blinkit

Power BI

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Duration:
3 months 1st April 2025 to 30th June 2025

BLINKIT SALES DATA ANALYSIS

PRESENTED BY **SOHOM GHOSH**

UNIVERSITY OF ENGINEERING & MANAGEMENT, KOLKATA
B-TECH IN COMPUTER SCIENCE AND ENGINEERING (4TH YEAR)

INTERNSHIP UNDER **CLASSROOM TECH**
DURATION: 1ST APRIL 2025 – 30TH JUNE 2025

OBJECTIVE

- Project Goal:
  - To analyze Blinkit's customer, order, and delivery data in order to gain valuable business insights that can improve operational efficiency, marketing impact, and customer experience.
- We Aimed To Answer:
  - What is the average order value and total revenue generated?
  - Which products are best-selling across different segments?
  - How efficient are deliveries in terms of time and distance?
  - What are the patterns of customer behavior and retention?

DATASET OVERVIEW

- Dataset Name : Blinkit Sales Data
- Source : Kaggle
- Tables includes:
  - Blinkit_customer
  - Blinkit_products
  - Blinkit_orders
  - Blinkit_orderitems
  - Blinkit_marketing_performance
  - Blinkit_delivery_performance
  - Blinkit_Inventory
  - Blinkit_InventoryNew

TOOLS AND TECHNOLOGIES USED

- Power BI - Used for data visualization, KPI dashboards, and report generation.
- Power Query - Used for data cleaning and transformation before analysis.
- GitHub – Version control and to host the final .pbix file and documentation
- PowerPoint – For presentation purpose

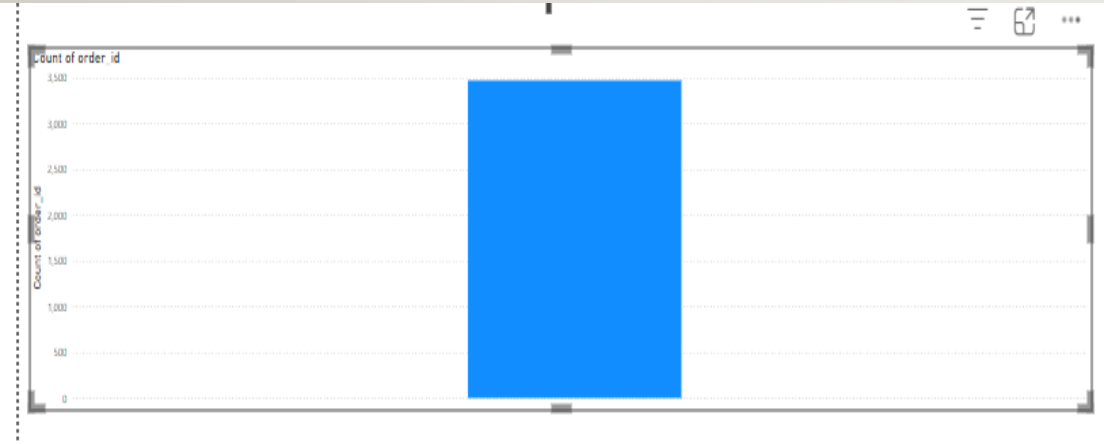
METHODOLOGY

- Data Cleaning steps:
  - Removed blank and duplicate rows
  - Trimmed and cleaned text fields
  - Changed data types and split full name into first and last name
- Visualization:
  - Created KPIs for total orders, revenue, AOV
  - Built bar, pie, and column charts for trends and comparisons
  - Used slicers for filtering by date and delivery stat
  - Built custom DAX measures (eg. CLV , ROAS , Gross Profit)

RELATIONSHIPS ESTABLISHMENT

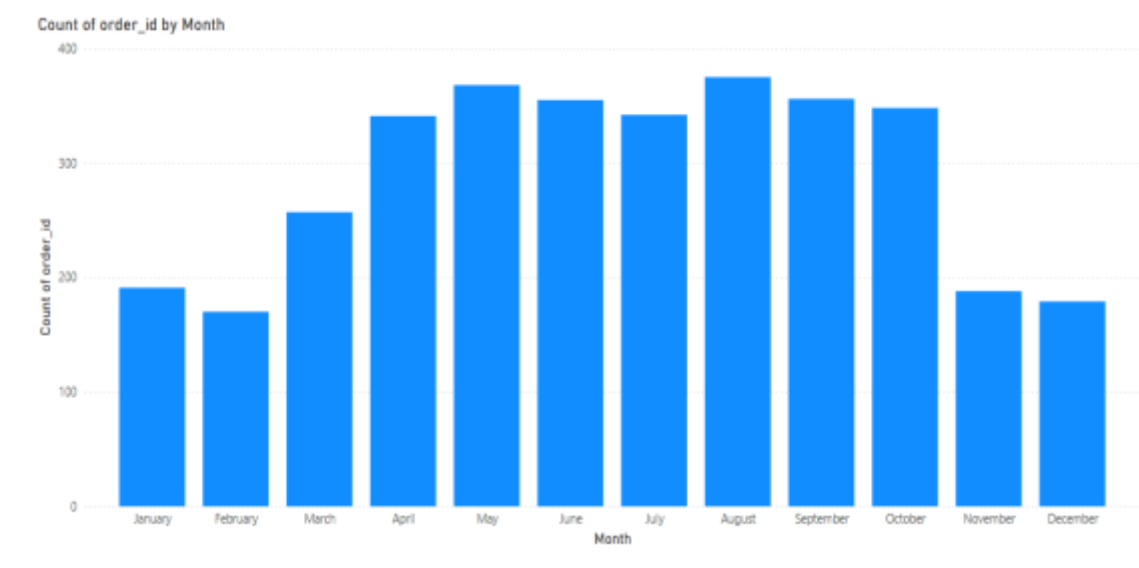
- Purpose:
  - To connect multiple tables based on keys such as `customer_id`, `order_id`, and `product_id` using Power BI's Model View
- Insights:
  - Relationships created using key fields between tables
  - One-to-many and many-to-one cardinality used appropriately

