

Administering an SQL Database Infrastructure

Course Summary

Description

This course will help you to learn the ins and outs of database administration and gain hands-on experience automating, backing up, restoring and troubleshooting SQL Server.

Objectives

At the end of this course, students will be able to:

- Authenticate and authorize users
- Assign server and database roles
- Authorize users to access resources
- Protect data with encryption and auditing
- Describe recovery models and backup strategies
- Backup SQL Server databases
- Restore SQL Server databases
- Automate database management
- Configure security for the SQL Server agent
- Manage alerts and notifications
- Managing SQL Server using PowerShell
- Trace access to SQL Server
- Monitor a SQL Server infrastructure
- Troubleshoot a SQL Server infrastructure
- Import and export data

Topics

- SQL Server Security
- Assigning Server and Database Roles
- Authorizing Users to Access Resources
- Protecting Data with Encryption and Auditing
- Recovery Models and Backup Strategies
- Backup of SQL Server Databases
- Restoring SQL Server 2016 Databases
- Automating SQL Server Management
- Configuring Security for SQL Server Agent
- Monitoring SQL Server with Alerts and Notifications
- Introduction to Managing SQL Server by using PowerShell
- Tracing Access to SQL Server with Extended events
- Monitoring SQL Server
- Troubleshooting SQL Server
- Importing and Exporting Data

Audience

The targeted audience for this course is Administrators and Developers.

Prerequisites

This course will equip you with the skills you need to manage databases with confidence.

Pre-Requisites: Students should have familiar with

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of Transact-SQL and of relational databases.
- Some experience with database design.

Duration

Five days

Administering an SQL Database Infrastructure

Course Outline

- I. *SQL Server Security*
 - A. Authenticate Connections to SQL Server
 - B. Authorize Logins to Access Databases Across Servers
 - C. Understand Partially Contained Databases
- II. *Assigning Server and Database Roles*
 - A. Work with Server Roles and Fixed Database Roles
 - B. Create User-Defined Database Roles
- III. *Authorizing Users to Access Resources*
 - A. Provide User Access to Objects
 - B. Approve Users to Execute Code
 - C. Configure Permissions at the Schema Level
- IV. *Protecting Data with Encryption and Auditing*
 - A. Learn the Options for Auditing Data Access in SQL Server
 - B. Implement and Manage SQL Server Audits
 - C. Protect Data with Encryption
- V. *Recovery Models and Backup Strategies*
 - A. Deploy Secure Backup Strategies
 - B. Understand SQL Server Transaction Login
 - C. Plan a SQL Server Backup Strategy
- VI. *Backup of SQL Server Databases*
 - A. Back up Databases and Transaction Logs
 - B. Manage Database Backups
 - C. Deploy Different Backup Options
- VII. *Restoring SQL Server 2016 Databases*
 - A. Learn About the Restore Process
 - B. Work with Point-in-Time Recovery
 - C. Restore System Databases and Individual Files
- VIII. *Automating SQL Server Management*
 - A. Automate SQL Server Management
 - B. Explore the SQL Server Agent
 - C. Manage SQL Server Agent Jobs
 - D. Understand Multi-Server Management
- IX. *Configuring Security for SQL Server Agent*
 - A. Maintain SQL Server Agent Security
 - B. Configure Credentials and Proxy Accounts
- X. *Monitoring SQL Server with Alerts and Notifications*
 - A. Create Settings for Database Mail
 - B. Monitor SQL Server Errors
 - C. Work with Operators, Alerts and Notifications
 - D. Learn How Alerts Work in Azure SQL Database
- XI. *Introduction to Managing SQL Server by using PowerShell*
 - A. Configure and Administer SQL Server Using PowerShell
 - B. Maintain the SQL Server Environment Using PowerShell
 - C. Manage Azure SQL Server Databases Using PowerShell
- XII. *Tracing Access to SQL Server with Extended events*
 - A. Capture Activity Using SQL Server Profiler
 - B. Improve Performance with the Database Engine Tuning Advisor
 - C. Work with Tracing Options
 - D. Perform Distributed Replays
 - E. Monitor Locks
- XIII. *Monitoring SQL Server*
 - A. Oversee SQL Server Activity
 - B. Capture and Manage Performance Data
 - C. Analyze Collected Performance Data
 - D. Assess SQL Server Utility
- XIV. *Troubleshooting SQL Server*
 - A. Learn the SQL Server Troubleshooting Methodology
 - B. Fix Service Related Issues
 - C. Resolve Login and Connectivity Issues
 - D. Troubleshoot Other Common Issues
- XV. *Importing and Exporting Data*
 - A. Transfer Data to and from SQL Server
 - B. Import and Export Table Data
 - C. Apply BCP and BULK INSERT to Import Data
 - D. Deploy and Upgrade Data-Tier Applications