

SQL416: Advanced T-SQL Querying, Programming and Tuning for SQL Server 2012, 2014 and SQL 2016

The course focuses on writing and tuning queries and programming with T-SQL in SQL Server 2012, 2014 and 2016. In this course you will learn the details and capabilities of T-SQL in the following areas: Logical Query Processing; Query Tuning (Internals and Index Tuning, including Columnstore Indexes, Query Store, New Cardinality Estimator, Temporary Tables, Sets vs. Cursors, Query Tuning with Query Revisions); Subqueries and Table Expressions (Derived Tables, CTEs, Views, Inline Table-Valued Functions), Recursive Queries, APPLY Operator, Joins and Set Operators; Aggregating, Pivoting and Windowing (including Ranking, Aggregate and Offset Window Functions); TOP and OFFSET-FETCH; Data Modification; Working with Date and Time (including temporal tables); Programmable Objects (Dynamic SQL, User Defined Functions, Stored Procedures, Triggers, Transactions and Concurrency, Exception Handling); In-Memory OLTP.



AUDIENCE

This course is intended for:

- » T-SQL Programmers, DBAs, Data Scientists, Architects, and Analysts
- » Those that need to write or review T-SQL code in SQL Server 2012, 2014 and 2016

PREREQUISITES

Before attending this course, it is recommended that students have the following skills:

- » At least one year of T-SQL querying and programming experience in SQL Server
- » SQL250: Transact-SQL for Developer (or have equivalent experience)

WHAT YOU WILL LEARN

- » Understand logical query processing
- » Understand SQL Server's internal data structures
- » Be able to analyze and tune query performance
- » Be able to analyze query execution plans
- » Describe the changes in cardinality estimations in SQL Server 2014 and 2016
- » Be able to solve complex querying and programming problems
- » Think in terms of sets
- » Be able to compare set based and iterative solutions
- » Use window functions to improve your solutions
- » Handle date and time data including intervals
- » Create system-versioned temporal tables
- » Describe performance problems related to use of user defined functions and possible workarounds
- » Understand compilations, recompilations, execution plan caching and reuse
- » Understand transactions and concurrency aspects of database programming
- » Know how to handle hierarchical data and write recursive queries
- » Be able to migrate on-disk data to memory optimized data
- » Describe T-SQL enhancements in SQL Server 2012, 2014 and 2016

"Interface is outstanding – looking forward to coming back for more classes."

Interface Student
Phoenix, AZ

\$3995.00

- 5-day course
- Promotional and package discounts may apply

REGISTER TODAY!

602-266-8585
www.InterfaceTT.com



CAN'T MAKE IT TO CLASS IN PERSON?

Attend many classes online with RemoteLive.™

Call 602-266-8585 today for a live demo.

©2016 Interface Technical Training All rights reserved

(course outline on back side)



COURSE OUTLINE

SQL416: Advanced T-SQL Querying, Programming and Tuning for SQL Server 2012, 2014 and SQL 2016

Module 01: Logical Query Processing

- » Logical Query Processing Order
- » Logical Query Processing Example
- » Phase Details

Quiz

Module 02: Query Tuning

- » Internals and Index Tuning

Quiz

- » New Cardinality Estimator
- » Temporary Tables
- » Sets vs. Cursors
- » Query Tuning with Query Revisions

Module 03 - Multi-Table Queries

- » Subqueries and Table Expressions
- » APPLY Operator
- » Joins
- » Set Operators

LAB 03

Module 04: Grouping, Pivoting and Windowing

- » Window Functions
- » Pivoting and Unpivoting Data
- » Custom Aggregations
- » Grouping Sets (bonus self-study unit)

LAB 04

Module 05: TOP and OFFSET-FETCH

- » TOP
- » OFFSET-FETCH
- » Top N Per Group

LAB 05

Module 06: Data Modification

- » Inserting Data
- » Sequences
- » Deleting Data
- » Updating Data
- » Merging Data
- » The OUTPUT Clause

LAB 06

Module 07 - Working with Date and Time

- » Date and Time Datatypes
- » Date and Time Functions
- » Date and Time Challenges
- » System-Versioned Temporal Tables
- » Date and Time Querying Problems

LAB 07

Module 08: Programmable Objects

- » Dynamic SQL
- » User Defined Functions
- » Stored Procedures
- » Triggers
- » Transactions and Concurrency
- » Exception Handling

LAB 08

Module 09: In-Memory OLTP

- » Intro to In-Memory OLTP
- » Architecture
- » Memory Optimized Tables and Indexes
- » Natively Compiled Modules
- » Transaction Semantics

LAB 09

Appendix A: Graphs and Recursive Queries (Bonus Self-Study Material)

- » Graphs, Described
- » Materialized Paths
- » Custom
- » Using the HIERARCHYID datatype
- » Nested Sets
- » Nested Iterations
- » Loops
- » Recursive Queries

LAB A