📘 Lesson 3: Filtering Data with the WHERE Statement in SQL

🎯 What You'll Learn

In this lesson, you'll learn how to:

- Filter data using specific conditions
- Combine multiple conditions using `AND` / `OR`
- Use comparison operators (e.g., greater than, less than)
- Search for patterns with `LIKE`
- Work with null values
- Match multiple values with `IN`

🔁 Quick Recap

So far, you've:

- Created tables and inserted data (Lesson 1)
- Learned how to display data with `SELECT` and `FROM` (Lesson 2)

Now it's time to **filter** your data using the `WHERE` clause.

🔍 What is the WHERE Clause?

The `WHERE` clause lets you **limit** what rows are returned in your query.
You can specify exactly **what conditions** a row must meet to be included in your results.

Think of it as a filter that helps you zoom in on what's important.

✏️ Basic Filtering

You can use it to filter rows based on things like:

- A specific first name (e.g., only show "Jim")
- A condition (e.g., everyone older than 30)
- Multiple values combined with conditions

You can also check:

- Whether a value **does not equal** something
- Whether a value is **greater than** or **less than** something
- If it is **equal to or greater/less than** something

🔗 Combining Conditions with AND / OR

- Use **AND** to require *both* conditions to be true
  e.g., age must be under 32 **and** gender must be male
- Use **OR** to include rows where *either* condition is true
  e.g., age is under 32 **or** gender is male

This is especially helpful when you're slicing your data down into very specific segments.

🔤 Pattern Matching with LIKE

The `LIKE` keyword helps find **partial matches** in text fields:

- Want names that start with a certain letter? Use `LIKE` with a wildcard.
- Want names that *contain* a certain letter anywhere? Use wildcards before and after the letter.

This is super useful when you:

- Don't know the full value
- Want to search by a pattern

🚫 Working with NULL and NOT NULL

Sometimes, data is missing or empty.

- `NULL` means a value wasn't entered or is unknown.
- You can check if a column is `NULL` or `NOT NULL`.

In practice:

- You'd check for missing names, salaries, or emails.
- While we couldn't demo `NULL` fully here, it's an essential part of data filtering in real-world projects.

✅ Matching Multiple Values with IN

If you want to include **multiple specific values**, instead of repeating the same condition several times, you can use `IN`.

For example:

- Instead of checking if a name is “Jim” or “Michael” or “Pam”, you can use `IN` to match them all in one go.

This makes your queries shorter, clearer, and easier to update later.

📌 Recap

In this lesson, you learned: ✅ How to filter data using the `WHERE` clause
✅ How to use conditions like equals, not equals, greater than, and less than
✅ How to combine filters with `AND` and `OR`
✅ How to use `LIKE` for pattern searches
✅ What `NULL` means and how to check for it
✅ How to match multiple values using `IN`

These tools let you begin answering meaningful questions from your data.

🚀 What’s Next?

Coming up next:

- You’ll learn how to **group and summarize** data using `GROUP BY`
- Then, how to **sort** your results with `ORDER BY`
- After that, you’ll be ready to dive into **intermediate SQL** concepts!