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PostgreSQL for Beginners

An intensive introduction to relational data and SQL

FA-0745 · 1 day

Data & Analytics · Software Development

Introduction

Learn the foundations of PostgreSQL and SQL through a compact set of guided database exercises. Work with tables, sample records, filters, aggregates and relationships, then compare joins and query set operations.

This intensive one-day introduction provides a starting point for common tasks and further study. More advanced joins, subqueries and functions are introduced with selected examples rather than comprehensive coverage.

Learning outcomes

- Create a sample database and create, alter or drop lab tables.
- Insert, update, delete and retrieve sample data.
- Filter, order and limit query results.
- Use basic aggregate functions, grouping and HAVING.
- Explain common relationships and compare selected join types.
- Distinguish UNION/INTERSECT from joins and recognise simple subqueries/functions.

Prerequisites

- Basic operating-system and file-system skills.
- A currently supported PostgreSQL release and compatible pgAdmin, or access to the prepared lab.
- Authorised database access, appropriate local storage permissions and a browser supported by the selected pgAdmin deployment.

- Only the database/application endpoints required by the lab need to be reachable; no blanket opening of unrelated ports.

Training outline

1. Day 1 — PostgreSQL and SQL Foundations

Relational basics

- RDBMS
- Db Structure
- Table structure
- Data types
- SQL

- Create a sample database and table; review data types and table changes.

Data operations and queries

- CRUD
- Select
- Where
- Logical Operators
- Inclusion
- Negation
- Comparisons
- Range
- Ordering
- Aliases
- Concatenations

- Use LIMIT with an appropriate ORDER BY when a predictable subset is required.

Aggregations

- Count
- Sum
- Min and Max

- Average
- Grouping
- Having
- Arithmetics

Relationships and joins

- One to One
- One to Many
- Many to Many

Joins

- Inner Joins
- Left Joins
- Right Joins
- Full Joins

Set operations and further query techniques

- UNION and INTERSECT combine compatible query result sets; they are not join types.
- Introduce simple subqueries and functions through supplied examples.
- Review a short data/query exercise and identify topics for further practice.

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