

Veri Tabanı Yönetim Sistemleri

(Veritabanı Tasarımı)

SQL (Structured Query Language)



Konular

- ✓ Ortamın Hazırlanması
- ✓ SQL (Structured Query Language)
- ✓ Temel SQL Komutları
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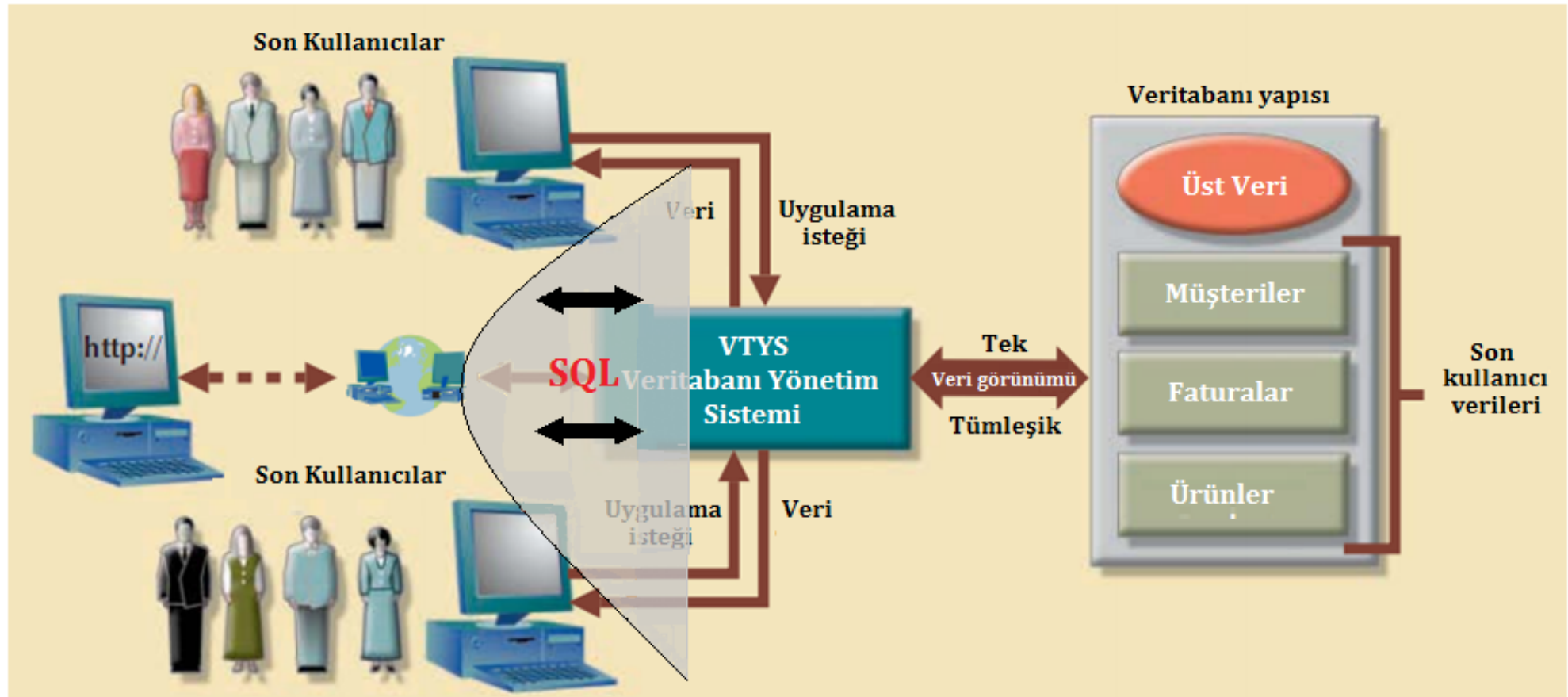
Ortamin Hazirlanmasi

- ✓ PostgreSQL kurulumu
 - ✓ PostgreSQL 9.5.4
 - ✓ <https://www.postgresql.org/download/>
- ✓ pgAdmin kurulumu
 - ✓ pgAdmin III
 - ✓ PostgreSQL ile dagitiliyor.
- ✓ Valentina Studio kurulumu
 - ✓ Valentina Studio 6.6.2
 - ✓ <https://www.valentina-db.com/en/valentina-studio-overview>
- ✓ NorthWind veri tabaninin ice ktarilmasi/disa verilmesi
 - ✓ <https://code.google.com/archive/p/northwindextended/downloads>
- ✓ Pagila veri tabaninin ice aktarilmasi/disa verilmesi
 - ✓ <http://www.postgresqtutorial.com/postgresql-sample-database>

Derste anlatilan SQL ifadelerine asagidaki baglantidan erisebilirsiniz.

