

# Case Study: Northwind Database

Siska Puspita Juita  
Group 1A  
juitapuspitasiska@gmail.com



# Objective Analysis

- **Product Analysis**

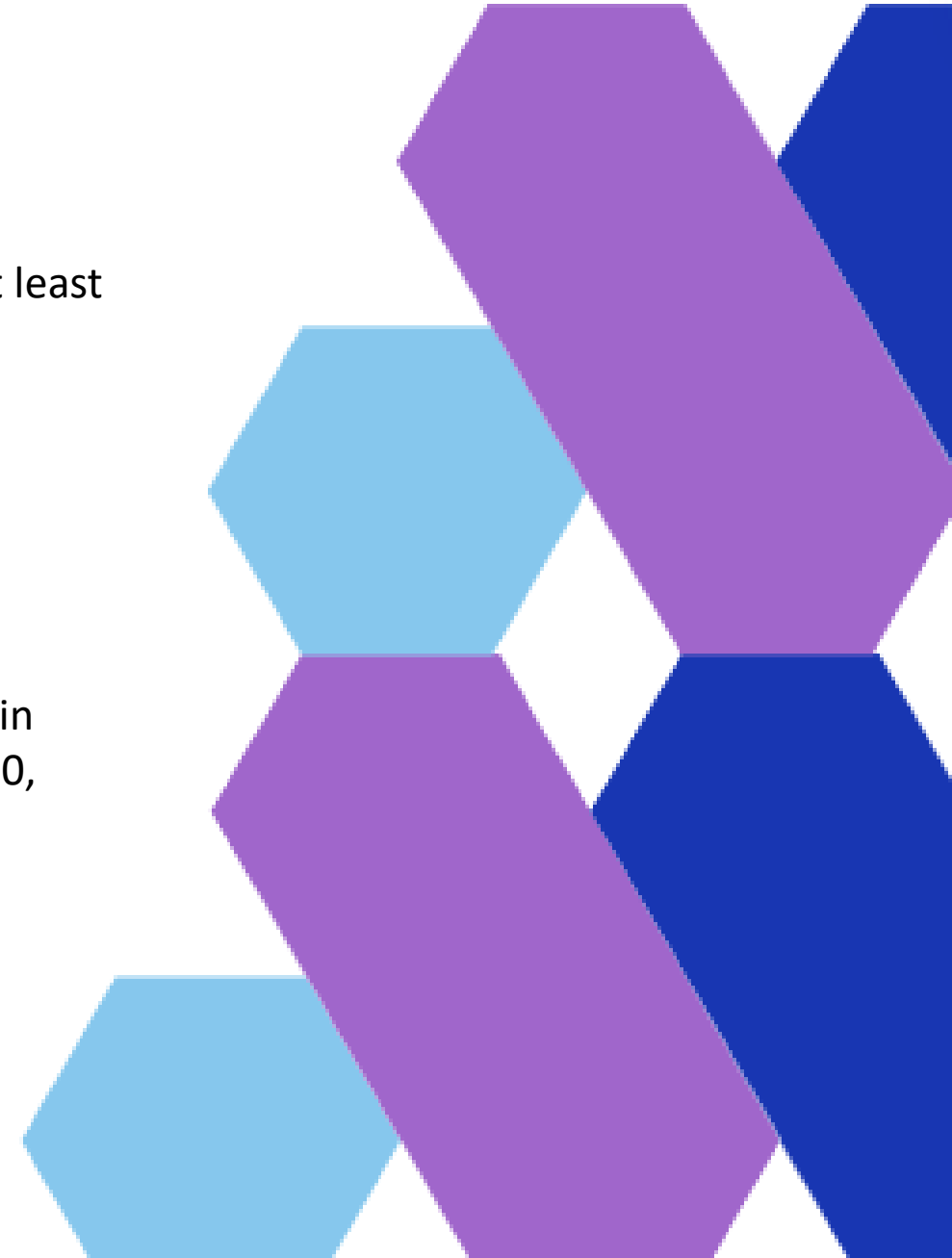
1. Top 10 products by average discount
2. 10 worst selling products by sales value include products that have at least been sold once
3. Top 10 products by revenue after discounts
4. Top 10 products by quantity order
5. %Revenue by product categories
6. Best month for sale products in terms of sales value

- **Customer Analysis**

1. Categorize customers into groups, based on how much they ordered in 1997. The customer grouping categories are 0 to 1,000, 1,000 to 5,000, 5,000 to 10,000, and over 10,000.
2. Top 5 country where have the most customers.

- **Employee Analysis**

1. The percentage of late orders over total orders
2. Top 5 sales person



# Table Used for Analysis

## Product Analysis

- Order Details
- Products
- Orders
- Categories

## Customer Analysis

- Customers
- Orders
- Order Details

## Employee Analysis

- Employees
- Orders

# Top 10 Products By Average Discount



Recommendation :

Marketing campaign for discounted product to attract buyers.

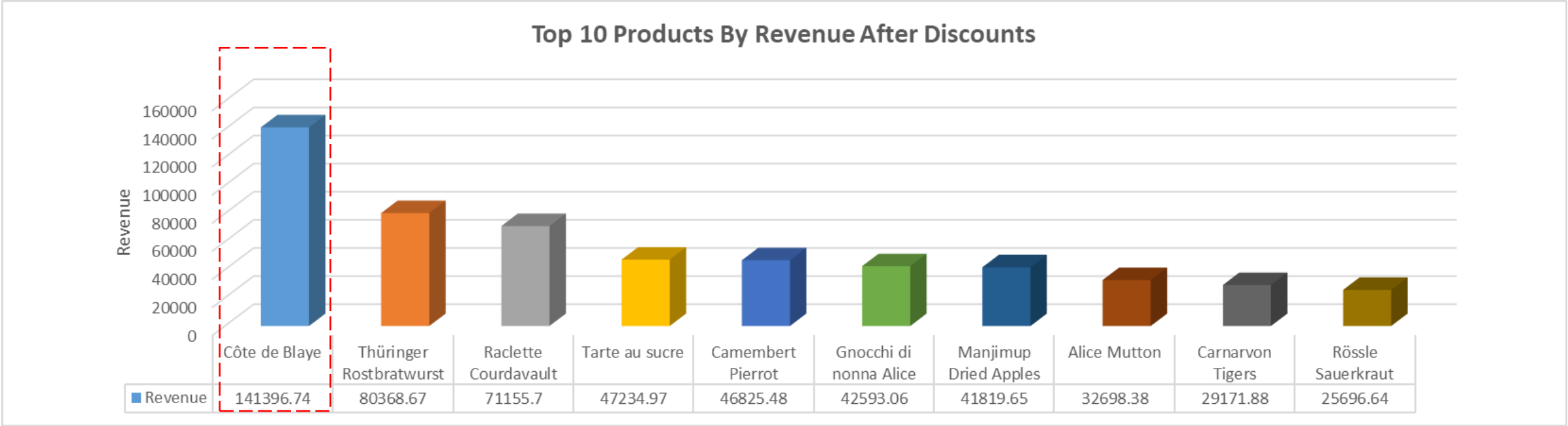
# 10 Worst Selling Products By Sales Value

