

Advanced SQL training

2 days (14 hours)

Presentation

The Advanced SQL training course will enable you to develop your skills in the advanced use of the SQL language for the efficient manipulation of relational databases.

Thanks to our training, you'll be able to solve complex problems, optimize query performance and automate routine tasks.

In this course, we'll guide you through the essential concepts of Advanced SQL and provide you with the knowledge you need to master this powerful tool.

You'll learn how to optimize your SQL queries, manage indexes efficiently and manipulate data in an advanced way. In addition, you'll explore advanced SQL features such as analytical functions, text retrieval and SQL programming.

Objectives

- Analyze and understand SQL query execution plans
- Advanced index management: create, manage and use indexes to improve query performance
- Master advanced data manipulation

Target audience

- Developers
- Architects
- Database administrators
- Database server operators

Prerequisites

Have used SQL in a professional environment or have taken our [SQL: Fundamentals course](#).

Advanced SQL training program

Query optimization

- Analyze and understand SQL query execution plans
- Use of profiling tools
- Query optimization techniques
 - Indexing
 - Statistics
 - The hints
- Use sub-queries and nested queries to improve performance.
- Using CTE (Common Table Expressions)
- Query optimization with windowing functions
 - Window Functions

Advanced index management

- Understanding the different types of index
 - Clustered
 - Non-clustered
 - Full-text...
- Index creation and management
- Using covering and filtered indexes
- Advanced index management strategies
 - Removing unnecessary indexes
 - Reorganizing fragmented indexes

Advanced data handling

- Transactions
- Locks
- Using triggers
- Using stored procedures and functions
- Introduction to distributed transactions and consistency management in a distributed environment

Advanced SQL features

- Analytical functions
- Handling functions
 - Character strings
 - Dates
 - Data conversions

- The MERGE clause
- Advanced text and geospatial search functions

Security and user management

- Manage user access rights and privileges
- Figures
- Setting up authentication and auditing systems
- Manage user roles and hierarchies
- Advanced security features offered by database management systems

Companies concerned

This 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.