

Microsoft SQL Server 2019 Database Administration

Duration: 40 Hours (5 Days)

Overview

The Microsoft SQL Server 2019 Database Administration course is designed for individuals seeking to enhance their skills in managing and maintaining SQL Server databases. This comprehensive course covers a wide range of topics essential for database administrators, from the Core components and architecture of SQL Server to advanced features such as Encryption, Auditing, and Performance tuning. Participants will gain hands-on experience through practical labs, where they will learn to Install and configure SQL Server 2019, Manage database storage, perform database maintenance, and Implement a backup strategy. The course also delves into Authentication, Authorization, User access control, Data transfer methods, and Troubleshooting common issues. By completing the Microsoft SQL Server Database Administration course, learners will be equipped with the knowledge to effectively administer SQL Server databases, ensuring data integrity, security, and performance. This training is invaluable for aspiring Microsoft SQL DBAs aiming to excel in their careers.

Audience Profile

Learn to administer SQL Server 2019 databases, perfect for IT professionals seeking to enhance their database management skills.

- Database Administrators
- Systems Administrators managing SQL Server environments
- IT Professionals looking to upgrade their database skills to SQL Server 2019
- Data Analysts requiring knowledge of SQL Server infrastructure
- Technical Consultants implementing database solutions for clients
- SQL Server Developers seeking deeper understanding of the platform's administration
- IT Managers overseeing database operations teams
- Business Intelligence Professionals
- Data Architects designing and maintaining enterprise database systems
- Database Engineers looking to learn about new features in SQL Server 2019
- Professionals preparing for Microsoft certification exams in SQL Server

Course Syllabus

Module1: SQL Server Components and Architecture

- Lesson 1: Overview of SQL Server Architecture
- Lesson 2: Introduction to the SQL Server Platform
- Lesson 3: Installing and Configuring SQL Server 2019
- Lesson 4: Installation changes/ Feature Selection /New Tab
- Lab: Identify the Edition and Version of a Running SQL Server
- Instance, Installing SQL Server 2019

Module2: Working with Databases

- Lesson 1: Introduction to Data Storage with SQL Server
- Lesson 2: Managing Storage for System and user Databases
- Lesson 3: Configuring the Buffer Pool Extension and Hybrid buffer pool

- Lab: Managing Database Storage

Module 3: Performing Database Maintenance

- Lesson 1: Ensuring Database Integrity
- Lesson 2: Tempdb Configuration and Memory-optimized TempDB Metadata
- Lesson 3: Maintaining Indexes
- Lab: Performing Ongoing Database Maintenance

Module 4: SQL Server Authentication and Authorization

- Lesson 1: Connections to SQL Server
- Lesson 2: Privileges and permissions to Logins with Database
- Lesson 3: Authorization Across Servers
- Lab: Authenticating Users

Module 5: Working with Server and Database Roles

- Lesson 1: Working with Server Roles
- Lesson 2: Working with Fixed Database Roles
- Lesson 3: User-Defined Database and Server Roles
- Lab: Assigning Server and Database Roles

Module 6: Controlling User Access

- Lesson 1: Creating and Granting User Access to Objects
- Lesson 2: Authorizing Users to Execute Code
- Lesson 3: Configuring Permissions at the Schema and Database level
- Lab: Authorizing Users to Access Resources

Module 7: Database Encryption and Auditing

- Lesson 1: Auditing Data Access in SQL Server
- Lesson 2: Implementing SQL Server Audit
- Lesson 3: Managing SQL Server Audit
- Lesson 4: Always Encrypted with Secure Enclaves, Database classification function on 2019
- Lab: Using Auditing and Encryption

Module 8: Planning and Implementing a Backup Strategy

- Lesson 1: Understanding Backup Strategies
- Lesson 2: SQL Server Transaction Logs
- Lesson 3: Planning Backup Strategies
- Lab: Understanding SQL Server Recovery Models

Module 9: Backing Up SQL Server Databases

- Lesson 1: Backing Up Databases and Transaction Logs
- Lesson 2: Managing Database Backups
- Lesson 3: Advanced Database Options
- Lab: Backing Up Databases

Module 10: Restoring SQL Server 2019 Databases

- Lesson 1: Understanding the Restore Process

- Lesson 2: Restoring SQL Databases
- Lesson 3: Point-in-time Recovery with Advance Restore Scenario
- Lesson 4: Accelerated Database Recovery
- Lab: Restoring SQL Server Databases

Module 11: Automating SQL Server Management

- Lesson 1: Automating SQL Server Management
- Lesson 2: Working with SQL Server Agent
- Lesson 3: Managing SQL Server Agent Jobs with Security Contexts
- Lab: Automating SQL Server Management

Module 12: SQL Server with Extended Events

- Lesson 1: Extended Events Core Concepts
- Lesson 2: Working with Extended Events
- Lab: Extended Events

Module 13: Performance Improvement and Monitoring SQL Server 2019

- Lesson 1: Monitoring Activity
- Lesson 2: Capturing and Managing Performance Data
- Lesson 3: Query Execution and Query Plan Analysis
- Lesson 4: Statistics Internal
- Lesson 5: Query Store
- Lab: Monitoring SQL Server

Module 14: Troubleshooting SQL Server

- Lesson 1: Monitoring SQL Server Errors
- Lesson 2: A Troubleshooting Methodology for SQL Server
- Lesson 3: Resolving Blocking and Locking in SQL Server
- Lesson 4: Resolving Connectivity and Login Issues
- Lab: Troubleshooting Common Issues

Module 15: Different Method of Transferring Data

- Lesson 1: Transferring Data to and from SQL Server
- Lesson 2: Importing and Exporting Table Data
- Lesson 3: bulk copy program and BULK INSERT to Import Data
- Lab: Importing and Exporting Data