<https://github.com/celalceken/DatabaseManagementSystems>

➤ SQL (Structured Query Language)



Carlos Coronel, Steven Morris, and Peter Rob, Database Systems: Design, Implementation, and Management, sayfa 8.

SQL Fonksiyonları 2 bölüme ayrılabilir:

- ✓ Data definition language (DDL) (Yapısal Komutlar)
 - ✓ Veritabanı/tablo/ilişki v.s. oluşturma/değiştirme/silme v.s.
- ✓ Data Manipulation Language (DML) (Veri ekleme/silme/güncelleme/sorgulama v.s. komutları)

Temel SQL Komutları (DML)

✓ Select Komutu

- Select komutu veritabanından veri almak için kullanılır.
- Aşağıdaki SQL deyimi "Customers" tablosundaki tüm sütunları seçer.

```
SELECT * FROM Customers;
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden
6	Blauer See Delikatessen	Hanna Moos	Forsterstr. 57	Mannheim	68306	Germany
7	Blondel père et fils	Frédérique Citeaux	24, place Kléber	Strasbourg	67000	France
8	Bólido Comidas preparadas	Martín Sommer	C/ Araquil, 67	Madrid	28023	Spain
9	Bon app'	Laurence Lebihans	12, rue des Bouchers	Marseille	13008	France
10	Bottom-Dollar Marketse	Elizabeth Lincoln	23 Tsawassen Blvd.	Tsawassen	T2F 8M4	Canada
11	B's Beverages	Victoria Ashworth	Fauntleroy Circus	London	EC2 5NT	UK
12	Cactus Comidas para llevar	Patricio Simpson	Cerrito 333	Buenos Aires	1010	Argentina

- Aşağıdaki SQL deyimi “Customers” tablosundaki “CustomerName” ve “City” sütunlarını seçer.

```
SELECT CustomerName , City FROM Customers;
```

CustomerName	City
Alfreds Futterkiste	Berlin
Ana Trujillo Emparedados y helados	México D.F.
Antonio Moreno Taquería	México D.F.
Around the Horn	London
Berglunds snabbköp	Luleå
Blauer See Delikatessen	Mannheim
Blondel père et fils	Strasbourg
Bólido Comidas preparadas	Madrid
Bon app'	Marseille
Bottom-Dollar Marketse	Tsawassen
B's Beverages	London
Cactus Comidas para llevar	Buenos Aires
Centro comercial Moctezuma	México D.F.
Chop-suey Chinese	Bern

➤ DISTINCT

- Tabloda bazı sütunlar tekrar eden kayıtlar içerebilir, “DISTINCT” sorgu sonucu gelen değerler içerisindeki tekrarlanan kayıtların tek kayıt olarak gösterilmesini sağlar.

```
SELECT DISTINCT City FROM Customers;
```

City
Aachen
Albuquerque
Anchorage
Århus
Barcelona
Barquisimeto
Bergamo
Berlin
Bern
Boise
Bräcke
Brandenburg
Bruxelles

➤ WHERE

- Tabloda istenilen şartlara uygun kayıtların listelenmesi için WHERE komutu kullanılır.

