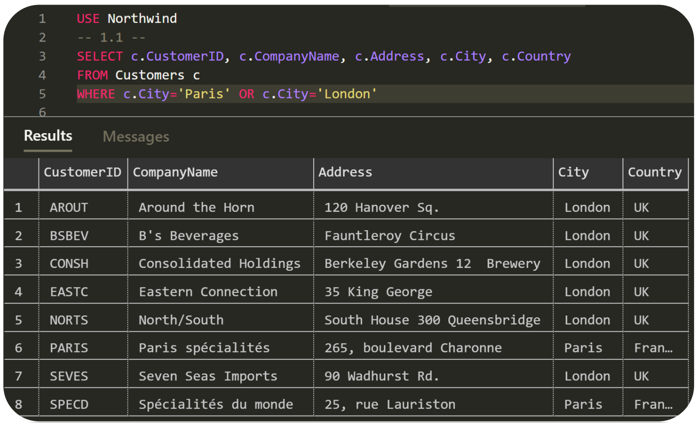
SQL Mini-Project by Ahmed Abdul Rahman

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

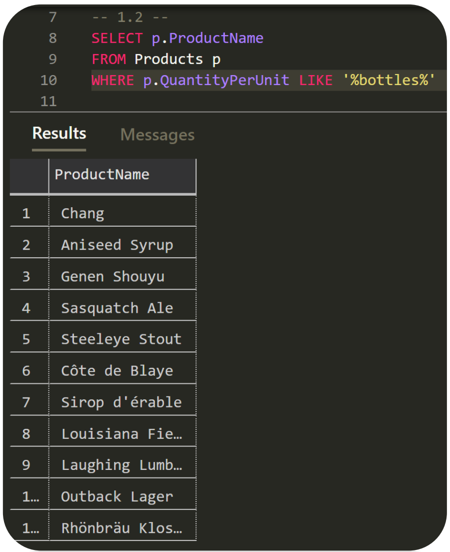
1.1 Write a query that lists all Customers in either Paris or London. Include Customer ID, Company Name and all address fields.



```sql
USE Northwind
-- 1.1 --
SELECT c.CustomerID, c.CompanyName, c.Address, c.City, c.Country
FROM Customers c
WHERE c.City='Paris' OR c.City='London'
```

	CustomerID	CompanyName	Address	City	Country
1	AROUT	Around the Horn	120 Hanover Sq.	London	UK
2	BSBEV	B's Beverages	Fauntleroy Circus	London	UK
3	CONSH	Consolidated Holdings	Berkeley Gardens 12 Brewery	London	UK
4	EASTC	Eastern Connection	35 King George	London	UK
5	NORTS	North/South	South House 300 Queensbridge	London	UK
6	PARIS	Paris spécialités	265, boulevard Charonne	Paris	Fran…
7	SEVES	Seven Seas Imports	90 Wadhurst Rd.	London	UK
8	SPECD	Spécialités du monde	25, rue Lauriston	Paris	Fran…

