MOC 50439 Working with Data Using SQL Server 2008 R2 for the Non-database Administrator

Course Summary

Description
This instructor-led course provides students with the necessary knowledge to work with the data in SQL Server 2008R2. They will learn how to use the built in tools included with SQL Server to construct queries, do tuning, analyze a query and its performance, along with how to modify existing data, perform joins, create indexes, and work with XML. The new features are discussed and their impact is explained.

Objectives
At the end of this course, students will be able to:

- Use SQL Server Management Studio (SSMS).
- Use SSMS to generate queries.
- Use the Object Browser.
- Use the Template manager.
- Customize the SSMS environment.
- Run a trace in SQL Profiler.
- Use the debugger with a query.
- Work with SQL Server Integration Services to do a basic package for import/export.
- Use the Database Tuning Advisor.
- Read an Execution Plan.
- Explain and perform single table queries.
- Perform joins between tables.
- Understand indexing and its impact.
- Write code within the context of a transaction.
- Utilize Try-Catch error handling.
- Use Stored Procedures.
- Explain the new language features.
- Write a sub-query.
- Use common table expressions.
- Work with the XML datatype and the new methods.

Topics

- The Toolsets
- Data Types and New T-SQL Language Features
- Single Table Queries
- Joining Multiple Tables
- Subqueries, Common Table Expressions and Ranking Functions
- Indexing
- Query Tuning
- Data Modification, Transactions and Error Processing
- Stored Procedures and Triggers
- XML

Audience
This course is intended for Power Users and IT Professionals that are called on occasionally to work with SQL Server in the retrieving, or modifying of data and need a good foundation to perform those functions. This would include those users that develop reports and need to create Data Sets that work efficiently.

Prerequisites
Before attending this course, students should have:

- A working knowledge of databases but not necessarily SQL.

Duration
Three days

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Course Outline

I. The Toolsets

A. SQL Server Management Studio
B. SQLCMD Utility
C. Business Intelligence Development Studio (BIDS)
D. SQL Profiler
E. Bulk Copy
F. Adventure Works Sample Database
G. Data Definition Language

Lab: The Toolsets

- Set Options in SSMS
- Create a Solution and Project
- Explore the Query Editor
- Examine Graphical Execution Plans
- Use Object Explorer
- Use SQLCMD Utility
- Create a Basic SSIS Package Using the Wizard
- Run a SQL Profiler Trace

II. Data Types and New T-SQL Language Features

A. SQL Server Data Types
B. New Data Types
C. Hierarchyid Data Type
D. Spatial Data
E. Date and Time
F. FileStream Storage
G. Grouping Sets

Lab: Data Types and New T-SQL Language Features

- Use Hierarchyid
- FILESTREAM Storage
- Use Merge Statement

III. Single Table Queries

A. Logical Query Processing
B. Query Clauses (Listed in Logical Processing Order)
C. FROM
D. WHERE
E. GROUP BY
F. HAVING
G. SELECT
H. ORDER BY
I. CASE
J. NULLS

Lab: Single Table Queries

- Query Clauses
- FROM
- WHERE
- GROUP BY
- HAVING
- SELECT
- ORDER BY
- CASE
- NULLS

IV. Joining Multiple Tables

A. Normalization
B. Old Style vs. New Style
C. Cross Join
D. Inner Join
E. Outer Join
F. Self Join
G. Joining Multiple Tables

Lab: Joining Multiple Tables

- Cross Join
- Inner Join
- Outer Join
- Multiple Tables

V. Subqueries, Common Table Expressions and Ranking Functions

A. Subqueries
B. Self-Contained Subqueries
C. Correlated Subqueries
D. EXISTS
E. Views
F. Derived Tables
G. Common Table Expressions
H. Analytic Ranking Functions

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Course Outline

Lab: Subqueries, Common Table Expressions and Ranking Functions

- Subqueries
- EXISTS
- Views
- Derived Tables
- Common Table Expressions

VI. Indexing

A. Understanding Execution Plans
B. Table and Index Structures
C. Syntax
D. Clustered Index
E. Non Clustered Index on Heap
F. Non Clustered Index on Clustered Index
G. Syntax

Lab: Indexing

- sys.dm_db_index_physical_stats
- Set Statistics IO
- WHERE Clause
- Narrow Indexes
- Column Uniqueness
- Column Ordering

VII. Query Tuning

A. System Performance Analysis
B. Query Analysis
C. Database Engine Tuning Advisor
D. Bookmark Lookup
E. Statistics Analysis
F. Query Design

Lab: Query Tuning

- Performance Monitor
- Dynamic Management Views
- SQL Profiler
- Database Engine Tuning Advisor
- Query Design

VIII. Data Modification, Transactions and Error Processing

A. Modifying Data INSERT
B. Modifying Data UPDATE
C. Modifying Data DELETE
D. Transactions
E. Error Processing
F. Debugging in SQL Server 2008

Lab: Data Modification, Transactions and Error Processing

- Inserting Values
- Use Bulk Copy
- Modify Data
- DELETE Data
- Transactions
- Try-Catch

IX. Stored Procedures and Triggers

A. Stored Procedures
B. Triggers

Lab: Stored Procedures and Triggers

- Basic Stored Procedure
- Stored Procedure with Parameters (In)
- Stored Procedure with Parameters (In and Out)
- Triggers
- INSTEAD OF Trigger

X. XML

A. XML Introduction
B. XML in SQL Server
C. XML Data Type
D. XML Indexes

Lab: XML

- FOR XML Clause
- Create Table with an XML Column
- Register a Schema
- Query() Method
- Value() Method
- Exist() Method
- Modify() Method
- Nodes() Method

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