```
SELECT * FROM Customers WHERE Country='Mexico';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico
13	Centro comercial Moctezuma	Francisco Chang	Sierras de Granada 9993	México D.F.	05022	Mexico
58	Pericles Comidas clásicas	Guillermo Fernández	Calle Dr. Jorge Cash 321	México D.F.	05033	Mexico
80	Tortuga Restaurante	Miguel Angel Paolino	Avda. Azteca 123	México D.F.	05033	Mexico

- Sayısal alanlara ait değerler tırnak içinde yazılmazlar.

```
SELECT * FROM Customers WHERE CustomerID=1;
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany

- Aşağıdaki operatorler WHERE komutu ile birlikte kullanılırlar.

Operator	Description
=	Equal
<>	Not equal. Note: In some versions of SQL this operator may be written as !=
>	Greater than
<	Less than
>=	Greater than or equal
<=	Less than or equal
BETWEEN	Between an inclusive range
LIKE	Search for a pattern
IN	To specify multiple possible values for a column

➤ AND

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden

•Yukarıdaki tablo için SQL komutunu çalıştıracak olursak aşağıdaki çıktıyı elde ederiz.

```
SELECT * FROM Customers WHERE Country='Germany' AND City='Berlin';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany

➤ OR

- Aşağıdaki SQL komutu Şehiri “Berlin” ya da “München” olan müşterileri “Customers” tablosundan seçer.

```
SELECT * FROM Customers WHERE City='Berlin' OR City='München';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
25	Frankenversand	Peter Franken	Berliner Platz 43	München	80805	Germany

- Aşağıdaki SQL komutu Ülkesi “Germany” olan müşterilerden, Şehiri “Berlin” ya da “München” olanları “Customers” tablosundan seçer.

```
SELECT * FROM Customers WHERE Country='Germany' AND (City='Berlin' OR City='München');
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
25	Frankenversand	Peter Franken	Berliner Platz 43	München	80805	Germany

➤ORDER BY

- Sorgular sonucunda listelenen kayıtların belirli alanlara göre alfabetik veya sayısal olarak artan yada azalan şeklinde sıralanması için “ORDER BY” komutu kullanılır.

```
SELECT * FROM Customers ORDER BY Country;
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
64	Rancho grande	Sergio Gutiérrez	Av. del Libertador 900	Buenos Aires	1010	Argentina
54	Océano Atlántico Ltda.	Yvonne Moncada	Ing. Gustavo Moncada 8585 Piso 20-A	Buenos Aires	1010	Argentina
12	Cactus Comidas para llevar	Patricio Simpson	Cerrito 333	Buenos Aires	1010	Argentina
59	Piccolo und mehr	Georg Pipps	Geislweg 14	Salzburg	5020	Austria
20	Ernst Handel	Roland Mendel	Kirchgasse 6	Graz	8010	Austria
50	Maison Dewey	Catherine Dewey	Rue Joseph-Bens 532	Bruxelles	B-1180	Belgium
76	Suprêmes délices	Pascale Cartrain	Boulevard Tirou, 255	Charleroi	B-6000	Belgium
62	Queen Cozinha	Lúcia Carvalho	Alameda dos Canários, 891	São Paulo	05487-020	Brazil
34	Hanari Carnes	Mario Pontes	Rua do Paço, 67	Rio de Janeiro	05454-876	Brazil

➤ORDER BY

❖DESC

•ORDER BY komutu ile kullanılır.Belirtilen alan için azalan bir sıralama yapar.Büyükten küçüğe veya Z'den A'ya sıralama yapar.

```
SELECT * FROM Customers ORDER BY Country DESC;
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
47	LINO-Delicateses	Felipe Izquierdo	Ave. 5 de Mayo Porlamar	I. de Margarita	4980	Venezuela
33	GROSELLA-Restaurante	Manuel Pereira	5ª Ave. Los Palos Grandes	Caracas	1081	Venezuela
35	HILARIÓN-Abastos	Carlos Hernández	Carrera 22 con Ave. Carlos Soublette #8-35	San Cristóbal	5022	Venezuela
46	LILA-Supermercado	Carlos González	Carrera 52 con Ave. Bolívar #65-98 Llano Largo	Barquisimeto	3508	Venezuela
32	Great Lakes Food Market	Howard Snyder	2732 Baker Blvd.	Eugene	97403	USA
43	Lazy K Kountry Store	John Steel	12 Orchestra Terrace	Walla Walla	99362	USA
75	Split Rail Beer & Ale	Art Braunschweiger	P.O. Box 555	Lander	82520	USA

