Planning and Designing Databases on AWS

Course Duration: 24 Hours **Course Code: AWS-DB301**

1. Course Overview

The **Planning and Designing Databases on AWS** course provides participants with the skills to evaluate, design, and plan database solutions on the AWS Cloud. The course focuses on database design principles, workload analysis, and best practices for performance, scalability, and cost optimization. Participants will learn to match business requirements with the right AWS database services, ensuring efficiency, reliability, and security in modern cloud-based applications.

2. What You'll Learn?

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

- Understand the fundamentals of database planning and design in AWS.
- Identify and analyze workload requirements for database selection.
- Evaluate relational and non-relational database options on AWS.
- Design scalable, secure, and highly available database architectures.
- Apply performance optimization and cost-saving strategies.
- Integrate monitoring, backup, and disaster recovery best practices.

3. Target Audience

This course is ideal for:

- Database architects and administrators.
- Solutions architects and cloud architects.

- Developers and data engineers designing cloud-native applications.
- IT professionals responsible for migrating or modernizing databases to AWS.

4. Pre-Requisites

Participants should have:

- Basic knowledge of relational and non-relational databases.
- Familiarity with AWS Cloud concepts (recommended: AWS Cloud Practitioner Essentials).
- Understanding of data modeling and database administration concepts.

5. Course Content

Module 1: Introduction to Database Design on AWS

- Database fundamentals in the cloud
- Overview of AWS database services

Module 2: Workload Analysis and Database Selection

- Identifying database workloads
- Comparing relational vs. non-relational databases
- Choosing the right AWS service (Amazon RDS, DynamoDB, Aurora, etc.)

Module 3: Relational Database Design on AWS

- Schema design principles
- High availability and scalability with Amazon RDS & Aurora

Module 4: NoSQL Database Design

- Designing for key-value, document, and graph databases
- Best practices with DynamoDB and Neptune

Module 5: Performance Optimization

- Query optimization techniques
- Indexing, partitioning, and caching strategies

Module 6: Security and Compliance in AWS Databases

- Encryption, IAM, and access control
- Compliance frameworks in AWS

Module 7: Backup, Recovery, and Monitoring

- Backup strategies and automated snapshots
- Disaster recovery design
- Monitoring with Amazon CloudWatch and AWS CloudTrail

Module 8: Cost Optimization in Database Design

- Cost-effective database design
- Reserved instances, serverless, and on-demand options

Module 9: Capstone Project

- Design and present a database architecture for a real-world business scenario.

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