Course : SQL Server, development

Versions 2022 to 2012
Practical course - 4d - 28h00 - Ref. SED
Price : 2760 CHF E.T.

Since SQL is only a data language, combining it with programming makes it even more powerful. You will learn how to develop applications using SQL Server. You'll manipulate database objects, optimize rendering times and carry out routine developer maintenance operations.

🎯 Teaching objectives

At the end of the training, the participant will be able to:

- ✅ Create a database, its tables and associated constraints
- ✅ Update database data
- ✅ Create extraction queries and optimize their execution time using query plans
- ✅ Create functions, stored procedures and triggers to process data
- ✅ Perform routine backup operations and maintain indexes
- ✅ Import and export data from a database

Intended audience
Developers, project managers.

Prerequisites
Connaissances de base en programmation. Notions sur les bases de données et le langage SQL.

Practical details
Hands-on work
Discussions, experience sharing, demonstrations, tutorials and case studies.
Teaching methods
Active pedagogy based on examples, demonstrations, experience sharing, case studies and assessment of learning throughout the course.

PARTICIPANTS
Developers, project managers.

PREREQUISITES
Connaissances de base en programmation. Notions sur les bases de données et le langage SQL.

TRAINER QUALIFICATIONS
The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS
The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

Course schedule

(1) Database construction

- Physical storage with files and file groups.
- SQL schemas or logical storage.
- Good use of different types of data.
- Create tables. Setting up constraints.
- Get a DDL backscript.

Hands-on work
Exchanges. Create database tables and define associated constraints.

(2) Data extraction queries

- Set operators.
- Internal and external joints. Typologies.
- Subqueries.
- Use "Common Table Expression" (CTE) and recursive queries.
- Window functions and OVER clause (scheduling, aggregation and RANGE/ROWS windowing).
- Special operators (APPLY, PIVOT...).
- Creating views.

Hands-on work
Handle extraction queries with different types of joins. Present data using aggregate functions. Create views.

(3) Data update

- Simple updates (INSERT, UPDATE and DELETE).
- The SQL MERGE command.
- Update with subqueries.
- BULK INSERT and BCP for file loading and data export.

Hands-on work
Perform database updating operations. Import and export data.

(4) Transact SQL coding

- Elements of the Transact SQL language. Notion of Batch.
- Create scalar and table functions.
- Transaction presentation.
- Trigger programming.
- Develop stored procedures.

Hands-on work
Create customizable functions and views. Create stored procedures managing transactions. Automate processes using triggers.

(5) Optimizing query execution

- Visualization of query plans.
- Metric (IO TIME) and runtime comparison.
- Introducing indexes. What should be indexed?
- Optimizer evolutions with SQL Server 2017 and 2019.

Hands-on work
Compare execution times for indexing scenarios. Use query plans.

(6) Routine maintenance for the developer

- Data backup. Restore scenarios.
- Maintain indexes and statistics.
- Check the physical integrity of a base and repair it.

Hands-on work
Perform backups and restores. Draw up an index maintenance plan.

Dates and locations

REMOTE CLASS
2026 : 31 Mar., 23 June, 6 Oct., 15 Dec.