NORTHWIND Traders Sales Analysis

- BY ALOK SARKAR

Microsoft I Power BI , Excel & MySQL

TOPICS

- Project Overview
- Information about Dataset tables
- Data cleaning and Transformation
- MECE-Breakdown
- Solving Power Bi and EDA Questions
- Dashboard Analysis
- Conclusion

Overview

Objective: The objective of this project is to develop a detailed Power BI dashboard using the Sample Northwind Traders Database. This dashboard will provide critical insights into various aspects of the business, including product sales performance, customer behavior, order trends, and supplier performance. These insights will facilitate data-driven decision-making and support strategic planning efforts.

Analysis Scope: The analysis will focus on multiple dimensions of the business, including customer segments, sales and order trends, employee performance, product distribution across various countries, and supplier performance. It will encompass historical sales data, customer data, product information, and supplier data from multiple stores.

Goal: The primary goal of this Power BI dashboard is to provide a comprehensive view of the Northwind Traders sales operations. It will deliver actionable insights to optimize product sales, enhance customer relationships, improve distribution strategies, and identify opportunities for growth and efficiency.

Insights & Recommendations: The Power BI dashboard will generate valuable insights into top-selling products, customer retention, and sales trends over time across various countries. It will analyze the performance of different regions, identify bestselling product categories, and evaluate supplier performance based on sales data. Additionally, it will provide recommendations for enhancing product sales across countries and improving customer engagement.

Report & Presentation: The final deliverable will consist of a detailed report describing the data sources, data modeling methodologies, and data cleansing processes used in creating the Power BI dashboard. The report will also include a step-by-step guide on how to interpret the insights and use the dashboard for decision-making. The presentation will showcase the key findings, visualizations, and actionable recommendations derived from the dashboard's analysis.

Information about dataset

- **Customers**: This table contains information about customers, including their company details, contact information, and
  - location.
- **Employees:** This table stores employee details like name, title, contact information, and hire date. Orders: this table captures order details such as order ID, customer ID, date, items ordered, shipping information, and freight costs.
- **Order details:** This table provides a breakdown of each order, including specific products ordered, their quantity, and unit price.
- **Products:** This table showcases product information like name, category, unit price, stock levels, and supplier details.
- **Suppliers:** This table contains information about the company's suppliers, including their contact details and location.
- **Shippers:** This table lists the shipping companies utilized by north wind traders, along with their contact information.
- **Categories:** This table categorizes the products offered by north wind traders.

Data Cleaning and Transformation

- Remove unnecessary columns.
- Eliminate columns with a high percentage of null values.
- Eliminate rows with a Lowe percentage of null values.
- Merge columns to create new ones, such as combining first and last names into a full name.
- Correct data types as needed.

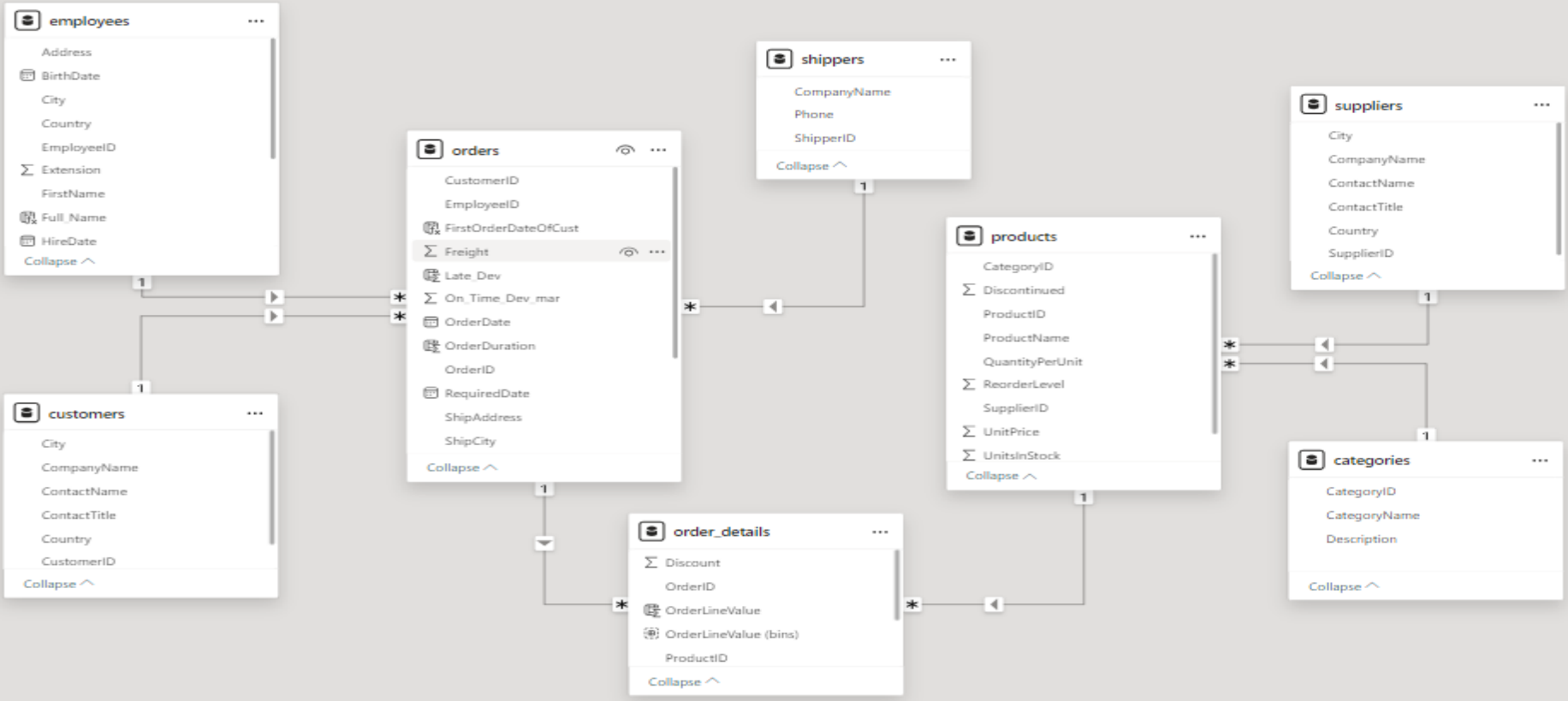
MECE BREAKDOWN

Customer Analysis	**Customer Demographics**	**Customer Purchase Behaviour**	**Customer Lifetime Value**
	Segment customers based on demographics (age, gender, location).	Analyze purchasing patterns and preferences. Evaluate frequency and volume of purchases.	Calculate the lifetime value of different customer segments.
Order Analysis	**Order Details Analysis**	**Order Trends**	
	Analyze order quantities, prices, and discounts. Evaluate order completion rates and average order value.	Assess order trends over time (seasonal, monthly, yearly). Identify peak sales periods and slow periods.	
Employee Analysis	**Employee Productivity**	**Employee Tenure**	**Employee Performance**
	Assess employee productivity metrics across various departments and job roles.	Evaluate the length of time employees have been with the company.	Evaluate sales performance by employee. Assess impact of employee interactions on sales.
Product Analysis	**Categories Analysis**	**Product Performance**	**Product Pricing**
	Assess sales performance by product categories. Analyze trends within each category.	Evaluate individual product sales. Identify top-selling and low-performing products.	Evaluate the distribution of product prices to understand pricing strategies and market positioning.
Supplier Analysis	**Supplier Performance**	**Supplier Cost Structure**	**Geographical Distribution**
	Evaluate the ratings or performance metrics of suppliers to understand their reliability and efficiency.	Assess the cost or pricing structures of various suppliers to identify cost-effective and high-cost suppliers.	Map out the locations of suppliers to understand their geographical spread and potential impact on logistics.

Explanation

Customer Analysis	Analyzes the demographic attributes of customers such as age, gender, income, and location. It helps in understanding the customer base and tailoring marketing strategies.
Order Analysis	This involves analyzing the specifics of each order, including quantities, prices, and any applied discounts. It helps in understanding the granular details of sales transactions.
Employee Analysis	This process includes assessing work quality, productivity, and alignment with organizational goals, ultimately guiding decisions on development, promotions, and training needs.
Product Analysis	Examines customer feedback on products, including ratings and reviews. It helps in understanding product performance from the customer's perspective.
Supplier Analysis	Assesses the reliability and efficiency of suppliers based on ratings and performance metrics. It helps in managing supplier relationships and ensuring supply chain effectiveness.

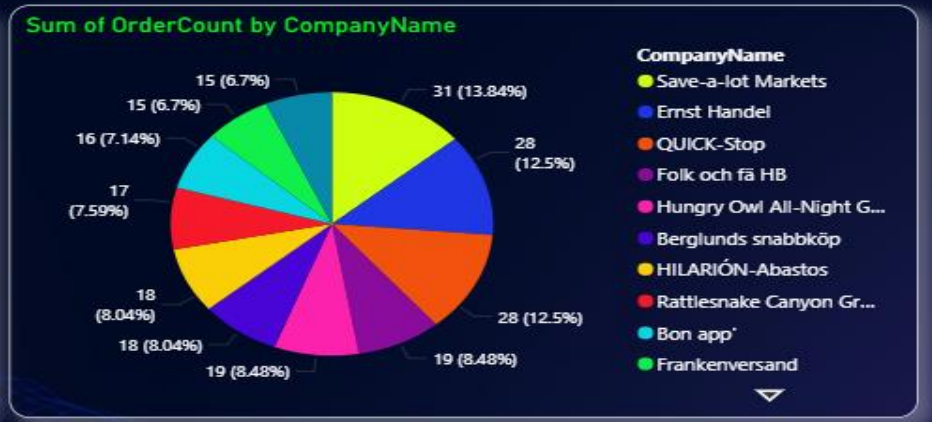
ER Diagram

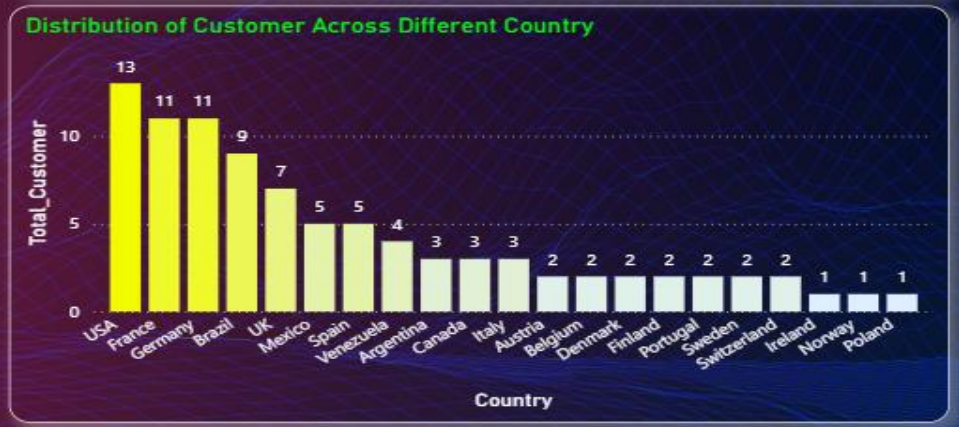

employees
Address
BirthDate
City
Country
EmployeeID
Extension
FirstName
Full_Name
HireDate
Collapse
shippers
CompanyName
Phone
ShipperID
Collapse
suppliers
City
CompanyName
ContactName
ContactTitle
Country
SupplierID
Collapse
orders
CustomerID
EmployeeID
FirstOrderDateOfCust
Freight
Late_Dev
On_Time_Dev_mar
OrderDate
OrderDuration
OrderID
RequiredDate
ShipAddress
ShipCity
Collapse
products
CategoryID
Discontinued
ProductID
ProductName
QuantityPerUnit
ReorderLevel
SupplierID
UnitPrice
UnitsInStock
Collapse
customers
City
CompanyName
ContactName
ContactTitle
Country
CustomerID
Collapse
order_details
Discount
OrderID
OrderLineValue
OrderLineValue (bins)
ProductID
Collapse
categories
CategoryID
CategoryName
Description
Collapse

Power BI Problem Statement

Microsoft I Power BI

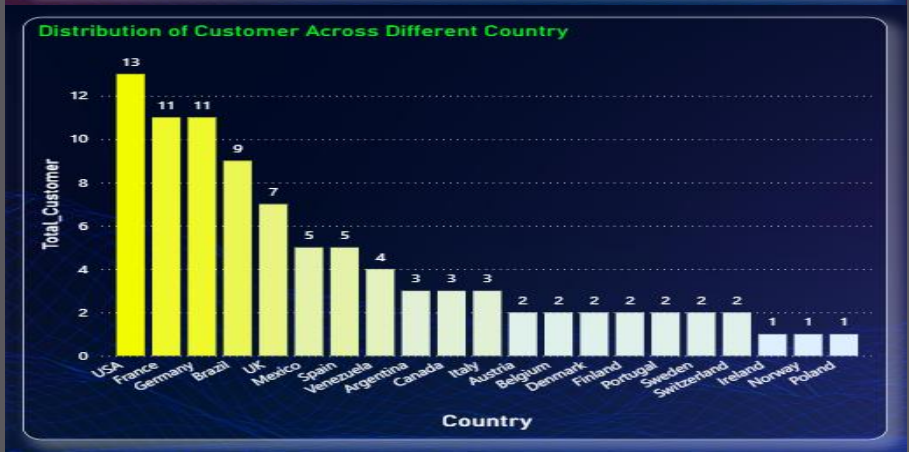
Customer Analysis





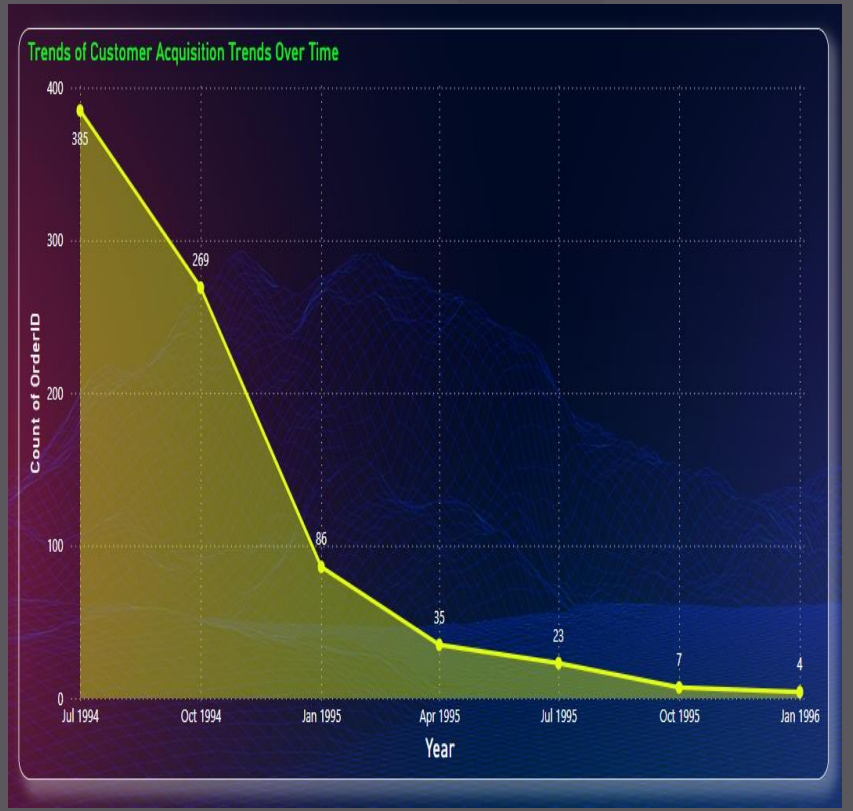
How does customer distribution vary across different regions or customer segments?

- The customer distribution indicates that the company has a strong presence in Europe, particularly in France, Germany, and the UK. North America, led by the USA, also shows significant customer numbers. There are opportunities to enhance customer engagement and expand the customer base in regions with lower counts, such as some European countries and South American countries.



What is the trend in customer acquisition over time?

