SQL PROJECT WORK

Name: MacAnderson Uche

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Exercise 1 – Northwind Queries (40 marks: 5 for each question)

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

```
SELECT CustomerID, ContactName, Address
FROM Customers
WHERE City IN ('Paris', 'London')
```

1.2 List all products stored in bottles.

```
SELECT QuantityPerUnit
FROM Products
WHERE QuantityPerUnit LIKE '%bottle%'
```

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

```
SELECT QuantityPerUnit, ContactName AS "Supplier Name", Country
FROM Products p INNER JOIN Suppliers s  ON p.SupplierID = s.SupplierID
WHERE 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.

```
SELECT COUNT(*) AS "Products per Category", c.CategoryName
FROM Categories c INNER JOIN Products p
    ON c.CategoryID = p.CategoryID
GROUP BY p.CategoryID, c.CategoryName
ORDER BY COUNT(p.CategoryID) 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 TitleOfCourtesy+ ' ' + FirstName + ' ' + LastName
AS "Full Details", 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.

```
SELECT FORMAT(SUM((UnitPrice*Quantity*(1-Discount))),'C', 'en-gb') AS 'Total Sales', r.RegionID
FROM Region r INNER JOIN Territories t
    ON t.RegionID= r.RegionID
    INNER JOIN EmployeeTerritories et
    ON et.TerritoryID = t.TerritoryID
    INNER JOIN Employees e
    ON et.EmployeeID = e.EmployeeID
    INNER JOIN Orders o
    ON o.EmployeeID = e.EmployeeID
    INNER JOIN [Order Details] od
    ON od.OrderID = o.OrderID
GROUP BY r.RegionID
HAVING (SUM((UnitPrice*Quantity*(1-Discount)))) > 1000000
ORDER BY 'Total Sales' DESC
```

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

```
SELECT COUNT (*) AS "Number of Orders Greather Than 100 and Either UK or US"
FROM Orders
WHERE Freight > 100.00 AND ShipCountry IN ('UK', 'USA')
```

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.

```
SELECT TOP 1
    od.OrderID  AS "Order Number(s)", SUM(od.UnitPrice*od.Quantity*od.Discount) AS "Discounted Value"
FROM [Order Details] od
GROUP BY od.OrderID
ORDER BY SUM(od.UnitPrice*od.Quantity*od.Discount) DESC
```

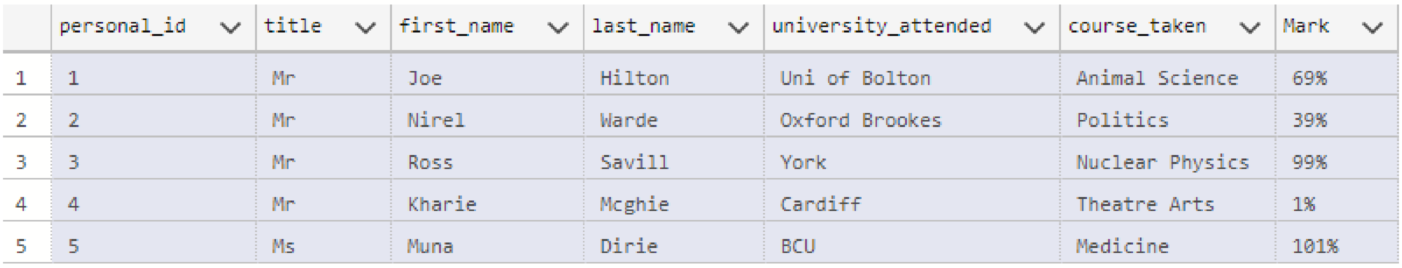
Exercise 2 – Create Spartans Table (20 marks – 10 each)

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

```
CREATE DATABASE MacSQLq2_db

USE MacSQLq2_db

CREATE TABLE spartans_table
(
    personal_id INT IDENTITY (1,1) PRIMARY KEY,
    title VARCHAR(30),
    first_name VARCHAR(30),
    last_name VARCHAR(30),
    university_attended VARCHAR(50),
    course_taken VARCHAR(30),
    Mark VARCHAR(30)
)
```

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

```
INSERT INTO spartans_table
    (

    title, first_name, last_name, university_attended, course_taken, Mark
    )
VALUES
    (
        'Mr', 'Joe', 'Hilton', 'Uni of Bolton', 'Animal Science', '69%'
),
    ('Mr', 'Nirel', 'Warde', 'Oxford Brookes', 'Politics', '39%'),
    ('Mr', 'Ross', 'Savill', 'York', 'Nuclear Physics', '99%'),
    ('Mr', 'Kharie', 'Mcghie', 'Cardiff', 'Theatre Arts', '1%'),
    ('Ms', 'Muna', 'Dirie', 'BCU', 'Medicine', '101%')

SELECT *
FROM spartans_table
```



	personal_id	title	first_name	last_name	university_attended	course_taken	Mark
1	1	Mr	Joe	Hilton	Uni of Bolton	Animal Science	69%
2	2	Mr	Nirel	Warde	Oxford Brookes	Politics	39%
3	3	Mr	Ross	Savill	York	Nuclear Physics	99%
4	4	Mr	Kharie	Mcghie	Cardiff	Theatre Arts	1%
5	5	Ms	Muna	Dirie	BCU	Medicine	101%

