## Introduction

This exercise requires you to know the following aspects of SQL:

|  |  |
| --- | --- |
| CREATE TABLE | Concatenation |
| SQL Data Types | Formatting dates and numbers |
| INSERT INTO | Column aliases |
| SELECT | Simple JOIN statements |
| WHERE clause | Complex JOIN statements |
| LIKE and wildcards | Subquery |

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

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

SELECT CustomerID, CompanyName, Address , City, Region, PostalCode, Country FROM

Customers WHERE city = 'paris' OR city = 'london';

* 1. List all products stored in bottles.

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

* 1. Repeat question above, but add in the Supplier Name and Country.
  2. 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.
  3. List all UK employees using concatenation to join their title of courtesy, first name and last name together. Also include their city of residence.
  4. 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.
  5. Count how many Orders have a Freight amount greater than 100.00 and either USA or UK as Ship Country.
  6. Write an SQL Statement to identify the Order Number of the Order with the highest amount of discount applied to that order.

## 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.

## 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)

3.2 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)

3.3 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)

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

## 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

1.1 SELECT CustomerID, CompanyName, Address , City, Region, PostalCode, Country FROM

Customers WHERE city = 'paris' OR city = 'london';

1.2 SELECT QuantityPerUnit FROM Products WHERE QuantityPerUnit LIKE '%bottles%';

1.3

SELECT QuantityPerUnit, Country, CompanyName AS 'Supplier Name' FROM Products

JOIN Suppliers ON Suppliers.SupplierID = Products.SupplierID

WHERE QuantityPerUnit LIKE '%bottles%';

**1.4**

USE Northwind

SELECT COUNT (CategoryName) AS "Total number of products in each category" FROM Categories

JOIN Products ON Products.CategoryID = Categories.CategoryID

GROUP BY CategoryName

////////

USE Northwind

SELECT Count (\*) AS "Total number of products in each category", CategoryName AS "category" FROM Categories

JOIN Products ON Products.CategoryID = Categories.CategoryID

GROUP BY CategoryName

ORDER BY COUNT (\*) DESC

1.5

SELECT TitleOfCourtesy + ' ' + FirstName + ' '+ LastName AS " Full name", Country FROM Employees

WHERE Country = 'UK' ;

1.6

1.7

USE Northwind

SELECT Count(\*) AS "Total number of orders" FROM Orders

WHERE Freight > 100.00

AND ShipCountry IN ('UK','USA')

;

1.8

USE Northwind

SELECT O.OrderID, Max(od.Discount) AS "Maximum discount applied" FROM [ORDER DETAILS] od

JOIN Orders O ON od.OrderID = O.OrderID

GROUP BY O.ORDERID

ORDER BY Max(od.Discount) DESC ;

2.1

CREATE DATABASE Spartans;

CREATE TABLE Spartans(

Spartan\_id INT IDENTITY (1,1) PRIMARY KEY ,

Spartan\_title varchar (50),

Spartan\_FName varchar (255),

Spartan\_LName varchar (255),

Spartan\_Age INT,

Spartan\_UniversityAttended varchar (255),

Spartan\_CourseTaken varchar (255),

Spartan\_GradeAchieved varchar (255)

);

2.2

INSERT INTO Spartans VALUES ('miss','naila', 'nasleem','20','hertfordshireuniversity','computer science', 'First-Class Honours' );

INSERT INTO Spartans VALUES ('miss','zoe','allen','24','essexuniversity', 'ITmanagment', 'First Class Honours');

INSERT INTO Spartans VALUES ('ms','Rebecca','Rodriguez','23','CityUniversityLondon','IT','First Class Honours');

INSERT INTO Spartans VALUES ('mr', 'Aaron','Morley', '22', 'royalhollaway','Engeenering','Upper SecondClass Honours');

INSERT INTO Spartans VALUES ('mr', 'Sean',' Steele','26','royalhollaway', 'Science', 'Lower Second Class Honours');

INSERT INTO Spartans VALUES ('ms', 'payal', 'nayee', '21', 'greenwich' ,'SoftwareEngeenering','First Class Honours');

INSERT INTO Spartans VALUES ('mr','ali','hameed','23','Middlesex','Computer science', 'Lower Second Class Honours');

INSERT INTO Spartans VALUES ('mrs','alia','john','25', 'UniversityofLondon', 'Physics', 'Upper SecondClass Honours');

3.1 SELECT e.employeeID, e.LastName, e.FirstName, e.reportsto, em.FirstName, em.LastName FROM Employees e

JOIN Employees em ON e.ReportsTo = em.EmployeeID