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 Employee.FirstName, Employee.LastName from Employee

join Orders ON Orders.EmployeeID = Employee.EmployeeID where Orders.OrderDate between '15-aug-1996' and '15-aug-1997';

* 1. Get the distinct EmployeeIDs who placed orders before 16th October,1996

Select distinct Employee.EmployeeID from Employee

join Orders on Employee.EmployeeID = Orders.EmployeeID

where Orders.OrderDate < '16-oct-1996';

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

select count(Orders.OrderID) as count from Employee

join Orders on Employee.EmployeeID = Orders.EmployeeID

where Orders.OrderDate between '13-jan-1997' and '16-april-1997';

* 1. 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(OrderDetails.Quantity) as count from OrderDetails

join Orders on Orders.OrderID = OrderDetails.OrderID

join Employee on Orders.employeeID = Employee.EmployeeID

where Employee.FirstName = 'Anne' and Orders.OrderDate between '13-jan-1997' and '16-april-1997';

* 1. How many orders have been placed in total by **Robert King**

Select distinct count(orders.orderID) as count from Orders

join Employee on Orders.employeeID = Employee.EmployeeID

where Employee.FirstName = 'Robert';

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

select count(orders.EmployeeID) as count from Orders

join Employee on Orders.employeeID = Employee.EmployeeID

where Employee.FirstName = 'Robert' and Orders.OrderDate between '15-aug-1996' and '15-aug-1997';

* 1. 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 Employee.EmployeeID, CONCAT(Employee.FirstName, Employee.LastName) as name, Employee.HomePhone from Employee

join orders on Orders.EmployeeID = Employee.EmployeeID

where Orders.OrderDate between '13-jan-1997' and '16-april-1997';

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

select top 1 Products.ProductName, Products.ProductID, COUNT(\*) as numberOfOrders from Products

join OrderDetails on OrderDetails.ProductID = Products.ProductID

group by Products.ProductName, Products.ProductID

order by numberOfOrders desc

* 1. Which are the least shipped products. List only the top 5 from your list.

select TOP 5 OrderDetails.OrderID, Products.ProductName from Products

join OrderDetails on OrderDetails.ProductID = Products.ProductID

group by Products.ProductID, Products.ProductName, OrderDetails.OrderID

order by COUNT(Products.ProductName)

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

select sum(OrderDetails.UnitPrice) as price from OrderDetails

join Orders on Orders.OrderID = OrderDetails.OrderID

join Employee on Employee.EmployeeID = Orders.EmployeeID

where Employee.FirstName = 'Laura' and Orders.OrderDate = '13-jan-1997'

* 1. 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(Orders.EmployeeID) as NumOfEmployees from Orders

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Products on Products.ProductID = OrderDetails.ProductID

where Products.ProductName in ('Gorgonzola Telino', ' Gnocchi di nonna Alice', ' Raclette Courdavault', 'Camembert Pierrot')

and Orders.OrderDate between '1997-01-01' and '1997-01-31'

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

select distinct concat(Employee.FirstName,' ', Employee.LastName) as EmployeeName from Employee

join Orders on Orders.EmployeeID = Employee.EmployeeID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Products on Products.ProductID = OrderDetails.ProductID

where Products.ProductName = 'Tofu'

and Orders.OrderDate between '13-jan-1997' and '30-jan-1997'

* 1. 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 Employee.EmployeeID, CONCAT(Employee.FirstName, Employee.LastName) as EmployeeName, datediff( YY, employee.BirthDate, getdate()) as age from Employee

join Orders on Orders.EmployeeID = Employee.EmployeeID

where orders.OrderDate between '1-aug-1997' and '30-aug-1997'

* 1. Get all the shipper's name and the number of orders they shipped

select shippers.CompanyName as ShipperName, count(\*) as count from Shippers

join Orders on Shippers.ShipperID = Orders.ShipperID

group by Shippers.CompanyName

* 1. Get the all shipper's name and the number of products they shipped.

