Database Fundamentals

Exercises E010

1. Show all the data from the Product table.
2. Show all the data from the Customers table.
3. Show company name, contact name and country from the Customers table.
4. Show all Shippers (courier companies) sorted by name.
5. Show company name, country and city from the Customers table. Sort by country and then by city.
6. Show all data of the first 3 records of Categories. -- why should we consider this to be a "bad" question?
7. Show all countries from the Suppliers table. Each country must only occur once.
8. Display all countries and contact titles from the Suppliers table. Each combination must be unique.
9. Show all dates on which at least one order was registered. Each date must be unique.
10. Sort the table Employees descending on land and ascending on city. Then, from the first record, show name and first name.

Exercises E020

0. Answer following questions:

- At what (different) unitprices has Chai been sold?

- What is the CurrentUnitPrice now? Where can the CurrentUnitPrice be found?

1. Show the name and first name of the 'Mr.' employees.

	LastName	FirstName
1	Buchanan	Steven
2	Suyama	Michael
3	King	Robert

2. Show all the details of the orders placed after 10 July 2016.
   => 1212 rows

3. idem, now ordered by ID of the customer.

4. Which customers are located in Paris? Make an alphabetical list of the company names of these customers.

	companyname
1	Paris spécialités
2	Spécialités du monde

5. Which employees started working after 1 January 2014? Make a list of those employees with the surname, job title and date of employment.

lastname	Title	hiredate
King	Sales Representative	2014-01-02 0
Callahan	Inside Sales Coordinator	2014-03-05 0
Dodsworth	Sales Representative	2014-11-15 0

6. A customer asks information about an order of 4 October 2016. The financial service wants to see all the details of that order. Because an order consists of a record in the Order Table (Orders) and the associated order lines (details) from the table (Order Details), we need two queries here (later we will see how we can solve this in one query).

   First create a list with all orders on October 4, 2016. You will see, only one order was placed on that day. Memorize that OrderID.

7. Next, query Order details to see the order lines of that order.

OrderID	ProductID	UnitPrice	Quantity	Discount
11285	41	13,51	20	0
11285	76	25,20	6	0

8. For which employees (surname and first name) is the region unknown?

	LastName	FirstName
1	Buchanan	Steven
2	Suyama	Michael
3	King	Robert
4	Dodsworth	Anne

9. Show address details of all customers whose zip code starts with a W

	CompanyName	Address	PostalCode	Country
1	Around the Horn	120 Hanover Sq.	WA1 1DP	UK
2	Consolidated Holdings	Berkeley Gardens 12 Brewery	WX1 6LT	UK
3	Eastern Connection	35 King George	WX3 6FW	UK

10. Show address details for all customers whose second character of the zip code is A or X, sort by country and then by postcode but when sorting refer to the place in the SELECT list.

	CompanyName	Address	PostalCode	Country
1	Seven Seas Imports	90 Wadhurst Rd.	OX15 4NB	UK
2	Around the Horn	120 Hanover Sq.	WA1 1DP	UK
3	Consolidated Holdings	Berkeley Gardens 12 Brewery	WX1 6LT	UK
4	Eastern Connection	35 King George	WX3 6FW	UK

11. Show name of the suppliers whose fax is not known. Sort by company name Z->A.

	CompanyName
1	Tokyo Traders
2	Svensk Sjöföda AB
3	Specialty Biscuits, Ltd.
4	Refrescos Americanas LTDA

.....

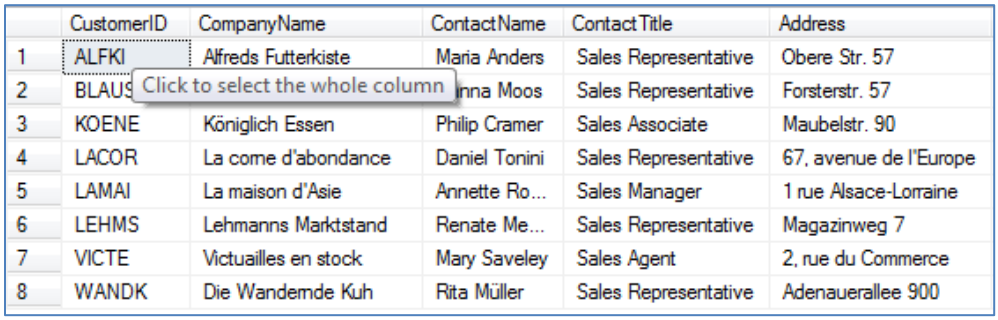
15	Cooperativa de Quesos 'Las Cabr...
16	Bigfoot Breweries

12. The same as the previous question, but where the fax is known.

	CompanyName
1	Zaanse Snoepfabriek
2	PB Knäckebröd AB
3	Pavlova, Ltd.
4	Pasta Buttini s.r.l.
5	Nord-Ost-Fisch Handelsgesellschaft mbH
6	New England Seafood Cannery
7	Lyngbysild
8	Grandma Kelly's Homestead
9	G'day, Mate
10	Gai pâturage
11	Formaggi Fortini s.r.l.
12	Forêts d'érables
13	Aux joyeux ecclésiastiques

Exercises E030

1. Show all the data, as depicted below, of the 'Sales' customers (ie. ContactTitle starts with 'Sales …') located in Germany and France.

