BI VIZ WAR

DASHBOARD REPORT
FINAL ROUND

Presented By
BI Slayers

CONTENT

01.INTRODUCTION

In the dynamic realm of marketing and promotion, data serves as the bedrock, guiding strategic initiatives and shaping the trajectory of campaigns. This conclusive report delves into the promotional efforts undertaken by a Sri Lankan artisan bakery during the festive fervor of the 2023 Christmas season. Through a rigorous analysis of the dataset, we unravel the intricate interplay between target demographics, geographical reach, transaction volumes, and redemption preferences. These insights illuminate not only the effectiveness of the campaign but also provide a roadmap for making informed decisions and refining tactical approaches. Within these pages lies a wealth of information essential for unlocking the full potential of marketing endeavors, setting the stage for impactful decision-making and strategic evolution. By leveraging data-driven insights, businesses can fine-tune their promotional strategies, optimize resource allocation, and tailor offerings to resonate more effectively with their target audiences.

This report serves as a compass, guiding businesses through the complexities of modern marketing and empowering them to adapt and thrive in a rapidly changing landscape. By harnessing the power of data analytics, businesses can gain deeper insights into customer behavior, identify emerging trends, and capitalize on untapped opportunities. Armed with these insights, businesses can make more informed decisions, allocate resources more effectively, and develop strategies that resonate with their target audience, ultimately driving greater success and competitiveness in the market.

02.EXPLORING THE DATASET

In this section, we'll delve into an elucidation of the dataset columns, shedding light on the intricate details encapsulated within each label. Through this exploration, we aim to unravel the underlying dynamics of the promotional campaign executed by the Sri Lankan local bakery during the vibrant 2023 Christmas holiday season. By dissecting the Date, target group, Distance Rank, Order Amount, and Redemption Category columns, we'll uncover invaluable insights into the campaign's strategic nuances, customer interactions, and overall effectiveness. Let's embark on this journey of data exploration to glean actionable insights and inform future marketing strategies.

1. **Date**:
   This column records the specific dates ranging from December 4, 2023, to December 17, 2023. It signifies the timeline during which the promotional campaign and associated transactions occurred.

2. **Target Group**:
   This column categorizes customers into two distinct groups: T1 and T2. T1 comprises 400 Premium customers strategically selected based on analytical criteria, while T2 includes 750 customers randomly chosen from the broader customer base. These groups likely represent segments of customers with different characteristics or behaviors.

3. **Distance Rank**:
   This column classifies customers into three distance groups denoted as D1, D2, and D3, based on the distance from the bakery to their homes. D1 represents customers residing within a distance of less than 2 kilometers, D2 encompasses those living within a distance of less than 5 kilometers, and D3 includes customers residing beyond 5 kilometers from the bakery. This classification helps analyze the impact of geographical proximity on customer behavior and campaign effectiveness.

4. **Order Amount**:
   This column records the monetary value of orders placed by customers during the specified dates. It provides insight into the spending patterns and behaviors of customers within different target groups and distance ranks.

5. **Redemption Category**:
   This column outlines the categories of rewards or incentives offered as part of the promotional campaign for customers to redeem based on their order amounts. The redemption categories include:
   - A 6-pack of Holiday Spice Cupcakes (with a minimum spend of Rs 4000.00)
   - A Christmas Herb Bread (with a minimum spend of Rs 1500.00)
   - Both items (if the spend exceeds Rs 5500.00)

These dataset columns collectively offer a comprehensive view of customer segmentation, geographical distribution, spending behavior, and redemption preferences during the 2023 Christmas holiday season promotional campaign conducted by the Sri Lankan local bakery.

03.IMPLEMENTATION IN MICROSOFT POWER BI

3.1. Dashboard Design and Implementation

Create Measures in PoweBI

Calendar Table

1. Calendar = CALENDAR(MIN('Redemption-Data'[Date]),MAX('Redemption-Data'[Date]))
   - This creates a calendar table spanning the range of dates from the minimum to the maximum date found in the 'Redemption-Data' table.

2. Year = YEAR('Calendar'[Date])
   - Extract the year from the 'Date' column in the Calendar table.

3. Month = FORMAT('Calendar'[Date],"mmm")
   - Formats the 'Date' column in the Calendar table to display the month in a three-letter abbreviation format (e.g., "Jan" for January).

4. Day = DAY('Calendar'[Date])
   - Extract the day of the month from the 'Date' column in the Calendar table.

Colors Table

5. Colour Background = (VAR _selected = SELECTEDVALUE('Colors'[Background]) RETURN IF(ISBLANK(_selected), "Light", _selected))
   - Determines the background color based on the selected value from the 'Colors' table. If no value is selected, it defaults to "Light."
   - Similar measures are created for 'Colour Border', 'Colour Shadow', 'Colour Shape Bg', 'Colour Text', 'Colour Text 02', and 'Colour Text 03'.

LinesResult Table

6. LinestResult = LINEST(Transaction_Data[Order Amount], Transaction_Data[Redemption Category])
   - Calculates the statistics for a straight line that best fits the data points in the 'Transaction_Data' table, specifically analyzing the relationship between 'Order Amount' and 'Redemption Category'.

Redemption Category Summary Table

7. Redemption Category SummaryTable = UNION(ROW("Redemption Category", "Christmas Herb Bread", "Count", [Count Herb Bread by Day]), ROW("RedemptionCategory", "Holiday Spice Cupcake", "Count", [Count Spice Cupcake byDay]),ROW("Redemption Category", "Both", "Count", [Count Both by Day]))
   - Creates a summary table that counts the occurrences of each redemption category ('Christmas Herb Bread', 'Holiday Spice Cupcake', and 'Both') grouped by day.

Distance Rank Summary Table

8. Distance SummaryTable =
   UNION(
   ROW("Distance_Rank", "Less than 2KM", "Count", [Count Less than 2km]),
   ROW("Distance_Rank", "Less than 5KM", "Count", [Count Less than 5km]),
   ROW("Distance_Rank", "Above 5KM", "Count", [Count Above 5km])
)
   - Creates a summary table that counts the occurrences of each distance rank (‘Less than 2km', 'Less than 5km’, and 'Above 5km') grouped by day.

