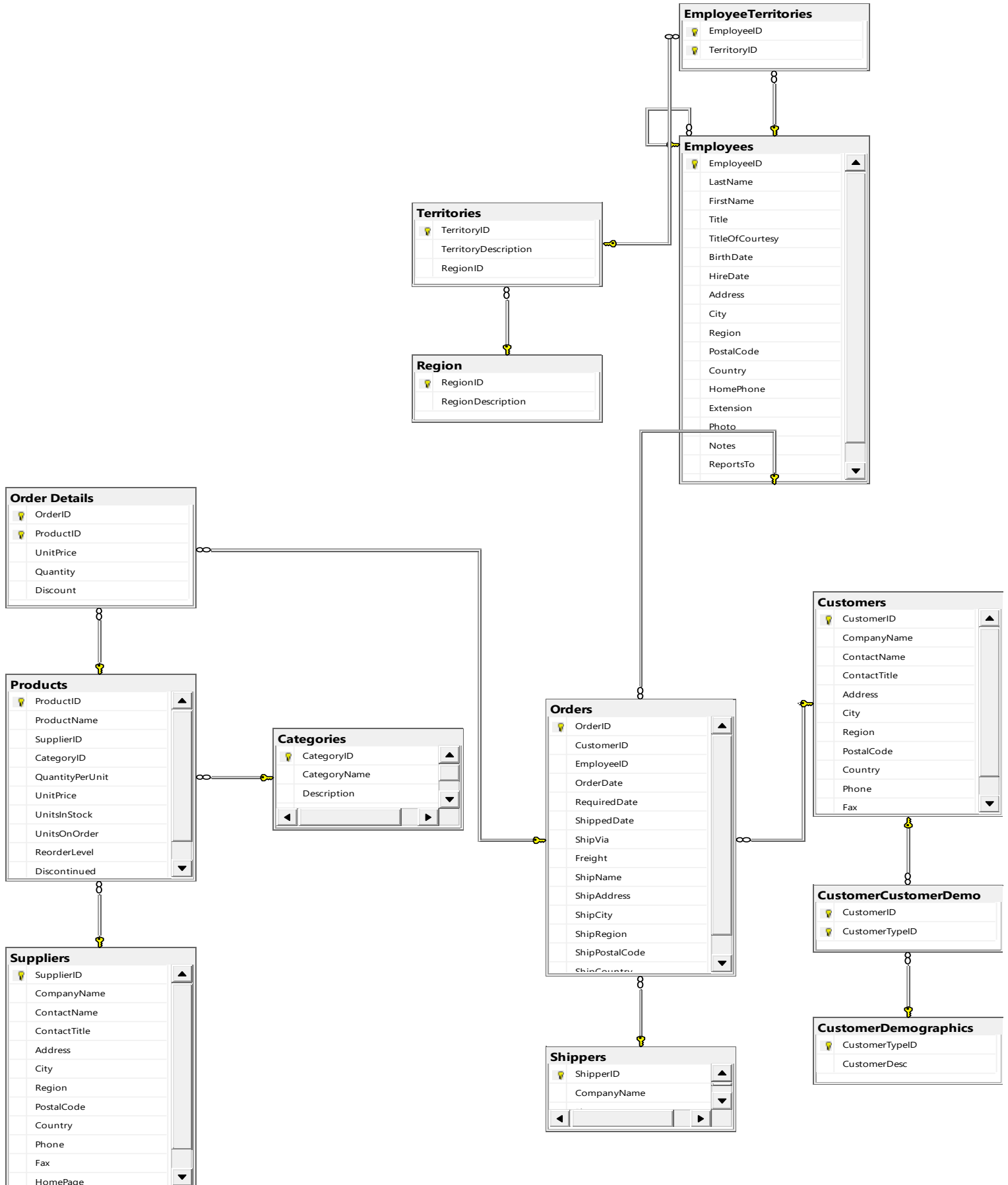


Northwind Traders

Northwind Traders represents a database created by Northwind which stores the sales operations (that occur between traders and the customers) of the imaginary company “Northwind Traders”. The main purpose of the database is to offer a standard example of a good database, after all, it is a sample database. Although, a trader from Northwind might disagree; for him the database has the purpose of easing transaction and keeping a record of them.

