

SQL & Database Engineering

Design, query, tune and protect relational databases with PostgreSQL

Databases and SQL · beginner · Live online, instructor-led

This syllabus is a draft awaiting instructor review and may change.

A five-week live course in PostgreSQL: relational modelling, joins, CTEs and window functions, indexing and query plans, transactions, security, backups and migrations.

Length and schedule

30 hours of live teaching, on either schedule:

- Weekday Intensive (Mon–Fri): about 6 weeks before holidays
- Weekend Evening (Sat & Sun evenings): about 8 weeks before holidays

Fees per student, whole course

- Group: Rs. 4,999
- Duo: Rs. 8,499
- One-to-One: Rs. 14,999

Launch fee — GST treatment to be confirmed.

What you will be able to do

- Design a normalised relational schema with keys and constraints
- Write queries with joins, subqueries, CTEs and window functions
- Read a query plan and add the index that fixes a slow query
- Change data safely with transactions and understand isolation levels
- Create views and functions, and grant least-privilege access
- Back up, restore and migrate a database without losing data

Before you start

- Comfortable using a computer, installing software and working with files
- No previous SQL or programming experience required
- A laptop that can run PostgreSQL (Windows, macOS or Linux; 8 GB RAM recommended)

Tools

PostgreSQL 17 or 18, psql, pgAdmin or DBeaver, Git

Syllabus

Module 1: Relational foundations

How relational databases model information, and a working PostgreSQL setup.

1. Why relational databases (2 h)
2. Reading data with SELECT (2 h)
3. Week 1 practice and doubt-clearing (2 h)

Module 2: Modelling and combining data

Design normalised schemas and answer questions that span several tables.

4. Schema design and normalisation (2 h)
5. Constraints and joins (2 h)
6. Aggregation and grouping (2 h)

Module 3: Advanced querying

Subqueries, CTEs and window functions for real reporting questions.

7. Subqueries and common table expressions (2 h)
8. Window functions (2 h)
9. Reporting workshop and doubt-clearing (2 h)

Module 4: Performance and transactions

Make queries fast and keep concurrent changes correct.

10. Indexes and query plans (2 h)
11. Transactions and concurrency (2 h)
12. Tuning lab and doubt-clearing (2 h)

Module 5: Operating a database safely

Views, functions, security, backups and migrations — then the final project.

13. Views, functions and database security (2 h)
14. Backups, restores and migrations (2 h)
15. Final project review and assessment (2 h)

Final project

Design and tune the database for a course-booking service. You receive a written brief and a sample data generator. You design the schema, load the data, answer ten reporting questions with SQL, find and fix two slow queries using EXPLAIN, write a migration that changes the schema without losing data, and document a backup-and-restore drill. Reviewed live in the final week.

Certificate

- At least 80% attendance
- All assignments submitted
- Projects passed
- Final assessment passed (60%)

A ZORK Academy course completion certificate; paying for the course does not by itself earn it.

Next step

Book a free consultation: <https://zorkacademy.online/consultation?course=sql-database-management>

We help you prepare for work; we do not guarantee jobs, placements or salaries.