Planning and Designing Databases on AWS

Course description

In this course, you will learn about planning and designing your solutions with purpose-built Amazon Web Services (AWS) Cloud databases. The course introduces you to the features and characteristics of each of these databases and shares the design considerations that you should make while using them. By taking this course, you can develop the analytical skills needed to choose the right AWS database for your unique needs.

By the end of the course, you will be able to analyze a business use case, analyze the workload, and assess application requirements to identify and design the most suitable AWS database solution to support your organizational needs.

- Course level: Intermediate
- Duration: 3 days

Activities

This course provides opportunities for you to apply concepts through various activities. It includes instructor-led presentations, demonstrations, individual and group activities, knowledge checks, and hands-on labs to apply concepts.

Course objectives

In this course, you will learn how to do the following:

- Summarize the AWS Well-Architected Framework for designing database solutions.
- Choose an appropriate purpose-built database service for a given workload.
- Design a relational database solution to solve a business problem.
- Design a NoSQL database solution to solve a business problem.
- Analyze data from multiple databases to solve a business problem.
- Discuss the security considerations for your database solution.

Intended audience

This course is intended for learners in the following roles:

- Solutions architects
- Database architects
- Developers

Prerequisites

We recommend the following prerequisites for attendees of this course:

- Familiarity with AWS database services

- Understanding of database design concepts and/or data modeling for relational or nonrelational databases
- Familiarity with cloud computing concepts
- Familiarity with general networking and encryption concepts
- Completion of the digital course Introduction to Building with AWS Databases

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Course outline

Day 1

Module 0: Course Introduction
- Course overview

Module 1: AWS Purpose-Built Databases
- Discussing well-architected databases
- Analyzing workload requirements
- Choosing the data model
- Choosing the right purpose-built database
- Knowledge check

Module 2: Amazon Relational Database Service (Amazon RDS)
- Discussing a relational database
- What is Amazon RDS?
- Why Amazon RDS?
- Amazon RDS design considerations
- Knowledge check

Module 3: Amazon Aurora
- What is Amazon Aurora?
- Why Amazon Aurora?
- Aurora design considerations
- Knowledge check

Challenge Lab 1: Working with Amazon Aurora databases

Day 2

Class Activity 1: Choose the Right Relational Database

Module 4: Amazon DynamoDB
- Discussing a key value database
- What is DynamoDB?
- Why DynamoDB?
- DynamoDB design considerations
- Knowledge check

Module 5: Amazon Keyspaces (for Apache Cassandra)
- Discussing a wide-column database
- What is Apache Cassandra?
- What is Amazon Keyspaces?
- Why Amazon Keyspaces?
- Amazon Keyspaces design considerations
- Knowledge check

Module 6: Amazon DocumentDB (with MongoDB compatibility)
- Discussing a document database
- What is Amazon DocumentDB?
- Why Amazon DocumentDB?
- Amazon DocumentDB design considerations
- Knowledge check

Module 7: Amazon Quantum Ledger Database (Amazon QLDB)
- Discussing a ledger database
- What is Amazon QLDB?
- Why Amazon QLDB?
- Amazon QLDB design considerations
- Knowledge check

Class Activity 2: Choose the Right Nonrelational Database

Challenge Lab 2: Working with Amazon DynamoDB Tables

Day 3

Module 8: Amazon Neptune
- Discussing a graph database
- What is Amazon Neptune?
- Why Amazon Neptune?
- Amazon Neptune design considerations
- Knowledge check

Module 9: Amazon Timestream
- Discussing a timeseries database
- What is Amazon Timestream?
- Why Amazon Timestream?
- Amazon Timestream design considerations
- Knowledge check

Module 10: Amazon ElastiCache
- Discussing an in-memory database
- What is ElastiCache?
- Why ElastiCache?
- ElastiCache design considerations
- Knowledge check

Module 11: Amazon MemoryDB for Redis
- What is Amazon MemoryDB (for Redis)?
- Why Amazon MemoryDB?
- Amazon MemoryDB design considerations
- Knowledge check

Class Activity 3: Let's Cache In

Module 12: Amazon Redshift
- Discussing a data warehouse
- What is Amazon Redshift?
- Why Amazon Redshift?
- Amazon Redshift design considerations
- Knowledge check

Module 13: Tools for Working with AWS Databases
- Data access and analysis with Amazon Athena
- Data migration with SCT and DMS

Class Activity 4: Overall Picture

Challenge Lab 3: Working with Amazon Redshift clusters