Tertiary Infotech

Curriculum Development : Workplace Learning : Skills Training : Robotics

WSQ - Administering Microsoft Azure SQL Solutions (DP-300)

About This Course

WSQ Administering Microsoft Azure SQL Solutions (DP-300) provides comprehensive training on maintaining, securing, and optimizing SQL databases on Azure. Participants will develop efficient data processes, design secure environments, and implement robust data integration procedures tailored to business requirements.

The course covers a wide range of topics, including deploying SQL Server in Azure, migrating SQL workloads, configuring database security, monitoring performance, and automating database tasks. Additionally, it emphasizes high availability and disaster recovery strategies, ensuring participants are well-equipped to handle various database scenarios in Azure environments.

What You'll Learn

By end of course, learners should be able to:

- Develop efficient processes and data warehouse process models for Azure SQ in accordance to business requirements.
- Design data validation and staging databases for Azure SQL.
- Design and verify an extraction process for Azure SQL that consolidates in accordance to business rules.
- Design a transformation and loading process for Azure SQL in accordance to business rules.
- Develop data integration procedure and translate business requirements into Azure SQL data structure.

Course Certificate

Two e-certificates will be awarded to trainees who have passed the assessment.

1. Statement of Achievement

Data Engineering ICT-DIT-4005-1.1 TSC under ICT Skills Framework issued by WSG/SSG.

2. Certification of Achievement issued by Tertiary Infotech Pte Ltd.

Tertiary Infotech

Curriculum Development : Workplace Learning : Skills Training : Robotics

WSQ - Administering Microsoft Azure SQL Solutions (DP-300)

Course Outline:

Topic 1: Prepare to maintain SQL databases on Azure Describe Microsoft Intelligent Data Platform roles Understand SQL Server in an Azure virtual machine Design Azure SQL Database for cloud-native applications Explore Azure SQL Database Managed Instance
Topic 2: Deploy IaaS solutions with Azure SQL Explain IaaS options to deploy SQL Server in Azure Understand hybrid scenarios Explore performance and security Explain high availability and disaster recovery options Exercise: Provision a SQL Server on an Azure Virtual Machine
Topic 3: Deploy PaaS solutions with Azure SQL Explain PaaS options for deploying SQL Server in Azure Explore single SQL database Deploy SQL database elastic pool Understand SQL database hyperscale Examine SQL managed instance Describe SQL Edge Exercise: Deploy an Azure SQL Database
Topic 4: Evaluate strategies for migrating to Azure SQL Understand compatibility level Understand Azure preview features Describe Azure database migration options

Topic 5: Migrate SQL Server workloads to Azure SQL Database

Choose the right Azure SQL Database feature
Use Azure SQL migration extension to migrate to Azure SQL Database
Explore Data Migration Assistant to migrate to Azure SQL Database
Migrate to Azure SQL Database using BACPAC
Use an online method to migrate to Azure SQL Database
Move data to Azure SQL Database
Exercise: Migrate a SQL Server database to Azure SQL Database

Topic 6: Migrate SQL workloads to Azure Managed Instances

Evaluate migration scenarios to SQL Database Managed Instance
Migrate to SQL Database Managed Instance
Load and Move data to SQL Database Managed Instance

Topic 7: Configure database authentication and authorization

Describe Active Directory and Microsoft Entra ID
Describe authentication and identities
Describe Security Principals
Describe database and object permissions
Identify authentication and authorization failures
Exercise: Authorize Access to Azure SQL Database with Microsoft Entra ID

Topic 8: Protect data in-transit and at rest

Explore Transparent Data Encryption
Configure server and database firewall rules
Explain object encryption and secure enclaves
Enable encrypted connections
Describe SQL injection
Understand Azure Key Vault
Exercise: Configure a server-based firewall rule using the Azure portal

Topic 9: Implement compliance controls for sensitive data

Explore data classification
Explore server and database audit
Implement Dynamic Data Masking
Implement Row Level security
Understand Microsoft Defender for SQL
Explore Azure SQL Database Ledger
Implement Azure Purview
Exercise: Enable Microsoft Defender for SQL and Data Classification

Topic 10: Describe performance monitoring

Describe performance monitoring tools
Describe critical performance metrics
Establish baseline metrics
Explore extended events
Describe Azure SQL Insights
Explore Query Performance Insight
Exercise: Isolate problems with monitoring

Topic 11: Configure SQL Server resources for optimal performance

Explain how to optimize Azure storage for SQL Server virtual machines
Describe virtual machine resizing
Optimize database storage
Control SQL Server resources

Topic 12: Configure databases for optimal performance

Explore database maintenance checks
Describe database scoped configuration options
Describe automatic tuning
Describe intelligent query processing
Exercise: Detect and correct fragmentation issues

Topic 13: Explore query performance optimization

Understand query plans
Explain estimated and actual query plans
Describe dynamic management views and functions
Explore Query Store
Identify problematic query plans
Describe blocking and locking
Exercise: Identify and resolve blocking issues

Topic 14: Explore performance-based design

Describe normalization
Choose appropriate data types
Design indexes
Exercise: Identify database design issues