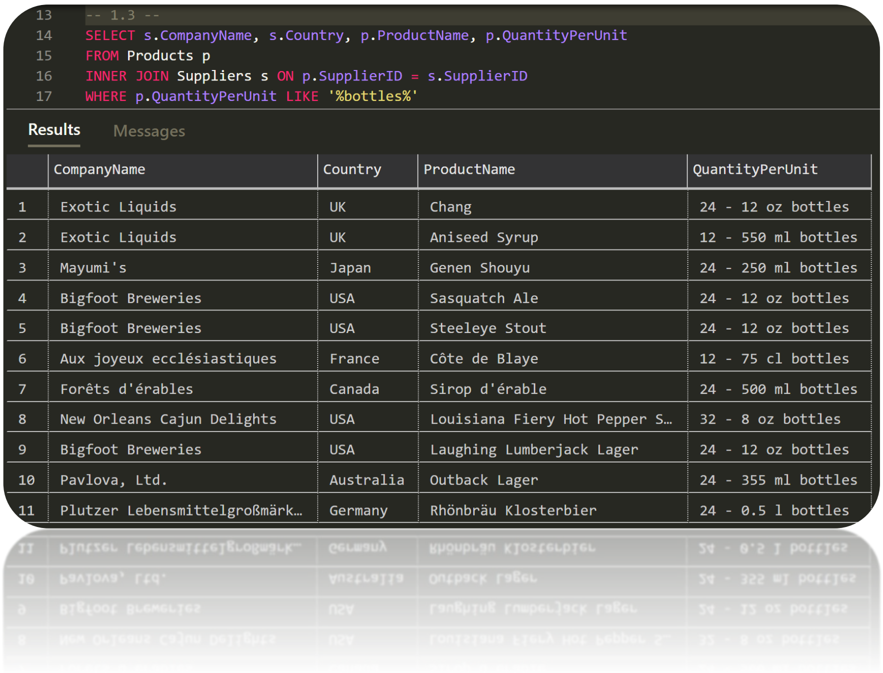
1.2 List all products stored in bottles.



```sql
-- 1.2 --
SELECT p.ProductName
FROM Products p
WHERE p.QuantityPerUnit LIKE '%bottles%'
```

	ProductName
1	Chang
2	Aniseed Syrup
3	Genen Shouyu
4	Sasquatch Ale
5	Steeleye Stout
6	Côte de Blaye
7	Sirop d'érable
8	Louisiana Fie…
9	Laughing Lumb…
1…	Outback Lager
1…	Rhönbräu Klos…

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

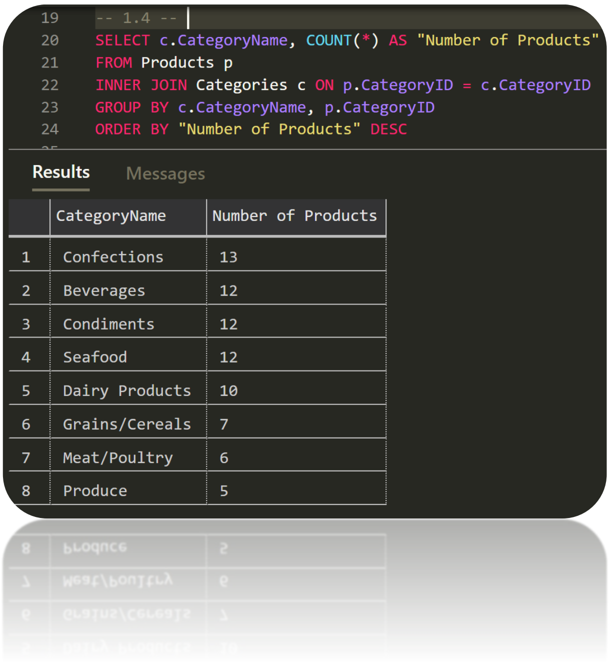


```sql
-- 1.3 --
SELECT s.CompanyName, s.Country, p.ProductName, p.QuantityPerUnit
FROM Products p
INNER JOIN Suppliers s ON p.SupplierID = s.SupplierID
WHERE p.QuantityPerUnit LIKE '%bottles%'
```

Results Messages

	CompanyName	Country	ProductName	QuantityPerUnit
1	Exotic Liquids	UK	Chang	24 - 12 oz bottles
2	Exotic Liquids	UK	Aniseed Syrup	12 - 550 ml bottles
3	Mayumi's	Japan	Genen Shouyu	24 - 250 ml bottles
4	Bigfoot Breweries	USA	Sasquatch Ale	24 - 12 oz bottles
5	Bigfoot Breweries	USA	Steeleye Stout	24 - 12 oz bottles
6	Aux joyeux ecclésiastiques	France	Côte de Blaye	12 - 75 cl bottles
7	Forêts d'érables	Canada	Sirop d'érable	24 - 500 ml bottles
8	New Orleans Cajun Delights	USA	Louisiana Fiery Hot Pepper S…	32 - 8 oz bottles
9	Bigfoot Breweries	USA	Laughing Lumberjack Lager	24 - 12 oz bottles
10	Pavlova, Ltd.	Australia	Outback Lager	24 - 355 ml bottles
11	Plutzer Lebensmittelgroßmärk…	Germany	Rhönbräu Klosterbier	24 - 0.5 l 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.

