Task 4: SQL for Data Analysis

1. Basic SELECT + WHERE + ORDER BY

```
SELECT CustomerName, Country
FROM Customers
WHERE Country = 'Germany'
ORDER BY CustomerName;
```

Result:

Number of Records: 11

CustomerName	Country
Alfreds Futterkiste	Germany
Blauer See Delikatessen	Germany
Die Wandernde Kuh	Germany
Drachenblut Delikatessend	Germany
Frankenversand	Germany
Königlich Essen	Germany
Lehmanns Marktstand	Germany
Morgenstern Gesundkost	Germany

2.INNER JOIN

```
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate
FROM Orders
INNER JOIN Customers ON Orders.CustomerID = Customers.CustomerID;
```

Result:

Number of Records: 196

OrderID	CustomerName	OrderDate
10308	Ana Trujillo Emparedados y helados	9/18/1996
10365	Antonio Moreno Taquería	11/27/1996
10383	Around the Horn	12/16/1996
10355	Around the Horn	11/15/1996
10278	Berglunds snabbköp	8/12/1996
10280	Berglunds snabbköp	8/14/1996
10384	Berglunds snabbköp	12/16/1996
10436	Blondel père et fils	2/5/1997

3.LEFT JOIN

SELECT Customers.CustomerName, Orders.OrderID
FROM Customers
LEFT JOIN Orders ON Customers.CustomerID = Orders.CustomerID;

Result:

Number of Records: 213

CustomerName	OrderID
Alfreds Futterkiste	
Ana Trujillo Emparedados y helados	10308
Antonio Moreno Taquería	10365
Around the Horn	10383
Around the Horn	10355
Berglunds snabbköp	10278
Berglunds snabbköp	10280
Berglunds snabbköp	10384

4.RIGHT JOIN

SELECT Orders.OrderID, Customers.CustomerName
FROM Orders
LEFT JOIN Customers ON Orders.CustomerID = Customers.CustomerID;

Result:

Number of Records: 196

OrderID	CustomerName
10248	Wilman Kala
10249	Tradição Hipermercados
10250	Hanari Carnes
10251	Victuailles en stock
10252	Suprêmes délices
10253	Hanari Carnes
10254	Chop-suey Chinese
10255	Richter Supermarkt

5.Subquery in WHERE clause

```
SELECT ProductName, Price
FROM Products
WHERE SupplierID IN (
    SELECT SupplierID
    FROM Suppliers
    WHERE Country = 'USA'
);
```

Result:

Number of Records: 12

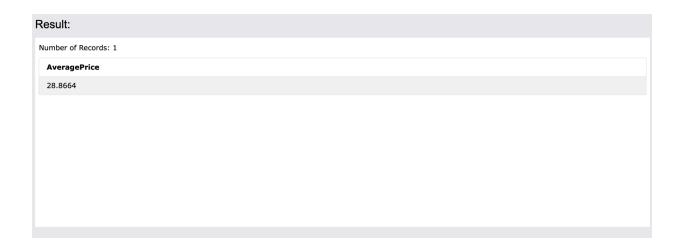| ProductName	Price
Chef Anton's Cajun Seasoning	22
Chef Anton's Gumbo Mix	21.35
Grandma's Boysenberry Spread	25
Uncle Bob's Organic Dried Pears	30
Northwoods Cranberry Sauce	40
Sasquatch Ale	14
Steeleye Stout	18
Boston Crab Meat	18.4

6. Correlated subquery (products above average price)

```
SELECT ProductName, Price
FROM Products
WHERE Price > (
```

SELECT AVG(Price) FROM Products
);

Result:

Number of Records: 25

ProductName	Price
Uncle Bob's Organic Dried Pears	30
Northwoods Cranberry Sauce	40
Mishi Kobe Niku	97
Ikura	31
Queso Manchego La Pastora	38
Alice Mutton	39
Carnarvon Tigers	62.5
Sir Rodney's Marmalade	81

7.Average product price
SELECT AVG(Price) AS AveragePrice
FROM Products;

Result:

Number of Records: 1

AveragePrice
28.8664

8.Total number of products per supplier
SELECT SupplierID, COUNT(*) AS TotalProducts
FROM Products
GROUP BY SupplierID;

Result:

Number of Records: 29

SupplierID	TotalProducts
1	3
2	4
3	3
4	3
5	2
6	3
7	5
8	4

9. Most recent orders by customer (top 1 per customer using subquery)

SELECT OrderID, CustomerID, OrderDate

FROM Orders

WHERE OrderDate IN (

  SELECT MAX(OrderDate)

  FROM Orders

  GROUP BY CustomerID

)

ORDER BY OrderDate DESC;

