

Course Outline | Microsoft SQL Server 2014 Introduction to Querying

2 day(s)

Overview

This 2 day course is intended for students who are new to querying data in Microsoft SQL Server 2014 databases, and need a concise introduction to the subject. It would also prove beneficial to delegates wanting to refresh their existing querying skills. You will find that this is a comprehensive course for this level, with plenty of illustrated examples and augmented with practical hands-on exercises.

Objectives

- Use SQL Server Management Studio for Querying Purposes
- Understand the Basic Structure of SQL Databases
- Understand the Components of Transact-SQL (T-SQL)
- Retrieve Data from Tables Using the SELECT Statement
- Filter Data Using the WHERE Clause
- Sort Data Using the ORDER BY Clause
- Query Data from Multiple Tables by Using Joins
- Summarize and Group Data Using Aggregate Functions
- Combine and Limit Result Sets
- Work with Simple Nested Subqueries
- Work with Correlated Subqueries
- Add Records to a Table Using the INSERT Statement
- Remove Records from a Table Using the DELETE Statement
- Modify Existing Records Using the UPDATE Statement

Prerequisites

Students should ideally be familiar with basic programming concepts. They should also understand the fundamental design of relational databases including, but not restricted to, the purpose of primary and foreign keys, entity relationships, and data normalization.

Course Outline

1. Introduction to SQL Server Databases

- Objects in a SQL Server Database
- Database Diagrams
- Components of a SQL Server Database Table

2. Introduction to SQL and Transact-SQL

- ANSI-SQL and Transact-SQL (T-SQL)
- Categories of SQL Statements
- T-SQL Scripts
- Adding Comments to T-SQL Code

3. Using the SELECT Statement to Retrieve Data

- Examine the Basic Syntax of the SELECT Statement
- Using String Literals and Expressions
- Retrieving Columns of Data from a Table
- Using Aliases for Column Names

4. Filtering Rows of Data with the WHERE Clause

- How to Use the WHERE Clause
- Overview of Operators
- Filter Data by Using Comparison Operators
- Filter Data by Using String Comparisons
- Filter Data by Using Logical Operators

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- Filter Data Using a Range of Values
- Filter Data Using a List of Values
- Working with NULL Values

5. Formatting and Sorting Result Sets

- Sorting Data Using the ORDER BY Clause
- Eliminating Duplicate Rows with DISTINCT
- Introducing Native SQL Server Functions
- Functions Relating to NULL Values
- Using the CASE Expression

6. Querying Data from Multiple Tables by Using Joins

- Introduction to Joins
- Using Inner Joins
- Using Outer Joins
- Using Cross Joins
- Using Aliases for Table Names
- Joining More than Two Tables

7. Summarizing Data Using Aggregate Functions

- Using Aggregate Functions Native to SQL Server
- Using Aggregate Functions with NULL Values
- Grouping Summarized Data with GROUP BY
- Filtering Grouped Data Using the HAVING Clause

8. Combining and Limiting Result Sets

- Combining Result Sets Using the UNION Operator
- Limiting Result Sets Using the TOP Operator

9. Working with Subqueries

- Introduction to Subqueries
- Using Subqueries as Expressions and Derived Tables
- Using Correlated Subqueries
- Introducing Temporary Tables

10. Inserting Data into Tables

- Inserting a Single Row into a Table
- Inserting Multiple Rows into a Table
- Differentiating Various INSERT Statements

11. Deleting Data from Tables

- Deleting Rows from a Table
- Truncating a Table
- Deleting Rows Based on Data in Other Tables

12. Updating Data in Tables

- Updating Rows in a Table
- Updating Rows Based on Data in Other Tables

Appendix 1. Ranking Grouped Data

- Ranking Data Using Ranking Functions
- Using ROW_NUMBER
- Using RANK

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- Using DENSE_RANK
- Using NTILE

Appendix 2. Working with SQL Server Data Types

- Native SQL Server Data Types
- Data Type Precedence
- Implicit Data Type Conversions
- Explicit Data Type Conversion Functions
- Querying and Modifying Date and Time Data
- Native SQL Server Date and Time Functions