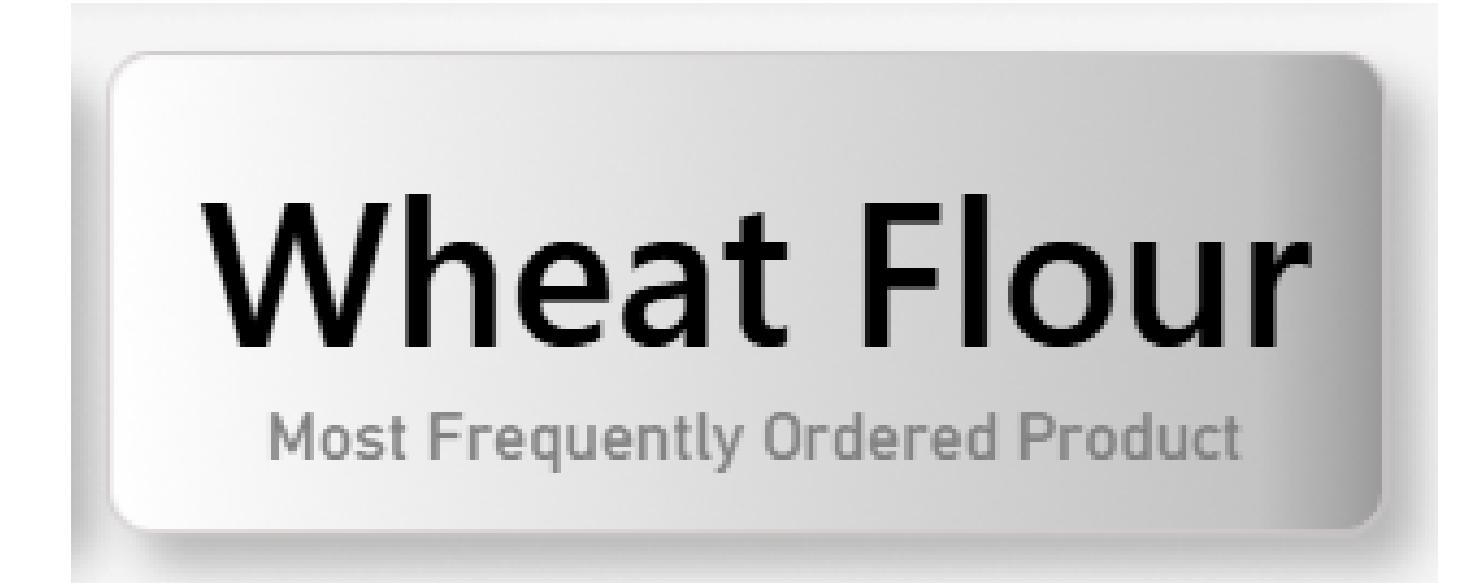
- Insights:

Can ensure enough stock.

Possible focus for bulk deals.

- Description:

Used DAX to count orders per product and ranked them descending.



28. Create a matrix visualization to show order quantity per product category (Table 9).

- Purpose:

To compare quantities across categories in one view.

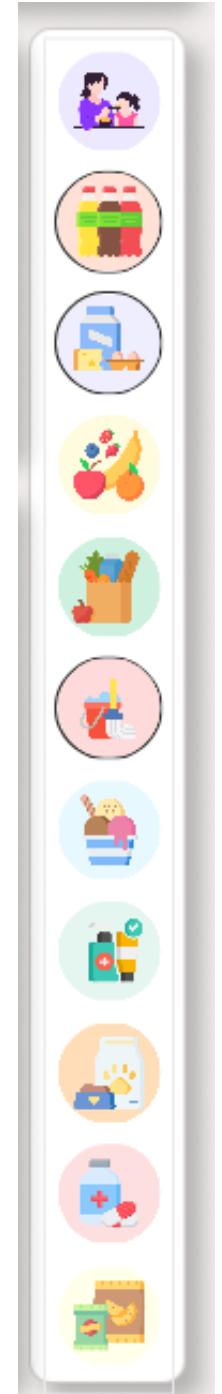
- Insights:

Easy to spot top categories.

Shows where sales are concentrated.

- Description:

Created a matrix visualization with Category rows and Quantity columns.



29. How do you calculate customer lifetime value using avg_order_value and total_orders (Table 2)?

- Purpose:

To estimate total expected revenue from a customer.

- Insights:

High CLV means valuable repeat buyers.