Topic 15: Evaluate performance improvements

Describe wait statistics
Tune and maintain indexes
Understand query hints
Exercise: Isolate problem areas in poorly performing queries

Topic 16: Automate deployment of database resources

Describe deployment models in Azure
Automate deployment by using Azure Resource Manager templates and Bicep
Automate deployment by using PowerShell
Automate deployment by using Azure CLI
Exercise: Deploy an Azure SQL Database using an Azure Resource Manager template

Topic 17: Create and manage SQL Agent jobs

Create a SQL Server maintenance plan
Describe task status notifications
Knowledge check
Exercise: Create a CPU status alert for a SQL Server

Topic 18: Manage Azure PaaS tasks using automation

Explore Elastic jobs
Understand Azure Automation
Build an automation runbook
Automate database workflows by using Logic Apps
Monitor automated tasks
Exercise: Deploy an automation runbook to automatically rebuild indexes

Topic 19: Describe high availability and disaster recovery strategies

Describe recovery time objective and recovery point objective
Explore high availability and disaster recovery options
Describe Azure high availability and disaster recovery features for Azure Virtual Machines
Describe high availability and disaster recovery options for PaaS deployments
Explore an IaaS high availability and disaster recovery solution
Describe hybrid solutions

Topic 20: Explore IaaS and PaaS solutions for high availability and disaster recovery

Describe failover clusters in Windows Server
Configure Always-on availability groups
Describe temporal tables in Azure SQL Database
Describe active geo-replication for Azure SQL Database
Explore auto-failover groups for Azure SQL Database and Azure SQL Managed Instance
Exercise: Configure geo replication for Azure SQL Database

Topic 21: Back up and restore databases

Back up and restore SQL Server running on Azure virtual machines
Back up a SQL Server virtual machine
Back up and restore a database using Azure SQL Database
Exercise: Backup to URL

Final Assessment

Tertiary Infotech

Curriculum Development : Workplace Learning : Skills Training : Robotics

Course Information

Course Code: TGS-2024048319

Skills Framework: Data Engineering ICT-DIT-4005-1.1 TSC under ICT Skills Framework

Course Fee (Before Funding):

$2,000.00 (Bef. GST)

$2180.00 (Incl. GST)

Time: 9:30am-6:30pm
Duration: 32hrs (4 days)

Tel: +65 6100 0613
Email: support@tertiaryinfotech.com
WhatsApp: https://wa.me/6561000613

Registration Link:
https://www.tertiarycourses.com.sg/wsq-administering-microsoft-azure-sql-solutions-dp-300.html

Enquiry

Venue: 12 Woodlands Square, #07-85/86/87,
Woods Square Tower 1, Singapore 733715 (Disabled-Friendly)

Minimum Entry Requirements

Knowledge and Skills

- Able to operate using computer functions with minimum Computer Literacy Level 2 based on ICAS Computer Skills Assessment Framework.
- Minimum 3 GCE 'O' Levels Passes including English or WPL Level 5 (Average of Reading, Listening, Speaking & Writing Scores).

Tertiary Infotech

Curriculum Development : Workplace Learning : Skills Training : Robotics

WSQ Funding

WSQ funding is only applicable to Singaporeans/PRs. Subject to eligibility, the funding support is subjected to funding caps.

Baseline: Singaporean/PR age 21 and above
MCES: Singaporeans aged 40 years old and above
SME: Small and Medium Enterprises.

SkillsFuture Enterprise Credit (SFEC):

Eligible Singapore-registered companies can claim up to $10,000.

Effective for Courses starting from 1 Jan 2024

Full Fee	GST	Nett Fee after Funding (Inc. GST)	
		Baseline	MCES / SME
$2,000	$180.00	$1,180.00	$780.00

UTAP Funding

Eligible NTUC members can apply for 50% of the unfunded fee from UTAP, capped at $250 per year. NTUC members aged 40 and above will get increased funding support from $250 to $500.

Absentee Payroll (AP) Funding

$4.50 per hour, capped at $100,000 per enterprise per calendar year.
AP funding will be computed based on the actual number of training hours attended by the trainee.

Tertiary Infotech

Curriculum Development : Workplace Learning : Skills Training : Robotics

Frequently Asked Questions

* What are the prerequisites for WSQ Funding?

1. You need to be a Singaporean Citizen or Permanent Resident, physically based in Singapore.
2. You must successfully complete the programme and pass the assessment in order to be eligible.
3. You must attend at least 75% of the training.

* Can I club any other grant with this subsidy?

No, you cannot claim any other grant if you are claiming this subsidy from SSG. You should not be claiming for any other grants, subsidies, or tax concessions, provided unless explicitly permitted.

* Do I need to pay the full fee, and then claim the subsidy from WSQ Funding?

The programme works on a Nett fee model, i.e. you only need to pay the difference between the fee, and the funding amount at the time of enrollment. The training provider (TP) will claim the funding amount from SSG on completion of the programme. In case you fail to complete the programme, or if the claim raised by TP is rejected by SSG then you are liable to pay the funding amount to TP.