

# Análise de Dados com SQL Server e Banco de Dados Northwinds

## Objetivo

Responder perguntas de negócio usando linguagem SQL no banco de dados Northwinds.

## Introdução

A base de dados **Northwind** é composta por diversas tabelas inter-relacionadas, como **Products**, **Orders**, **Customers**, **Employees**, dentre outras, que armazenam informações de uma empresa fictícia de comércio internacional. Através do uso do **SQL Server**, foram elaboradas consultas que visam responder a questões de negócios sobre produtos, fornecedores, clientes, funcionários e pedidos, buscando demonstrar a aplicação de consultas SQL para atender a cenários analíticos reais, utilizando técnicas como filtros, agregações, junções e subconsultas.

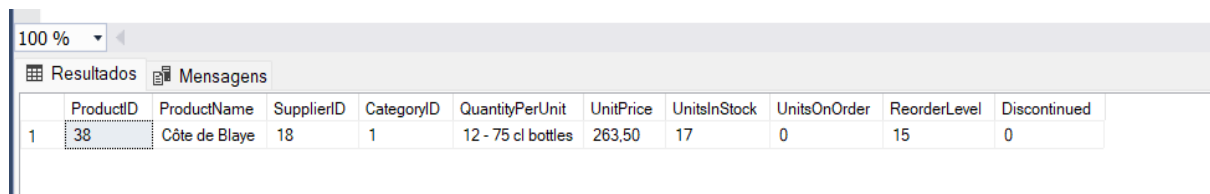
## Consultas SQL e Resultados

**1.** Qual o produto com maior preço por unidade?

Query:

```
SELECT TOP 1 * FROM Products  
  
ORDER BY UnitPrice DESC;
```

Resultado:



The screenshot shows a SQL Server query results window. The 'Results' tab is active, displaying a single row of data. The columns are ProductID, ProductName, SupplierID, CategoryID, QuantityPerUnit, UnitPrice, UnitsInStock, UnitsOnOrder, ReorderLevel, and Discontinued. The first row shows ProductID 38, ProductName 'Côte de Blaye', SupplierID 18, CategoryID 1, QuantityPerUnit '12 - 75 cl bottles', UnitPrice 263,50, UnitsInStock 17, UnitsOnOrder 0, ReorderLevel 15, and Discontinued 0.

	ProductID	ProductName	SupplierID	CategoryID	QuantityPerUnit	UnitPrice	UnitsInStock	UnitsOnOrder	ReorderLevel	Discontinued
1	38	Côte de Blaye	18	1	12 - 75 cl bottles	263,50	17	0	15	0

**2.** Quais são os fornecedores localizados na Alemanha?

Query:

```
SELECT CompanyName,  
City,
```

```

Country
FROM Suppliers
WHERE Country = 'Germany';

```

Resultado:

100 %			
Resultados Mensagens			
	CompanyName	City	Country
1	Heli Süßwaren GmbH & Co. KG	Berlin	Germany
2	Plutzer Lebensmittelgroßmärkte AG	Frankfurt	Germany
3	Nord-Ost-Fisch Handelsgesellschaft mbH	Cuxhaven	Germany

**3.** Quais países tiveram a maior média de preço de envio?

Query:

```

SELECT TOP 10
    ShipCountry AS País,
    AVG(Freight) AS 'Media_Preço'
FROM Orders
GROUP BY ShipCountry
ORDER BY Media_Preço DESC;

```

Resultado:

