SQL Mini Project

Exercise 1 – Northwind Queries

1.1 Write a query that lists all Customers in either Paris or London. Include Customer ID, Company Name and all address fields.

```
--Select all Customers from London or Paris
SELECT * FROM Customers
WHERE City = 'London'
OR City = 'Paris'
```

1.2 List all products stored in bottles.

```
--Select all bottle products
SELECT * FROM PRODUCTS
WHERE QuantityPerUnit LIKE '%bottles%'
OR QuantityPerUnit LIKE '%bottle%'
```

1.3 Repeat question above, but add in the Supplier Name and Country.

```
--Include Company name and country
SELECT p.*, s.CompanyName, s.Country
FROM Products p
INNER JOIN Suppliers s ON p.SupplierID = s.SupplierID
WHERE QuantityPerUnit LIKE '%bottles%'
OR QuantityPerUnit LIKE '%bottle%'
```

1.4 Write an SQL Statement that shows how many products there are in each category. Include Category Name in result set and list the highest number first.

```
--Count products in each category
SELECT p.CategoryID, COUNT(*) AS Count, c.CategoryName
FROM Products p
INNER JOIN Categories c ON c.CategoryID = p.CategoryID
GROUP BY p.CategoryID, c.CategoryName
ORDER BY Count DESC
```

1.5 List all UK employees using concatenation to join their title of courtesy, first name and last name together. Also include their city of residence.

```
--Select Employees from UK
SELECT TitleOfCourtesy + ' ' + FirstName + ' ' + LastName AS "Name", City
FROM Employees
WHERE Country = 'UK'
```

1.6 List Sales Totals for all Sales Regions (via the Territories table using 4 joins) with a Sales Total greater than 1,000,000. Use rounding or FORMAT to present the numbers.

```
--List total sales for all regions with over 100,000 sales total
SELECT r.RegionDescription, ROUND(SUM(od.Quantity * od.UnitPrice),2) AS
"TOTAL SALES"
FROM  [Order Details] od
INNER JOIN Orders o ON o.OrderID = od.OrderID
INNER JOIN EmployeeTerritories et ON et.EmployeeID = o.EmployeeID
INNER JOIN Territories t ON t.TerritoryID = et.TerritoryID
INNER JOIN Region r ON r.RegionID = t.RegionID
GROUP  BY r.RegionDescription
HAVING ROUND(SUM(od.Quantity * od.UnitPrice),2) >1000000
```

1.7 Count how many Orders have a Freight amount greater than 100.00 and either USA or UK as Ship Country.

```
--Count orders from USA or UK and have Freight greater than 100
SELECT COUNT(*) AS "TOTAL"
FROM Orders
WHERE (ShipCountry = 'USA' OR ShipCountry = 'UK') AND Freight > 100.0000;
```

1.8 Write an SQL Statement to identify the Order Number of the Order with the highest amount(value) of discount applied to that order.

```
--Order with the highest amount of discount applied to that order
SELECT TOP 1 od.OrderID, FORMAT(SUM(od.Discount * od.Quantity *
od.UnitPrice), 'C') AS "Total Discount"
FROM [Order Details] od
GROUP BY od.OrderID
HAVING SUM(od.Discount * od.Quantity * od.UnitPrice) =
        (SELECT TOP 1 (SUM(UnitPrice * Quantity * Discount))
FROM [Order Details]
GROUP BY OrderID
ORDER BY SUM(UnitPrice * Quantity * Discount) DESC)
```

Exercise 2 – Create Spartans Table

2.1 Write the correct SQL statement to create the following table:

Spartans Table – include details about all the Spartans on this course. Separate Title, First Name and Last Name into separate columns, and include University attended, course taken, and mark achieved. Add any other columns you feel would be appropriate.

```
--Create table with relevant collumns
CREATE TABLE spartans
(
    title VARCHAR(10),
    first_name VARCHAR(20),
    last_name VARCHAR(20),
    university VARCHAR(20),
    course VARCHAR(25),
    grade VARCHAR(5),
)

--View table
SELECT * FROM spartans
```

2.2 Write SQL statements to add the details of the Spartans in your course to the table you have created.

```
--Insert two example entries
INSERT INTO spartans
VALUES ('Miss', 'Sarah', 'Jones', 'Coventry', 'Engineering', '1:1'),
('Mr', 'Samuel', 'Wood', 'Norwich', 'Maths', '1:1')

--View table
SELECT * FROM spartans
```

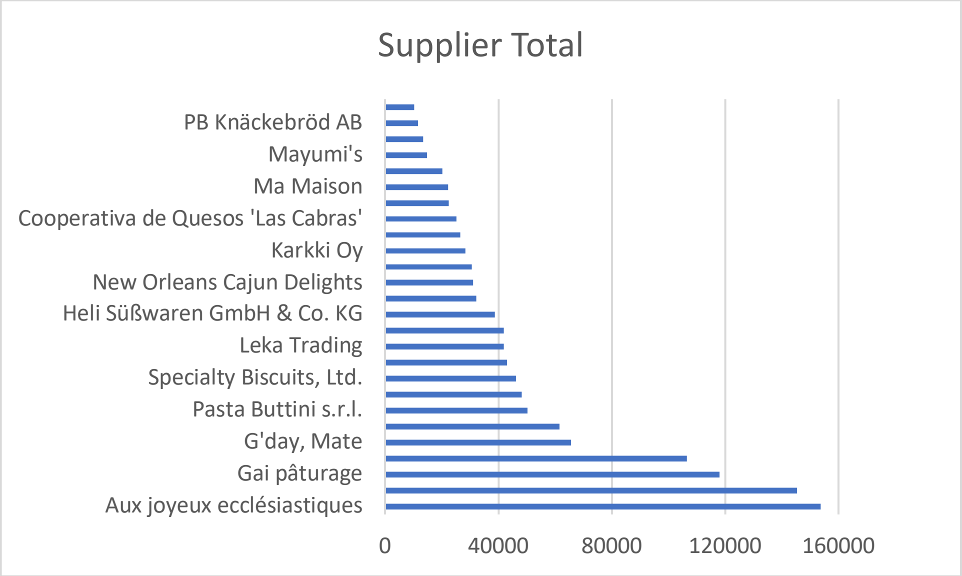
Exercise 3 – Northwind Data Analysis linked to Excel