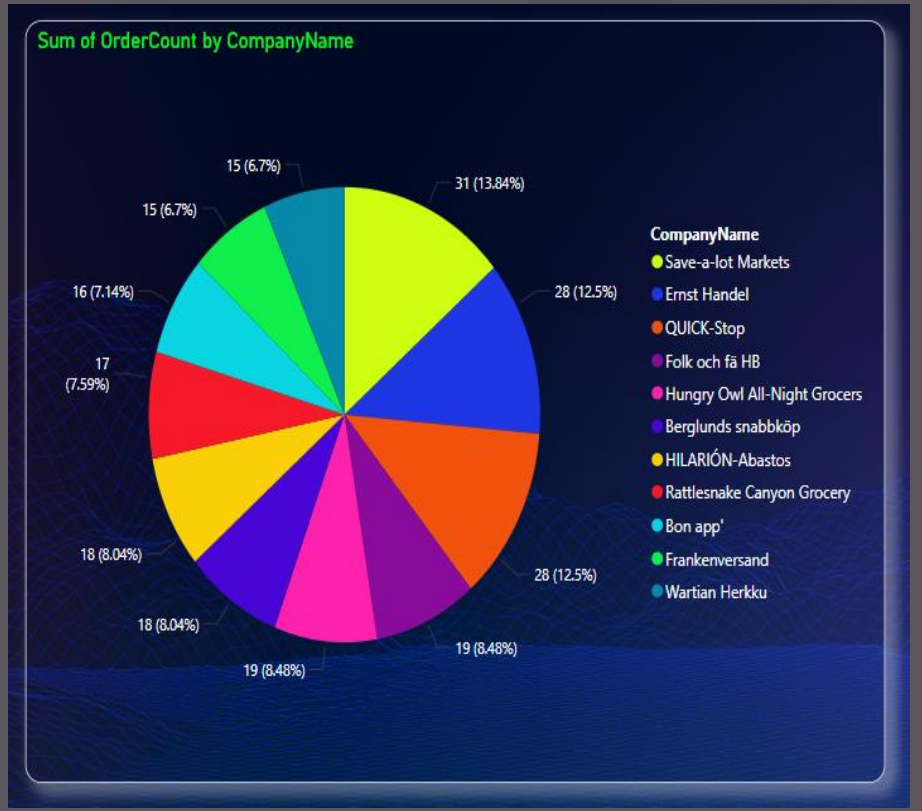
- The trend in customer acquisition shows a significant decline from 1994 to early 1996. While the company experienced strong initial growth in 1994, it faced challenges in maintaining this momentum in subsequent quarters. This downward trend suggests a need to investigate and address potential causes, such as changes in market conditions, customer preferences, or internal factors affecting sales and marketing effectiveness.



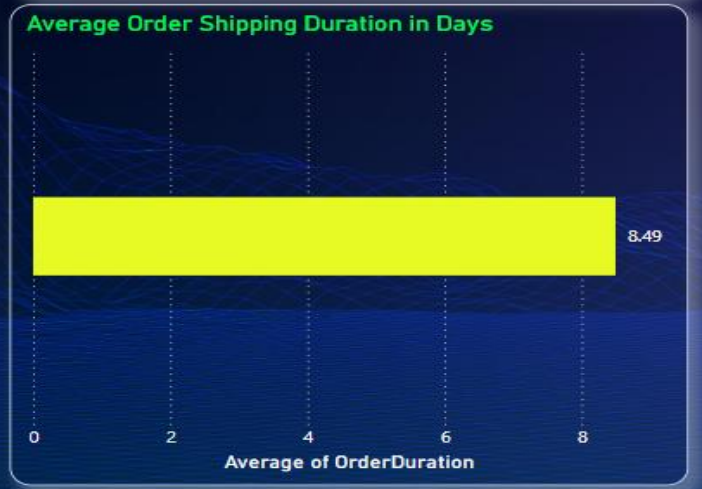
Can we visualize the distribution of customer demographics such as age, gender, or income using histograms or pie charts?
For this question we don't have data in our data set. If we want to solve this problem we need age , gender or income of customer from customer table

So I Create a own question.
Top 10 customers by order count.

- The top 10 customers by order count show a diverse range of companies with varying levels of engagement. **Save-a-lot Markets** stands out as the most active customer, followed by **Ernst Handel** and **QUICK-Stop**. The order counts reflect strong relationships and repeat business from these key customers, which are crucial for the company's sales stability and growth.

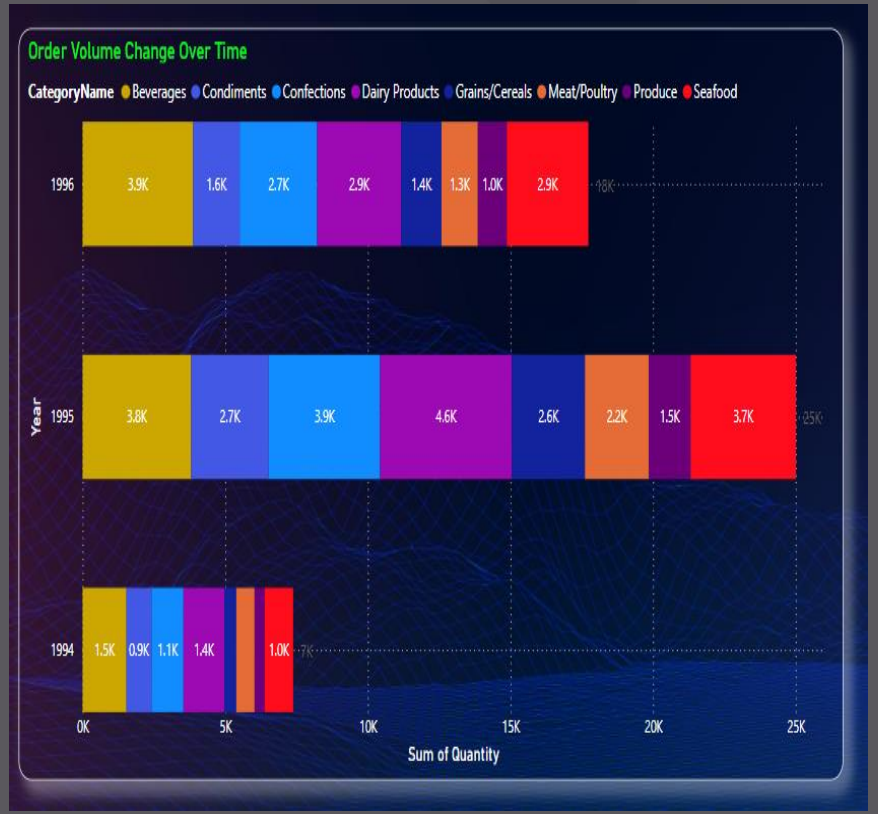


Order Analysis



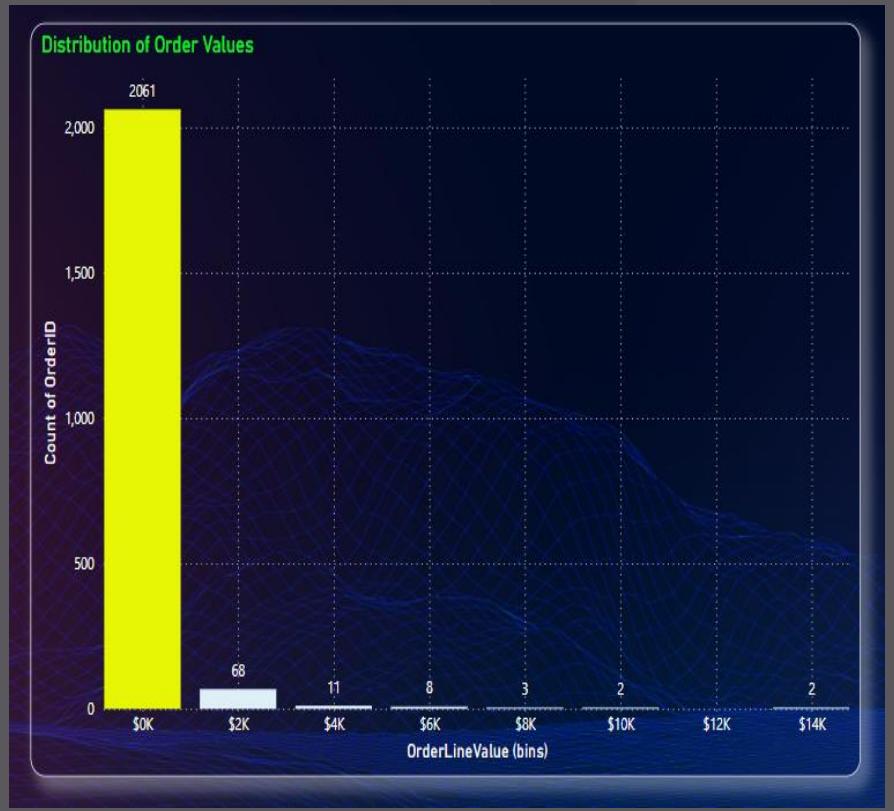
How does order volume change over time?

- The overall order volume for the company increased significantly from 1994 to 1995, with 1995 being the peak year for most product categories. However, there is a slight decline in order volume in 1996 compared to 1995, though it remains higher than 1994. This trend suggests that the company experienced rapid growth in 1995, followed by a stabilization or slight reduction in order volume in the following year.



What is the distribution of order values?

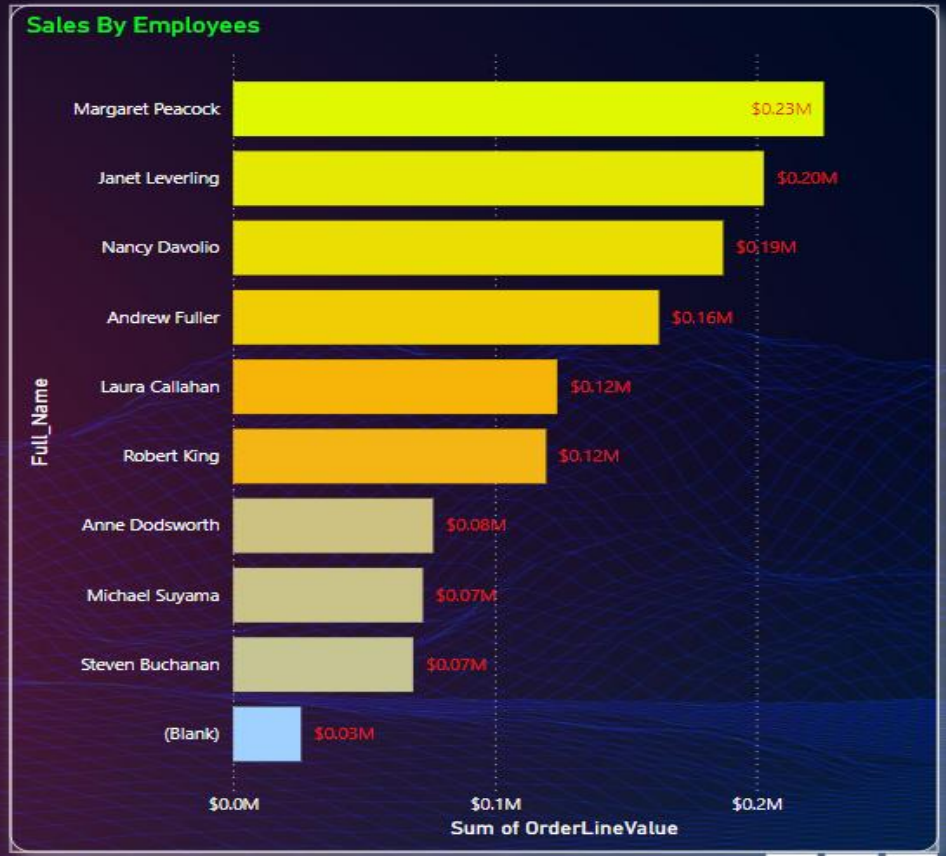
- The distribution of order values is highly skewed towards lower value orders, with the majority of orders falling below 2000. There is a sharp decline in the number of orders as the order value increases. High value orders are very rare, suggesting that large purchases are uncommon.

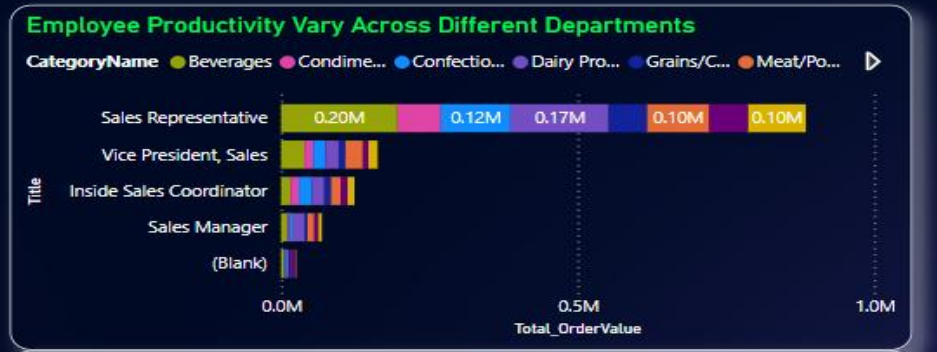


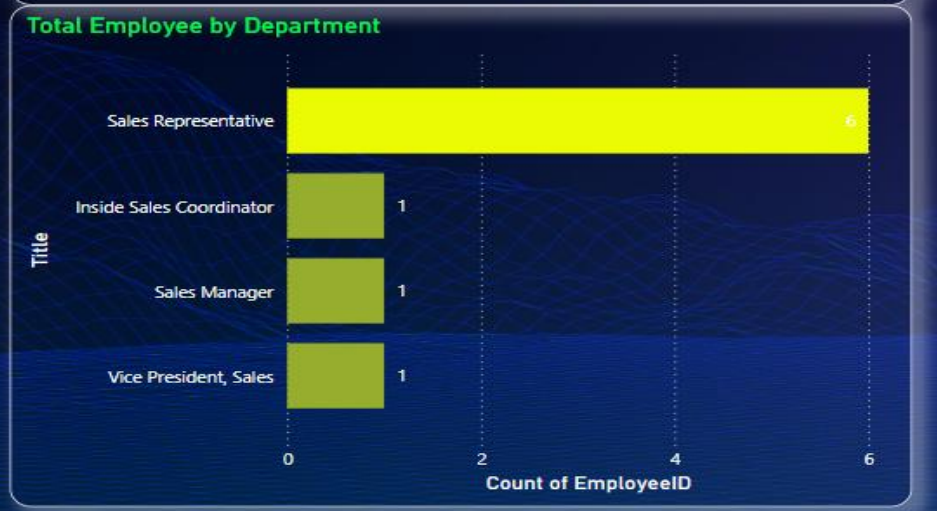
Can we visualize the average order processing time or shipping duration time?

- The average shipping duration time of 8.49 days can provide valuable insights into the efficiency of the order processing and shipping process. Using appropriate visualization techniques, stakeholders can easily identify areas for improvement and track changes over time.

Employee Analysis

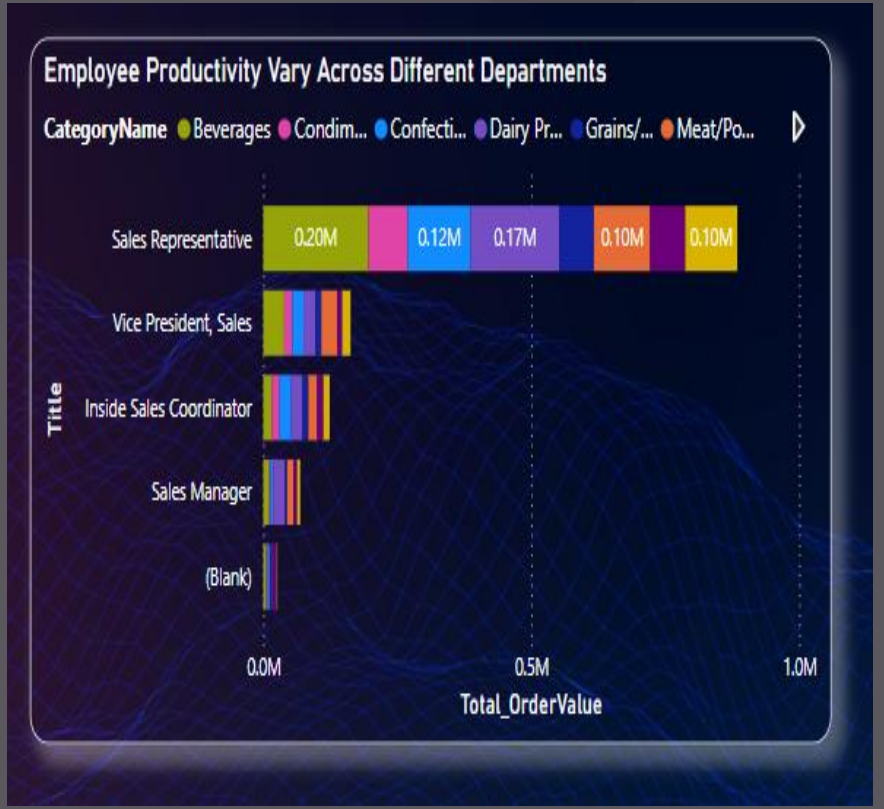






How does employee productivity vary across different departments or job roles?

