Task Description

Assume you are a data analyst in an online retail company. You are asked by the product team to
- Give some **insights of current transaction histories**.
- Give recommendations to **increase the revenue** in **3 months.**

Your Tasks

- Let's think as a data analyst 📊 , what kind of information needed to answer the objective?
While multi-year data can provide comprehensive insights and help identify long-term trends and seasonal patterns, the nearly year-long data available can still yield valuable information.

  To address the objective, some valuable information would be to determine which products sold the most, which products attract the most customers, which products generate the most revenues, and which products contribute to repeat purchases.

Tableau link:
https://public.tableau.com/views/Week2-Exercise_RaisaNurlatifah/SummaryNo_1-4?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

First we can give a top-level summary of transactional history using simple aggregate functions. This information would be useful for the Product or Business Team. *(Answer the following questions using Tableau. One Tableau sheet for one question. Put your answer & screenshot.)*

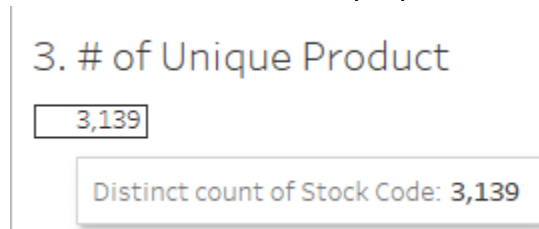1. What is the total number of unique orders?

1. # of Unique Orders

15,294

Distinct count of Invoice No: **15,294**
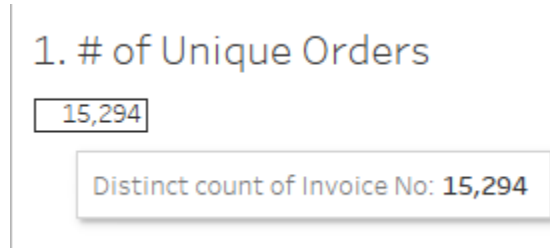
The total number of unique orders is 15,294.

2. What is the number of unique customers?

2. # of Unique Customer

3,809

Distinct count of Customer ID: **3,809**
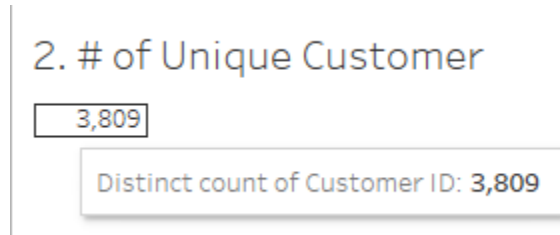
The number of unique customers is 3,809.

3. What is the number of unique products sold?

3. # of Unique Product

3,139

Distinct count of Stock Code: **3,139**

The number of unique product sold is 3,139.

4. What is the total revenue generated in 2011?

4. # of Total Revenue

Year of Invo..
2011 $6,767,508.55

The total revenue generated in 2011 is $6,767,508.55.

Next, we can find deeper information *(Answer the following questions using Tableau. One Tableau sheet for one question. Put your answer & screenshot.)*

Disclaimer: Due to December only covering 9 days of data, this month will be omitted in the analysis for points 5 to 7.

