Exercises

**Pre-requisites**

1. Attach Session 2.mdf file located in the same directory as this document

(Or)

Restore from Session 2.bak file located in the same directory as this document

Now the Database has 6 tables (Orders, OrderDetails, Products, Suppliers, Shippers and Employee)

'Joins'

-- 1. Get the firstname and lastname of the employees who placed orders between 15th August,1996 and 15th August,1997

SELECT e.FirstName, e.LastName FROM Employee e

INNER JOIN Orders o

on e.EmployeeID = o.EmployeeID

WHERE o.OrderDate BETWEEN '1996-08-15' AND '1997-08-15';

-- 2. Get the distinct EmployeeIDs who placed orders before 16th October,1996

SELECT DISTINCT e.EmployeeID FROM Employee e

INNER JOIN Orders o

on e.EmployeeID = o.EmployeeID

WHERE o.OrderDate < '1996-10-16';

-- 3. How many products were ordered in total by all employees between 13th of January,1997 and 16th of April,1997.

SELECT SUM(od.Quantity) FROM Orders o

INNER JOIN Employee e

on e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od

on od.OrderID = o.OrderID

WHERE o.OrderDate BETWEEN '1997-01-13' AND '1997-04-16';

-- 4. What is the total quantity of products for which Anne Dodsworth placed orders between 13th of January,1997 and 16th of April,1997.

SELECT SUM(od.Quantity) FROM Orders o

INNER JOIN Employee e

on e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od

on od.OrderID = o.OrderID

WHERE o.OrderDate BETWEEN '1997-01-13' AND '1997-04-16'

AND e.FirstName='Anne'

AND e.LastName = 'Dodsworth';

--5. How many orders have been placed in total by Robert King

SELECT COUNT(\*) FROM Orders o

INNER JOIN Employee e

on e.EmployeeID = o.EmployeeID

WHERE

e.FirstName='Robert'

AND e.LastName = 'King';

--6. How many products have been ordered by Robert King between 15th August,1996 and 15th August,1997

SELECT SUM(od.Quantity) FROM Orders o

INNER JOIN Employee e

ON e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od

ON o.OrderID = od.OrderID

WHERE o.OrderDate BETWEEN '1996.08.15' AND '1997.08.15'

AND e.FirstName='Robert'

AND e.LastName = 'King';

--7. I want to make a phone call to the employees to wish them on the occasion of Christmas

-- who placed orders between 13th of January,1997 and 16th of April,1997.

-- I want the EmployeeID, Employee Full Name, HomePhone Number.

SELECT DISTINCT e.EmployeeID, CONCAT(e.FirstName,' ',e.LastName) AS FullName, e.HomePhone FROM Employee e

INNER JOIN Orders o

on e.EmployeeID = o.EmployeeID

WHERE o.OrderDate BETWEEN '1997.01.13' AND '1997.04.16';

-- 8. Which product received the most orders. Get the product's ID and Name and number of orders it received.

SELECT TOP 1 p.ProductID,p.ProductName, COUNT(\*) AS ItemOrdered FROM Products p INNER JOIN OrderDetails o

ON p.ProductID = o.ProductID

GROUP BY p.ProductName,p.ProductID

ORDER BY ItemOrdered DESC;

-- 9. Which are the least shipped products. List only the top 5 from your list.

SELECT TOP 5 p.ProductName FROM Products p

INNER JOIN OrderDetails od

ON p.ProductID = od.ProductID

INNER JOIN Orders o

ON o.OrderID = od.OrderID

GROUP BY p.ProductName

ORDER BY COUNT(o.ShipperID);

-- 10. What is the total price that is to be paid by Laura Callahan for the order placed on 13th of January,1997

SELECT SUM((od.UnitPrice\*od.Quantity)-od.Discount) AS TotalPaying FROM OrderDetails od

