

Querying data

# Comparison operators

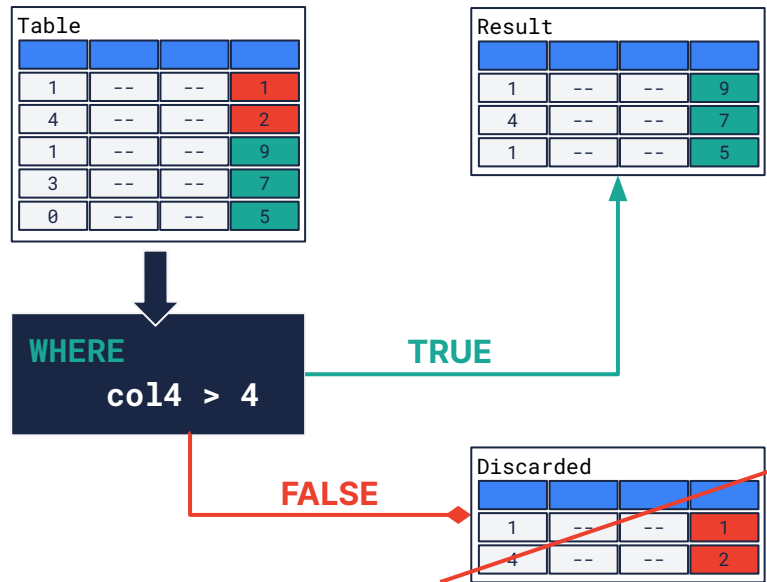
# SQL operators

Using the **WHERE** keyword, we can filter data. **Operators** can be used in conjunction with the **WHERE** clause to specify filter conditions.

## Practical uses:

- Find all countries with a gross domestic product (GDP) of **more than** \$400 billion.
- Find global regions with a population of **less than** 1 million.
- Find the development indexes **after** a certain date **and** for a **specific** country.
- Find elder death rates for sub-Saharan countries during the COVID-19 crisis (**between** 2020 and 2023).

For example, a **greater than** operator (**>**) in SQL only returns rows that have a value larger than 4 in col14.



# Comparison operators

Comparison operators are used to **compare values** and determine the truth or falsity of a condition based on the comparison result.

Examples of comparison operators in SQL include:

- equals (=)
- not equals (<>)
- less than (<)
- greater than (>)
- less than or equal to (<=)
- greater than or equal to (>=)



# Comparison operators

In SQL, comparison operators are commands used with **WHERE** that return the data in a row if the condition is **TRUE**.

=

Checks if **A = B**

Returns the rows where the value **A** in a column **equals** a specified value **B**.

>

Checks if **A > B**

Returns the rows where value **A** in a column is **greater than** a specified value **B**.

>=

Checks if **A ≥ B**

Returns the rows where value **A** in a column is **greater than or equal to** a specified value **B**.

<

Checks if **A < B**

Returns the rows where value **A** in a column is **less than** a specified value **B**.

<=

Checks if **A < B**  
or  
if **A ≤ B**

Returns the rows where value **A** in a column is **less than or equal to** a specified value **B**.

<>

Checks if **A ≠ B**

Returns the rows where value **A** in a column is **not equal** to a specified value **B**.

# Our example database

We will use this placeholder database as an example:

Database (db)								
Table_1			Table_2			Table_3		
col1	col2	col3	col1	col2	col3	col1	col2	col3
x	34	s	car	68	s	x	NULL	s
y	73	m	cat	1	l	x	42	s
z	22	l	pet	7	l	z	NULL	s
w	12	m	cart	56	m	x	7	s

Note: These are bad naming examples, but we use them here to show how queries work. Always try to use more descriptive titles.

# Equal to

The = operator returns the rows where the value in a column **equals** a specified value.

```
SELECT
  *
FROM
  db.Table_2
WHERE
  col1 = "car";
```

Note that **car** is a **string**, so we enclose it in quotes.



col1	col2	col3
car	68	s
cat	1	1
pet	7	1
cart	56	m

col1	col2	col3
car	68	s
cat	1	1
pet	7	1
cart	56	m

**TRUE**

car is equal to car, so the row is **included**.

