

✓ JupyterLab Bağlantı Ayarları

```
%%!
pip install --trusted-host pypi.org ipython-sql

['Requirement already satisfied: ipython-sql in /usr/local/lib/python3.10/dist-packages (0.5.0)',
 'Requirement already satisfied: prettytable in /usr/local/lib/python3.10/dist-packages (from ipython-sql) (3.10.0)',
 'Requirement already satisfied: ipython in /usr/local/lib/python3.10/dist-packages (from ipython-sql) (7.34.0)',
 'Requirement already satisfied: sqlalchemy>=2.0 in /usr/local/lib/python3.10/dist-packages (from ipython-sql) (2.0.29)',
 'Requirement already satisfied: sqlparse in /usr/local/lib/python3.10/dist-packages (from ipython-sql) (0.4.4)',
 'Requirement already satisfied: six in /usr/local/lib/python3.10/dist-packages (from ipython-sql) (1.16.0)',
 'Requirement already satisfied: ipython-genutils in /usr/local/lib/python3.10/dist-packages (from ipython-sql) (0.2.0)',
 'Requirement already satisfied: typing-extensions>=4.6.0 in /usr/local/lib/python3.10/dist-packages (from sqlalchemy>=2.0->ipython-sql) (4.10.0)',
 'Requirement already satisfied: greenlet!=0.4.17 in /usr/local/lib/python3.10/dist-packages (from sqlalchemy>=2.0->ipython-sql) (3.0.3)',
 'Requirement already satisfied: setuptools>=18.5 in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (67.7.2)',
 'Collecting jedi>=0.16 (from ipython->ipython-sql)',
 '  Downloading jedi-0.19.1-py2.py3-none-any.whl (1.6 MB)',
 '\x1b[?25l \x1b[90m-----\x1b[0m \x1b[32m0.0/1.6 MB\x1b[0m \x1b[31m?\x1b[0m eta \x1b[36m:--:\x1b[0m',
 '\x1b[2K \x1b[91m-\x1b[0m\x1b[90m-\x1b[0m\x1b[90m-----\x1b[0m \x1b[32m0.0/1.6 MB\x1b[0m \x1b[31m1.0 MB/s\x1b[0m eta \x1b[36m:00:02\x1b[0m',
 '\x1b[2K \x1b[91m-\x1b[0m\x1b[91m-\x1b[0m\x1b[90m-----\x1b[0m \x1b[32m0.1/1.6 MB\x1b[0m \x1b[31m1.7 MB/s\x1b[0m eta \x1b[36m:00:01\x1b[0m',
 '\x1b[2K \x1b[91m-----\x1b[0m\x1b[90m-\x1b[0m\x1b[90m-----\x1b[0m \x1b[32m0.5/1.6 MB\x1b[0m \x1b[31m3.7 MB/s\x1b[0m eta \x1b[36m:00:01\x1b[0m',
 '\x1b[2K \x1b[91m-----\x1b[0m\x1b[91m-\x1b[0m\x1b[90m-----\x1b[0m \x1b[32m1.1/1.6 MB\x1b[0m \x1b[31m6.8 MB/s\x1b[0m eta \x1b[36m:00:01\x1b[0m',
 '\x1b[2K \x1b[91m-----\x1b[0m\x1b[91m-\x1b[0m \x1b[32m1.6/1.6 MB\x1b[0m \x1b[31m8.9 MB/s\x1b[0m eta \x1b[36m:00:01\x1b[0m',
 '\x1b[2K \x1b[90m-----\x1b[0m \x1b[32m1.6/1.6 MB\x1b[0m \x1b[31m7.3 MB/s\x1b[0m eta \x1b[36m:00:00\x1b[0m',
 '\x1b[?25hRequirement already satisfied: decorator in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (4.4.2)',
 'Requirement already satisfied: pickleshare in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (0.7.5)',
 'Requirement already satisfied: traitlets>=4.2 in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (5.7.1)',
 'Requirement already satisfied: prompt-toolkit!=3.0.0,!<3.0.1,<3.1.0,>=2.0.0 in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (3.0.43)',
 'Requirement already satisfied: pygments in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (2.16.1)',
 'Requirement already satisfied: backcall in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (0.2.0)',
 'Requirement already satisfied: matplotlib-inline in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (0.1.6)',
 'Requirement already satisfied: pexpect>4.3 in /usr/local/lib/python3.10/dist-packages (from ipython->ipython-sql) (4.9.0)',
 'Requirement already satisfied: wcwidth in /usr/local/lib/python3.10/dist-packages (from prettytable->ipython-sql) (0.2.13)',
 'Requirement already satisfied: parso<0.9.0,>=0.8.3 in /usr/local/lib/python3.10/dist-packages (from jedi>=0.16->ipython->ipython-sql) (0.8.3)',
 'Requirement already satisfied: ptyprocess>=0.5 in /usr/local/lib/python3.10/dist-packages (from pexpect>4.3->ipython->ipython-sql) (0.7.0)',
 'Installing collected packages: jedi',
 'Successfully installed jedi-0.19.1']
```

```
%load_ext sql
```

```
%sql sqlite:///vbo.db
```

```
%%sql
```

```
SELECT * FROM Customers LIMIT 3;
```

```
* sqlite:///vbo.db
```

```
(sqlite3.OperationalError) no such table: Customers
```

```
[SQL: SELECT * FROM Customers LIMIT 3;]
```

```
(Background on this error at: https://sqlalche.me/e/20/e3q8)
```