➤ ORDER BY

- Birden fazla Sütun için Sıralama:

```
SELECT * FROM Customers ORDER BY Country, CustomerName;
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
12	Cactus Comidas para llevar	Patricio Simpson	Cerrito 333	Buenos Aires	1010	Argentina
54	Océano Atlántico Ltda.	Yvonne Moncada	Ing. Gustavo Moncada 8585 Piso 20-A	Buenos Aires	1010	Argentina
64	Rancho grande	Sergio Gutiérrez	Av. del Libertador 900	Buenos Aires	1010	Argentina
20	Ernst Handel	Roland Mendel	Kirchgasse 6	Graz	8010	Austria
59	Piccolo und mehr	Georg Pipps	Geislweg 14	Salzburg	5020	Austria
50	Maison Dewey	Catherine Dewey	Rue Joseph-Bens 532	Bruxelles	B-1180	Belgium
76	Suprêmes délices	Pascale Cartrain	Boulevard Tirou, 255	Charleroi	B-6000	Belgium
15	Comércio Mineiro	Pedro Afonso	Av. dos Lusíadas, 23	São Paulo	05432-043	Brazil
21	Familia Arquibaldo	Aria Cruz	Rua Orós, 92	São Paulo	05442-030	Brazil
31	Gourmet Lanchonetes	André Fonseca	Av. Brasil, 442	Campinas	04876-786	Brazil
34	Hanari Carnes	Mario Pontes	Rua do Paço, 67	Rio de Janeiro	05454-876	Brazil

➤ ORDER BY

❖ ASC

- ORDER BY komutu ile kullanılır. Belirtilen alan için artan bir sıralama yapar. Eğer alan karakter tipli ise alfabetik, sayısal tipli bir alan ise küçükten büyüğe sıralama yapar.

```
SELECT * FROM Customers ORDER BY Country ASC;
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
64	Rancho grande	Sergio Gutiérrez	Av. del Libertador 900	Buenos Aires	1010	Argentina
54	Océano Atlántico Ltda.	Yvonne Moncada	Ing. Gustavo Moncada 8585 Piso 20-A	Buenos Aires	1010	Argentina
12	Cactus Comidas para llevar	Patricio Simpson	Cerrito 333	Buenos Aires	1010	Argentina
59	Piccolo und mehr	Georg Pipps	Geislweg 14	Salzburg	5020	Austria
20	Ernst Handel	Roland Mendel	Kirchgasse 6	Graz	8010	Austria
50	Maison Dewey	Catherine Dewey	Rue Joseph-Bens 532	Bruxelles	B-1180	Belgium
76	Suprêmes délices	Pascale Cartrain	Boulevard Tirou, 255	Charleroi	B-6000	Belgium
62	Queen Cozinha	Lúcia Carvalho	Alameda dos Canários, 891	São Paulo	05487-020	Brazil
34	Hanari Carnes	Mario Pontes	Rua do Paço, 67	Rio de Janeiro	05454-876	Brazil
31	Gourmet Lanchonetes	André Fonseca	Av. Brasil, 442	Campinas	04876-786	Brazil
61	Que Delícia	Bernardo Batista	Rua da Panificadora, 12	Rio de Janeiro	02389-673	Brazil

➤ INSERT INTO

Tabloya yeni kayıt eklemek için kullanılır.

```
INSERT INTO Customers ("CustomerName", "ContactName", "Address", "City", "PostalCode", "Country")  
VALUES ('Cardinal', 'Tom B. Erichsen', 'Skagen 21', 'Stavanger', '4006', 'Norway');
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
87	Wartian Herkku	Pirkko Koskitalo	Torikatu 38	Oulu	90110	Finland
88	Wellington Importadora	Paula Parente	Rua do Mercado, 12	Resende	08737-363	Brazil
89	White Clover Markets	Karl Jablonski	305 - 14th Ave. S. Suite 3B	Seattle	98128	USA
90	Wilman Kala	Matti Karttunen	Keskuskatu 45	Helsinki	21240	Finland
91	Wolski	Zbyszek	ul. Filtrowa 68	Walla	01-012	Poland
92	Cardinal	Tom B. Erichsen	Skagen 21	Stavanger	4006	Norway

➤ INSERT INTO

•Yalnızca bazı sütunlara veri eklememizde mümkündür. Veri eklenmeyen sütunlar null (boş) gözükcektir.