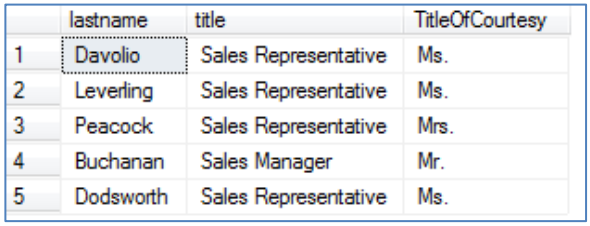


	CustomerID	CompanyName	ContactName	ContactTitle	Address
1	ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57
2	BLAUS	Click to select the whole column	nna Moos	Sales Representative	Forsterstr. 57
3	KOENE	Königlich Essen	Philip Cramer	Sales Associate	Maubelstr. 90
4	LACOR	La corne d'abondance	Daniel Tonini	Sales Representative	67, avenue de l'Europe
5	LAMAI	La maison d'Asie	Annette Ro...	Sales Manager	1 rue Alsace-Lorraine
6	LEHMS	Lehmanns Marktstand	Renate Me...	Sales Representative	Magazinweg 7
7	VICTE	Victuailles en stock	Mary Saveley	Sales Agent	2, rue du Commerce
8	WANDK	Die Wandernde Kuh	Rita Müller	Sales Representative	Adenauerallee 900

2. Show all customer data except the data from previous exercise.x

..

3. Show the data of the female 'Sales representatives' (employees) and of the male 'Sales managers'.



	lastname	title	TitleOfCourtesy
1	Davolio	Sales Representative	Ms.
2	Leverling	Sales Representative	Ms.
3	Peacock	Sales Representative	Mrs.
4	Buchanan	Sales Manager	Mr.
5	Dodsworth	Sales Representative	Ms.

4. Show all customers (company name and contact name) where the contact name starts or ends with an A (a).

	CompanyName	ContactName
1	Ana Trujillo Emparedados y helados	Ana Trujillo
2	Antonio Moreno Taquería	Antonio Moreno
3	Eastern Connection	Ann Devon
4	Familia Arquibaldo	Aria Cruz
5	Galería del gastrónomo	Eduardo Saavedra
6	Gourmet Lanchonetes	André Fonseca
7	GROSELLA-Restaurante	Manuel Pereira
8	Hungry Owl All-Night Grocers	Patricia McKenna
9	La maison d'Asie	Annette Roulet
10	Morgenstern Gesundkost	Alexander Feuer
11	Océano Atlántico Ltda.	Yvonne Moncada
12	Que Delícia	Bernardo Batista
13	Ricardo Adocicados	Janete Limeira
14	Romero y tomillo	Alejandra Camino
15	Split Rail Beer & Ale	Art Braunschwei...
16	Tradição Hipermercados	Anabela Doming...

5. Show all customers where fax or telephone is not entered. =>22 rows

6. Show all of the following products: CHAI, KONBU, TOFU sorted descented by name for the below table.

	ProductID	ProductName	SupplierID	CategoryID	QuantityPerUnit	UnitPrice	UnitsInStock	UnitsOnOrder	ReorderLevel	Discontinued
1	14	Tofu	6	7	40 - 100 g pkgs.	23,25	35	0	0	0
2	13	Konbu	6	8	2 kg box	6,00	24	0	5	0
3	1	Chai	1	1	10 boxes x 20 bags	18,00	39	0	10	0

7. Show all orders for which the shippeddate is between 8 September and 9 October 2016. => 22 rows

8. Show products that are sold per 10 or 32 units but for which the stock quantity > 10. (first have a look at the format of the QuantityPerUnit).

	ProductName	QuantityPerUnit	UnitsInStock
1	Chai	10 boxes x 20 bags	39
2	Queso Manchego La Pastora	10 - 500 g pkgs.	86
3	Pavlova	32 - 500 g boxes	29
4	Teatime Chocolate Biscuits	10 boxes x 12 pieces	25
5	Singaporean Hokkien Fried Mee	32 - 1 kg pkgs.	26
6	Zaanse koeken	10 - 4 oz boxes	36
7	Chocolade	10 pkgs.	15
8	Louisiana Fiery Hot Pepper Sauce	32 - 8 oz bottles	76
9	Gudbrandsdalsost	10 kg pkg.	26
10	Flotemysost	10 - 500 g pkgs.	26

Exercises E040

1. How many customers are there? Give a suitable name to the column.

Customers
91

2. And how many customers are living in Germany?

Customers from DE
11

3. How many units on order have been orderd with the suppliers for all products?

UnitsOnOrder
780

4. What is the average unit cost of the products that are currently not on order with the suppliers?

Average Unit Cost
31.3035

5. Show the maximum discount granted ever for a product (that has been) ordered by a customer.

MaxDiscount
0,25

6. Show the total value of all the orders of the customers, discount included.
   Round in a second step this number to an integer.

Turnover
3230250

7. Show a list of OrderId, UnitPrice, Quantity and Total based on the Order details table. Total is a column that is calculated on the basis of UnitPrice and Quantity. We want to see as title 'Turnover' at the top of the calculated column.

OrderId	UnitPrice	Quantity	Turnover
11082	29,40	12	352,80
11082	19,60	10	196,00
11082	48,72	5	243,60
11083	32,55	9	292,95
11083	74,20	40	2968,00

3491 rows

8. Display a list of the names of the employees with the age (approximately) at which they were recruited with an appropriate column title.

Lastname	FirstName	AgeHired
Davolio	Nancy	38
Fuller	Andrew	34
Leverling	Janet	23
Peacock	Margaret	50
Buchanan	Steven	32
Suyama	Michael	24
King	Robert	28
Callahan	Laura	30
Dodsworth	Anne	22

9. Display a list of the product names, unit price, new price based on the Products table. The new price is obtained by a 2% increase on the unit price.

