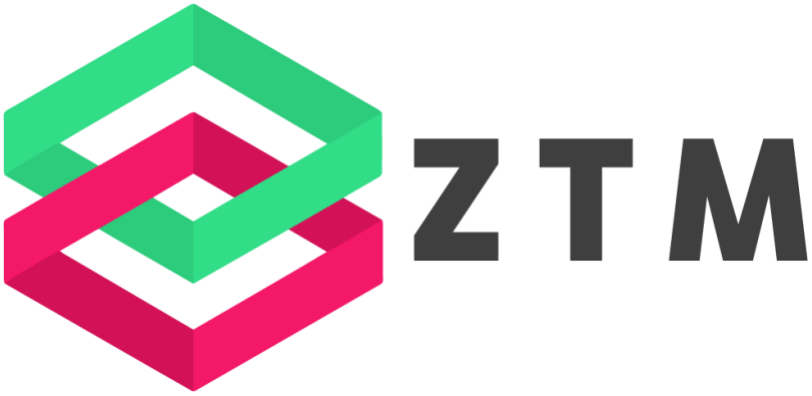


SQL CHEAT SHEET

MO BINNI

V1.01

HEEELLLOOOOO!

I'm Andrei Neagoie, Founder and Lead Instructor of the Zero To Mastery Academy.

After working as a Senior Software Developer over the years, I now dedicate 100% of my time to teaching others valuable software development skills, help them break into the tech industry, and advance their careers.

In only a few years, **over 750,000 students** around the world have taken Zero To Mastery courses and many of them are now working at top tier companies like Apple, Google, Amazon, Tesla, IBM, Facebook, and Shopify, just to name a few.

This cheat sheet, created by our SQL & Databases instructor (Mo Binni) provides you with the key SQL concepts and functions that you need to know and remember.

If you want to not only learn SQL & Databases but also get the exact steps to build your own projects and get hired as a Developer or Data Scientist, then check out our Career Paths.

Happy Learning!
Andrei

Founder & Lead Instructor, Zero To Mastery
Andrei Neagoie

SQL Cheatsheet

Table of Contents

Aggregate Functions

COUNT,
SUM,
AVG,
MIN,
MAX

Subqueries

Creating Tables

CREATE TABLE,
ALTER TABLE,
DROP TABLE

Inserting, Updating, and Deleting Data

INSERT INTO,
UPDATE,
DELETE

Creating and Deleting Databases

CREATE DATABASE,
DROP DATABASE

Creating and Deleting Indexes

CREATE INDEX,
DROP INDEX

Creating Views

CREATE VIEW,
DROP VIEW,
CASE STATEMENTS

Conditional Statements

IF,
IFNULL,
COALESCE

Comments

Single Line Comments,
Multi Line Comments

Wildcards

LIKE,
Wildcard Characters

Definitions

SQL

Structured Query Language: A language for querying and manipulating data.

DDL

Data Definition Language: Create and modify structures in the database (tables, views, indexes, etc.)

DML

Data Manipulation Language: SELECT, INSERT, UPDATE, DELETE etc. Used to store, modify, retrieve, delete and update data in database.

DCL

Data Control Language: Rights, permissions and other controls of the database system.

Data

The information that is stored in the database.

Database

A collection of data.

Schema

The structure of the database. The tables, views, indexes, etc.

Table

A collection of data organized in rows and columns.

Row

A single record in a table.

Column

A single field in a table.

Primary Key

A unique identifier for a row in a table.

Foreign Key

A field in a table that is a primary key in another table.

View

A virtual table that is the result of a query.

Index

A data structure that improves the speed of data retrieval.

Query

A request for data or information from a database table or combination of tables.

Query Language

A language for requesting information from a database.

Postgres

A relational database management system.

Database Client

A program that allows you to connect to a Postgres database and run queries.

Database Server

A program that runs on a computer and manages the database.

Database Management System

A program that manages the database.

Database Administrator

A person who manages the database.

Database Developer

A person who creates and maintains the database.

Database User

A person who uses the database.

Datatypes

A Data type is a classification that defines the type, range of values, allowable operations on the values, and the meaning of the data values.

For a reference to the data types allowable in postgres, see the Postgres documentation.