OrderID	ProductName	Quantity	Total sales value
10462	Konbu	1	4.800000191
10281	Teatime Chocolate Biscuits	1	7.300000191
10782	Gorgonzola Telino	1	12.5
11077	Louisiana Hot Spiced Okra	1	17
10807	Boston Crab Meat	1	18.39999962
10259	Gravad lax	1	20.79999924
11077	Chef Anton's Cajun Seasoning	1	22
11077	Tofu	1	22.55249977
11077	Grandma's Boysenberry Spread	1	24.5
10917	Nord-Ost Matjeshering	1	25.88999939

Recommendation :

Increase the discount for these products.

# Top 10 Products By Revenue After Discounts



Recommendation :  
These products can be considered for restock.

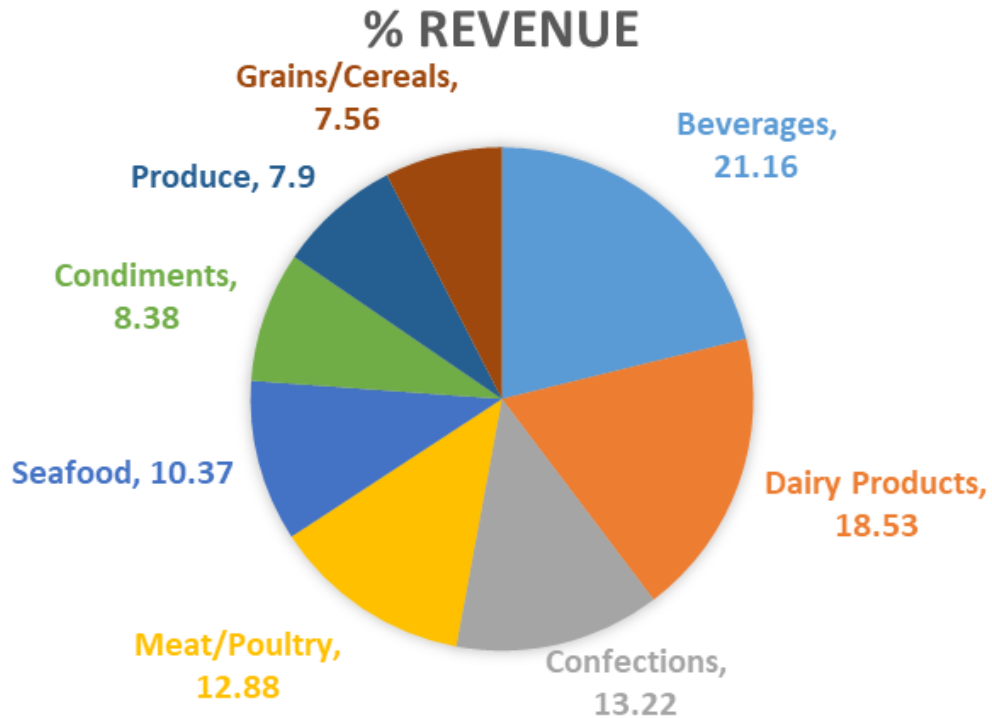
# Top 10 Products By Quantity Order

Product ▼	Quantity Order ▼
Camembert Pierrot	1577
Raclette Courdavault	1496
Gorgonzola Telino	1397
Gnocchi di nonna Alice	1263
Pavlova	1158
Rhönbräu Klosterbier	1155
Guaraná Fantástica	1125
Boston Crab Meat	1103
Tarte au sucre	1083
Chang	1057

Recommendation :

These products can be considered for restock.

# %Revenue By Products Categories



Most part of the revenue comes from the categories Beverages (21,16%) and Dairy Products (18,53%). The categories Produce (7,9%) and Grains/Cereals (7,56%) are the ones with less revenue after discounts.

Recommendation :

Maintain Beverages stock so that there is no shortage and boost marketing campaign especially for Beverages



# Best Month For Sale Products In Terms Of Sales Value

Month	Total_sales
4	176,831.63
1	155,480.18
3	143,401.38
2	137,898.92
12	116,638.06
10	104,264.95
11	89,133.85
9	82,010.64
7	78,882.75
8	72,772.95
5	72,114.92
6	36,362.80

The most peak month is April.

Recommendation :

- Prepare employee resources and staffing needs for peak season.
- Optimize inventory.
- Forecast product demands for peaks season.
- Partner with delivery specialists to scale rapidly.

# Categorize Customers Into Groups Based On Ordered In 1997

CustomerID	CompanyName	TotalOrderAmount	Category
QUICK	QUICK-Stop	64238	Very High
SAVEA	Save-a-lot Markets	60672.64	Very High
ERNSH	Ernst Handel	53467.38	Very High
MEREP	Mère Paillardé	26087.1	Very High
HUNGO	Hungry Owl All-Night Grocers	23959.05	Very High
RATTC	Rattlesnake Canyon Grocery	19658.7	Very High
SIMOB	Simons bistro	17482.15	Very High
BERGS	Berglunds snabbköp	14533.2	Very High
LEHMS	Lehmanns Marktstand	14433.17	Very High
HILAA	HILARION-Abastos	14026.18	Very High
FOLKO	Folk och få HB	13491.5	Very High
WARTH	Wartian Herkku	13106.3	Very High
BONAP	Bon app'	12462.55	Very High
FRANK	Frankenversand	12433.11	Very High
RICSU	Richter Supermarkt	12044.8	Very High
FOLIG	Folies gourmandes	11666.9	Very High
QUEEN	Queen Cozinha	10937.25	Very High
WHITC	White Clover Markets	10262.55	Very High

