

# SQL 教程

W3School 数据库

## SQL 数据库

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## Database

```
CREATE DATABASE <database_name>;
```

```
DROP DATABASE <database_name>;
```

## Database

```
SHOW DATABASES;
```

```
BACKUP DATABASE <database_name>  
TO DISK = <filepath>;
```

```
BACKUP DATABASE <database_name>  
TO DISK = <filepath>  
WITH DIFFERENTIAL;
```



W3School



...



int

float

double

decimal



- MySQL RDBMS datatype(size) datatype(size, d)



char(size)



int(size)



boolean



Java

- 

varchar(size)



varbinary(size)



Kotlin JavaScript



- SQL Server

Unicode

n

nvarchar(max)



SQL Server

datatype



RDBMS

...

- 

SQL Server decimal numeric

( ( , ) )



```
CREATE TABLE <table_name>(  
  <column1> <datatype>,  
  <column2> <datatype>,  
  ...  
);
```



```
DROP TABLE <table_name>;
```



```
TRUNCATE TABLE <table_name>;
```



```
ALTER TABLE <table_name>  
ADD <column_name> <datatype>;
```



```
ALTER TABLE <table_name>  
DROP COLUMN <column_name>;
```



```
ALTER TABLE <table_name>  
RENAME COLUMN <old_column_name> to <new_column_name>;
```

SQL Server:

```
EXEC sp_rename "table_name.old", "new_name", "COLUMN";
```



```
--- MS SQL  
ALTER TABLE <table_name>  
ALTER COLUMN <column_name> <datatype>;  
  
--- MySQL, PostgreSQL, Oracle  
ALTER TABLE <table_name>  
MODIFY COLUMN <column_name> <datatype>;  
  
--- Oracle  
ALTER TABLE <table_name>  
MODIFY <column_name> <datatype>;
```



```
SELECT <column_name>, <column_name2>, ... FROM <table_name>;
```

- From

```
SELECT DISTINCT <column_name>, <column_name2>, ... FROM <table_name>;
```

- COUNT()

#

```
SELECT COUNT(*) AS <CustomName> FROM (SELECT DISTINCT <column_name>, <column_name2>, ... FROM <table_name>);
```

#  Access

```
SELECT COUNT(DISTINCT <column_name>, <column_name2>, ...) FROM <table_name>;
```

WHERE

```
SELECT <column_name> FROM <table_name> WHERE <condition>;
```

e.g:

```
SELECT * FROM Customers
WHERE CustomerID > 80;
```

- =  <  >  <=  >=  <>
- BETWEEN  >=  <=  BETWEEN 50 AND 60
- LIKE  pattern  LIKE s%  s
- IN  IN("Los Angeles", "San Diego")
- Los Angeles  San Diego
- AND  OR  NOT
- NOT  BETWEEN  LIKE  IN

AS

AS  Column

```
SELECT city, (temp_hi+temp_lo)/2 AS temp_avg, date FROM weather;
```

Column (temp\_hi+temp\_lo)/2 temp\_avg

```
SELECT <column_name>, <column_name2>, ... FROM <table_name>
ORDER BY <column_name>, <column_name2>, ... ASC|DESC;
```

- Column
- Column
- ASC DESC
- ORDER BY <column\_name> ASC, <column\_name2> DESC

## RDBMS specify

- SQL Server/MS Access SELECT TOP PERCENT
- MySQL LIMIT WHERE WHERE
- Oracle 12 ORDER BY <column> FETCH First <number> ROWS ONLY WHERE WHERE ROWNUM <= <number>
- ORDER BY

```
INSERT INTO <table_name>(<column_name>, <column_name2> ...)
VALUES (<value1>, <value2>, ...);
```

- column\_name Column
- Column
- 

```
INSERT INTO <table_name>(<column_name>, <column_name2> ...)
VALUES
(<value1>, <value2>, ...),
(<value1>, <value2>, ...),
...;
```

NULL

NULL

IS NULL ☐

IS NOT NULL

```
SELECT <column_name>
```

FROM &lt;table\_name&gt;

WHERE <column\_name> IS NULL | IS NOT NULL;

NULL [ ]

NULL [ ]

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

UPDATE <table\_name>

SET <column1> = <value1>, <column2> = <value2>, ...

WHERE <condition>

- [illegible]

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

DELETE FROM <table\_name> WHERE <condition>

- `UPDATE` `WHERE`
- `Bang` `DROP TABLE <table_name>` `DELETE FROM`

# SQL Functions

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

MAX()    MIN()

```
SELECT MAX(<column_name>) | MIN(<column_name>) FROM <table_name> WHERE <condition>;
```

-   

```
SELECT MAX(<column_name>) AS <CustomName> FROM ...;
```

- `GROUP BY` `/`

```
SELECT MAX(<column1>) AS <CustomName>, <column2>
FROM <table_name>
GROUP BY <column2>;
```



`COUNT()`

```
SELECT COUNT(<column_name>) FROM <table_name> WHERE <condition>;
```

- `(*)`
- `DISTINCT` `SELECT COUNT(DISTINCT <column_name>`  
`FROM ...)`
- `WHERE` `AS` `GROUP BY`



`SUM()`

```
SELECT SUM(<column_name>) FROM <table_name> WHERE <condition>;
```

- `AS` `WHERE` `GROUP BY`



`AVG()`

```
SELECT AVG(<column_name>) FROM <table_name> WHERE <condition>;
```

- `AS` `WHERE` `GROUP BY`
- 

```
SELECT * FROM <table_name> WHERE <column1> > (SELECT AVG(<column1>) FROM <table_name>)
```



# Pattern (LIKE)

LIKE :

```
SELECT <column> FROM <table_name> WHERE <column> LIKE <pattern>;
```

- AND OR NOT LIKE
- 



:

| % | 0 |
|---|---|
| _ | 1 |

RDBMS specify):

| [] |     |
|----|-----|
| ^  |     |
| -  | a-z |
| {} |     |

- PostgreSQL MySQL Oracle DB
- DB System SQL script
- MS Access