Useful for marketing spend justification.

- Description:

Calculated using $\text{avg_order_value} \times \text{total_orders}$.



30. How do you create a funnel chart to track the campaign conversion process (Table 6)?

- Purpose:

To track how customers move through the marketing funnel.

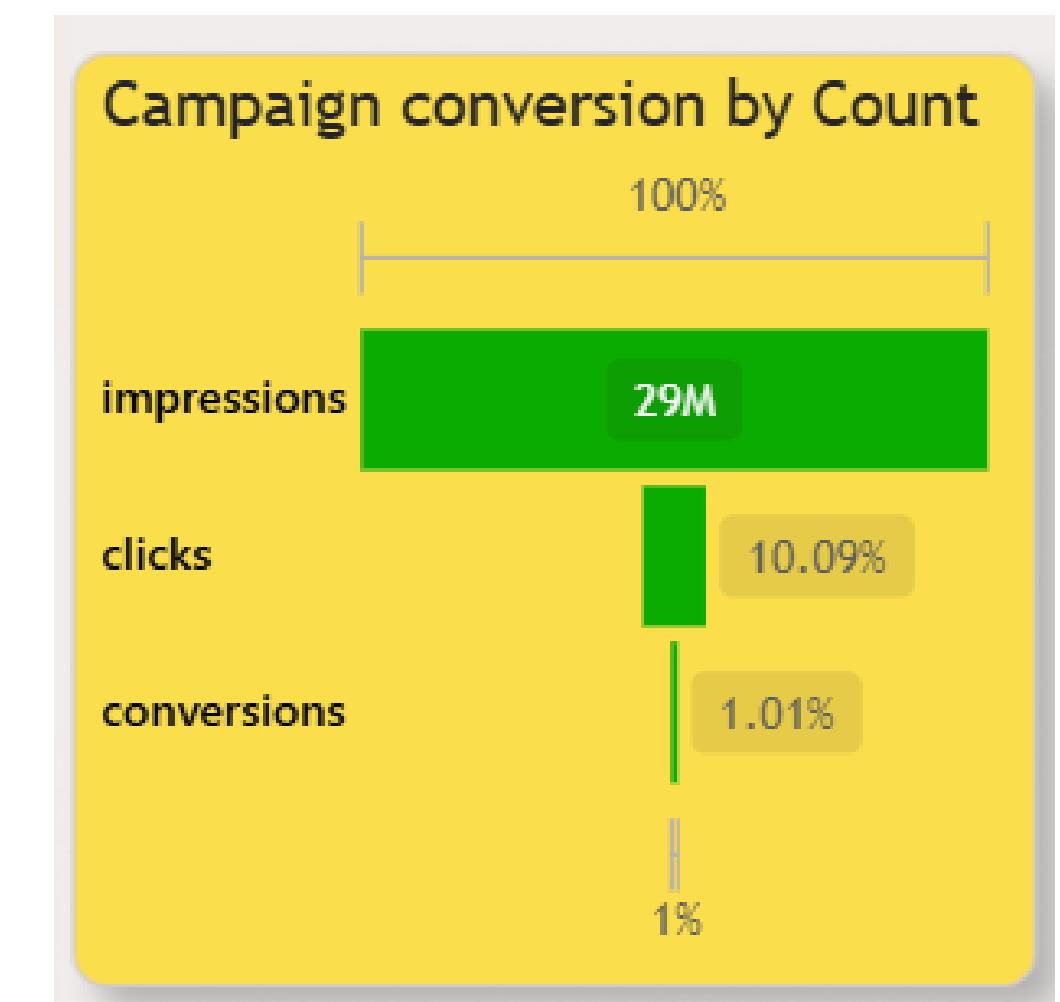
- Insights:

Shows drop-off at each stage.

Helps optimize campaigns.

- Description:

Built using Power BI Funnel visual: Impressions, Clicks, Conversions.



31. Create a dynamic slicer for filtering orders by delivery status (on-time vs delayed).

- Purpose:

To let users filter orders dynamically based on delivery status.