INNER JOIN Orders o

ON o.OrderID = od.OrderID

INNER JOIN Employee e

ON e.EmployeeID = o.EmployeeID

WHERE

e.FirstName='Laura'

AND e.LastName = 'Callahan'

AND o.OrderDate = '1997-01-13';

-- 11. How many number of unique employees placed orders for Gorgonzola Telino or Gnocchi di nonna

-- Alice or Raclette Courdavault or Camembert Pierrot in the month January,1997

SELECT COUNT(DISTINCT o.EmployeeID) AS NumberEmployee FROM Orders o

INNER JOIN OrderDetails od

ON o.OrderID=od.OrderID

INNER JOIN Products p

ON p.ProductID = od.ProductID

WHERE p.ProductName IN ('Gorgonzola Telino','Gnocchi di nonna Alice', 'Raclette Courdavault', 'Camembert Pierrot') AND o.OrderDate BETWEEN '1997-01-01' AND '1997-01-31';

--12. What is the full name of the employees who ordered Tofu between 13th of January,1997 and 30th of January,1997

SELECT DISTINCT CONCAT(e.FirstName,' ',e.LastName) AS EmployeeName FROM Employee e

INNER JOIN Orders o

ON e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od

ON o.OrderID=od.OrderID

INNER JOIN Products p

ON p.ProductID = od.ProductID

WHERE p.ProductName = 'Tofu' AND o.OrderDate BETWEEN '1997-01-13' AND '1997-01-30';

--13. What is the age of the employees in days, months and years who placed orders during the month of August.

-- Get employeeID and full name as well

SELECT DISTINCT e.EmployeeID, CONCAT(e.FirstName,' ',e.LastName) AS EmployeeName, CONCAT

( FLOOR((DATEDIFF(MONTH, e.BirthDate, CURRENT\_TIMESTAMP) / 12)), ' YEARS ',

DATEDIFF(MONTH, e.BirthDate, CURRENT\_TIMESTAMP)%12 , ' MONTHS ',

DATEDIFF(day, e.BirthDate, CURRENT\_TIMESTAMP)%30,' DAYS' )AS age FROM Employee e

INNER JOIN Orders o

ON e.EmployeeID=o.EmployeeID

WHERE OrderDate BETWEEN '1996-08-01' AND '1996-08-31'

OR OrderDate BETWEEN '1997-08-01' AND '1997-08-31'

OR OrderDate BETWEEN '1998-08-01' AND '1998-08-31';

-- 14. Get all the shipper's name and the number of orders they shipped

SELECT s.CompanyName, COUNT(\*) AS NoOfShipments FROM Shippers s

INNER JOIN Orders o

ON o.ShipperID = s.ShipperID

GROUP BY s.CompanyName;

-- 15. Get the all shipper's name and the number of products they shipped.

SELECT s.CompanyName, SUM(od.Quantity) AS NoOfProduct FROM Orders o

INNER JOIN Shippers s

ON o.ShipperID = s.ShipperID

INNER JOIN OrderDetails od

ON o.OrderID = od.OrderID

GROUP BY s.CompanyName;

-- 16. Which shipper has bagged most orders. Get the shipper's id, name and the number of orders.

SELECT TOP 1 s.ShipperID, s.CompanyName, COUNT(\*) AS NoOfOrders FROM Orders o

INNER JOIN Shippers s

ON o.ShipperID = s.ShipperID

GROUP BY s.CompanyName, s.ShipperID

ORDER BY NoOfOrders DESC;

-- 17. Which shipper supplied the most number of products between 10th August,1996 and 20th September,1998.

-- Get the shipper's name and the number of products.

