

20764: Administering a SQL Database Infrastructure (SQL Server 2016)

Course Details

Course Outline

1. SQL Server Security

- Authenticating Connections to SQL Server
- Authorizing Logins to Connect to databases
- Authorization Across Servers
- Partially Contained Databases
- **Lab : Authenticating Users**
- Create Logins
- Create Database Users
- Correct Application Login Issues
- Configure Security for Restored Databases

2. Assigning Server and Database Roles

- Working with server roles
- Working with Fixed Database Roles
- Assigning User-Defined Database Roles
- **Lab : Assigning server and database roles**
- Assigning Server Roles
- Assigning Fixed Database Roles
- Assigning User-Defined Database Roles
- Verifying Security

3. Authorizing Users to Access Resources

- Authorizing User Access to Objects
- Authorizing Users to Execute Code
- Configuring Permissions at the Schema Level
- **Lab : Authorizing users to access resources**
- Granting, Denying, and Revoking Permissions on Objects
- Granting EXECUTE Permissions on Code
- Granting Permissions at the Schema Level

4. Protecting Data with Encryption and Auditing

- Options for auditing data access in SQL Server

- Implementing SQL Server Audit
- Managing SQL Server Audit
- Protecting Data with Encryption
- **Lab : Using Auditing and Encryption**
- Working with SQL Server Audit
- Encrypt a Column as Always Encrypted
- Encrypt a Database using TDE

5. Recovery Models and Backup Strategies

- Understanding Backup Strategies
- SQL Server Transaction Logs
- Planning Backup Strategies
- **Lab : Understanding SQL Server recovery models**
- Plan a Backup Strategy
- Configure Database Recovery Models

6. Backing Up SQL Server Databases

- Backing Up Databases and Transaction Logs
- Managing Database Backups
- Advanced Database Options
- **Lab : Backing Up Databases**
- Backing Up Databases
- Performing Database, Differential, and Transaction Log Backups
- Performing a Partial Backup

7. Restoring SQL Server 2016 Databases

- Understanding the Restore Process
- Restoring Databases
- Advanced Restore Scenarios
- Point-in-Time Recovery
- **Lab : Restoring SQL Server Databases**
- Restoring a Database Backup
- Restoring Database, Differential, and Transaction Log Backups
- Performing a Piecemeal Restore

8. Automating SQL Server Management

- Automating SQL Server management
- Working with SQL Server Agent

- Managing SQL Server Agent Jobs
- Multi-server Management
- **Lab : Automating SQL Server Management**
- Create a SQL Server Agent Job
- Test a Job
- Schedule a Job
- Configure Master and Target Servers

9. Configuring Security for SQL Server Agent

- Understanding SQL Server Agent Security
- Configuring Credentials
- Configuring Proxy Accounts
- **Lab : Configuring Security for SQL Server Agent**
- Analyzing Problems in SQL Server Agent
- Configuring a Credential
- Configuring a Proxy Account
- Configuring and testing the Security Context of a Job

10. Monitoring SQL Server with Alerts and Notifications

- Monitoring SQL Server Errors
- Configuring Database Mail
- Operators, Alerts, and Notifications
- Alerts in Azure SQL Database
- **Lab : Monitoring SQL Server with Alerts and Notifications**
- Configuring Database Mail
- Configuring Operators
- Configuring Alerts and Notifications
- Testing Alerts and Notifications

11. Introduction to Managing SQL Server by using PowerShell

- Getting Started with Windows PowerShell
- Configure SQL Server using PowerShell
- Administer and Maintain SQL Server with PowerShell
- Managing Azure SQL Databases using PowerShell
- **Lab : Using PowerShell to Manage SQL Server**
- Getting Started with PowerShell
- Using PowerShell to Change SQL Server settings

12. Tracing Access to SQL Server with Extended events

- Extended Events Core Concepts
- Working with Extended Events
- **Lab : Extended Events**
- Using the System_Health Extended Events Session
- Tracking Page Splits Using Extended Events

13. Monitoring SQL Server

- Monitoring activity
- Capturing and Managing Performance Data
- Analyzing Collected Performance Data
- SQL Server Utility
- **Lab : Monitoring SQL Server**

14. Troubleshooting SQL Server

- A Trouble Shooting Methodology for SQL Server
- Resolving Service Related Issues
- Resolving Connectivity and Log-in issues
- **Lab : Troubleshooting Common Issues**
- Troubleshoot and Resolve a SQL Login Issue
- Troubleshoot and Resolve a Service Issue
- Troubleshoot and Resolve a Windows Login Issue
- Troubleshoot and Resolve a Job Execution Issue
- Troubleshoot and Resolve a Performance Issue

15. Importing and Exporting Data

- Transferring Data to and from SQL Server
- Importing and Exporting Table Data
- Using bcp and BULK INSERT to Import Data
- Deploying and Upgrading Data-Tier Application
- **Lab : Importing and Exporting Data**
- Import and Excel Data Using the Import Wizard
- Import a Delimited Text File Using bcp
- Import a Delimited Text File using BULK INSERT
- Create and Test an SSIS Package to Extract Data
- Deploy a Data-Tier Application