Redemption-Data Table

9. Count Herb Bread by Day = IF(ISBLANK(CALCULATE(COUNTROWS('Redemption-Data'),'Redemption-Data'[Redemption_Category] = "Christmas Herb Bread",ALLEXCEPT('Redemption Data','Calendar'[Day]))),0, CALCULATE(COUNTROWS('Redemption-Data'),'Redemption-Data'[Redemption_Category] = "Christmas Herb Bread",ALLEXCEPT('Redemption-Data', 'Calendar'[Day])))
   - Calculate the count of 'Christmas Herb Bread' redemptions for each day. If there are no redemptions for a particular day, it returns 0.
   - Similar measures are created for the 'Spice Cupcake Pack' and 'Both' redemption categories.

10. Count Less than 2km = CALCULATE(COUNTROWS('Redemption-Data'), 'Redemption-Data'[Distance_Rank] = "Less than 2 KM")
    - Calculates the count of redemptions for customers residing less than 2 kilometers from the bakery.
    - Similar measures are created for 'Less than 5km' and 'Above 5km' distance ranks.

Create New Tables and Add Columns

Creating the Calendar Table

Using the Date column from the Sales table, a new table named Calendar is generated.
This table spans the range between the earliest (MIN) and latest (MAX) dates found within the Date column.

Adding Month, Year and Day Columns

Month Column:

- A new column named Month is created in the Calendar table. It extracts the month abbreviation (mmm format) from the Date column within the Calendar table, allowing for easy categorization or grouping of dates by month.

Year Column:

- Another column named Year is added to the Calendar table. This column extracts the year from the Date column in the Calendar table, providing a separate column specifically capturing the year of each date.

Day Column:

- Another column named Day is added to the Calendar table. This column extracts the day from the Date column in the Calendar table, providing a separate column specifically capturing the day of each date.

Creating the LinestResult Table

The newly created table in Power BI, represented by the variable LinestResult, likely contains the results of the LINEST function applied to the Transaction_Data table within the Power BI dataset.

Transaction_Data[Order Amount]:

- This represents the range of values from the "Order Amount" column in the Transaction_Data table. It is the independent variable used in the LINEST function, meaning it is the predictor or input variable.

Transaction_Data[Redemption Category]:

- This represents the range of values from the "Redemption Category" column in the Transaction_Data table. It is the dependent variable used in the LINEST function, meaning it is the variable being predicted or explained based on the "Order Amount."

LINEST Function:

- This is a statistical function in Power BI used to calculate the statistics for a straight line that best fits the data points in a given dataset. In this context, it calculates the coefficients of a linear equation that best represents the relationship between "Order Amount" and "Redemption Category."

LinestResult:

- This variable stores the results of the LINEST function, which typically includes statistical information such as coefficients, standard errors, R-squared value, and other relevant statistics that describe the linear relationship between the two variables.

Creating the Redemption Category Summary Table

This table serves as a comprehensive overview, presenting the count of each redemption category observed within the dataset. By organizing and quantifying these categories, we aim to uncover patterns and trends that shed light on the effectiveness of the campaign's incentives and inform strategic decision-making.

Creating the Distance Rank Summary Table

The Distance Rank Summary Table offers insights into customer distribution based on distance ranks (D1, D2, D3). Analyzing customer counts order amounts, and redemption category preferences by distance rank guides targeted marketing, pricing strategies, and operational efficiency, and identifies growth opportunities based on geographic proximity.

3.2. Visual Implementation

Card (New)

Figure 3.2.1

- Premium Customer Count Card:
  This card visualizes the count of Premium customers who were strategically selected based on analytical criteria to participate in the promotional campaign. It provides a snapshot of the targeted high-value segment engaged in the campaign, offering insights into their response and participation levels.

- Randomly Selected Customer Count Card:
  This card displays the count of customers randomly selected from the broader customer base to partake in the promotional campaign. It highlights the outreach to a diverse set of customers, showcasing the campaign's inclusivity and reach beyond specific targeted segments.

- Spice Cupcake Count Card:
  This card illustrates the count of redemptions for the Holiday Spice Cupcake offered as part of the promotional campaign. It offers visibility into the popularity and demand for this specific redemption category, aiding in assessing its effectiveness in driving customer engagement.

- Herb Bread Count Card:
  This card showcases the count of redemptions for the Christmas Herb Bread offered within the promotional campaign. It provides insights into the utilization and attractiveness of this redemption category among customers, contributing to the overall assessment of campaign performance.

- Both Count Card:
  This card presents the count of customers who redeemed both the Holiday Spice Cupcake and the Christmas Herb Bread by meeting the specified minimum spend threshold. It offers a holistic view of customer behavior and preferences, indicating the level of interest in multiple redemption options within the campaign.

Line and Clustered Column Chart

This chart visualizes the daily order amounts, segmented by target groups (Premium and Randomly Selected). The line graph represents the trend of order amounts over time, while the clustered columns differentiate between the two target groups. Users can observe how order amounts vary between Premium and Randomly Selected customers daily. Insights from this chart can guide the allocation of resources towards specific target groups, identify peak sales periods, and evaluate the effectiveness of promotional strategies for each group.

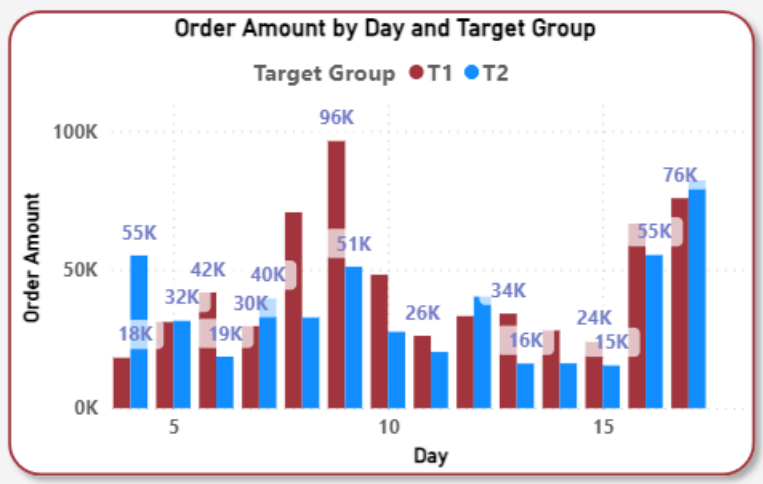


Figure 3.2.2

Infographic Designer 1.9.7

The infographic designer visualizes the daily count of customers participating in the promotional campaign. It presents a visually appealing and informative representation of customer engagement over time. Users can track customer engagement trends, identify peak participation days, and correlate them with promotional activities or external factors. Insights from this visualization can inform resource allocation for future campaigns and help in forecasting demand