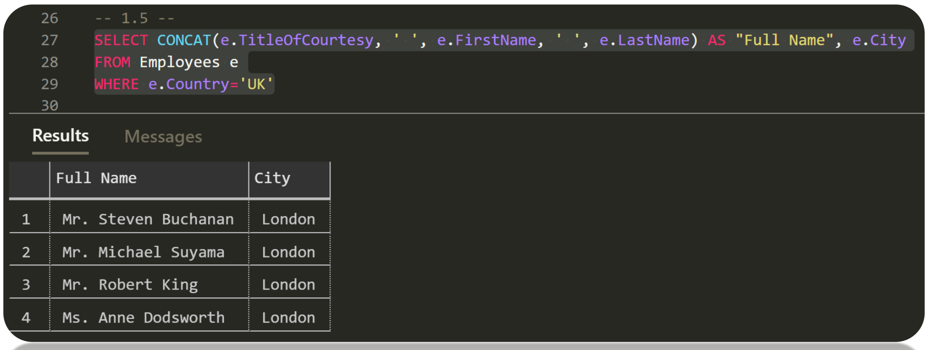


```sql
-- 1.4 --
SELECT c.CategoryName, COUNT(*) AS "Number of Products"
FROM Products p
INNER JOIN Categories c ON p.CategoryID = c.CategoryID
GROUP BY c.CategoryName, p.CategoryID
ORDER BY "Number of Products" DESC
```

Results Messages

	CategoryName	Number of Products
1	Confections	13
2	Beverages	12
3	Condiments	12
4	Seafood	12
5	Dairy Products	10
6	Grains/Cereals	7
7	Meat/Poultry	6
8	Produce	5

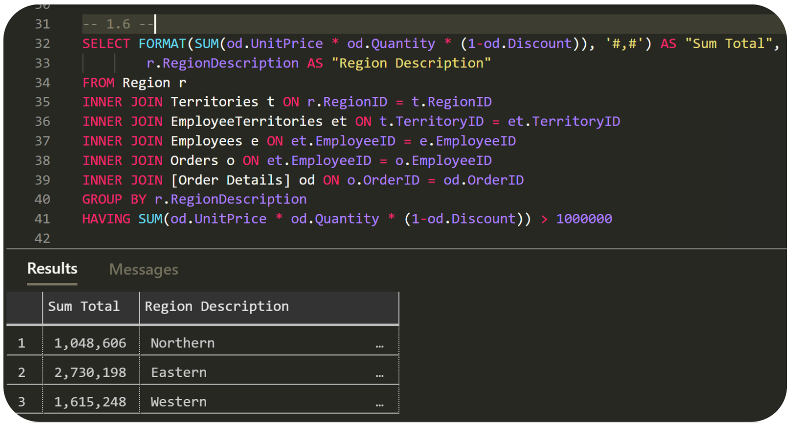
1.5 List all UK employees using concatenation to join their title of courtesy, first name and last name together. Also include their city of residence.



```
-- 1.5 --
SELECT CONCAT(e.TitleOfCourtesy, ' ', e.FirstName, ' ', e.LastName) AS "Full Name", e.City
FROM Employees e
WHERE e.Country='UK'
```

	Full Name	City
1	Mr. Steven Buchanan	London
2	Mr. Michael Suyama	London
3	Mr. Robert King	London
4	Ms. Anne Dodsworth	London

