HOW SOFTWARE WORKS · BUILDER · 14 MIN READ

SQL basics: ask your database questions

Read SELECT queries, filter and count, understand INSERT, UPDATE and DELETE, and run AI-written SQL safely.

Pass the check (4 of 5) online to earn the “Query Writer” badge:
https://digitalbuilders757.com/university/study/sql-basics

What SQL is

SQL is the language for asking a database questions and changing its data. Supabase uses Postgres, which speaks SQL. AI will happily write SQL for you, but you should be able to read it, because one wrong line can change every row in a table.

Reading data

SELECT name, email FROM signups WHERE interest = 'coding' ORDER BY created_at DESC LIMIT 10; reads as: show the name and email from the signups table, only rows where interest is coding, newest first, ten at most. COUNT(*) counts rows, GROUP BY interest counts per group, and JOIN combines tables that share an id (for example, orders with the customers who placed them).

Changing data, carefully

- INSERT INTO adds rows; UPDATE ... SET changes them; DELETE FROM removes them.
- UPDATE and DELETE without a WHERE change or delete every row in the table.
- Before running one, run a SELECT with the same WHERE to see exactly which rows it will touch.
- Make sure a backup exists, and try risky changes on a copy or a branch first.
- Schema changes (new tables or columns) belong in migrations, so every environment stays in step.

Run SQL safely

In your app, never build SQL by pasting user input into a string; use parameters or your library's query builder to prevent SQL injection. Row level security protects data when your app queries it, but a database dashboard's SQL editor usually runs with full admin rights, so treat it like a power tool. Ask your AI helper to explain each line before you press run.

Key terms

SQL
The language for asking a database questions and changing it.

Postgres (PostgreSQL)
A trusted open-source SQL database. Supabase is built on it.

Table
One kind of thing in a database, like users or orders.

Row
One item in a table, like one user.

Column
One detail stored for every row, like email.

JOIN (SQL)
Combines rows from two tables that share a value, like orders and the customers who placed them.

Migration
A saved, ordered script that changes the database structure.

Row level security (RLS)
Database rules that decide which rows each user may read or change.

Try it: Your first queries

1. In a practice project's SQL editor, create a small table of sign-ups with five fake rows (ask AI for the INSERT statements).
2. Write a SELECT that shows only one interest, newest first.
3. Count sign-ups per interest with GROUP BY.
4. Write an UPDATE with a WHERE, but first run the matching SELECT to check which rows it would change.

KNOWLEDGE CHECK

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5 questions. Circle one answer for each; 4 or more correct passes. Answers are at the back.

1. What does SELECT name FROM signups WHERE interest = 'coding'; return?

A. Every column of every sign-up, sorted so coding comes first
B. It deletes coding sign-ups
C. The names of sign-ups whose interest is coding
D. The number of tables

2. What does DELETE FROM signups; (with no WHERE) do?

A. Nothing
B. Deletes only the first row, because no WHERE was given
C. Asks for confirmation first, then deletes only the newest row
D. Deletes every row in the signups table

3. You want the number of sign-ups for each interest. Which helps?

A. COUNT(*) with GROUP BY interest
B. ORDER BY
C. LIMIT 1
D. DROP TABLE

4. Why use parameters instead of pasting user input into a SQL string?

A. Parameters make queries prettier and easier to read
B. To prevent SQL injection
C. SQL doesn't allow strings
D. Parameters are required for SELECT only

5. An AI gives you an UPDATE for your live database. What first?

A. Run it straight away
B. Remove the WHERE to make it simpler
C. Read it, run a SELECT with the same WHERE to see which rows change, and make sure there's a backup
D. Paste it into a public forum

Official sites

PostgreSQL tutorial: https://www.postgresql.org/docs/current/tutorial.html
Supabase docs: Row Level Security: https://supabase.com/docs/guides/database/postgres/row-level-security

Last reviewed 2026-11-25. AI tools change fast; check each tool's own site for current features, plans and prices.

ANSWER KEY

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1. C: The names of sign-ups whose interest is coding
SELECT picks columns, FROM picks the table, WHERE filters the rows.

2. D: Deletes every row in the signups table
Without WHERE, DELETE and UPDATE affect every row. Always check the WHERE.

3. A: COUNT(*) with GROUP BY interest
GROUP BY makes one group per interest, and COUNT counts the rows in each.

4. B: To prevent SQL injection
Parameters keep input as data. String-building lets attackers rewrite your query.

5. C: Read it, run a SELECT with the same WHERE to see which rows change, and make sure there's a backup
Checking the affected rows first turns a risky change into a safe one.