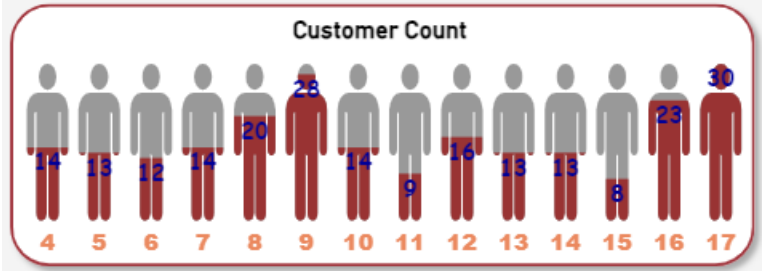


Figure 3.2.3

Donut Chart and Stacked Bar Chart

Donut Chart - Order amount by Category:

The donut chart showcases the distribution of order amounts across different redemption categories (Holiday Spice Cupcake, Christmas Herb Bread, and Both). Each category is represented as a segment in the donut, with the size proportional to the order amount. Users can quickly identify which redemption categories contribute the most to overall order amounts. This information aids in refining product offerings, adjusting pricing strategies, and prioritizing promotional efforts toward the most lucrative categories.

Stacked Bar Chart - Order amount by Target Group:

This chart presents the total order amounts stacked by target groups (Premium and Randomly Selected). Each bar represents the total order amount for a specific target group, with segments within the bar indicating contributions from different categories. Users can compare the overall order amounts between target groups and assess the distribution of spending across categories within each group. This helps in evaluating the effectiveness of targeting strategies and understanding the purchasing preferences of different customer segments.

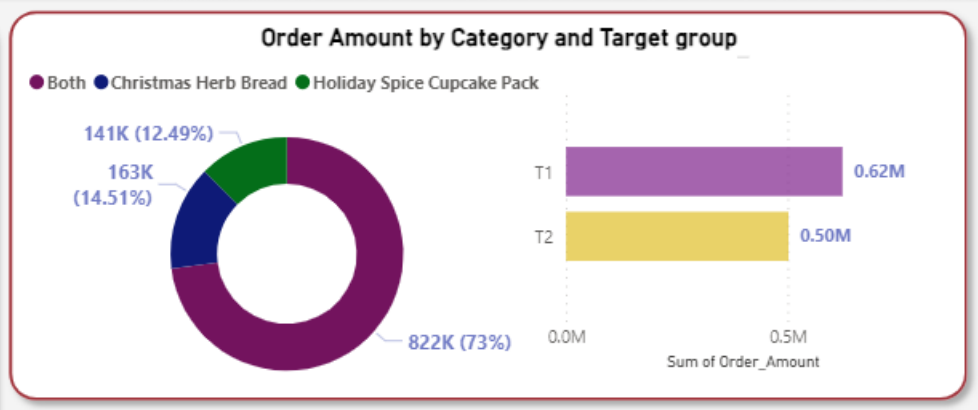


Figure 3.2.4

Scatter Plot

The scatter plot displays the relationship between order amounts and customer distance from the bakery. Each data point represents a customer transaction, with order amount on the y-axis and distance on the x-axis. Users can visually assess whether there is a correlation between order amounts and customer distance. This information can inform decisions related to the target marketing efforts based on geographical proximity, pricing strategies for different distance segments, and optimizing delivery logistics.

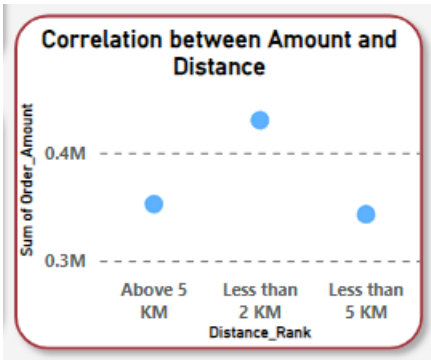


Figure 3.2.5

Scatter Plot Python Chart (K-means Clustering)

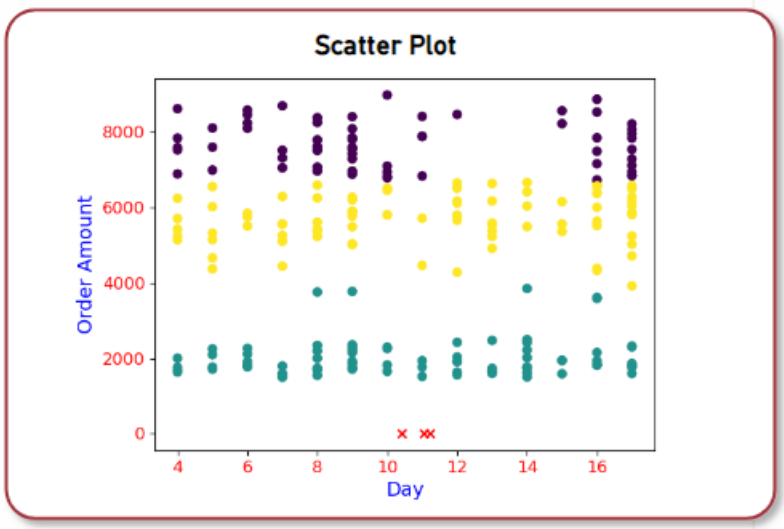


Figure 3.2.6

This scatter plot visualizes customer transactions by day and order amount, with different colors representing clusters identified by the K-means algorithm. The red 'x' markers denote cluster centers. Users can analyze customer segmentation patterns based on order amounts and identify distinct clusters of customer behavior. This information can guide targeted marketing strategies, product offerings, and pricing adjustments tailored to different customer segments.

Python Line Chart

Order Amount Over Time

This line chart depicts the trend of order amounts over time, with separate lines for weekdays and weekends. It visualizes how order amounts fluctuate based on the day of the week. Users can identify patterns in order amounts between weekdays and weekends and correlate them with promotional activities or external factors. Insights from this chart can inform inventory management, staffing decisions, and promotional timing strategies to maximize sales.