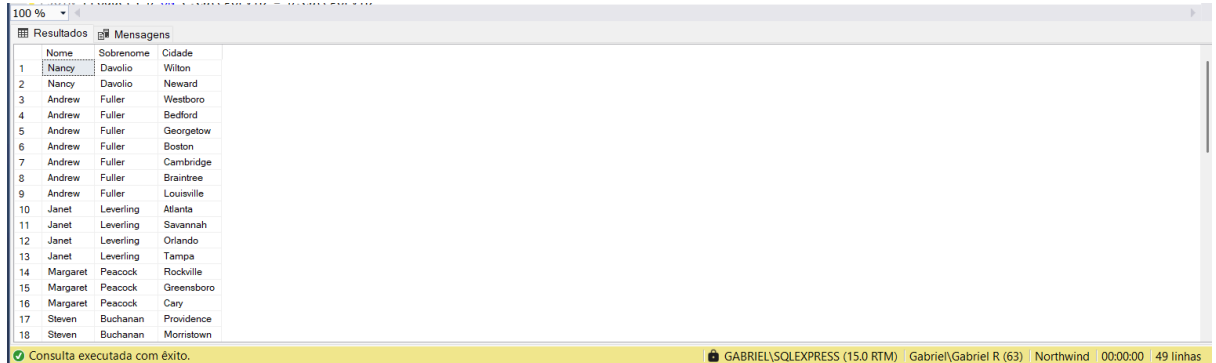
100 %		
Resultados Mensagens		
	País	Media_Preço
1	Austria	184,7875
2	Ireland	145,0126
3	USA	112,8794
4	Germany	92,4859
5	Sweden	87,5027
6	Denmark	77,5661
7	Switzerland	76,0294
8	Canada	73,2696
9	Belgium	67,3757
10	Venezuela	59,4604

**4.** Retorne a cidade referente a cada empregado.

Query:

```
SELECT c.FirstName AS Nome,  
       c.LastName AS Sobrenome,  
       q.TerritoryDescription AS Cidade  
FROM Employees c  
JOIN EmployeeTerritories p ON c.EmployeeID = p.EmployeeID  
JOIN Territories q ON p.TerritoryID = q.TerritoryID;
```

Resultado:



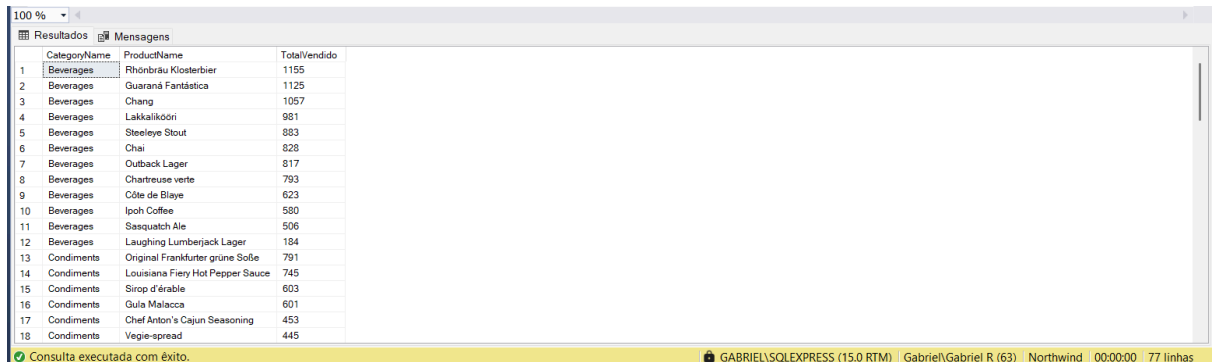
	Nome	Sobrenome	Cidade
1	Nancy	Davolio	Wilton
2	Nancy	Davolio	Neward
3	Andrew	Fuller	Westboro
4	Andrew	Fuller	Bedford
5	Andrew	Fuller	Georgetown
6	Andrew	Fuller	Boston
7	Andrew	Fuller	Cambridge
8	Andrew	Fuller	Braintree
9	Andrew	Fuller	Louisville
10	Janet	Leverling	Atlanta
11	Janet	Leverling	Savannah
12	Janet	Leverling	Orlando
13	Janet	Leverling	Tampa
14	Margaret	Peacock	Rockville
15	Margaret	Peacock	Greensboro
16	Margaret	Peacock	Cary
17	Steven	Buchanan	Providence
18	Steven	Buchanan	Morristown