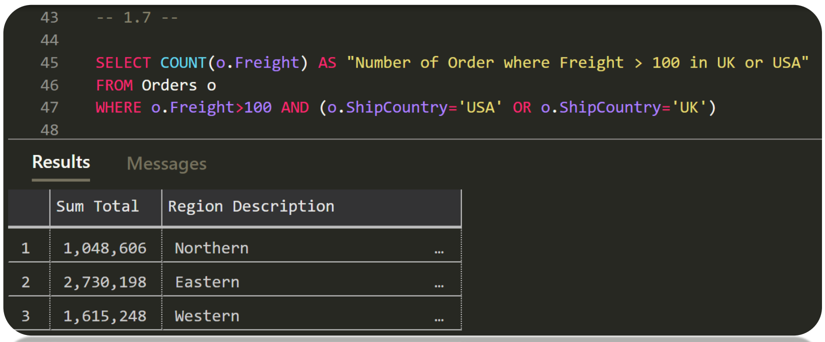
1.6 List Sales Totals for all Sales Regions (via the Territories table using 4 joins) with a Sales Total greater than 1,000,000. Use rounding or FORMAT to present the numbers.



```
-- 1.6 --
SELECT FORMAT(SUM(od.UnitPrice * od.Quantity * (1-od.Discount)), '#,#') AS "Sum Total",
        r.RegionDescription AS "Region Description"
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 et.EmployeeID = o.EmployeeID
INNER JOIN [Order Details] od ON o.OrderID = od.OrderID
GROUP BY r.RegionDescription
HAVING SUM(od.UnitPrice * od.Quantity * (1-od.Discount)) > 1000000
```

	Sum Total	Region Description
1	1,048,606	Northern …
2	2,730,198	Eastern …
3	1,615,248	Western …

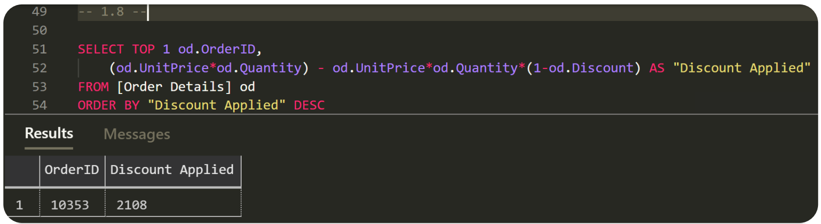
1.7 Count how many Orders have a Freight amount greater than 100.00 and either USA or UK as Ship Country.



```
-- 1.7 --

SELECT COUNT(o.Freight) AS "Number of Order where Freight > 100 in UK or USA"
FROM Orders o
WHERE o.Freight>100 AND (o.ShipCountry='USA' OR o.ShipCountry='UK')
```

	Sum Total	Region Description
1	1,048,606	Northern …
2	2,730,198	Eastern …
3	1,615,248	Western …

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.



```
-- 1.8 --

SELECT TOP 1 od.OrderID,
    (od.UnitPrice*od.Quantity) - od.UnitPrice*od.Quantity*(1-od.Discount) AS "Discount Applied"
FROM [Order Details] od
ORDER BY "Discount Applied" DESC
```

```
   OrderID  Discount Applied
1  10353    2108
```

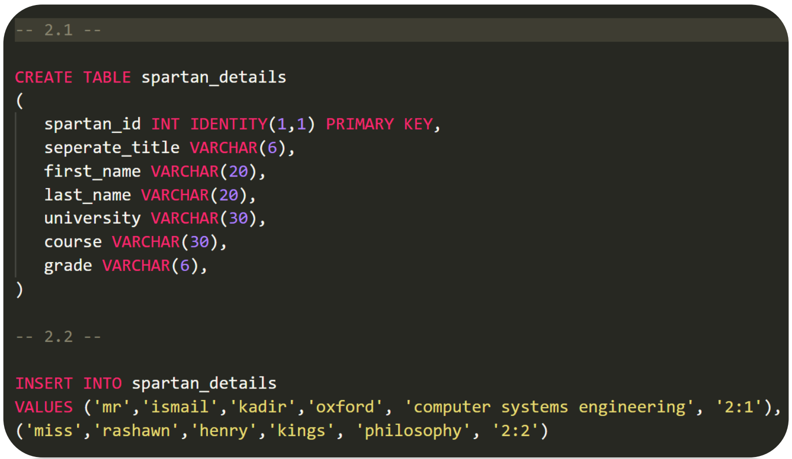
Exercise 2 – Create Spartans Table (20 marks – 10 each)

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.