ORDERS PER CUSTOMER



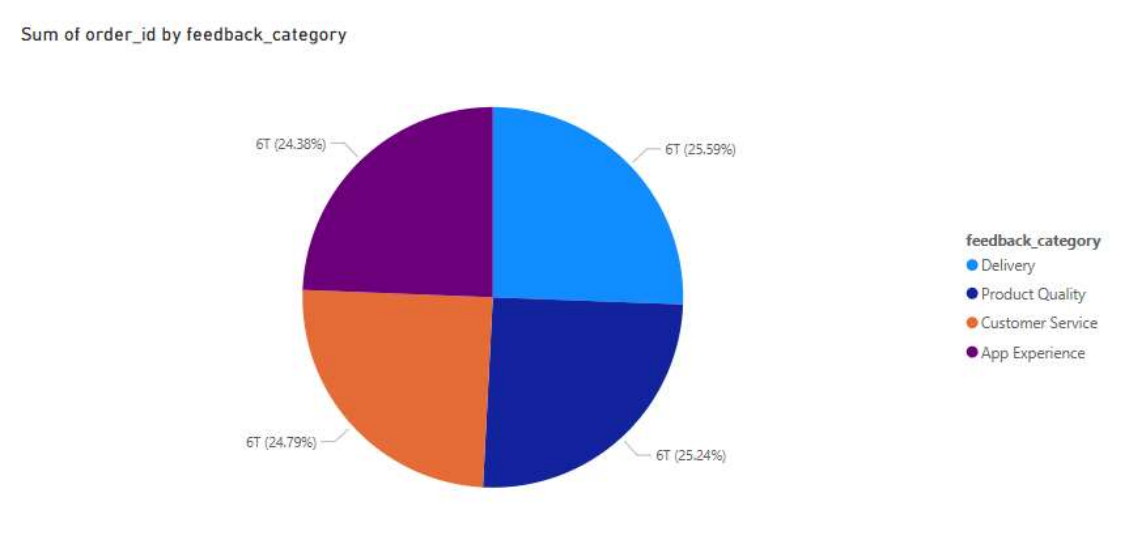
- Purpose:
  - To analyze how frequently customers place orders and identify highly active customers
- Visualization:
  - Some customers place **significantly more orders**, indicating brand loyalty.
  - Distribution helps customers into **loyal, occasional, and one-time buyers**.

ORDERS PER MONTH



- Purpose:
  - To identify monthly ordering patterns and track seasonality or growth trends in customer orders.
- Visualization:
  - Peak ordering observed
  - Consistent ordering trends with **slight increase/decrease** across months.

FEEDBACK CATEGORIES



- Purpose:
  - To understand the distribution of customer feedback into different sentiment categories
- Visualization:
  - Indicates overall **customer satisfaction** and areas needing improvement
  - Majority of responses were **[mention the top category, e.g., Positive]**

CUSTOMER DATA ANALYSIS

email	customer_id
ikbalshukla@example.net	10019218
sanaya20@example.net	10038382
bhavyabuch@example.com	10048910
vwalia@example.net	10088428
sagarjagdish@example.com	10210309
watika42@example.net	10225164
dipta34@example.org	10240052
priyalanka@example.org	10285414
lopaagrawal@example.org	10418604
lbahri@example.org	10508763
esingh@example.org	10524732
dalajasekhon@example.net	10541231
odika72@example.com	10562528
karabhiram@example.com	10605484
dipta24@example.net	1060685
vbalan@example.com	10608845
ujaggi@example.net	10642655
abhiram84@example.org	10663246
ekavir81@example.org	10683250
tshanker@example.net	10686446
neel30@example.net	10694081

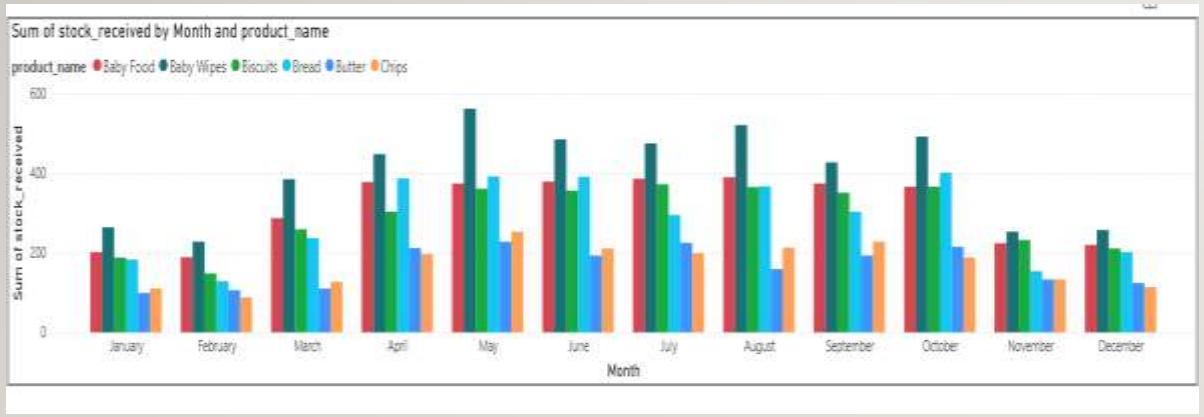
- Purpose:
  - To understand the customer base and segments using available demographic and profile data.
- Visualization:
  - Helps personalize marketing and improve retention strategies.
  - Customers are segmented into groups like **[e.g., "Loyal", "New", "Returning"]**

FILTERING ORDERS BY DELIVERY STATUS

order_id	delivery_status	Year	Quarter	Month	Day	Year	Quarter	Month	Day
60465	On Time	2024	Qtr 4	October	23	2024	Qtr 4	October	23
2237858	On Time	2023	Qtr 2	April	2	2023	Qtr 2	April	2
3101265	On Time	2024	Qtr 2	May	23	2024	Qtr 2	May	23
7550508	On Time	2023	Qtr 4	October	20	2023	Qtr 4	October	20
9408428	On Time	2023	Qtr 3	August	30	2023	Qtr 3	August	30
10161194	On Time	2023	Qtr 4	December	24	2023	Qtr 4	December	24
10448052	On Time	2023	Qtr 3	August	5	2023	Qtr 3	August	5
15642223	On Time	2023	Qtr 4	November	6	2023	Qtr 4	November	6
16878685	On Time	2024	Qtr 2	April	9	2024	Qtr 2	April	9
23158044	On Time	2023	Qtr 2	May	19	2023	Qtr 2	May	19
32604190	On Time	2023	Qtr 4	December	8	2023	Qtr 4	December	8
32613017	On Time	2023	Qtr 1	March	17	2023	Qtr 1	March	17