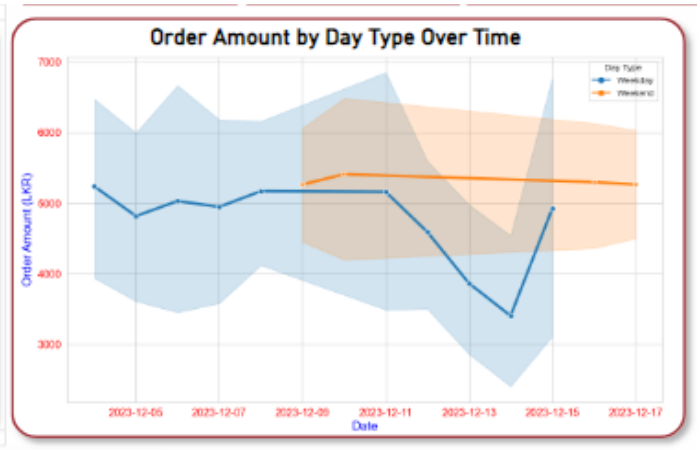


Figure 3.2.7

Order Amount by Target Group and Redemption Category

This line chart illustrates the variation in order amounts over time, segmented by target groups and redemption categories. Each line represents a combination of the target group and redemption category. Users can assess the effectiveness of promotional campaigns targeted toward different customer segments and redemption categories over time. Insights from this chart can inform future campaign strategies, product offerings, and resource allocation to maximize ROI.

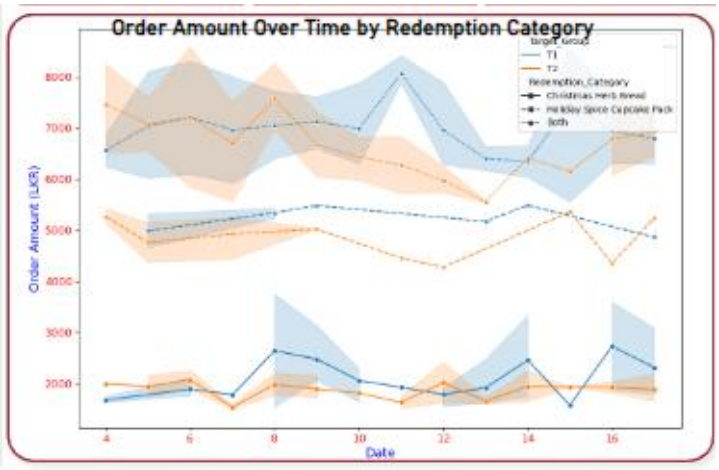


Figure 3.2.8

Python Bar Chart

This bar chart visualizes the total order amounts aggregated by target groups and distance ranks. Each bar represents the sum of order amounts for a specific combination of target group and distance rank. Users can analyze the distribution of order amounts across different customer segments and geographical distances. Insights from this chart can guide marketing efforts, delivery logistics, and resource allocation to effectively target and serve customers across various distance ranks and target groups.

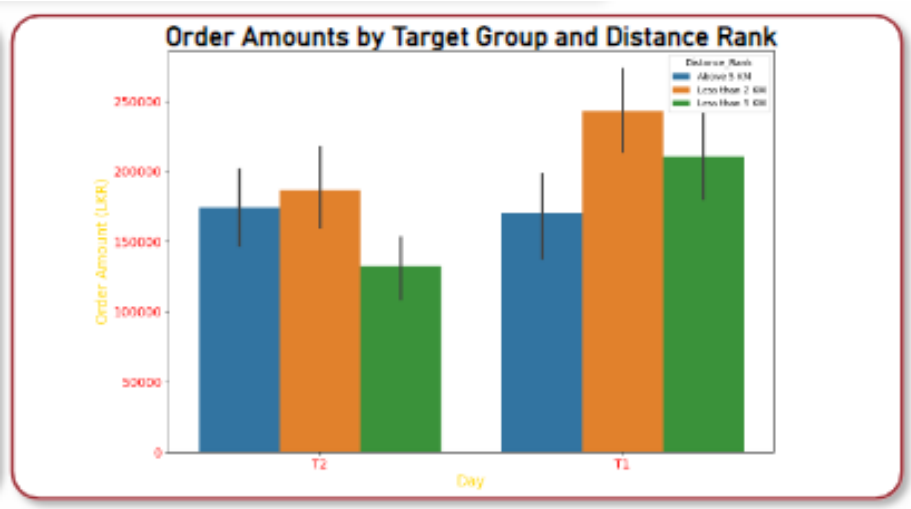


Figure 3.2.9

Table Visual

The Distance Rank Count Table Visual provides a clear snapshot of customer distribution across distance ranks, aiding businesses in strategic decision-making. By categorizing customer counts into distance groups (Less than 2km, Less than 5 km, and Above 5km), this visual allows for targeted geographic marketing efforts, efficient resource allocation, and identification of expansion opportunities in areas with higher customer potential. Understanding customer distribution also facilitates the customization of services based on local preferences and streamlining operational processes like delivery logistics, leading to improved efficiency and customer satisfaction.

Distance Rank Count

Distance Rank	Count
Above 5KM	72
Less than 2KM	90
Less than 5KM	65

Figure 3.2.10

Stacked Area Chart

Actual Order Amount vs Estimated Order Amount

This chart depicts the Actual Order Amount and the estimated Order Amount by using the **LINEST**() function which comes with the capability of performing a Linear regression calculation. In this case, we used the Order Amount column as our dependent variable and Redemption Category as the independent variable. Because both variables show the highest correlation among the entire datasets. The chart can illustrate the pattern of actual and estimated order amounts being in the Y axis by sales days of the December month in the X axis.

By examining the stacked layers representing different redemption categories, businesses can discern peak order times and identify which categories drive the highest demand throughout the day. This information facilitates strategic decision-making in resource allocation, staffing schedules, and inventory management to ensure optimal operational efficiency. Additionally, analyzing trends over time aids in forecasting future demand and planning inventory levels accordingly. Ultimately, leveraging the insights gained from this chart enables businesses to enhance the customer experience by streamlining order processing, minimizing wait times, and tailoring services to meet customer needs during peak demand periods.