Productname	CurrentUnitPrice	UnitPriceIncrease
Chai	27,00	27.540000
Chang	28,50	29.070000
Aniseed Syrup	15,00	15.300000
Chef Anton's Cajun Seasoning	33,00	33.660000
Chef Anton's Gumbo Mix	32,025	32.665500
Grandma's Boysenberry Spread	37,50	38.250000

etc.

10. Show the same list again but with the new price (increase of 2%) rounded to 0 decimal places.

11. Based on exercise 10, show the names of the products of which the new price will exceed 50.

Productname	NewUnitPrice>50
Northwoods Cranberry Sauce	61.000000
Mishi Kobe Niku	148.000000
Queso Manchego La Pastora	58.000000
Alice Mutton	60.000000

12.Of how many employees do we know the region?

Nbr of regions
5

13. Show for each employee his new identification code consisting of the first 2 letters of his family name and the first letter of his first name, all in capital letters. Use an appropriate column title.

empCode
DAN
FUA
LEJ
PEM
BUS
SUM
KIR
CAL
DOA

Exercises E050

1. Show the oldest recruitment date per job. And sort by earliest hire date.

Title	FirstEmployed
Sales Representative	2012-04-01 00:00:00.000
Vice President, Sales	2012-08-14 00:00:00.000
Sales Manager	2013-10-17 00:00:00.000
Inside Sales Coordinator	2014-03-05 00:00:00.000

2. What is the average unit price and average quantity for each of the products sold.

ProductId	AvgUnitPrice	AvgQty
23	13.2187	30
46	17.61	20
69	52.0285	22
29	180.8304	24
75	11.3357	26
15	22.0875	18
9	142.7285	14
3	14.6944	28

Northwind2019 | 00:00:00 | 77 rows

etc..

3. How many suppliers are there for Japan and USA. Show the country with the largest number of suppliers first.

	Country	NbrSuppliers
1	USA	4
2	Japan	2

4. Count the number of employees per city, but only show the cities with more than 1 employee.

City	NbrEmployees
London	4
Seattle	2

5. What is the maximum and minimum unit price per CategoryId. Use appropriate column names.

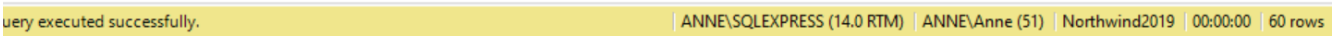
CategoryId	MaxPrice	MinPrice
1	395.25	6.75
2	65.85	15.00
3	121.50	13.80
4	82.50	3.75
5	57.00	10.50
6	185.685	11.175
7	79.50	15.00
8	93.75	9.00

6. Show the average number of units in stock per CategoryId for the products more expensive than 10, -. Show only the categories for which the average number is greater than 40.

CategoryId	AvgUnitsInStock
1	49
2	42
5	44
8	61

7. Show an overview of the customers (id is sufficient) ordered according to the number of orders placed. If this number is less than 10, customers should not appear in the list.

customerid	nbr_of_orders
SAVEA	51
ERNSH	46
QUICK	44
RATTC	34
FOLKO	33
HILAA	30
BERGS	29
BONAP	29
HUNGO	29
HANAR	28



8. On closer inspection, a list of the 10 customers with the highest turnover would be better. Adjust previous query and just include the 3 best customers.

customerid	nbr_of_orders
SAVEA	51
ERNSH	46
QUICK	44

9. For the annual planning, the Purchasing department wants an overview of the top days in 2016 with a total sales volume of more than 1 order per day.

orderdate	nbr_of_Orders
2016-07-11 00:00:00.000	2
2016-07-22 00:00:00.000	2
2016-08-04 00:00:00.000	2
2016-08-17 00:00:00.000	2
2016-08-30 00:00:00.000	2
2016-09-12 00:00:00.000	2
2016-09-23 00:00:00.000	2
2016-10-06 00:00:00.000	2
2016-10-19 00:00:00.000	2

etc.. (23 rows)

10. The report above is not satisfactory. It would be more interesting to trace the top month. Adjust the query to show only the best month with the number of orders. Make sure the month is written full! Do this for 2018

Top_month	NbrOfOrders
March	76

6. Data manipulation language (DML)

Example

Create a new table based on customers with only those customers based in the UK or USA with name, contact name, fax, tel, and country.

```
DROP TABLE tmpCustomersUSA; -- dropping the table in case it would already exist
go
SELECT CompanyName, ContactName, ContactTitle, Phone, Fax, Country
INTO tmpCustomersUSA
FROM Customers
WHERE Country like 'U%';
```

Commands

SELECT INTO => creates a new table based on info from other table(s) and inserts the selected rows.

INSERT => adds (inserts) rows

UPDATE => does NOT insert rows. It changes 1 or more EXISTING rows.

DELETE => erases 1 or more rows. The opposite of insert.

Once a command has been executed, there is no way back. It is advisable to create first some copies of the database tables.

Copying employees to tmpCustomersUSA can be done as follows (and similarly for Products):

```
SELECT * INTO tmpCustomersUSA FROM Employees;
SELECT * INTO tmpProducts FROM Products;
```

Insert a new row in tmpCustomersUSA.

```
INSERT INTO tmpCustomersUSA
(CompanyName, ContactName, ContactTitle)
values ('Master Clean','Peeters','Quality manager'); -- the columns that are not mentioned remain NULL.
```

Exercises E060

1. Copy the complete table Products to Products2 according to the above method.
2. Make a copy of Orders, and call it Orders2.
3. There is no longer any cooperation with Belgium. Remove all records from Orders2 shipped to Belgium.
4. Create a new food products table "Foodstuffs" that contains the names and current unit price of all products from the category 'seafood' (= categoryid 8) and 'beverages' (= categoryid 1).
5. Add all products (names and unit price) from category 'Condiments' (= categoryid 2) to the table Foodstuffs.
6. All orders (Orders2) of August 2017 (orderDate) get a shipped date of 10 days later (37 rows are being updated).
7. Make a copy of employees into Employees2.