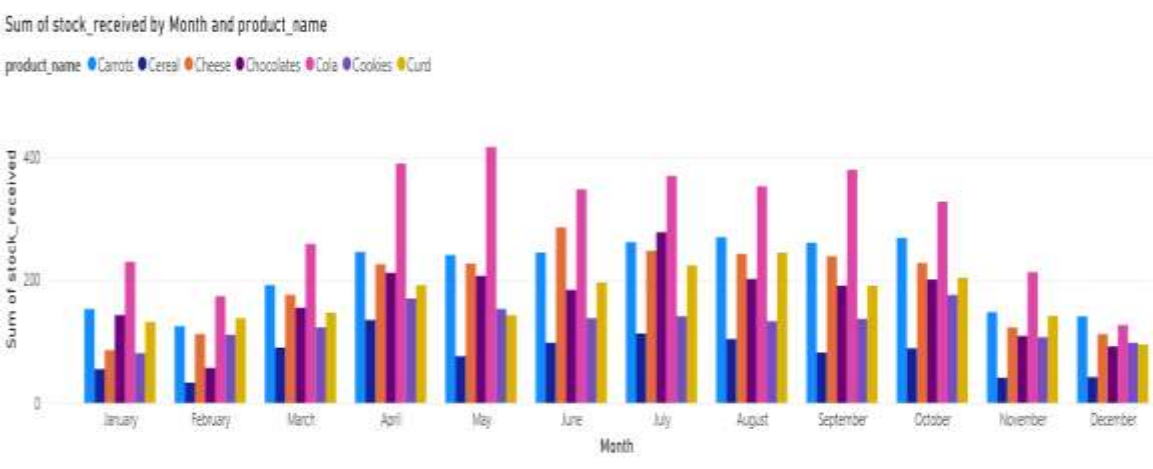
- Purpose:
  - To track delivery performance by filtering orders based on their status—whether delivered on-time or delayed.
- Visualization:
  - A significant number of deliveries were **[e.g., On-Time / Delayed]**
  - Enables performance tracking of logistics and delivery team.

STOCK RECEIVED



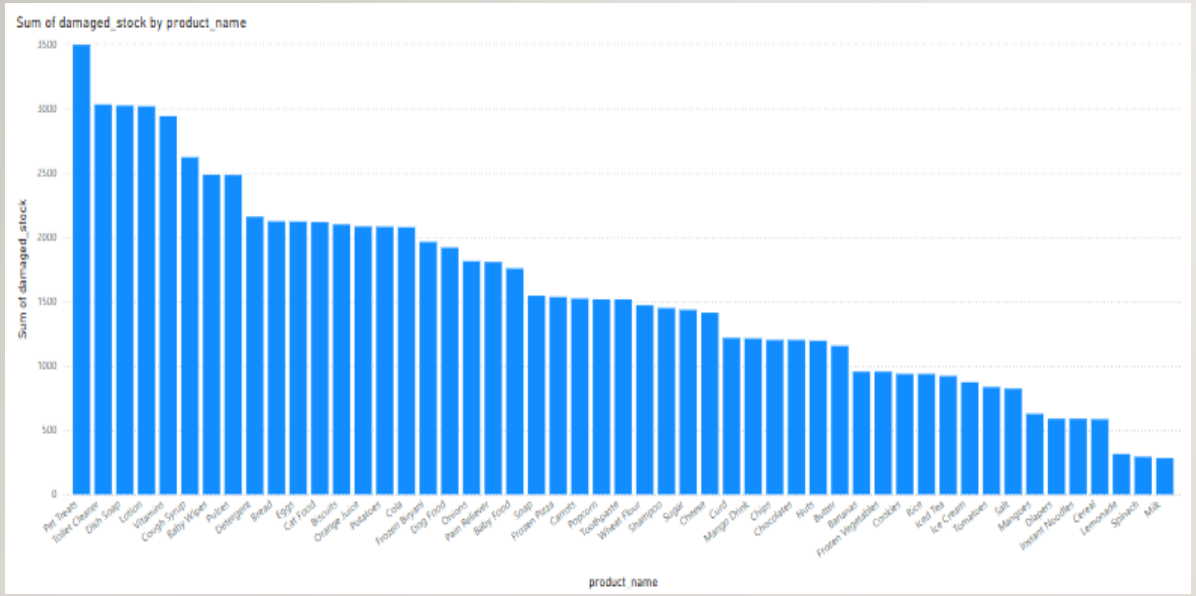
- Purpose:
  - To monitor how stock levels have varied over time specifically for Baby and Snacks categories.
- Insights:
  - Baby category saw **consistent restocking** in early months
  - Helps identify **category-wise inventory trends** for better forecasting.

STOCK RECEIVED



- Purpose:
  - To monitor how stock levels have varied over time specifically for Baby and Snacks categories.
- Visualization:
  - Household category saw **consistent restocking** in early months
  - Helps identify **category-wise inventory trends** for better forecasting

DAMAGED STOCK PER PRODUCT



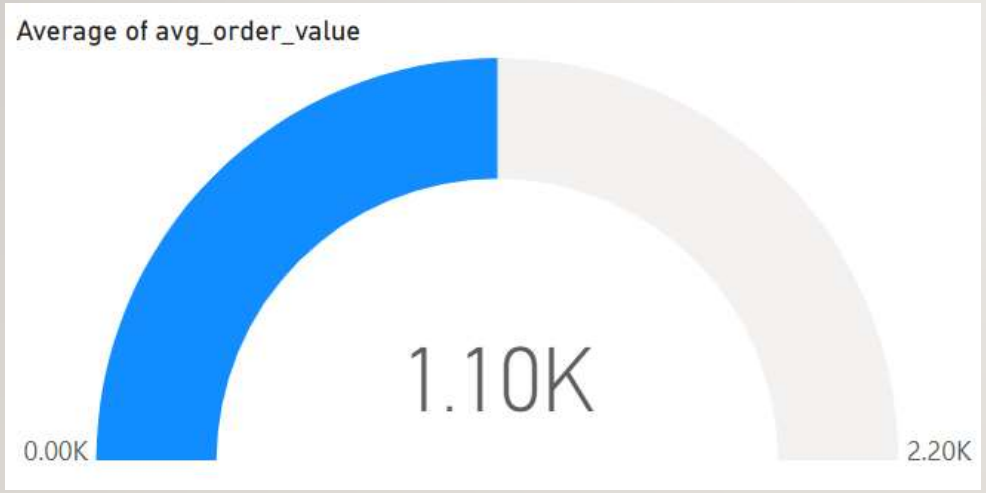
- Purpose:
  - To evaluate which products have the highest percentage of damaged stock and assess inventory reliability
- Visualization:
  - Most products have damage rates **below 20%**, indicating effective storage/handling
  - Enables better vendor assessment and **inventory quality control**

MARKETING CAMPAIGN PERFORMANCE

campaign_name	campaign_id	revenue_generated	Sum of spend
Referral Program	243	5,970.43	3,641.18
Flash Sale	342	7,711.31	2,900.46
Email Campaign	417	5,202.30	2,704.17
Festival Offer	472	4,316.40	1,542.65
New User Discount	648	2,261.53	4,892.22
New User Discount	788	4,004.21	2,896.44
Membership Drive	1005	9,253.77	1,189.21
Email Campaign	1604	6,315.41	3,522.99
Email Campaign	1676	4,606.78	3,911.44
Membership Drive	1836	7,039.53	3,265.42
Referral Program	1966	5,330.49	3,621.59
Referral Program	2127	5,541.54	2,830.06
Category Promotion	2160	2,364.06	3,036.79
Membership Drive	2257	6,790.26	3,118.89
Email Campaign	2552	5,648.69	3,542.77
Category Promotion	2609	5,547.84	4,370.47
Festival Offer	2793	9,873.50	3,287.67
Membership Drive	2988	3,691.64	3,923.89
Total			**1,63,19,838.24**