✓ Manuel Tablo Oluşturma İşlemleri

```
%%sql
```

```
CREATE TABLE yeni_tablo(firstname varchar(20),
                          lastname varchar(20));
```

```
* sqlite:///vbo.db
(sqlite3.OperationalError) table yeni_tablo already exists
[SQL: CREATE TABLE yeni_tablo(firstname varchar(20),
                             lastname varchar(20));]
(Background on this error at: https://sqlalche.me/e/20/e3q8)
```

```
%%sql
INSERT INTO yeni_tablo values('Ali', 'Uzaya_Git');
```

```
* sqlite:///vbo.db
1 rows affected.
[]
```

```
%%sql
SELECT * FROM yeni_tablo;
```

```
* sqlite:///vbo.db
Done.
firstname lastname
Ali      Uzaya_Git
```

```
%%sql
INSERT INTO yeni_tablo values('Işık', 'Süte_Devam');
```

```
* sqlite:///vbo.db
1 rows affected.
[]
```

```
%%sql
SELECT * FROM yeni_tablo;
```

```
* sqlite:///vbo.db
Done.
firstname lastname
Ali      Uzaya_Git
Işık     Süte_Devam
```

✓ SELECT İşlemleri

```
%%sql
SELECT * FROM Products LIMIT 5;
```

```
* sqlite:///vbo.db
Done.


| 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    |
| 4         | Chef Anton's Cajun Seasoning | 2          | 2          | 48 - 6 oz jars      | 22    |
| 5         | Chef Anton's Gumbo Mix       | 2          | 2          | 36 boxes            | 21    |


```

```
%%sql
SELECT name FROM sqlite_master WHERE type = 'table';
```

```
* sqlite:///vbo.db
Done.
name
Products
Categories
Customers
Employees
OrderDetails
Orders
Shippers
Suppliers
yeni_tablo
```

```
%%sql
SELECT * FROM Customers where 1=0;
```

```
* sqlite:///vbo.db
Done.
```

```
CustomerID CustomerName ContactName Address City PostalCode Country
```

```
%%sql
```

```
SELECT * FROM Customers LIMIT 3;
```

```
* sqlite:///vbo.db
Done.
```

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.	5021	Mexico

```
%%sql
```

```
SELECT CustomerName, City, Country FROM Customers LIMIT 5;
```

```
* sqlite:///vbo.db
Done.
```

CustomerName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados y helados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden

```
%%sql
```

```
SELECT * from Products LIMIT 3;
```

```
* sqlite:///vbo.db
Done.
```

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

```
#matemattiksel islemler
```

```
%%sql
```

```
SELECT Price, Price*3, Price*3-100 from Products LIMIT 3;
```

```
* sqlite:///vbo.db
Done.
```

Price	Price*3	Price*3-100
18	54	-46
19	57	-43
10	30	-70

```
#alias: takma isim, kısayol
```

```
%%sql
```

```
SELECT Price AS ilk_price, Price*3 AS yeni_price, Price*3-100 AS islemli_price from Products LIMIT 3;
```

```
* sqlite:///vbo.db
Done.
```

ilk_price	yeni_price	islemli_price
18	54	-46
19	57	-43
10	30	-70

```
#count
```

```
%%sql
```

```
SELECT COUNT(*) AS satir_sayisi FROM Customers;
```

```
* sqlite:///vbo.db
Done.
```

```
satir_sayisi  
91
```

```
#order by
```

```
%%sql
```

```
SELECT * from Products LIMIT 3;
```

```
* sqlite:///vbo.db
(sqlite3.OperationalError) no such table: Products
[SQL: SELECT * from Products LIMIT 3;]
(Background on this error at: https://sqlalche.me/e/20/e3q8)
```

```
%%sql
```

```
select * from Products LIMIT 10;
```

```
* sqlite:///vbo.db
(sqlite3.OperationalError) no such table: Products
[SQL: select * from Products LIMIT 10;]
(Background on this error at: https://sqlalche.me/e/20/e3q8)
```

```
%%sql
```

```
SELECT * from Products ORDER BY Price DESC LIMIT 10;
```

```
* sqlite:///vbo.db
Done.
```