   Create a new column at Employees**2**: salary.
   Solution : ALTER table employees2 ADD salary int

   
   adding a column is **not** an update.
   Alter table changes the structure of the table. E.g. adding or removing a column.
   An update changes existing values in one or more existing rows, without any change of table structure.

8. In Employees2, fill the column salary for everyone with the same standard value: 60.000.
9. In Employees2, all Sales Managers receive 20% on top of the standard salary (1-person, 72,000).
10. In Employees2, given that Anne Dodsworth is still under internship contract, only 10% of her salary will be paid.
11. For Foodstuffs, add the following product: meatballs at a price of 12.
12. For orders2, add a new order from the customer ANATR handled by seller no. 3 with order date 30/10/2018 and delivery date 30/11/2018.
13. The current unit price in products2 increases by 10%.

Operator EXISTS

How does EXISTS work?

The subquery is executed for each row in the main query. So the subquery is executed as much as the number of rows that the main query returns. Only the rows of the main query, for which the subquery yields a result, are retained.

Specifically for this example: for each customer from the customers table it is checked whether he also occurs in the Orders table. If the Orders table contains at least 1 row with a customerid equal to that of the relevant customer, the customer meets the condition.

Exercises E070

1. Which products are supplied by the supplier 'Pavlova, ltd.'
Welke producten worden geleverd door de leverancier 'Pavlova, ltd.'?

productid	productname
16	Pavlova
17	Alice Mutton
18	Carnarvon Tigers
63	Vegie-spread
70	Outback Lager

2. How much 'Tofu' was sold?
Hoeveel keer werd product met naam Tofu besteld. Dat aantal kom je te weten via de table orderdetail

aantal keer tofu
468

Here is a good opportunity to explain the difference between a query that can be used for a short period (days to months) and a query that can last for a long time (many years). In this course we teach how to create long lasting queries. **On the exam this approach is mandatory**, even when it is not explicitly asked.

What is a bad way (working only temporarily) to write this query? Well, you can find out first the productID of Tofu and use that ID in the query. This makes the query simpler. But, a database administrator (a specialized colleague) has always the right to change the ID's in the database, without any warning, as long as it remains consistent. Thus, you must never rely on the value of a specific ID. In this case, rely on the given name, Tofu.

Mandatory rule:

A query must never contain an explicit value of a primary key.

Thus, never write queries in the style "SELECT * FROM Employee WHERE EmployeeID=8". The filtering must be based on numbers and text fields that are officially known in the organization. In most cases,

primary keys are not official numbers, but merely technical keys, serving as linking numbers between database tables. Technical keys can be changed overnight without any warning.

3. How many orders were taken by Robert King in May 2017?

Hoeveel bestellingen werden er opgenomen door de werknemer Robert King in mei 2017?

nbr_of_orders_of_King
6

4. Which products of category 'Confections' are currently on order?

Welke producten van de categorie Confections zijn momenteel in bestelling? Voor deze producten test je op de kolom unitsonorder.

productID	productname	unitsonorder
21	Sir Rodney's Scones	40
48	Chocolade	70
49	Maxilaku	60
68	Scottish Longbreads	10

5. Show the names of all products having the same unit price as 'Chang'.

Productname
Inlagd Sill

6. Show a list of the products costing more than 'Tofu'.

7. Display a list of all customers who have placed more than 15 orders.

companyname
Blondesddsl père et fils
Old World Delicatessen
Magazzini Alimentari Riuniti
Folk och fä HB
Ernst Handel
Frankenversand
HILARION-Abastos
Island Trading
Berglunds snabbköp
Lehmanns Marktstand

36 rows.

8. Who was hired the most recently (multiple people possible)?

lastname
Dodsworth

9. Which products have so far (never) been sold? So they do not appear in Order Detail.

Neen.

10. What are, in terms of money, the largest order lines ever placed?

Orderid	ProductID	grootste omzet
11948	38	23715
12160	38	23715
12405	38	23715

11. Which city do most customers come from? Make a subquery for this city. And then show this city with the names of the customers. (Do not use the name of the city in your querry!)

city	CompanyName
London	Around the Horn
London	B's Beverages
London	Consolidated Holdings
London	Eastern Connection
London	North/South
London	Seven Seas Imports

12. Display the product with the highest unit price.

ProductName
Côte de Blaye

In this course, and on the exam, it is not allowed to put several query's after one another and type a result of the first one in the second one. Such query's have to be rewritten as one query.

13. Show the products that appear more than 50 times on an order line. Show the names of these products.

ProductName
Thüringer Rostbratwurst
Rhönbräu Klosterbier
Mozzarella di Giovanni
Steeleye Stout
Sir Rodney's Scones
Wimmers gute Semmelknödel
Uncle Bob's Organic Dried Pears
Chai
Guaraná Fantástica
Outback Lager
Nord-Ost Matjeshering
Ikura
Jack's New England Clam Chowder
Louisiana Fiery Hot Pepper Sauce

