

Querying Data with Transact-SQL

Course: 20761

Course Details

Audience(s): IT Professional(s)

Technology: Microsoft SQL Server 2016

Duration: 24 HRs.

ABOUT THIS COURSE

This course is designed to introduce students to Transact-SQL. It is designed in such a way that the first 24 hours can be taught as a course to students requiring the knowledge for other courses in the SQL Server curriculum. The next 16 hours teach the remaining skills required to take exam 70-761.

AUDIENCE PROFILE

The main purpose of the 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. As such, the primary target audience for this course is: Database Administrators, Database Developers and BI professionals.

Course Content

Module 1: Introduction to Microsoft SQL Server 2016

Lessons

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

Lab: Working with SQL Server 2016 Tools

Module 2: Introduction to T-SQL Lessons

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

Lab: Introduction to T-SQL Querying

Module 3: Writing SELECT Queries

Lessons

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

Lab: Writing Basic SELECT Statements

Module 4: Querying Multiple Tables

Lessons

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

Lab: Querying Multiple Tables

Module 5: Sorting and Filtering Data

Lessons

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

Lab: Sorting and Filtering Data

Module 6: Working with SQL Server 2016 Data Types

Lessons

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

Lab: Working with SQL Server 2016 Data Types

Module 7: Using DML to Modify Data

Lessons

- Inserting Data
- Modifying and Deleting Data

Lab: Using DML to Modify Data

Module 8: Using Built-In Functions

Lessons

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

Lab: Using Built-In Functions

Module 9: Grouping and Aggregating Data

Lessons

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

Lab: Grouping and Aggregating Data

Module 10: Using Subqueries

Lessons

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

Lab: Using Subqueries

Module 11: Using Table Expressions

Lessons

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

Lab: Using Table Expressions

Module 12: Using Set Operators

Lessons

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

Lab: Using Set Operators

Module 13: Using Windows Ranking, Offset, and Aggregate Functions

Lessons

- Creating Windows with OVER
- Exploring Window Functions

Lab: Using Windows Ranking, Offset, and Aggregate Functions

Module 14: Pivoting and Grouping Sets

Lessons

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

Lab: Pivoting and Grouping Sets

Module 15: Executing Stored Procedures

Lessons

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

Lab: Executing Stored Procedures

Module 16: Programming with T-SQL

Lessons

- T-SQL Programming Elements
- Controlling Program Flow

Lab: Programming with T-SQL

Module 17: Implementing Error Handling

Lessons

- Implementing T-SQL error handling
- Implementing structured exception handling

Lab: Implementing Error Handling

Module 18: Implementing Transactions

Lessons

- Transactions and the database engines
- Controlling transactions

Lab: Implementing Transactions

At This Course Completion

At completing this course the student will be able to:

- Describe the basic architecture and concepts of Microsoft SQL Server 2016.
- Understand the similarities and differences between Transact-SQL and other computer languages.
- Write SELECT queries
- Query multiple tables
- Sort and filter data
- 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