select shippers.CompanyName as ShipperName, count(Products.UnitsOnOrder) as count from Shippers

join Orders on Shippers.ShipperID = Orders.ShipperID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Products on Products.ProductID = OrderDetails.ProductID

group by Shippers.CompanyName

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

select top 1 shippers.ShipperID, Shippers.CompanyName, sum(OrderDetails.Quantity) from Shippers

join Orders on Shippers.ShipperID = Orders.ShipperID

join OrderDetails on Orders.OrderID = OrderDetails.OrderID

group by Shippers.ShipperID, Shippers.CompanyName

order by sum(OrderDetails.Quantity) desc

* 1. 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 Shippers.CompanyName, count(Products.UnitsOnOrder) as NumOfProducts from Shippers

join Orders on Orders.ShipperID = Shippers.ShipperID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Products on Products.ProductID = OrderDetails.ProductID

where Orders.OrderDate between '10-aug-1996' and '20-sep-1998'

group by Shippers.CompanyName

* 1. Which employee didn't order any product 4th of April 1997

select concat(Employee.FirstName, Employee.LastName) from Employee

where FirstName not in (

select FirstName from Employee

join Orders on Orders.EmployeeID = Employee.EmployeeID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

where OrderDate = '4-apr-1997'

)

* 1. How many products where shipped to **Steven Buchanan**

select sum(OrderDetails.Quantity) as NumOfProducts from OrderDetails

join Orders on OrderDetails.OrderID = Orders.OrderID

join Employee on Employee.EmployeeID = Orders.EmployeeID

where Employee.FirstName = 'Steven'

* 1. How many orders where shipped to **Michael** **Suyama** by **Federal Shipping**

select count(Orders.EmployeeID) as NumOfOrders from OrderDetails

join Products on Products.ProductID = OrderDetails.ProductID

join Orders on OrderDetails.OrderID = Orders.OrderID

join Shippers on Shippers.ShipperID = Orders.ShipperID

join Employee on Employee.EmployeeID = Orders.EmployeeID

where Employee.FirstName = 'Michael' and Shippers.CompanyName = 'Federal Shipping'

* 1. How many orders are placed for the products supplied from **UK** and **Germany**

select sum(Products.UnitsOnOrder) as count from Products

join OrderDetails on Products.ProductID = OrderDetails.ProductID

join Orders on Orders.OrderID = OrderDetails.OrderID

where Orders.ShipCountry in ('UK', 'Germany')

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

select sum((Quantity\*OrderDetails.unitprice)-Discount) from Products

join Suppliers on Suppliers.SupplierID = Products.SupplierID

join OrderDetails on OrderDetails.ProductID = Products.ProductID

join Orders on Orders.OrderID = OrderDetails.OrderID

where Suppliers.CompanyName = 'Exotic Liquids' and Orders.OrderDate between '1-jan-1997' and '31-jan-1997’

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

Select distinct Orders.OrderDate from Orders

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Products on Products.ProductID = OrderDetails.ProductID

join Suppliers on Suppliers.SupplierID = Products.SupplierID

where Suppliers.CompanyName = 'Tokyo Traders' and Orders.OrderDate between '1-jan-1997' and '31-jan-1997'

group by Orders.OrderDate

having sum(Products.UnitsOnOrder) = 0

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

select Employee.FirstName from Employee

join Orders on Employee.EmployeeID = Orders.EmployeeID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Products on Products.ProductID = OrderDetails.ProductID

join Suppliers on Suppliers.SupplierID = Products.SupplierID

where Suppliers.CompanyName = 'Ma Maison' and Orders.OrderDate between '1-may-1997' and '31-may-1997'

group by Employee.FirstName

having sum(Products.UnitsOnOrder) = 0

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

Select top 1 Shippers.CompanyName, count(OrderDetails.Quantity) from Shippers

join Orders on Shippers.ShipperID = Orders.ShipperID

join OrderDetails on Orders.OrderID = OrderDetails.OrderID

where Orders.OrderDate between '1-sep-1997' and '30-oct-1997'

group by Shippers.CompanyName

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

select Products.ProductName as ProductName from Products

where Products.ProductName not in (

select Products.ProductName from Products

join OrderDetails on OrderDetails.ProductID = Products.ProductID

join Orders on Orders.OrderID = OrderDetails.OrderID

where OrderDate between '1-aug-1997' and '31-aug-1997'

)