```
INSERT INTO Customers ("CustomerName ", " City ", " Country ")  
VALUES ('Cardinal','Stavanger','Norway');
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
87	Wartian Herkku	Pirkko Koskitalo	Torikatu 38	Oulu	90110	Finland
88	Wellington Importadora	Paula Parente	Rua do Mercado, 12	Resende	08737-363	Brazil
89	White Clover Markets	Karl Jablonski	305 - 14th Ave. S. Suite 3B	Seattle	98128	USA
90	Wilman Kala	Matti Karttunen	Keskuskatu 45	Helsinki	21240	Finland
91	Wolski	Zbyszek	ul. Filtrowa 68	Walla	01-012	Poland
92	Cardinal	null	null	Stavanger	null	Norway

Ekleme işlemlerinde veri bütünlüğü kısıtları göz önüne alınır.

➤ UPDATE

UPDATE komutu tablodaki kayıt(lar)ın değiştirilmesini sağlar.

```
UPDATE Customers  
  SET ContactName='Alfred Schmidt', City='Hamburg'  
  WHERE CustomerName='Alfreds Futterkiste';
```

WHERE ifadesi kullanılmazsa tüm satırlar değiştirilir.

➤ DELETE

- DELETE ifadesi tablodaki kayıt veya kayıtların silinmesini sağlar.

```
DELETE FROM Customers  
WHERE CustomerName='Alfreds Futterkiste' AND ContactName='Maria Anders';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	Mexico D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	Mexico D.F.	05023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden

➤DELETE

- Tabloyu silmeden tablodaki bütün satırları silmek mümkündür. Aşağıdaki komut tablodaki bütün kayıtları silmeye yarar.

```
DELETE FROM table_name;
```

veya

```
DELETE * FROM table_name;
```

➤LIKE

- Karakter türü alanlar üzerinde işlem yapan komutlardır. Belirtilen alan içinde istenilen karakterlerin sorgulanmasını sağlayan komutlardır.
- Aşağıdaki SQL komutu Şehiri 'S' ile başlayan kayıtları seçer.

```
SELECT * FROM Customers WHERE City LIKE 'S%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
7	Blondel père et fils	Frédérique Citeaux	24, place Kléber	Strasbourg	67000	France
15	Comércio Mineiro	Pedro Afonso	Av. dos Lusíadas, 23	São Paulo	05432-043	Brazil
21	Familia Arquibaldo	Aria Cruz	Rua Orós, 92	São Paulo	05442-030	Brazil
30	Godos Cocina Típica	José Pedro Freyre	C/ Romero, 33	Sevilla	41101	Spain
35	HILARIÓN-Abastos	Carlos Hernández	Carrera 22 con Ave. Carlos Soublette #8-35	San Cristóbal	5022	Venezuela

```
SELECT * FROM Customers
WHERE Country LIKE '%land%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
14	Chop-suey Chinese	Yang Wang	Hauptstr. 29	Bern	3012	Switzerland
37	Hungry Owl All-Night Grocers	Patricia McKenna	8 Johnstown Road	Cork		Ireland
68	Richter Supermarkt	Michael Holz	Grenzacherweg 237	Genève	1203	Switzerland
87	Wartian Herkku	Pirkko Koskitalo	Torikatu 38	Oulu	90110	Finland
90	Wilman Kala	Matti Karttunen	Keskuskatu 45	Helsinki	21240	Finland
91	Wolski	Zbyszek	ul. Filtrowa 68	Walla	01-012	Poland

```
SELECT * FROM Customers
WHERE City LIKE 'ber%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
14	Chop-suey Chinese	Yang Wang	Hauptstr. 29	Bern	3012	Switzerland
49	Magazzini Alimentari Riuniti	Giovanni Rovelli	Via Ludovico il Moro 22	Bergamo	24100	Italy

```
SELECT * FROM Customers
WHERE City LIKE '_erlin';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany

```
SELECT * FROM Customers
WHERE City LIKE 'L_n_on';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
11	B's Beverages	Victoria Ashworth	Fauntleroy Circus	London	EC2 5NT	UK
16	Consolidated Holdings	Elizabeth Brown	Berkeley Gardens 12 Brewery	London	WX1 6LT	UK
19	Eastern Connection	Ann Devon	35 King George	London	WX3 6FW	UK
53	North/South	Simon Crowther	South House 300 Queensbridge	London	SW7 1RZ	UK
72	Seven Seas Imports	Hari Kumar	90 Wadhurst Rd.	London	OX15 4NB	UK

IN

•Bir veri kümesinde arama yapmamızı sağlayan operatörlerdir. Bir alanın bir veri kümesi ile karşılaştırılarak verilerin listenmesini sağlar.

```
SELECT * FROM Customers  
WHERE City IN('Paris','London');
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
11	B's Beverages	Victoria Ashworth	Fauntleroy Circus	London	EC2 5NT	UK
16	Consolidated Holdings	Elizabeth Brown	Berkeley Gardens 12 Brewery	London	WX1 6LT	UK
19	Eastern Connection	Ann Devon	35 King George	London	WX3 6FW	UK
53	North/South	Simon Crowther	South House 300 Queensbridge	London	SW7 1RZ	UK
57	Paris spécialités	Marie Bertrand	265, boulevard Charonne	Paris	75012	France
72	Seven Seas Imports	Hari Kumar	90 Wadhurst Rd.	London	OX15 4NB	UK
74	Spécialités du monde	Dominique Perrier	25, rue Lauriston	Paris	75016	France

Aynı işlem OR kullanılarak da yapılabilir.

BETWEEN

- Aralıklı sorgulama yapmak için kullanılan operatördür.

```
SELECT * FROM Products  
WHERE Price BETWEEN 10 AND 20;
```

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
1	Chais	1	1	10 boxes x 20 bags	18
2	Chang	1	1	24 - 12 oz bottles	19
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10
15	Genen Shouyu	6	2	24 - 250 ml bottles	15.5
16	Pavlova	7	3	32 - 500 g boxes	17.45

➤ NOT BETWEEN

Aynı işlem AND kullanılarak da yapılabilir.

```
SELECT * FROM Products  
WHERE Price NOT BETWEEN 10 AND 20;
```

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25
7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30
8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40

➤ BETWEEN..... IN.....

```
SELECT * FROM Products
WHERE (Price BETWEEN 10 AND 20)
AND NOT CategoryID IN (1,2,3);
```

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
31	Gorgonzola Telino	14	4	12 - 100 g pkgs	12.5
36	Inlagd Sill	17	8	24 - 250 g jars	19
40	Boston Crab Meat	19	8	24 - 4 oz tins	18.4
42	Singaporean Hokkien Fried Mee	20	5	32 - 1 kg pkgs.	14
46	Spegesild	21	8	4 - 450 g glasses	12
57	Ravioli Angelo	26	5	24 - 250 g pkgs.	19.5

➤ BETWEEN operatörünün metin ile birlikte kullanımı

```
SELECT * FROM Products
WHERE ProductName BETWEEN 'C' AND 'M';
```

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
1	Chais	1	1	10 boxes x 20 bags	18
2	Chang	1	1	24 - 12 oz bottles	19
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25

BETWEEN operatörünün tarih değerleri ile birlikte kullanımı

```
SELECT * FROM "orders"  
WHERE "OrderDate" BETWEEN '07/04/1996' AND '07/09/1996';
```

OrderID	CustomerID	EmployeeID	OrderDate	ShipperID
10248	90	5	7/4/1996	3
10249	81	6	7/5/1996	1
10250	34	4	7/8/1996	2
10251	84	3	7/8/1996	1
10252	76	4	7/9/1996	2

Alanlar (Sütunlar) için TAKMA ADLAR