**FALSE**

cat, pet, and cart are not equal to car, so the rows are **excluded**.

# Not equal to

The operator `!=` or `<>` can be used to return the rows where the value in a column is **not equal to** a specified value. Both `!=` and `<>` serve as alternatives for expressing inequality.

```
SELECT
  *
FROM
  db.Table_2
WHERE
  col1 <> "car";
```

Note that we add a space before and after the operator in SQL code to make it more readable.



col1	col2	col3
car	68	s
cat	1	1
pet	7	1
cart	56	m

col1	col2	col3
car	68	s
cat	1	1
pet	7	1
cart	56	m

**FALSE**

car is equal to car, so the row is **excluded**.

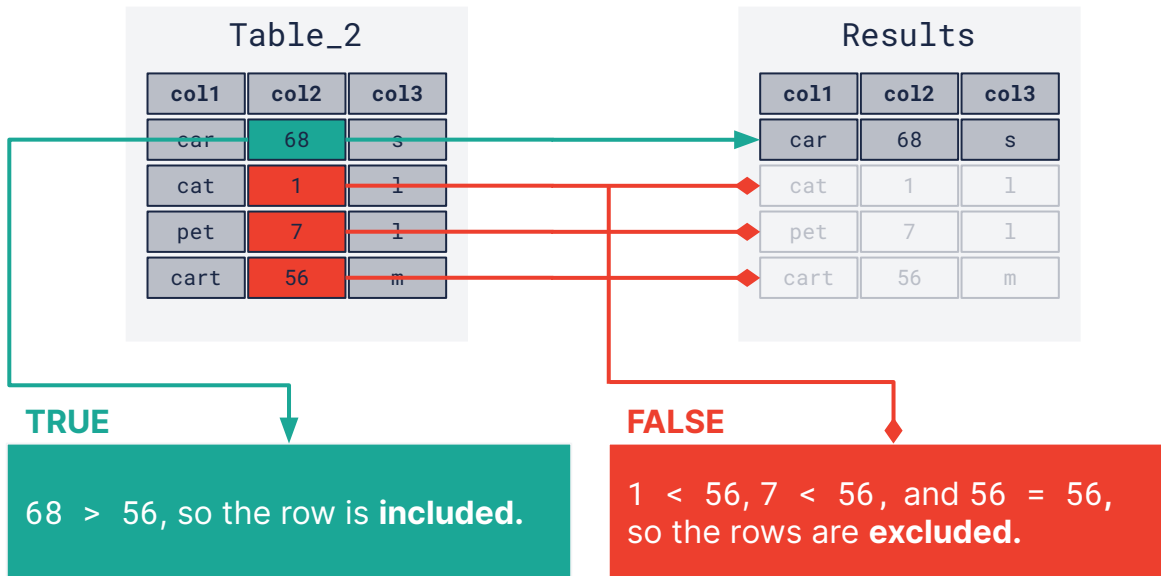
**TRUE**

cat, pet, and cart are **not** equal to car, so the rows are **included**.

# Greater than

The `>` operator returns the rows where the value in a column is **greater than** a specified value.

```
SELECT
  *
FROM
  db.Table_2
WHERE
  col2 > 56;
```





# Less than or equal to

The `<=` operator returns the rows where the value in a column is **less than or equal to** a specified value.

```
SELECT
  *
FROM
  db.Table_2
WHERE
  col2 <= 56;
```

Using `col2 <= 56` includes 56, unlike `<`.

col1	col2	col3
car	68	s
cat	1	1
pet	7	1
cart	56	m

col1	col2	col3
car	68	s
cat	1	1
pet	7	1
cart	56	m

**FALSE**

68 ≥ 56, so the row is **excluded**.

**TRUE**

1 ≤ 56, 7 ≤ 56, and 56 ≤ 56, so the rows are **included**.

# Greater than or equal to

The `>=` operator returns the rows where the value in a column is **greater than or equal to** a specified value.

```
SELECT
  *
FROM
  db.Table_2
WHERE
  col2 >= 56;
```