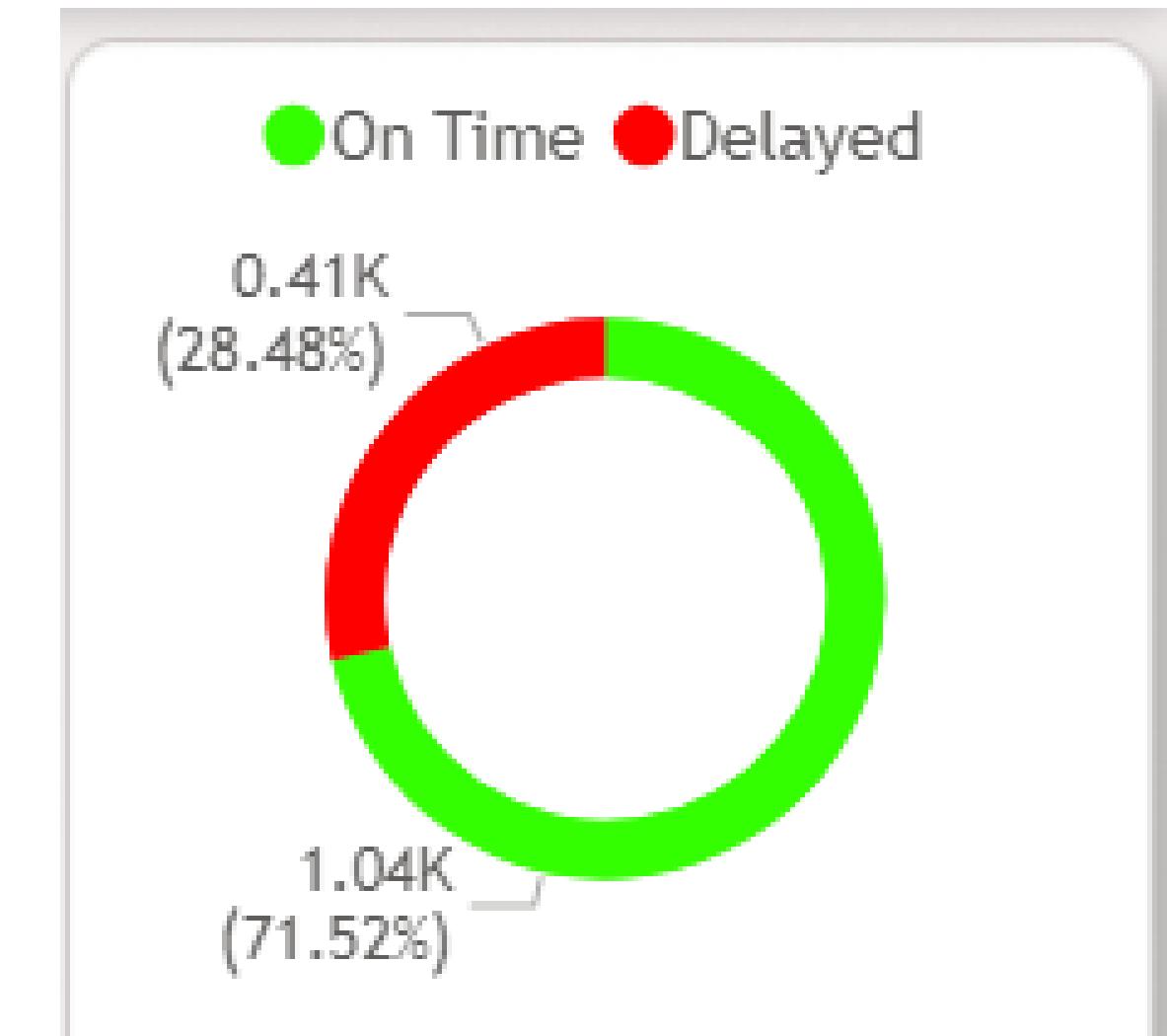
- Insights:

Makes dashboard interactive for detailed checks.

Helps quickly compare on-time vs delayed orders.

- Description:

Added a slicer to toggle between delivery_status values (On-Time, Delayed).



34. How do you set up row-level security to restrict access by customer segment (Table 2)?

I created Row-Level Security in Power BI by setting up roles using the segment field in Table 2. I defined filters such as [segment] = "Regular" so when a user is assigned to that role, they can only see Regular customer data. RLS was configured through the Manage Roles option in the Modeling tab and tested with View as Role to confirm that only allowed data is visible.

Manage security roles

Create new security roles and use filters to define row

Roles

+ New

Inactive_RLS

New_RLS

Premium_RLS

Regular_RLS

Select tables

blinkit_custom...

blinkit_custom...

blinkit_delivery...

blinkit_inventory

blinkit_invento...

blinkit_marketi...

blinkit_order_it...