IMPORTANT NOTE: For data protection reasons do NOT include date of birth in this exercise.

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

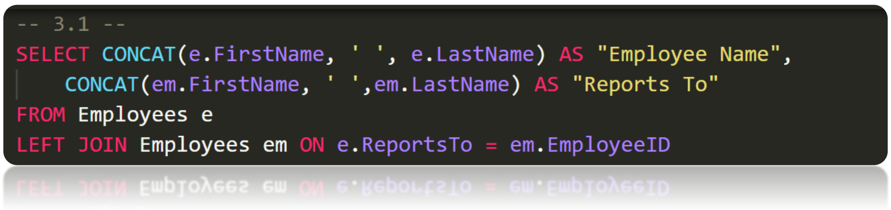


```
-- 2.1 --

CREATE TABLE spartan_details
(
   spartan_id INT IDENTITY(1,1) PRIMARY KEY,
   seperate_title VARCHAR(6),
   first_name VARCHAR(20),
   last_name VARCHAR(20),
   university VARCHAR(30),
   course VARCHAR(30),
   grade VARCHAR(6),
)

-- 2.2 --

INSERT INTO spartan_details
VALUES ('mr','ismail','kadir','oxford', 'computer systems engineering', '2:1'),
('miss','rashawn','henry','kings', 'philosophy', '2:2')
```

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

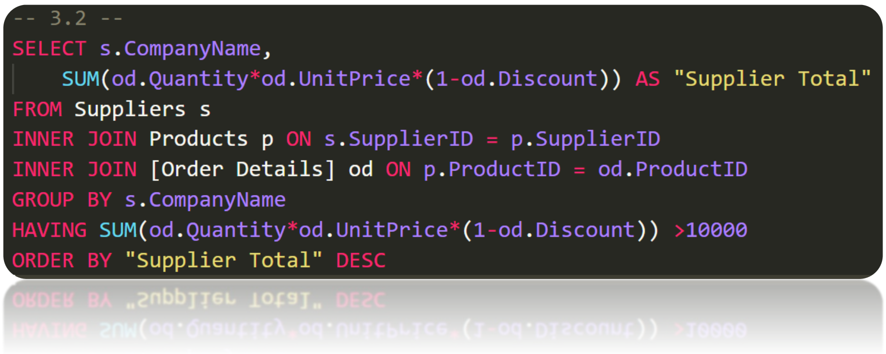
Write SQL statements to extract the data required for the following charts (create these in Excel):

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

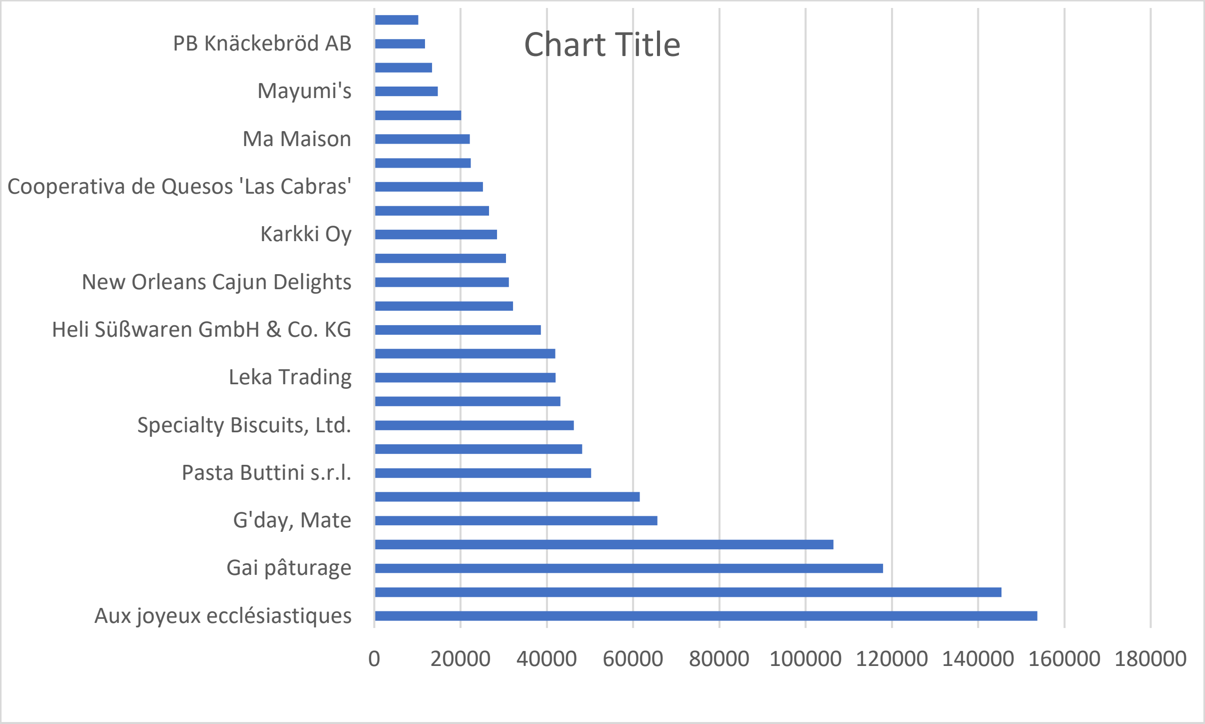


```
-- 3.1 --
SELECT CONCAT(e.FirstName, ' ', e.LastName) AS "Employee Name",
    CONCAT(em.FirstName, ' ',em.LastName) AS "Reports To"
FROM Employees e
LEFT JOIN Employees em ON e.ReportsTo = em.EmployeeID
```