The database can be found here: <https://docs.microsoft.com/en-us/dotnet/framework/data/adonet/sql/ling/downloading-sample-databases>

The diagram can be found on the next page.



In the table Product, ProductID is a primary key and SupplierID is a foreign key. In the table Orders, OrderID is a primary key and CustomerID and EmployeeID are foreign keys.

We have one-to-many relationships: between Employee and EmployeeTerritories . Also we have many-to-many relationships: between Customers and Employees (which is intermediated by Orders).

There are 13 tables. Let us take for example Employees. Employees holds information about each Employee (id, name, address, etc). One interesting thing about Employees is the fact that it has a relationship with itself, and that is because a hierarchy is required by the field ReportsTo. Each employee has a superior depending on the tittle they hold.

FileEditViewProjectDebugQuery DesignerToolsWindowHelpFull Screen

Quick Launch (Ctrl+Q)

DESKTOP-2U2CESD\...d - dbo.EmployeesDESKTOP-2U2CESD\...wind - Diagram_0DESKTOP-2U2CESD\...d - dbo.EmployeesDESKTOP-2U2CESD\...d - dbo.CustomersDESKTOP-2U2CESD\...merDemographics

	EmployeeID	LastName	FirstName	Title	TitleOfCourtesy	BirthDate	HireDate	Address	City	Region	PostalCode	Country	HomePhone
	1	Davolio	Nancy	Sales Represent...	Ms.	1948-12-08 00:00...	1992-05-01 00:00...	507 - 20th Ave. ...	Seattle	WA	98122	USA	(206) 555-9857
	2	Fuller	Andrew	Vice President ...	Dr.	1952-02-19 00:00...	1992-08-14 00:00...	908 W. Capital ...	Tacoma	WA	98401	USA	(206) 555-9482
>	3	Leverling	Janet	Sales Represent...	Ms.	1963-08-30 00:00...	1992-04-01 00:00...	722 Moss Bay B...	Kirkland	WA	98033	USA	(206) 555-3412
	4	Pearcock	Margaret	Sales Represent...	Mrs.	1937-09-19 00:00...	1993-05-03 00:00...	4110 Old Redm...	Redmond	WA	98052	USA	(206) 555-8122
	5	Buchanan	Steven	Sales Manager	Mr.	1955-03-04 00:00...	1993-10-17 00:00...	14 Garrett Hill	London	NULL	SW1 8JR	UK	(71) 555-4848
	6	Suyama	Michael	Sales Represent...	Mr.	1963-07-02 00:00...	1993-10-17 00:00...	Coventry Hous...	London	NULL	EC2 7JR	UK	(71) 555-7773
	7	King	Robert	Sales Represent...	Mr.	1960-05-29 00:00...	1994-01-02 00:00...	Edgeham Hollo...	London	NULL	RG1 9SP	UK	(71) 555-5598
	8	Callahan	Laura	Inside Sales Co...	Ms.	1958-01-09 00:00...	1994-03-05 00:00...	4726 - 11th Ave...	Seattle	WA	98105	USA	(206) 555-1189
	9	Dodsworth	Anne	Sales Represent...	Ms.	1966-01-27 00:00...	1994-11-15 00:00...	7 Houndstooth ...	London	NULL	WG2 7LT	UK	(71) 555-4444
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Activate Windows
Go to Settings to activate Windows.

<3 of 9

Ready

As an example, let us take Leverling Janet. She holds the title of Sales Representant and ReportsTo Fuller Andrew which holds the title of Vice President.