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
31	Gorgonzola Telino	14	4	12 - 100 g pkgs	435
38	Côte de Blaye	18	1	12 - 75 cl bottles	263
29	Thüringer Rostbratwurst	12	6	50 bags x 30 sausgs.	123
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97
20	Sir Rodney's Marmalade	8	3	30 gift boxes	81
18	Carnarvon Tigers	7	8	16 kg pkg.	62
59	Raclette Courdavault	28	4	5 kg pkg.	55
51	Manjimup Dried Apples	24	7	50 - 300 g pkgs.	53
62	Tarte au sucre	29	3	48 pies	49
43	Iphoh Coffee	20	1	16 - 500 g tins	46

✓ WHERE

```
%%sql
```

```
SELECT * FROM Customers LIMIT 10;
```

```
* sqlite:///vbo.db
Done.
```

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.	5021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	5023	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

```
#text string seçim
```

```
%%sql
```

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

```
* sqlite:///vbo.db
Done.
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden
24	Folk och fä HB	Maria Larsson	Åkergatan 24	Bräcke	S-844 67	Sweden

```
%%sql
```

```
SELECT * FROM Customers WHERE NOT City = 'Berlin' LIMIT 10;
```

```
* sqlite:///vbo.db
Done.
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	5021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	5023	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

```
#numerik/sayisal seçim
```

```
%%sql
```

```
SELECT * FROM Customers WHERE PostalCode = 5021;
```

```
* sqlite:///vbo.db
Done.
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
2	Ana Trujillo Emparedados v	Ana Truiillo	Avda. de la	México	5021	Mexico

```
%%sql
```

```
SELECT * FROM Customers WHERE PostalCode > 5021;
```

```
* sqlite:///vbo.db
Done.
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
3	Antonio Moreno Taqueria	Antonio Moreno	Mataderos 2312	México D.F.	5023	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
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
13	Centro comercial Moctezuma	Francisco Chang	Sierras de Granada 9993	México D.F.	5022	Mexico
16	Consolidated Holdings	Elizabeth Brown	Berkeley Gardens 12 Brewery	London	WX1 6LT	UK
17	Drachenblut Delikatessend	Sven Ottlieb	Walsertweg 21	Aachen	52066	Germany
19	Eastern Connection	Ann Devon	35 King George	London	WX3 6FW	UK
20	Ernst Handel	Roland Mendel	Kirchgasse 6	Graz	8010	Austria
23	Folies gourmandes	Martine Rancé	184, chaussée de Tournai	Lille	59000	France
24	Folk och få HB	Maria Larsson	Åkergatan 24	Bräcke	S-844 67	Sweden
25	Frankenversand	Peter Franken	Berliner Platz 43	München	80805	Germany
29	Galería del gastrónomo	Eduardo Saavedra	Rambla de Cataluña, 23	Barcelona	8022	Spain
32	Great Lakes Food Market	Howard Snyder	2732 Baker Blvd.	Eugene	97403	USA
35	HILARIÓN-Abastos	Carlos Hernández	Carrera 22 con Ave. Carlos Soublette #8-35	San Cristóbal	5022	Venezuela
36	Hungry Coyote Import Store	Yoshi Latimer	City Center Plaza 516 Main St.	Elgin	97827	USA
38	Island Trading	Helen Bennett	Garden House Crowther Way	Cowes	PO31 7PJ	UK
40	La corne d'abondance	Daniel Tonini	67, avenue de l'Europe	Versailles	78000	France
42	Laughing Bacchus Wine Cellars	Yoshi Tannamuri	1900 Oak St.	Vancouver	V3F 2K1	Canada
..	Lazv K Kountrv	..	12 Orchestra

```
#and ve or ifadeleri
```

```
%%sql
```

```
SELECT * FROM Customers WHERE Country = 'UK' AND City = 'London';
```

```
* sqlite:///vbo.db
Done.
```

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

%%sql

SELECT * FROM Customers WHERE Country = 'UK' OR Country = 'USA';

* sqlite:///vbo.db

Done.

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
32	Great Lakes Food Market	Howard Snyder	2732 Baker Blvd.	Eugene	97403	USA
36	Hungry Coyote Import Store	Yoshi Latimer	City Center Plaza 516 Main St.	Elgin	97827	USA
38	Island Trading	Helen Bennett	Garden House Crowther Way	Cowes	PO31 7PJ	UK
43	Lazy K Kountry Store	John Steel	12 Orchestra Terrace	Walla Walla	99362	USA
45	Let's Stop N Shop	Jaime Yorres	87 Polk St. Suite 5	San Francisco	94117	USA
48	Lonesome Pine Restaurant	Fran Wilson	89 Chiaroscuro Rd.	Portland	97219	USA
53	North/South	Simon Crowther	South House 300	London	SW7 1RZ	UK

%%sql

SELECT * FROM Customers WHERE Country = 'USA' AND (City = 'Eugene' OR City = 'Elgin');

