SQL Syntax 2
Pattern Matching with Regular Expression

w3schools

https://www.w3schools.com/MySQL/mysql_like.asp

The SQL LIKE Operator

The `LIKE` operator is used in a `WHERE` clause to search for a specified pattern in a column.

There are two wildcards often used in conjunction with the `LIKE` operator:

- The percent sign (%) represents zero, one, or multiple characters
- The underscore sign (_) represents one, single character

Note: MS Access uses an asterisk (*) instead of the percent sign (%), and a question mark (?) instead of the underscore (_).

LIKE Operator	Description
WHERE CustomerName LIKE 'a%'	Finds any values that start with "a"
WHERE CustomerName LIKE '%a'	Finds any values that end with "a"
WHERE CustomerName LIKE '%or%'	Finds any values that have "or" in any position
WHERE CustomerName LIKE '_r%'	Finds any values that have "r" in the second position
WHERE CustomerName LIKE 'a_%'	Finds any values that start with "a" and are at least 2 characters in length
WHERE CustomerName LIKE 'a__%'	Finds any values that start with "a" and are at least 3 characters in length
WHERE ContactName LIKE 'a%o'	Finds any values that start with "a" and ends with "o"

```sql
SELECT * FROM Customers WHERE CustomerName LIKE 'a%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Alfred Schmidt	Obere Str. 57	Frankfruit	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

```sql
SELECT * FROM Customers
WHERE CustomerName LIKE '%a';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico

```sql
SELECT * FROM Customers
WHERE CustomerName LIKE '%or%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
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

```sql
SELECT * FROM Customers
WHERE CustomerName LIKE '_r%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK

```
SELECT * FROM Customers
WHERE CustomerName LIKE 'a__%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Alfred Schmidt	Obere Str. 57	Frankfruit	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

```
SELECT * FROM Customers
WHERE ContactName LIKE 'a%o';
```

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

SELECT * FROM Customers
WHERE CustomerName NOT LIKE 'a%';

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden
6	Eugene	NULL	NULL	Seoul		Korea
7	Jane	NULL	NULL	Pusan		Korea

SQL Wildcard Characters

A wildcard character is used to substitute one or more characters in a string.

Wildcard characters are used with the `LIKE` operator. The `LIKE` operator is used in a `WHERE` clause to search for a specified pattern in a column.

Wildcard Characters in SQL Server

Symbol	Description	Example
%	Represents zero or more characters	bl% finds bl, black, blue, and blob
_	Represents a single character	h_t finds hot, hat, and hit
[]	Represents any single character within the brackets	h[oa]t finds hot and hat, but not hit
^	Represents any character not in the brackets	h[^oa]t finds hit, but not hot and hat
-	Represents any single character within the specified range	c[a-b]t finds cat and cbt

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

https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_columns

Type in SQL command in the given URL.

Result:

Number of Records: 3

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 '%es%';

https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_columns

Result:

Number of Records: 9

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
12	Cactus Comidas para llevar	Patricio Simpson	Cerrito 333	Buenos Aires	1010	Argentina
18	Du monde entier	Janine Labrune	67, rue des Cinquante Otages	Nantes	44000	France
26	France restauration	Carine Schmitt	54, rue Royale	Nantes	44000	France
38	Island Trading	Helen Bennett	Garden House Crowther Way	Cowes	PO31 7PJ	UK

SELECT * FROM Customers
WHERE City LIKE '_ondon';

✔ 0 - 0행 표시 중 (합계 1, 질의 실행시간 0.0003 초.)

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

<mark>from w3school, full Customer table</mark>

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

```
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

from w3school, full Customer table

```
SELECT * FROM Customers
WHERE City LIKE '[a-c]%';
```

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
12	Cactus Comidas para llevar	Patricio Simpson	Cerrito 333	Buenos Aires	1010	Argentina
14	Chop-suey Chinese	Yang Wang	Hauptstr. 29	Bern	3012	Switzerland
17	Drachenblut Delikatessend	Sven Ottlieb	Walserweg 21	Aachen	52066	Germany

```
SELECT * FROM Customers
WHERE City NOT LIKE '[bsp]%';
```

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
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