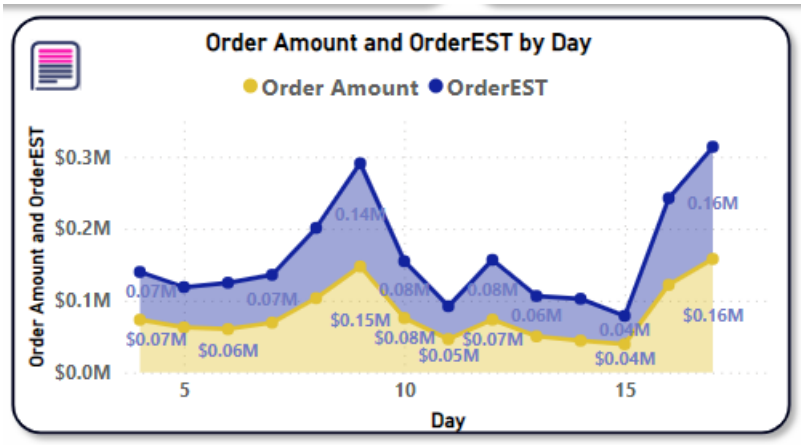


Figure 3.2.11

Order Amount by weekdays vs weekend button

Figure 3.2.12

These buttons serve as a convenient tool for comparing customer buying patterns, offering valuable insights into trends and preferences. By leveraging this feature, users can make informed decisions to refine marketing strategies, optimize product offerings, and enhance the overall customer experience. Through comparative analysis facilitated by these buttons, users can identify emerging trends, target specific customer segments more effectively, and benchmark performance against competitors. This enables businesses to adapt to evolving market dynamics, capitalize on opportunities, and drive long-term success in a competitive landscape.

Slicer

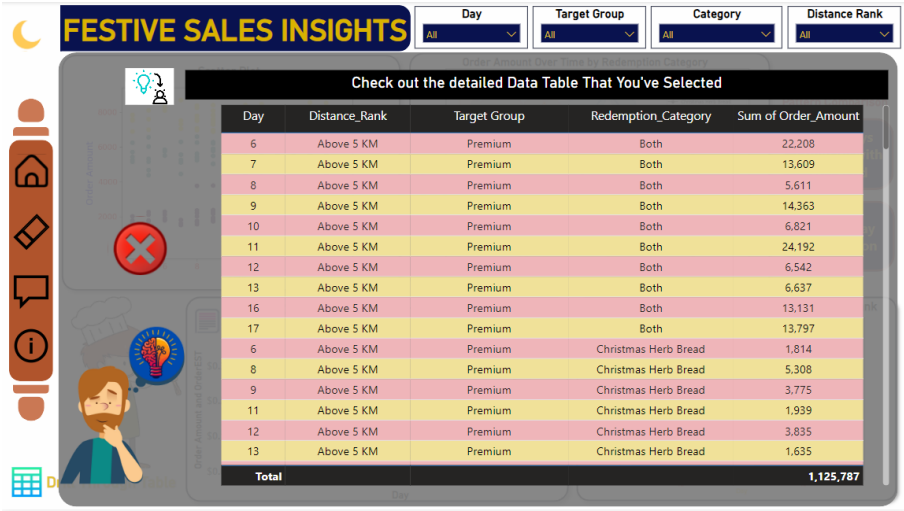
Day, Target Group, Category, and Distance Rank Slicers

Slicers allow filtering by Day, Target Group, Category, and Distance Rank in the dataset facilitating interactive data selection based on these parameters. Empowers users to dynamically filter data based on Day, Target Group, Category, or Distance Rank, aiding in customized data analysis.

Figure 3.2.13

Drill Through Table

The Drill-Through Table for Date, Target Group, Distance Rank, Order Amount, and Redemption Category offers a comprehensive view of transactional data, allowing users to analyze multiple dimensions simultaneously. This dynamic table enables users to drill down into specific data points by interacting with the chart, facilitating detailed analysis and decision-making. By examining the intersection of date, target group, distance rank, order amount, and redemption category, businesses can derive actionable insights across various operational aspects. Users can identify trends in customer behavior based on different variables, such as peak order times for specific target groups or popular redemption categories among customers residing in different distance ranks. This granular level of analysis empowers businesses to tailor marketing strategies, optimize resource allocation, and enhance operational efficiency to meet customer needs effectively. Additionally, the drill-through capability enables users to identify outliers, detect patterns, and uncover correlations between different variables, ultimately driving informed decision-making and strategic refinement for improved business outcomes.



Day	Distance_Rank	Target Group	Redemption_Category	Sum of Order_Amount
6	Above 5 KM	Premium	Both	22,208
7	Above 5 KM	Premium	Both	13,609
8	Above 5 KM	Premium	Both	5,611
9	Above 5 KM	Premium	Both	14,363
10	Above 5 KM	Premium	Both	6,821
11	Above 5 KM	Premium	Both	24,192
12	Above 5 KM	Premium	Both	6,542
13	Above 5 KM	Premium	Both	6,637
16	Above 5 KM	Premium	Both	13,131
17	Above 5 KM	Premium	Both	13,797
6	Above 5 KM	Premium	Christmas Herb Bread	1,814
8	Above 5 KM	Premium	Christmas Herb Bread	5,308
9	Above 5 KM	Premium	Christmas Herb Bread	3,775
11	Above 5 KM	Premium	Christmas Herb Bread	1,939
12	Above 5 KM	Premium	Christmas Herb Bread	3,835
13	Above 5 KM	Premium	Christmas Herb Bread	1,635
Total				1,125,787