Table 1: Showing solution 2.2

Exercise 3 – Northwind Data Analysis linked to Excel (30 marks)

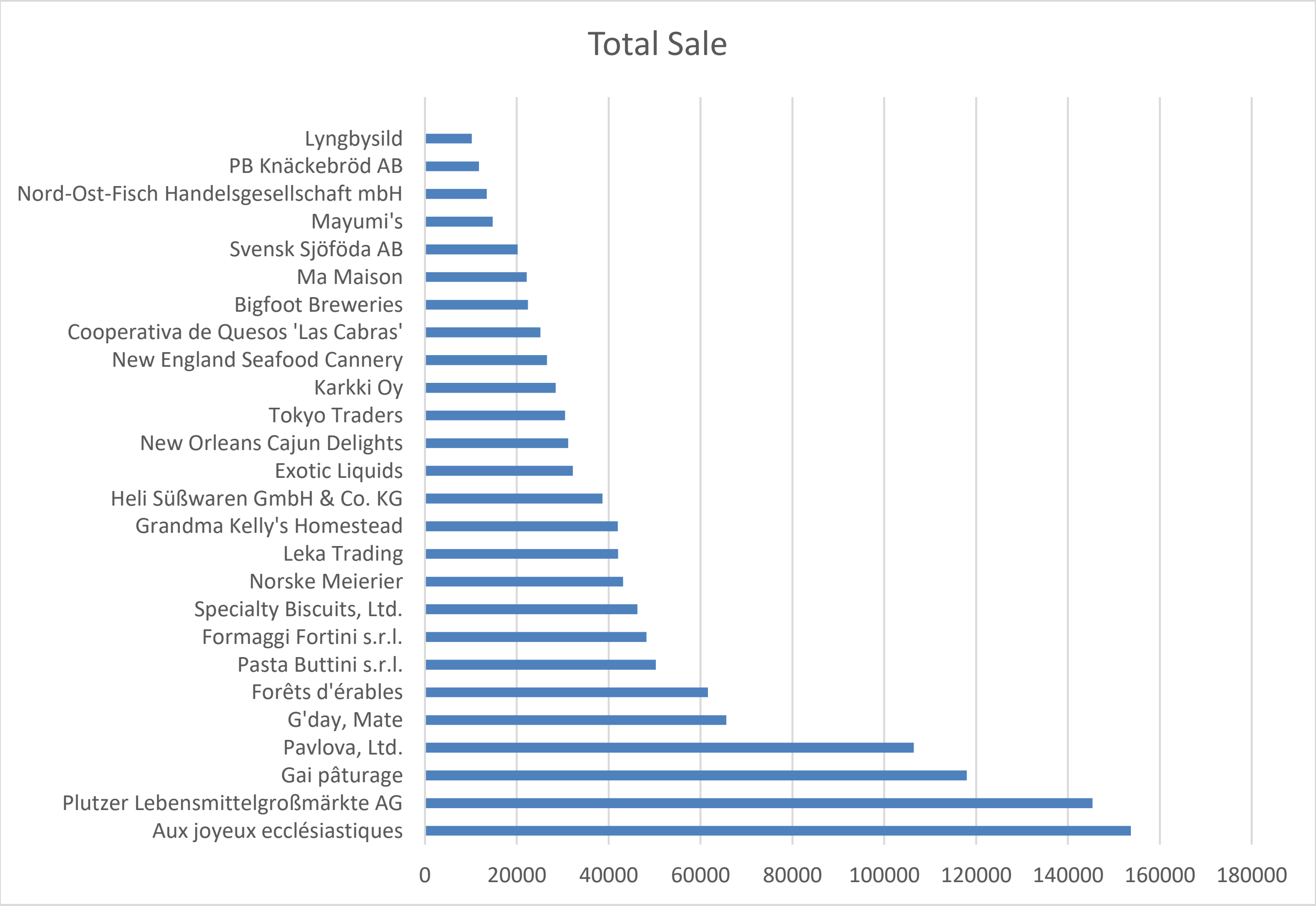
Write SQL statements to extract the data required for the following charts (create these in Excel):

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. (5 Marks)

```
SELECT d1.FirstName +' '+ d1.LastName AS 'Employee Name', d2.FirstName +' '+ d2.LastName AS '
Report TO Names'
FROM Employees d1
    LEFT JOIN Employees d2
    ON d1.ReportsTo = d2.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: (5 Marks)