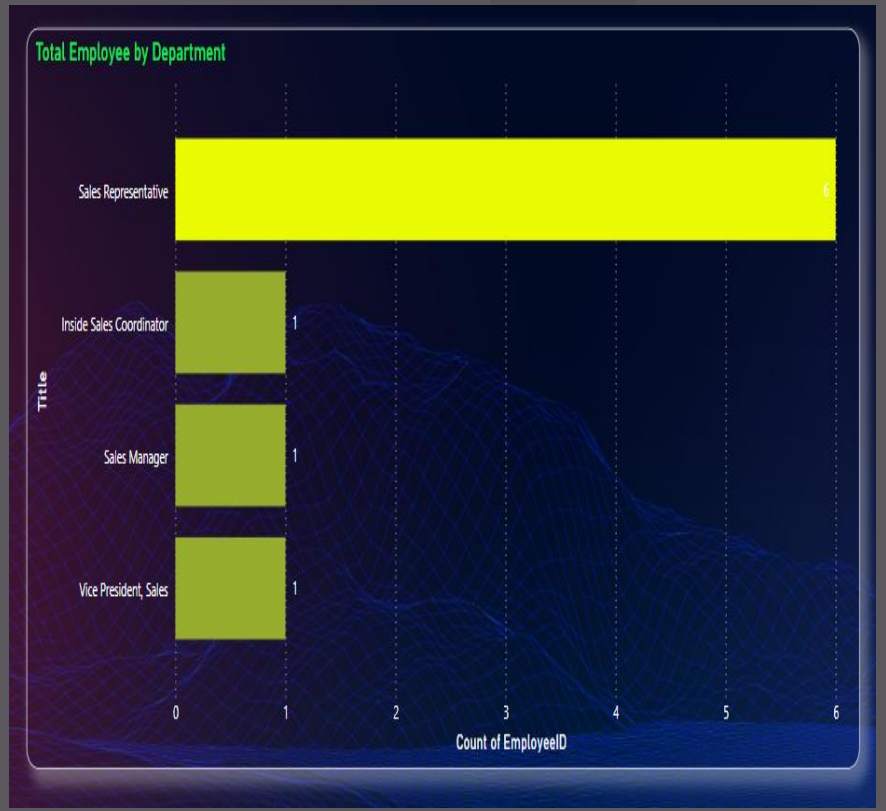
- Employee productivity varies significantly across different job roles. **Sales Representatives** are the most productive in terms of both quantity and value, indicating their crucial role in driving sales. The **Vice President, Sales** handles fewer orders but contributes high-value transactions. **Inside Sales Coordinators** have balanced productivity, while **Sales Managers** show the lowest productivity in terms of both quantity and value.



What is the distribution of employee tenure?
For this question we don’t have data in our data set. If we want to solve this problem we need tenure or last date of joining in the company of employee

So I Create a own question.
How dose employee distribution by job tittle

- The employee distribution by job title shows that the company employs a significantly higher number of Sales Representatives compared to other roles. With 6 out of 9 employees, Sales Representatives form the core of the sales team. In contrast, the roles of Inside Sales Coordinator, Sales Manager, and Vice President, Sales each have only one employee, indicating specialized roles with unique responsibilities.

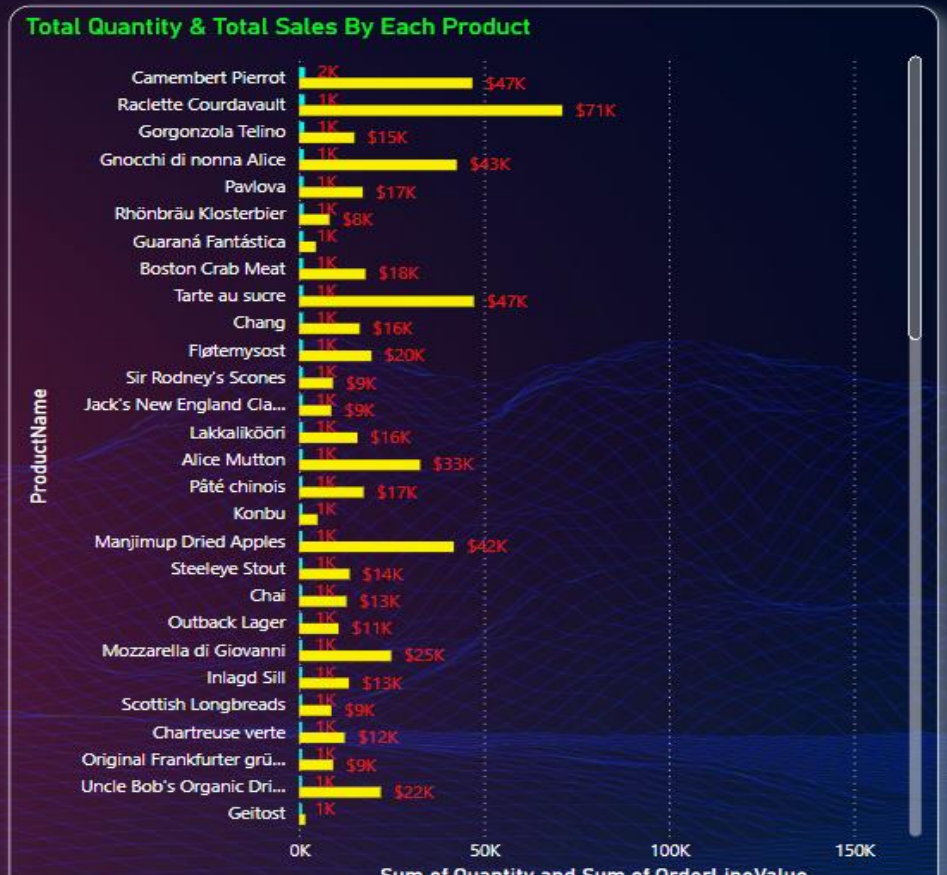


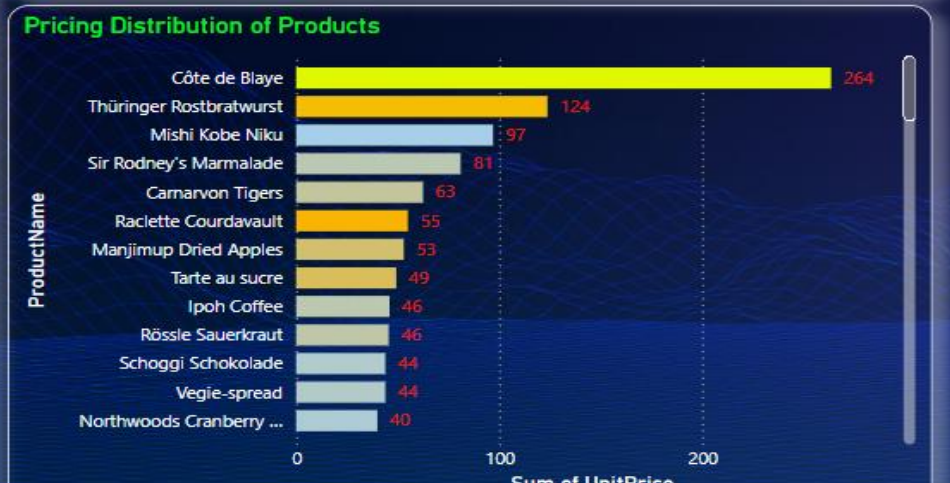
Can we visualize employee performance ratings or KPIs using a radar chart or bullet graph? For this question we don't have data in our data set. If we want to solve this problem we need employee's rating or feedback data.

So I Create a own question.
How many sales has each employee?

- The distribution of sales among employees varies significantly, with some employees contributing substantially more to the total sales value than others. **Margaret Peacock** stands out as the highest contributor, followed by **Janet Leverling** and **Nancy Davolio**. The data indicates that sales performance is not evenly distributed among employees.

Product Analysis

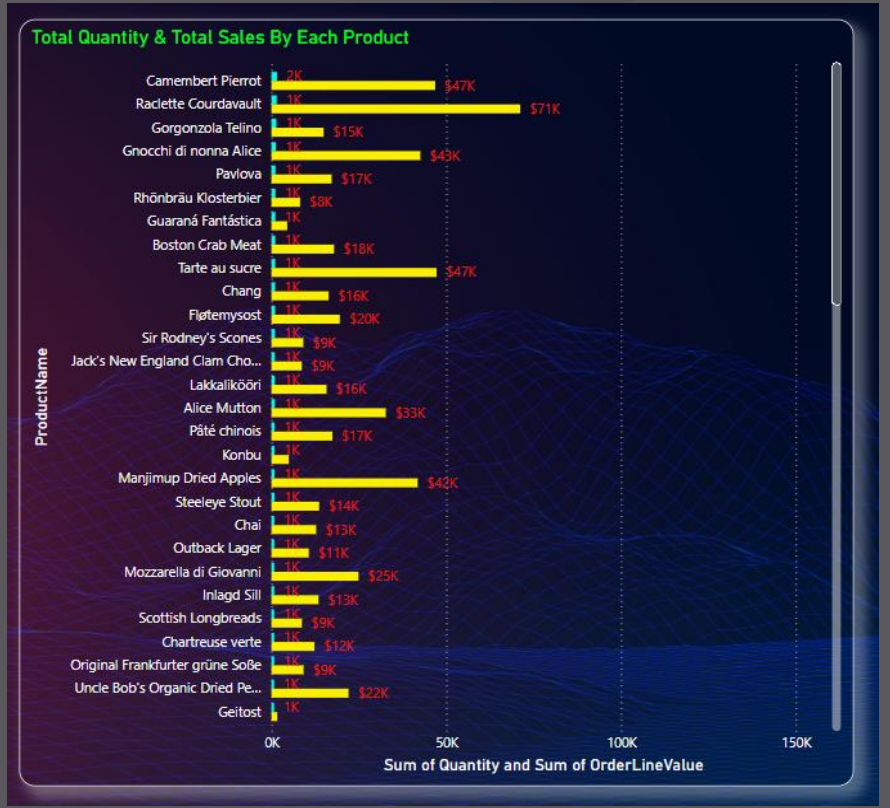




What is the distribution of product ratings or reviews?
For this question we don't have data in our data set. If we want to solve this problem we need product ratings or reviews or feedback data.

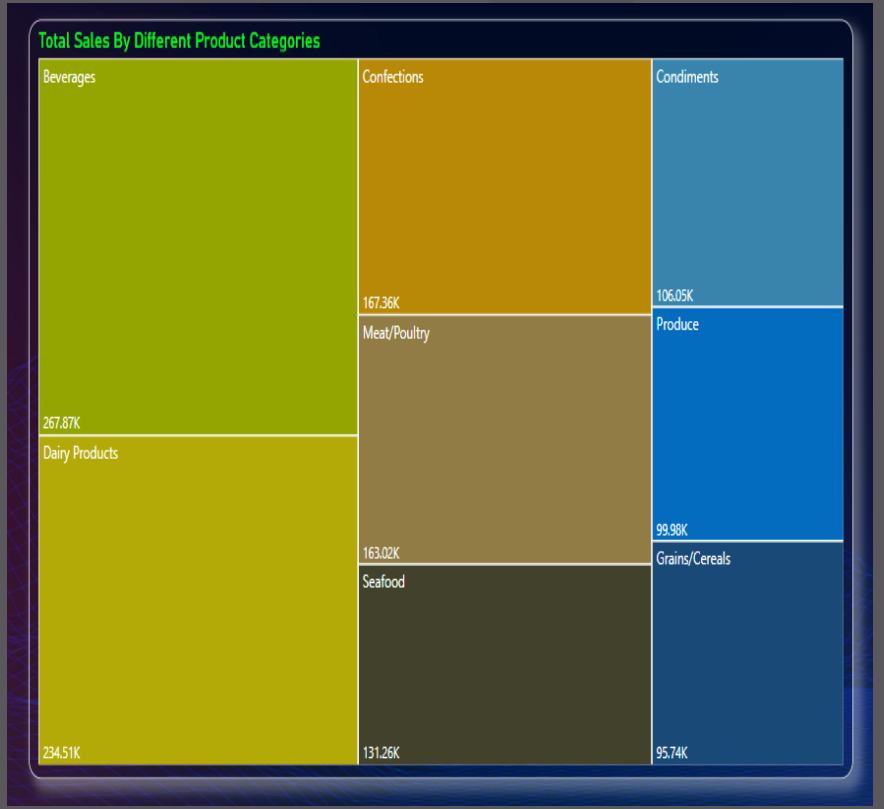
So I Create a own question.
How much each product quantity and sales

- The data shows that **Côte de Blaye** is the top-selling product by sales value, while **Camembert Pierrot** has the highest quantity sold. Most products maintain a consistent quantity of 1k, but their sales values vary significantly, indicating differences in pricing or demand.



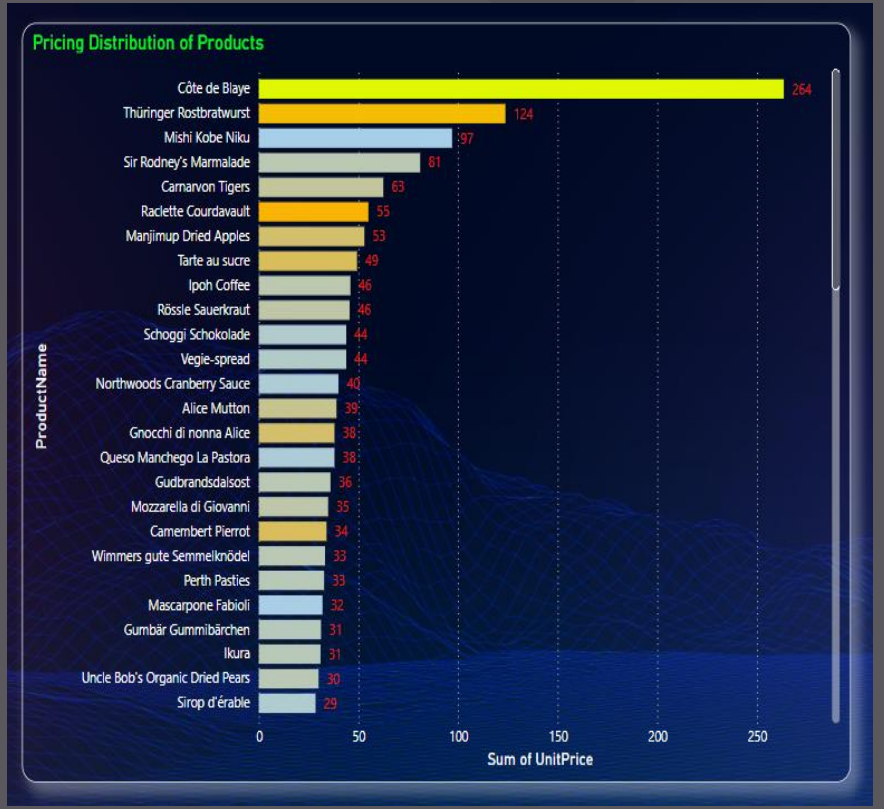
How does the sales volume vary across different product categories?

- The sales volume varies significantly across different product categories, with **Beverages** leading in total order value. **Dairy Products**, **Confections**, and **Meat/Poultry** are also strong contributors to the overall sales. In contrast, **Grains/Cereals** and **Produce** have lower sales volumes compared to other categories.