5. Do the retail companies have steady month-to-month revenue growth in 2011? Please elaborate your answer / find insights based on the visualization you make.
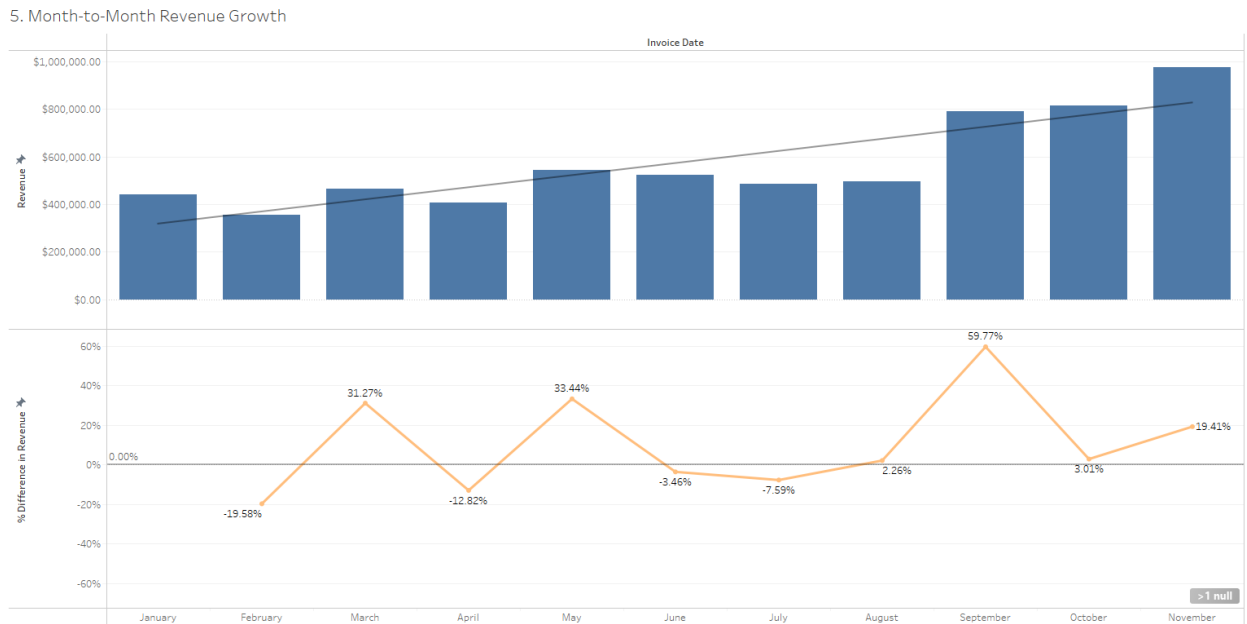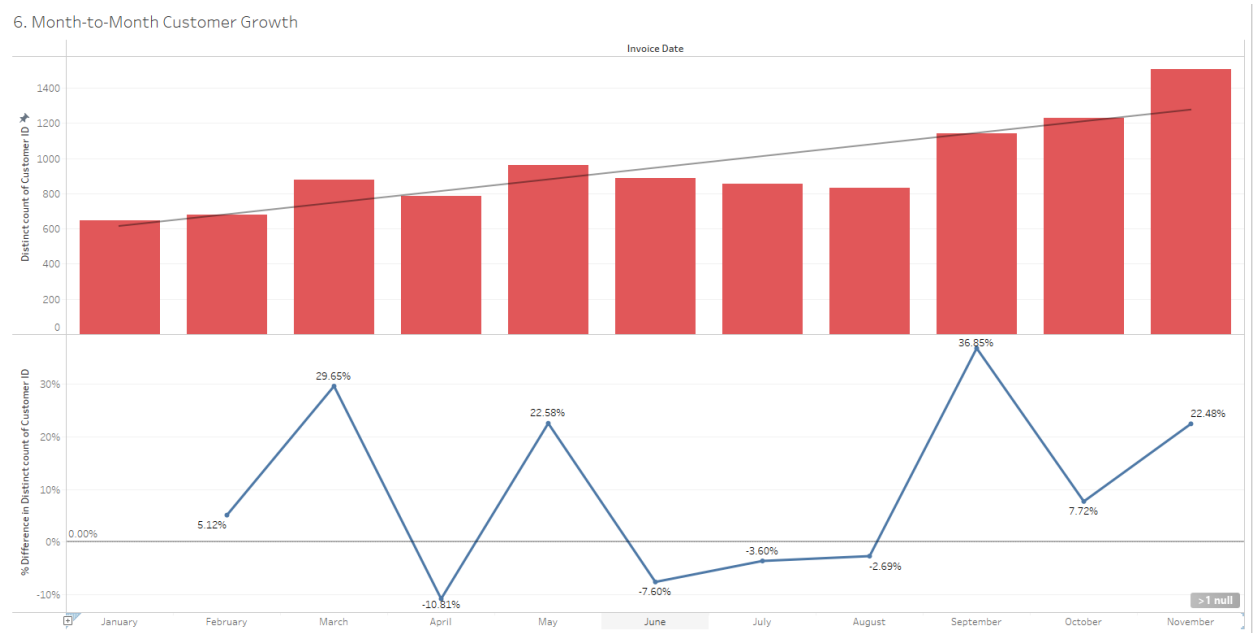

The top section is a bar chart showing the revenue of each month and the bottom section shows the percentage change in revenue illustrated in a line chart.

The growth rate shows significant fluctuation throughout the year. While the last three months (September to November) show growth, June and July show declining revenue. Meaning that the company was yet to have a steady month-to-month growth. Although, the trend is generally going upward which indicates the company had an overall growing revenue throughout the year.

Having underlying information behind this fluctuation such as seasonal patterns, economic conditions, events or promotions, etc. would help to analyze the factors that potentially influence the sales.

6. Do the retail companies have steady month-to-month user growth in 2011? Please elaborate your answer / find insights based on the visualization you make.

6. Month-to-Month Customer Growth

The top section is a bar chart showing the distinct count of customer ID of each month and the bottom section is a line chart illustrating the percentage change in new customer acquisition.

Similar to question number 5, while there is overall growth shown on the trend, there are also significant fluctuations in customer acquisition month-to-month. There are periods of rapid growth followed by periods of slower growth (September) or even decline (March and May).

