4 Days

20762B: Developing SQL Databases

The Developing SQL Databases Training is a four-day course, part 2 of the series of two courses of MCSA 2016: SQL Database Development, that imparts knowledge of the advanced SQL Server 2016 product features and tools that are used by professionals to develop databases in an organisation. The training will equip students and professionals to optimally utilise the SQL Server features in the successful implementation of databases.

Course Details

Course Outline

Module 1: Introduction to Database Development

This module introduces the entire SQL Server platform and its major tools. It will cover editions, versions, and concepts of services and service accounts.

Lessons

- Introduction to the SQL Server Platform
- SQL Server Database Development Tasks

Module 2: Designing and Implementing Tables

This module introduces the design and implementation of tables. (Note: partitioned tables are not covered).

Lessons

- Designing Tables
- Working with Schemas
- Data Types
- Creating and Altering Tables

Module 3: Advanced Table Designs

This module defines more advanced table designs.

Lessons

- Partitioning Data

- Compressing Data
- Temporal Tables

Module 4: Ensuring Data Integrity through Constraints

This module explains the design and implementation of constraints.

Lessons

- Enforcing Data Integrity
- Implementing Entity and Referential Integrity
- Implementing Data Domain Integrity

Module 5: Introduction to Indexes

This module explains the concept of an index and discusses selectivity, density and statistics. It focuses on appropriate data type choices and all the choices surrounding composite index structures.

Lessons

- Core Indexing Concepts
- Heaps, Clustered, and Non-Clustered Indexes
- Data Types and Indexes
- Single Column and Composite Indexes

Module 6: Designing Optimized Index Strategies

This module discusses covering indexes and the INCLUDE clause, hints, padding / fillfactor, statistics. It also execution plans and the DTE Lessons.

Lessons

- Index Strategies
- The Database Engine Tuning Advisor
- Managing Indexes
- Query Store
- Execution Plans

Module 7: Column store Indexes

This module introduces Column store indexes.

Lessons

- Introduction to Column store Indexes
- Creating Columnstore Indexes
- Working with Columnstore Indexes

Module 8: Designing and Implementing Views

This module describes the design and implementation of views.

Lessons

- Introduction to Views
- Performance Considerations for Views
- Create and Manage Views

Module 9: Designing and Implementing Stored Procedures

This module introduces the design and implementation of stored procedures.

Lessons

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

Module 10: Designing and Implementing User-Defined Functions

This module introduces the designing and implementation of functions.

Lessons

- Overview of Functions
- Designing and Implementing Table-Valued Functions
- Designing and Implementing Scalar Functions
- Considerations for Implementing Functions
- Alternatives to Functions

Module 11: Responding to Data Manipulation via Triggers

This module introduces the design and implementation of triggers.

Lessons

- Designing DML Triggers
- Advanced Trigger Concepts
- Implementing DML Triggers

Module 12: Using In-Memory Tables

This module focuses on the creation of in-memory tables and native stored procedures. Furthermore, advantages of in-memory tables are discussed, for example the removal of transaction blocking.

Lessons

- Natively Compiled Stored Procedures
- Memory-Optimized Tables

Module 13: Implementing Managed Code in SQL Server

This module explains the implementation of and target use-cases for SQL CLR integration.

Lessons

- CLR Integration in SQL Server

- Implementing and Publishing CLR Assemblies

Module 14: Storing and Querying XML Data in SQL Server

This module describes the XML data type, schema collections, typed and un-typed columns and appropriate use cases for XML in SQL Server.

Lessons

- Introduction to XML and XML Schemas
- Storing XML Data and Schemas in SQL Server
- Using the Transact-SQL FOR XML Statement
- Implementing the XML Data Type
- Shredding XML
- Getting Started with XQuery

Module 15: Storing and Querying Spatial Data in SQL Server

This module explores spatial data and how this data can be implemented within SQL Server.

Lessons

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

Module 16: Storing and Querying BLOBs and Text Documents in SQL Server

This module describes full text indexes and queries.

Lessons

- Considerations for BLOB Data
- Using Full-Text Search
- Working with FILESTREAM

Who Should Attend

The primary audience for this course is IT Professionals who want to acquire requisite skills on SQL Server 2016 for implementing a database.

The secondary audiences for this course are professionals who are developers belonging to other product platforms looking forward to get skilled in the implementation of a SQL Server 2016 database.

Pre Requisite

- Working knowledge of Transact-SQL & relational databases.
- Basic knowledge of the Microsoft Windows operating system and its core functionality.

Exams

Developing SQL Databases [70-762]

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