Querying Data

SELECT

The SELECT statement is used to query the database. It is the most common command in SQL.

```
SELECT column1, column2, ...
FROM table_name;
```

WHERE

The WHERE clause is used to filter records.

```
SELECT column1, column2, ...
FROM table_name
WHERE condition;
```

AND & OR

The AND and OR operators are used to filter records based on more than one condition.

```
SELECT column1, column2, ...
FROM table_name
WHERE condition1 AND condition2 AND ...;
```

```
SELECT column1, column2, ...
FROM table_name
WHERE condition1 OR condition2 OR ...;
```

ORDER BY

The ORDER BY clause is used to sort the result-set in ascending or descending order.

```
SELECT column1, column2, ...
FROM table_name
ORDER BY column1, column2, ... ASC|DESC;
```

NULL CHECKING

The NULL value is a special value that indicates that a value is missing.

```
SELECT column1, column2, ...
FROM table_name
WHERE column IS NULL;
```

DISTINCT

The DISTINCT keyword is used to return only distinct (different) values.

```
SELECT DISTINCT column1, column2, ...
FROM table_name;
```

DATE

The DATE data type is used to store a date (year, month, day).

```
SELECT column1, column2, ...
FROM table_name
WHERE column = DATE '2008-08-08';
```

BETWEEN

The BETWEEN operator is used to filter the result-set within a certain range.

```
SELECT column1, column2, ...
FROM table_name
WHERE column BETWEEN value1 AND value2;
```

LIKE

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

```
SELECT column1, column2, ...
FROM table_name
WHERE column LIKE pattern;
```

IN

The IN operator allows you to specify multiple values in a WHERE clause.

```
SELECT column1, column2, ...
FROM table_name
WHERE column IN (value1, value2, ...);
```