```
SELECT sütun_adi AS takma_ad FROM tablo_adi;
```

```
SELECT "CompanyName" as "Musteriler" from Customers;
```

```
SELECT "OrderID" as "SiparisNo", "ShipPostalCode" || ',' || "ShipAddress" as "GonderiAdresi" FROM "orders"  
WHERE "OrderDate" BETWEEN '07/04/1996' AND '07/09/1996';
```

TABLolar İÇİN TAKMA ADLAR

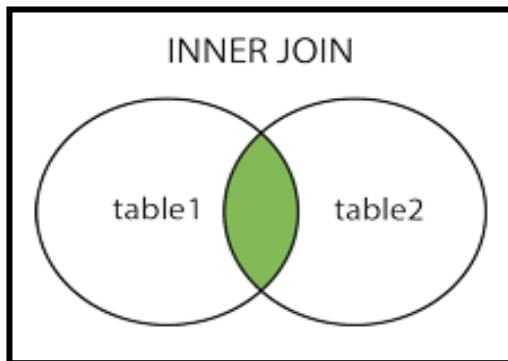
```
SELECT "Siparisler"."OrderID", "Siparisler"."CustomerID" FROM "orders" as "Siparisler"
```

Özyineli (recursive) ilişkilerde takma ad kullanımı zorunludur.

➤ JOIN

Join işlemi farklı tablolardaki kayıtlar birleştirilip, yeni veri kümeleri oluşturulması için kullanılır.

❖ Inner Join



•Aşağıdaki örnekte “Orders” ve “Customers” tablolarındaki kayıtlar birleştirilip yeni veri kümesi oluşturulmuştur.

```
SELECT "public"."orders"."OrderID", "public"."customers"."CompanyName",  
       "public"."orders"."OrderDate"  
FROM   "orders"  
INNER JOIN "customers" ON "orders"."CustomerID" = "customers"."CustomerID"
```

OrderID	CustomerName	OrderDate
10308	Ana Trujillo Emparedados y helados	9/18/1996
10365	Antonio Moreno Taquería	11/27/1996
10383	Around the Horn	12/16/1996
10355	Around the Horn	11/15/1996
10278	Berglunds snabbköp	8/12/1996

Müşterisi olmayan sipariş ya da siparişi olmayan müşteri listelenmeyecektir.

➤ JOIN

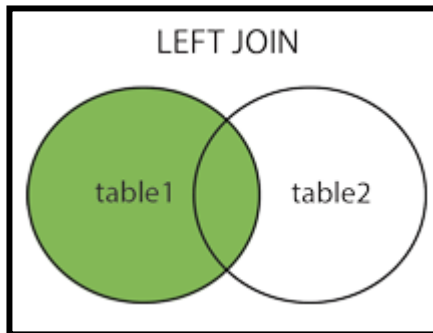
❖ Inner Join

```
SELECT  "public"."orders"."OrderID" as "Siparis No",  
        "public"."customers"."CompanyName" as "Şirket",  
        "public"."orders"."OrderDate" as "Sipariş Tarihi"  
FROM    "orders", "customers"  
WHERE   "orders"."CustomerID" = "customers"."CustomerID"  
ORDER BY "customers"."CompanyName" DESC;
```

```
SELECT  "public"."orders"."OrderID",  
        "public"."orders"."OrderDate",  
        "public"."customers"."CompanyName",  
        "public"."employees"."FirstName",  
        "public"."employees"."LastName"  
FROM    "orders"  
INNER JOIN "customers" ON "orders"."CustomerID" = "customers"."CustomerID"  
INNER JOIN "employees" ON "orders"."EmployeeID" = "employees"."EmployeeID"
```

➤ JOIN

❖ Left Join



•Sol taraftaki tabloyu baz alarak,sağ taraftaki tabloyu birleştirir. Sağ tablodaki eşleşmeyen kayıtlar null gözükür.

```
SELECT Customers.CustomerName, Orders.OrderID FROM Customers  
LEFT JOIN Orders  
ON Customers.CustomerID=Orders.CustomerID  
ORDER BY Customers.CustomerName;
```

CustomerName	OrderID
Alfreds Futterkiste	
Ana Trujillo Emparedados y helados	10308
Antonio Moreno Taquería	10365
Around the Horn	10383
Around the Horn	10355
Berglunds snabbköp	10278
Berglunds snabbköp	10280
Berglunds snabbköp	10384
Blauer See Delikatessen	

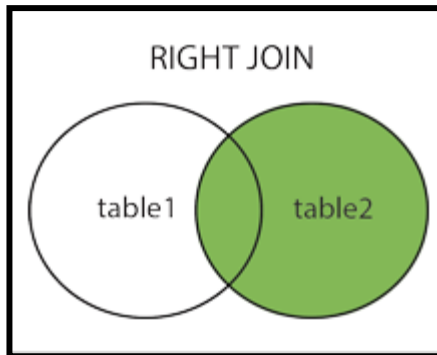
➤ JOIN

❖ Left Join