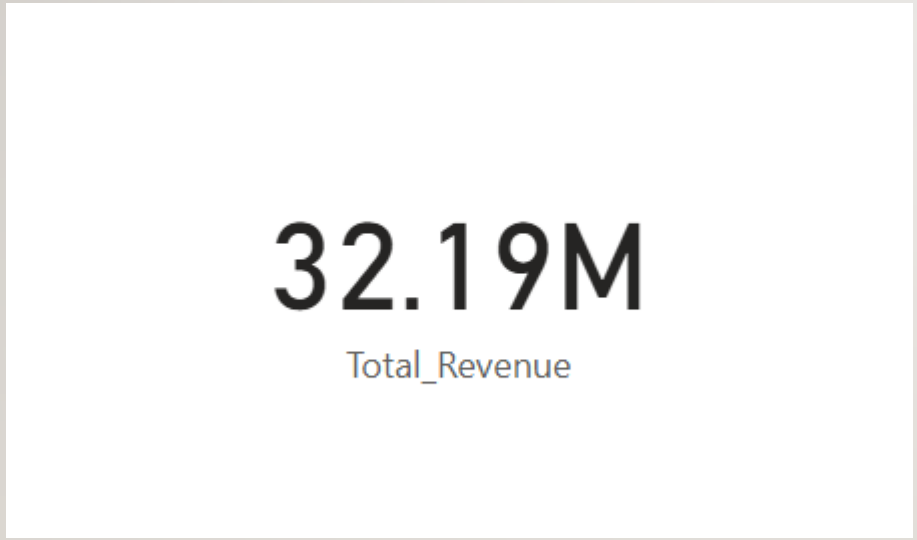
- Purpose:
  - To evaluate how each marketing campaign performed in terms of investment and returns
- Visualization:
  - Helps allocate future marketing budgets more effectively.
  - Some campaigns had **high spend but lower ROI**, indicating optimization potential

AVERAGE ORDER VALUE – KPI VISUAL



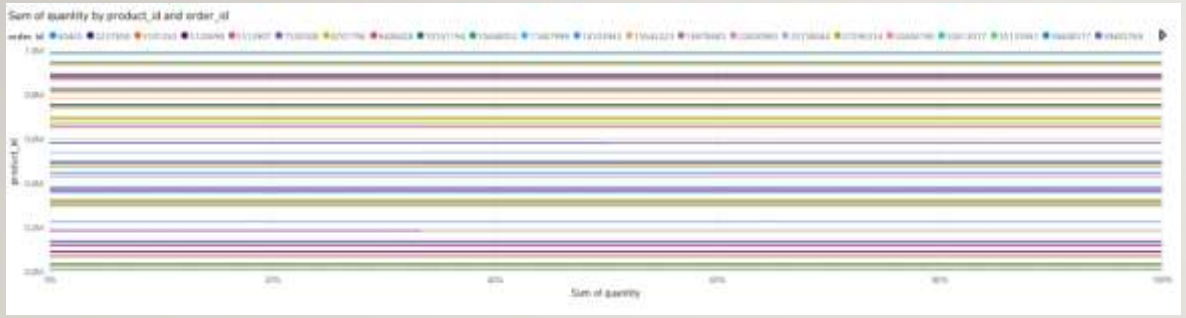
- Purpose:
  - To monitor the **average revenue earned per order**, which is a key business performance indicator.
- Visualization:
  - Helps in **tracking customer spending behavior** over time.
  - Useful for setting **free delivery thresholds**, loyalty perks, or upselling targets

TOTAL REVENUE GENERATED



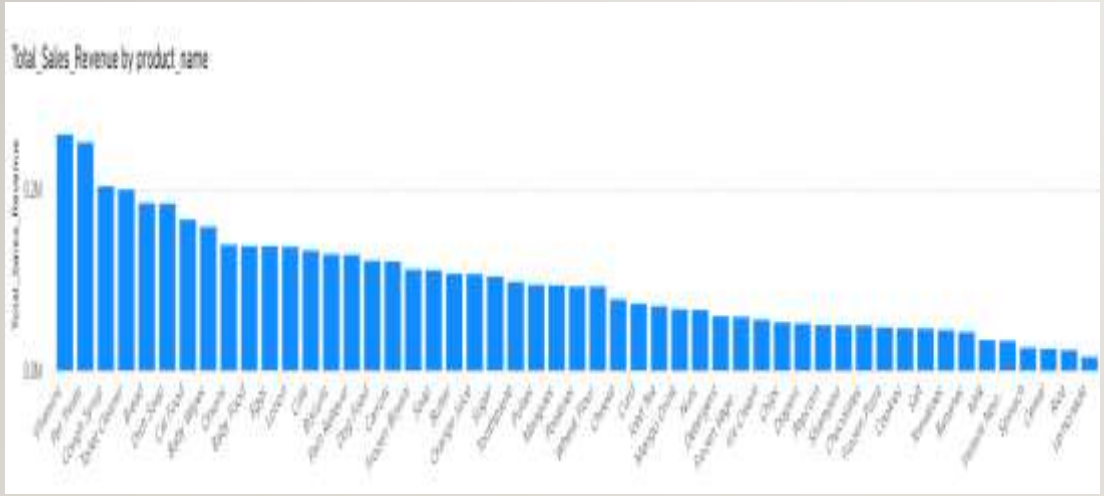
- Purpose:
  - To calculate the overall revenue generated from all marketing campaigns combined.
- Visualization:
  - The **total revenue generated** is ₹[your value], indicating the combined effectiveness of all campaigns
  - Helps evaluate whether the campaign strategy is **profitable at scale**

ORDER QUANTITY PER PRODUCT



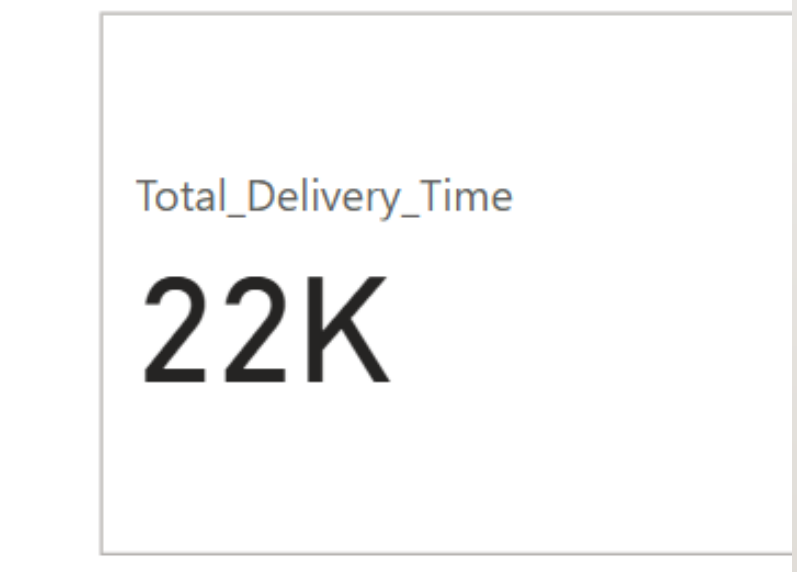
- Purpose:
  - To visually compare the quantity of each product ordered, identifying best-selling and underperforming products.
- Visualization:
  - Useful for analyzing **product performance across categories**.
  - Products like **Soap** have significantly higher demand.