14. Which customers do not have outstanding orders; show their names.

CompanyName
FISSA Fabrica Inter. Salchichas S.A.
Paris spécialités

Frequent error messages

Msg 242, Level 16, State 3, Line 1 The conversion of a varchar data type to a datetime data type resulted in an out-of-range value.	Date format is wrong must be **yyyy / mm / dd**
Msg 213, Level 16, State 1, Line 3 Column name or number of supplied values does not match table definition.	With insert, the number of columns of input does not match the number of columns in the table.
Msg 209, Level 16, State 1, Line 2 Ambiguous column name 'unitprice'.	You use a field whose name is in multiple tables. Specify the tables explicitly.
Msg 512, Level 16, State 1, Line 1 Subquery returned more than 1 value. This is not permitted when the subquery follows =, !=, <, <= , >, >= or when the subquery is used as an expression.	The SELECT list of your subquery can only contain 1 field.
Column 'employees.LastName' is invalid in the SELECT list because it is not contained in either an aggregate function or the GROUP BY clause.	There is no GROUP BY although an aggregation function is used.

```
SELECT ProductName, orderdate
FROM   Products
       INNER JOIN [Order Details]
             ON Products.ProductID = [Order Details].ProductID
                    INNER JOIN Orders
                    ON [Order Details].OrderID = Orders.OrderID;
--OR--
SELECT ProductName, orderdate
FROM   Products
       INNER JOIN [Order Details]
              INNER JOIN Orders
                           ON [Order Details].OrderID = Orders.OrderID
       ON Products.ProductID = [Order Details].ProductID;
```

Exercises E080

1. Show for each order the name of the employee who is responsible for the order.
Toon voor elke order de naam en voornaam van de verantwoordelijke werknemer voor deze order. Sorteer op voornaam, naam.

	FirstName	LastName	OrderID
1	Andrew	Fuller	11099
2	Andrew	Fuller	11111
3	Andrew	Fuller	11114
4	Andrew	Fuller	11129
5	Andrew	Fuller	11134
6	Andrew	Fuller	11141
7	Andrew	Fuller	11146
8	Andrew	Fuller	11147
9	Andrew	Fuller	11161
10	Andrew	Fuller	11173
11	Andrew	Fuller	11179
12	Andrew	Fuller	11202

Query executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 1347 rows

2. Show per employee how many orders he is responsible for.

FirstName	LastName	aantal orders
Steven	Buchanan	77
Laura	Callahan	165
Nancy	Davolio	202
Anne	Dodsworth	71
Andrew	Fuller	160
Robert	King	117
Janet	Leverling	198
Margaret	Peacock	251
Michael	Suyama	106

3. For each product (product name), show the name of the category to which the product belongs. Also show the supplier's name for each product.

ProductName	CategoryName	CompanyName
Alice Mutton	Meat/Poultry	Pavlova, Ltd.
Aniseed Syrup	Condiments	Exotic Liquids
Boston Crab Meat	Seafood	New England Seafood Cannery
Camembert Pierrot	Dairy Products	Gai pâturage
Carnarvon Tigers	Seafood	Pavlova, Ltd.
Chai	Beverages	Exotic Liquids
Chang	Beverages	Exotic Liquids
Chartreuse verte	Beverages	Aux joyeux ecclésiastiques
Chef Anton's Cajun Seasoning	Condiments	New Orleans Cajun Delights
Chef Anton's Gumbo Mix	Condiments	New Orleans Cajun Delights

ery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 77 rows

4. Show by order: company name of the customer + first name and name of the employee who placed the order.

CompanyName	FirstName	LastName
Alfreds Futterkiste	Michael	Suyama
Alfreds Futterkiste	Margaret	Peacock
Alfreds Futterkiste	Margaret	Peacock
Alfreds Futterkiste	Nancy	Davolio
Alfreds Futterkiste	Nancy	Davolio
Alfreds Futterkiste	Janet	Leverling
Alfreds Futterkiste	Nancy	Davolio
Alfreds Futterkiste	Nancy	Davolio
Alfreds Futterkiste	Nancy	Davolio
Ana Trujillo Emparedados y helados	Margaret	Peacock

ery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 1347 rows

5. Display the names of all customers, with the IDs of their orders (delivered and outstanding). All customers are shown, even if they do not have orders. Sort by orderid. What do you notice?

CompanyName	OrderID
Paris spécialités	NULL
FISSA Fabrica Inter. Salchichas S.A.	NULL
Vins et alcools Chevalier	11082
Toms Spezialitäten	11083
Hanari Carnes	11084
Victuailles en stock	11085
Suprêmes délices	11086
Hanari Carnes	11087
Chop-suey Chinese	11088
Richter Supermarkt	11089

uery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 1349 rows

6. Show all customers how many orders (delivered and outstanding) they have and sort the result by "number of orders" from small to large.

CompanyName	nbr_of_orders
FISSA Fabrica Inter. Salchichas S.A.	0
Paris spécialités	0
Lazy K Kountry Store	2
Centro comercial Moctezuma	2
GROSELLA-Restaurante	3
North/South	4
Laughing Bacchus Wine Cellars	5
Folies gourmandes	5
Consolidated Holdings	5
Bólido Comidas preparadas	5

ery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 91 rows

7. Show the names of all employees and also the names of the territories in which they are active. The tables involved are: Employees, EmployeeTerritories, Territories.

FirstName	LastName	TerritoryDescription
Nancy	Davolio	Wilton
Nancy	Davolio	Neward
Andrew	Fuller	Westboro
Andrew	Fuller	Bedford
Andrew	Fuller	Georgetow

etc..(49 rows)

8. Show per employee how many territories he has.

FirstName	LastName	aantal
Steven	Buchanan	7
Laura	Callahan	4
Nancy	Davolio	2
Anne	Dodsworth	7
Andrew	Fuller	7
Robert	King	10
Janet	Leverling	4
Margaret	Peacock	3
Michael	Suyama	5

uery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 9 rows

9. Display the names of all territories, with the first name and the name of the responsible employee. Show also those territories that have no responsible employee.

