DP-3021: Configure and migrate to Azure Database for PostgreSQL Course

Course Duration: 8 Hours **Course code: DP-3021**

1. Course Overview

In DP-3021, you'll learn how to plan, deploy, secure, monitor, and migrate PostgreSQL databases using Microsoft Azure. Through a mix of demonstrations, guided labs, and real-world best practices, you'll gain hands-on experience building scalable and high-performance PostgreSQL solutions in the cloud. By the end of this course, you'll be equipped to confidently manage PostgreSQL workloads in Azure Database for PostgreSQL—leveraging Azure-native tools, automation, and advanced features.

2. What you'll learn?

By the end of this course, you will be able to:

- Architect and deploy Azure Database for PostgreSQL in both Single Server and Flexible Server modes
- Design and configure high availability, failover, replication, and disaster recovery
- Secure PostgreSQL deployments using networking, authentication, and encryption
- Implement performance tuning and monitoring using Azure tools
- Execute seamless migrations from on-premises, VM-based, and other cloud-hosted PostgreSQL
- Integrate with Azure ecosystem services: Virtual Networks, Key Vault, App Services, Logic Apps
- Plan and optimize cost-savings and scalability strategies

3. Target Audience

This course is ideal for:

- Database Engineers and Administrators transitioning PostgreSQL workloads to Azure
- Cloud Architects planning migrations and designing PostgreSQL-based applications
- DevOps Engineers and Developers responsible for provisioning, securing, and monitoring data platforms
- IT Professionals who design data migration and disaster recovery strategies

4. Pre-Requisites

- Prior experience using Azure Portal and Azure CLI to create resources
- Knowledge of identity management and role-based access control (RBAC) in Azure
- Background in creating and configuring Azure virtual machines
- Working familiarity with Linux-based operating systems (administration fundamentals)

5. Course content

Module 1: Getting Started with Azure Database for PostgreSQL

- Overview of Azure Database for PostgreSQL offerings (Single Server & Flexible Server)
- Service capabilities and use cases
- Choosing the right deployment option

Module 2: Setting Up Your Environment

- Creating Azure PostgreSQL instances
- Configuring storage, compute, and availability zones
- Connecting using Azure Portal, CLI, and SDKs

Module 3: Securing Your Database

- Configuring firewalls and virtual networks
- Integrating Azure Active Directory authentication
- Data encryption at rest and in transit
- Role-based access control (RBAC)

Module 4: Ensuring Performance & Reliability

- Query optimization and indexing
- Monitoring with Azure Monitor and Performance Insights
- Backup and restore strategies
- Implementing high availability and failover

Module 5: Migration Strategies

- Migration planning and assessment
- Using Azure Database Migration Service (DMS)
- pg_dump, pg_restore, and replication-based migrations
- Zero-downtime migration techniques

Module 6: Automation & Cost Optimization

- Automating deployments with ARM templates, Bicep, and CLI scripts
- Scaling resources up/down
- Cost analysis and reserved capacity benefits

Module 7: Integration with Azure Ecosystem

- Connecting PostgreSQL with App Services, Functions, and Logic Apps
- Using Event Grid and Key Vault with PostgreSQL

- Real-world integration scenarios

Module 8: Best Practices & Troubleshooting

- Common operational issues and fixes
- Performance tuning guidelines
- Disaster recovery planning
- Post-migration checklist