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
32	Great Lakes Food Market	Howard Snyder	2732 Baker Blvd.	Eugene	97403	USA
36	Hungry Coyote Import Store	Yoshi Latimer	City Center Plaza	Elgin	97827	USA

%%sql

SELECT * FROM Customers WHERE Country = 'USA' AND PostalCode = 97403 AND (City = 'Eugene' OR City = 'Elgin');

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
32	Great Lakes Food Market	Howard Snyder	2732 Baker Blvd.	Eugene	97403	USA

#in / not in kullanımı

%%sql

SELECT * FROM Customers WHERE CustomerID in (1,3,5,7);

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	5023	Mexico
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden

%%sql

SELECT * FROM Customers WHERE Country = 'USA' AND City IN ('Eugene','Elgin');

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
32	Great Lakes Food Market	Howard Snyder	2732 Baker Blvd.	Eugene	97403	USA
36	Hungry Coyote Import Store	Yoshi Latimer	City Center Plaza	Elgin	97827	USA

%%sql

SELECT * FROM Customers WHERE CustomerID NOT IN (1,3,5,7);

```
* sqlite:///vbo.db
Done.
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	5021	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
6	Blauer See Delikatessen	Hanna Moos	Forsterstr. 57	Mannheim	68306	Germany
8	Bólido Comidas preparadas	Martin 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
13	Centro comercial Moctezuma	Francisco Chang	Sierras de Granada 9993	México D.F.	5022	Mexico
14	Chop-suey Chinese	Yang Wang	Hauptstr. 29	Bern	3012	Switzerland
15	Comércio Mineiro	Pedro Afonso	Av. dos Lusiadas, 23	São Paulo	05432-043	Brazil
16	Consolidated Holdings	Elizabeth Brown	Berkeley Gardens 12 Brewery	London	WX1 6LT	UK
17	Drachenblut Delikatessend	Sven Ottlieb	Walserweg 21	Aachen	52066	Germany
18	Du monde entier	Janine Labrune	67, rue des Cinquante Otages	Nantes	44000	France
19	Eastern Connection	Ann Devon	35 King George	London	WX3 6FW	UK
20	Ernst Handel	Roland Mendel	Kirchgasse 6	Graz	8010	Austria
21	Familia Arquibaldo	Aria Cruz	Rua Orós, 92	São Paulo	05442-030	Brazil
22	FISSA Fabrica Inter. Salchichas S.A.	Diego Roel	C/ Moralarzal, 86	Madrid	28034	Spain
23	Folies gourmandes	Martine Rancé	184, chaussée de Tournai	Lille	59000	France
24	Folk och få HB	Maria Larsson	Åkergatan 24	Bräcke	S-844 67	Sweden
25	Frankenversand	Peter Franken	Berliner Platz 43	München	80805	Germany
26	France restauration	Carine Schmitt	54, rue Royale Via Monte	Nantes	44000	France

%%sql

```
SELECT * FROM Customers WHERE Country = 'USA' AND City NOT IN ('Eugene','Elgin');
```

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
43	Lazy K Kountry Store	John Steel	12 Orchestra Terrace	Walla Walla	99362	USA
45	Let's Stop N Shop	Jaime Yorres	87 Polk St. Suite 5	San Francisco	94117	USA
48	Lonesome Pine Restaurant	Fran Wilson	89 Chiaroscuro Rd.	Portland	97219	USA
55	Old World Delicatessen	Rene Phillips	2743 Bering St.	Anchorage	99508	USA
65	Rattlesnake Canyon Grocery	Paula Wilson	2817 Milton Dr.	Albuquerque	87110	USA
71	Save-a-lot Markets	Jose Pavarotti	187 Suffolk Ln.	Boise	83720	USA
75	Split Rail Beer & Ale	Art Braunschweiger	P.O. Box 555	Lander	82520	USA

✓ LIKE ile Seçim işlemleri

- 'a%': "a" ile başlayan değerler
- '%a': "a" ile biten değerler
- '%or%': herhangi bir yerinde "or" olan değerler
- '_r%': ikinci sırasında "r" olan değerler
- 'a%%': "a" ile başlayıp en az 3 karakterden oluşan değerler
- 'a%o': "a" ile başlayıp "o" ile biten değerler

%%sql