```
SELECT  "public"."orders"."OrderID" as "Siparis No",  
        "public"."customers"."CompanyName" as "Şirket",  
        "public"."orders"."OrderDate" as "Sipariş Tarihi"  
FROM    "customers"  
LEFT OUTER JOIN "orders" on "orders"."CustomerID"="customers"."CustomerID" ;
```


➤ JOIN

❖ Right Join



- Sağ taraftaki tabloyu baz alarak, sol taraftaki tabloyu birleştirir. Sol tablodaki eşleşmeyen kayıtlar null gözükür.

```
SELECT Orders.OrderID, Employees.FirstName FROM Orders  
RIGHT JOIN Employees  
ON Orders.EmployeeID=Employees.EmployeeID  
ORDER BY Orders.OrderID;
```

OrderID	FirstName
	Adam
10248	Steven
10249	Michael
10250	Margaret
10251	Janet
10252	Margaret
10253	Janet
10254	Steven

➤ SELECT INTO

- Bir tablodan alınan verileri, yeni bir tabloya kopyalamak için kullanılır. Yeni tablonun mevcut olmaması gerekir.

- Aşağıdaki SQL ifadesi “Customers” tablosundaki tüm verileri **yeni oluşturduğu** “CustomersBackup001” tablosuna kopyalar.

```
SELECT * INTO "CustomersBackup002" FROM "Customers";
```

- Tablodaki bazı sütunları **yeni oluşturduğu** “CustomersBackup2013” tablosuna kopyalar.

```
SELECT CustomerName, ContactName INTO CustomersBackup2013 FROM Customers;
```

- Tabloda ülkesi “Germany” olanların verilerini “CustomersBackup2013” tablosuna kopyalar.

```
SELECT * INTO CustomersBackup2013 FROM Customers WHERE Country='Germany';
```

- Birden fazla tablodaki verileri “CustomersOrderBackup2013” tablosuna kopyalar.

```
SELECT Customers.CustomerName, Orders.OrderID  
    INTO CustomersOrderBackup2013 FROM Customers  
    LEFT JOIN Orders  
        ON Customers.CustomerID=Orders.CustomerID;
```

➤ INSERT INTO SELECT

• Bir tablodan alınan verileri, varolan bir tabloya kopyalamak için kullanılır.

• “Customers” tablomuzun bir kısmı:

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico

• “Suppliers” tablomuzun bir kısmı:

SupplierID	SupplierName	ContactName	Address	City	Postal Code	Country	Phone
1	Exotic Liquid	Charlotte Cooper	49 Gilbert St.	Londona	EC1 4SD	UK	(171) 555-2222
2	New Orleans Cajun Delights	Shelley Burke	P.O. Box 78934	New Orleans	70117	USA	(100) 555-4822
3	Grandma Kelly's Homestead	Regina Murphy	707 Oxford Rd.	Ann Arbor	48104	USA	(313) 555-5735

➤ INSERT INTO SELECT

- “Suppliers” tablosunun “SupplierName” ve “Country” sütunlarını “Customers” tablosundaki “CustomerName” ve “Country” sütununa kopyalar.

```
INSERT INTO "customers" ("CustomerID","CompanyName","Country")  
SELECT "suppliers"."SupplierID","suppliers"."CompanyName", "Country"  
FROM "Suppliers";
```

- “Suppliers” tablosunun “Country” sütunundaki “Germany” olan verileri “Customers” tablosundaki “CustomerName” ve “Country” sütununa kopyalar.

```
INSERT INTO Customers (CustomerName, Country)  
SELECT SupplierName, Country FROM Suppliers  
WHERE Country='Germany';
```

Kaynaklar

- ✓ Carlos Coronel, Steven Morris, and Peter Rob, Database Systems: Design, Implementation, and Management, Cengage Learning.
- ✓ <http://www.w3schools.com/sql>