35. Use Power Query to clean and transform customer data before loading it into Power BI.

- Visual:

Show Power Query Editor screenshot with applied steps (e.g., removing nulls).

- Purpose:

To clean and transform raw customer data before loading.

- Insights:

Ensures data consistency.

Removes errors and duplicates.

- Description:

Used Power Query for null removal, type changes, column cleanup.

feedback_id	order_id	customer_id
1	2234710	1961864118
2	5450964	1549769649
3	482108	9185164487
4	4823104	9644738826
5	3537464	5427684290
6	4089724	3265154092
7	230696	4898355547
8	2259308	6568151549
9	7380970	6006693867
10	2257242	374186990
11	1837573	4455336265

36. How do you merge stock data from Table 4 & Table 5 to create a unified stock report?

- Purpose:

To unify stock received and sold in one view.

- Insights:

Easy to compare incoming vs outgoing stock.

Helps track inventory balance.

- Description:

Used Merge Queries in Power Query to combine Tables 4 & 5.

>  WHOLE INVENTORY

38. Create a report to track customer orders by store_id (Table 8).

- Purpose:

To monitor how each store performs in fulfilling orders.

- Insights:

Identifies top-performing stores.

Helps allocate stock regionally.

- Description:

Built a table visual linking Store ID with Order IDs from Table 8.

store_id	order_id	Month	Day	Total Orders
1	6056126973	July	2	17
2	3876260101	September	11	19
9	9371869941	October	11	6
12	4784760589	March	21	10

39. How do you use bookmarks to create different views of the dashboard?



- Purpose:

To create multiple views for the same report.

- Insights:

Switch between views easily (e.g., Monthly vs Yearly trends).

Makes navigation user-friendly.

- Description:

Created bookmarks for filtered states and report pages.

40. Build a map visualization showing order density per area (Table 2).

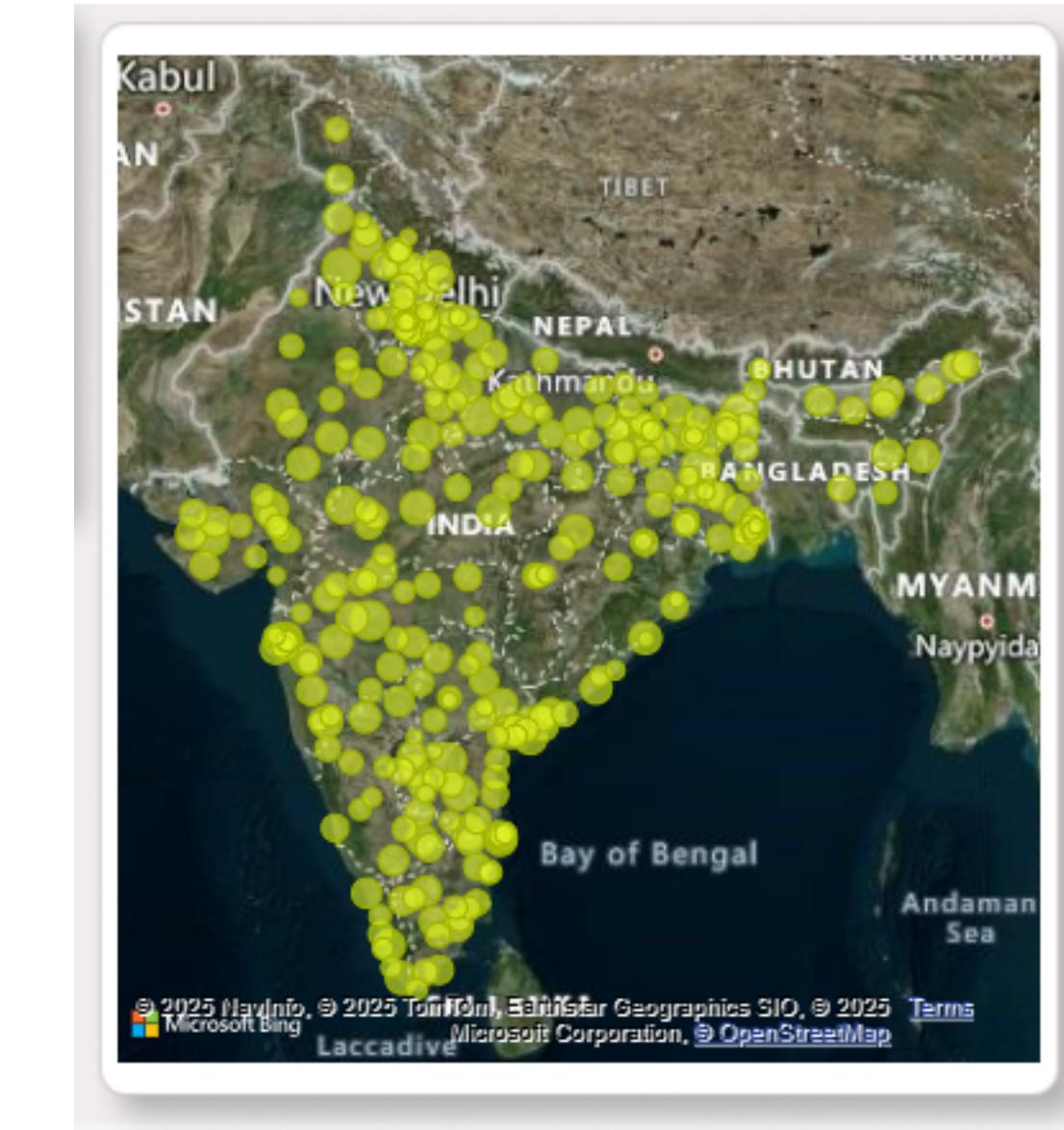
- Purpose:

To visualize how orders are distributed geographically.

- Insights:

High-density areas can be prioritized for delivery expansion.

Reveals underserved zones.



42. Use a measure to calculate product-wise discount percentages using price and MRP (Table 9).

- Purpose:

To calculate discount % using price vs MRP.

- Insights:

Reveals how much discount is given per product.

Supports margin and pricing decisions.

- Description: Created a calculated column:

$$\text{Discount\%} = (\text{MRP} - \text{Price}) / \text{MRP} \times 100.$$



50. Create a Power BI report that links emoji-based ratings (Table 11) to product categories (Table 9).

- Purpose:

To analyze how products are rated using emojis.

- Insights:

Shows category-wise satisfaction levels.

Adds user-friendly insights.

- Description:

Linked emoji_rating from Table 11 to category in Table 9 and visualized it.

Name	Star	feedback
Riya Wason	★★★★★	Will definitely order again.
Samaksh Kannan	★★★★★	Will definitely order again.
Saumya Babu	★★★★★	Will definitely order again.
Vidhi Misra	★★★★★	Will definitely order again.
Vrinda Mutti	★★★★★	Will definitely order again.
Wazir Hari	★★★★★	Will definitely order again.
William Banerjee	★★★★★	Will definitely order again.
Xalak Muni	★★★★★	Will definitely order again.
Advika Taneja	★★	Customer service was not helpful.
Aishani Sunder	★★	Customer service was not helpful.
Alexander Sem	★★	Customer service was not helpful.
Aryan Balakrishnan	★★	Customer service was not helpful.
Bhavya Goswami	★★	Customer service was not helpful.

KEY FINDINGS:

- High Customer Retention:

The retention rate is 94.2%, showing strong loyalty and repeat purchases.

- Top-Selling Products & Categories:

Pet Care, Dairy & Breakfast, and Household Care categories have the highest order volumes.

Products like Wheat Flour, Pet Treats, and Dish Soap are most frequently ordered.

- Effective Marketing Campaigns:

Campaigns like Referral Program and Email Campaign show healthy ROAS (~1.97) with good conversion rates.

- Delivery Performance:

~69% of deliveries are on time, but ~31% face slight or significant delays – an area for improvement.

- Stock Management Insights:

Some categories need timely reordering (e.g., Baby Care, Instant Food) to avoid stockouts.

CONCLUSION:

- This project helped me understand how to connect and analyze real-world business data using Power BI.
- By working with 11 related tables, I practiced data cleaning, building relationships, creating measures, and designing interactive dashboards.
- The analysis provides valuable insights into Blinkit's sales trends, customer behavior, inventory management, delivery efficiency, and marketing performance.
- The visual reports and KPIs created will help the company make data-driven decisions for better stock control, targeted campaigns, and improved delivery service.
- Overall, this project strengthened my practical skills in Data Analytics, Business Intelligence, and Visualization, which will be helpful in future professional work.



GITHUB REPOSITORY LINK:

https://github.com/Ritubarman98/powerbi_blinkit_inernship

THANK YOU