The screenshot shows the Microsoft Access interface with the 'Employees' table open. The record for Janet Leverling is selected, showing her birth date, hire date, address, city, region, postal code, country, home phone, extension, photo, notes, reports to, and photo path.

BirthDate	HireDate	Address	City	Region	PostalCode	Country	HomePhone	Extension	Photo	Notes	ReportsTo	PhotoPath
1948-12-08 00:00:00	1992-05-01 00:00:00	507 - 20th Ave. ...	Seattle	WA	98122	USA	(206) 555-9857	5467	<Binary data>	Education inclu...	2	http://accweb/...
1952-02-19 00:00:00	1992-08-14 00:00:00	908 W. Capital ...	Tacoma	WA	98401	USA	(206) 555-9482	3457	<Binary data>	Andrew receive...	NULL	http://accweb/...
1963-08-30 00:00:00	1992-04-01 00:00:00	722 Moss Bay B...	Kirkland	WA	98033	USA	(206) 555-3412	3355	<Binary data>	Janet has a BS d...	2	http://accweb/...
1937-09-19 00:00:00	1993-05-03 00:00:00	4110 Old Redm...	Redmond	WA	98052	USA	(206) 555-8122	5176	<Binary data>	Margaret holds ...	2	http://accweb/...
1955-03-04 00:00:00	1993-10-17 00:00:00	14 Garrett Hill	London	NULL	SW1 8JR	UK	(71) 555-4848	3453	<Binary data>	Steven Buchan...	2	http://accweb/...
1963-07-02 00:00:00	1993-10-17 00:00:00	Coventry Hous...	London	NULL	EC2 7JR	UK	(71) 555-7773	428	<Binary data>	Michael is a gra...	5	http://accweb/...
1960-05-29 00:00:00	1994-01-02 00:00:00	Edgeham Hollo...	London	NULL	RG1 9SP	UK	(71) 555-5598	465	<Binary data>	Robert King ser...	5	http://accweb/...
1958-01-09 00:00:00	1994-03-05 00:00:00	4726 - 11th Ave...	Seattle	WA	98105	USA	(206) 555-1189	2344	<Binary data>	Laura received ...	2	http://accweb/...
1966-01-27 00:00:00	1994-11-15 00:00:00	7 Houndstooth ...	London	NULL	WG2 7LT	UK	(71) 555-4444	452	<Binary data>	Anne has a BA ...	5	http://accweb/...
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

As requested, I have brought my own improvements to the database by adding 4 views and a few constraints.