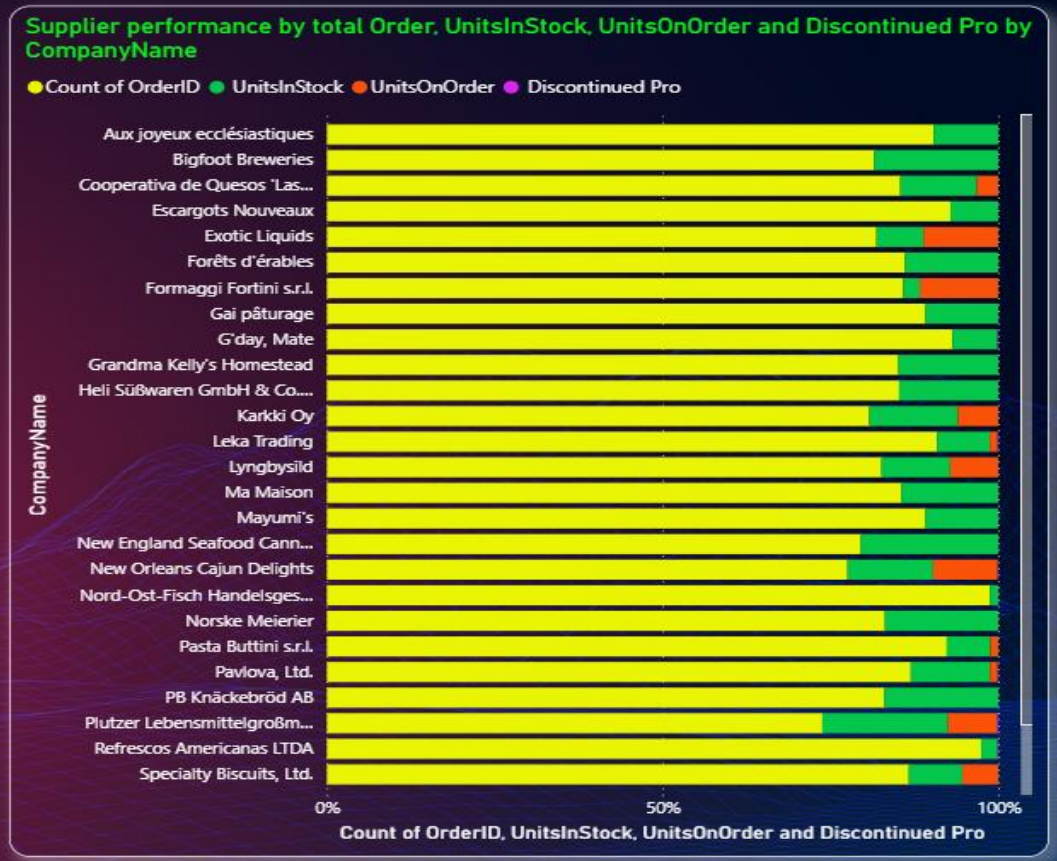


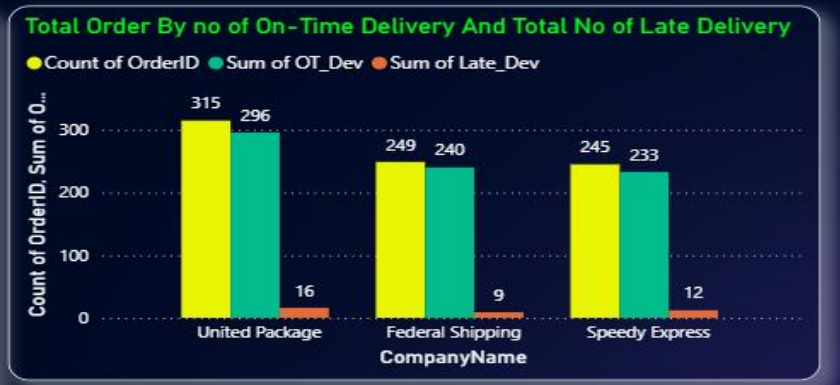
Can we visualize the pricing distribution of products?

- The pricing distribution of products shows significant variability across the range. The prices vary widely, with a minimum of $2.50 and a maximum of $263.50, indicating a broad price range of $261.00. The mean price is approximately $33.75, but this is skewed upwards by a few high-priced items. The median price is about $21.05, suggesting that more than half of the products are priced below this amount, with many clustered in the lower to mid-price range. The high standard deviation of approximately $45.85 reflects considerable variability in prices. Overall, while most products are priced affordably, the presence of a few premium items results in a diverse pricing structure.



Supplier Analysis

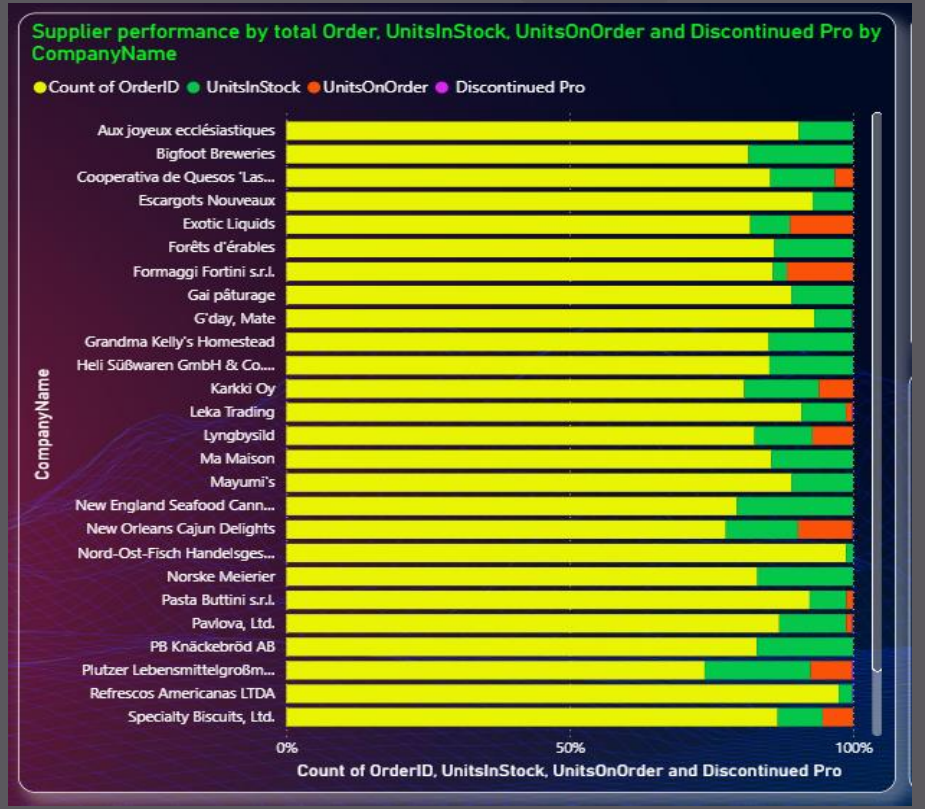




What is the distribution of supplier ratings or performance metrics?
For this question we don’t have data in our data set. If we want to solve this problem we need supplier ratings or reviews or feedback data.

How dose the performance of various supplier company very?

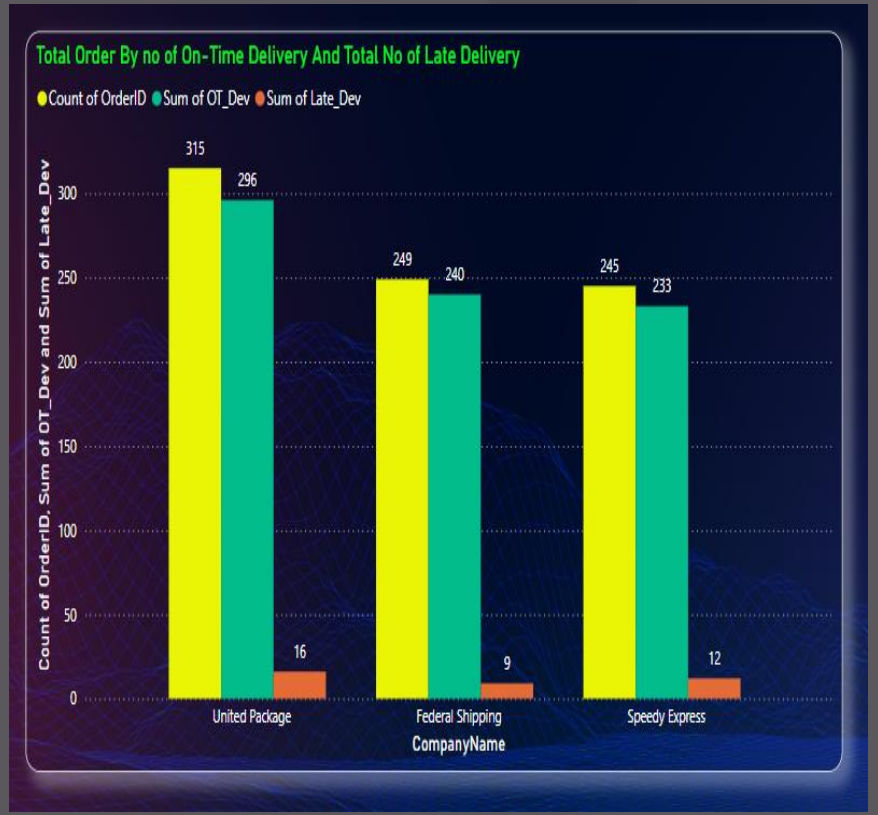
- The pricing distribution shows significant variation in inventory and ordering across companies. **Svensk Sjöföda AB** has the highest stock with 224 units, while **Nord-Ost-Fisch Handelsgesellschaft mbH** has the lowest with 10 units. **Exotic Liquids** has the largest order volume of 110 units, whereas several companies have none. Discontinued products are minimal, affecting only 8 items in total.



How does the cost or pricing structure vary across different suppliers?
For this question we don’t have data in our data set. If we want to solve this problem we need supplier pricing structure data.

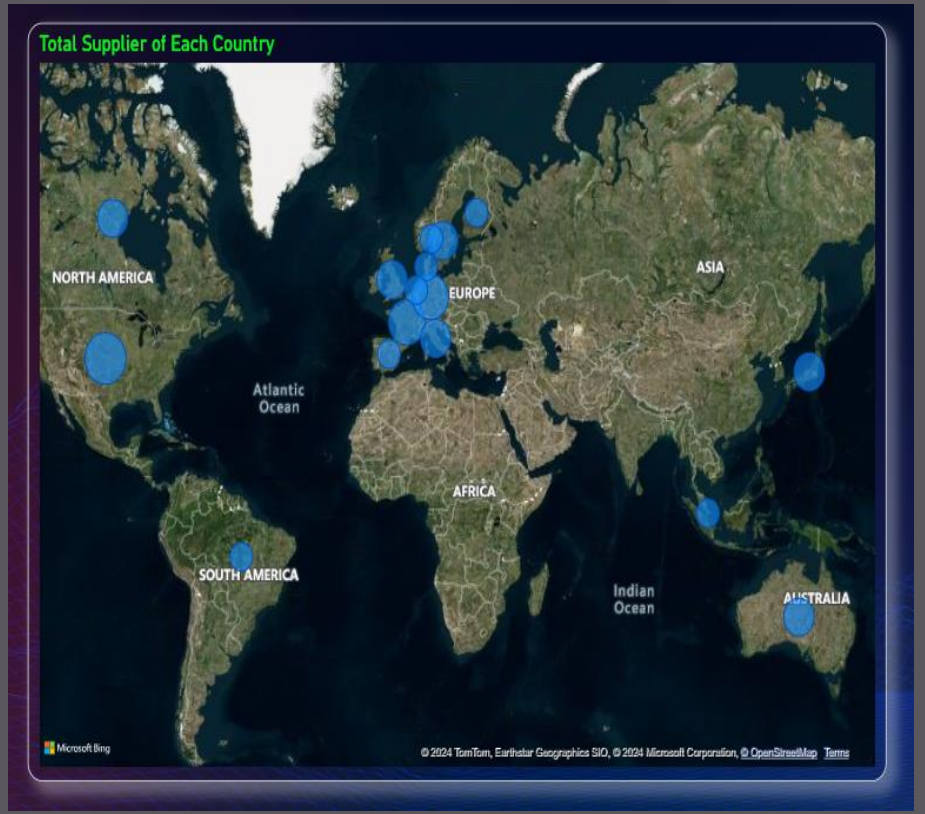
What is the distribution of supplier delivery performance ?

- The pricing distribution of products indicates a notable variance in delivery metrics across companies. **United Package** has the highest **Sum of OT_Dev** with 296, suggesting frequent pricing deviations, while **Federal Shipping** has the lowest with 240. **United Package** also shows the highest **Sum of Late_Dev** at 16, indicating more late deliveries compared to other companies. Overall, **Federal Shipping** has the lowest deviation and late delivery figures, suggesting more consistent pricing and delivery performance.



Can we visualize the geographical distribution of suppliers using a map or bubble chart?

- The pricing distribution of products across countries shows that the **USA** has the highest number of suppliers with 4, indicating a significant presence in the market. **France** and **Germany** each have 3 suppliers, reflecting strong representation in those regions. Other countries like **Australia**, **Canada**, **Italy**, **Japan**, and **Sweden** each have 2 suppliers. Several countries, including **Brazil**, **Denmark**, **Finland**, **Netherlands**, **Norway**, **Singapore**, **Spain**, and the **UK**, have 1 supplier each. Overall, the distribution is varied, with the USA leading in supplier count.



EDA Problem Statement

Microsoft I Excel

&

MySQL

EDA Questions

1. What are the key factors influencing customer retention or loyalty based on the dataset?

2. How do customer preferences vary based on their location or demographics? Can we explore this through interactive visualizations?

3. Are there any interesting patterns or clusters in customer behavior that can be visualized to identify potential market segments?

4. Are there any specific product categories or SKUs that contribute significantly to order revenue? Can we identify them through visualizations?

5. Are there any correlations between order size and customer demographics or product categories? Can we explore this visually using scatter plots or heatmaps?

6. How does order frequency vary across different customer segments? Can we visualize this using bar charts or tree maps?

7. Are there any correlations between employee satisfaction levels and key performance indicators? Can we explore this visually through scatter plots or line charts?

8. How does employee turnover vary across different departments or job roles? Can we visualize this using bar charts or heatmaps?

9. Can we identify any patterns or clusters in employee skill sets or qualifications through visualizations? How can this information be used for talent management?

10. Are there any correlations between product attributes (e.g., size, color, features) and sales performance? Can we explore this visually using scatter plots or heatmaps?

11. How does product demand fluctuate over different seasons or months? Can we visualize this through line charts or area charts?

12. Can we identify any outliers or anomalies in product performance or sales using visualizations? How can this information be used for
product optimization?

13. Are there any correlations between supplier attributes (e.g., location, size, industry) and performance metrics (e.g., on-time delivery,
product quality)? Can we explore this visually through scatter plots or heatmaps?

14. How does supplier performance vary across different product categories or departments? Can we visualize this using stacked bar charts
or grouped column charts?

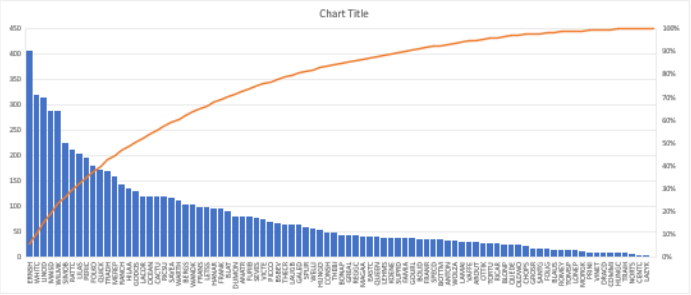
15. Can we identify any trends or patterns in supplier costs or pricing structures through visualizations? How can this information be used
for procurement optimization?

