

# Create Reports from Database (SQL, Visualized using Tableau)

## Project Overview & Business Scenario

Query a relational database to extract desired information. You're a business intelligence analyst for a wholesaler of various food products. You're in charge of putting together analytics dashboards for management. They have requested that you focus on one area of the business and create a dashboard that provides various summary statistics related to that area.

## Visualization 1.

Number of Orders for Each Product

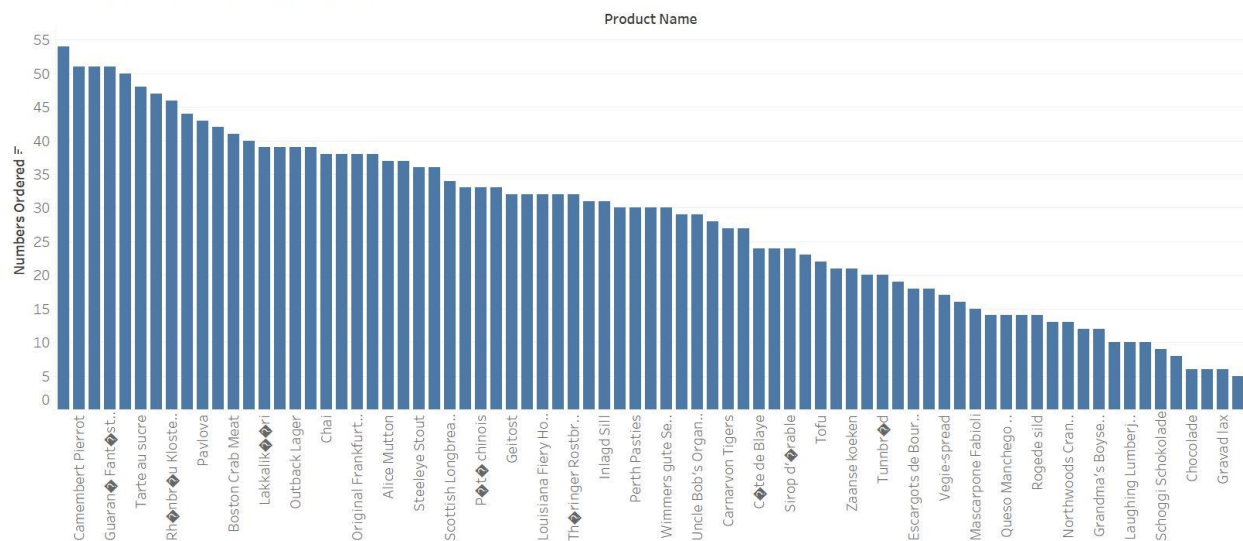


Figure 1. Number of Orders for Each Product

Figure 1. shows from 2014 to 2016, the product which was ordered the most by customers were Raclette Courdavault, the product which was order the least by customers was Mishi Kobe Niku.

SQL Query:

```
1 SELECT p.ProductID, p.ProductName, COUNT(*) numbers_ordered
2 FROM Products p
3 JOIN OrderDetails o
4 ON p.ProductID=o.ProductID
5 GROUP BY 1
6 ORDER BY 3 DESC;
```

## Visualization 2.

Number of Orders for Each Category(Specific Product)