SELECT TOP 1 s.ShipperID, s.CompanyName, SUM(od.Quantity) AS NoOfProducts FROM Orders o

INNER JOIN Shippers s

ON o.ShipperID = s.ShipperID

INNER JOIN OrderDetails od

ON od.OrderID = o.OrderID

WHERE o.OrderDate BETWEEN '1996-08-10' AND '1998-09-20'

GROUP BY s.CompanyName, s.ShipperID

ORDER BY NoOfProducts DESC;

-- 18. Which employee didn't order any product 4th of April 1997

SELECT EmployeeID FROM Employee EXCEPT(

SELECT DISTINCT e.EmployeeID FROM Employee e INNER JOIN Orders o

ON e.EmployeeID = o.EmployeeID

WHERE o.OrderDate = '1997-04-04');

--other way

select e.EmployeeID from Employee E left join (SELECT e.EmployeeID FROM Employee e INNER JOIN Orders o

ON e.EmployeeID = o.EmployeeID

WHERE o.OrderDate = '1997-04-04') AS temp On e.EmployeeID = temp.EmployeeID where temp.EmployeeID is null

-- 19. How many products where shipped to Steven Buchanan

SELECT SUM(od.Quantity) FROM Employee e INNER JOIN Orders o ON e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od ON o.OrderID = od.OrderID

WHERE e.FirstName = 'Steven'

AND e.LastName = 'Buchanan'

-- 20. How many orders where shipped to Michael Suyama by Federal Shipping

SELECT count(DISTINCT o.OrderID) AS TotalShippedToMichael FROM Employee e

INNER JOIN Orders o

ON e.EmployeeID = o.EmployeeID

INNER JOIN Shippers s

ON s.ShipperID = o.ShipperID

WHERE e.FirstName = 'Michael'

AND e.LastName = 'Suyama'

AND s.CompanyName= 'Federal Shipping';

-- 21. How many orders are placed for the products supplied from UK and Germany

SELECT COUNT(DISTINCT od.OrderID) FROM Suppliers sup

INNER JOIN Products p

ON sup.SupplierID = p.SupplierID

INNER JOIN OrderDetails od

ON od.ProductID = p.ProductID

WHERE sup.Country IN ('UK','Germany');

-- 22. How much amount Exotic Liquids received due to the order placed for its products in the month of January,1997

SELECT SUM(od.Quantity) AS TotalLiquids FROM Suppliers sup

INNER JOIN Products p

ON sup.SupplierID = p.SupplierID

INNER JOIN OrderDetails od

ON od.ProductID = p.ProductID

INNER JOIN Orders o

ON o.OrderID = od.OrderID

WHERE sup.CompanyName = 'Exotic Liquids'

AND o.OrderDate BETWEEN '1997-01-01' AND '1997-01-31';

-- 23. In which days of January, 1997, the supplier Tokyo Traders haven't received any orders.

DECLARE @StartDate DATE, @EndDate DATE

SELECT @StartDate = '1997-01-01', @EndDate = '1997-01-31';

WITH ListDates(AllDates) AS

( SELECT @StartDate AS DATE

UNION ALL

SELECT DATEADD(DAY,1,AllDates)

FROM ListDates

WHERE AllDates < @EndDate)

SELECT AllDates FROM ListDates EXCEPT(

SELECT DISTINCT o.OrderDate FROM Suppliers sup

INNER JOIN Products p

ON sup.SupplierID = p.SupplierID

INNER JOIN OrderDetails od

ON od.ProductID = p.ProductID

INNER JOIN Orders o

ON o.OrderID = od.OrderID

WHERE sup.CompanyName = 'Tokyo Traders'

AND o.OrderDate BETWEEN '1997-01-01' AND '1997-01-31'

);

-- 24. Which of the employees did not place any order for the products supplied by Ma Maison in the month of May

SELECT EmployeeID FROM Employee

EXCEPT(

SELECT DISTINCT o.EmployeeID FROM Suppliers sup

INNER JOIN Products p

ON sup.SupplierID = p.SupplierID

INNER JOIN OrderDetails od

ON od.ProductID = p.ProductID

INNER JOIN Orders o

ON o.OrderID = od.OrderID

WHERE sup.CompanyName = 'Ma Maison'

AND OrderDate BETWEEN '1996-05-01' AND '1996-05-31'

OR OrderDate BETWEEN '1997-05-01' AND '1997-05-31'

OR OrderDate BETWEEN '1998-05-01' AND '1998-05-31');

-- 25. Which shipper shipped the least number of products for the month of September and October,1997 combined.