Understanding the underlying factors either for the increasing or decreasing trend will help to provide effective both for customer retention and customer acquisition strategies.

7. Which month gives the most number of transactions in 2011? Please elaborate your answer / find insights based on the visualization you make.


7. Most Transaction
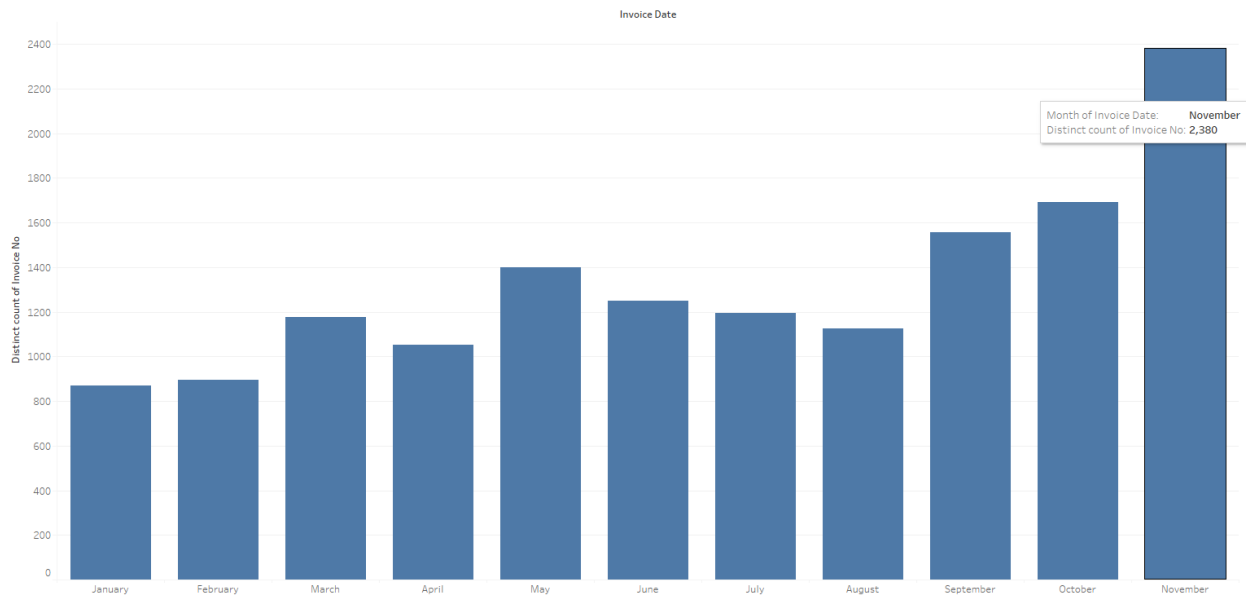
The bar chart represents the distinct count of invoices for each month.

The graph clearly shows that November had the highest number of transactions in 2011. Additional contexts, such as multi-year data and revenue, along with external factors would help identify long-term trends and buying patterns, which are important for developing effective strategies.

8. How big is the repeating customer compared to all customers? Please elaborate your answer / find insights based on the visualization you make.

8. Repeating Customer
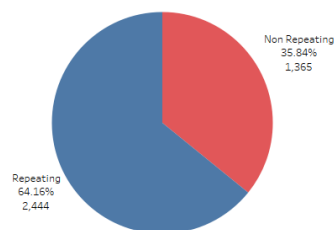
The comparison of repeating customer to all customers is represented in pie chart.

The share of repeat customers is twice that of non-repeat customers. While this indicates positive customer loyalty, understanding the behavior of loyal customers is crucial for developing effective customer retention strategies. Repeat customers significantly contribute to the company's revenue and profitability.

Now, let's deep dive into the behavior of our repeating customers
9. Find the maximum number of transactions done by the repeating customers in 2011? Please elaborate your answer / find insights based on the visualization you make.

9. Most Customer Trx

Custo.. F	
12748	171
17841	118
13089	89
15311	82
14606	82
12971	81
13408	57
18102	56
16029	56
13798	55

*The list above are the top 10 customers with the most transactions.*

Although there is no revenue information included, a high number of transactions indicates strong customer loyalty and satisfaction. Identifying customers with many transactions helps target important customers for special marketing and retention efforts. Analyzing these customers can reveal ways to increase sales for other groups and understand their long-term value to the business.

By looking at products with high transaction counts, the company can find ways to improve or expand those products. Special marketing campaigns and loyalty programs for valuable customers, along with replicating successful sales strategies, can boost overall sales.

Focusing on these strategies helps improve sales and customer retention as customers with high transaction counts are valuable assets.