## 5. Qual o produto mais vendido por categoria?

Query:

```
SELECT c.CategoryName,  
       p.ProductName,  
       SUM(od.Quantity) AS TotalVendido  
FROM Categories c  
JOIN Products p ON c.CategoryID = p.CategoryID  
JOIN [Order Details] od ON p.ProductID = od.ProductID  
GROUP BY c.CategoryName, p.ProductName  
ORDER BY c.CategoryName, TotalVendido DESC;
```

Resultado:



	CategoryName	ProductName	TotalVendido
1	Beverages	Rhinbräu Klosterbier	1155
2	Beverages	Guaraná Fantástica	1125
3	Beverages	Chang	1057
4	Beverages	Lakkalikööri	981
5	Beverages	Steeleye Stout	883
6	Beverages	Chai	828
7	Beverages	Outback Lager	817
8	Beverages	Chartreuse verte	793
9	Beverages	Côte de Blaye	623
10	Beverages	Ipoh Coffee	580
11	Beverages	Sasquatch Ale	506
12	Beverages	Laughing Lumberjack Lager	184
13	Condiments	Original Frankfurt grüne Soße	791
14	Condiments	Louisiana Fiery Hot Pepper Sauce	745
15	Condiments	Sirup d'érable	603
16	Condiments	Gula Malacca	601
17	Condiments	Chef Anton's Cajun Seasoning	453
18	Condiments	Veggie-spread	445

100 %

Resultados

Mensagens

	CategoryName	ProductName	TotalVendido
25	Confections	Pavlova	1158
26	Confections	Tarte au sucre	1083
27	Confections	Sir Rodney's Scones	1016
28	Confections	Scottish Longbreads	799
29	Confections	Gumbär GummiBärchen	753
30	Confections	Teatime Chocolate Biscuits	723
31	Confections	Maxilaku	520
32	Confections	Zaanse koeken	485
33	Confections	Schoggi Schokolade	365
34	Confections	NuNuCa Nuß-Nougat-Creme	318
35	Confections	Sir Rodney's Marmalade	313
36	Confections	Valkeinen suklaa	235
37	Confections	Chocolade	138
38	Dairy Products	Camembert Pierrot	1577
39	Dairy Products	Raclette Courdavault	1496
40	Dairy Products	Gorgonzola Telino	1397
41	Dairy Products	Florentynaost	1057
42	Dairy Products	Mozzarella di Giovanni	806

Consulta executada com êxito.

GABRIEL\SQLEXPRESS (15.0 RTM) Gabriel\Gabriel R (63) Northwind 00:00:00 77 linhas

Resultados

Mensagens

	CategoryName	ProductName	TotalVendido
47	Dairy Products	Mascarpone Fabioli	297
48	Grains/Cereals	Gnocchi di nonna Alice	1263
49	Grains/Cereals	Wimmers gute Semmelknödel	740
50	Grains/Cereals	Singaporean Hokkien Fried Mee	697
51	Grains/Cereals	Tunntbröd	580
52	Grains/Cereals	Filo Mix	500
53	Grains/Cereals	Ravioli Angelo	434
54	Grains/Cereals	Gustaf's Knäckebröd	348
55	Meat/Poultry	Alice Mutton	978
56	Meat/Poultry	Pâté chinois	903
57	Meat/Poultry	Tourtière	755
58	Meat/Poultry	Thüringer Rostbratwurst	746
59	Meat/Poultry	Perth Pasties	722
60	Meat/Poultry	Mishi Kobe Niku	95
61	Produce	Manjimup Dried Apples	886
62	Produce	Uncle Bob's Organic Dried Pears	763
63	Produce	Rössle Sauerkraut	640
64	Produce	Tofu	404

Consulta executada com êxito.