```
SELECT * FROM Customers LIMIT 10;
```

* sqlite:///vbo.db

Done.

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.	5021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	5023	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

%%sql

SELECT * FROM Customers WHERE CustomerName LIKE '%or%' LIMIT 10;

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	5023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
36	Hungry Coyote Import Store	Yoshi Latimer	City Center Plaza 516 Main St.	Elgin	97827	USA
40	La corne d'abondance	Daniel Tonini	67, avenue de l'Europe	Versailles	78000	France
43	Lazy K Kountry Store	John Steel	12 Orchestra Terrace	Walla Walla	99362	USA
52	Morgenstern Gesundkost	Alexander Feuer	Heerstr. 22	Leipzig	4179	Germany

%%sql

SELECT * FROM Customers WHERE CustomerName LIKE '%a' LIMIT 10;

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	5023	Mexico
13	Centro comercial Moctezuma	Francisco Chang	Sierras de Granada 9993	México D.F.	5022	Mexico
30	Godos Cocina Típica	José Pedro Freyre	C/ Romero, 33	Sevilla	41101	Spain
61	Que Delícia	Bernardo Batista	Rua da Panificadora, 12	Rio de Janeiro	02389-673	Brazil

%%sql

SELECT * FROM Customers WHERE CustomerName LIKE 'A%' AND Country LIKE '%o';

* sqlite:///vbo.db

Done.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	5021	Mexico

✓ BETWEEN

%%sql

SELECT * FROM Products LIMIT 10;

* sqlite:///vbo.db

Done.

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
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21
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
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97
10	Ikura	4	8	12 - 200 ml jars	31

%%sql

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

```
* sqlite:///vbo.db
Done.
```

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
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
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97
10	Ikura	4	8	12 - 200 ml jars	31
11	Queso Cabrales	5	4	1 kg pkg.	21
12	Queso Manchego La Pastora	5	4	10 - 500 g pkgs.	38
13	Konbu	6	8	2 kg box	6

```
%%sql
```

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

```
* sqlite:///vbo.db
Done.
```

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
36	Inlagd Sill	17	8	24 - 250 g jars	19
42	Singaporean Hokkien Fried Mee	20	5	32 - 1 kg pkgs.	14
46	Spegesild	21	8	4 - 450 g glasses	12
54	Tourtière	25	6	16 pies	16
58	Escargots de Bourgogne	27	8	24 pieces	13
73	Röd Kaviar	17	8	24 - 150 g jars	15
74	Longlife Tofu	4	7	5 kg pkg.	10

```
%%sql
```

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

```
* sqlite:///vbo.db
Done.
```

```

ProductName
Inlagd Sill
Singaporean Hokkien Fried Mee
Spegesild
Tourtière
Escargots de Bourgogne
Röd Kaviar
Longlife Tofu
```

```
%%sql
```

```
SELECT * FROM Products WHERE ProductName BETWEEN 'Carnarvon Tigers' AND 'Mozzarella di Giovanni';
```

```
* sqlite:///vbo.db
Done.
```

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
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97
10	Ikura	4	8	12 - 200 ml jars	31
13	Konbu	6	8	2 kg box	6
15	Genen Shouyu	6	2	24 - 250 ml bottles	43
18	Carnarvon Tigers	7	8	16 kg pkg.	62
22	Gustaf's Knäckebröd	9	5	24 - 500 g pkgs.	21
24	Guaraná Fantástica	10	1	12 - 355 ml cans	43
26	Gumbär Gummibärchen	11	3	100 - 250 g bags	31
31	Gorgonzola Telino	14	4	12 - 100 g pkgs	435
32	Mascarpone Fabioli	14	4	24 - 200 g pkgs.	32
33	Geitost	15	4	500 g	43
36	Inlagd Sill	17	8	24 - 250 g jars	19
37	Gravad lax	17	8	12 - 500 g pkgs.	26
38	Côte de Blaye	18	1	12 - 75 cl bottles	263
39	Chartreuse verte	18	1	750 cc per bottle	18
41	Jack's New England Clam Chowder	19	8	12 - 12 oz cans	23
43	Ipoh Coffee	20	1	16 - 500 g tins	46
44	Gula Malacca	20	2	20 - 2 kg bags	19
48	Chocolate	22	3	10 pkgs.	27
49	Maxilaku	23	3	24 - 50 g pkgs.	20
51	Manjimup Dried Apples	24	7	50 - 300 g pkgs.	53
52	Filo Mix	24	5	16 - 2 kg boxes	7
56	Gnocchi di nonna Alice	26	5	24 - 250 g pkgs.	38
58	Escargots de Bourgogne	27	8	24 pieces	13
65	Louisiana Fiery Hot Pepper Sauce	2	2	32 - 8 oz bottles	43
66	Louisiana Hot Spiced Okra	2	2	24 - 8 oz jars	17
67	Laughing Lumberjack Lager	16	1	24 - 12 oz bottles	14
69	Gudbrandsdalsost	15	4	10 kg pkg.	36
71	Fløtemysost	15	4	10 - 500 g pkgs.	21
72	Mozzarella di Giovanni	14	4	24 - 200 g pkgs.	34
74	Longlife Tofu	4	7	5 kg pkg.	10
76	Lakkalikööri	23	1	500 ml	18

✓ Aggregation Fonksiyonları: Temel İstatistiksel İşlemler

```
%%sql
```

```
SELECT * FROM Products LIMIT 10;
```

```
* sqlite:///vbo.db
Done.
```

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
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21
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
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97
10	Ikura	4	8	12 - 200 ml jars	31