TOTAL SALES REVENUE PER PRODUCT



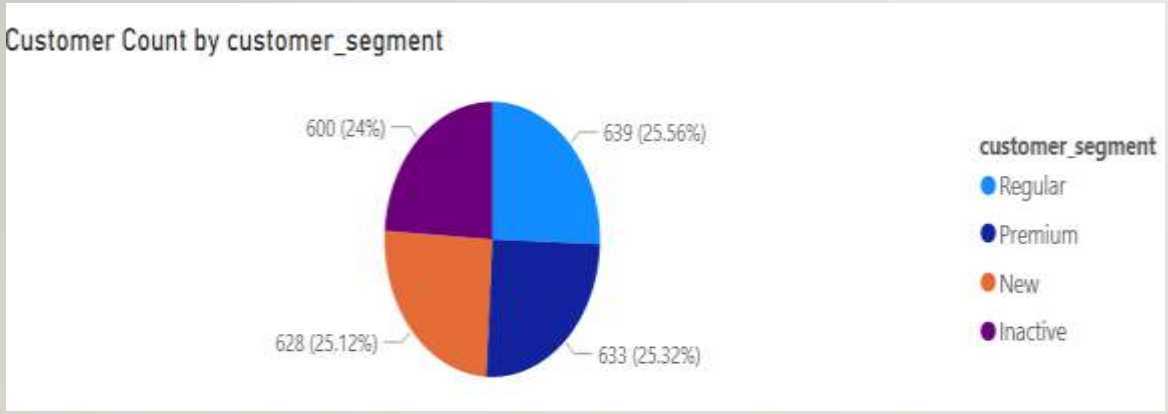
- Purpose:
  - To identify which products generate the most revenue and contribute most to sales performance.
- Visualization:
  - Helps identify **low-performing products** with low revenue generation.
  - Useful for **profitability analysis and stock prioritization**.

TOTAL DELIVERY TIME (IN MINUTES)



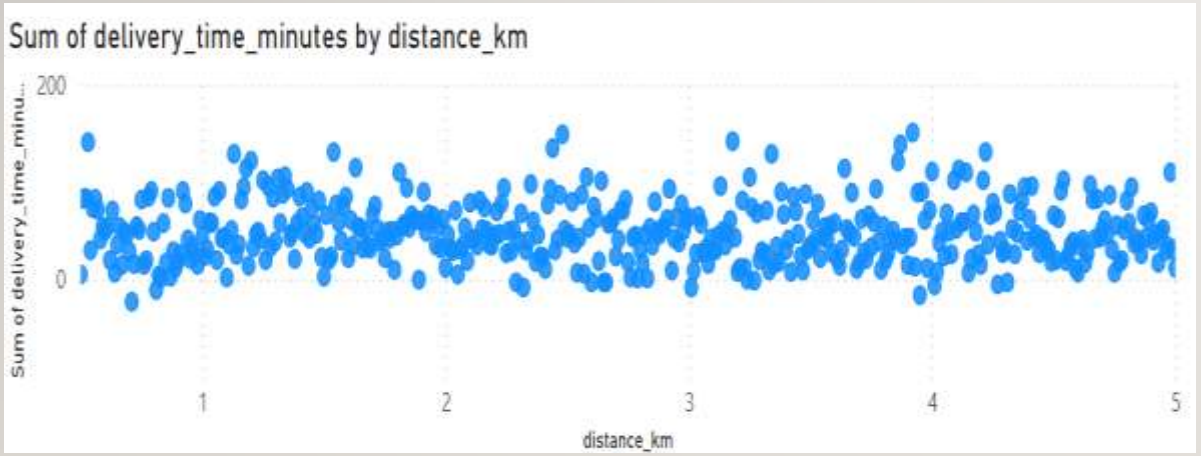
- Purpose:
  - To measure the actual time it takes to fulfill deliveries across all orders.
- Visualization:
  - Total delivery time is 22K minutes
  - Helps identify **average delivery duration** and evaluate delivery efficiency.

CUSTOMER SEGMENT USING PIE CHART



- Purpose:
  - To visualize how customers are distributed across different engagement segments.
- Visualization:
  - The **Regular** segment represents the largest share of the customer base.
  - A noticeable number of **new customers**, indicating growth opportunities

DISTANCE VS DELIVERY TIME

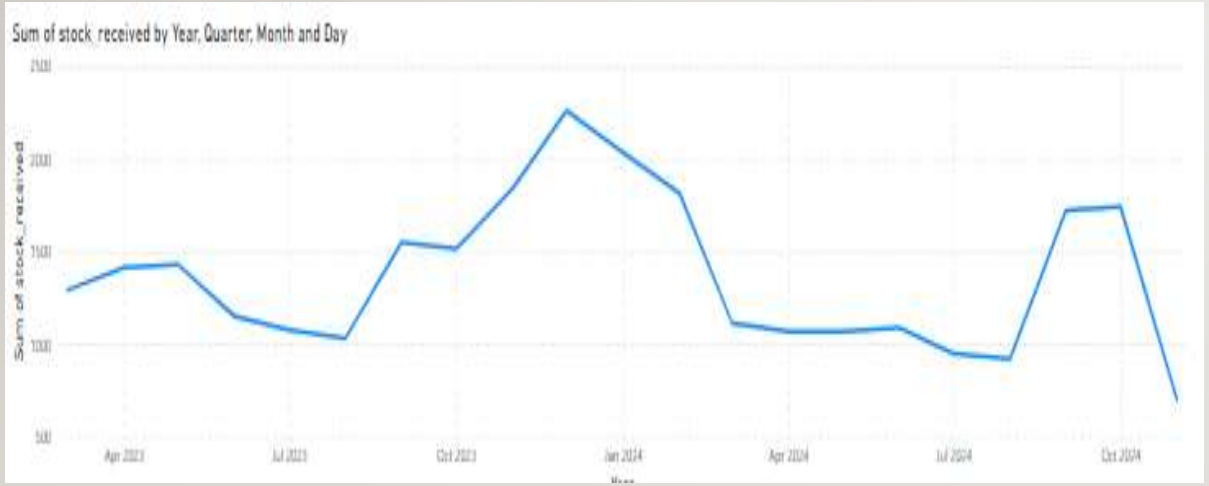


- Purpose:
  - To analyze how the distance covered in deliveries influences the actual delivery time
- Visualization:
  - A positive trend: **higher distances usually lead to longer delivery times**
  - Helps in **optimizing delivery zones** and improving route planning

