20461: Querying Microsoft® SQL Server® 2014

Duration: 5 Days
Method: Instructor-Led Training (ILT) | Live Online Training

Course Description

This course provides participants with the technical skills required to write basic Transact-SQL queries for Microsoft SQL Server 2014. This course is the foundation for all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence.

NOTE: This course is designed for persons who are interested in learning SQL Server 2012 or SQL Server 2014. It covers the new features in SQL Server 2014, but also the important capabilities across the SQL Server data platform.

Target Audience

This course is intended for professionals such as:

- Database Administrators
- Database Developers
- Business Intelligence (BI) Professionals
- SQL Power Users who are not necessarily database-focused such as report writers, business analysts and client application developers.

Prerequisites

To attend this course, candidates must have:

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

Course Objectives

Upon successful completion of this course, attendees will be able to:

- Describe the basic architecture and concepts of Microsoft SQL Server 2014.
- Understand the similarities and differences between Transact-SQL and other computer languages.
- Write SELECT queries.
- Query multiple tables.
- Sort and filter data.

Course Objectives *Continued*

- Describe the use of data types in SQL Server.
- Modify data using Transact-SQL.
- Use built-in functions.
- Group and aggregate data.
- Use subqueries.
- Use table expressions.
- Use set operators.
- Use window ranking, offset, and aggregate functions.
- Implement pivoting and grouping sets.
- Execute stored procedures.
- Program with T-SQL.
- Implement error handling.
- Implement transactions.

Course Topics

Module 1: Introduction to Microsoft SQL Server 2014

- The Basic Architecture of SQL Server
- SQL Server Editions and Versions
- Getting Started with SQL Server Management Studio

Module 2: Introduction to T-SQL Querying

- Introducing T-SQL
- Understanding Sets
- Understanding Predicate Logic
- Understanding the Logical Order of Operations in SELECT Statements

Module 3: Writing SELECT Queries

- Writing Simple SELECT Statements
- Eliminate Duplicates with DISTINCT
- Using Column and Table Aliases
- Write Simple CASE Expressions

Module 4: Querying Multiple Tables

- Understanding Joins
- Querying with Inner Joins
- Querying with Outer Joins
- Querying with Cross Joins and Self Joins

Module 5: Sorting and Filtering Data

- Sorting Data
- Filtering Data with Predicates
- Filtering with the TOP and OFFSET-FETCH
- Working with Unknown Values

Module 6: Working with SQL Server 2014 Data Types

- Introducing SQL Server 2014 Data Types
- Working with Character Data
- Working with Date and Time Data

Course Topics *Continued*

Module 7: Using DML to Modify Data
- Inserting Data
- Modifying and Deleting Data

Module 8: Using Built-In Functions
- Writing Queries with Built-In Functions
- Using Conversion Functions
- Using Logical Functions
- Using Functions to Work with NULL

Module 9: Grouping and Aggregating Data
- Using Aggregate Functions
- Using the GROUP BY Clause
- Filtering Groups with HAVING

Module 10: Using Subqueries
- Writing Self-Contained Subqueries
- Writing Correlated Subqueries
- Using the EXISTS Predicate with Subqueries

Module 11: Using Table Expressions
- Using Views
- Using Inline Table-Valued Functions
- Using Derived Tables
- Using Common Table Expressions

Module 12: Using Set Operators
- Writing Queries with the UNION Operator
- Using EXCEPT and INTERSECT
- Using APPLY

Module 13: Using Window Ranking, Offset, and Aggregate Functions
- Creating Windows with OVER
- Exploring Window Functions

Module 14: Pivoting and Grouping Sets
- Writing Queries with PIVOT and UNPIVOT
- Working with Grouping Sets

Module 15: Querying Data with Stored Procedures
- Writing Queries with PIVOT and UNPIVOT
- Passing Parameters to Stored Procedures
- Creating Simple Stored Procedures
- Working with Dynamic SQL

Module 16: Programming with T-SQL
- T-SQL Programming Elements
- Controlling Program Flow

Module 17: Implementing Error Handling
- Using TRY / CATCH Blocks
- Working with Error Information

Module 18: Implementing Transactions
- Transactions and the Database Engine
- Controlling Transactions

Appendix 1: Improving Query Performance
- Factors in Query Performance
- Displaying Query Performance Data

Appendix 2: Querying SQL Server Metadata
- Querying System Catalog Views and Functions
- Executing System Stored Procedures
- Querying Dynamic Management Objects

LABS INCLUDED