Figure 3.2.14

Dark Mode, Light Mode Button

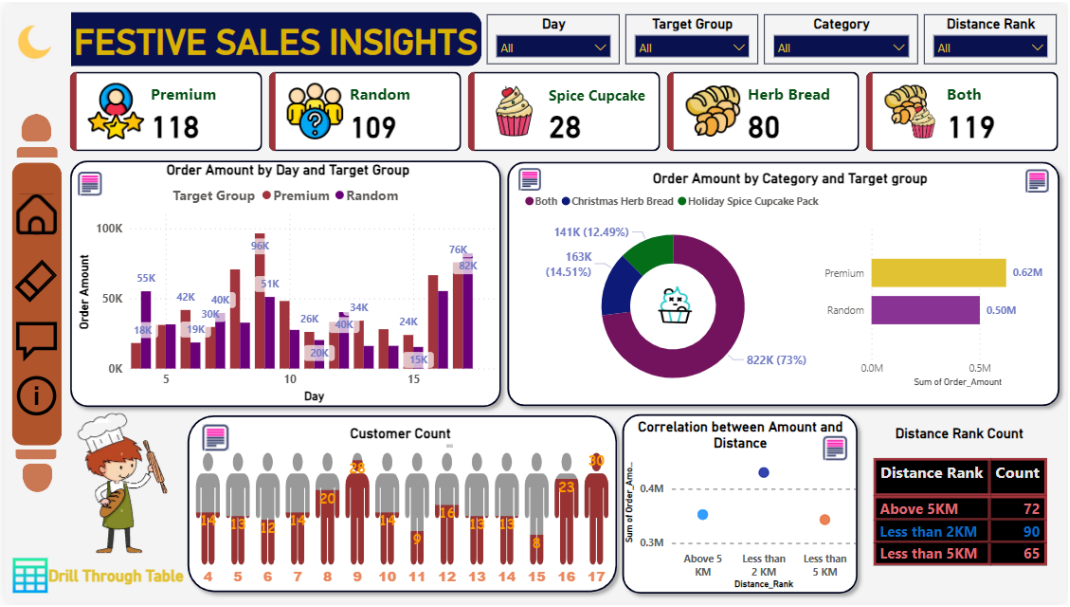
Our dashboard introduces a mode button, a versatile feature allowing users to seamlessly toggle between dark and light modes within the dashboard interface. This functionality prioritizes user experience, offering a personalized viewing experience aligned with individual preferences. By simply clicking the mode button, users can effortlessly switch between these visually distinct modes, adapting the dashboard's appearance to suit varying lighting conditions or personal preferences. This dynamic feature enhances user comfort and readability, ensuring an optimal viewing experience while engaging with the dashboard's data and visualizations.

We've crafted a new 'Colors' table and implemented measures that dynamically alter the dashboard's mode. By leveraging this table, these measures facilitate seamless transitions between various color modes, enhancing user experience and visual comfort within the dashboard interface.

Button

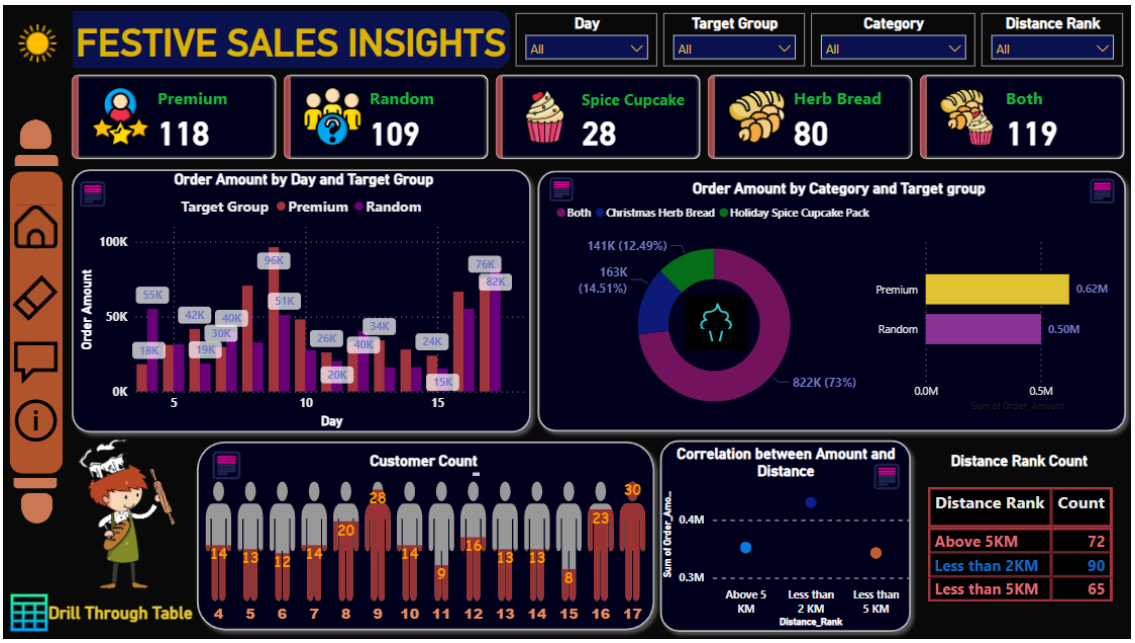
Figure 3.2.15

Pages



Light Mode Page

Figure 3.2.16



Dark Mode Page

Figure 3.2.17

Page Navigation

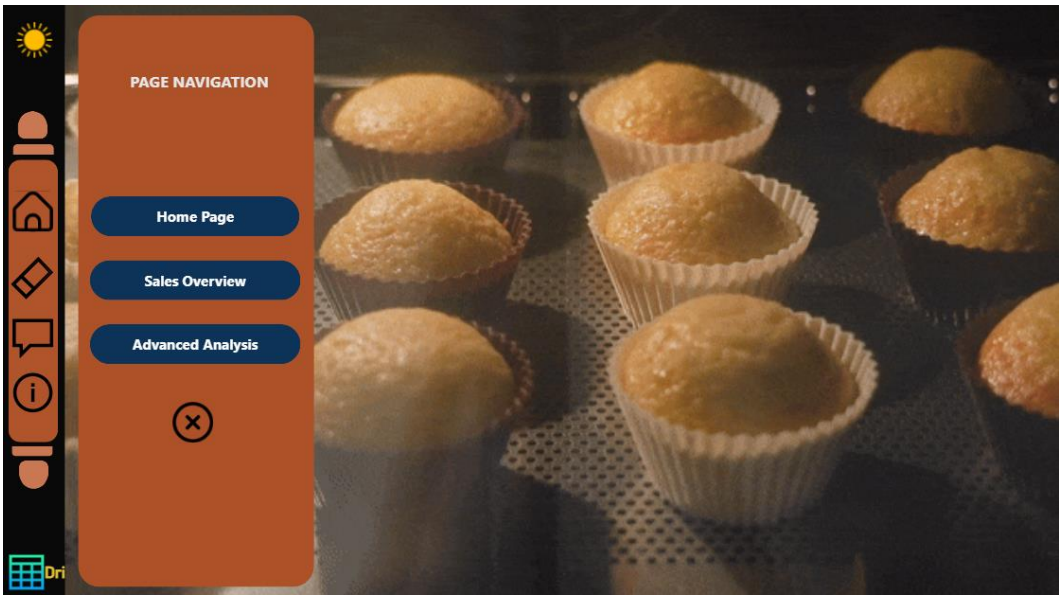


Figure 3.2.18

Our navigation design introduces a seamless browsing experience across four pivotal pages: the Home page, Sales Overview, and Advances Analysis. Each button serves as a gateway to specific insights, allowing swift navigation and deep dives into essential aspects of our business operations. With a simple click, users gain access to tailored analyses, empowering a comprehensive understanding of sales metrics, cost structures, and profitability dynamics. This navigational framework enhances accessibility, enabling users to effortlessly traverse key analytical sections for informed decision-making and strategic planning.