```
%%sql
```

```
SELECT MIN(Price) FROM Products;
```

```
* sqlite:///vbo.db
Done.
```

```
MIN(Price)
6
```

```
%%sql
SELECT MAX(Price) FROM Products;
```

```
* sqlite:///vbo.db
Done.
MAX(Price)
435
```

```
%%sql
SELECT MIN(Price) AS min_fiyat, MAX(Price) AS max_fiyat FROM Products;
```

```
* sqlite:///vbo.db
Done.
min_fiyat max_fiyat
6          435
```

```
%%sql
SELECT AVG(Price) FROM Products;
```

```
* sqlite:///vbo.db
Done.
AVG(Price)
39.15584415584416
```

```
%%sql
SELECT SUM(Price) FROM Products;
```

```
* sqlite:///vbo.db
Done.
SUM(Price)
3015
```

```
%%sql
SELECT COUNT(Price), MIN(Price), MAX(Price), AVG(Price), SUM(Price) FROM Products;
```

```
* sqlite:///vbo.db
Done.
COUNT(Price) MIN(Price) MAX(Price) AVG(Price) SUM(Price)
77           6          435          39.15584415584416 3015
```

✓ GROUP BY ve Aggregation Fonksiyonları

```
%%sql
SELECT * FROM Customers LIMIT 3;
```

```
* sqlite:///vbo.db
Done.


| CustomerID | CustomerName                             | ContactName  | Address                          | City           | PostalCode | Country |
|------------|------------------------------------------|--------------|----------------------------------|----------------|------------|---------|
| 1          | Alfreds Futterkiste                      | Maria Anders | Obere Str. 57                    | Berlin         | 12209      | Germany |
| 2          | Ana Trujillo<br>Emparedados y<br>helados | Ana Trujillo | Avda. de la<br>Constitución 2222 | México<br>D.F. | 5021       | Mexico  |


```

```
%%sql
SELECT COUNT(CustomerID) AS MUSTERI_SAYISI, Country FROM Customers GROUP BY Country ORDER BY MUSTERI_SAYISI DESC;
```

```
* sqlite:///vbo.db
Done.
```

```
MUSTERI_SAYISI Country
13 USA
11 France
11 Germany
9 Brazil
7 UK
5 Mexico
5 Spain
4 Venezuela
3 Argentina
3 Canada
3 Italy
2 Austria
2 Belgium
2 Denmark
2 Finland
2 Portugal
2 Sweden
2 Switzerland
1 Ireland
1 Norway
1 Poland
```

```
%%sql
```

```
SELECT * FROM Products LIMIT 2;
```

```
* sqlite:///vbo.db
Done.
```

```
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
```

```
%%sql
```

```
SELECT AVG(Price) AS ORT_FIYAT, CategoryID FROM Products GROUP BY CategoryID;
```

```
* sqlite:///vbo.db
Done.
```

```
ORT_FIYAT CategoryID
42.75 1
28.25 2
33.76923076923077 3
74.9 4
23.571428571428573 5
55.166666666666664 6
32.2 7
26.5 8
```

✓ JOIN İşlemleri

```
%%sql
```

```
SELECT name FROM sqlite_master WHERE type='table';
```

```
* sqlite:///vbo.db
Done.
```

```
name
Products
Categories
Customers
Employees
OrderDetails
Orders
Shippers
Suppliers
yeni_tablo
```

```
%%sql
SELECT * FROM Categories LIMIT 3;
```

```
* sqlite:///vbo.db
```

```
Done.
```

CategoryID	CategoryName	Description
1	Beverages	Soft drinks, coffees, teas, beers, and ales
2	Condiments	Sweet and savory sauces, relishes, spreads, and seasonings
3	Confections	Desserts, candies, and sweet breads

```
%%sql
SELECT * FROM Products LIMIT 3;
```

```
* sqlite:///vbo.db
```

```
Done.
```

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

```
#left join
```

```
%%sql
SELECT * FROM Products LEFT OUTER JOIN Categories ON Products.CategoryID = Categories.CategoryID LIMIT 5;
```

```
* sqlite:///vbo.db
```

```
Done.
```

ProductID	ProductName	SupplierID	CategoryID	Unit	Price	CategoryID_1	CategoryName	Descrip
1	Chais	1	1	10 boxes x 20 bags	18	1	Beverages	Soft drir coffees, teas, be and ale
2	Chang	1	1	24 - 12 oz bottles	19	1	Beverages	Soft drir coffees, teas, be and ale
				12 -				Sweet a savory

```
%%sql
SELECT PR.ProductName, CA.CategoryID, CA.CategoryName FROM Products AS PR LEFT OUTER JOIN Categories AS CA ON PR.CategoryID = CA.
```