TerritoryDescription	FirstName	LastName
Atlanta	Janet	Leverling
Austin	NULL	NULL
Beachwood	Laura	Callahan
Bedford	Andrew	Fuller
Bellevue	Michael	Suyama
Bentonville	NULL	NULL
Bloomfield Hills	Anne	Dodsworth
Boston	Andrew	Fuller
Braintree	Andrew	Fuller
Cambridge	Andrew	Fuller

uery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 53 rows

10. Show the number of **different** customers per employee.

LastName	FirstName	aantalKlanten
Fuller	Andrew	59
Dodsworth	Anne	29
Leverling	Janet	63
Callahan	Laura	56
Peacock	Margaret	75
Suyama	Michael	43
Davolio	Nancy	65
King	Robert	45
Buchanan	Steven	29

uery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 9 rows

11. Show the names of the customers who have already (ever) ordered chocolate.

CompanyName
Ernst Handel
Around the Horn
Antonio Moreno Taquería
Furia Bacalhau e Frutos do Mar
Queen Cozinha
Victuailles en stock
Victuailles en stock
Victuailles en stock

ery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 8 rows

12. Show customers with fewer than 5 orders placed (even those who do not have orders must be included in the result). Sort by number.

CompanyName	nbr_of_orders
FISSA Fabrica Inter. Salchichas S.A.	0
Paris spécialités	0
Centro comercial Moctezuma	2
Lazy K Kountry Store	2
GROSELLA-Restaurante	3
North/South	4

uery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 6 rows

13. The manager of the commercial service has the impression that orders have been delivered more and more slowly in recent years. That is why he would like an overview per year and per client (customer name) of the difference between the required date of the customer and the date of shipment. He is interested in orders of 2018(*) WHERE "required date < date of shipment". Sort ascending per year and decreasing per days late.
Only consider the clients having late orders and only consider these late orders.
Show for these customers the average numbers of days late.
Sort ascending per year and decreasing per days late.

(*) "2018" means required date in 2018.

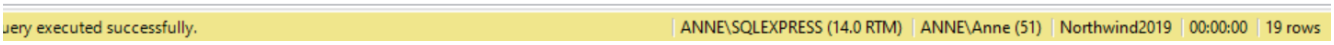
year_required_date	avg_days_late	companyname
2018	-23	Gourmet Lanchonetes
2018	-17	Bólido Comidas preparadas
2018	-11	Bon app'
2018	-8	Rancho grande
2018	-7	Berglunds snabbköp
2018	-6	HILARION-Abastos
2018	-6	La corne d'abondance
2018	-5	Save-a-lot Markets
2018	-2	Franchi S.p.A.
2018	-1	Great Lakes Food Market
2018	-1	Morgenstern Gesundkost

uery executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (51) | Northwind2019 | 00:00:00 | 11 rows

Shippeddate

14. For the period November 2016, show for each customer (company name) his smallest order (smallest turnover, including discount) of an individual product. Also show how many products (different product types) this customer has ordered during this period. Show the

companyname	omzet	aantal
Simons bistro	28	2
Familia Arquibaldo	55,335	4
La maison d'Asie	59,85	3
Furia Bacalhau e Frutos do Mar	63	2
Lehmanns Marktstand	66,5	3
Bon app'	154,014	3
Around the Horn	157,5	2
Ernst Handel	175,63	4
QUICK-Stop	176,4	3
Split Rail Beer & Ale	250,32	1
Piccolo und mehr	282,24	2
Pericles Comidas clásicas	302,4	2
Mère Paillarde	308	3
Die Wandernde Kuh	315	5
Frankenversand	504	9
Old World Delicatessen	543,69	2
Rattlesnake Canyon Grocery	1064	2
White Clover Markets	1078	2
Seven Seas Imports	1163,75	3



15. Show for each product the unitprices that have been applied in orders. Also show the CurrentUnitPrice.

ProductName	UnitPrice_order	CurrentUnitPrice
Alice Mutton	54,60	58,50
Alice Mutton	56,55	58,50
Alice Mutton	58,50	58,50
Aniseed Syrup	14,00	15,00
Aniseed Syrup	14,50	15,00
Aniseed Syrup	15,00	15,00
Boston Crab Meat	25,76	27,60
Boston Crab Meat	26,68	27,60
Boston Crab Meat	27,60	27,60

227 rows

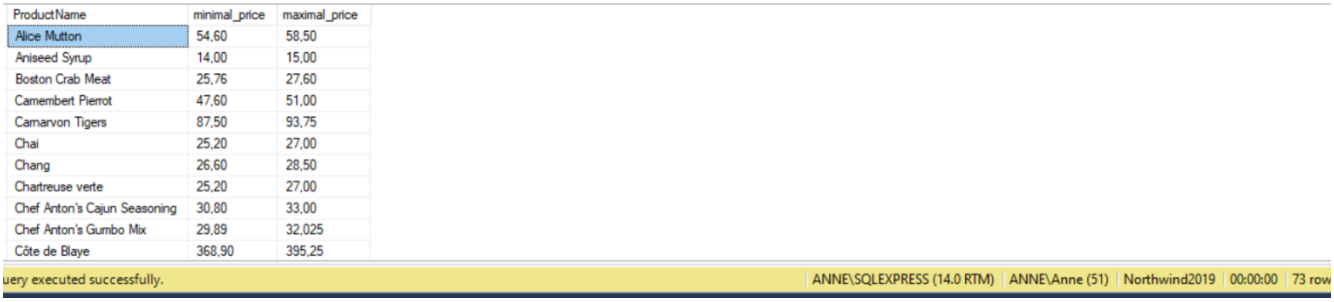
OK, en dan nu de echte uitdaging.
Toon van elk product : productnaam, de minimale unitprice van dit product in de order details, de maximale unitprice van dit product in de order details,

Toon enkel de producten indien die maximale unitprice in de order details meer dan 7% is van de minimale unitprice in de order details.