```
SELECT s.CompanyName, (SUM((od.UnitPrice*od.Quantity)*(1 - od.Discount))) AS 'Total Sale'
FROM [Order Details] od INNER JOIN Products p
    ON od.ProductID = p.ProductID
    INNER JOIN Suppliers s
    ON p.SupplierID = s.SupplierID
GROUP BY s.CompanyName
HAVING  (SUM((od.UnitPrice*od.Quantity)*(1 - od.Discount)))  > 10000
ORDER BY (SUM((od.UnitPrice*od.Quantity)*(1 - od.Discount))) DESC
```



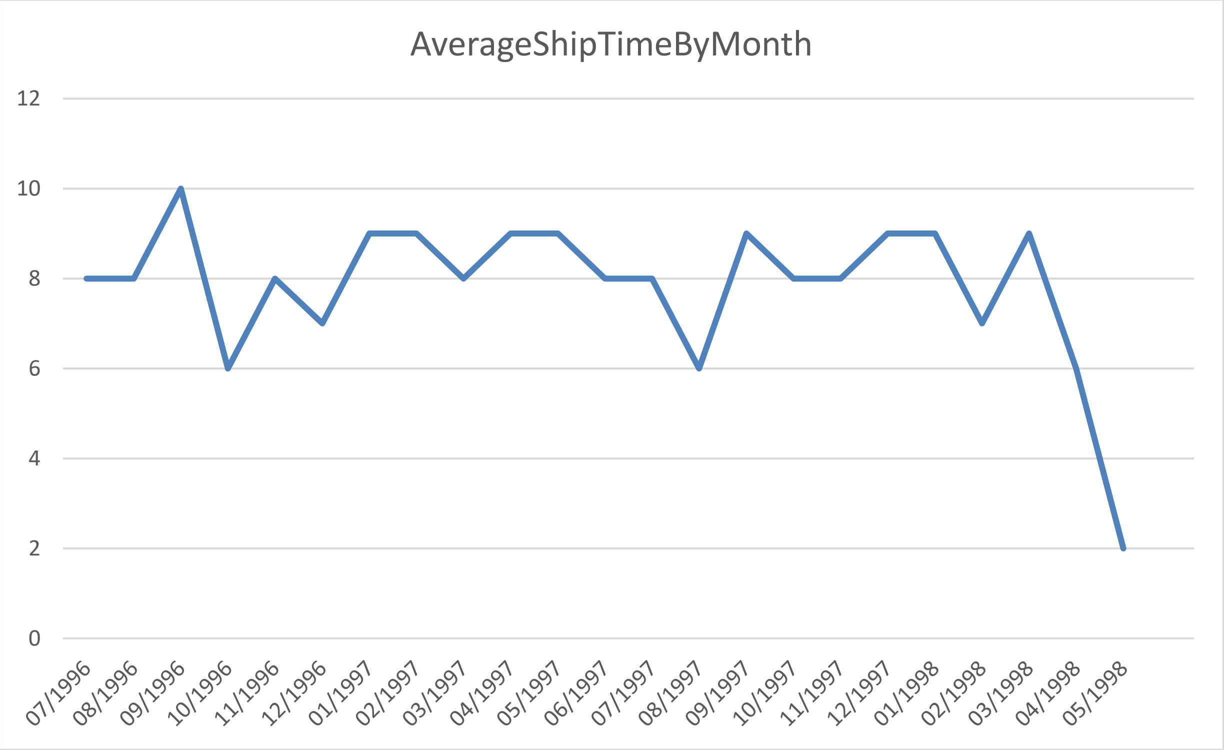
Graph 1: Showing solution 3.2

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. (10 Marks)

```
SELECT TOP 10
    c.CompanyName, ROUND(SUM(od.Quantity*(od.UnitPrice-od.Discount)),2) AS "Total"
FROM Orders o
    INNER JOIN [Order Details] od ON o.OrderID = od.OrderID
    INNER JOIN Customers c ON o.CustomerID = c.CustomerID
WHERE YEAR(o.OrderDate)=(SELECT MAX(YEAR(o.OrderDate))
FROM Orders o)
GROUP BY c.CompanyName
ORDER BY "Total" DESC
```

3.4 Plot the Average Ship Time by month for all data in the Orders Table using a line chart as below. (10 Marks)

```
SELECT FORMAT("Date",'MM/yyyy') AS "Month/Year",
    AVG("ShipTime") AS "AverageShipTimeByMonth"
FROM (SELECT o.OrderDate AS "Date", MONTH(o.OrderDate) AS "Month", YEAR(o.OrderDate) AS "Year"
,
        DATEDIFF(DAY, o.OrderDate, o.ShippedDate) AS "ShipTime"
    FROM Orders o) AS "ShipTimes"
GROUP BY FORMAT("Date",'MM/yyyy'), "Month", "Year"
ORDER BY "Year" ASC, "Month" ASC
```



Graph 2: Showing solution 3.4

Standards (10 marks)

Remember to apply all the following standards:

- Use consistent capitalisation and indentation of SQL Statements
- Use concise and consistent table alias names
- Use column aliases to ensure tidy column headings (spaces and consistent capitalisation)
- Concatenate any closely related columns e.g. First Name and Last Name or Address and City etc
- Put comments throughout