```
* sqlite:///vbo.db
```

```
Done.
```

ProductName	CategoryID	CategoryName
Chais	1	Beverages
Chang	1	Beverages
Aniseed Syrup	2	Condiments
Chef Anton's Cajun Seasoning	2	Condiments
Chef Anton's Gumbo Mix	2	Condiments

```
%%sql
SELECT PR.ProductName, CA.CategoryID, CA.CategoryName FROM Products PR LEFT OUTER JOIN Categories CA ON PR.CategoryID = CA.Catego
```

```
* sqlite:///vbo.db
```

```
Done.
```

ProductName	CategoryID	CategoryName
Chais	1	Beverages
Chang	1	Beverages
Aniseed Syrup	2	Condiments
Chef Anton's Cajun Seasoning	2	Condiments
Chef Anton's Gumbo Mix	2	Condiments

```
#inner join
```

```
%%sql
SELECT * FROM Customers LIMIT 3;
```

```
* sqlite:///vbo.db  
Done.
```

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.	5021	Mexico

```
%%sql
```

```
SELECT * FROM Orders LIMIT 3;
```

```
* sqlite:///vbo.db  
Done.
```

OrderID	CustomerID	EmployeeID	OrderDate	ShipperID
10248	90	5	4.07.1996	3
10249	81	6	5.07.1996	1
10250	34	4	8.07.1996	2

```
%%sql
```

```
SELECT Orders.OrderID, Customers.CustomerName FROM Orders INNER JOIN Customers ON Orders.CustomerID = Customers.CustomerID;
```



```
* sqlite:///vbo.db
```

```
Done.
```

OrderID	CustomerName
10248	Wilman Kala
10249	Tradição Hipermercados
10250	Hanari Carnes
10251	Victuailles en stock
10252	Suprêmes délices
10253	Hanari Carnes
10254	Chop-suey Chinese
10255	Richter Supermarkt
10256	Wellington Importadora
10257	HILARIÓN-Abastos
10258	Ernst Handel
10259	Centro comercial Moctezuma
10260	Old World Delicatessen
10261	Que Delícia
10262	Rattlesnake Canyon Grocery
10263	Ernst Handel
10264	Folk och få HB
10265	Blondel père et fils
10266	Wartian Herkku
10267	Frankenversand
10268	GROSELLA-Restaurante
10269	White Clover Markets
10270	Wartian Herkku
10271	Split Rail Beer & Ale
10272	Rattlesnake Canyon Grocery
10273	QUICK-Stop
10274	Vins et alcools Chevalier
10275	Magazzini Alimentari Riuniti
10276	Tortuga Restaurante
10277	Morgenstern Gesundkost
10278	Berglunds snabbköp
10279	Lehmanns Marktstand
10280	Berglunds snabbköp
10281	Romero y tomillo
10282	Romero y tomillo
10283	LILA-Supermercado
10284	Lehmanns Marktstand
10285	QUICK-Stop
10286	QUICK-Stop
10287	Ricardo Adocicados
10288	Reggiani Caseifici
10289	B's Beverages
10290	Comércio Mineiro
10291	Que Delícia


```
%%sql
```

```
SELECT COUNT(*) FROM (SELECT Orders.OrderID, Customers.CustomerName FROM Orders INNER JOIN Customers ON Orders.CustomerID = Custoi
```

```
* sqlite:///vbo.db
```

```
Done.
```

```
COUNT(*)
```

```
196
```

SQL ve Pandas DataFrame Operasyonları

```
import pandas as pd
```

```
%load_ext sql
```

```
The sql extension is already loaded. To reload it, use:  
%reload_ext sql
```

```
%sql sqlite:///vbo.db
```

```
'Connected: @vbo.db'
```

```
%sql SELECT COUNT(CustomerID) AS MUSTERI_SAYISI, Country FROM Customers GROUP BY Country ORDER BY MUSTERI_SAYISI DESC;
```

```
* sqlite:///vbo.db
```

```
Done.
```

```
MUSTERI_SAYISI Country
```

```
13      USA  
11      France  
11      Germany  
9       Brazil  
7       UK  
5       Mexico  
5       Spain  
4       Venezuela  
3       Argentina  
3       Canada  
3       Italy  
2       Austria  
2       Belgium  
2       Denmark  
2       Finland  
2       Portugal  
2       Sweden  
2       Switzerland  
1       Ireland  
1       Norway  
1       Poland
```

```
df = %sql SELECT COUNT(CustomerID) AS MUSTERI_SAYISI, Country FROM Customers GROUP BY Country ORDER BY MUSTERI_SAYISI DESC;
```

```
* sqlite:///vbo.db
```

```
Done.
```

```
df
```

MUSTERI_SAYISI	Country
13	USA
11	France
11	Germany
9	Brazil
7	UK
5	Mexico
5	Spain
4	Venezuela
3	Argentina
3	Canada
3	Italy
2	Austria
2	Belgium
2	Denmark
2	Finland
2	Portugal
2	Sweden
2	Switzerland
1	Ireland
1	Norway
1	Poland