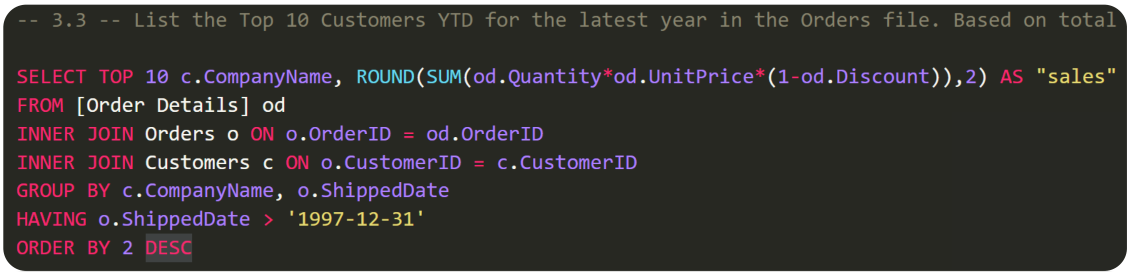
3.2 List all Suppliers with total sales over $10,000 in the Order Details table. Include the Company Name from the Suppliers Table and present as a bar chart as below: (5 Marks)



```
-- 3.2 --
SELECT s.CompanyName,
    SUM(od.Quantity*od.UnitPrice*(1-od.Discount)) AS "Supplier Total"
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
ORDER BY "Supplier Total" DESC
```