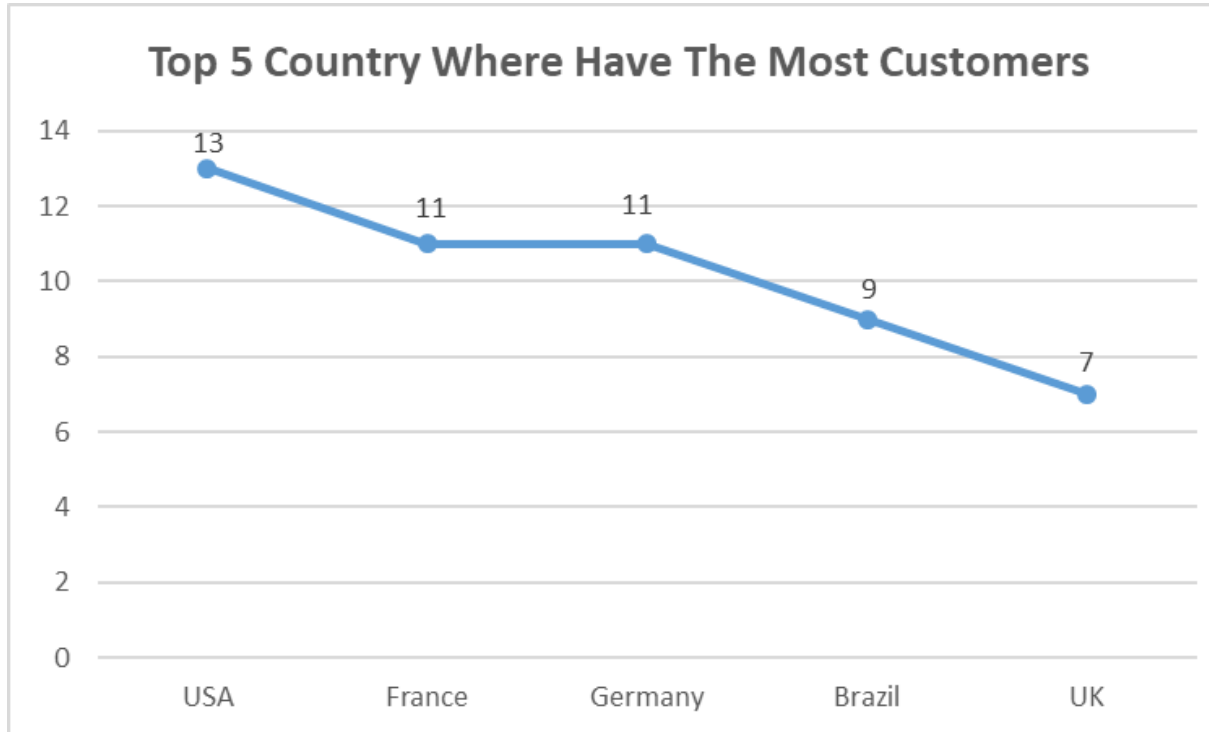
CustomerID	CompanyName	TotalOrderAmount	Category
KOENE	Königlich Essen	9879.4	High
VAFFE	Vaffeljernet	9710.5	High
PICCO	Piccolo und mehr	9684.6	High
SEVES	Seven Seas Imports	9597.65	High
GREAL	Great Lakes Food Market	9148.55	High
BOTTM	Bottom-Dollar Markets	8547.5	High
OTTIK	Ottilies Käseladen	8398.6	High
BLONP	Blondesddsl père et fils	8371.8	High
GOURL	Gourmet Lanchonetes	8205.23	High
LINOD	LINO-Delicatesses	7803.95	High
LAMAI	La maison d'Asie	7465.8	High
CHOPS	Chop-suey Chinese	6657.7	High
HANAR	Hanari Carnes	6605.3	High
AROUT	Around the Horn	6589	High
ANTON	Antonio Moreno Taquería	6452.15	High
SUPRD	Suprêmes délices	6403.1	High
VICTE	Victuailles en stock	6099.5	High
LILAS	LILA-Supermercado	5953.6	High
OLDWO	Old World Delicatessen	5896	High
FURIB	Furia Bacalhau e Frutos do Mar	5761.55	High
MAISD	Maison Dewey	5684	High
TORTU	Tortuga Restaurante	5523.35	High
WANDK	Die Wandernde Kuh	5217.65	High

CustomerID	CompanyName	TotalOrderAmount	Category
MAGAA	Magazzini Alimentari Riuniti	4995.65	Medium
WELLI	Wellington Importadora	4717.9	Medium
EASTC	Eastern Connection	4514.35	Medium
RICAR	Ricardo Adocicados	4338.9	Medium
BOLID	Bólido Comidas preparadas	4035.8	Medium
QUEDE	Que Delícia	3660.03	Medium
MORGK	Morgenstern Gesundkost	3596.4	Medium
GODOS	Godos Cocina Típica	3524.05	Medium
FAMIA	Familia Arquibaldo	3344.9	Medium
REGGC	Reggiani Caseifici	3203.6	Medium
BSBEV	B's Beverages	3179.5	Medium
SPLIR	Split Rail Beer & Ale	2972.5	Medium
THEBI	The Big Cheese	2955.4	Medium
ISLAT	Island Trading	2560.5	Medium
ALFKI	Alfreds Futterkiste	2294	Medium
HUNGC	Hungry Coyote Import Store	2283.2	Medium
TOMSP	Toms Spezialitäten	2180.2	Medium
PERIC	Pericles Comidas clásicas	2065.4	Medium
LETSS	Let's Stop N Shop	2039.42	Medium
LONEP	Lonesome Pine Restaurant	1837.2	Medium
THECR	The Cracker Box	1621.24	Medium
TRADH	Tradição Hipermercados	1613	Medium
PRINI	Princesa Isabel Vinhos	1523.2	Medium
TRAIH	Trail's Head Gourmet Provisioners	1333.3	Medium
WOLZA	Wolski Zajazd	1207.85	Medium
WILMK	Wilman Kala	1174.35	Medium
RANCH	Rancho grande	1149.4	Medium
COMMI	Comércio Mineiro	1128	Medium
BLAUS	Blauer See Delikatessen	1079.8	Medium

