

# Querying Microsoft SQL Server with Transact-SQL

**Duration: 40 Hours (5 Days)**

## Overview

The "Querying Microsoft SQL Server with Transact-SQL" course is designed to introduce learners to the essentials of Querying and modifying data in Microsoft SQL Server using Transact-SQL (T-SQL). This course covers a broad range of topics, starting with the basics of T-SQL syntax and progressing through Complex querying techniques, Data types, and Functions. Learners will gain proficiency in crafting queries using `SELECT`, Filtering data with `WHERE`, and Sorting results. They will explore the intricacies of Joining tables, Implementing subqueries, Aggregating data, and utilizing window Functions. The course also dives into Data manipulation with `INSERT`, `UPDATE`, and `DELETE` statements, as well as the use of SQL Server Functions. Further, participants will study advanced topics like Error handling, Transactions, and the use of Programming constructs in T-SQL. SQL Server Transact-SQL training is comprehensive, equipping learners with the skills to write efficient and powerful database queries. By the end of the course, students will possess the knowledge necessary for effective Transact-SQL training and be able to apply T-SQL techniques to real-world database management scenarios.

## Audience Profile

The Querying Microsoft SQL Server with Transact-SQL course is designed for IT professionals seeking to master T-SQL for SQL Server.

- Database Administrators
- Database Developers
- Business Intelligence Professionals
- Data Analysts
- SQL Server Report Writers
- IT Professionals seeking to enhance their SQL querying skills
- System Engineers who manage and maintain SQL Server databases
- Aspiring SQL Server Data Professionals
- Technical Consultants who provide database solutions
- Students studying database management or computer science related courses

## Course Syllabus

### Module: 1

- Introduction to Transact-SQL
- What is Transact-SQL
- The SELECT statement
- The WHERE clause
- Sorting results
- Calculations
- CASE expressions

### Module: 2

- Joining tables with Transact-SQL

- The JOIN clause
- Inner joins
- Outer joins
- Self-joins and cross joins

## Module: 3

- Filtering and sorting results
- Implement the ORDER BY clause
- Filter data with the WHERE clause
- Limit the number of rows returned by a query
- Implement NULL logic

## Module: 4

- SQL Server data types
- Understand data types?
- Implement string data types
- Implement temporal data types

## Module: 5

- Inserting, updating and deleting data
- Insert new records
- Update existing records
- Delete data

## Module: 6

- Using SQL Server functions with Transact-SQL
- Understand function types in SQL Server
- Convert data using functions
- Implement logical functions
- Work with NULL data using functions

## Module : 7

- Aggregating data with Transact-SQL
- Implement aggregation in SQL Server
- Group records in SQL Server
- Filter aggregated data

## Module: 8

- Implement subqueries with Transact-SQL
- Implement scalar and multi-valued sub-queries
- Implement correlated subqueries
- Implement existence checks with subqueries

## Module: 9

- Create queries that use table expressions
- Create views

- Create table-valued functions
- Implement derived tables
- Implement common table expressions

## Module: 10

- Use UNION, INTERSECT, EXCEPT and APPLY on multiple sets of data
- Write queries with the UNION operator
- Write queries with the INTERSECT and EXCEPT operators
- Write queries with the APPLY operator

## Module: 11

- Implement window functions in queries
- Understand window functions
- Implement window functions

## Module: 12

- Use PIVOT and grouping sets in queries
- Implement PIVOT in queries
- Implement grouping sets in queries

## Module: 13

- Use stored procedures in queries
- Query data with stored procedures
- Interact with stored procedures using input and output parameters
- Write simple stored procedures