

6232 Implementing a Microsoft SQL Server 2008 R2 Database

Days of Training: 5

Overview

This five-day instructor-led course is intended for Microsoft SQL Server database developers who are responsible for implementing a database on SQL Server 2008 R2. In this course, students will learn the skills and best practices on how to use SQL Server 2008 R2 product features and tools related to implementing a database server.

Prerequisites

- Working knowledge of Transact-SQL.
- Working knowledge of relational databases, and some experience with database design.
- Core Windows Server skills.
- Basic programming language.

At Course Completion

Upon successful completion of this course, students will be able to:

- Understand the product, its components, and basic configuration.
- Work with the data types supported by SQL Server.
- Design and implement tables and work with schemas.
- Design and implement views and partitioned views.
- Describe the concept of an index and determine the appropriate data type for indexes and composite index structures.
- Identify the appropriate table structures and implement clustered indexes and heaps.
- Describe and capture execution plans.
- Design and implement non-clustered indexes, covering indexes, and included columns.
- Design and implement stored procedures.
- Implement table types, table valued parameters, and the MERGE statement.
- Describe transactions, transaction isolation levels, and application design patterns for highly-concurrent applications.
- Design and implement T-SQL error handling and structured exception handling.
- Design and implement scalar and table-valued functions.
- Design and implement constraints.
- Design and implement triggers.
- Describe and implement target use cases of SQL CLR integration.
- Describe and implement XML data and schema in SQL Server.
- Use FOR XML and XPath queries.
- Describe and use spatial data types in SQL Server.
- Implement and query full-text indexes.

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Lesson 1: Introduction to SQL Server and its Toolset

Introduction to SQL Server Platform
Working with SQL Server Tools
Configuring SQL Server Services

Lesson 2: Working with Data Types

Using Data Types
Working with Character Data
Converting Data Types
Working with Specialized Data Types

Lesson 3: Designing and Implementing Tables

Designing Tables
Working with Schemas
Creating and Altering Tables

Lesson 4: Designing and Implementing Views

Introduction to Views
Creating and Managing Views
Performance Considerations for Views

Lesson 5: Planning for SQL Server Indexing

Core Indexing Concepts
Data Types and Indexes
Single Column and Composite Indexes

Lesson 6: Implementing Table Structures in SQL Server

SQL Server Table Structures
Working with Clustered Indexes
Designing Effective Clustered Indexes

Lesson 7: Reading SQL Server Execution Plans

Execution Plan Core Concepts
Common Execution Plan Elements
Working with Execution Plans

Lesson 8: Improving Performance through Nonclustered Indexes

Designing Effective Nonclustered Indexes
Implementing Nonclustered Indexes
Using the Database Engine Tuning Advisor

Lesson 9: Designing and Implementing Stored Procedures

Introduction to Stored Procedures
Working with Stored Procedures
Implementing Parameterized Stored Procedures
Controlling Execution Context

Lesson 10: Merging Data and Passing Tables

Using the MERGE statement
Implementing Table Types
Using Table Types as Parameters

Lesson 11: Creating Highly Concurrent SQL Server Applications

Introduction to Transactions
Introduction to Locks
Management of Locking
Transaction Isolation Levels

Lesson 12: Handling Errors in T-SQL Code

Designing T-SQL Error Handling
Implementing T-SQL Error Handling
Implementing Structured Exception Handling

Lesson 13: Designing and Implementing User-Defined Functions

Designing and Implementing Scalar Functions
Designing and Implementing Table-valued Functions
Implementation Considerations for Functions
Alternatives to Functions

Lesson 14: Ensuring Data Integrity through Constraints

Enforcing Data Integrity
Implementing Domain Integrity
Implementing Entity and Referential Integrity

Lesson 15: Responding to Data Manipulation via Triggers

Designing DML Triggers
Implementing DML Triggers
Advanced Trigger Concepts

Lesson 16: Implementing Managed Code in SQL Server

Introduction to SQL CLR Integration
Importing and Configuring Assemblies
Implementing SQL CLR Integration

Lesson 17: Storing XML Data in SQL Server

Introduction to XML and XML Schemas
Storing XML Data and Schemas in SQL Server
Implementing the XML Data Type

Lesson 18: Querying XML Data in SQL Server

Using the T-SQL FOR XML statement
Getting Started with XQuery
Shredding XML

Lesson 19: Working with SQL Server Spatial Data

Introduction to Spatial Data
Working with SQL Server Spatial Data Types
Using Spatial Data in Applications

Lesson 20: Working with Full-Text Indexes and Queries

Introduction to Full-Text Indexing
Implementing Full-Text Indexes in SQL Server
Working with Full-Text Queries

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