

Querying Data with Transact-SQL

Duration: 5 Days

Description

This course is designed to introduce students to Transact-SQL. You will learn about: T-SQL elements, writing SQL queries, querying JOINS, sorting and filtering data, SQL Server 2016 data types, T-SQL DML, built-in functions, grouping and aggregating data, subqueries, and set operators.

Delegates will learn how 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.

Outline

Introduction to Microsoft SQL Server 2016

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

Introduction to T-SQL Querying

- Introducing T-SQL
- Sets
- Predicate Logic
- Logical Order of Operations in SELECT statements

Writing SELECT Queries

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

Querying Multiple Tables

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

Sorting and Filtering Data

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

Working with SQL Server 2016 Data Types

- Introducing SQL Server 2016 Data Types
- Working with Character Data
- Working with Date and Time Data

Using DML to Modify Data

- Adding Data to Tables
- Modifying and Removing Data
- Generating automatic column values

Using Built-In Functions

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

Grouping and Aggregating Data

- Using Aggregate Functions
- Using the GROUP BY Clause
- Filtering Groups with HAVING

Using Subqueries

- Writing Self-Contained Subqueries
- Writing Correlated Subqueries
- Using the EXISTS Predicate with Subqueries

Using Table Expressions

- Using Views
- Using Inline Table-Valued Functions
- Using Derived Tables
- Using Common Table Expressions

Using Set Operators

- Writing Queries with the UNION Operator
- Using EXCEPT and INTERSECT
- Using APPLY

Using Windows Ranking, Offset, and Aggregate Functions

- Creating Windows with OVER
- Exploring Window Functions

Pivoting and Grouping Sets

- Writing Queries with PIVOT and UNPIVOT
- Working with Grouping Sets

Executing Stored Procedures

- Querying Data with Stored Procedures
- Passing Parameters to Stored procedures
- Creating Simple Stored Procedures
- Working with Dynamic SQL

Programming with T-SQL

- T-SQL Programming Elements
- Controlling Program Flow

Implementing Error Handling

- Implementing T-SQL Error Handling
- Implementing Structured Exception Handling

Implementing Transactions

- Transactions and the Database Engines
- Controlling Transactions

Prerequisites

There are no prerequisites for this course.