CustomerID	CompanyName	TotalOrderAmount	Category
FRANR	France restauration	920.1	Low
ANATR	Ana Trujillo Emparedados y helados	799.75	Low
CONSH	Consolidated Holdings	787.6	Low
SANTG	Santé Gourmet	700	Low
NORTS	North/South	604	Low
GALED	Galería del gastrónomo	493.2	Low
DUMON	Du monde entier	487	Low
OCEAN	Océano Atlántico Ltda.	429.2	Low
DRACD	Drachenblut Delikatessen	420	Low
GROSR	GROSELLA-Restaurante	387.5	Low
VINET	Vins et alcools Chevalier	379.8	Low
LAZYK	Lazy K Kountry Store	357	Low
LAUGB	Laughing Bacchus Wine Cellars	335.5	Low
FRANS	Franchi S.p.A.	249.7	Low
CACTU	Cactus Comidas para llevar	238	Low
SPECD	Spécialités du monde	52.35	Low

Recommendation :  
Do a sales campaign for existing customers with different sales material depending on which group the customer is in.

# Top 5 Country Where Have The Most Customers



## Recommendation :

- Improve customer retention through high-quality products.
- Provide a unique customer experience.

# Percentage Of Late Orders Over Total Orders

EmployeeID	Last Name	All Orders	Late Orders	%Late Order
1	Davolio	123	2	1.63
2	Fuller	96	4	4.17
3	Leverling	127	5	3.94
4	Peacock	156	10	6.41
5	Buchanan	42	1	2.38
6	Suyama	67	3	4.48
7	King	72	4	5.56
8	Callahan	104	4	3.85
9	Dodsworth	43	4	9.3

Some salespeople have more orders arriving late than others. Maybe they're not following up on the order process and need more training.

Recommendation :  
Developing and implementing effective employee training.

# Top 5 Sales Person

EmployeeID	Total Orders
4	156
3	127
1	123
8	104
2	96

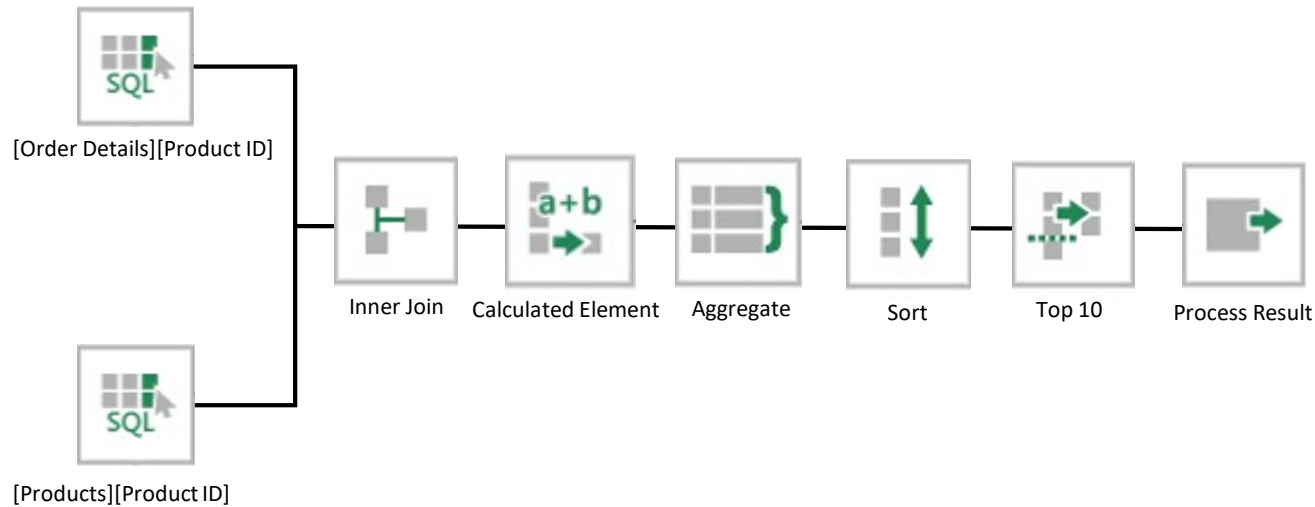
EmployeeID 4 has placed the most orders.

Recommendation :  
Give reward for top 5 sales person.



# Flowchart & Screenshot Query

# Top 10 Product By Avg Discount



```
--No 1. Top 10 Product by Avg Discount
SELECT TOP 10 p.ProductName AS "Product",
           ROUND(AVG(od.Discount)*100,2) AS "Avg. Discount (%)"
FROM [Order Details] od
INNER JOIN Products p
ON od.ProductID = p.ProductID
GROUP BY p.ProductName
ORDER BY 2 DESC;
```