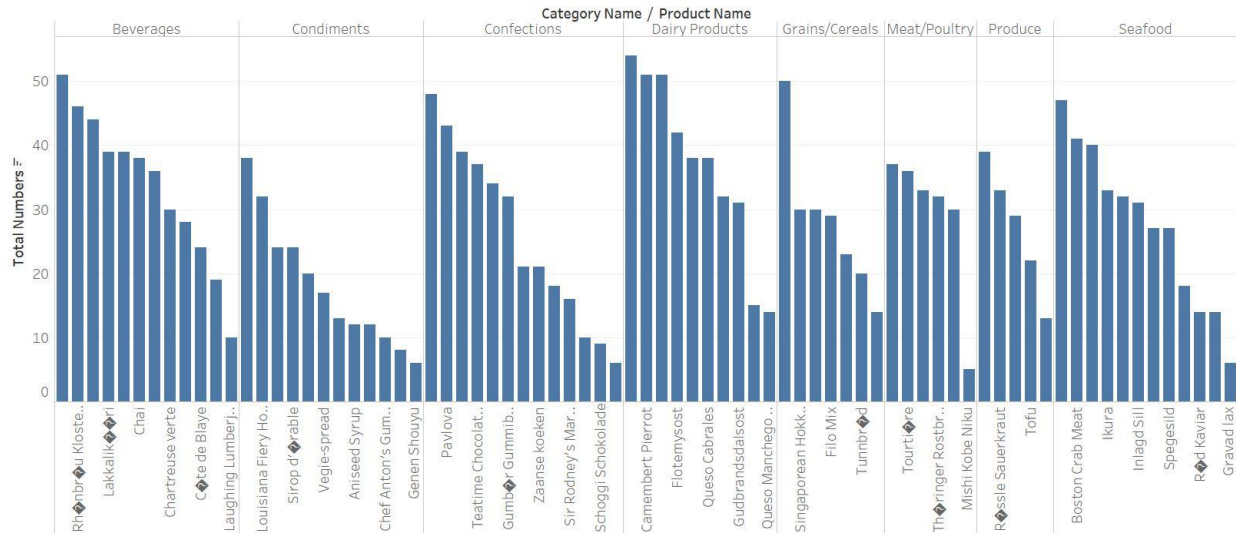


Figure 2. Number of Orders for Each Category (Specific Product)

Figure 2. shows the total number of orders for each product in seven categories in descending order.

SQL Query:

```

1  SELECT c.CategoryID, c.CategoryName, t1.ProductID, t1.ProductName,
2         t1.total_numbers
3  FROM Categories c
4  JOIN
5  (SELECT p.ProductID, p.ProductName, p.CategoryID, COUNT(*) total_numbers
6   FROM Products p
7   JOIN OrderDetails o
8   ON p.ProductID=o.ProductID
9   GROUP BY 3,1
10  ORDER BY 3 DESC) AS t1
11  ON c.CategoryID= t1.CategoryID
12  GROUP BY 1,3
13  ORDER BY 1,5 DESC;

```

### Visualization 3.

Countries with Number of Orders

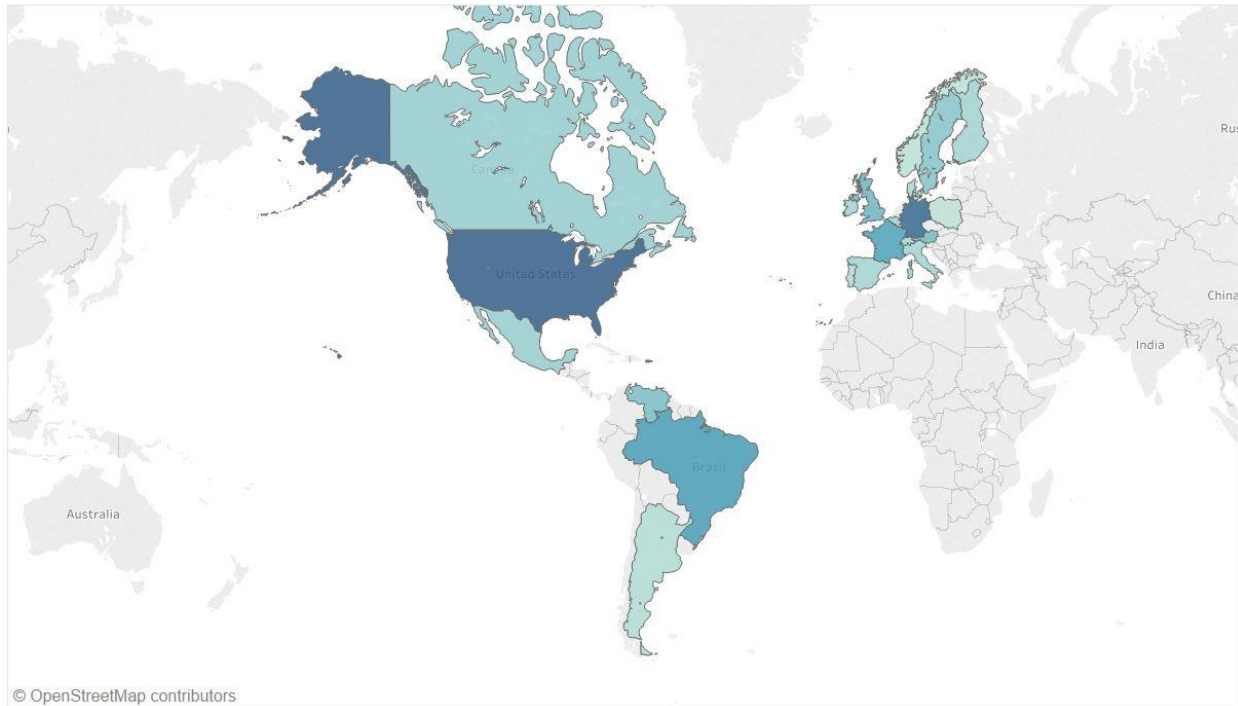


Figure 3. Number of Orders Distribution (By Country)

Figure 3. shows the color filled in different countries with from dark blue to light blue means the country with most orders to the country with least orders, the country which has the most orders is United States.