What are the key factors influencing customer retention or loyalty based on the dataset?

```
WITH
table_x AS (
    SELECT o.CustomerID,
        TIMESTAMPDIFF(DAY, o.ShippedDate, o.RequiredDate)
AS Delivery_Time,
        o.OrderDate,
        od.ProductID,
        COUNT(o.OrderID) OVER(PARTITION BY o.CustomerID) AS
No_Of_Orders
    FROM orders o
    JOIN order_details od ON o.OrderID = od.OrderID
    JOIN Products p ON p.ProductID = od.ProductID
),
table_2 AS (
    SELECT DISTINCT o.CustomerID,  cs.CompanyName  ,
od.ProductID  ,  p.ProductName  ,
            COUNT(od.ProductID) OVER(PARTITION BY
o.CustomerID, od.ProductID) AS NoOfTimesPurchased
    FROM orders o
    JOIN order_details od ON o.OrderID = od.OrderID
    JOIN Products p ON p.ProductID = od.ProductID
    JOIN customers cs ON cs.CustomerID=o.CustomerID
),
table_3 AS (
    SELECT CustomerID,  CompanyName  ,  ProductID  ,
ProductName  ,
    DENSE_RANK() OVER(PARTITION BY CustomerID
ORDER BY NoOfTimesPurchased DESC) AS Preferance_Rank
    FROM table_2
),
table_y AS (
    SELECT CustomerID,
        SUM(CASE WHEN Delivery_Time < 0 THEN 1 ELSE 0
END) AS Number_Of_Late_Deliveries,
        MIN(OrderDate) AS Earliest_Order_Date  ,
        MAX(OrderDate) AS Latest_Order_Date  ,
        No_Of_Orders
    FROM table_x
    GROUP BY CustomerID, No_Of_Orders
),
table_5 AS (
    SELECT CustomerID,  CompanyName  ,  ProductID  ,
ProductName
    FROM table_3
    WHERE Preferance_Rank = 1
)

SELECT table_y.* , table_5.CompanyName  ,
    TIMESTAMPDIFF(MONTH, Earliest_Order_Date,
Latest_Order_Date) AS Retention_Period_In_Months,
    table_5.ProductName AS "Most_Preferred_Product"
FROM table_y
JOIN table_5 ON table_y.CustomerID = table_5.CustomerID;
```

Customer	Number_Of_Late_Delive	Earliest_Order_D	Latest_Order_Di	No_Of_Orde	CompanyNam	Retention_Period_In_Mont	Most_Preferred_Product
ALFKI	0	25-09-1995	09-05-1996	12	Alfreds Futterkist	7	RÃƒÂ¶ssle Sauerkraut
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Mozzarella di Giovanni
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Outback Lager
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Gudbrandsdalsost
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Camembert Pierrot
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Singaporean Hokkien Fried Mee
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Mascarpone Fabioli
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Teatime Chocolate Biscuits
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Tofu
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Konbu
ANATR	0	19-10-1994	03-04-1996	10	Ana Trujillo Emp	17	Queso Cabrales
ANTON	0	28-12-1994	28-02-1996	17	Antonio Moreno	14	Geitost
ANTON	0	28-12-1994	28-02-1996	17	Antonio Moreno	14	Queso Cabrales
AROUT	0	16-12-1994	10-05-1996	30	Around the Hom	16	Gorgonzola Telino
BERGS	6	12-09-1994	03-04-1996	52	Berglunds snabb	18	RhÃƒÂ¶nbrÃƒÂ¤u Klosterbier
BERGS	6	12-09-1994	03-04-1996	52	Berglunds snabb	18	TourtiÃƒÂ¨re
BLAUS	0	10-05-1995	29-05-1996	14	Blauer See Delik	12	Sir Rodney's Scones
BLONP	0	25-08-1994	12-02-1996	26	Blondel pÃƒÂ¨re	17	Gorgonzola Telino
BOLID	1	10-11-1994	23-04-1996	6	BÃƒÂ¤rlido Comic	17	RhÃƒÂ¶nbrÃƒÂ¤u Klosterbier
BOLID	1	10-11-1994	23-04-1996	6	BÃƒÂ¤rlido Comic	17	Ravioli Angelo
BOLID	1	10-11-1994	23-04-1996	6	BÃƒÂ¤rlido Comic	17	Filo Mix
BOLID	1	10-11-1994	23-04-1996	6	BÃƒÂ¤rlido Comic	17	ThÃƒÂ¼ringer Rostbratwurst
BOLID	1	10-11-1994	23-04-1996	6	BÃƒÂ¤rlido Comic	17	Alice Mutton
BOLID	1	10-11-1994	23-04-1996	6	BÃƒÂ¤rlido Comic	17	Chef Anton's Cajun Seasoning
BONAP	5	16-11-1994	05-06-1996	44	Bon app'	18	Pavlova
BOTTM	0	20-01-1995	24-05-1996	35	Bottom-Dollar Ma	16	Tarte au sucre
BSBEV	2	26-09-1994	14-05-1996	22	B's Beverages	19	Sir Rodney's Scones
BSBEV	2	26-09-1994	14-05-1996	22	B's Beverages	19	Konbu
BSBEV	2	26-09-1994	14-05-1996	22	B's Beverages	19	Uncle Bob's Organic Dried Pears
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	RhÃƒÂ¶nbrÃƒÂ¤u Klosterbier
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	RÃƒÂ¶d Kaviar
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Scottish Longbreads
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Laughing Lumberjack Lager
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Ipoh Coffee
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Jack's New England Clam Chowder
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Steeleye Stout
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Sasquatch Ale
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Geitost
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	Gorgonzola Telino
CACTU	0	30-05-1995	28-05-1996	11	Cactus Comidas	11	RÃƒÂ¶ssle Sauerkraut
CENTC	0	18-08-1994	18-08-1994	2	Centro comercial	0	Gravad lax
CENTC	0	18-08-1994	18-08-1994	2	Centro comercial	0	Sir Rodney's Scones
CHOPS	0	11-08-1994	22-05-1996	22	Chop-suey Chine	21	Gnocchi di nonna Alice
COMMI	0	27-09-1994	22-05-1996	10	ComÃƒÂ©rcio M	19	Spegesild
CONSH	0	07-03-1995	23-02-1996	7	Consolidated Ho	11	Mozzarella di Giovanni
CONSH	0	07-03-1995	23-02-1996	7	Consolidated Ho	11	TunnbrÃƒÂ¶d
CONSH	0	07-03-1995	23-02-1996	7	Consolidated Ho	11	Gustaf's KnÃƒÂ¤ckebrÃƒÂ¶d
CONSH	0	07-03-1995	23-02-1996	7	Consolidated Ho	11	Konbu
CONSH	0	07-03-1995	23-02-1996	7	Consolidated Ho	11	Mishi Kobe Niku
CONSH	0	07-03-1995	23-02-1996	7	Consolidated Ho	11	Chef Anton's Gumbo Mix
CONSH	0	07-03-1995	23-02-1996	7	Consolidated Ho	11	Chang
DRACD	0	27-12-1994	03-06-1996	10	Drachenblut Deli	17	Konbu
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Gudbrandsdalsost
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Filo Mix
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Singaporean Hokkien Fried Mee
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Jack's New England Clam Chowder
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Sasquatch Ale
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Sir Rodney's Scones
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Alice Mutton
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Ikura
DUMON	0	21-10-1994	18-03-1996	9	Du monde entier	16	Chai
EASTC	2	27-12-1994	28-05-1996	21	Eastern Connect	17	FÃƒÂ¤rtemysost
EASTC	2	27-12-1994	28-05-1996	21	Eastern Connect	17	Uncle Bob's Organic Dried Pears
ERNSH	0	17-08-1994	04-06-1996	102	Ernst Handel	21	Wimmers gute SemmelknÃƒÂ¶del



CONCLUSION:

Key Findings:

Customer Retention Period: The retention period for customers varies widely, ranging from 0 months to 34 months.
Number of Late Deliveries: Only a small percentage of customers (1.6%) have experienced late deliveries.
Most Preferred Products: Customers have a diverse range of most preferred products, with no single product standing out as a clear favorite.
Number of Orders: The number of orders placed by customers also varies widely, with some customers placing only one order and others placing up to 102 orders.
Insights:

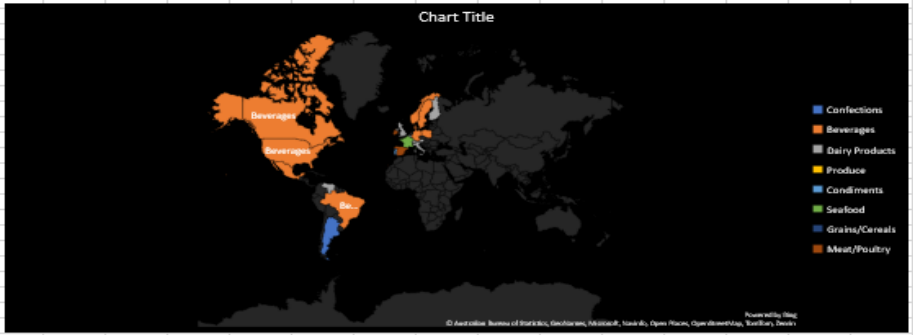
Focus on On-Time Delivery: While only a small percentage of customers have experienced late deliveries, it is essential to maintain a high level of on-time delivery to ensure customer satisfaction and retention.
Personalized Product Recommendations: Given the wide variety of most preferred products, it is important to offer personalized product recommendations based on each customer's purchase history.
Customer Segmentation: Given the wide range in the number of orders placed by customers, it may be beneficial to segment customers based on their purchasing behavior and develop targeted marketing strategies for each segment.
Monitor Customer Retention: Given the wide range in the retention period for customers, it is important to monitor customer retention and develop strategies to retain customers for longer periods.

How do customer preferences vary based on their location or demographics? Can we explore this through interactive visualizations?

```
WITH CustomerPurchases AS (
    SELECT
        c.CustomerID,
        c.CompanyName,
        c.Country,
        cat.CategoryName,
        SUM(od.Quantity) AS TotalQuantity,
        SUM(od.UnitPrice * od.Quantity * (1 -
od.Discount)) AS TotalValue
    FROM
        customers c
    JOIN
        orders o ON c.CustomerID = o.CustomerID
    JOIN
        order_details od ON o.OrderID = od.OrderID
    JOIN
        products p ON od.ProductID = p.ProductID
    JOIN
        categories cat ON p.CategoryID =
cat.CategoryID
    GROUP BY
        c.CustomerID, c.CompanyName, c.Country,
cat.CategoryName
),
CountryCategoryPreferences AS (
    SELECT
        Country,
        CategoryName,
        SUM(TotalQuantity) AS QuantityPurchased,
        SUM(TotalValue) AS ValuePurchased
    FROM
        CustomerPurchases
    GROUP BY
        Country, CategoryName
    ORDER BY
        Country, ValuePurchased DESC
)

SELECT
    Country,
    CategoryName,
    QuantityPurchased,
    ValuePurchased
FROM
    CountryCategoryPreferences
ORDER BY
```

Count	CategoryNa	QuantityPurch	ValuePurcha
Argentina	Confections	57	2135.1
Argentina	Beverages	82	1798
Argentina	Dairy Products	54	1143.5
Argentina	Produce	33	1139
Argentina	Condiments	45	907
Argentina	Seafood	48	606.5
Argentina	Grains/Cereals	20	390
Austria	Dairy Products	1027	28106.74
Austria	Beverages	982	23317.3
Austria	Condiments	720	15237.2425
Austria	Grains/Cereals	580	14527.7
Austria	Confections	575	13534.4075
Austria	Produce	388	13120.6675
Austria	Meat/Poultry	362	10821.556
Austria	Seafood	533	9338.225
Belgium	Dairy Products	295	8660
Belgium	Confections	270	7479.58
Belgium	Beverages	272	5428.68
Belgium	Grains/Cereals	145	3226
Belgium	Produce	98	3223.2
Belgium	Condiments	147	2454.795
Belgium	Meat/Poultry	89	2138.5
Belgium	Seafood	76	1214.1
Brazil	Beverages	968	37193.445
Brazil	Dairy Products	683	15680.45
Brazil	Seafood	635	12887.135
Brazil	Confections	722	11436.1025
Brazil	Condiments	568	11180.76
Brazil	Meat/Poultry	223	7563.114
Brazil	Grains/Cereals	315	6121.55
Brazil	Produce	133	4863.22
Canada	Beverages	303	11276.06
Canada	Dairy Products	381	9557.175
Canada	Confections	418	8842.48
Canada	Grains/Cereals	207	5557.65
Canada	Condiments	256	4760.075
Canada	Seafood	204	4324.05
Canada	Meat/Poultry	141	3766.8
Canada	Produce	74	2112
Denmark	Beverages	195	12025.7
Denmark	Condiments	210	4325.15
Denmark	Produce	100	3954.9
Denmark	Seafood	230	3857.2625
Denmark	Meat/Poultry	146	3162.5
Denmark	Dairy Products	89	2644.3
Denmark	Confections	185	2591.46
Denmark	Grains/Cereals	15	99.75
Finland	Dairy Products	230	5558.11
Finland	Meat/Poultry	93	3340.78
Finland	Grains/Cereals	100	2477
Finland	Beverages	107	2182.4



CONCLUSION:-

Beverages are popular globally: Beverages are among the top 3 categories in terms of value purchased in most countries, including Argentina, Austria,
Brazil, Canada, Denmark, France, Germany, Ireland, Italy, Mexico, Norway, Poland, Portugal, Spain, Sweden, Switzerland, UK, and USA.

Dairy Products are favored in Europe: Dairy Products are a top category in many European countries, including Austria, Belgium, Denmark, Finland,
France, Germany, Ireland, Italy, Norway, Poland, Portugal, Spain, Sweden, and Switzerland.

Confections are popular in the Americas: Confections are a top category in several countries in the Americas, including Argentina, Brazil, Canada,
Mexico, USA, and Venezuela.

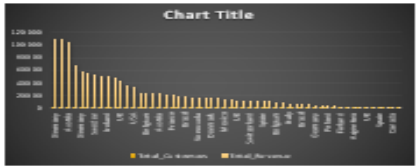
Seafood is popular in coastal countries: Seafood is a top category in countries with a significant coastline, such as Argentina, Brazil, Canada,
Denmark, France, Germany, Ireland, Norway, Portugal, Spain, Sweden, and USA.

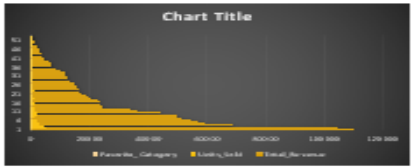
Meat/Poultry and Grains/Cereals: show significant value in some countries, such as Spain and Portugal.

Are there any interesting patterns or clusters in customer behavior that can be visualized to identify potential market segments?

```
WITH customer_purchases AS (
  SELECT
    cs.Country,
    cs.ContactName AS Customer_Name,
    (od.UnitPrice * od.Quantity * (1 - Discount)) AS Purchased_Value,
    od.Quantity AS Units_Purchased,
    p.CategoryID,
    COUNT(cs.ContactName) OVER (PARTITION BY cs.Country) AS
Total_Customers
  FROM
    orders o
  JOIN
    order_details od ON od.OrderID = o.OrderID
  JOIN
    products p ON p.ProductID = od.ProductID
  JOIN
    customers cs ON cs.CustomerID = o.CustomerID
  JOIN
    categories cg ON cg.CategoryID = p.CategoryID
),
favorite_categories AS (
  SELECT
    Country,
    Customer_Name,
    CategoryID,
    SUM(Units_Purchased) AS Total_Units
  FROM
    customer_purchases
  GROUP BY
    Country,
    Customer_Name,
    CategoryID
),
customer_favorites AS (
  SELECT
    fc.Country,
    fc.Customer_Name,
    cg.CategoryName AS Favorite_Category,
    ROW_NUMBER() OVER (PARTITION BY fc.Country,
fc.Customer_Name ORDER BY fc.Total_Units DESC) AS rn
  FROM
    favorite_categories fc
  JOIN
    categories cg ON cg.CategoryID = fc.CategoryID
)
SELECT
  cp.Country,
  cp.Total_Customers,
  SUM(cp.Purchased_Value) AS Total_Revenue,
  SUM(cp.Units_Purchased) AS Units_Sold,
  cf.Favorite_Category
FROM
  customer_purchases cp
JOIN
  (SELECT Country, Customer_Name, Favorite_Category FROM
customer_favorites WHERE rn = 1) cf
ON
  cp.Country = cf.Country AND cp.Customer_Name =
cf.Customer_Name
GROUP BY
  cp.Country,
  cp.Total_Customers,
  cf.Favorite_Category
ORDER BY
  Total_Revenue DESC, cp.Country asc ;
```

Count	Total_Custom	Total_Reven	Units_Sold	Favorite_Categ
Germany	326	110277.305	3601	Beverages.
USA	352	109729.39	5159	Seafood
Austria	125	104874.9785	4543	Dairy Products.
Brazil	203	68734.6175	2494	Beverages.
Germany	326	59066.6045	2971	Dairy Products.
Germany	326	54464.724	2107	Confections.
Sweden	97	54495.14	2235	Beverages.
USA	352	51097.8005	1383	Dairy Products.
Ireland	55	49979.905	1684	Seafood
Canada	75	49673.79	1922	Confections.
UK	135	44367.01	2037	Dairy Products.
USA	352	36554.405	1332	Beverages.
USA	352	33484.9125	948	Confections.
Venezuela	116	24257.464	1130	Beverages.
Belgium	56	24088.78	1072	Beverages.
France	184	23579.1525	1060	Seafood
Austria	125	23128.86	624	Beverages.
France	184	22437.43	812	Dairy Products.
France	184	20502.68	959	Beverages.
Switzerlar	52	19343.779	810	Dairy Products.
Brazil	203	18869.695	842	Condiments.
Denmark	46	16817.0975	378	Confections.
Venezuela	116	16476.565	970	Confections.
Venezuela	116	16070.6	836	Dairy Products.
Denmark	46	15843.925	792	Seafood
Finland	54	15416.7025	737	Dairy Products.
Mexico	72	15054.35	592	Beverages.
France	184	14636.06	423	Confections.
UK	135	12985.2	616	Beverages.
Brazil	203	12450.8	660	Confections.
Switzerlar	52	12346.88	465	Grains/Cereals.
Portugal	30	11472.3625	533	Condiments.
Spain	54	11446.36	395	Confections.
USA	352	11441.63	327	Meat/Poultry
Belgium	56	9736.075	320	Confections.
Mexico	72	8420.9275	422	Dairy Products.
Italy	53	7176.215	433	Beverages.
Italy	53	7048.24	335	Dairy Products.
Brazil	203	6850.664	251	Dairy Products.
Norway	16	5735.15	161	Beverages.
Germany	326	4273	174	Condiments.
Spain	54	4232.85	190	Meat/Poultry
Poland	16	3531.95	205	Beverages.
Argentina	34	3460.2	132	Dairy Products.
Finland	54	3161.35	148	Confections.
USA	352	3076.4725	181	Confections.
Argentina	34	2944.1	92	Confections.
Argentina	34	1814.8	115	Beverages.
UK	135	1719.1	87	Grains/Cereals.
Italy	53	1545.7	54	Produce
Spain	54	1467.29	91	Seafood
Spain	54	836.7	42	Grains/Cereals.
Canada	75	522.5	62	Seafood
Mexico	72	160.8	11	Confections.