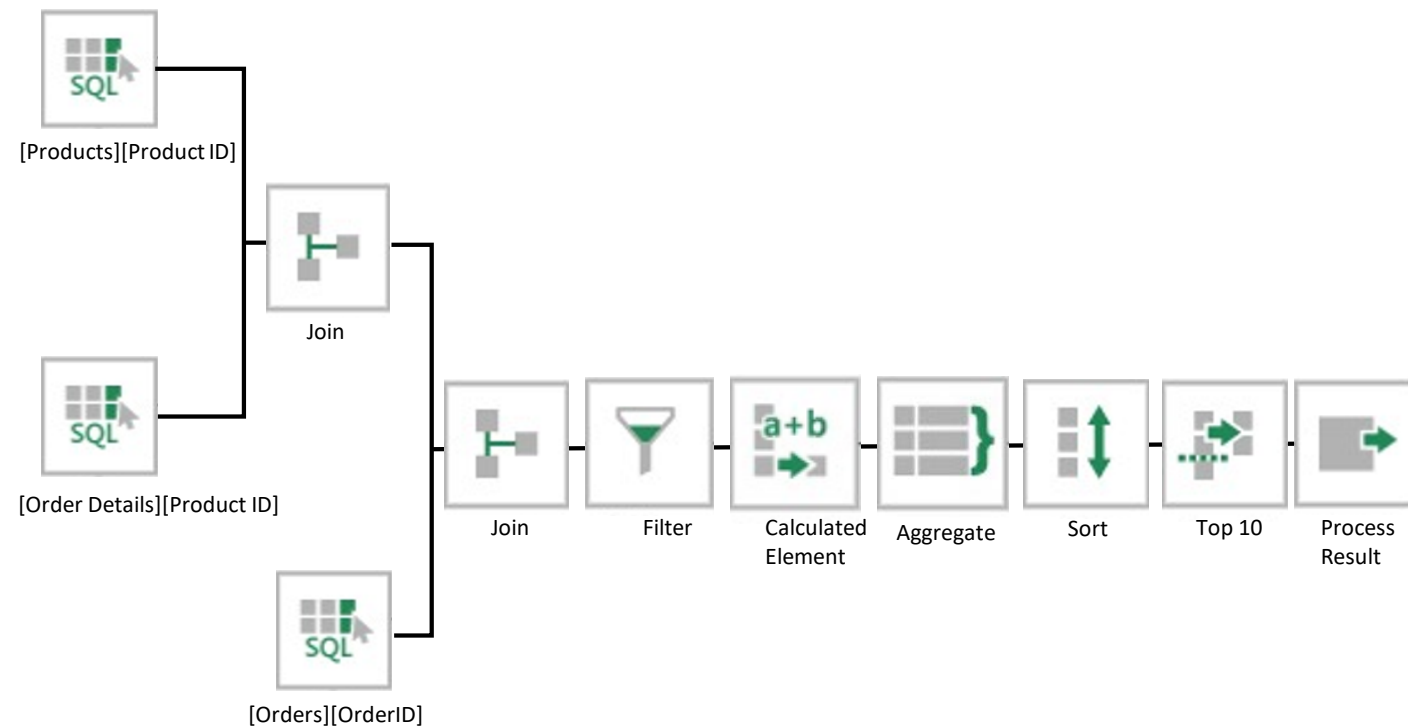
85 %

Results

Messages

	Product	Avg. Discount (%)
1	Chocolade	10.83
2	Chang	10.23
3	Escargots de Bourgogne	10
4	Mishi Kobe Niku	10
5	NuNuCa Nuß-Nougat-Creme	8.61
6	Nord-Ost Matjeshering	8.13
7	Carnarvon Tigers	7.96
8	Inlagd Sill	7.9
9	Chai	7.76
10	Pâté chinois	7.73

# 10 Worst Selling Products By Sales Value



```
--No 2. 10 worst selling products by sales value include products that have at least been sold once
Select TOP 10 od.OrderID, p.ProductName, od.Quantity, SUM(od.UnitPrice * od.Quantity * (1-od.Discount)) AS Total_sales
FROM Products p
JOIN [Order Details] od
ON p.ProductID = od.ProductID
JOIN Orders o
ON o.OrderID = od.OrderID
WHERE od.Quantity = 1
GROUP BY od.Quantity, od.OrderID, p.ProductName
ORDER BY Total_sales
```

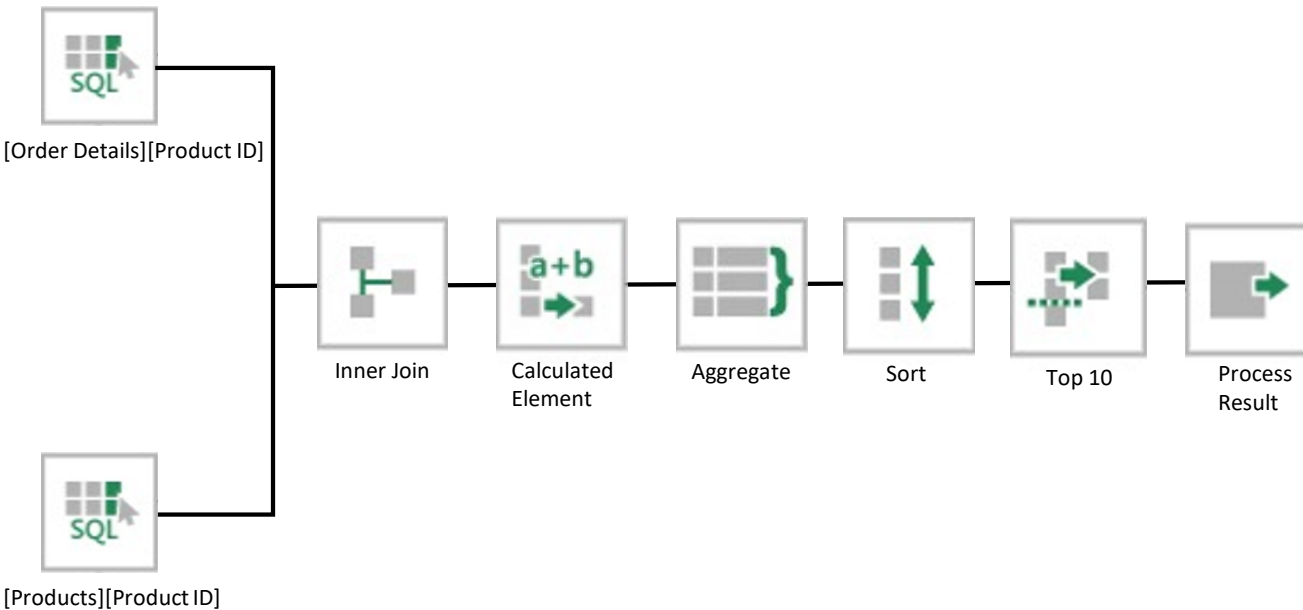
65 %

Results Messages

	OrderID	ProductName	Quantity	Total_sales
1	10462	Konbu	1	4.80000019073486
2	10281	Teatime Chocolate Biscuits	1	7.30000019073486
3	10782	Gorgonzola Telino	1	12.5
4	11077	Louisiana Hot Spiced Okra	1	17
5	10807	Boston Crab Meat	1	18.3999996185303
6	10259	Gravad lax	1	20.7999992370605
7	11077	Chef Anton's Cajun Seasoning	1	22
8	11077	Tofu	1	22.5524997711182
9	11077	Grandma's Boysenberry Spread	1	24.5
10	10917	Nord-Ost Matjeshering	1	25.8899993896484