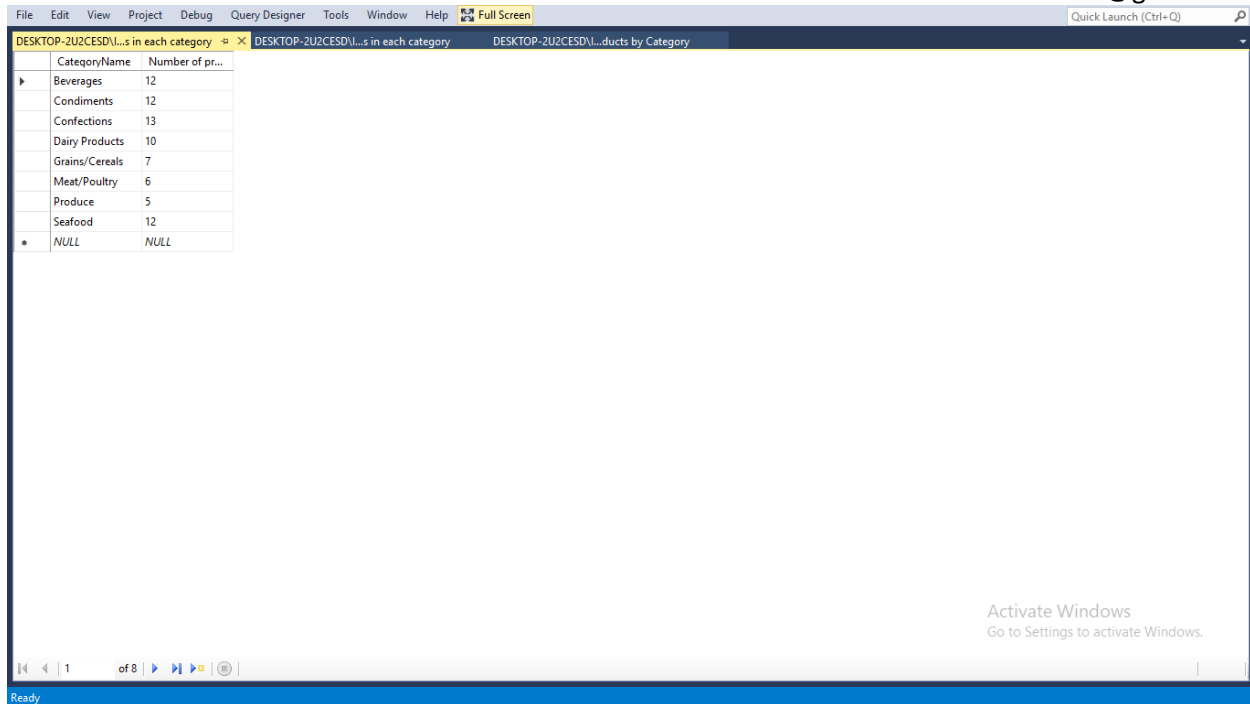
First view: I created a view called "Number of products in each category".

```
SELECT    dbo.Categories.CategoryName, COUNT(dbo.Products.ProductID) AS [Number of products]
```

```
FROM      dbo.Categories INNER JOIN
```

```
          dbo.Products ON dbo.Categories.CategoryID = dbo.Products.CategoryID
```

```
GROUP BY  dbo.Categories.CategoryName
```



The screenshot shows a SQL Server Enterprise Manager window with a query result table. The table has two columns: 'CategoryName' and 'Number of products by Category'. The data is as follows:

CategoryName	Number of products by Category
Beverages	12
Condiments	12
Confections	13
Dairy Products	10
Grains/Cereals	7
Meat/Poultry	6
Produce	5
Seafood	12
NULL	NULL

