



## Querying Microsoft SQL Server 2014:

### COURSE OVERVIEW

In this course, you will learn the technical skills required to write basic Transact-SQL (T-SQL) queries for Microsoft SQL Server 2014. This is the foundational course for all SQL server related disciplines: database administration, database development and business intelligence. Tools and skills you will learn include: SQL Server Management Studio, T-SQL, SELECT statements in querying multiple tables, data types, data sorting and filtering, data manipulation language (DML), grouping and aggregating data, table expressions, set operators, window functions, T-SQL programming, error handlers, and transaction management in SQL Server.

This course is designed for customers interested in learning SQL Server 2012 or SQL Server 2014. It covers the new features of SQL Server 2014 as well as the important capabilities across the SQL Server data platform.

This course incorporates material from the Official Microsoft Learning Product 20461: Querying Microsoft SQL Server 2014. It covers the skills and knowledge measured by Exam 70-461 and along with on-the-job experience, helps you prepare for the exam.

### WHAT YOU'LL LEARN

- SELECT query writing
- Query multiple tables
- Sort and filter data
- Data types in SQL Server
- Data modification using T-SQL
- Built-in functions
- Group and aggregate data
- Set operators
- Window functions: ranking, offset, and aggregate
- Pivot and group sets
- T-SQL programming
- Error handling and transaction implementation

## OUTLINE

### 1. Microsoft SQL Server 2014

- SQL Server Architecture
- SQL Server Editions and Versions
- SQL Server Management Studio

### 2. Transact-SQL Querying

- Transact-SQL
- Sets
- Predicate Logic
- Logical Order of Operations in SELECT Statements

### 3. Write SELECT Queries

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

### 4. Querying Multiple Tables

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

### 5. Sorting and Filtering Data

- Sort Data
- Filter Data with a WHERE Clause
- Filter with the TOP and OFFSET-FETCH Options
- Work with Unknown and Missing Values

### 6. SQL Server 2014 Data Types

- SQL Server 2014 Data Types
- Work with Character Data
- Work with Date and Time Data

### 7. DML to Modify Data

- Insert Data
- Modify and Delete Data

### 8. Built-In Functions

- Write Queries with Built-In Functions

- Conversion Functions
- Logical Functions
- Use Functions to Work with NULL
- 9. Grouping and Aggregating Data
  - Use Aggregate Functions
  - Use the GROUP BY Clause
  - Filter Groups with HAVING
- 10. Sub-queries
  - Write Self-Contained Sub-queries
  - Write Correlated Sub-queries
  - Use the EXISTS Predicate with Sub-queries
- 11. Table Expressions
  - Use Derived Tables
  - Use Common Table Expressions
  - Use Views
  - Use Inline Table-Valued Functions
- 12. Set Operators
  - Write Queries with the UNION Operator
  - Use EXCEPT and INTERSECT
  - Use APPLY
- 13. Window Ranking, Offset, and Aggregate Functions
  - Create Windows with OVER
  - Explore Window Functions including Ranking, Aggregate and Offset Functions
- 14. Pivoting and Grouping Sets
  - Write Queries with PIVOT and UNPIVOT
  - Work with Grouping Sets
- 15. Query Data with Stored Procedures
  - Query Data with Stored Procedures
  - Pass Parameters to Store Procedures
  - Create Simple Stored Procedures
  - Work with Dynamic SQL
- 16. Programming with T-SQL
- 17. Implement Error Handling
  - Use TRY/CATCH Blocks

- Work with Error Information
- 18. Implement Transactions
- Transactions and the Database Engine
- Control Transactions
- Isolation Levels
- 19. Appendix 1: Improve Query Performance
- Factors in Query Performance
- Display Query Performance Data
- 20. Appendix 2: Query SQL Server Metadata
- Query System Catalog Views and Functions
- Execute System Stored Procedures
- Query Dynamic Management Objects

### **PREREQUISITES**

- Working knowledge of relational databases
- Basic knowledge of Microsoft Windows operation system and its core functionality

### **WHO SHOULD ATTEND**

- Database administrators
- Database developers
- Business intelligence professionals
- SQL power-users such as:
  - Report writers
  - Business analysts
  - Client application developers