# Top 10 Products By Revenue After Discounts



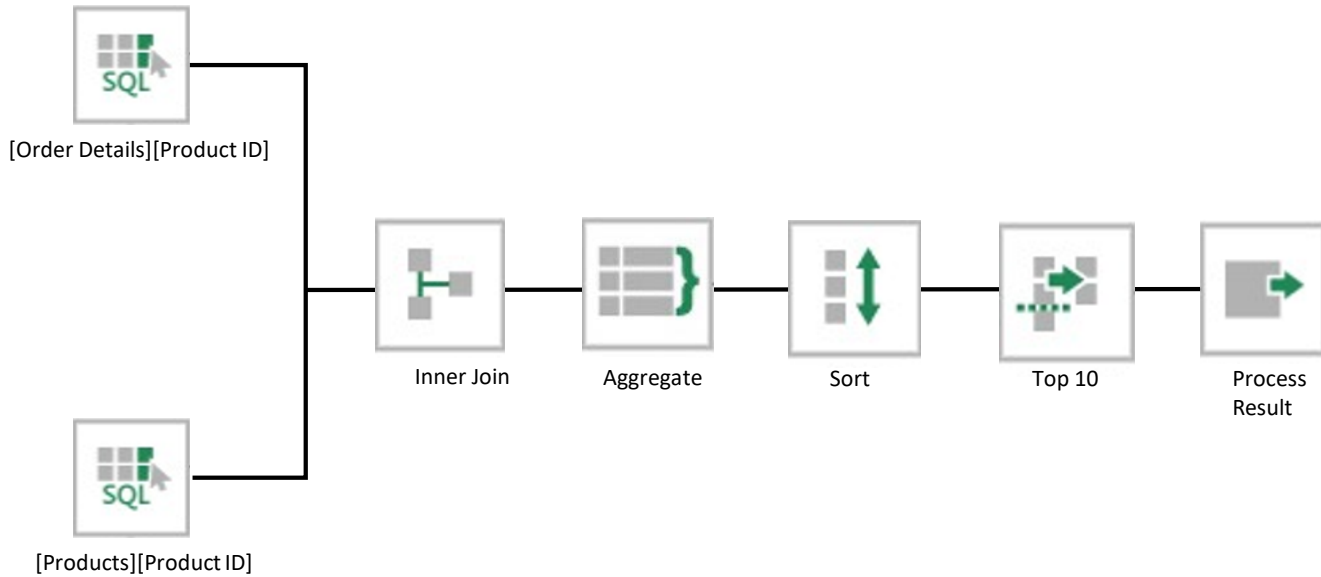
```
--No 3. Top 10 products by revenue after discounts
SELECT TOP 10 p.ProductName AS Product,
        ROUND(SUM((od.UnitPrice * od.Quantity * (1 -od.Discount))),2) AS "Revenue"
FROM [Order Details] od
INNER JOIN Products p
ON od.ProductID = p.ProductID
GROUP BY p.ProductName
ORDER BY 2 DESC;
```

65 %

Results Messages

	Product	Revenue
1	Côte de Blaye	141396.74
2	Thüringer Rostbratwurst	80368.67
3	Raclette Courdavault	71155.7
4	Tarte au sucre	47234.97
5	Camembert Pierrot	46825.48
6	Gnocchi di nonna Alice	42593.06
7	Manjimup Dried Apples	41819.65
8	Alice Mutton	32698.38
9	Carnarvon Tigers	29171.88
10	Rössle Sauerkraut	25696.64

# Top 10 Products By Quantity Order



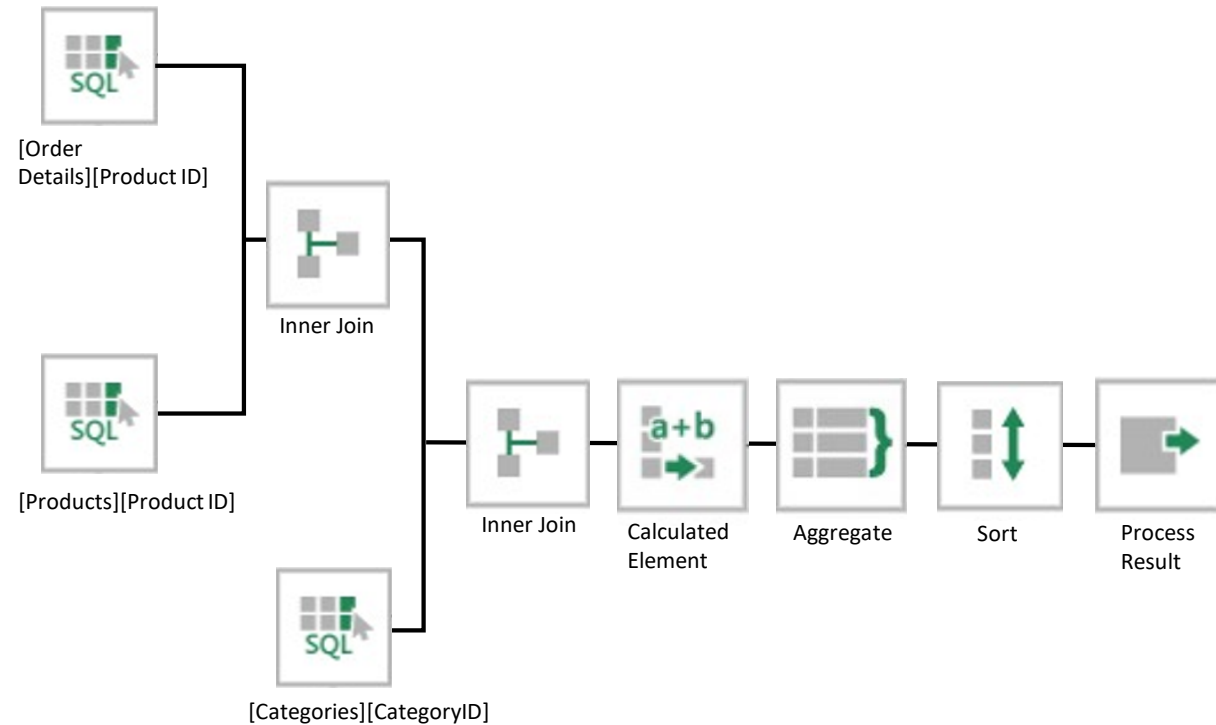
```
--No 4. Top 10 products by quantity|
SELECT TOP 10 p.ProductName AS Product,
           SUM(od.Quantity) AS "Quantity"
FROM [Order Details] od
INNER JOIN Products p
ON od.ProductID = p.ProductID
GROUP BY p.ProductName
ORDER BY 2 DESC;
```