* 1. 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 distinct Employee.EmployeeID ,Products.ProductID from Products

join OrderDetails on OrderDetails.ProductID=Products.ProductID

join Orders on Orders.OrderID=OrderDetails.OrderID

join Employee on Employee.EmployeeID=Orders.EmployeeID

where Employee.EmployeeID is null

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

select top 1 Shippers.CompanyName from Shippers

join Orders on Orders.ShipperID = Shippers.ShipperID

where Orders.OrderDate between '1-apr-1996' and '30-apr-1996' or Orders.OrderDate between '1-may-1996' and '31-may-1996' or Orders.OrderDate between '1-jun-1996' and '30-jun-1996'

or Orders.OrderDate between '1-apr-1997' and '30-apr-1997' or Orders.OrderDate between '1-may-1997' and '31-may-1997' or Orders.OrderDate between '1-jun-1997' and '30-jun-1997'

group by Shippers.CompanyName, Shippers.ShipperID

order by Shippers.ShipperID desc

* 1. Which country supplied the maximum products for all the employees in the year 1997

select top 1 Suppliers.Country from Suppliers

join Products on Products.SupplierID = Suppliers.SupplierID

join OrderDetails on Products.ProductID = OrderDetails.ProductID

group by Suppliers.Country, OrderDetails.Quantity

order by OrderDetails.Quantity

* 1. 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, orders.orderDate, orders.shippeddate)) as average from Orders

* 1. Who is the quickest shipper of all.

select top 1 Shippers.ShipperID, DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate) as NumOfDays from Shippers

join Orders on Orders.ShipperID = Shippers.ShipperID

group by Shippers.ShipperID, Orders.OrderDate, Orders.ShippedDate

* 1. 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 Orders.OrderID, COUNT(OrderDetails.OrderID) as NumOfProducts, CONCAT(Employee.FirstName, Employee.LastName) as name,

Shippers.CompanyName from Orders

join Employee on Employee.EmployeeID = Orders.EmployeeID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Shippers on Shippers.ShipperID = Orders.ShipperID

where DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate) = 1

group by Orders.OrderID, Employee.FirstName, Employee.LastName, Shippers.CompanyName, Orders.OrderDate, Orders.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 Orders.OrderID, COUNT(OrderDetails.OrderID) as NumOfProducts, DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate) as NumOfDays, CONCAT(Employee.FirstName, Employee.LastName) as name,

Shippers.CompanyName from Orders

join Employee on Employee.EmployeeID = Orders.EmployeeID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Shippers on Shippers.ShipperID = Orders.ShipperID

group by Orders.OrderID, Employee.FirstName, Employee.LastName, Shippers.CompanyName, Orders.OrderDate, Orders.ShippedDate

having DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate) = MIN(DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate))

union

select Orders.OrderID, COUNT(OrderDetails.OrderID) as NumOfProducts, DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate) as NumOfDays, CONCAT(Employee.FirstName, Employee.LastName) as name,

Shippers.CompanyName from Orders

join Employee on Employee.EmployeeID = Orders.EmployeeID

join OrderDetails on OrderDetails.OrderID = Orders.OrderID

join Shippers on Shippers.ShipperID = Orders.ShipperID

group by Orders.OrderID, Employee.FirstName, Employee.LastName, Shippers.CompanyName, Orders.OrderDate, Orders.ShippedDate

having DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate) = MAX(DATEDIFF(day, Orders.OrderDate, Orders.ShippedDate))

order by NumOfDays

* 1. 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 Products.ProductID, Products.ProductName, Products.UnitPrice from Products

join OrderDetails on OrderDetails.ProductID = Products.ProductID

join Orders on Orders.OrderID = OrderDetails.OrderID

where Orders.OrderDate between '8-oct-1997' and '14-oct-1997'

group by Products.ProductID, Products.ProductName, Products.UnitPrice

having Products.UnitPrice = min(Products.UnitPrice)

union

select Products.ProductID, Products.ProductName, Products.UnitPrice from Products

join OrderDetails on OrderDetails.ProductID = Products.ProductID

join Orders on Orders.OrderID = OrderDetails.OrderID

where Orders.OrderDate between '8-oct-1997' and '14-oct-1997'

group by Products.ProductID, Products.ProductName, Products.UnitPrice

having Products.UnitPrice = max(Products.UnitPrice)

order by Products.UnitPrice desc

'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 Shippers.ShipperID,

case

when Shippers.ShipperID = 1 then 'Shipping Federal'

when Shippers.ShipperID = 2 then 'Express Speedy'

when Shippers.ShipperID = 3 then 'United Package'

end as 'Shipper Name'

from Employee

join Orders on Orders.EmployeeID = Employee.EmployeeID

join Shippers on Shippers.ShipperID = Orders.ShipperID

where Employee.EmployeeID in (1,3,5,7)