CONCLUSION:-

High Revenue Generating Countries and Favorite Categories:

Germany: Generates the highest revenue with 110277.305 in Beverages. Also notable for Dairy Products and Confections.
USA: Close second in revenue with 109729.39 in Seafood. Has significant contributions from Dairy Products, Beverages, and Confections.
Austria: High revenue with 104874.9785, predominantly in Dairy Products.
Brazil: 68734.6175 in Beverages but also contributes to Condiments.

Diverse Category Preferences:

Germany: Not limited to one category, significant revenue from Beverages, Dairy Products, and Confections.
USA: Similarly diverse, with high contributions from Seafood, Dairy Products, Beverages, Confections, and Meat/Poultry.
France: Revenue spread across Seafood, Dairy Products, Beverages, and Confections.

Specialized Markets:

Sweden: High revenue in Beverages with 54495.14.
Ireland: Significant in Seafood with 49979.905.
Venezuela: Predominantly Beverages and Confections.
Finland: Focused on Dairy Products.

Smaller Markets with Unique Preferences:

Portugal: Significant revenue in Condiments.
Norway: Focus on Beverages.
Argentina: Revenue from Dairy Products and Confections.

Low Revenue Markets:

Poland, Argentina, Finland, Canada, and Mexico: Lower revenue figures with specific category preferences.

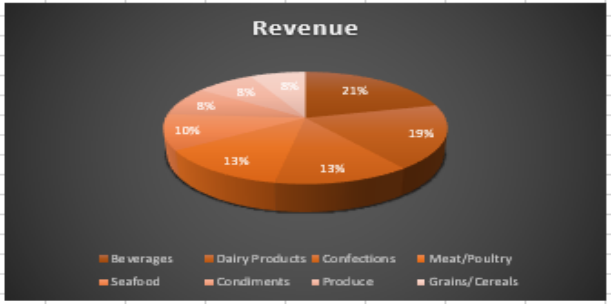
Potential Market Segments:

High Revenue, Diverse Preferences: Germany, USA, France
High Revenue, Specialized Preferences: Austria (Dairy Products), Brazil (Beverages)
Moderate Revenue, Specialized Preferences: Sweden (Beverages), Ireland (Seafood), Venezuela (Beverages, Confections)
Small Markets, Unique Preferences: Portugal (Condiments), Norway (Beverages)
Low Revenue Markets: Poland, Argentina, Finland, Canada, Mexico

Are there any specific product categories or SKUs that contribute significantly to order revenue? Can we identify them through visualizations?

```
WITH order_prices AS (
    SELECT
        cg.CategoryName AS Product_Category,
        (od.UnitPrice * od.Quantity * (1 - Discount)) AS
Order_Price
    FROM
        orders o
    JOIN
        order_details od ON o.OrderID = od.OrderID
    JOIN
        products p ON p.ProductID = od.ProductID
    JOIN
        categories cg ON cg.CategoryID = p.CategoryID
),
category_revenue AS (
    SELECT
        Product_Category,
        SUM(Order_Price) AS Revenue
    FROM
        order_prices
    GROUP BY
        Product_Category
),
total_revenue AS (
    SELECT
        SUM(Revenue) AS Total_Revenue
    FROM
        category_revenue
)
SELECT
    cr.Product_Category,
    cr.Revenue,
    ((cr.Revenue * 100) / tr.Total_Revenue) AS
Revenue_in_per
FROM
    category_revenue cr
CROSS JOIN
    total_revenue tr
ORDER BY
    cr.Revenue DESC;
```

Product_Categ	Revenu	Revenue_in
Beverages	267868	21.1620835
Dairy Products	234507	18.52651087
Confections	167357	13.22153147
Meat/Poultry	163022	12.87906904
Seafood	131262	10.36992094
Condiments	106047	8.377916586
Produce	99984.6	7.898967436
Grains/Cereals	95744.6	7.564000157



CONCLUSION:-

Key findings:

Top 3 categories: Beverages, Dairy Products, and Confections are the top 3 categories that contribute the most to order revenue, accounting for approximately 52.9% of the total revenue.

1. Beverages lead with the highest revenue, totaling $267,868.18, which constitutes about 21.16% of the total revenue.
2. Dairy Products follow with $234,507.29, making up 18.53% of the total revenue.
3. Meat/Poultry and Seafood are also significant contributors to order revenue, accounting for 12.9% and 10.4% of the total revenue, respectively.

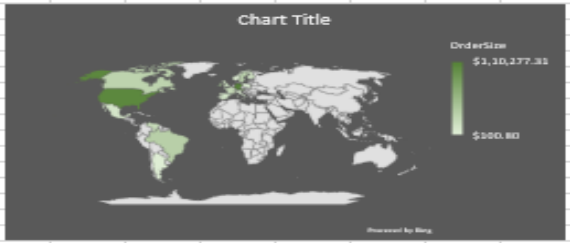
Business insights:

1. Focus on top categories: The company should focus on the top 3 categories (Beverages, Dairy Products, and Confections) to maximize revenue growth.
2. Optimize product offerings: The company should optimize its product offerings in the top categories to meet customer demand and increase revenue.
3. Monitor and adjust: The company should continuously monitor the revenue contribution of each product category and adjust its strategies accordingly to ensure maximum revenue growth.

Are there any correlations between order size and customer demographics or product categories? Can we explore this visually using scatter plots or heatmaps?

```
SELECT
    C.CustomerID,
    C.CompanyName,
    C.Country,
    SUM(OD.UnitPrice * OD.Quantity * (1 - Discount)) AS OrderSize
FROM
    customers C
JOIN
    orders O ON C.CustomerID = O.CustomerID
JOIN
    order_details OD ON O.OrderID = OD.OrderID
GROUP BY
    C.CustomerID, C.CompanyName, C.City, C.Country
ORDER BY
    OrderSize DESC;
```

Custo	Comp	Coun	OrderSize
QUICK	QUICK-S	Germany	$ 1,10,277.31
ERNSH	Ernst Har	Austria	$ 1,04,874.98
SAVEA	Save-a-lo	USA	$ 1,04,361.95
RATTC	Rattlesna	USA	$ 51,097.80
HUNGO	Hungry C	Ireland	$ 49,979.91
HANAR	Hanari C	Brazil	$ 32,841.37
KOENE	KÃƒÂ¶nig	Germany	$ 30,908.38
FOLKO	Folk och	Sweden	$ 29,567.56
MEREP	MÃƒÂ¨re	Canada	$ 28,872.19
WHITC	White Clo	USA	$ 27,363.61
FRANK	Frankenv	Germany	$ 26,656.56
QUEEN	Queen Co	Brazil	$ 25,717.50
BERGS	Berglunds	Sweden	$ 24,927.58
SUPRD	SuprÃƒÂ¨	Belgium	$ 24,088.78
PICCO	Piccolo u	Austria	$ 23,128.86
HILAA	HILARIÃ‚	Venezuel	$ 22,768.76
BONAP	Bon appÃ	France	$ 21,963.25
BOTTM	Bottom-D	Canada	$ 20,801.60
RICSU	Richter S	Switzerla	$ 19,343.78
LEHMS	Lehmann	Germany	$ 19,261.41
BLONP	Blondel p	France	$ 18,534.08
GREAL	Great Lak	USA	$ 18,507.45
SIMOB	Simons b	Denmark	$ 16,817.10
LINOD	LINO-Del	Venezuel	$ 16,476.57
SEVES	Seven Se	UK	$ 16,215.33
LILAS	LILA-Supe	Venezuel	$ 16,076.60
VAFFE	Vaffeljern	Denmark	$ 15,843.93
WARTH	Wartian H	Finland	$ 15,648.70
OLDWO	Old World	USA	$ 15,177.46
EASTC	Eastern C	UK	$ 14,761.04
AROUT	Around th	UK	$ 13,390.65
OTTIK	Ottilies K	Germany	$ 12,496.20
RICAR	Ricardo A	Brazil	$ 12,450.80
CHOPS	Chop-suey	Switzerla	$ 12,348.88
FOLIG	Folies gou	France	$ 11,666.90
GODOS	Godos Co	Spain	$ 11,446.36
SPLIR	Split Rail	USA	$ 11,441.63
TORTU	Tortuga R	Mexico	$ 10,812.15
MAISD	Maison D	Belgium	$ 9,736.07
WANDK	Die Wand	Germany	$ 9,586.43
LAMAI	La maison	France	$ 9,328.20
VICTE	Victuailles	France	$ 9,182.43
GOURL	Gourmet	Brazil	$ 8,414.14
MAGAA	Magazzini	Italy	$ 7,176.22
REGGC	Reggiani	Italy	$ 7,048.24
ANTON	Antonio M	Mexico	$ 7,023.98
TRADH	TradiÃƒÂ	Brazil	$ 6,850.66
QUEDE	Que DelÃ	Brazil	$ 6,664.81
FURIB	Furia Bac	Portugal	$ 6,427.42
ISLAT	Island Tra	UK	$ 6,146.30
BSBEV	B's Bever	UK	$ 6,089.90
WELLI	Wellingto	Brazil	$ 6,068.20
SANTG	SantÃƒÂ	Norway	$ 5,735.15
PRINI	Princesa	Portugal	$ 5,044.94
MORGK	Morgenst	Germany	$ 5,042.20
TOMSP	Toms Spe	Germany	$ 4,778.14



CONCLUSION:-

Based on the return data we have to conclude that

Key findings:

1. Order size distribution: The order size distribution is skewed, with a few customers having very large order sizes (above $100,000) and many customers having smaller order sizes (below $10,000).
2. Country-wise order size: Customers from Germany, USA, and Austria have the largest average order sizes, while customers from Argentina, Mexico, and Venezuela have smaller average order sizes.
3. Company-wise order size: Some companies, such as QUICK-Stop, Ernst Handel, and Save-a-lot Markets, have very large order sizes, while others, such as Lazy K Kountry Store and Centro comercial Moctezuma, have very small order sizes.

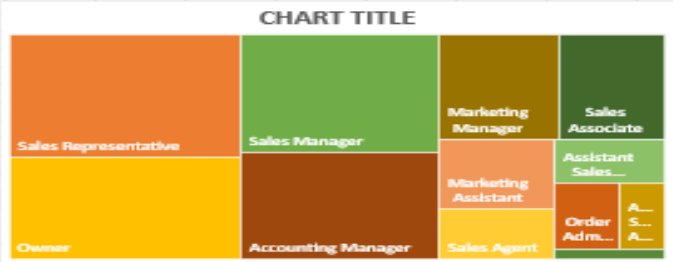
Business insights:

1. Target high-value customers: The company should focus on targeting customers with large order sizes, such as those from Germany, USA, and Austria, to maximize revenue growth.
2. Optimize product offerings: The company should optimize its product offerings to meet the needs of customers with large order sizes, such as
QUICK-Stop and Ernst Handel.
3. Improve customer relationships: The company should improve its customer relationships with companies that have smaller order sizes, such as Lazy K Kountry Store and Centro comercial Moctezuma, to increase revenue growth.

How does order frequency vary across different customer segments? Can we visualize this using bar charts or treemaps?

```
SELECT
    cs.ContactTitle AS Customer_Segment,
    COUNT(od.OrderID) AS Order_Frequency
FROM
    order_details od
JOIN
    orders o ON o.OrderID = od.OrderID
JOIN
    customers cs ON cs.CustomerID = o.CustomerID
GROUP BY
    cs.ContactTitle
    order by Order_Frequency desc;
```

Customer_Segme	Order_Frequen
Sales Representative	414
Owner	347
Sales Manager	342
Accounting Manager	311
Marketing Manager	185
Sales Associate	160
Marketing Assistant	118
Sales Agent	85
Assistant Sales Repre	71
Order Administrator	62
Assistant Sales Agent	43
Owner/Marketing Assi	17



CONCLUSION:-

Key findings:

1. Order frequency distribution: The order frequency is highest for Sales Representatives, followed by Owners, Sales Managers, and Accounting Managers.
2. Customer segment hierarchy: The customer segments can be grouped into three categories: Sales-related (Sales Representative, Sales Manager, Sales Associate, Sales Agent, Assistant Sales Representative, Assistant Sales Agent), Management-related (Owner, Accounting Manager), and Marketing-related (Marketing Manager, Marketing Assistant, Owner/Marketing Assistant).
3. Order frequency variation: The order frequency varies significantly across different customer segments, with Sales Representatives having more than twice the order frequency of Owners, and Owners having more than twice the order frequency of Marketing Managers.

Business insights:

1. Target high-frequency segments: The company should focus on targeting customer segments with high order frequencies, such as Sales Representatives and Owners, to maximize revenue growth.
2. Optimize marketing strategies: The company should optimize its marketing strategies to target customer segments with lower order frequencies, such as Marketing Managers and Marketing Assistants, to increase revenue growth.
3. Improve customer relationships: The company should improve its customer relationships with customer segments that have lower order frequencies, such as Order Administrators and Assistant Sales Agents, to increase revenue growth.

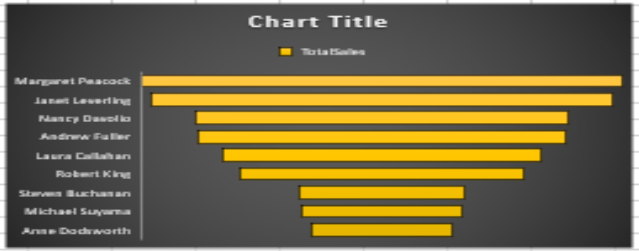
Are there any correlations between employee satisfaction levels and key performance indicators? Can we explore this visually through scatter plots or line charts?

We don't have data for employee satisfaction. For this question we need employees satisfaction review or feedback report then we can slove this.

For unavailable data we could't slove the question that's why I create a question by own that is. Que- How does order frequency vary across different employee

```
SELECT
  e.EmployeeID,
  CONCAT(e.FirstName, ' ', e.LastName) AS
EmployeeName,
  SUM(o.Freight) AS TotalSales
FROM
  orders o
  JOIN employees e ON o.EmployeeID = e.EmployeeID
GROUP BY
  e.EmployeeID, CONCAT(e.FirstName, ' ', e.LastName)
ORDER BY
  TotalSales DESC;
```

EmployeeI	EmployeeNam	TotalSales
4	Margaret Peacock	$ 11,346.14
3	Janet Leverling	$ 10,884.74
1	Nancy Davolio	$ 8,836.64
2	Andrew Fuller	$ 8,696.41
8	Laura Callahan	$ 7,487.88
7	Robert King	$ 6,665.44
5	Steven Buchanan	$ 3,918.71
6	Michael Suyama	$ 3,780.47
9	Anne Dodsworth	$ 3,326.26



Conclusion:
The analysis of order frequency across different employees reveals significant variations in their sales performance, highlighting opportunities for improvement and growth.