```
df.head()
```

```
-----  
AttributeError                                Traceback (most recent call last)  
<ipython-input-70-c42a15b2c7cf> in <module>  
----> 1 df.head()  
  
AttributeError: 'ResultSet' object has no attribute 'head'
```

```
type(df)
```

```
sql.run.ResultSet
```

```
dff = pd.DataFrame(df, columns = ["MUS_SAY", "ULKE"])
```

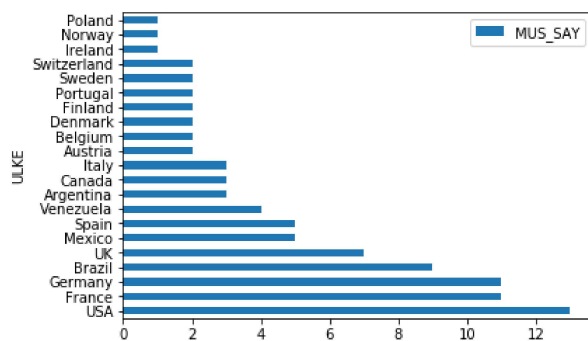
```
dff
```

	MUS_SAY	ULKE
0	13	USA
1	11	France
2	11	Germany
3	9	Brazil
4	7	UK
5	5	Mexico
6	5	Spain
7	4	Venezuela
8	3	Argentina
9	3	Canada
10	3	Italy
11	2	Austria
12	2	Belgium
13	2	Denmark
14	2	Finland
15	2	Portugal
16	2	Sweden
17	2	Switzerland
18	1	Ireland
19	1	Norway
20	1	Poland

```
dff.head()
```

	MUS_SAY	ULKE
0	13	USA
1	11	France
2	11	Germany
3	9	Brazil
4	7	UK

```
dff.plot.barh(x = "ULKE", y = "MUS_SAY");
```



√ sqlite3

```
import sqlite3
```

```
conn = sqlite3.connect('vbo.db')
```

```
?conn
```

```
Call signature: conn(*args, **kwargs)
Type:           Connection
String form:    <sqlite3.Connection object at 0x11b69f570>
File:           /anaconda3/lib/python3.7/sqlite3/__init__.py
Docstring:      SQLite database connection object.
```

```
c = conn.cursor()
```

```
?c
```

```
Type:           Cursor
String form:    <sqlite3.Cursor object at 0x11b9e27a0>
File:           /anaconda3/lib/python3.7/sqlite3/__init__.py
Docstring:      SQLite database cursor class.
```

```
?pd.read_sql
```

Signature:

```
pd.read_sql(
    sql,
    con,
    index_col=None,
    coerce_float=True,
    params=None,
    parse_dates=None,
    columns=None,
    chunksize=None,
)
```

Docstring:

Read SQL query or database table into a DataFrame.

This function is a convenience wrapper around ``read_sql_table`` and ``read_sql_query`` (for backward compatibility). It will delegate to the specific function depending on the provided input. A SQL query will be routed to ``read_sql_query``, while a database table name will be routed to ``read_sql_table``. Note that the delegated function might have more specific notes about their functionality not listed here.

Parameters

sql : string or SQLAlchemy Selectable (select or text object)
SQL query to be executed or a table name.

con : SQLAlchemy connectable (engine/connection) or database string URI
or DBAPI2 connection (fallback mode)

Using SQLAlchemy makes it possible to use any DB supported by that library. If a DBAPI2 object, only sqlite3 is supported.

index_col : string or list of strings, optional, default: None
Column(s) to set as index(MultiIndex).

coerce_float : boolean, default True
Attempts to convert values of non-string, non-numeric objects (like decimal.Decimal) to floating point, useful for SQL result sets.

params : list, tuple or dict, optional, default: None
List of parameters to pass to execute method. The syntax used to pass parameters is database driver dependent. Check your database driver documentation for which of the five syntax styles, described in PEP 249's paramstyle, is supported.
Eg. for psycopg2, uses %(name)s so use params={'name' : 'value'}

parse_dates : list or dict, default: None
- List of column names to parse as dates.
- Dict of ``{column_name: format string}`` where format string is strftime compatible in case of parsing string times, or is one of (D, s, ns, ms, us) in case of parsing integer timestamps.
- Dict of ``{column_name: arg dict}``, where the arg dict corresponds to the keyword arguments of :func:`pandas.to_datetime`
Especially useful with databases without native Datetime support, such as SQLite.

columns : list, default: None
List of column names to select from SQL table (only used when reading a table).

chunksize : int, default None
If specified, return an iterator where `chunksize` is the number of rows to include in each chunk.

```
#read_sql
```

```
pd.read_sql("SELECT COUNT(CustomerID) AS MUSTERI_SAYISI, Country FROM Customers GROUP BY Country;", conn)
```