CUSTOMER RETENTION RATE

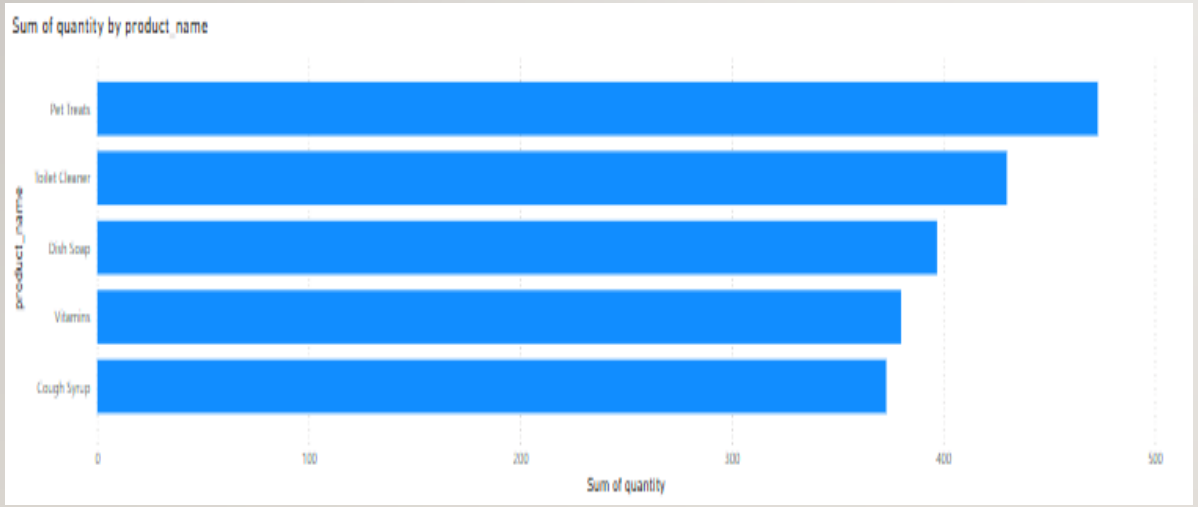
- Purpose:
  - To measure the percentage of customers who returned to place more than one order, indicating customer loyalty.
- Visualization:
  - Shows how many customers come back after their first order
  - A higher retention rate indicates customer satisfaction and product relevance

FORECASTING FUTURE STOCK LEVELS



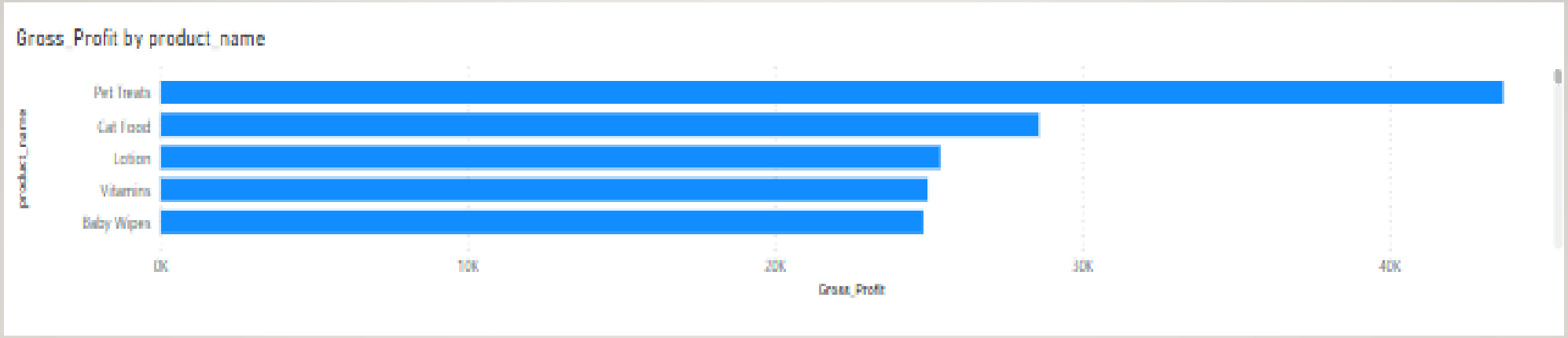
- Purpose:
  - To predict future inventory requirements based on historical stock received patterns for better demand planning
- Visualization:
  - Identifies **upcoming peaks or shortages** in stock
  - Assists in **inventory planning** and avoiding stockouts.

TOP 5 BEST SELLING PRODUCTS BY QUANTITY ORDERED

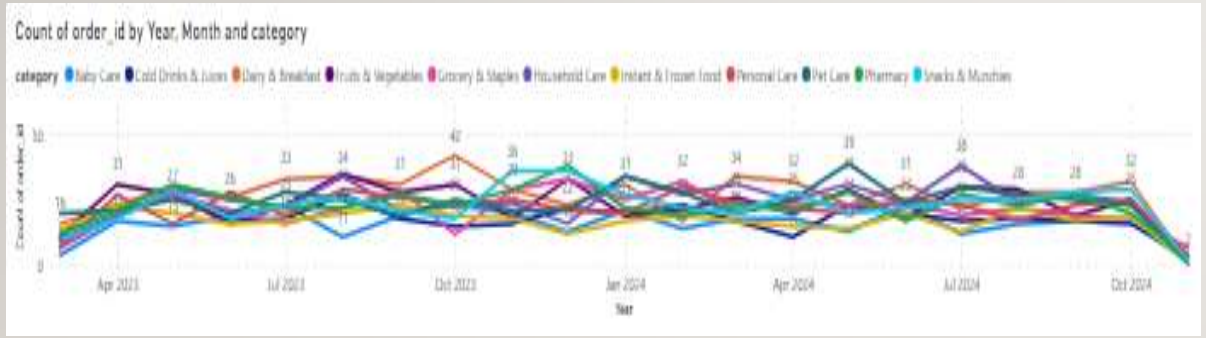


- Purpose:
  - To identify the products with the highest number of orders and analyze consumer preferences
- Visualization:
  - These 5 products contribute significantly to order volume
  - Useful for **stock planning** and **promotional targeting**.