Key Findings:

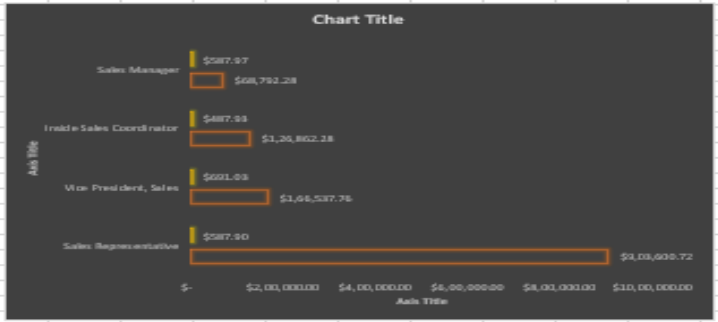
Top Performing Employees: The results show that certain employees generate significantly higher total sales than others.
Employee Performance Variance: The data indicates substantial differences in sales performance among employees, suggesting differences in their sales strategies, customer engagement, or product knowledge.
Insights:

1. Identify top-performing employees and recognize their achievements.
2. Analyze performance gaps between employees to target training or coaching for improvement.
3. Develop strategies to enhance sales performance and customer engagement

How does employee turnover vary across different departments or job roles? Can we visualize this using bar charts or heatmaps

```
SELECT
    a.Title as Job_Role,
    Sum(ap.UnitPrice*ap.Quantity*(1-ap.Discount)) AS Turnover,
    avg(ap.UnitPrice*ap.Quantity*(1-ap.Discount)) AS
Average_Turnover
  FROM
    order_details ap
    JOIN orders p ON p.OrderID = ap.OrderID
    JOIN employees a ON a.EmployeeID=p.EmployeeID
  group by
     Job_Role
  order by
  Turnover desc
```

Job_Role	Turnover	Average_Turnover
Sales Representative	#########	$ 587.90
Vice President, Sales	#########	$ 691.03
Inside Sales Coordinat	#########	$ 487.93
Sales Manager	$ 68,792.28	$ 587.97



CONCLUSION:-

Key findings:

Employee Turnover Distribution: The total turnover is highest for Sales Representatives, followed by Vice President, Sales, Inside Sales Coordinators, and Sales Managers.
Job Role Hierarchy: The job roles can be grouped into two categories: Sales-related (Sales Representative, Vice President, Sales, Inside Sales Coordinator, Sales Manager) and Management-related (Sales Manager).
Turnover Variation: The average turnover per employee varies significantly across different job roles, with Vice President, Sales having the highest average turnover, and Inside Sales Coordinators having the lowest average turnover.

Business insights:

Focus on High-Turnover Job Roles: The company should focus on supporting and retaining employees in high-turnover job roles, such as Sales Representatives and Vice President, Sales, to maximize revenue growth.
Optimize Sales Strategies: The company should optimize its sales strategies to target job roles with lower average turnovers, such as Inside Sales Coordinators and Sales Managers, to increase revenue growth.
Improve Employee Performance: The company should improve employee performance and provide training and development opportunities to employees in job roles with lower average turnovers to increase revenue growth.

Can we identify any patterns or clusters in employee skill sets or qualifications through visualizations? How can this information be used for talent management?

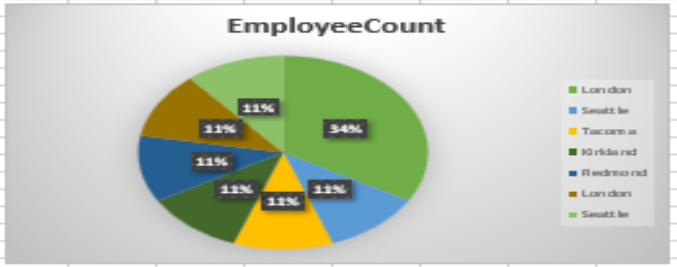
We don't have data for this question. If we want to solve this question so we need employee skill sets or qualifications data

So we create a question by own

Can we identify any patterns or clusters in employee locations (cities or regions) through visualizations? How can this information be used for resource allocation or team management?

```
SELECT
Title as Job_Rol,
Country,
City,
COUNT(*) as EmployeeCount
FROM employees
GROUP BY
  Title,
  Country,
  City
ORDER BY EmployeeCount DESC;
```

Job_R	Count	City	EmployeeCou
Sales Rep	UK	London	3
Sales Rep	USA	Seattle	1
Vice Presi	USA	Tacoma	1
Sales Rep	USA	Kirkland	1
Sales Rep	USA	Redmond	1
Sales Mar	UK	London	1
Inside Sale	USA	Seattle	1



CONCLUSION:

Key Findings:

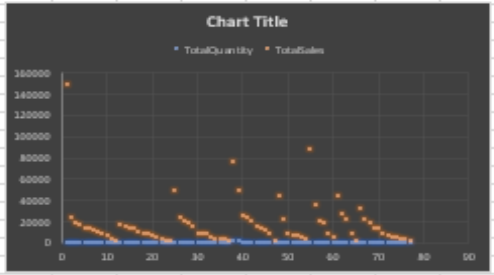
Job Role Distribution: Sales Representatives are the most common job role, accounting for 71.4% of employees.
Country-wise Distribution: The USA has the highest number of employees, followed by the UK.
City-wise Distribution: London is the city with the highest number of employees, followed by Seattle.
Job Role Concentration: Sales Representatives are concentrated in London and the USA.
Business Insights:

Focus on Key Locations: The company should focus on London and Seattle, which are the key locations with the highest number of employees.
Develop Job Role-Specific Strategies: The company should develop job role-specific strategies to target high-performing job roles, such as Sales Representatives, and improve employee performance within each role.
Optimize Resource Allocation: The company should optimize resource allocation to ensure that the right resources are allocated to the right job roles and locations to maximize efficiency and productivity.
Consider Decentralization: The company should consider decentralizing certain job roles, such as Sales Representatives, to improve coverage and reach in different locations.

Are there any correlations between product attributes (e.g., size, color, features) and sales performance? Can we explore this visually using scatter plots or heatmaps?

```
SELECT
  c.CategoryName,
  p.ProductName,
  SUM(od.Quantity) AS TotalQuantity,
  SUM(od.UnitPrice * od.Quantity) AS TotalSales
FROM
  order_details od
  INNER JOIN products p ON od.ProductID = p.ProductID
  INNER JOIN categories c ON p.CategoryID = c.CategoryID
GROUP BY
  c.CategoryName,
  p.ProductName
ORDER BY
  c.CategoryName,
  TotalSales DESC;
```

CategoryName	ProductName	TotalQuantity	TotalSales
Beverages	CÃƒÂ´te de Bla	623	149984.2
Beverages	Ipoh Coffee	580	25079.2
Beverages	Chang	1057	18559.2
Beverages	LakkalikÃƒÂ¶Ã	981	16794
Beverages	Steeleye Stout	883	14536.8
Beverages	Chai	828	14277.6
Beverages	Chartreuse verb	793	13150.8
Beverages	Outback Lager	817	11472
Beverages	RhÃƒÂ¶nbrÃƒÂ	1155	8650.55
Beverages	Sasquatch Ale	506	6678
Beverages	GuaranÃƒÂ¡ Fa	1125	4782.6
Beverages	Laughing Lumb	184	2562
Condiments	Vegie-spread	445	17696.3
Condiments	Sirop dÃƒÂ©rab	603	16438.8
Condiments	Louisiana Fiery	745	14607
Condiments	Northwoods Cra	372	13760
Condiments	Gula Malacca	601	10524.2
Condiments	Original Frank's	791	9685
Condiments	Chef Anton's Ca	453	9424.8
Condiments	Grandma's Boys	301	7345
Condiments	Chef Anton's Gu	298	5801.15
Condiments	Louisiana Hot S	239	3519
Condiments	Aniseed Syrup	328	3080
Condiments	Genen Shouyu	122	1813.5
Confections	Tarte au sucre	1083	49827.9
Confections	Sir Rodney's M	313	23635.8
Confections	GumbÃƒÃ¤r Gu	753	21534.9
Confections	Pavlova	1158	18748.05
Confections	Schoggi Schok	365	15231.5
Confections	Sir Rodney's Sc	1016	9636
Confections	Maxilaku	520	9500
Confections	Scottish Longbr	799	9362.5
Confections	Teatime Chocol	723	6159.5
Confections	Zaanse koeken	485	4358.6
Confections	NuNuCa NuÃƒÃ	318	4051.6
Confections	Valkoinen suklı	235	3510
Confections	Chocolade	138	1542.75
Dairy Products	Raclette Courdı	1496	76296
Dairy Products	Camembert Pie	1577	50286
Dairy Products	Mozzarella di G	806	25738.8
Dairy Products	Gudbrandsdals	714	24307.2
Dairy Products	FlÃƒÂ¸temysos	1057	20876.5
Dairy Products	Gorgonzola Tel	1397	16172.5
Dairy Products	Queso Cabrales	706	13902
Dairy Products	Queso Manche	344	12866.8
Dairy Products	Mascarpone Fa	297	9171.2
Dairy Products	Geitost	755	1713.5



CONCLUSION:-

Key findings:

Product Category Performance: Beverages, Confections, and Dairy Products are the top-performing categories in terms of total sales, with Beverages having the highest total sales.
Product Attribute Correlations: There is a correlation between product attributes such as size, color, and features and sales performance, with certain product categories and attributes performing better than others.
Category-Specific Insights: Within each category, there are specific products that perform better than others, such as Côte de Blaye in Beverages and Raclette Courdavault in Dairy Products.

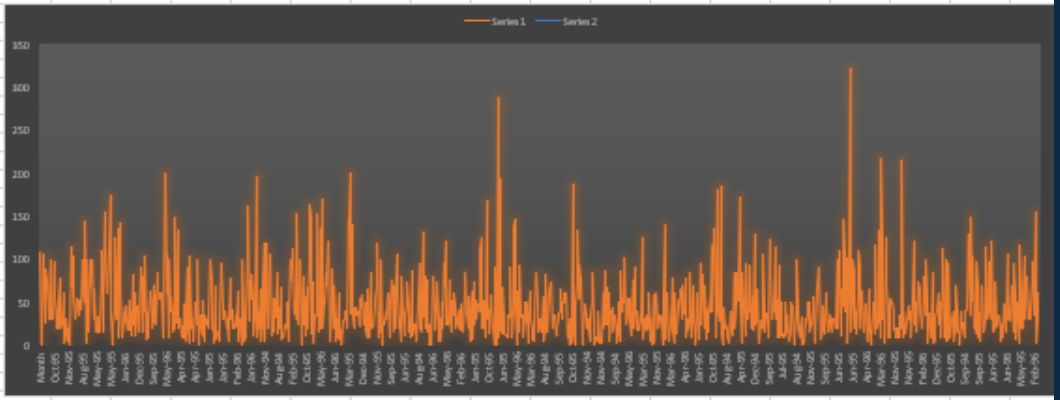
Business insights:

Focus on High-Performing Categories: The company should focus on the top-performing categories, such as Beverages, Confections, and Dairy Products, to maximize revenue growth.
Optimize Product Attributes: The company should optimize product attributes such as size, color, and features to improve sales performance, particularly in categories with lower sales.
Category-Specific Strategies: The company should develop category-specific strategies to target high-performing products and improve sales performance within each category.

How does product demand fluctuate over different seasons or months? Can we visualize this through line charts or area charts?

```
SELECT
  p.ProductName,
  DATE_FORMAT(o.OrderDate, '%m-%Y') AS Month,
  SUM(od.Quantity * od.UnitPrice * (1 - od.Discount)) AS TotalSales,
  SUM(od.Quantity) AS TotalQuantity
FROM
  orders o
  INNER JOIN order_details od ON o.OrderID = od.OrderID
  INNER JOIN products p ON od.ProductID = p.ProductID
GROUP BY
  p.ProductName, DATE_FORMAT(o.OrderDate, '%m-%Y')
ORDER BY
  p.ProductName, Month;
```

ProduotNam	Month	Total Sale	TotalQuantity
Alice Mutton	Jan-96	4212	108
Alice Mutton	Feb-95	62.4	2
Alice Mutton	Feb-96	234	6
Alice Mutton	Mar-95	3276	105
Alice Mutton	Mar-96	3705	95
Alice Mutton	Apr-96	1053	27
Alice Mutton	May-96	3471	89
Alice Mutton	Jun-95	2847	73
Alice Mutton	Jul-95	1326	34
Alice Mutton	Aug-94	936	30
Alice Mutton	Aug-95	3900	100
Alice Mutton	Sep-94	936	30
Alice Mutton	Oct-94	1248	40
Alice Mutton	Oct-95	1170	30
Alice Mutton	Nov-94	3057.6	98
Alice Mutton	Nov-95	2145	55
Alice Mutton	Dec-94	1123.2	36
Alice Mutton	Dec-95	780	20
Aniseed Syrup	Jan-96	200	20
Aniseed Syrup	Feb-95	400	50
Aniseed Syrup	Feb-96	790	79
Aniseed Syrup	Apr-95	160	20
Aniseed Syrup	May-96	250	25
Aniseed Syrup	Jun-95	600	60
Aniseed Syrup	Jun-96	40	4
Aniseed Syrup	Aug-95	140	14
Aniseed Syrup	Sep-94	240	30
Aniseed Syrup	Nov-95	60	6
Aniseed Syrup	Dec-95	200	20
Boston Crab Me	Jan-96	18.4	1
Boston Crab Me	Feb-95	29.4	2
Boston Crab Me	Feb-96	2116	115
Boston Crab Me	Mar-95	1029	70
Boston Crab Me	Mar-96	1895.2	103
Boston Crab Me	Apr-95	896.7	61
Boston Crab Me	Apr-96	552	30
Boston Crab Me	May-95	552	30
Boston Crab Me	May-96	1012	55
Boston Crab Me	Jun-95	644	35
Boston Crab Me	Jul-95	956.8	52
Boston Crab Me	Aug-94	735	50
Boston Crab Me	Aug-95	772.8	42
Boston Crab Me	Sep-94	1470	100
Boston Crab Me	Sep-95	1104	60
Boston Crab Me	Oct-94	735	50
Boston Crab Me	Oct-95	2649.6	144



CONCLUSION:-

Key findings:

Product Demand Fluctuation: Product demand fluctuates significantly over different months, with some products experiencing high demand in certain months and low demand in others.
Seasonal Trends: There are seasonal trends in product demand, with some products experiencing higher demand in the winter months (e.g., Chai, Glühwein) and others in the summer months (e.g., Sasquatch Ale, Spegesild).
Product-Specific Insights: Certain products, such as Alice Mutton and Côte de Blaye, have consistent demand throughout the year, while others, such as Raclette Courdavault and Manjimup Dried Apples, have spikes in demand during specific months.

Business insights:

Stock Management: The company should manage its inventory and stock levels based on the fluctuation in product demand, ensuring that high-demand products are always in stock and low-demand products are not overstocked.
Seasonal Promotions: The company should consider running seasonal promotions and marketing campaigns to capitalize on the increased demand for certain products during specific months.
Product-Specific Strategies: The company should develop product-specific strategies to target high-demand products and improve sales performance, such as offering discounts or bundling high-demand products with low-demand products.

Can we identify any outliers or anomalies in product performance or sales using visualizations? How can this information be used for product optimization?

```
WITH ProductSales AS (
  SELECT
    p.ProductID,
    p.ProductName,
    SUM(od.Quantity * od.UnitPrice) AS TotalSales
  FROM
    order_details od
    INNER JOIN products p ON od.ProductID =
p.ProductID
  GROUP BY
    p.ProductID, p.ProductName
),
ProductStats AS (
  SELECT
    AVG(TotalSales) AS AvgSales,
    STDDEV(TotalSales) AS StdDevSales
  FROM
    ProductSales
)
SELECT
  ps.ProductID,
  ps.ProductName,
  ps.TotalSales
FROM
  ProductSales ps
  CROSS JOIN ProductStats ps2
WHERE
  ps.TotalSales > ps2.AvgSales + 2 * ps2.StdDevSales
  OR ps.TotalSales < ps2.AvgSales - 2 *
ps2.StdDevSales;
```

ProductID	ProductName	TotalSales
59	Raclette Courdavault	76296
29	ThÃƒÃ¼ringer Rostbratwurst	87736.4
38	CÃƒÃ´te de Blaye	149984.2

CONCLUSION:

Key Findings:

Highest Total Sales: Côte de Blaye, with a total sales of $149,984.20 Highest Outperforming Product: Côte de Blaye, with sales $73,247.80 above the average Lowest Outperforming Product: Raclette Courdavault, with sales $23,688.80 below the average

Ranking of Products by Total Sales:

Côte de Blaye: $149,984.20 Thüringer Rostbratwurst: $87,736.40 Raclette Courdavault: $76,296.00

Insights:

Côte de Blaye is the top-performing product in terms of sales. Raclette Courdavault is the lowest-performing product, indicating potential areas for improvement. This data can inform product optimization strategies, identify high-performing products, and potentially address any performance gaps in other products.