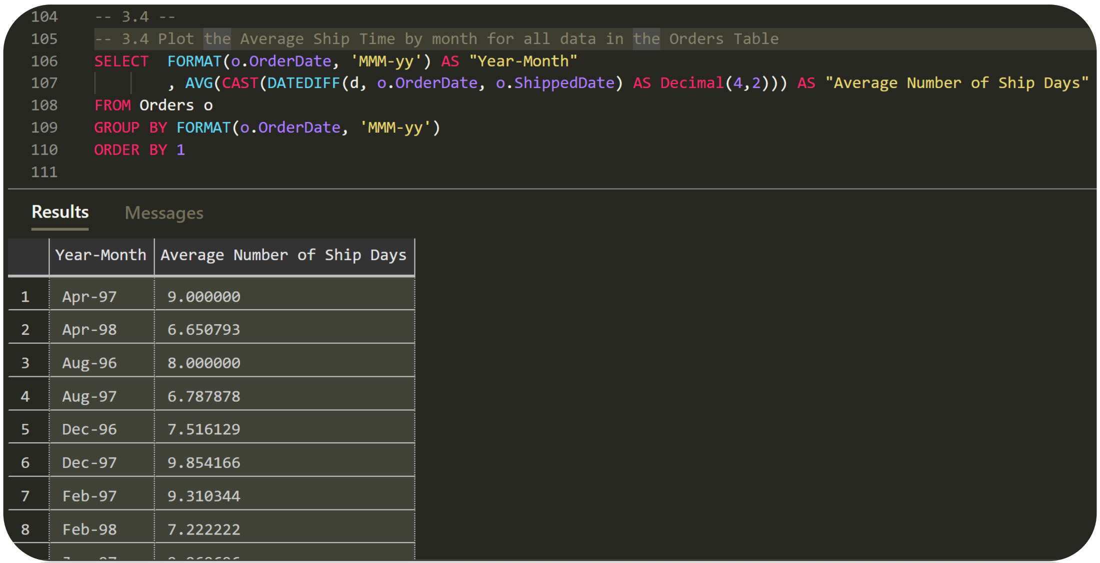


3.3 List the Top 10 Customers YTD for the latest year in the Orders file. Based on total value of orders shipped. No Excel required. (10 Marks)



```
-- 3.3 -- List the Top 10 Customers YTD for the latest year in the Orders file. Based on total

SELECT TOP 10 c.CompanyName, ROUND(SUM(od.Quantity*od.UnitPrice*(1-od.Discount)),2) AS "sales"
FROM [Order Details] od
INNER JOIN Orders o ON o.OrderID = od.OrderID
INNER JOIN Customers c ON o.CustomerID = c.CustomerID
GROUP BY c.CompanyName, o.ShippedDate
HAVING o.ShippedDate > '1997-12-31'
ORDER BY 2 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)



```
-- 3.4 --
-- 3.4 Plot the Average Ship Time by month for all data in the Orders Table
SELECT  FORMAT(o.OrderDate, 'MMM-yy') AS "Year-Month"
        , AVG(CAST(DATEDIFF(d, o.OrderDate, o.ShippedDate) AS Decimal(4,2))) AS "Average Number of Ship Days"
FROM Orders o
GROUP BY FORMAT(o.OrderDate, 'MMM-yy')
ORDER BY 1
```

	Year-Month	Average Number of Ship Days
1	Apr-97	9.000000
2	Apr-98	6.650793
3	Aug-96	8.000000
4	Aug-97	6.787878
5	Dec-96	7.516129
6	Dec-97	9.854166
7	Feb-97	9.310344
8	Feb-98	7.222222

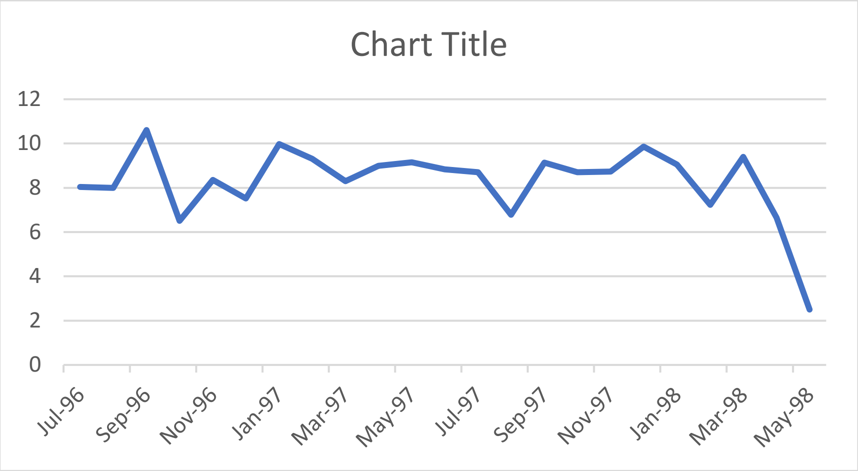


Chart Title
Jul-96
Sep-96
Nov-96
Jan-97
Mar-97
May-97
Jul-97
Sep-97
Nov-97
Jan-98
Mar-98
May-98