

# Administering Relational Databases on Microsoft Azure

## Description

This course provides participants with the knowledge and skills to administer a SQL Server database infrastructure for cloud, on-premises and hybrid relational databases and who work with the Microsoft PaaS relational database offerings. Additionally, it will be of use to individuals who develop applications that deliver content from SQL-based relational databases.

## Course Content

### Module 1: The Role of the Azure Database Administrator

- Lesson 1: Azure Data Platform Roles
- Lesson 2: Azure Database Platforms and Options
- Lesson 3: SQL Server Compatibility Levels
- Lesson 4: Azure Preview Features

### Module 2: Plan and Implement Data Platform Resources

- Lesson 1: Deploying SQL Server using IaaS
- Lesson 2: Deploying SQL Server using PaaS
- Lesson 3: Deploying Open Source Database Solutions on Azure

### Module 3: Implement a Secure Environment

- Lesson 1: Configure Database Authentication
- Lesson 2: Configure Database Authorization
- Lesson 3: Implement Security for Data at Rest
- Lesson 4: Implement Security for Data in Transit
- Lesson 5: Implement Compliance Controls for Sensitive Data

### Module 4: Monitor and Optimize Operational Resources

- Lesson 1: Baselines and Performance Monitoring
- Lesson 2: Major Causes of Performance Issues
- Lesson 3: Configuring Resources for Optimal Performance
- Lesson 4: User Database Configuration
- Lesson 5: Performance-related Maintenance Tasks

### Module 5: Optimize Query Performance

- Lesson 1: Understanding SQL Server Query Plans
- Lesson 2: Explore Performance-based Database Design
- Lesson 3: Evaluate Performance Improvements

### Module 6: Automation of Tasks

- Lesson 1: Setting up Automatic Deployment
- Lesson 2: Defining Scheduled Tasks
- Lesson 3: Configuring Extended Events

- Lesson 4: Managing Azure PaaS resources Using Automated Methods

## **Module 7: Plan and Implement a High Availability and Disaster Recovery Environment**

- Lesson 1: High Availability and Disaster Recovery Strategies
- Lesson 1: IaaS Platform and Database Tools for HADR
- Lesson 1: PaaS Platform and Database Tools for HADR
- Lesson 1: Database Backup and Recovery

### **Lab / Exercises**

#### **Lab 1: Using the Azure Portal and SQL Server Management Studio**

- Provision a SQL Server on an Azure Virtual Machine
- Connect to SQL Server and Restore a Backup

#### **Lab 2: 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

#### **Lab 3: Implement a Secure Environment**

- Lesson 1: Configure a server-based firewall rule using the Azure Portal
- Lesson 1: Authorize Access to Azure SQL Database with Azure Active Directory
- Lesson 1: Enable Advanced Data Security and Data Classification
- Lesson 1: Manage access to database objects

#### **Lab 4: Monitor and Optimize Resources**

- Isolate CPU Problems
- Use Query Store to observe blocking problems
- Detect and correct fragmentation issues

#### **Lab 5: Query Performance Troubleshooting**

- Identify issues with database design AdventureWorks2017
- Isolate problem areas in poorly performing queries in AdventureWorks2017
- Use Query Store to detect and handle regression in AdventureWorks2017
- Use query hints to impact performance in AdventureWorks2017

#### **Lab 6: 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

#### **Lab 7: 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

### **Documentation**

- Digital courseware included

## **Exam**

- This course prepares you to the DP-300: Administering Relational Databases on Microsoft Azure exam. If you wish to take this exam, please contact our secretariat who will let you know the cost of the exam and will take care of all the necessary administrative procedures for you.

## **Participant profiles**

- Data professionals managing data and databases who want to learn about administering the data platform technologies that are available on Microsoft Azure
- Data architects and application developers who need to understand what technologies are available for the data platform with Azure

## **Prerequisites**

- Have working experience with managing datas

## **Objectives**

- Plan, deploy and configure Azure SQL offerings
- Monitor database performance and tune a database and queries for optimum performance
- Plan and configure a High Availability Solution

## **Niveau**

Intermédiaire

## **Classroom Registration Price (CHF)**

3200

## **Virtual Classroom Registration Price (CHF)**

3000

## **Duration (in Days)**

4

## **Reference**

DP-300T00