SELECT TOP 1 s.CompanyName FROM Orders o

INNER JOIN Shippers s

ON s.ShipperID = o.ShipperID

WHERE o.OrderDate BETWEEN '1997-09-01' AND '1997-09-30'

OR o.OrderDate BETWEEN '1997-10-01' AND '1997-10-31'

GROUP BY s.CompanyName

ORDER BY COUNT(\*);

-- 26. What are the products that weren't shipped at all in the month of August, 1997

SELECT ProductName FROM Products

EXCEPT

(SELECT DISTINCT p.ProductName FROM OrderDetails od

INNER JOIN Products p

ON p.ProductID = od.ProductID

INNER JOIN Orders o

ON o.OrderID = od.OrderID

WHERE o.ShippedDate BETWEEN '1997-08-01' AND '1997-08-31');

-- 27. What are the products that weren't ordered by each of the employees. List each employee and the products that he didn't order.

SELECT CONCAT(FirstName,' ',LastName) AS EmployeeName,ProductName FROM Employee CROSS JOIN Products

EXCEPT

(

SELECT DISTINCT CONCAT(e.FirstName,' ',e.LastName) AS EmployeeName, p.ProductName FROM Employee e

INNER JOIN Orders o

ON o.EmployeeID = e.EmployeeID

INNER JOIN OrderDetails od

ON od.OrderID = o.OrderID

INNER JOIN Products p

ON p.ProductID = od.ProductID

);

-- 28. Who is busiest shipper in the months of April, May and June during the year 1996 and 1997

SELECT TOP 1 s.CompanyName FROM Shippers s INNER JOIN Orders o ON o.ShipperID = s.ShipperID

WHERE o.ShippedDate BETWEEN '1996-04-01' AND '1996-06-30'

OR o.ShippedDate BETWEEN '1997-04-01' AND '1997-06-30'

GROUP BY s.CompanyName

ORDER BY COUNT(\*) DESC;

-- 29. Which country supplied the maximum products for all the employees in the year 1997

SELECT TOP 1 sup.Country FROM Suppliers sup

INNER JOIN Products p

ON p.SupplierID = sup.SupplierID

INNER JOIN OrderDetails od

ON p.ProductID = od.ProductID

INNER JOIN Orders o

ON o.OrderID = od.OrderID

WHERE o.ShippedDate BETWEEN '1997-01-01' AND '1997-12-31'

GROUP BY sup.Country

ORDER BY COUNT(\*) DESC;

-- 30. What is the average number of days taken by all shippers to ship the product

-- after the order has been placed by the employees

SELECT AVG(DATEDIFF(DAY,OrderDate, ShippedDate)) AS DaysTakenToShip FROM Orders;

-- 31. Who is the quickest shipper of all.

SELECT TOP 1 s.CompanyName FROM Orders o

INNER JOIN Shippers s

ON s.ShipperID=o.ShipperID

GROUP BY(s.CompanyName)

ORDER BY AVG(DATEDIFF(DAY,o.OrderDate, o.ShippedDate));

-- 32. Which order took the least number of shipping days. Get the orderid, employees full name,

-- number of products, number of days took to ship and shipper company name.

SELECT o.OrderID,CONCAT(e.FirstName,' ',e.LastName) AS FullName,od.Quantity,DATEDIFF(day,o.OrderDate, o.ShippedDate) AS DaysTOShip,s.CompanyName FROM Orders o

INNER JOIN Shippers s

ON s.ShipperID=o.ShipperID

INNER JOIN Employee e

ON e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od

ON od.OrderID = o.OrderID

WHERE DATEDIFF(day,o.OrderDate, o.ShippedDate) = (SELECT MIN(DATEDIFF(day,OrderDate, ShippedDate)) FROM Orders)

ORDER BY DATEDIFF(day,o.OrderDate, o.ShippedDate);

'Unions'

--1. Which orders took the least number and maximum number of shipping days. Get the orderid, employees full name,

-- number of products, number of days taken to ship the product and shipper company name.