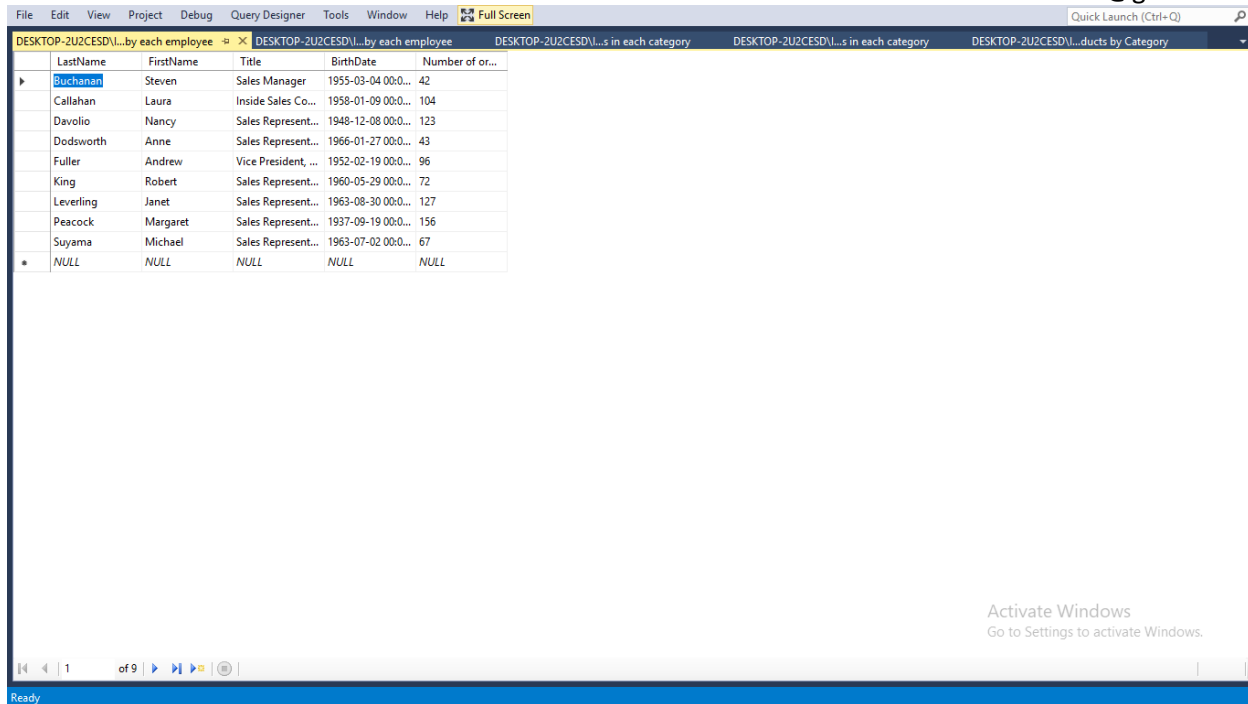
Second view: “Number of orders by each employee”

```
SELECT    dbo.Employees.LastName, dbo.Employees.FirstName, dbo.Employees.Title,
          dbo.Employees.BirthDate, COUNT(dbo.Orders.OrderID) AS [Number of orders]

FROM      dbo.Employees INNER JOIN

          dbo.Orders ON dbo.Employees.EmployeeID = dbo.Orders.EmployeeID

GROUP BY  dbo.Employees.LastName, dbo.Employees.FirstName, dbo.Employees.Title,
          dbo.Employees.BirthDate
```