10. Create a distribution of item quantities for the repeating customers. Then find the number of quantities per product generally bought by customers. Please elaborate your answer / find insights based on the visualization you make.

11.

10-A. Product Dist. Repeated Customer

10-B. Product Dist. General Customer
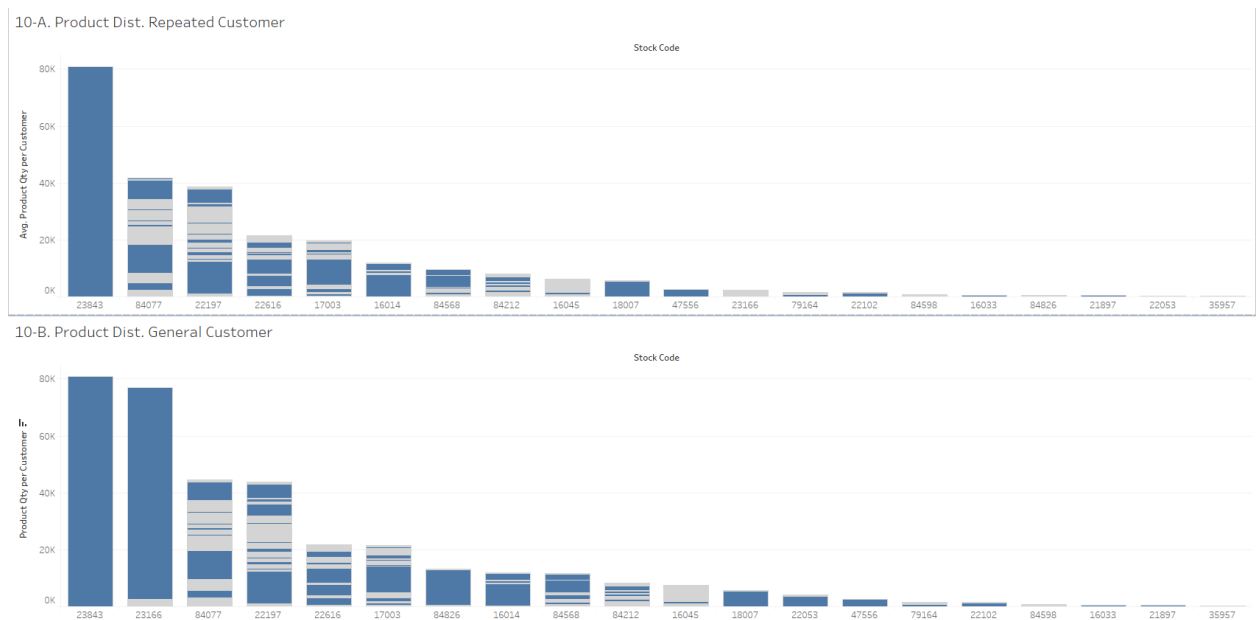
The stacked bar chart shows how top 20 product quantities are distributed across different stock codes. The top chart represent the repeating customer and the bottom chart illustrates the general. The bars are divided into segments representing different product quantities for each customer.

Some stock codes show higher average product quantities per customer, indicating greater popularity among both repeat and general customers. The segmented colors of the bar explain the variety of the customers. This information helps identify core products or bestsellers and highlights products with significant differences in quantities between customer groups.

Using these insights, businesses can prioritize popular products to maximize revenue, analyze customer segments for targeted marketing, and optimize inventory based on demand patterns. Additionally, exploring product bundling or cross-selling opportunities can increase overall business performance.

Finally create recommendations based on the objectives!

12. What is your recommendation based on the above visualization to meet the objectives? Please elaborate your answer / find insights.

Based on the visualizations, it appears that the highest-selling products were bought by specific customers. This suggests these customers are particularly valuable and should

be prioritized for retention efforts. However additional context on these customers' purchasing behavior—such as whether their purchases are spread across monthly patterns or concentrated in single transactions—would provide insights for improving sales projections, retention strategies, and inventory management.

Understanding customer segmentation for products sold to a wide range of customers will help in crafting targeted marketing strategies for new engagement and retention programs. Additionally, identifying seasonal or holiday trends can inform promotional strategies and highlight which products to focus on during these periods.

Furthermore, customer segmentation can show opportunities for cross-selling and upselling, allowing the company to offer complementary or higher-value products to existing customers, which could increase overall sales and customer satisfaction.

Moreover, it's essential to identify the most profitable products by analyzing their costs and revenue. This will enable us to refine the company's production and pricing strategies and enhance overall profitability.

Analyzing multi-year data provides insights into annual patterns, resulting in more accurate projections for the upcoming months. This analysis should also consider economic and political factors to ensure comprehensive planning.