Q&A Page

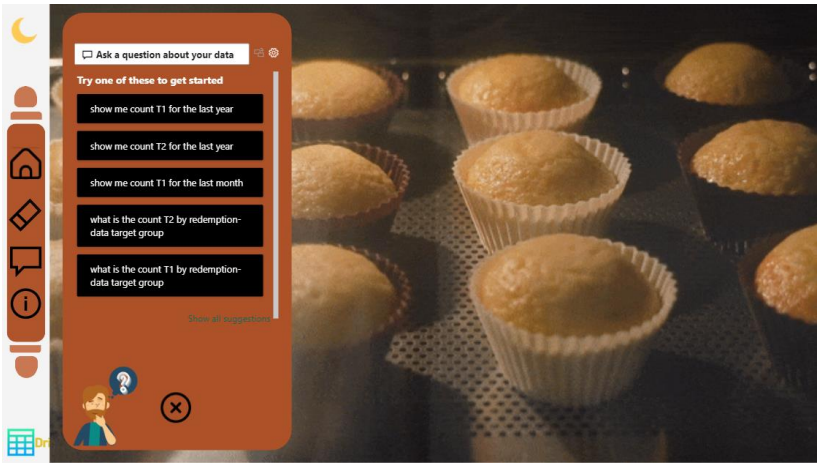


Figure 3.2.19

This innovative feature opens a gateway for users to interact with our data intuitively. Seamlessly integrated into our analytics environment, this Q&A page fosters a conversational interface where users can pose queries using natural language. Through this interactive functionality, users gain instant access to real-time insights, enabling them to ask questions, explore data trends, and extract valuable information swiftly and effortlessly. Our Q&A page aims to democratize data access, facilitating informed decision-making and fostering a deeper understanding of our business metrics and trends.

Information Page

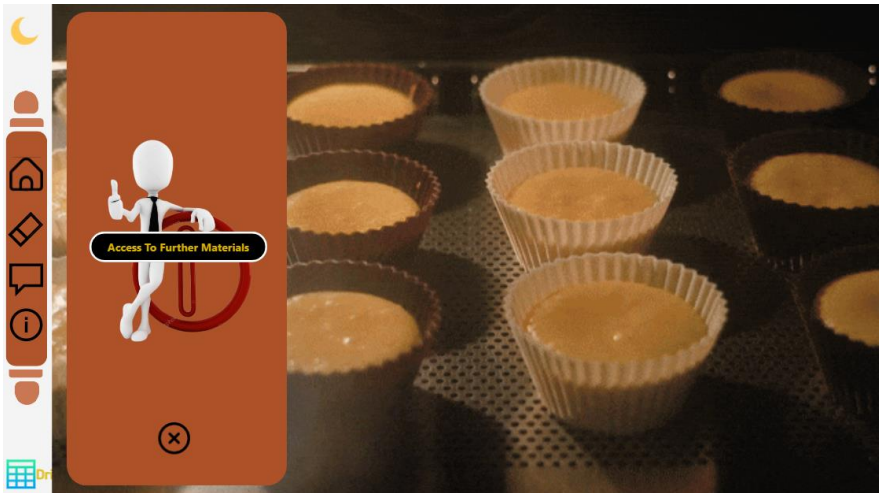


Figure 3.2.20

Our Power BI Information Page serves as a comprehensive guide to navigate and extract insights from our dataset. Also include the outlined objectives. Users gain access to documentation and facilities for a thorough understanding and seamless utilization of this dataset, fostering in-depth analysis and informed strategies tailored for the European market landscape.

Add Narrative for Charts

Visual narratives play a crucial role in conveying insights and facilitating decision-making in data analysis. Each chart within a visual narrative serves a unique purpose, providing specific insights that contribute to a comprehensive understanding of the data. Through the introduction of visual narratives, users are guided through the data analysis process, enabling them to draw meaningful conclusions and make informed decisions for their business.

For example, a line chart depicting order amounts over time allows users to identify trends and seasonal patterns in sales, facilitating inventory planning and resource allocation. A bar chart comparing sales performance across different product categories enables users to identify top-selling products and allocate marketing resources effectively. A scatter plot illustrating the correlation between customer satisfaction scores and service response times helps businesses identify areas for improvement in customer service and operational efficiency. Overall, visual narratives serve as powerful tools for data-driven decision-making, providing users with actionable insights to drive business growth and success.