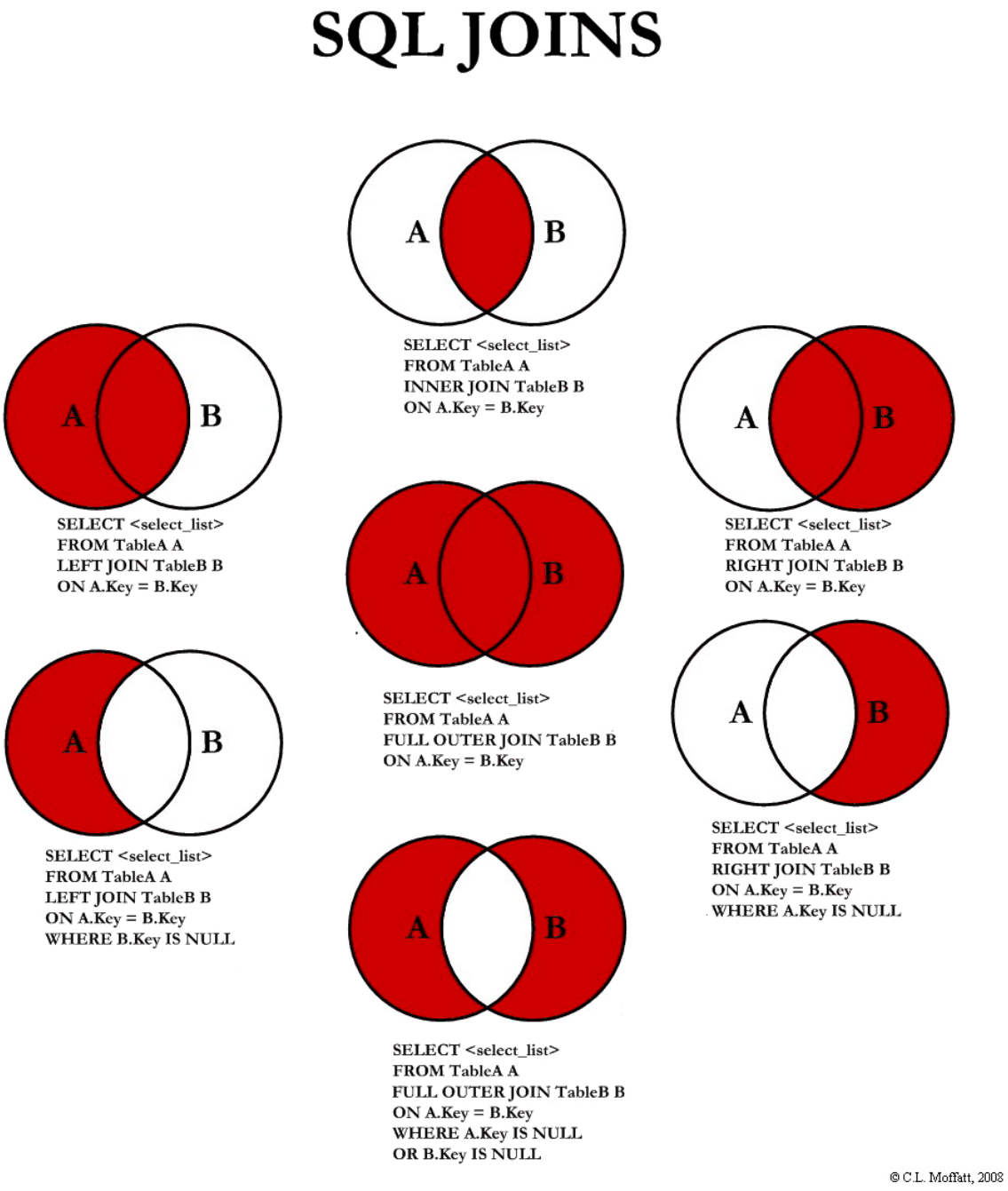
ALIAS

An alias is a temporary name given to a table or a column.

```
SELECT column1 AS alias1, column2 AS alias2, ...
FROM table_name AS alias3;
```

Querying Multiple Tables

JOIN



The JOIN clause is used to combine rows from two or more tables, based on a related column between them.

```
SELECT column_name(s)
FROM table1
INNER JOIN table2
ON table1.column_name = table2.column_name;
```

LEFT JOIN

The LEFT JOIN clause returns all records from the left table (table1), and the matched records from the right table (table2). The result is NULL from the right side, if there is no match.

```
SELECT column_name(s)
FROM table1
LEFT JOIN table2
ON table1.column_name = table2.column_name;
```

RIGHT JOIN

The RIGHT JOIN clause returns all records from the right table (table2), and the matched records from the left table (table1). The result is NULL from the left side, when there is no match.

```
SELECT column_name(s)
FROM table1
RIGHT JOIN table2
ON table1.column_name = table2.column_name;
```

FULL JOIN

The FULL JOIN clause returns all records when there is a match in either left (table1) or right (table2) table records.

```
SELECT column_name(s)
FROM table1
FULL JOIN table2
ON table1.column_name = table2.column_name;
```

FULL OUTER JOIN

The FULL OUTER JOIN keyword returns all records when there is a match in left (table1) or right (table2) table records.

```
SELECT column_name(s)
FROM table1
FULL OUTER JOIN table2 ON table1.column_name = table2.column_name;
```

FULL INNER JOIN

The FULL INNER JOIN keyword returns all records when there is a match in both left (table1) and right (table2) table records.

```
SELECT column_name(s)
FROM table1
FULL INNER JOIN table2 ON table1.column_name = table2.column_name;
```

UNION

The UNION operator is used to combine the results of two or more SELECT statements.

```
SELECT column_name(s) FROM table1
UNION
SELECT column_name(s) FROM table2;
```

INNER JOIN

The INNER JOIN keyword selects records that have matching values in both tables.

```
SELECT column_name(s)
FROM table1
INNER JOIN table2 ON table1.column_name = table2.column_name;
```

Grouping Data

GROUP BY

The GROUP BY statement groups rows that have the same values into summary rows, like "find the number of citizens in each country".

```
SELECT column_name, aggregate_function(column_name)
FROM table_name
WHERE column_name operator value
GROUP BY column_name;
```

HAVING

The HAVING clause was added to SQL because the WHERE keyword could not be used with aggregate functions.

```
SELECT column_name, aggregate_function(column_name)
FROM table_name
WHERE column_name operator value
GROUP BY column_name
HAVING aggregate_function(column_name) operator value;
```

Aggregate Functions

COUNT

The COUNT() function returns the number of rows that matches a specified criteria.

