

Introduction to SQL

Provider: Davidson College (edX)

Completion Date: June 11, 2025

Overview

This course introduced relational databases and SQL fundamentals, using PostgreSQL and pgAdmin as the primary tools. It covered the relational model, database structure, and SQL syntax while reinforcing concepts through hands-on exercises with sample databases. Learners built practical querying skills to retrieve, filter, join, and aggregate data.

Key Topics Covered

- Relational databases: tables, rows, columns, keys, and relationships
- PostgreSQL and pgAdmin setup for cross-platform use
- SQL syntax and clauses: SELECT, FROM, WHERE, ORDER BY
- Filtering with operators, patterns, and logical conditions
- Aggregation: COUNT, SUM, AVG, MIN, MAX with GROUP BY and HAVING
- Joins: INNER, LEFT, RIGHT, FULL OUTER, CROSS, and self-joins
- ERDs and Crow's Foot notation for visualizing relationships
- INSERT statements, handling conflicts, and JSON support
- Data management: restoring databases, backups, and schema design

Practical Applications

- Writing queries to extract, filter, and sort structured data
- Designing ERDs to model real-world data relationships
- Using aggregate functions for reporting and analysis
- Applying joins to combine data across multiple tables
- Managing and restoring databases with PostgreSQL tools

Personal Reflection

This course gave me a solid foundation in SQL and relational database concepts. I developed hands-on skills in querying, joining, and aggregating data that support my work in cybersecurity, compliance, and data analysis.