

20762: Developing SQL Databases

Duration: 5 Days

Method: Instructor-Led

Certification: Microsoft® Certified Solutions Associate (MCSA): SQL 2016 Database Development Exam 2 Of 2: 70-762 Developing SQL Databases

Course Description

This course provides participants with the knowledge and skills to develop a Microsoft® SQL Server® 2016 database. It focuses on teaching individuals how to use SQL Server® 2016 product features and tools related to developing a database.

Target Audience

This course is intended for:

- IT Professionals who want to become skilled on SQL Server® 2016 product features and technologies for implementing a database.
- Individuals who are developers from other product platforms looking to become skilled in the implementation of a SQL Server® 2016 database.

Prerequisites

To attend this course, participants should have:

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

Course Objectives

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

- Design and Implement Tables.
- Describe advanced table designs
- Ensure Data Integrity through Constraints.
- Describe indexes, including Optimized and Columnstore indexes
- Design and Implement Views.
- Design and Implement Stored Procedures.
- Design and Implement User Defined Functions.
- Respond to data manipulation using triggers.
- Design and Implement In-Memory Tables.
- Implement Managed Code in SQL Server®.
- Store and Query XML Data.
- Work with Spatial Data.
- Store and Query Blobs and Text Documents.



Course Content

Module 1: Introduction to Database Development

- Introduction to the SQL Server® Platform
- SQL Server® Database Development Tasks
- After completing this module, you will be able to:
- Describe the SQL Server® platform.
- Use SQL Server® administration tools.

Module 2: Designing and Implementing Tables

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

Module 3: Advanced Table Designs

- Partitioning Data
- Compressing Data
- Temporal Tables

Module 4: Ensuring Data Integrity through Constraints

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

Module 5: Introduction to Indexes

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

Module 6: Designing Optimized Index Strategies

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

Module 7: Columnstore Indexes

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



Course Content, *Continued*

Module 8: Designing and Implementing Views

- Introduction to Views
- Creating and Managing Views
- Performance Considerations for Views

Module 9: Designing and Implementing Stored Procedures

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

Module 10: Designing and Implementing User-Defined Functions

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

Module 11: Responding to Data Manipulation via Triggers

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

Module 12: Using In-Memory Tables

- Memory-Optimized Tables
- Natively Compiled Stored Procedures

Module 13: Implementing Managed Code in SQL Server®

- Introduction to CLR Integration in SQL Server®
- Implementing and Publishing CLR Assemblies

Module 14: Storing and Querying XML Data in SQL Server®

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

Module 15: Storing and Querying Spatial Data in SQL Server®

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



Course Content, *Continued*

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

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

Module 17: SQL Server® Concurrency

- Concurrency and Transactions
- Locking Internals

Module 18: Performance and Monitoring

- Extended Events
- Working with extended Events
- Live Query Statistics
- Optimize Database File Configuration
- Metrics

LABS INCLUDED