GABRIEL\SQLEXPRESS (15.0 RTM) Gabriel\Gabriel R (63) Northwind 00:00:00 77 linhas

Resultados

Mensagens

	CategoryName	ProductName	TotalVendido
61	Produce	Manjimup Dried Apples	886
62	Produce	Uncle Bob's Organic Dried Pears	763
63	Produce	Rössle Sauerkraut	640
64	Produce	Tofu	404
65	Produce	Longlife Tofu	297
66	Seafood	Boston Crab Meat	1103
67	Seafood	Jack's New England Clam Chow...	981
68	Seafood	Korbu	891
69	Seafood	Inlagd Sill	805
70	Seafood	Ikura	742
71	Seafood	Nord-Ost Matjeshering	612
72	Seafood	Spegesild	548
73	Seafood	Camaronon Tigers	539
74	Seafood	Escargots de Bourgogne	534
75	Seafood	Rogede sild	508
76	Seafood	Röd Kaviar	293
77	Seafood	Gravad lax	125

Consulta executada com êxito.

GABRIEL\SQLEXPRESS (15.0 RTM) Gabriel\Gabriel R (63) Northwind 00:00:00 77 linhas

## 6. Qual o número de funcionários por território?

Query:

```
SELECT EmployeeID,
       COUNT(TerritoryID) AS TotalTerritorios
FROM   (SELECT * FROM EmployeeTerritories) AS Temp
GROUP BY EmployeeID;
```

Resultado:

100 %

	EmployeeID	TotalTerritorios
1	1	2
2	2	7
3	3	4
4	4	3
5	5	7
6	6	5
7	7	10
8	8	4
9	9	7

**7.** Qual país possui mais clientes? E menos clientes?

Queries:

--Mais clientes--

```
SELECT TOP 5 Country AS País,  
              COUNT(CustomerID) AS TotalClientes  
FROM Customers  
GROUP BY Country  
ORDER BY TotalClientes DESC;
```

--Menos CLientes--

```
SELECT TOP 5 Country AS País,  
              COUNT(CustomerID) AS TotalClientes  
FROM Customers  
GROUP BY Country  
ORDER BY TotalClientes ASC;
```

Resultados:

100 %

	País	TotalClientes
1	USA	13
2	France	11
3	Germany	11
4	Brazil	9
5	UK	7

100 %

	País	TotalClientes
1	Ireland	1
2	Norway	1
3	Poland	1
4	Denmark	2
5	Belgium	2

- 
- 8.** Retorne os funcionários que realizaram vendas entre fevereiro e setembro de 1997.

Query:

```
SELECT c.FirstName,
       c.LastName,
       q.OrderDate
FROM Orders q
JOIN Employees c ON q.EmployeeID = c.EmployeeID
WHERE OrderDate BETWEEN '1997-02-01 00:00:00.000' AND
'1997-09-01 00:00:00.000';
```

Resultado:

100 %

Resultados

Mensagens

	FirstName	LastName	OrderDate
1	Laura	Callahan	1997-01-02 00:00:00.000
2	Margaret	Peacock	1997-01-03 00:00:00.000
3	Andrew	Fuller	1997-01-03 00:00:00.000
4	Nancy	Davolio	1997-01-06 00:00:00.000
5	Robert	King	1997-01-07 00:00:00.000
6	Andrew	Fuller	1997-01-07 00:00:00.000
7	Laura	Callahan	1997-01-08 00:00:00.000
8	Janet	Leverling	1997-01-09 00:00:00.000

9. Retorne todos os pedidos realizados há 27 anos atrás.

Query:

```
SELECT *
FROM Orders
WHERE OrderDate >= DATEADD(YEAR, -27, GETDATE());
```

Resultado:

100 %														
Resultados Mensagens														
OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	ShippedDate	ShipVia	Freight	ShipName	ShipAddress	ShipCity	ShipRegion	ShipPostalCode	ShipCo	
1	10843	VICTE	4	1998-01-21 00:00:00.000	1998-02-18 00:00:00.000	1998-01-26 00:00:00.000	2	9.26	Victuailles en stock	2, rue du Commerce	Lyon	NULL	69004	France
2	10844	PICCO	8	1998-01-21 00:00:00.000	1998-02-18 00:00:00.000	1998-01-26 00:00:00.000	2	25.22	Piccolo und mehr	Geislweg 14	Salzburg	NULL	5020	Austria
3	10845	QUICK	8	1998-01-21 00:00:00.000	1998-02-04 00:00:00.000	1998-01-30 00:00:00.000	1	212.98	QUICK-Stop	Taucherstraße 10	Cunewalde	NULL	01307	Germany
4	10846	SUPRD	2	1998-01-22 00:00:00.000	1998-03-05 00:00:00.000	1998-01-23 00:00:00.000	3	56.46	Suprêmes délices	Boulevard Tirou, 255	Charleroi	NULL	B-6000	Belgium
5	10847	SAVEA	4	1998-01-22 00:00:00.000	1998-02-05 00:00:00.000	1998-02-10 00:00:00.000	3	487.57	Save-a-lot Markets	187 Suffolk Ln.	Boise	ID	83720	USA
6	10848	CONSH	7	1998-01-23 00:00:00.000	1998-02-20 00:00:00.000	1998-01-29 00:00:00.000	2	38.24	Consolidated Holdings	Berkeley Gardens 12 Brewery	London	NULL	WX1 6LT	UK
7	10849	KOENE	9	1998-01-23 00:00:00.000	1998-02-20 00:00:00.000	1998-01-30 00:00:00.000	2	0.56	Königlich Essen	Maubelstr. 90	Brandenburg	NULL	14776	Germany
8	10850	VICTE	1	1998-01-23 00:00:00.000	1998-03-06 00:00:00.000	1998-01-30 00:00:00.000	1	49.19	Victuailles en stock	2, rue du Commerce	Lyon	NULL	69004	France
9	10851	RICAR	5	1998-01-26 00:00:00.000	1998-02-23 00:00:00.000	1998-02-02 00:00:00.000	1	160.55	Ricardo Adocicados	Av. Copacabana, 267	Rio de Janeiro	RJ	02389-890	Brazil
10	10852	RATTC	8	1998-01-26 00:00:00.000	1998-02-09 00:00:00.000	1998-01-30 00:00:00.000	1	174.05	Rattlesnake Canyon Grocery	2817 Milton Dr.	Albuquerque	NM	87110	USA
11	10853	BLAUS	9	1998-01-27 00:00:00.000	1998-02-24 00:00:00.000	1998-02-03 00:00:00.000	2	53.83	Blauer See Delikatessen	Forsterstr. 57	Mannheim	NULL	68306	Germany
12	10854	ERNSH	3	1998-01-27 00:00:00.000	1998-02-24 00:00:00.000	1998-02-05 00:00:00.000	2	100.22	Ernst Handel	Kirchgasse 6	Graz	NULL	8010	Austria
13	10855	OLDWO	3	1998-01-27 00:00:00.000	1998-02-24 00:00:00.000	1998-02-04 00:00:00.000	1	170.97	Old World Delicatessen	2743 Bering St.	Anchorage	AK	99508	USA
14	10856	ANTON	3	1998-01-28 00:00:00.000	1998-02-25 00:00:00.000	1998-02-10 00:00:00.000	2	58.43	Antonio Moreno Taqueria	Mataderos 2312	México D.F.	NULL	05023	Mexico
15	10857	BERGS	8	1998-01-28 00:00:00.000	1998-02-25 00:00:00.000	1998-02-06 00:00:00.000	2	188.85	Berglunds snabbköp	Berguvsvägen 8	Luleå	NULL	S-958 22	Sweden
16	10858	LACOR	2	1998-01-29 00:00:00.000	1998-02-26 00:00:00.000	1998-02-03 00:00:00.000	1	52.51	La corne d'abondance	67, avenue de l'Europe	Versailles	NULL	78000	France
17	10859	FRANK	1	1998-01-29 00:00:00.000	1998-02-26 00:00:00.000	1998-02-02 00:00:00.000	2	76.10	Frankenversand	Berliner Platz 43	München	NULL	80805	Germany
Consulta executada com êxito.														
GABRIEL/SOLEXPRESS (15.0 RTM) Gabriel/Gabriel R (63) Northwind 00:00:00 235 linhas														

Consulta executada com êxito.