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

SUM

The SUM() function returns the total sum of a numeric column.

```
SELECT SUM(column_name)
FROM table_name
```

```
WHERE condition;
```

AVG

The AVG() function returns the average value of a numeric column.

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

MIN

The MIN() function returns the smallest value of the selected column.

```
SELECT MIN(column_name)
FROM table_name
WHERE condition;
```

MAX

The MAX() function returns the largest value of the selected column.

```
SELECT MAX(column_name)
FROM table_name
WHERE condition;
```

Subqueries

A subquery is a query within a query. The subquery is executed first, and the main query uses the result of the subquery.

```
SELECT column_name(s)
FROM table_name
WHERE column_name operator ANY
(SELECT column_name FROM table_name WHERE condition);
```

Creating Tables

CREATE TABLE

The CREATE TABLE statement is used to create a new table in a database.

```
CREATE TABLE table_name (
    column1 datatype,
    column2 datatype,
    column3 datatype,
   ....
);
```

ALTER TABLE

The ALTER TABLE statement is used to add, delete, or modify columns in an existing table.

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

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

```
ALTER TABLE table_name
ALTER COLUMN column_name datatype;
```

DROP TABLE

The DROP TABLE statement is used to delete a table.

```
DROP TABLE table_name;
```

Inserting, Updating, and Deleting Data

INSERT INTO

The INSERT INTO statement is used to insert new records in a table.

```
INSERT INTO table_name (column1, column2, column3, ...)
VALUES (value1, value2, value3, ...);
```

UPDATE

The UPDATE statement is used to modify the existing records in a table.

```
UPDATE table_name
SET column1 = value1, column2 = value2, ...
WHERE condition;
```

DELETE

The DELETE statement is used to delete existing records in a table.

```
DELETE FROM table_name WHERE condition;
```

Creating and Deleting Databases

CREATE DATABASE

The CREATE DATABASE statement is used to create a new database.

```
CREATE DATABASE database_name;
```

DROP DATABASE

The DROP DATABASE statement is used to delete a database.

```
DROP DATABASE database_name;
```

Creating and Deleting Indexes

CREATE INDEX

The CREATE INDEX statement is used to create an index (search key) on a table.

```
CREATE INDEX index_name
ON table_name (column1, column2, ...);
```

DROP INDEX

The DROP INDEX statement is used to delete an index.

```
DROP INDEX index_name ON table_name;
```

Creating Views

A view is a virtual table based on the result-set of an SQL statement.

CREATE VIEW

The CREATE VIEW statement is used to create a view.

```
CREATE VIEW view_name AS
SELECT column_name(s)
FROM table_name
WHERE condition;
```

DROP VIEW

The DROP VIEW statement is used to delete a view.

```
DROP VIEW view_name;
```

Case Statements

A CASE statement is used to search for one value and return another value.

```
SELECT column_name, CASE
    WHEN condition THEN 'Result1'
    WHEN condition THEN 'Result2'
    ELSE 'Result3'
END
FROM table_name;
```

Conditional Statements

IF

The IF statement is used to perform different actions based on different conditions.

```
IF condition THEN
    -- code to be executed if condition is true
ELSE
    -- code to be executed if condition is false
END IF;
```

IFNULL

The IFNULL() function returns a replacement value if the original value is NULL.

```
SELECT IFNULL(column_name, 'value')
FROM table_name;
```

COALESCE

The COALESCE() function returns the first non-NULL value in a list.

```
SELECT COALESCE(column_name, 'value')
FROM table_name;
```

Comments

Single Line Comments

Single line comments start with two dashes (--) and end at the end of the line.

```
-- This is a comment
```

Multi Line Comments

Multi line comments start with a slash and an asterisk (*/*) and end with an asterisk and a slash (*/*).

```
/*This is a comment
This is a comment
This is a comment
*/
```

Wildcards

LIKE

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

```
SELECT column_name(s)
FROM table_name
WHERE column_name LIKE pattern;
```

Wildcard Characters

Character	Description
%	The percent sign represents zero, one, or multiple characters
_	The underscore represents a single character