65 %

Results Messages

	Product	Quantity
1	Camembert Pierrot	1577
2	Raclette Courdavault	1496
3	Gorgonzola Telino	1397
4	Gnocchi di nonna Alice	1263
5	Pavlova	1158
6	Rhönbräu Klosterbier	1155
7	Guaraná Fantástica	1125
8	Boston Crab Meat	1103
9	Tarte au sucre	1083
10	Chang	1057

# %Revenue By Products Categories



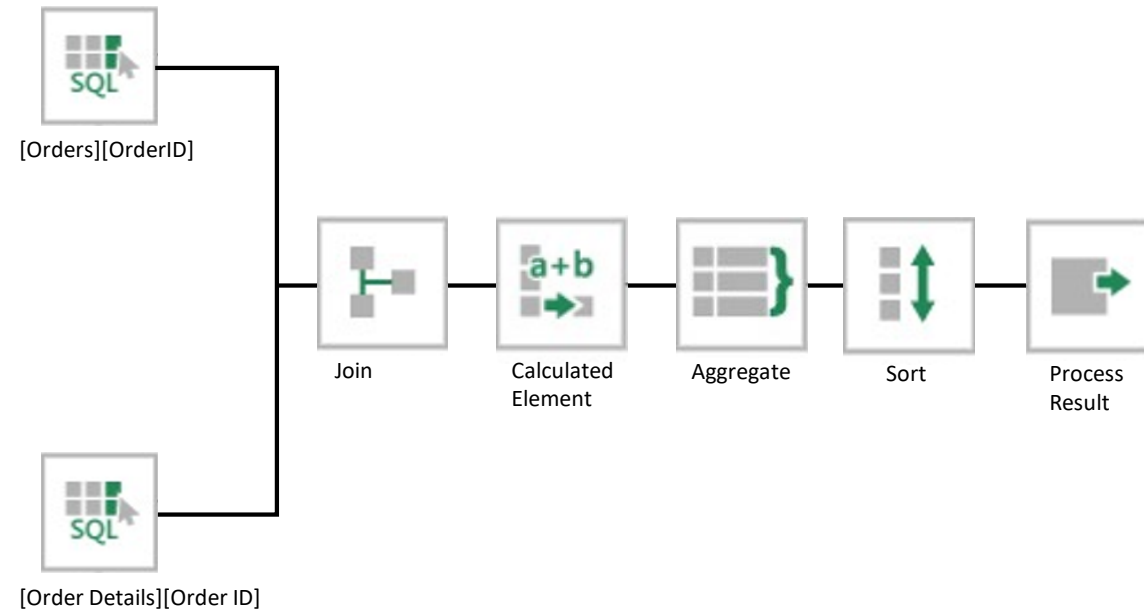
```
--No 5. %Revenue by product categories
SELECT c.CategoryName AS "Category",
       ROUND((SUM(od.UnitPrice * od.Quantity * (1 - od.Discount)) /
              (SELECT SUM(UnitPrice * Quantity * (1 - Discount)) FROM [Order Details]))*100,2) AS "% of Revenue"
FROM [Order Details] od
INNER JOIN Products p
ON od.ProductID = p.ProductID
INNER JOIN Categories c
ON p.CategoryID = c.CategoryID
GROUP BY c.CategoryName
ORDER BY 2 DESC;
```

65 %

Results Messages

	Category	% of Revenue
1	Beverages	21.16
2	Dairy Products	18.53
3	Confections	13.22
4	Meat/Poultry	12.88
5	Seafood	10.37
6	Condiments	8.38
7	Produce	7.9
8	Grains/Cereals	7.56

# Best Month For Sale Products In Terms Of Sales Value



```
--No 6. Best month for sale products in terms of sales value
SELECT Month(o.OrderDate) AS Month, SUM(od.UnitPrice * od.Quantity *(1-od.Discount)) AS Total_sales
FROM Orders o
JOIN [Order Details] od
ON o.OrderID = od.OrderID
GROUP BY Month(o.OrderDate)
ORDER BY Total_sales DESC
```

65 %

Results Messages

	Month	Total_sales
1	4	176831.634654999
2	1	155480.181015968
3	3	143401.375025749
4	2	137898.922319412
5	12	116638.058294296
6	10	104264.951076508
7	11	89133.8538589478
8	9	82010.642457962
9	7	78882.7525005341
10	8	72772.9453001022
11	5	72114.9205818176
12	6	36362.802532196

# Categorize Customers Into Groups Based On Ordered In 1997

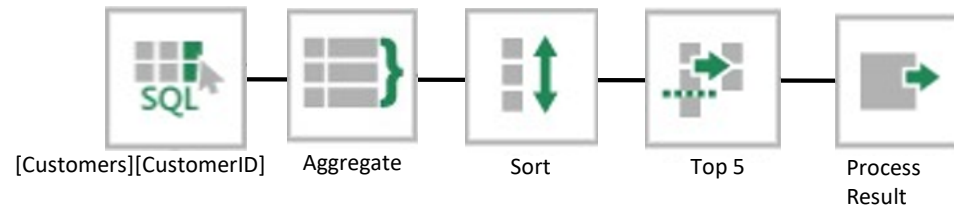
```
--No 7. Categorize customers into groups, based on how much they ordered in 1997. The customer grouping categories are 0 to 1,000, 1,000 to 5,000, 5,000 to 10,000, and over 10,000.
SELECT
  customers.CustomerID,
  customers.CompanyName,
  TotalOrderAmount = SUM(order_details.UnitPrice * order_details.Quantity),
  CASE
    WHEN SUM(order_details.UnitPrice * order_details.Quantity) > 10000 THEN 'Very High'
    WHEN SUM(order_details.UnitPrice * order_details.Quantity) BETWEEN 5000 AND 10000 THEN 'High'
    WHEN SUM(order_details.UnitPrice * order_details.Quantity) BETWEEN 1000 AND 5000 THEN 'Medium'
    ELSE 'Low'
  END AS Category
FROM Northwind.dbo.Customers AS customers
JOIN Northwind.dbo.Orders AS orders
  ON customers.CustomerID = orders.CustomerID
JOIN Northwind.dbo.[Order Details] AS order_details
  ON orders.OrderID = order_details.OrderID
WHERE
  orders.OrderDate >= '19970101'
  and orders.OrderDate < '19980101'
GROUP BY
  customers.CustomerID,
  customers.CompanyName
ORDER BY
  TotalOrderAmount DESC
```

