Querying SQL Databases using T-SQL Training

Duration: **2 Day**

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Overview

This **practical, instructor-led training** provides a comprehensive introduction to the **Transact-SQL (T-SQL)** language — the foundation of querying Microsoft SQL Server databases.
Throughout the course, you'll learn how to **retrieve, filter, sort, and analyze data** from multiple tables and gain hands-on experience using **SQL Server Management Studio (SSMS)** to write efficient queries.

By the end of this course, you'll have the core T-SQL skills required to extract valuable insights from your data and prepare for more advanced SQL training.

No prior SQL experience is required.

Prerequisites

Who Should Attend

This course is designed for:

- IT professionals working with Microsoft SQL Server 2005–2016.
- Non-technical "power users" seeking to understand how to query and analyze data.
- Anyone who needs to extract, report, or interpret information using SQL Server.

Note: For virtual participants, a second monitor (19" minimum, 1280x1024 resolution) is required for lab work.

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What You Will Learn

By the end of this training, you will have gained knowledge and skills in the following areas:

- Access and navigate SQL Server Management Studio (SSMS).
- Write simple to complex **SELECT** queries.
- Retrieve data from multiple tables using **JOIN** clauses.
- Apply **filters** using the **WHERE** clause and logical operators.
- Sort and organize data using **ORDER BY** and **TOP**.
- Summarize data with **GROUP BY**, **HAVING**, and aggregate functions.
- Create and use **Views** and **Stored Procedures**.
- Utilize text, date, and conversion **functions** for data manipulation.

Outline

Module 1: Introduction to T-SQL

- Overview of Relational Database Management Systems (RDBMS)
- Introduction to Microsoft SQL Server
- Getting started with SQL Server Management Studio (SSMS)
- Query Editor basics

Lab: Familiarizing yourself with SSMS and writing your first query

Module 2: Retrieving Data

- Writing basic **SELECT** statements
- Using expressions in query results

Lab: Selecting data and using expressions

Module 3: Filtering Rows

- Using the **WHERE** clause to filter data
- Applying equality, logical, string, and NULL comparisons

Lab: Practicing different types of filters

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Module 4: Sorting Returned Rows

- Managing output order with **ORDER BY**
- Sorting with expressions
- Using **DISTINCT** and **TOP** for unique and limited results

Lab: Sorting and limiting query results

Module 5: Grouping and Aggregating Data

- Using **aggregate functions** (SUM, AVG, COUNT, etc.)
- Grouping results with **GROUP BY**
- Filtering groups with **HAVING**

Lab: Aggregating and grouping data

Module 6: Using Multiple Tables

- Joining tables using **INNER**, **OUTER**, and **CROSS JOIN**
- Combining result sets with **UNION, INTERSECT, EXCEPT**

Lab: Joining and merging data from multiple tables

Module 7: Using Views and Stored Procedures

- Understanding pre-written queries and database objects
- Creating and executing **views** and **stored procedures**

Lab: Working with stored queries

Module 8: Common Functions

- Using **text**, **date**, and **NULL** functions
- Formatting and converting data types

Lab: Applying SQL functions in queries

Appendix (Optional): Modifying Data

- Introduction to **INSERT**, **UPDATE**, and **DELETE** statements (time permitting)