SQL Query:

```
1  SELECT t1.ProductID ProductID,t1.ProductName ProductName,t1.OrderID OrderID,
2         o1.CustomerID CustomerID,o1.ShipCountry ShipCountry,COUNT(*)total_orders
3  FROM Orders o1
4  JOIN
5  (SELECT p.ProductID,p.ProductName,o.OrderID
6   FROM Products p
7   JOIN OrderDetails o
8   ON p.ProductID=o.ProductID) AS t1
9   ON o1.OrderID=t1.OrderID
10 GROUP BY 5
11 ORDER BY 6;
```

## Visualization 4.

Total Sales for Each Products

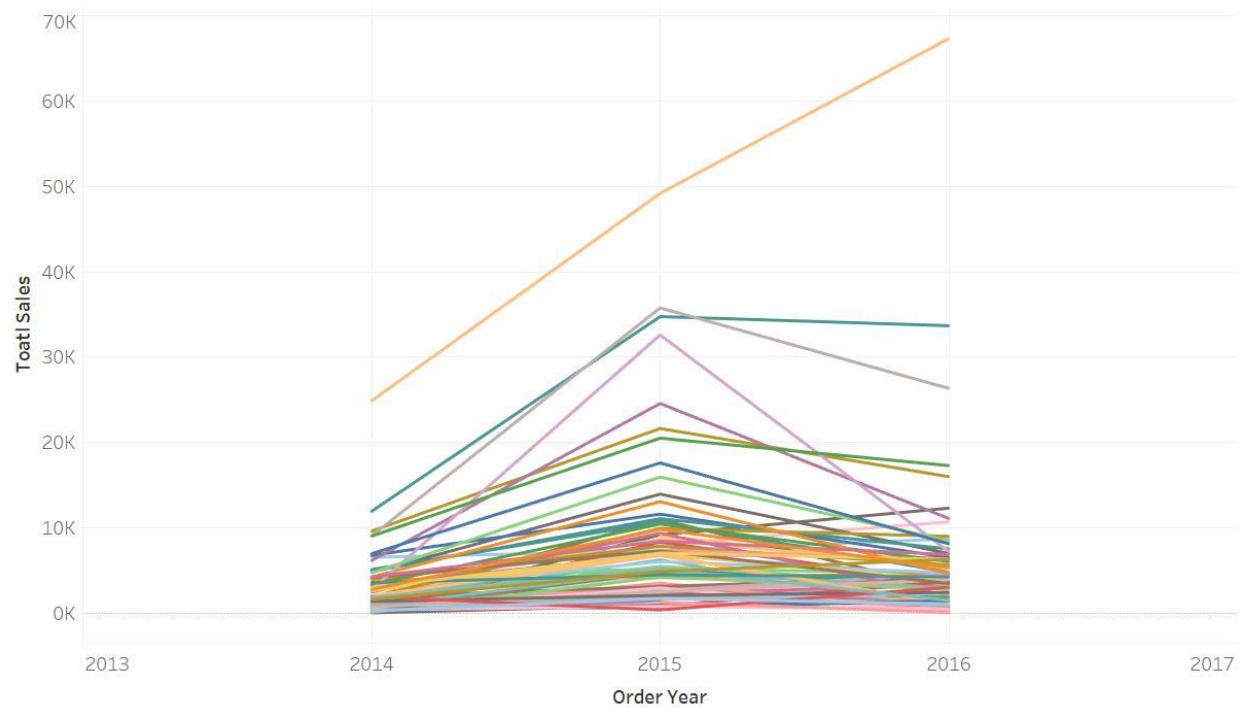


Figure 4. Total Sales for Each Product

Figure 4. shows the total sales for each product, what can be inferred from the graph is the top three total sales products are represented by yellow, green, and grey lines.