45 %

Results Messages

	CustomerID	CompanyName	TotalOrderAmount	Category
1	QUICK	QUICK-Stop	64238.00	Very High
2	SAVEA	Save-a-lot Markets	60672.64	Very High
3	ERNSH	Ernst Handel	53467.38	Very High
4	MEREP	Mère Paillarde	26087.10	Very High
5	HUNGO	Hungry Owl All-Night Grocers	23959.05	Very High
6	RATTC	Rattlesnake Canyon Grocery	19658.70	Very High
7	SIMOB	Simons bistro	17482.15	Very High
8	BERGS	Berglunds snabbköp	14533.20	Very High
9	LEHMS	Lehmanns Marktstand	14433.17	Very High
10	HILAA	HILARION-Abastos	14026.18	Very High
11	FOLKO	Folk och få HB	13491.50	Very High
12	WARTH	Wartian Herkku	13106.30	Very High

# Top 5 Country Where Have The Most Customers



```
--No 8. Top 5 country where have the most customers
SELECT TOP 5 Country, COUNT(CustomerID) AS number_of_Customer FROM Customers
GROUP BY Country
Order by number_of_Customer DESC
```

70 %

Results Messages

	Country	number_of_Customer
1	USA	13
2	France	11
3	Germany	11
4	Brazil	9
5	UK	7

# Percentage Of Late Orders Over Total Orders

```
--No 9. Percentage of late orders over total orders
WITH AllOrders AS
(
    SELECT
        EmployeeID, COUNT(*) AS TotalOrders
    FROM
        Orders
    GROUP BY
        EmployeeID
),
LateOrders AS
(
    SELECT
        EmployeeID, COUNT(*) AS TotalOrders
    FROM
        Orders
    WHERE
        RequiredDate < ShippedDate
    GROUP BY
        EmployeeID
)

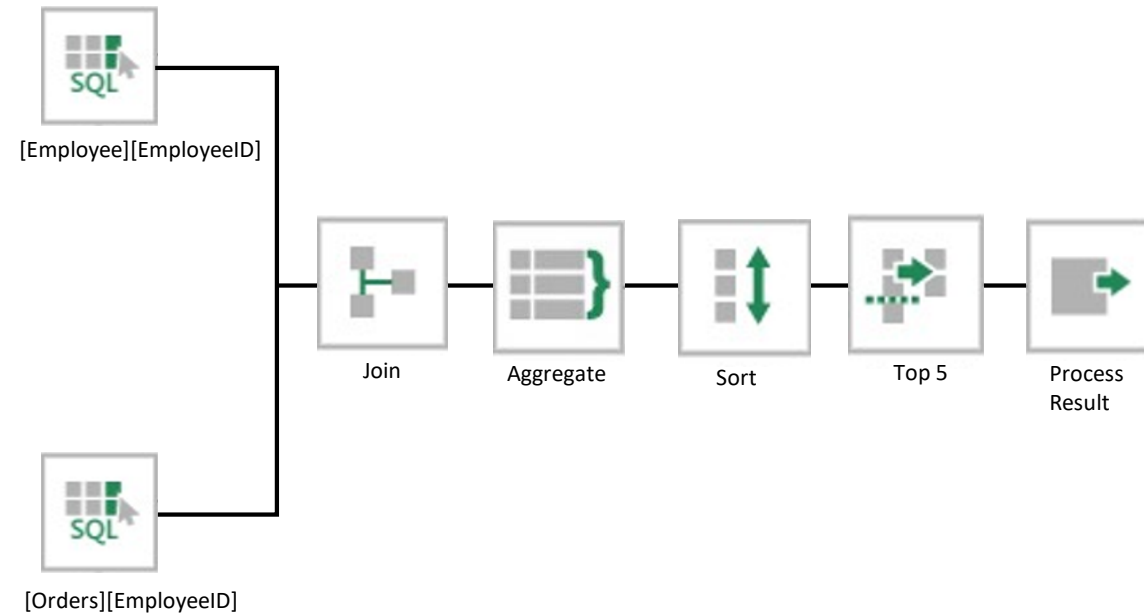
SELECT
    Employees.EmployeeID,
    Employees.LastName,
    Allorders = AllOrders.TotalOrders,
    Lateorders = LateOrders.TotalOrders,
    PercentLateOrder = CAST(ROUND((LateOrders.TotalOrders*1.00/AllOrders.TotalOrders)*100, 2) as float)
FROM Employees
JOIN AllOrders
ON Employees.EmployeeID = AllOrders.EmployeeID
JOIN LateOrders
ON Employees.EmployeeID = LateOrders.EmployeeID
```

40 %

Results Messages

	EmployeeID	LastName	Allorders	Lateorders	PercentLateOrder
1	1	Davolio	123	2	1.63
2	2	Fuller	96	4	4.17
3	3	Leverling	127	5	3.94
4	4	Peacock	156	10	6.41
5	5	Buchanan	42	1	2.38
6	6	Suyama	67	3	4.48
7	7	King	72	4	5.56
8	8	Callahan	104	4	3.85
9	9	Dodsworth	43	4	9.3

# Top 5 Sales Person



```
--No 10. Top 5 Sales Person
SELECT Top 5 e.EmployeeID, COUNT(o.OrderID) AS Total_Orders
FROM Employees e JOIN Orders o
ON e.EmployeeID = o.EmployeeID
GROUP BY e.EmployeeID
ORDER BY Total_Orders DESC
```

70 %

Results Messages

	EmployeeID	Total_Orders
1	4	156
2	3	127
3	1	123
4	8	104
5	2	96





**THANK YOU**