

SQL training: the fundamentals

3 days (21 hours)

Presentation

SQL (Structured Query Language) is one of the first computer languages needed to manipulate relational databases.

This standardized computer language supports not only the storage, modification and deletion of data, but also the creation of queries, transactions and data access management.

SQL is used in a **relational database management system** (RDBMS) or in a relational data flow management system (RDSMS).

Our SQL with MySQL training course will teach you the main concepts of DBMS, how to code in SQL and how to extract and query data from multiple tables. You'll also learn about the various commands you can use to modify your database and the main functions of the language.

At the end of this course, you'll be able to operate your databases using the main features of the SQL language.

Objectives

- Master the main concepts of RDBMS (Relational Database Management System) and relational algebra used with SQL language
- Discover the SQL environment
- Create SQL queries to extract data using different criteria
- Manipulate data in a database using SQL queries
- Extract information from different tables
- Assimilate standard SQL language functions
- How to install and configure MySQL

Target audience

- Developers
- Architects
- Database administrators
- Database server operators

Prerequisites

- Computer skills
- Notions of data management in the company

Our SQL training program: the fundamentals

Introduction to SQL

- What is SQL?
- Microsoft SQL Server, MySQL and Oracle
- What is a relational database?
- The relationship between a relational database and SQL
- Primary and foreign keys
- Data types
- NULL values

The logic behind SQL

- Getting to grips with a DBMS
- Relational algebra and SQL
- Operators on a single table
 - Screening and selection
- Multi-table operators
 - Union, difference and Cartesian product
- Complementary operators
 - Joint, intersection and division

Getting started with SQL

- Creating tables in SQL
- Data types
- The different types of base
- How do I modify a table definition?
- Delete
- Views, sequences, indexes and synonyms

SQL environment

- Assimilate standard functions
- Overview of the different systems :
 - Oracle Developer
 - DBA Management Studio for SQL Server
 - PHPMyAdmin for MySQL
 - PostgreSQL graphical tool
- MySQL installation
- Tool configuration
- Detailed interface presentation

Data extraction

- What is a request?
- Data extraction
- Handling data in a database with SQL
- Extract information from multiple tables
- No value

SQL queries

- Writing SQL queries
 - SELECT
 - SELECT DISTINCT
 - WHERE
 - AS
 - COUNT
 - LIMIT
 - ORDER BY
 - LIKE
 - IN
 - BETWEEN
- Aggregation functions
 - GROUP BY
 - HAVING
- Insertion requests
- Update request
- Delete request

Joints

- Link tables using JOIN
- Linking tables with key columns
- Querying multiple tables using a join
- Understanding the different joins
 - LEFT JOIN and RIGHT JOIN
 - INNER JOIN
 - FULL JOIN
 - NATURAL JOIN
- Using NULL to find rows with missing values

- Understanding the three types of table relationships
 - One-to-one relationship
 - One-to-many relationship
 - Many-to-many relationship
- Selecting specific columns in a join
- Simplify JOIN syntax with table aliases

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.