3.1 List all Employees from the Employees table and who they report to. No Excel required. Please mention the Employee Names and the ReportTo names.

```
--Select Employers and who they report to
SELECT e.firstname + ' ' + e.lastname AS "NAME",
s.firstname + ' ' + s.lastname AS "REPORTS TO"
FROM employees e
LEFT OUTER JOIN employees s ON e.reportsto = s.employeeID
```

3.2 List all Suppliers with total sales over $10,000 in the Order Details table. Include the Company Name from the Suppliers Table and present as a bar chart as below:

```
--Select suppliers with over $10,000 in sales
SELECT s.CompanyName AS "Company Name",
        FORMAT(SUM(od.UnitPrice * od.Quantity * (1 - od.Discount)), '#,#')
AS "Total Sales"
FROM Suppliers s
INNER JOIN Products p ON p.SupplierID = s.SupplierID
INNER JOIN [Order Details] od ON od.ProductID = p.ProductID
GROUP BY s.SupplierID, s.CompanyName
HAVING SUM(od.UnitPrice * od.Quantity * (1 - od.Discount)) > 10000
ORDER BY SUM(od.UnitPrice * od.Quantity * (1 - od.Discount)) DESC
```

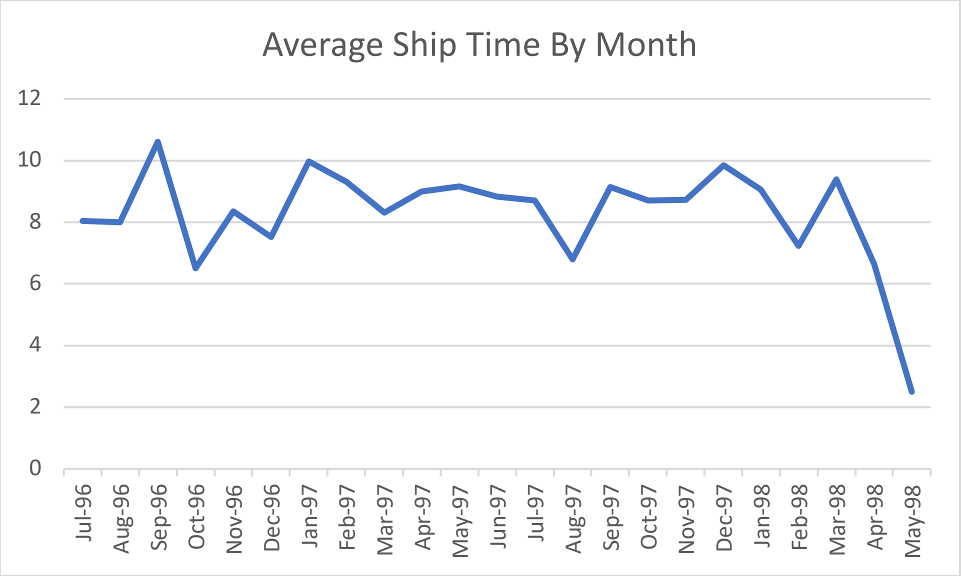


3.3 List the Top 10 Customers YTD for the latest year in the Orders file. Based on total value of orders shipped. No Excel required.

```
--Select top 10 Customers YTD for the latest year
SELECT TOP 10 c.CustomerID, c.CompanyName,
    FORMAT(SUM(od.UnitPrice * od.Quantity * (1-od.Discount)), 'C') AS "Total
Value"
FROM [Order Details] od
INNER JOIN Orders o ON od.OrderID = o.OrderID
INNER JOIN Customers c ON o.CustomerID = c.CustomerID
WHERE YEAR(o.OrderDate) IN (SELECT YEAR(MAX(OrderDate)) FROM Orders) AND
o.ShippedDate IS NOT NULL
GROUP BY c.CustomerID, c.CompanyName
ORDER BY SUM(od.UnitPrice * od.Quantity * (1-od.Discount)) DESC
```

3.4 Plot the Average Ship Time by month for all data in the Orders Table using a line chart as below.

```
--Average ship time by month
SELECT CONCAT(MONTH(o.OrderDate), '-',YEAR(o.OrderDate)) AS "M-YYYY",
    AVG(CAST(DATEDIFF(d, o.OrderDate, o.ShippedDate) AS DECIMAL(4,2))) AS
"Average Shipping Days"
FROM Orders o
WHERE o.ShippedDate IS NOT NULL
GROUP BY YEAR(o.OrderDate), MONTH(o.OrderDate)
ORDER BY YEAR(o.OrderDate), MONTH(o.OrderDate)
```


Average Ship Time By Month
Jul-96
Aug-96
Sep-96
Oct-96
Nov-96
Dec-96
Jan-97
Feb-97
Mar-97
Apr-97
May-97
Jun-97
Jul-97
Aug-97
Sep-97
Oct-97
Nov-97
Dec-97
Jan-98
Feb-98
Mar-98
Apr-98
May-98