-- Use 1 and 2 in the final result set to distinguish the 2 orders.

SELECT 1 as type, o.OrderID,CONCAT(e.FirstName,' ', e.LastName) AS FullName,od.Quantity,DATEDIFF(day,OrderDate, ShippedDate) AS DaysTaken, s.CompanyName FROM Orders o

INNER JOIN Shippers s

ON s.ShipperID=o.ShipperID

INNER JOIN Employee e

ON e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od

ON od.OrderID = o.OrderID

WHERE DATEDIFF(day,o.OrderDate, o.ShippedDate) = (SELECT MIN(DATEDIFF(day,OrderDate, ShippedDate)) FROM Orders)

UNION

SELECT 2 as type, o.OrderID,CONCAT(e.FirstName,' ', e.LastName) AS FullName,od.Quantity,DATEDIFF(day,OrderDate, ShippedDate) AS DaysTaken, s.CompanyName FROM Orders o

INNER JOIN Shippers s

ON s.ShipperID=o.ShipperID

INNER JOIN Employee e

ON e.EmployeeID = o.EmployeeID

INNER JOIN OrderDetails od

ON od.OrderID = o.OrderID

WHERE DATEDIFF(day,o.OrderDate, o.ShippedDate) = (SELECT MAX(DATEDIFF(day,OrderDate, ShippedDate)) FROM Orders)

ORDER BY DATEDIFF(day,o.OrderDate, o.ShippedDate);

--2. Which is cheapest and the costliest of products purchased in the second week of October,1997.

-- Get the product ID, product Name and unit price. Use 1 and 2 in the final result set to distinguish the 2 products.

SELECT 1 as type,p.ProductID,p.ProductName,od.UnitPrice FROM OrderDetails od

INNER JOIN Products p

ON p.ProductID = od.ProductID

INNER JOIN Orders o

ON o.OrderID =od.OrderID

WHERE od.UnitPrice = (SELECT MIN(o2.UnitPrice) FROM OrderDetails o2 INNER JOIN Orders o1 ON o1.OrderID = o2.OrderID

WHERE o1.OrderDate BETWEEN '1997-10-06' AND '1997-10-12')

AND o.OrderDate BETWEEN '1997-10-06' AND '1997-10-12'

UNION

SELECT 2 as type, p.ProductID,p.ProductName,od.UnitPrice FROM OrderDetails od

INNER JOIN Products p

ON p.ProductID = od.ProductID

INNER JOIN Orders o

ON o.OrderID =od.OrderID

WHERE od.UnitPrice = (SELECT MAX(o2.UnitPrice) FROM OrderDetails o2 INNER JOIN Orders o1 ON o1.OrderID = o2.OrderID

WHERE o1.OrderDate BETWEEN '1997-10-06' AND '1997-10-12')

AND o.OrderDate BETWEEN '1997-10-06' AND '1997-10-12'

'Case'

--1. Find the distinct shippers who are to ship the orders placed by employees with IDs 1, 3, 5, 7

-- Show the shipper's name as "Express Speedy" if the shipper's ID is 2 and "United Package" if the shipper's ID is 3 and " Shipping Federal" if the shipper's ID is 1.

SELECT DISTINCT EmployeeId,

CASE

WHEN ShipperID = 3 THEN 'United Package'

WHEN ShipperID = 2 THEN 'Express Speedy'

WHEN ShipperID = 1 THEN 'Shipping Federal'

END AS ShipperName

FROM Orders

WHERE EmployeeID IN (1,3,5,7)

ORDER BY EmployeeID;