GABRIEL\SQLXPRESS (15.0 RTM) Gabriel\Gabriel R (63) Northwind 00:00:00 235 linhas

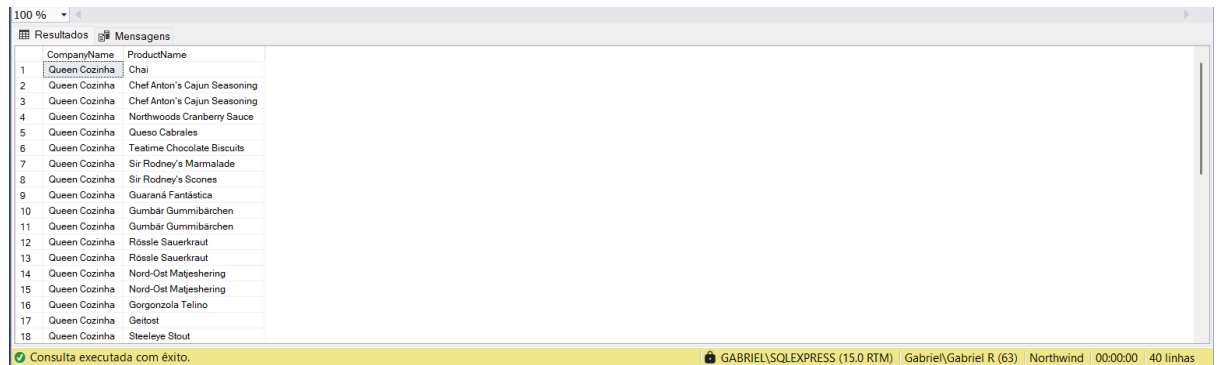
10. Retorne todos os produtos comprados pelo cliente Queen Cozinha.

Query:

```
SELECT a.CompanyName,
       d.ProductName
FROM Customers a
JOIN Orders b ON a.CustomerID = b.CustomerID
JOIN [Order Details] c ON b.OrderID = c.OrderID
JOIN Products d ON c.ProductID = d.ProductID
```

WHERE a.CompanyName = 'Queen Cozinha';

Resultado:



The screenshot shows a SQL Server Enterprise Manager window with a query results grid. The grid has two columns: 'CompanyName' and 'ProductName'. The first row is highlighted, showing 'Queen Cozinha' and 'Chai'. The status bar at the bottom indicates the query was executed successfully.

	CompanyName	ProductName
1	Queen Cozinha	Chai
2	Queen Cozinha	Chef Anton's Cajun Seasoning
3	Queen Cozinha	Chef Anton's Cajun Seasoning
4	Queen Cozinha	Northwoods Cranberry Sauce
5	Queen Cozinha	Queso Cabrales
6	Queen Cozinha	Teatime Chocolate Biscuits
7	Queen Cozinha	Sir Rodney's Marmalade
8	Queen Cozinha	Sir Rodney's Scones
9	Queen Cozinha	Guaraná Fantástica
10	Queen Cozinha	Gumbär Gummibärchen
11	Queen Cozinha	Gumbär Gummibärchen
12	Queen Cozinha	Rössle Sauerkraut
13	Queen Cozinha	Rössle Sauerkraut
14	Queen Cozinha	Nord-Ost Matjeshering
15	Queen Cozinha	Nord-Ost Matjeshering
16	Queen Cozinha	Gorgonzola Telino
17	Queen Cozinha	Geitost
18	Queen Cozinha	Steeleye Stout

100 % Resultados Mensagens

Consulta executada com êxito. GABRIEL\SQLEXPRESS (15.0 RTM) Gabriel\Gabriel R (63) Northwind 00:00:00 40 linhas