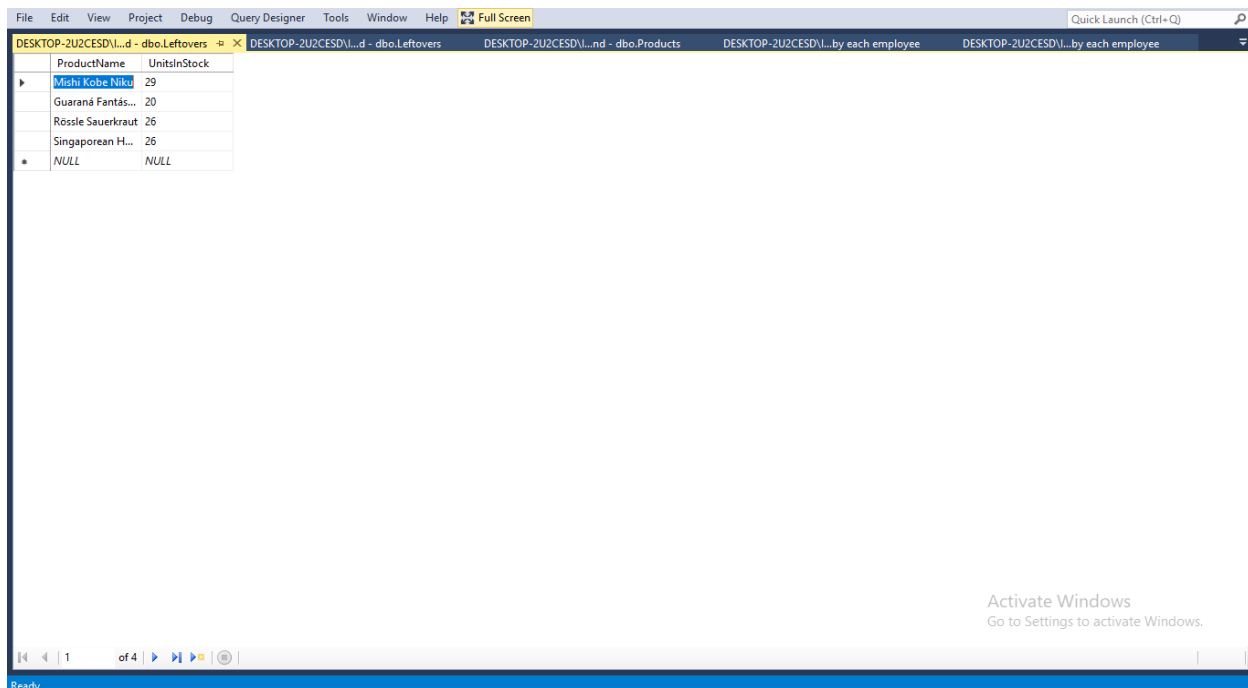


The screenshot shows a SQL Server Enterprise Manager window with a query result grid. The grid displays employee data with columns: LastName, FirstName, Title, BirthDate, and Number of or... The data is as follows:

LastName	FirstName	Title	BirthDate	Number of or...
Buchanan	Steven	Sales Manager	1955-03-04 00:00:00	42
Callahan	Laura	Inside Sales Co...	1958-01-09 00:00:00	104
Davolio	Nancy	Sales Represent...	1948-12-08 00:00:00	123
Dodsworth	Anne	Sales Represent...	1966-01-27 00:00:00	43
Fuller	Andrew	Vice President, ...	1952-02-19 00:00:00	96
King	Robert	Sales Represent...	1960-05-29 00:00:00	72
Leverling	Janet	Sales Represent...	1963-08-30 00:00:00	127
Peacock	Margaret	Sales Represent...	1937-09-19 00:00:00	156
Suyama	Michael	Sales Represent...	1963-07-02 00:00:00	67
NULL	NULL	NULL	NULL	NULL

Third view: “Leftovers” – presents the discontinued products that still have units in stock

```
SELECT    ProductName, UnitsInStock
FROM      dbo.Products
WHERE     (Discontinued = 'True') AND (UnitsInStock > 0)
```

