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Microsoft SQL Server 2017 Administration

Duration: 90 hours

Prerequisites: Familiarity with database concepts, Windows desktop navigation and Transact-SQL. Attendance at the **SQL Programming** course or **Microsoft Transact-SQL Programming** course is highly recommended although not required.

Description: This hands-on course provides students with the knowledge and skills to administer a SQL Server 2017 database infrastructure. Students will learn how to install, configure, manage, secure, automate, monitor, and optimize SQL Server 2017. Students will also learn how to create, manage, back up, and restore individual databases, transfer and replicate data, configure for high availability, and plan disaster recovery.

Comprehensive hands on exercises are integrated throughout to reinforce learning and develop real competency.

Course Overview

Installation and Configuration

- Installing Multiple Instances of SQL Server 2017
- Applying a Service Pack
- Creating Aliases
- Setting up a Central Management Server

Assigning Server and Database Roles

- Working with Server Roles
- Working with Fixed Database Roles
- Creating User-Defined Database Roles

Protecting Data with Encryption and Auditing

- Options for Auditing Data Access in SQL

Authenticating and Authorizing Users

- Authenticating Connections to SQL Server
- Authorizing Logins to Access Databases
- Authorization Across Servers
- Partially Contained Databases

Authorizing Users to Access Resources

- Authorizing User Access to Objects
- Authorizing Users to Execute Code
- Configuring Permissions at the Schema Level

SQL Server Recovery Models

- Backup Strategies

Server

- Implementing SQL Server Audit
- Managing SQL Server Audit
- Protecting Data with Encryption

- Understanding SQL Server Transaction Logging
- Planning a SQL Server Backup Strategy

Backup of SQL Server Databases

- Backing up Databases and Transaction Logs
- Managing Database Backups
- Working with Backup Options

Restoring SQL Server Databases

- Understanding the Restore Process
- Restoring Databases
- Working with Point-in-time Recovery
- Restoring System Databases and Individual Files

Tracing Access to SQL Server

- Capturing Activity Using SQL Server profiler
- Improving Performance with the Database Engine Tuning Advisor
- Working with Tracing Options

Monitoring SQL Server

- Monitoring Activity
- Capturing and Managing Performance Data
- Analyzing Collected Performance Data

Troubleshooting SQL Server

- Resolving Service Related Issues
- Resolving Login and Connectivity Issues
- Troubleshooting Common Issues

Importing and Exporting Data

- Transferring Data to/from SQL Server
- Importing and Exporting Table Data
- Using BCP and BULK INSERT to Import Data

Maintaining High Availability of Data

- Windows Clustering
- AlwaysOn Availability Groups
- Implementing AlwaysOn
- Implementing Log Shipping

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