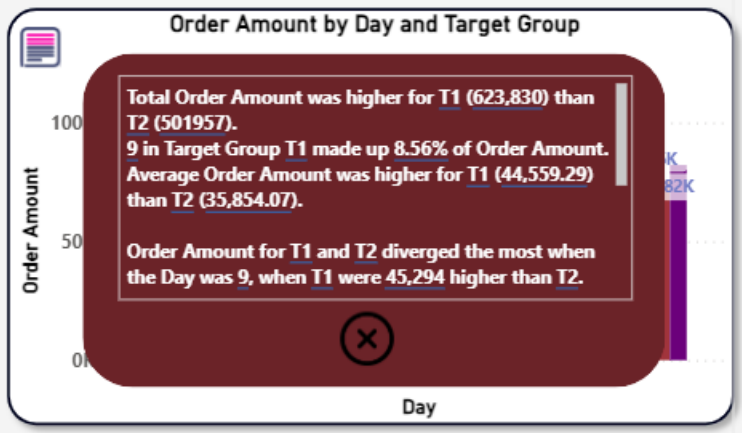


Figure 3.2.21

Narrative Button

Figure 3.2.22

3.3. Final Dashboard

Figure 3.3.1

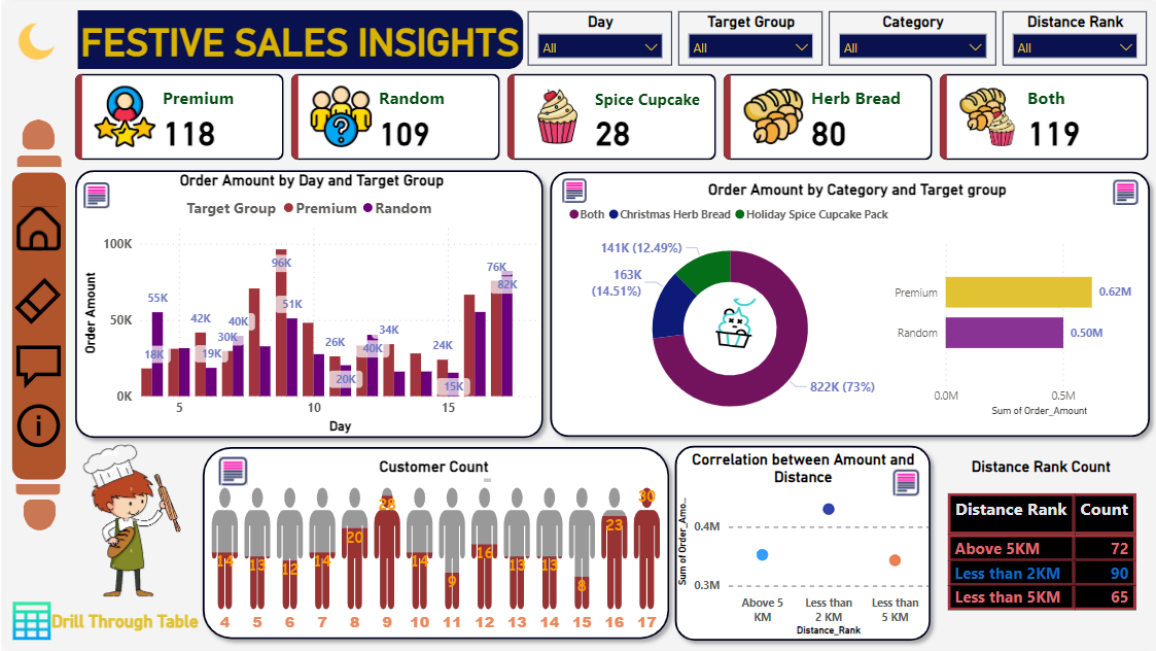


Figure 3.3.2

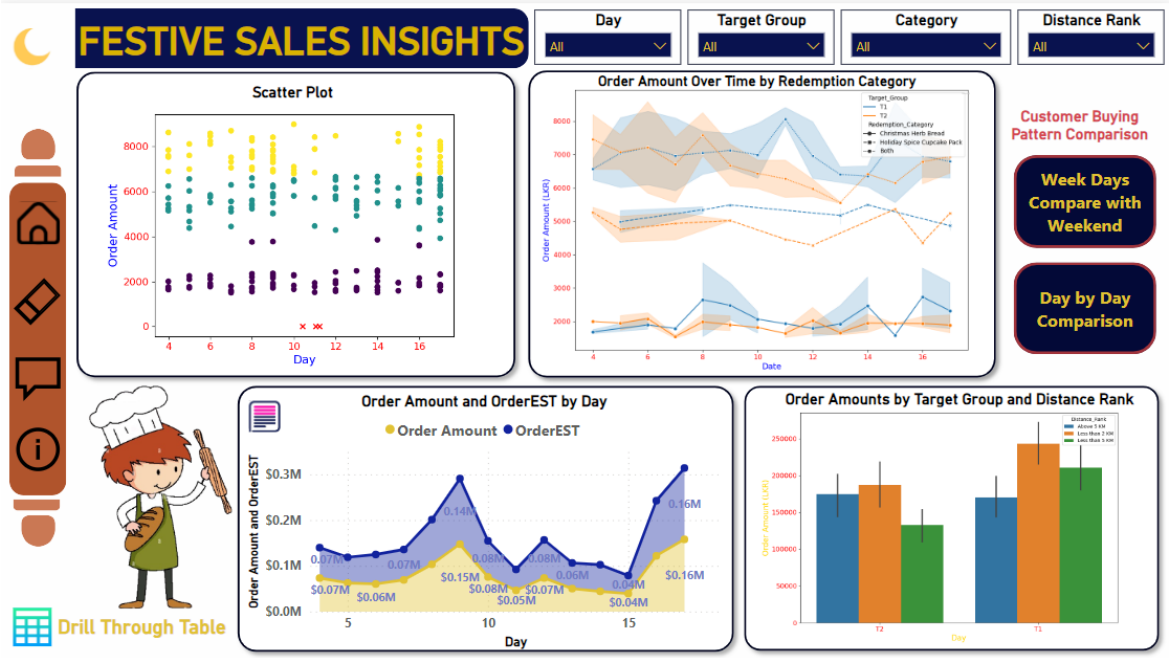

FESTIVE SALES INSIGHTS
Day
All
Target Group
All
Category
All
Distance Rank
All
Scatter Plot
Order Amount
Day
Order Amount Over Time by Redemption Category
Order Amount (LKR)
Date
Customer Buying Pattern Comparison
Week Days Compare with Weekend
Day by Day Comparison
Order Amount and OrderEST by Day
Order Amount
OrderEST
Order Amount and OrderEST
Day
Order Amounts by Target Group and Distance Rank
Drill Through Table

Figure 3.3.3

04.CONCLUSION

In conclusion, amidst the vibrant tapestry of marketing endeavors, data emerges as the guiding star, illuminating paths to success and driving strategic evolution. Through meticulous analysis of promotional campaigns and customer dynamics, this report unveils the intricate interplay of demographics, geographical reach, and transactional insights, empowering businesses to navigate the complexities of modern marketing with precision and purpose. Armed with these actionable insights, businesses can forge ahead, making informed decisions, refining tactical approaches, and unlocking the full potential of their marketing endeavors. As the curtain falls on this chapter, let us carry forth the lessons learned, harnessing the power of data to chart a course towards enduring success and impactful engagement in the ever-evolving landscape of marketing and promotion.

05.REFERENCES

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