

Price: Call
Length: 35 Hours (5 days)

Introduction: The main purpose of this five day instructor-led course is to give students a good understanding of the Transact-SQL language which is used by all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence. The course will very likely be well attended by SQL power users who are not necessarily database-focused; namely, report writers, business analysts and client application developers.

This course is designed to introduce students to Transact-SQL. It is designed in such a way that the first three days can be taught as a course to students requiring the knowledge for other courses in the SQL Server curriculum. Days 4 & 5 teach the remaining skills required to take exam 70-761.

Target Audience: This course is intended for Database Administrators, Database Developers, and Business Intelligence professionals. The course will very likely be well attended by SQL power users who are not necessarily database-focused or plan on taking the exam; namely, report writers, business analysts and client application developers.

Prerequisites:

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

Objectives:

At the end of the course, students will be able to:

- Describe key capabilities and components of SQL Server 2016.
- Describe T-SQL, sets, and predicate logic.
- Write a single table SELECT statement.
- Write a multi-table SELECT statement.
- Write SELECT statements with filtering and sorting.
- Describe how SQL Server uses data types.
- Write DML statements.
- Write queries that use built-in functions.
- Write queries that aggregate data.
- Write subqueries.
- Create and implement views and table-valued functions.
- Use set operators to combine query results.
- Write queries that use window ranking, offset, and aggregate functions.
- Transform data by implementing pivot, unpivot, rollup and cube.
- Create and implement stored procedures.
- Add programming constructs such as variables, conditions, and loops to T-SQL code.

Course Outline

I. Introduction to Microsoft SQL Server

- A. The Basic Architecture of SQL Server
- B. SQL Server Editions and Versions
- C. Getting Started with SQL Server Management Studio

II. Introduction to Transact-SQL Querying

- A. Introducing T-SQL
- B. Understanding Sets
- C. Understanding Predicate Logic
- D. Understanding the Logical Order of Operations in SELECT statements

III. Writing SELECT Queries

- A. Writing Simple SELECT Statements
- B. Eliminating Duplicates with DISTINCT
- C. Using Column and Table Aliases
- D. Writing Simple CASE Expressions

IV. Querying Multiple Tables

- A. Understanding Joins
- B. Querying with Inner Joins
- C. Querying with Outer Joins
- D. Querying with Cross Joins and Self Joins

V. Sorting and Filtering Data

- A. Sorting Data
- B. Filtering Data with Predicates
- C. Filtering with the TOP and OFFSET-FETCH
- D. Working with Unknown Values

VI. Working with SQL Server Data Types

- A. Introducing SQL Server Data Types
- B. Working with Character Data
- C. Working with Date and Time Data

VII. Using DML to Modify Data

- A. Inserting Data
- B. Modifying and Deleting Data

VIII. Using Built-In Functions

- A. Writing Queries with Built-In Functions
- B. Using Conversion Functions

VIII. Using Built-In Functions (continued)

- C. Using Logical Functions
- D. Using Functions to Work with NULL

IX. Grouping and Aggregating Data

- A. Using Aggregate Functions
- B. Using the GROUP BY Clause
- C. Filtering Groups with HAVING

X. Using Subqueries

- A. Writing Self-Contained Subqueries
- B. Writing Correlated Subqueries
- C. Using the EXISTS Predicate with Subqueries

XI. Using Table Expressions

- A. Using Views
- B. Using Inline Table-Valued Functions
- C. Using Derived Tables
- D. Using Common Table Functions

XII. Using SET Operators

- A. Writing Queries with the UNION Operator
- B. Using EXCEPT and INTERSECT
- C. Using APPLY

XIII. Using Windows Ranking, Offset, and Aggregate Functions

- A. Creating Windows with OVER
- B. Exploring Windows Functions

XIV. Pivoting and Grouping Sets

- A. Writing Queries with PIVOT and UNPIVOT
- B. Working with Grouping Sets

XV. Executing Stored Procedures

- A. Querying Data with Stored Procedures
- B. Passing Parameters to Stored Procedures
- C. Creating Simple Stored Procedures
- D. Working with Dynamic SQL

XVI. Programming with T-SQL

- A. T-SQL Programming Elements
- B. Controlling Program Flow