Number of Records: 87

OrderID	CustomerID	OrderDate
10443	66	2/12/1997
10442	20	2/11/1997
10441	55	2/10/1997
10440	71	2/10/1997
10439	51	2/7/1997
10438	79	2/6/1997
10437	87	2/5/1997
10436	7	2/5/1997

10.All products with their supplier names and contact info

SELECT Products.ProductName, Suppliers.SupplierName, Suppliers.ContactName

FROM Products

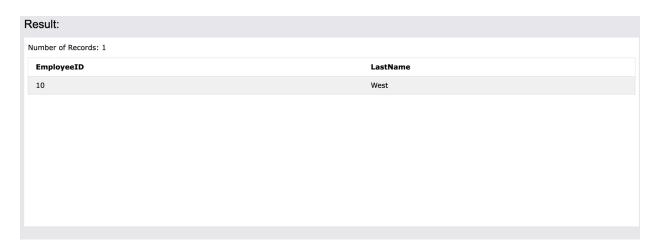INNER JOIN Suppliers ON Products.SupplierID = Suppliers.SupplierID;

Result:

Number of Records: 77

ProductName	SupplierName	ContactName
Chang	Exotic Liquid	Charlotte Cooper
Chais	Exotic Liquid	Charlotte Cooper
Aniseed Syrup	Exotic Liquid	Charlotte Cooper
Chef Anton's Gumbo Mix	New Orleans Cajun Delights	Shelley Burke
Louisiana Fiery Hot Pepper Sauce	New Orleans Cajun Delights	Shelley Burke
Louisiana Hot Spiced Okra	New Orleans Cajun Delights	Shelley Burke
Chef Anton's Cajun Seasoning	New Orleans Cajun Delights	Shelley Burke
Northwoods Cranberry Sauce	Grandma Kelly's Homestead	Regina Murphy

11.Employees who haven't placed any orders

SELECT Employees.EmployeeID, Employees.LastName

FROM Employees

LEFT JOIN Orders ON Employees.EmployeeID = Orders.EmployeeID

WHERE Orders.OrderID IS NULL;

Result:

Number of Records: 1

EmployeeID	LastName
10	West

12. Products costlier than the most expensive product from Supplier 1

SELECT ProductName, Price

FROM Products

WHERE Price > (

  SELECT MAX(Price)

  FROM Products

  WHERE SupplierID = 1

);

Result:

Number of Records: 40

ProductName	Price
Chef Anton's Cajun Seasoning	22
Chef Anton's Gumbo Mix	21.35
Grandma's Boysenberry Spread	25
Uncle Bob's Organic Dried Pears	30
Northwoods Cranberry Sauce	40
Mishi Kobe Niku	97
Ikura	31
Queso Cabrales	21

13.Customers who have placed more than 3 orders

SELECT CustomerName

FROM Customers

WHERE CustomerID IN (

  SELECT CustomerID

  FROM Orders

  GROUP BY CustomerID

  HAVING COUNT(OrderID) > 3

);

Result:

Number of Records: 18

CustomerName
Blondel père et fils
Bottom-Dollar Marketse
Ernst Handel
Folk och fä HB
Frankenversand
Hungry Owl All-Night Grocers
La maison d'Asie
LILA-Supermercado

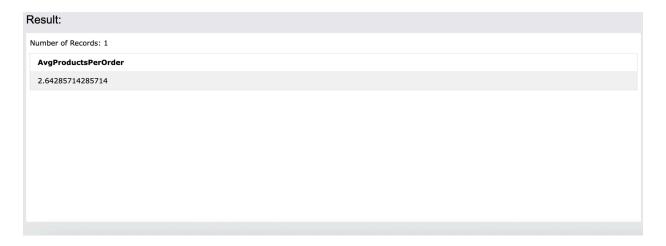14.Average number of products per order

SELECT AVG(ProductCount) AS AvgProductsPerOrder

FROM (

 SELECT OrderID, COUNT(*) AS ProductCount

 FROM OrderDetails

 GROUP BY OrderID

) AS OrderProductCounts;

Result:

Number of Records: 1

AvgProductsPerOrder
2.64285714285714

15.Order Summary with Customer and TotalValue + High-Value Orders
(TotalValue > $1000)

```
SELECT

  Orders.OrderID,

  Customers.CustomerName,

  SUM(OrderDetails.UnitPrice * OrderDetails.Quantity) AS TotalValue

FROM Orders

JOIN Customers ON Orders.CustomerID = Customers.CustomerID

JOIN OrderDetails ON Orders.OrderID = OrderDetails.OrderID

GROUP BY Orders.OrderID, Customers.CustomerName;
```


Simulated View: Order Summary with Customer Total

High-Value Orders (Total > $1000)