

## COURSE: DP-080: Querying Data with Microsoft Transact-SQL

This course will teach the basics of Microsoft's dialect of the standard SQL language: Transact-SQL. Topics include both querying and modifying data in relational databases that are hosted in Microsoft SQL Server-based database systems, including: Microsoft SQL Server, Azure SQL Database and, Azure Synapse Analytics.

### Summary

<i>Duration:</i>	<i>4 days (all day)</i>
<i>Level:</i>	<i>200</i>
<i>Delivery method:</i>	<i>Virtual Instructor-led class</i>
<i>Language:</i>	<i>English or Bulgarian</i>

\* The difficulty level is consistent with the widely accepted scale of technical difficulty of training on Microsoft Corp

**Important notice:** This course is originally a 2 day official course from Microsoft. SQL Master Academy has added 2 days extra with content and one extra module, to meet the needs of students that require a full-fledged training on Transact-SQL.

### AUDIENCE:

This course can be valuable for anyone who needs to write basic SQL or Transact-SQL queries. This includes anyone working with data as a data analyst, a data engineer, a data scientist, a database administrator or a database developer. It can also be useful for others peripherally involved with data, or wanting to learn more about working with data such as solution architects, students and technology managers.

### AFTER THE TRAINING ATTENDEES WILL BE ABLE TO:

- Use SQL Server query tools
- Write SELECT statements to retrieve columns from one or more tables
- Sort and filter selected data
- Use built-in functions to returned data values
- Create groups of data and aggregate the results
- Modify data with Transact-SQL using INSERT, UPDATE, DELETE and MERGE
- Using programming modules to enclose data modifications in a programming object

### TOPICS:

#### Module 1: Getting Started with Transact-SQL

- Using a query tool to write and execute queries in Transact-SQL
- Understand the basic concepts of relational database and the T-SQL language
- Write SELECT statements to retrieve data from a relational database table
- Understand basic datatypes and how they are used
- Understand the basics of NULL values

## Module 2: Sorting and Filtering Query Results

- Use ORDER BY to sort results from a T-SQL SELECT statement
- Add a TOP clause to limit the ordered rows returned
- Page the sorted data with OFFSET-FET
- Write WHERE clauses to filter the rows returned
- Use DISTINCT to eliminate duplicate rows in the results

## Module 3: Using Joins and Subqueries

- Write queries accessing data from multiple tables using JOIN operations
- Understand the differences between type of JOIN operations: INNER JOIN, OUTER JOIN, CROSS JOIN
- Understand how to join a table to itself with a self-join
- Write subqueries within a SELECT statement
- Understand the difference between scalar and multi-valued subqueries
- Understand the difference between correlated and self-contained subqueries

## Module 4: Using Built-in Functions

- Write queries using scalar functions
- Write queries using aggregate functions
- Use GROUP BY to combine data into groups based on a common column value
- Understand how HAVING is used to filter groups of rows

## Module 5: Modifying Data

- Insert data into an existing table
- Specify that a column should be automatically populating with an IDENTITY or a SEQUENCE value
- Modify data using the UPDATE statement
- Delete data using the DELETE statement
- Modify data using MERGE to synchronize two tables

## Module 6 (extra): Basics of T-SQL Programming Objects – Views, Stored Procedures, Triggers, Functions

The module teaches the basics of using programming modules to enclose the code in. It describes the syntax and the usage of views and functions which could be helpful when reading data, and stored procedures and triggers for enclosing data modifications in a programming object.