

## Microsoft SQL Database Administration and DP-300 Customized Training Course

### Course outline

#### **Administering a SQL Database Infrastructure Portion**

##### Module 1: SQL Server Security

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

##### Module 2: Assigning Server and Database Roles

- Working with server roles
- Working with Fixed Database Roles
- Assigning User-Defined Database Roles
- Assigning Server Roles
- Assigning Fixed Database Roles
- Assigning User-Defined Database Roles
- Verifying Security

##### Module 3: 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
- Working with SQL Server Audit
- Encrypt a Column as Always Encrypted
- Encrypt a Database using TDE

##### Module 4: Backing Up SQL Server Databases

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

## **Module 5: Restoring SQL Server 2016 Databases**

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

## **Module 6: Automating SQL Server Management**

- Automating SQL Server management
- Working with SQL Server Agent
- Managing SQL Server Agent Jobs
- Multi-server Management
- Create a SQL Server Agent Job
- Test a Job
- Schedule a Job
- Configure Master and Target Servers

## **Module 7: Monitoring SQL Server with Alerts and Notifications**

- Monitoring SOL Server Errors

## **Module 8: Tracing Access to SQL Server with Extended events**

- Extended Events Core Concepts
- Working with Extended Events
- Using the System Health Extended Events Session
- Tracking Page Splits Using Extended Events

## **Module 9: 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
- 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

## DP-300 : Administering Microsoft Azure SQL Solutions Portion

### Module 10: Plan and Implement Data Platform Resources

- Deploying SQL Server using IaaS
- Deploying SQL Server using PaaS
- Deploying Open Source Database Solutions on Azure
- Lab : Deploying Azure SQL Database
- Deploy a VM using an ARM template
- Configure resources needed prior to creating a database
- Deploy an Azure SQL Database
- Register the Azure SQL Database instance in Azure Data Studio and validate connectivity
- Deploy PostgreSQL or MySQL using a client tool to validate connectivity

### Module 11: Implement a Secure Environment

- Configure Database Authentication
- Configure Database Authorization
- Implement Security for Data at Rest
- Implement Security for Data in Transit
- Implement Compliance Controls for Sensitive Data
- Lab : Implement a Secure Environment
- Configure a server-based firewall rule using the Azure Portal
- Authorize Access to Azure SQL Database with Azure Active Directory
- Enable Advanced Data Security and Data Classification
- Manage access to database objects

### Module 12: Monitor and Optimize Operational Resources

- Baselines and Performance Monitoring
- Major Causes of Performance Issues
- Configuring Resources for Optimal Performance
- User Database Configuration
- Performance-related Maintenance Tasks
- Lab : Monitor and Optimize Resources
- Isolate CPU Problems
- Use Query Store observe blocking problems
- Detect and correct fragmentation issues

### **Module 13: Automation of Tasks**

- Setting up Automatic Deployment
- Defining Scheduled Tasks
- Configuring Extended Events
- Managing Azure PaaS resources Using Automated Methods
- Lab : Automating Tasks
- Deploy an Azure template from a Quickstart template on GitHub
- Configure notifications based on performance metrics
- Deploy an Azure Automation Runbook (or elastic job) to rebuild indexes on an Azure SQL Database

### **Module 14: Plan and Implement a High Availability and Disaster Recovery Environment**

- High Availability and Disaster Recovery Strategies
- IaaS Platform and Database Tools for HADR
- PaaS Platform and Database Tools for HADR
- Database Backup and Recovery
- Lab : Plan and Implement a High Availability and Disaster Recovery Environment
- Create an Always On Availability Group
- Enable Geo-Replication for Azure SQL Database
- Backup to URL and Restore from URL

As this is a customized course, the trainer will also cover the [indexes portion](#) if time permits.