	ProductName	minimal_price	maximal_price
1	Alice Mutton	54,60	58,50
2	Aniseed Syrup	14,00	15,00
3	Boston Crab Meat	25,76	27,60
4	Camembert Pierrot	47,60	51,00
5	Carnarvon Tigers	87,50	93,75
6	Chai	25,20	27,00
7	Chang	26,60	28,50
8	Chartreuse verte	25,20	27,00
9	Chef Anton's Cajun Seasoning	30,80	33,00
10	Chef Anton's Gumbo Mix	29,89	32,025
11	Côte de Blaye	368,90	395,25
12	Escargots de Bourgogne	18,55	19,875
13	Filo Mix	9,80	10,50
14	Flotemysost	30,10	32,25
15	Geitost	3,50	3,75

73 rijen

16. List all products for which the highest unitprice (ever in an order) is at least 5% higher than the lowest unitprice (ever in an order for the same product)

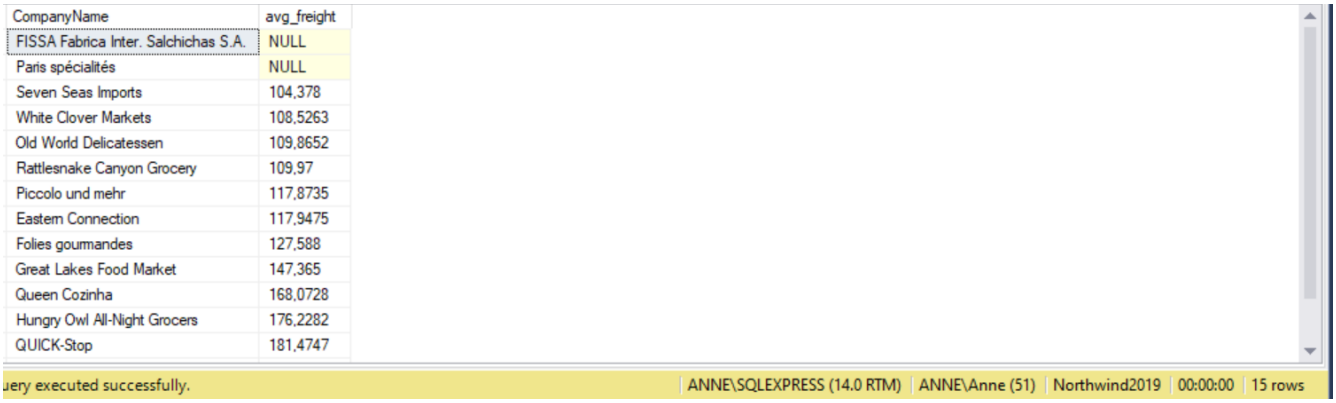


ProductName	minimal_price	maximal_price
Alice Mutton	54,60	58,50
Aniseed Syrup	14,00	15,00
Boston Crab Meat	25,76	27,60
Camembert Pierrot	47,60	51,00
Carnarvon Tigers	87,50	93,75
Chai	25,20	27,00
Chang	26,60	28,50
Chartreuse verte	25,20	27,00
Chef Anton's Cajun Seasoning	30,80	33,00
Chef Anton's Gumbo Mix	29,89	32,025
Côte de Blaye	368,90	395,25

17. Show the names of the **shippers** who has registered the order that deviates most (upwards) from the average delivery time.

CompanyName
Speedy Express
United Package

18. We wish to evaluate the freight costs. Show the average freight cost of the delivered orders per customer. Furthermore, only those customers are shown where the average freight cost is greater than 100. The report shows the name of the customer and his average.
Also the customers without orders are considered in the query.



CompanyName	avg_freight
FISSA Fabrica Inter. Salchichas S.A.	NULL
Paris spécialités	NULL
Seven Seas Imports	104,378
White Clover Markets	108,5263
Old World Delicatessen	109,8652
Rattlesnake Canyon Grocery	109,97
Piccolo und mehr	117,8735
Eastern Connection	117,9475
Folies gourmandes	127,588
Great Lakes Food Market	147,365
Queen Cozinha	168,0728
Hungry Owl All-Night Grocers	176,2282
QUICK-Stop	181,4747

Exercises E090

1.. Create a phone book with customers and suppliers as shown below.

companyname	contactname	contacttitle	type_of_contact	phone	Fax
Alfreds Futterkiste	Maria Anders	Sales Representative	customer	030-0074321	030-0076545
Ana Trujillo Emparedados y helados	Ana Trujillo	Owner	customer	(5) 555-4729	(5) 555-3745
Antonio Moreno Taquería	Antonio Moreno	Owner	customer	(5) 555-3932	NULL
Around the Horn	Thomas Hardy	Sales Representative	customer	(171) 555-7788	(171) 555-6750
Aux joyeux ecclésiastiques	Guylène Nodier	Sales Manager	supplier	(1) 03.83.00.68	(1) 03.83.00.62
Berglunds snabbköp	Christina Berglund	Order Administrator	customer	0921-12 34 65	0921-12 34 67
Bigfoot Breweries	Cheryl Saylor	Regional Account Rep.	supplier	(503) 555-9931	NULL

120 rows

2.. Show countries and regions that occur both in Customers and Suppliers; The empty region doesn't count.

country	Region
Canada	Québec
USA	OR

3.. Form the overview below, use a union to add the total line. The TOTAL can be obtained by this code:

```
select 'zz TOTAL', sum(UnitsInStock)
From products
```

productname	UnitsInStock
Alice Mutton	0
Aniseed Syrup	13
Boston Crab Meat	123
.....	
Zaanse koeken	36
zz TOTAL	3119

Easy question: for what reason is there 'zz' before Total?