GROSS PROFIT PER PRODUCT

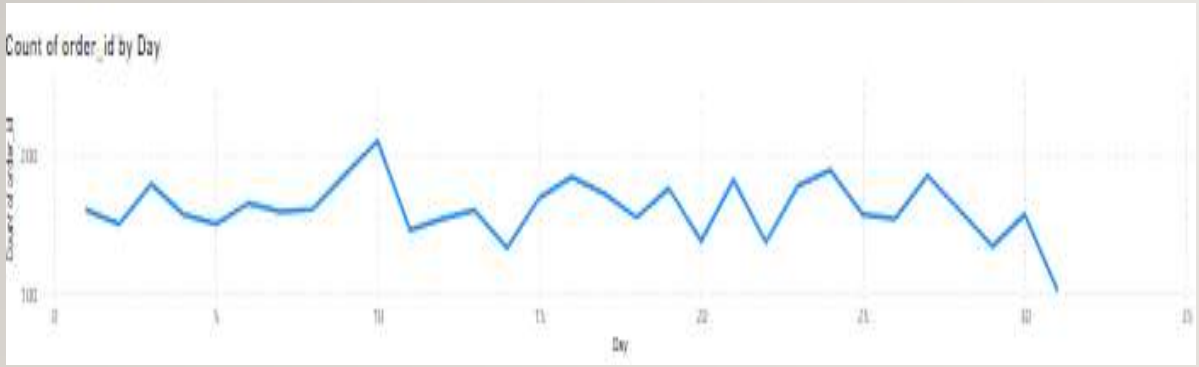


DASHBOARD FOR ORDER TRENDS BY CATEGORY



- Purpose:
  - To visualize how order volumes change over time across different product categories.
- Visualization:
  - Certain categories show **seasonal spikes**
  - Helps in **demand forecasting** and inventory planning

TIME SERIES ANALYSIS



- Purpose:
  - To analyze daily order volume over time and detect trends, peaks, or irregularities in customer demand.
- Visualization:
  - Patterns reveal **daily fluctuations**, useful for **logistics planning**.
  - Helps anticipate **high-demand days** and prepare inventory in advance.

IDENTIFYING THE MOST FREQUENTLY ORDERED PRODUCT (USING DAX)

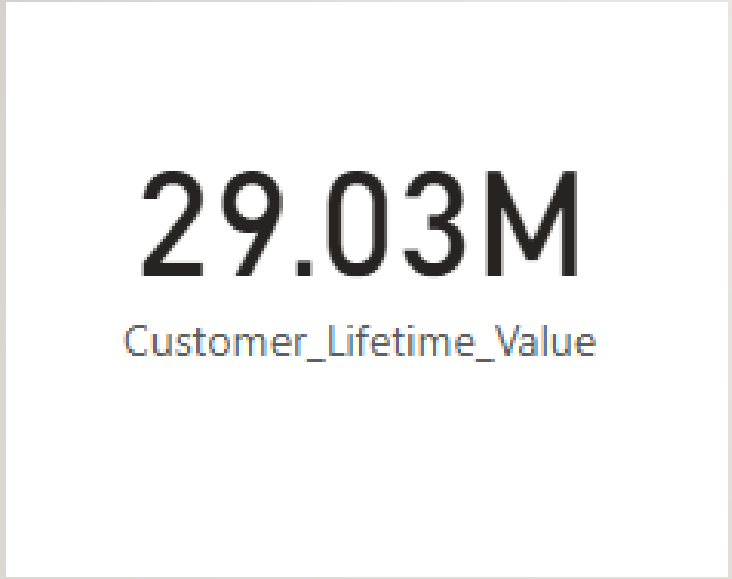
- Purpose:
  - To determine which product has been ordered the most by customers, helping identify best-sellers.
- Visualization:
  - Indicates high customer demand and relevance
  - Useful for **promotions, inventory prioritization, and forecasting.**

ORDER QUANTITY PER PRODUCT

category	Sum of quantity
Baby Care	655
Cold Drinks & Juices	758
Dairy & Breakfast	1114
Fruits & Vegetables	966
Grocery & Staples	895
Household Care	1078
Instant & Frozen Food	742
Personal Care	887
Pet Care	1003
Pharmacy	973
Snacks & Munchies	963
Total	**10034**

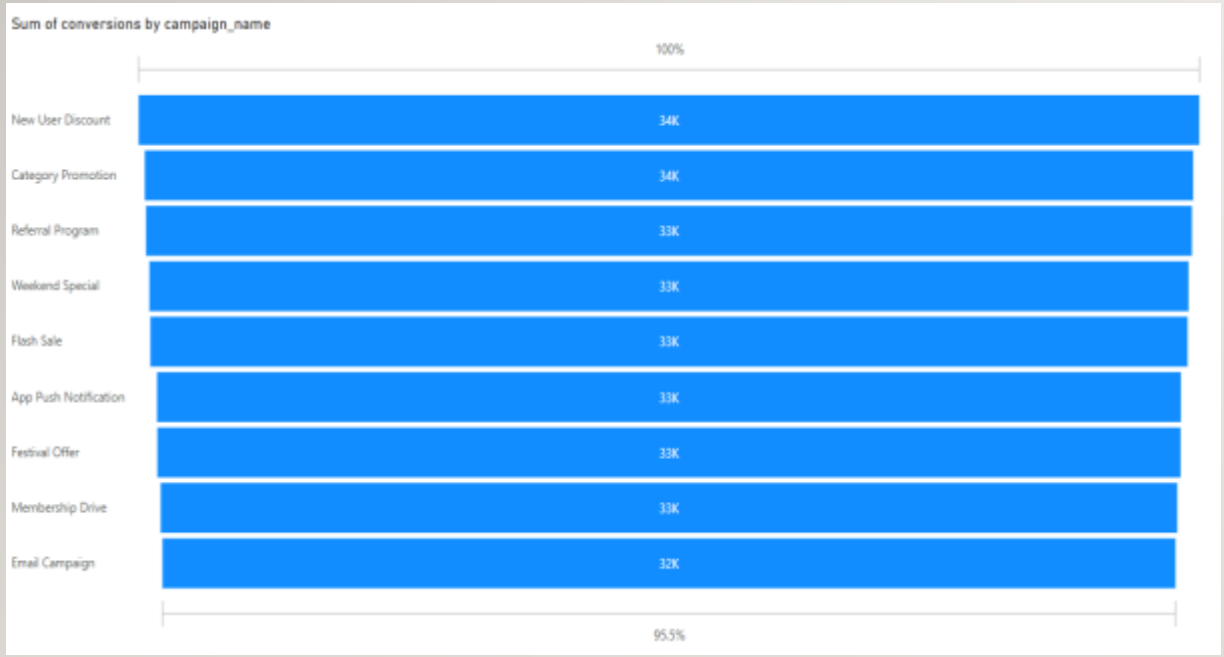
- Purpose:
  - To display the quantity of products ordered, broken down by category, in a clean and interactive table format
- Visualization:
  - Matrix allows **cross-category comparisons** in a tabular format
  - Ideal for **trend spotting** and quick reference during stakeholder meetings.