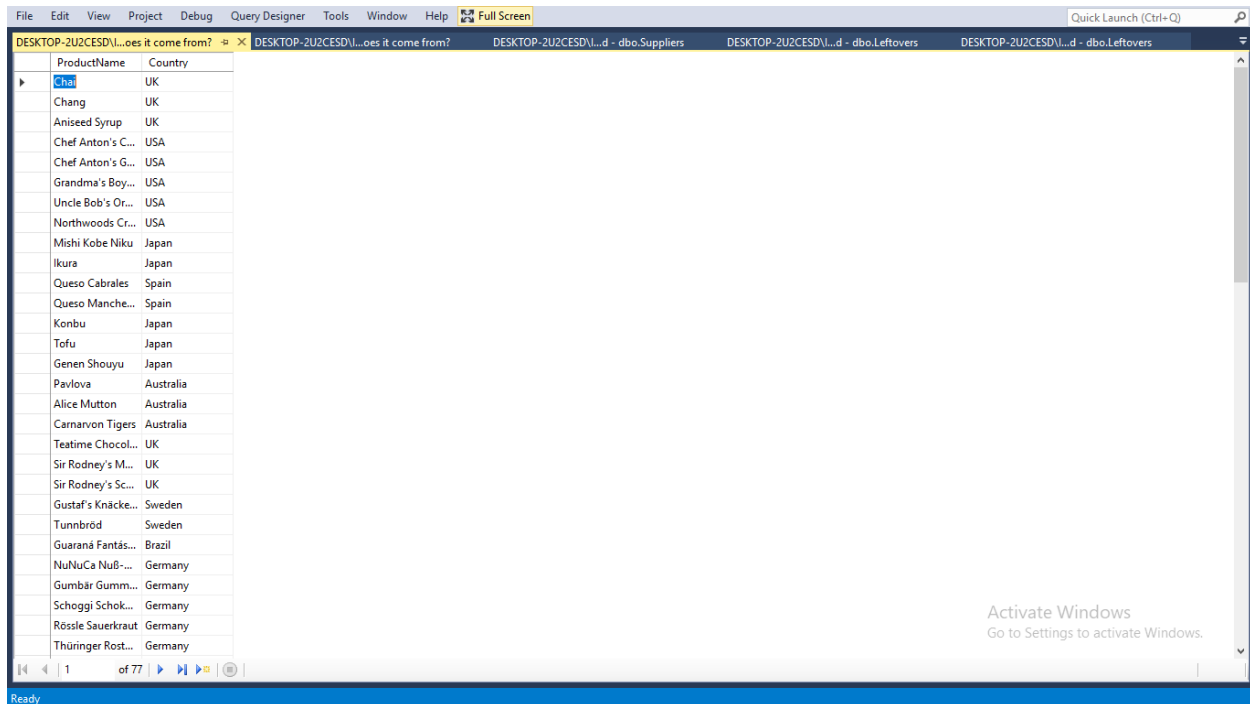


The screenshot shows a SQL Server Enterprise Manager window with a query result grid. The grid displays product data with columns: ProductName and UnitsInStock. The data is as follows:

ProductName	UnitsInStock
Mishi Kobe Niku	29
Guaraná Fantás...	20
Rössle Sauerkraut	26
Singaporean H...	26
NULL	NULL

Fourth view: “Where does it come from?” – presents the products and the country they come from

```
SELECT    dbo.Products.ProductName, dbo.Suppliers.Country
FROM      dbo.Products INNER JOIN
          dbo.Suppliers ON dbo.Products.SupplierID = dbo.Suppliers.SupplierID
```



ProductName	Country
Chai	UK
Chang	UK
Aniseed Syrup	UK
Chef Anton's C...	USA
Chef Anton's G...	USA
Grandma's Boy...	USA
Uncle Bob's Or...	USA
Northwoods Cr...	USA
Mishi Kobe Niku	Japan
Ikura	Japan
Queso Cabrales	Spain
Queso Manche...	Spain
Konbu	Japan
Tofu	Japan
Genen Shouyu	Japan
Pavlova	Australia
Alice Mutton	Australia
Carnarvon Tigers	Australia
Teatime Choc...	UK
Sir Rodney's M...	UK
Sir Rodney's Sc...	UK
Gustaf's Knäcke...	Sweden
Tunnbröd	Sweden
Guaraná Fantás...	Brazil
NuNuCa Nuß-...	Germany
Gumbär Gumm...	Germany
Schoggi Schok...	Germany
Rössle Sauerkraut	Germany
Thüringer Rost...	Germany

As for constraints, I added a new constraint to the Phone and Fax columns that allows only numbers and a few more characters that should be allowed(but not letters)

(NOT [Phone] like '%[^0-9 +().-]%^')

Microsoft SQL Server Management Studio

No row was updated.

The data in row 92 was not committed.

Error Source: .Net SqlClient Data Provider.

Error Message: The UPDATE statement conflicted with the CHECK constraint "CK_Customers_1". The conflict occurred in database "Northwind", table "dbo.Customers", column "Phone".

The statement has been terminated.

Correct the errors and retry or press ESC to cancel the change(s).

OK Help

Another constraint added forbids numbers or other characters in the name of the Countries

(NOT [Country] like '%[^a-z]%)')

Microsoft SQL Server Management Studio

No row was updated.

The data in row 93 was not committed.

Error Source: .Net SqlClient Data Provider.

Error Message: The UPDATE statement conflicted with the CHECK constraint "CK_Customers_2". The conflict occurred in database "Northwind", table "dbo.Customers", column "Country".

The statement has been terminated.

Correct the errors and retry or press ESC to cancel the change(s).

OK Help