

# Querying Data with Microsoft Transact-SQL (Fundamentals)

Course DP-080

2 Days

Instructor-led, Hands on

## Course Information

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.

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.

## At Course Completion

Upon successful completion of this course, students 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.

## Prerequisites

- Working knowledge of relational databases.
- Basic knowledge of the Microsoft Windows operating system and its core functionality.

## Course Outline

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

In this module you will learn about the basics of the Transact-SQL (T-SQL) language, as well as general properties and terminology of relational databases. This module will also introduce the basic SELECT statement for retrieving data from a table.

#### Lessons

- Introduction to Transact-SQL
- Using the SELECT statement

Lab : Get started with SQL Server query tools and writing queries in T-SQL

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## **Module 2:   Sorting and Filtering Query Results**

In the module you will learn how to control what data is returned, the order in which it is returned. You will use the ORDER BY clause, with and without paging. You will learn about various kinds of filters that can be used in the WHERE clause to control which data rows are returned. You will also learn how to manage the results by removing duplicates with DISTINCT.

Lessons

- Sorting query results
- Filtering the data

Lab : Sort and filter data returned by SELECT queries

## **Module 3:   Using Joins and Subqueries**

In this module, you will explore T-SQL queries which access data from multiple tables with various kinds of JOIN operations and simple subqueries.

Lessons

- Using JOIN operations
- Using subqueries

Lab : Write queries with JOIN operations

Lab : Write SELECT statements using subqueries

## **Module 4:   Using Built-in Functions**

In the module you will explore the use of built-in functions for returning computed or special values in the SELECT list or in the WHERE clause. Functions include math functions, string functions and system functions. There are other types of functions that will be mentioned, but not discussed in detail. You will also learn how to combine rows of data into a single group, providing summary information for the group such as SUM, MIN or MAX.

Lessons

- Getting started with scalar functions
- Grouping aggregated results

Lab : Built-in functions

## **Module 5: Modifying Data**

In this module, you will learn the T-SQL statements for modifying table data including UPDATE, DELETE and MERGE as well as various options for INSERT including creating a new table with data from an existing table. You will also look at how to have the system automatically supply values for columns as the data is inserted.

### Lessons

- Inserting data into tables
- Modifying and deleting data

Lab : Modify data