SQL Query:

```
1 WITH Sales AS (SELECT p.ProductID,p.ProductName,o.OrderID,o.UnitPrice*o.Quantity*(1-o.Discount) AS total_Sales
2                 FROM Products p
3                 JOIN OrderDetails o
4                 ON p.productID=o.ProductID)
5 SELECT s.OrderID OrderID,SUBSTR(o1.OrderDate,1,4)AS Order_Year,s.ProductID ProductID,
6        s.ProductName ProductName,SUM(s.total_sales) ToatlSales
7 FROM Orders o1
8 JOIN Sales s
9 ON o1.OrderID=s.OrderID
10 GROUP BY 4,2
11 ORDER BY 2,5 DESC;
```

## Visualization 5.

### Top 3 Product Total Sales (2014~2016)

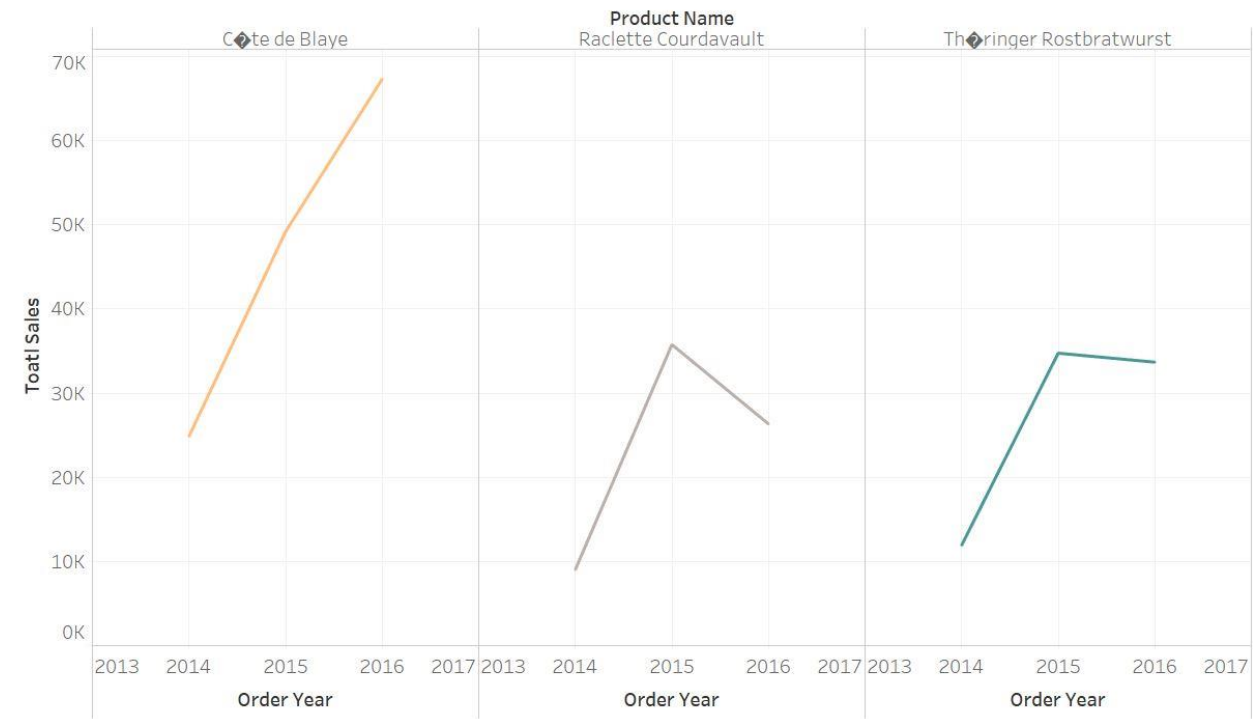


Figure 5. Top 3 Product Total Sales (2014 – 2016)

Figure 5. shows the details of the top three products with highest total sales from 2014 to 2016. But only the product on the left shows an increasing trend in sales after 2016, the middle and the right products both show a decreasing trend in total sales from 2015.

SQL Query:

```

1 WITH Sales AS (SELECT p.ProductID, p.ProductName, o.OrderID, o.UnitPrice * o.Quantity * (1 - o.Discount) AS total_Sales
2                 FROM Products p
3                 JOIN OrderDetails o
4                 ON p.ProductID = o.ProductID)
5 SELECT s.OrderID OrderID, SUBSTR(o1.OrderDate, 1, 4) AS Order_Year, s.ProductID ProductID,
6        s.ProductName ProductName, SUM(s.total_sales) TotalSales
7 FROM Orders o1
8 JOIN Sales s
9 ON o1.OrderID = s.OrderID
10 GROUP BY 4, 2
11 ORDER BY 2, 5 DESC;

```