SQL PRACTICAL EXERCISE

Exercise 1

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

ANSWER:

```
SELECT CustomerID, CompanyName, Address, City, Region, PostalCode, Country FROM
Customers WHERE City IN ('Paris', 'London');
```

1.2 List all products stored in bottles

ANSWER:

```
SELECT ProductName FROM Products WHERE QuantityPerUnit LIKE '%bottles%';
```

1.3 Repeat question above but add in Supplier Name and Country

ANSWER:

```
SELECT p.ProductName, s.CompanyName, s.Country FROM Products p
    INNER JOIN Suppliers s ON p.SupplierID = s.SupplierID
    WHERE p.QuantityPerUnit LIKE '%bottles%';
```

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.

ANSWER:

```
SELECT c.CategoryName, SUM(p.CategoryID) AS "Total Number of Products" FROM Categories c
    INNER JOIN Products p ON c.CategoryID = p.CategoryID GROUP BY c.CategoryName;
```

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.

ANSWER:

```
SELECT CONCAT(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.

ANSWER:

```
SELECT RegionDescription, FORMAT(SUM(od.Quantity * od.UnitPrice *
        (1-od.Discount)),'N2') AS "Total Sales from Region" FROM Region r
    INNER JOIN Territories t ON r.RegionID = t.RegionID
        INNER JOIN EmployeeTerritories et ON t.TerritoryID = et.TerritoryID
    INNER JOIN Employees e ON et.EmployeeID = e.EmployeeID
    INNER JOIN Orders o ON e.EmployeeID = o.EmployeeID
    INNER JOIN [Order Details] od ON o.OrderID = od.OrderID
  GROUP BY RegionDescription
HAVING SUM(od.Quantity * od.UnitPrice *(1-od.Discount)) > 1000000;
```

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

ANSWER:

```
SELECT COUNT(OrderID) FROM Orders WHERE ShipCountry IN ('USA', 'UK') AND Freight > 100
```

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

ANSWER:

```
SELECT TOP 1 OrderID, ((Quantity* UnitPrice)-(Quantity* UnitPrice)*(1-Discount)) AS "Amount of
Discount"  FROM [Order Details]
ORDER BY ((Quantity* UnitPrice) -(Quantity* UnitPrice)*(1-Discount)) DESC;
```

Exercise 2

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.

ANSWER:

```
CREATE TABLE spartans(
        spartan_id INTEGER IDENTITY PRIMARY KEY,
        title VARCHAR(5),
        first_name VARCHAR(50),
        last_name VARCHAR(50),
        university VARCHAR(50),
        course VARCHAR(50),
        mark_achieved VARCHAR(20)
)
```

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

ANSWER:

```
 INSERT INTO spartans VALUES ('Mr','Alex','Ng','UEA','Computer Science',
'2:1'),('Sir','Elton','John','UEL','Music','3rd'), ('Mr','Leonardo', 'DiCaprio','UEA','Computer
Science','2:1'),('Miss','Alice', 'DiCaprio','UCLA','Computer Science' ,'First') ,
('Mr','Bob','Smith','UEA','Economic','First');
```

Exercise 3

3.1 List all Employees from the Employees table and who they report to. No Excel required. (5 Marks)

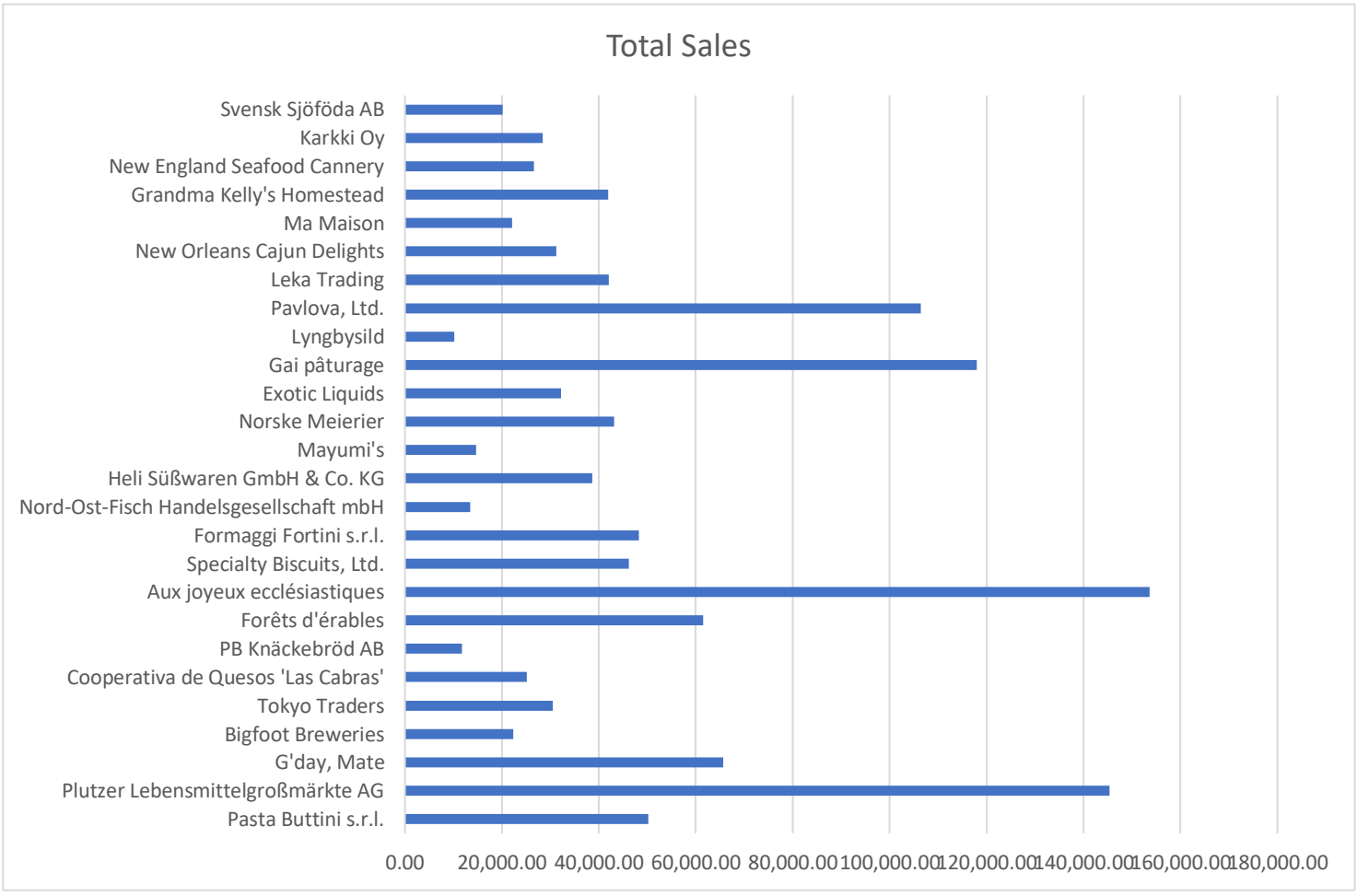
ANSWER:

```
SELECT CONCAT(e.FirstName, ' ', e.LastName) AS "Employee Name", CONCAT(rep.FirstName, ' ', rep.LastName) AS "Reporting to" FROM Employees e LEFT JOIN Employees rep ON e.ReportsTo = rep.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)

ANSWER:

```
SELECT s.CompanyName, FORMAT(SUM(od.Quantity * od.UnitPrice* (1- od.Discount)),'N2') AS "Total Sales" FROM Suppliers s
   INNER JOIN Products p ON s.SupplierID = p.SupplierID
   INNER JOIN [Order Details] od ON p.ProductID = od.ProductID
   GROUP BY s.CompanyName
   HAVING SUM(od.Quantity * od.UnitPrice* (1- od.Discount)) > 10000;
```



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, FORMAT(SUM(od.UnitPrice * od.Quantity * (1-od.Discount)),
“N2”) AS "NumOrdersPlaced"
        FROM Customers c
        INNER JOIN Orders o ON c.CustomerID = o.CustomerID
        WHERE YEAR(o.ShippedDate) =1998 GROUP BY 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. (10 Marks)

```
SELECT FORMAT(OrderDate, 'yyyy/MM') AS "Month",
      AVG(DATEDIFF(d,OrderDate,ShippedDate)) AS "Avg Ship Times in Days" FROM Orders
      GROUP BY FORMAT(OrderDate, 'yyyy/MM')
```

AVG(CAST(DATEDIFF…) AS Decimal(4,2)) => to get more precise figure