CUSTOMER LIFETIME VALUE (CLV)



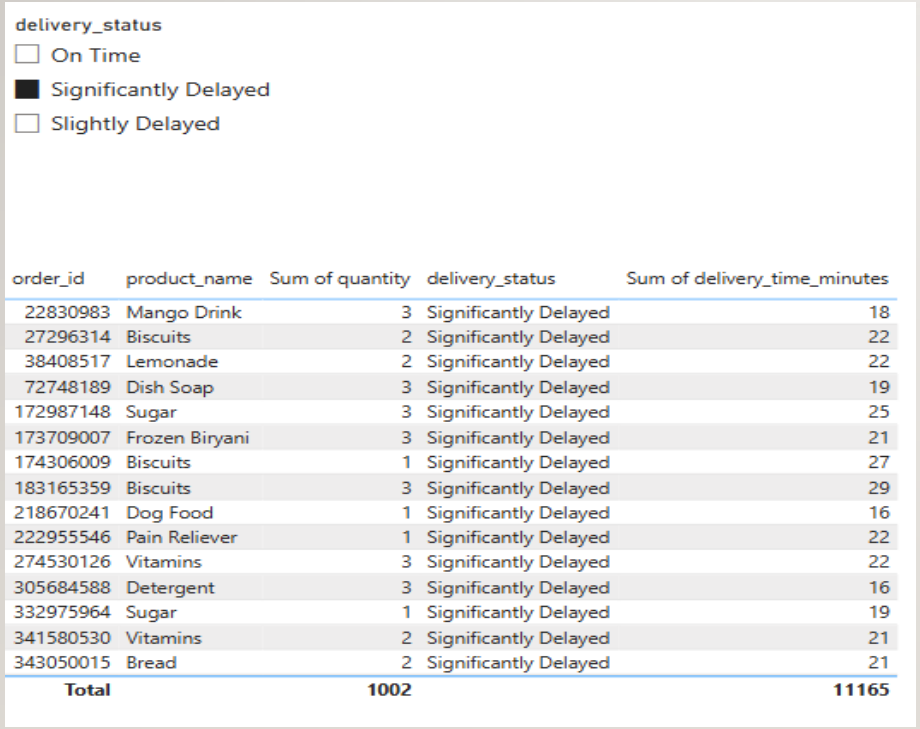
- Purpose:
  - To calculate the total expected revenue a business can earn from a customer based on how much and how often they order.
- Visualization:
  - High CLV customers are ideal for **loyalty programs**.
  - Helps assess **customer profitability** over time.

FUNNEL CHART FOR CAMPAIGN CONVERSION PROCESS



- Purpose:
  - To visualize the marketing funnel from user exposure to campaign (Impressions) to final action (Conversions).
- Visualization:
  - Campaigns have significant drop-offs between **Clicks and Conversions**.
  - Helps identify where in the funnel users are disengaging

INTERACTIVE FILTER: DELIVERY STATUS SLICER (ON-TIME VS DELAYED)



order_id	product_name	Sum of quantity	delivery_status	Sum of delivery_time_minutes
22830983	Mango Drink	3	Significantly Delayed	18
27296314	Biscuits	2	Significantly Delayed	22
38408517	Lemonade	2	Significantly Delayed	22
72748189	Dish Soap	3	Significantly Delayed	19
172987148	Sugar	3	Significantly Delayed	25
173709007	Frozen Biryani	3	Significantly Delayed	21
174306009	Biscuits	1	Significantly Delayed	27
183165359	Biscuits	3	Significantly Delayed	29
218670241	Dog Food	1	Significantly Delayed	16
222955546	Pain Reliever	1	Significantly Delayed	22
274530126	Vitamins	3	Significantly Delayed	22
305684588	Detergent	3	Significantly Delayed	16
332975964	Sugar	1	Significantly Delayed	19
341580530	Vitamins	2	Significantly Delayed	21
343050015	Bread	2	Significantly Delayed	21
Total		**1002**		**11165**

- Purpose:
  - To allow users to interactively view orders based on delivery performance (On-Time vs Delayed) using a slicer.
- Visualization:
  - Users can quickly toggle between delayed and on-time orders
  - Adds interactivity and **drill-down capability** to dashboards.

CUSTOMER DATA CLEANING POWER QUERY

- Purpose:
  - To prepare clean, structured, and analysis-ready customer data for visualization in Power BI.
- Steps:
  - Removed blank and duplicate rows
  - Split full name into first and last name
  - Renamed columns for clarity
  - Trimmed and cleaned text fields

MERGING STOCK DATA FROM TWO TABLES

- Purpose:
  - To combine inventory data from two separate sources into one report for better stock analysis.
- Steps:
  - Selected Merge Queries in power query
  - Joined Table 4 and Table 5 on common columns
  - Selected **Join type**: Left Outer (or Inner).
  - Click expand to include relevant columns like stock_received etc.

INSIGHTS

- **High Customer Retention**: A significant percentage of customers placed repeat orders, reflecting strong brand loyalty and customer satisfaction.
- **Snacks and Beverages Dominate Sales**: These two categories consistently received the highest number of orders and stock replenishments, highlighting key drivers of revenue.
- **Delivery Delays Identified:** Analysis of delivery status revealed a portion of orders were delayed, indicating room for improving logistics efficiency.
- **Seasonal Trends in Ordering Behavior:** Orders peaked during specific months, revealing a seasonal pattern that can be used for future stock planning and promotional strategies.

CONCLUSION

- What I learned:
  - Gained hands-on experience in **data cleaning**, **visualization**, and **business intelligence** using Power BI.
  - Understood how to build **interactive dashboards**, apply **DAX measures**, and derive **actionable insights** from raw data.
- Impact on Decision-making:
  - The insights derived can guide **inventory management**, **marketing strategies**, and **customer engagement efforts**
  - The insights derived can guide **inventory management**, **marketing strategies**, and **customer engagement efforts**

GIT-HUB REPOSITORY LINK

- Please follow the below link to find the datasets and project analysis of this project

  https://github.com/SohomGhosh10/PowerBi_Internship_ClassroomTech.git

ACKNOWLEDGEMENT

- I would like to express my sincere gratitude to **Classroom Tech** for providing me with the opportunity to work on this Power BI internship project titled **"Blinkit Sales Data Analysis."**I am especially thankful to my **project guide**, mentors, and the **entire Classroom Tech team** for their continuous guidance, valuable feedback, and support throughout the internship duration . I would also like to extend my heartfelt thanks to my **college faculty**, friends, and **family** for their encouragement and motivation during this journey. Their support has been instrumental in the successful completion of this project.