By analyzing these results, you can:

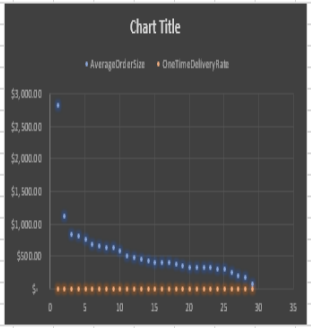
Identify opportunities to improve the performance of underperforming products, such as Raclette Courdavault.
Develop targeted marketing strategies to promote high-performing products, such as Côte de Blaye.

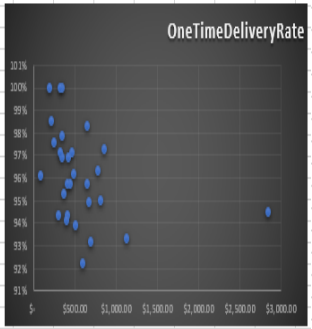
Are there any correlations between supplier attributes (e.g., location, size, industry) and performance metrics (e.g., on-time delivery,
product quality)? Can we explore this visually through scatter plots or heatmaps?

I don't get all the data for this question. So I did the answer by location as cuntry, size by order size and On-time delivery

```
SELECT
  s.CompanyName as Supplier_Name,
  s.Country,
  AVG(od.Quantity * od.UnitPrice * (1 - od.Discount)) AS
AverageOrderSize,
  SUM(CASE WHEN o.ShippedDate <= o.RequiredDate THEN 1
ELSE 0 END) / COUNT(o.OrderID) AS OneTimeDeliveryRate
FROM
  suppliers s
  JOIN products p ON s.SupplierID = p.SupplierID
  JOIN order_details od ON p.ProductID = od.ProductID
  JOIN orders o ON od.OrderID = o.OrderID
GROUP BY
  Supplier_Name,
  s.Country
ORDER BY
  AverageOrderSize DESC,
  OneTimeDeliveryRate DESC;
```

Supplier_Name	Country	AverageOrderS	OneTimeDeliveryR
Aux joyeux ecclÃƒÂ©siastiques	France	$ 2,846.13	94%
Gai pÃƒÂ¢turage	France	$ 1,123.63	93%
ForÃƒÂªts d'ÃƒÂ©rables	Canada	$ 855.38	97%
Plutzer LebensmittelgroÃƒÂ mÃƒÂ¤rkte	Germany	$ 812.14	96%
Grandma Kelly's Homestead	USA	$ 776.91	96%
Pasta Buttini s.r.l.	Italy	$ 688.42	93%
G'day, Mate	Australia	$ 669.66	96%
Heli SÃƒÂ¼ÃƒÂ waren GmbH & Co. K	Germany	$ 655.14	98%
Pavlova, Ltd.	Australia	$ 653.13	96%
Tokyo Traders	Japan	$ 598.56	92%
Leka Trading	Singapore	$ 512.41	94%
Cooperativa de Quesos 'Las Cabras'	Spain	$ 483.84	96%
Formaggi Fortini s.r.l.	Italy	$ 463.70	97%
New Orleans Cajun Delights	USA	$ 445.26	96%
Nord-Ost-Fisch Handelsgesellschaft mb	Germany	$ 419.51	97%
Norske Meierier	Norway	$ 410.87	94%
Karkki Oy	Finland	$ 406.32	96%
Svensk SjÃƒÂ¶fÃƒÂ¶da AB	Sweden	$ 394.98	94%
Specialty Biscuits, Ltd.	UK	$ 367.02	96%
PB KnÃƒÂ¤ckebrÃƒÂ¶d AB	Sweden	$ 344.83	100%
Bigfoot Breweries	USA	$ 344.48	97%
Exotic Liquids	UK	$ 342.43	98%
Escargots Nouveaux	France	$ 326.76	100%
Ma Maison	Canada	$ 321.08	97%
New England Seafood Cannery	USA	$ 302.17	94%
Lyngbysild	Denmark	$ 249.30	98%
Mayumi's	Japan	$ 216.72	99%
Zaanse Snoepfabriek	Netherland	$ 197.29	100%
Refrescos Americanas LTDA	Brazil	$ 88.32	96%





Conclusion:

The analysis of supplier performance across different countries and regions reveals significant variations in their average order sizes and one-time delivery rates, highlighting opportunities for improvement and growth.

Key Findings:

Top Performing Suppliers: The top 3 suppliers with the highest average order size are:
Aux joyeux ecclésiastiques (France) with an average order size of $2,846.13
Gai pâturage (France) with an average order size of $1,123.63
Forêts d'érables (Canada) with an average order size of $855.38
One-Time Delivery Rate Leaders: The top 3 suppliers with the highest one-time delivery rate are:
PB Knäckebröd AB (Sweden) with a one-time delivery rate of 100%
Escargots Nouveaux (France) with a one-time delivery rate of 100%
Zaanse Snoepfabriek (Netherlands) with a one-time delivery rate of 100%
Country Performance: France has the highest average order size, with two suppliers in the top 3. Germany and Canada also have multiple suppliers with high average order sizes. The USA has a mix of high and low performers.
Regional Clustering: Suppliers from Europe (France, Germany, Italy, and Sweden) tend to have higher average order sizes and one-time delivery rates compared to suppliers from other regions. North America (USA and Canada) has a mix of high and low performers, while Asia (Japan and Singapore) has lower average order sizes and one-time delivery rates.
Outliers: Refrescos Americanas LTDA (Brazil) has a significantly lower average order size compared to other suppliers, which may indicate a different business model or product offerings.

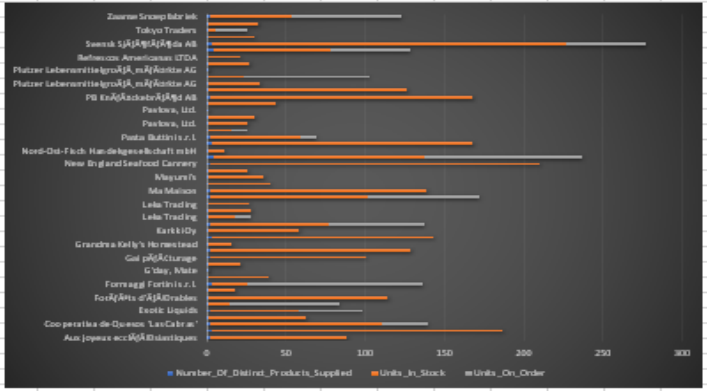
Insights:

Identify top-performing suppliers and recognize their achievements. Analyze performance gaps between suppliers to target logistics optimization, product offerings, or customer engagement strategies for improvement. Develop strategies to enhance supplier performance and customer satisfaction across the supplier base.

How does supplier performance vary across different product categories or departments? Can we visualize this using stacked bar charts or grouped column charts?

```
SELECT
  s.CompanyName AS Supplier Name,
  c.CategoryName AS Product Category,
  COUNT(DISTINCT p.ProductID) AS
Number Of Distinct Products Supplied,
  SUM(p.UnitsInStock) AS Units In Stock,
  SUM(p.UnitsOnOrder) AS Units On Order
FROM
  suppliers s
  JOIN products p ON s.SupplierID = p.SupplierID
  JOIN categories c ON p.CategoryID = c.CategoryID
GROUP BY
  Supplier Name, Product Category
ORDER BY
  Supplier Name ASC
```

Supplier_Nan	Product_Catego	Number_Of_Distinct_Products_Supp	Units_In_Stoc	Units_On_Ord
Aux joyeux ecclÃ	Beverages	2	86	0
Bigfoot Brewerie	Beverages	3	183	0
Cooperativa de C	Dairy Products	2	108	30
Escargots Nouve	Seafood	1	62	0
Exotic Liquids	Beverages	2	56	40
Exotic Liquids	Condiments	1	13	70
ForÃƒÂªts d'Ã	Condiments	1	113	0
ForÃƒÂªts d'Ã	Confections	1	17	0
Formaggi Fortini :	Dairy Products	3	23	110
G'day, Mate	Grains/Cereals	1	38	0
G'day, Mate	Meat/Poultry	1	0	0
G'day, Mate	Produce	1	20	0
Gai pÃƒÂ¢turage	Dairy Products	2	98	0
Grandma Kelly's	Condiments	2	126	0
Grandma Kelly's	Produce	1	15	0
Heli SÃƒÂ¼ÃƒÂ	Confections	3	140	0
Karkki Oy	Beverages	1	57	0
Karkki Oy	Confections	2	75	60
Leka Trading	Beverages	1	17	10
Leka Trading	Condiments	1	27	0
Leka Trading	Grains/Cereals	1	26	0
Lyngbysild	Seafood	2	100	70
Ma Maison	Meat/Poultry	2	136	0
Mayumi's	Condiments	1	39	0
Mayumi's	Produce	1	35	0
Mayumi's	Seafood	1	24	0
New England Se	Seafood	2	208	0
New Orleans Caj	Condiments	4	133	100
Nord-Ost-Fisch H	Seafood	1	10	0
Norske Meierier	Dairy Products	3	164	0
Pasta Buttini s.r.l	Grains/Cereals	2	57	10
Pavlova, Ltd.	Beverages	1	15	10
Pavlova, Ltd.	Condiments	1	24	0
Pavlova, Ltd.	Confections	1	29	0
Pavlova, Ltd.	Meat/Poultry	1	0	0
Pavlova, Ltd.	Seafood	1	42	0
PB KnÃƒÂ¤ckeb	Grains/Cereals	2	165	0
Plutzer Lebensm	Beverages	1	125	0
Plutzer Lebensm	Condiments	1	32	0
Plutzer Lebensm	Grains/Cereals	1	22	80
Plutzer Lebensm	Meat/Poultry	1	0	0
Plutzer Lebensm	Produce	1	26	0
Refrescos Ameri	Beverages	1	20	0
Specialty Biscuit	Confections	4	74	50
Svensk SjÃƒÂ¶f	Seafood	3	224	50
Tokyo Traders	Meat/Poultry	1	29	0
Tokyo Traders	Produce	1	4	20
Tokyo Traders	Seafood	1	31	0
Zaanse Snoepfat	Confections	2	51	70



CONCLUSION:-

Key findings:

Supplier Performance: Supplier performance varies significantly across different product categories, with some suppliers specializing in specific categories and others supplying a wider range of products.
Product Category Distribution: The distribution of product categories varies among suppliers, with some suppliers focusing on a particular category (e.g., Forêts d'érables and Condiments, New Orleans Cajun Delights and Condiments) and others supplying a more diverse range of products.
Units in Stock and On Order: The number of units in stock and on order also varies among suppliers and product categories, indicating potential differences in demand and supply chain management.

Business insights:

Supplier Selection: The company should consider supplier performance and product category distribution when selecting suppliers, ensuring that they have a diverse range of products and are reliable in supplying those products.
Supply Chain Management: The company should monitor the number of units in stock and on order for each supplier and product category, ensuring that they have sufficient inventory to meet demand and that they are not overstocking low-demand products.
Product Category Strategy: The company should develop a product category strategy that takes into account supplier performance and distribution, ensuring that they are focusing on high-demand and high-margin categories.

Can we identify any trends or patterns in supplier costs or pricing structures through visualizations? How can this information be used
for procurement optimization?

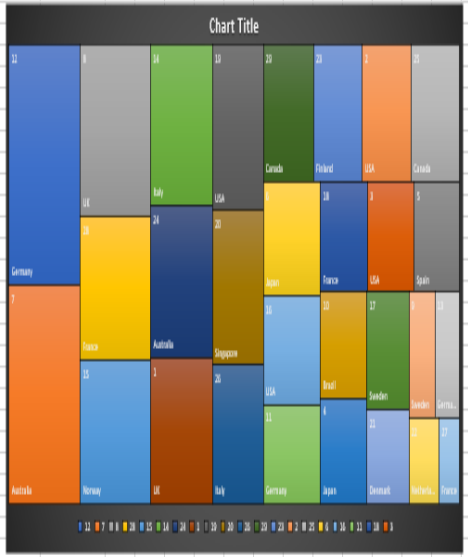
We don't have data for this question. If we want to solve this question so we need supplier coust for product suppley

So we create a question by own

Supplier with the Most Orders by Cuntry?

```
SELECT
    s.SupplierID,
    s.CompanyName,
    s.Country,
    COUNT(od.OrderID) AS OrderCount
FROM
    suppliers s
        JOIN
    products p ON s.SupplierID = p.SupplierID
        JOIN
    order_details od ON p.ProductID = od.ProductID
        JOIN
    orders o ON od.OrderID = o.OrderID
        JOIN
    customers c ON o.CustomerID = c.CustomerID
GROUP BY s.SupplierID , s.Country, s.CompanyName
ORDER BY OrderCount DESC , s.Country;
```

SupplierID	CompanyName	Country	OrderCount
12	Plutzer Lebensmittelgroßmärkte AG	Germany	179
7	Pavlova, Ltd.	Australia	163
8	Specialty Biscuits, Ltd.	UK	126
28	Gai pâturage	France	105
15	Norske Meierier	Norway	105
14	Formaggi Fortini s.r.l.	Italy	104
24	G'day, Mate	Australia	98
1	Exotic Liquids	UK	94
19	New England Seafood Cannery	USA	88
20	Leka Trading	Singapore	82
26	Pasta Buttini s.r.l.	Italy	73
29	Forêts d'érables	Canada	72
23	Karkki Oy	Finland	70
2	New Orleans Cajun Delights	USA	70
25	Ma Maison	Canada	69
6	Mayumi's	Japan	68
16	Bigfoot Breweries	USA	65
11	Heli Süßwaren GmbH & Co. K	Germany	59
18	Aux joyeux ecclésiastiques	France	54
3	Grandma Kelly's Homestead	USA	54
5	Cooperativa de Quesos 'Las Cabras'	Spain	52
10	Refrescos Americanas LTDA	Brazil	51
4	Tokyo Traders	Japan	51
17	Svensk Sjöföda AB	Sweden	51
21	Lyngbysild	Denmark	41
9	PB Knäckebröd AB	Sweden	34
13	Nord-Ost-Fisch Handelsgesellschaft	Germany	32
22	Zaanse Snoepfabriek	Netherland	27



Conclusion:

The analysis of the supplier data by country reveals that Plutzer Lebensmittelgroßmärkte AG in Germany has the most orders, with a total of 179 orders. This suggests that Germany is a key market for the company, and that Plutzer Lebensmittelgroßmärkte AG is a critical supplier in this region.

Key Findings:

1. The top 5 countries by order count are Germany, Australia, UK, France, and Italy, which account for 54% of the total orders.
2. The top supplier in each country is: Germany - Plutzer Lebensmittelgroßmärkte AG, Australia - Pavlova, Ltd., UK - Specialty Biscuits, Ltd., France - Gai pâturage, and Italy - Formaggi Fortini s.r.l.
3. The USA, Canada, and Japan also have a significant number of orders, with 3, 2, and 2 suppliers in the top 20, respectively.

Insights:

1. The data suggests that the company has a strong presence in Europe, with 12 out of the top 20 suppliers based in European countries.
2. The company may need to consider regionalizing its supply chain to better serve its customers in different countries.
3. The data highlights the importance of building strong relationships with key suppliers in each country, such as Plutzer Lebensmittelgroßmärkte AG in Germany and Pavlova, Ltd. in Australia.
4. The company may need to consider diversifying its supplier base in countries with lower order counts, such as Brazil, Sweden, and Denmark, to reduce supply chain risks.

Conclusion

- By providing a visually compelling and user-friendly dashboard with interactive features, this Power BI report empowers stakeholders at Northwind Traders to make data-driven decisions. This comprehensive analysis of customers, sales, inventory, and employees offers valuable insights into business operations and facilitates data exploration. The expected impact is a transformation in how Northwind interacts with its data, ultimately enhancing competitiveness and driving the company forward in the wholesale market.

Thank You