**SQL**

* SQL is not case sensitive
* **SELECT** - extracts data from a database
* **UPDATE** - updates data in a database
* **DELETE** - deletes data from a database
* **INSERT INTO** - inserts new data into a database
* **CREATE DATABASE** - creates a new database
* **ALTER DATABASE** - modifies a database
* **CREATE TABLE** - creates a new table
* **ALTER TABLE** - modifies a table
* **DROP TABLE** - deletes a table
* **CREATE INDEX** - creates an index (search key)
* **DROP INDEX** - deletes an index

**SQL Data types**

* CHARACTER [(length)] or CHAR [(length)]
* VARCHAR (length)
* BOOLEAN
* SMALLINT
* INTEGER or INT
* DECIMAL [(p[,s])] or DEC [(p[,s])]
* NUMERIC [(p[,s])]
* REAL
* FLOAT(p)
* DOUBLE PRECISION
* DATE
* TIME
* TIMESTAMP
* CLOB [(length)] or CHARACTER LARGE OBJECT [(length)] or CHAR LARGE OBJECT [(length)]
* BLOB [(length)] or BINARY LARGE OBJECT [(length)]

**Select**

SELECT column1, column2, ...  
FROM table\_name;

**Where**

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

Operators in The WHERE Clause

The following operators can be used in the WHERE clause:

**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

Logical operation – **AND, OR, NOT**

**Order By**

SELECT column1, column2, ...  
FROM table\_name  
ORDER BY column1, column2, ... ASC|DESC;

**Insert Into**

INSERT INTO table\_name (column1, column2, column3, ...)  
VALUES (value1, value2, value3, ...);

INSERT INTO table\_name  
VALUES (value1, value2, value3, ...);

**Update**

UPDATE table\_name  
SET column1 = value1, column2 = value2, ...  
WHERE condition;

**Note:** Be careful when updating/Deleting records in a table! Notice the WHERE clause in the UPDATE statement. The WHERE clause specifies which record(s) that should be updated. If you omit the WHERE clause, all records in the table will be updated!

**Delete**

DELETE FROM table\_name  
WHERE condition;

**FUNCTION TYPES**

**Count()**

SELECT COUNT(column\_name)  
FROM table\_name  
WHERE condition;

**MIN()**

SELECT MIN(column\_name)  
FROM table\_name  
WHERE condition;

**MAX()**

SELECT MAX(column\_name)  
FROM table\_name  
WHERE condition;

**Avg()**

SELECT AVG(column\_name)  
FROM table\_name  
WHERE condition;

**SUM()**

SELECT SUM(column\_name)  
FROM table\_name  
WHERE condition;

**Like**

SELECT column1, column2, ...  
FROM table\_name  
WHERE columnN LIKE pattern;

**Wildcards –**

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

* % - The percent sign represents zero, one, or multiple characters
* \_ - The underscore represents a single character

**Note:** MS Access uses a question mark (?) instead of the underscore (\_).

In MS Access and SQL Server you can also use:

* [*charlist*] - Defines sets and ranges of characters to match
* [^*charlist*] or [!*charlist*] - Defines sets and ranges of characters NOT to match

The wildcards can also be used in combinations!

**IN**

SELECT column\_name(s)  
FROM table\_name  
WHERE column\_name IN (value1, value2, ...);

SELECT column\_name(s)  
FROM table\_name  
WHERE column\_name IN (SELECT STATEMENT);

**Create/Drop Table**

CREATE TABLE table\_name (  
    column1 datatype,  
    column2 datatype,  
    column3 datatype,  
   ....  
);

DROP TABLE table\_name;

**Alter Table**

ALTER TABLE table\_name  
ADD column\_name datatype;

ALTER TABLE table\_name  
DROP COLUMN column\_name;

**Constraints**

CREATE TABLE table\_name (  
    column1 datatype constraint,  
    column2 datatype constraint,  
    column3 datatype constraint,  
    ....  
);

* [**NOT NULL**](https://www.w3schools.com/sql/sql_notnull.asp) - Ensures that a column cannot have a NULL value
* [**UNIQUE**](https://www.w3schools.com/sql/sql_unique.asp) - Ensures that all values in a column are different
* [**PRIMARY KEY**](https://www.w3schools.com/sql/sql_primarykey.asp) - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table
* [**FOREIGN KEY**](https://www.w3schools.com/sql/sql_foreignkey.asp) - Uniquely identifies a row/record in another table
* [**CHECK**](https://www.w3schools.com/sql/sql_check.asp) - Ensures that all values in a column satisfies a specific condition
* [**DEFAULT**](https://www.w3schools.com/sql/sql_default.asp) - Sets a default value for a column when no value is specified
* [**INDEX**](https://www.w3schools.com/sql/sql_create_index.asp) - Used to create and retrieve data from the database very quickly