78 rows

4.. Create the overview below, of regions of suppliers where no customers are located. The empty region doesn't count.

country	region
Australia	NSW
Australia	Victoria
Spain	Asturias
USA	LA
USA	MA
USA	MI

5.. Display a list of all names (company names) of both employees and customers (name of the company).
Next, make the list better by adding rows and columns:

- 1st column: name of the employee or the name of the company (customer)
- 2nd column: date of the order
- 3th column: city of employee/customer
- 4th column: C for Customer; E for Employee.

Order by city

Naam	orderdate	city	type
Drachenblut Delikatessen	2016-06-13 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2016-11-29 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2016-12-26 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2017-12-28 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2018-01-12 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2018-04-23 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2018-05-07 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2018-05-25 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2018-09-03 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2018-09-17 00:00:00.000	Aachen	C
Drachenblut Delikatessen	2018-10-05 00:00:00.000	Aachen	C
Rattlesnake Canyon Grocery	2016-01-22 00:00:00.000	Albuquerque	C
Rattlesnake Canyon Grocery	2016-02-05 00:00:00.000	Albuquerque	C

2573 rows

6.. Show the suppliers and products as shown below, limited to Beverages and Condiments.

companyname	productname	categoryname
Aux joyeux ecclésiastiques	Côte de Blaye	Beverages
Aux joyeux ecclésiastiques	Chartreuse verte	Beverages
Bigfoot Breweries	Sasquatch Ale	Beverages
Bigfoot Breweries	Steeleye Stout	Beverages
Bigfoot Breweries	Laughing Lumberjack Lager	Beverages
Exotic Liquids	Chai	Beverages
Exotic Liquids	Chang	Beverages
Exotic Liquids	Aniseed Syrup	Condiments
Forêts d'érables	Sirop d'érable	Condiments

24 rows

7.. Starting from the previous query, show **only** the suppliers that supply **both** categories.

companyname
Exotic Liquids
Leka Trading
Pavlova, Ltd.
Plutzer Lebensmittelgroßmärkte AG

4 rows

8.. Show the companies that deliver products from the category Beverages but not from the category Condiments

	companyname
1	Aux joyeux ecclésiastiques
2	Bigfoot Breweries
3	Karkki Oy
4	Refrescos Americanas LTDA

9.. Show the names of the employees who have registered orders of the product Chang (44 rows) and who have customers in Charleroi (12 rows). Result set: 7 rows.

lastname
Buchanan
Davolio
Dodsworth
Fuller
King
Peacock
Suyama

10..Show in 1 table: the number of customers, the number of products and the number of employees.

Groep	Aantal
Customers	91
Employees	9
Products	77

11.. Show the revenue per customer per month.
In the same query, show the subtotal per customer and also the overall total.
Limit the results to orderyear 2017

contactname	maand	revenue
Alexander Feuer	10	165,30
Alexander Feuer	12	1935,75
Alexander Feuer	6	3113,73
Alexander Feuer	subtotaal	5214,78
Ana Trujillo	12	464,00
Ana Trujillo	8	695,6375
Ana Trujillo	subtotaal	1159,6375
Anabela Domi...	4	362,50
Anabela Domi...	7	2048,85
Anabela Domi...	subtotaal	2411,35
André Fonseca	1	1848,75
André Fonseca	10	6126,395
André Fonseca	11	2172,6075
André Fonseca	12	1638,50
André Fonseca	9	481,081
André Fonseca	subtotaal	12267,3...
Ann Devon	1	5552,9055
Ann Devon	11	949,75
Ann Devon	5	1154,7075
Ann Devon	subtotaal	7657,363

.....

398	Yoshi Latimer	1	185,60
399	Yoshi Latimer	7	695,71
400	Yoshi Latimer	9	2466,45
401	Yoshi Latimer	subtotaal	3347,76
402	Yoshi Tannamuri	4	504,60
403	Yoshi Tannamuri	8	83,375
404	Yoshi Tannamuri	subtotaal	587,975
405	Yvonne Monc...	1	578,55
406	Yvonne Monc...	5	159,50
407	Yvonne Monc...	subtotaal	738,05
408	Zbyszek Piestr...	12	579,7825
409	Zbyszek Piestr...	7	1171,60
410	Zbyszek Piestr...	subtotaal	1751,3825
411	NULL	totaal	996594,...

Query executed successfully. | ANNE\SQLEXPRESS (14.0 RTM) | ANNE\Anne (53) | Northwind2019 | 00:00:00 | 411 rows

12.. Bereken per product de effectieve winst (bekijk ook de kost per product eenheid)

Deze berekening gebeurt alleen voor de producten waarvan de kost maximaal 5% hoger of lager is dan de gemiddelde kost van alle producten.

Toon ook enkel de producten waarvan de effectieve winst meer dan 10000 is.

Calculate the effective profit per product (there is also the cost per product unit)

This calculation is only made for products whose cost is no more than 5% higher or lower than the average cost of all products.

Show only those products whose effective profit is more than 10000.

productname	werkelijke winst
Uncle Bob's Organic Dried Pears	18117