

CLOUD

ADVANCED

5 DAYS

AWS DynamoDB Essentials

Build a strong foundation in Amazon DynamoDB by understanding its architecture, data modeling, and core APIs. Learn how to design secure, scalable, and high performance NoSQL solutions and integrate DynamoDB effectively with other AWS services.

Why DynamoDB?

Practical skills

Scalability: DynamoDB provides seamless scalability, allowing you to scale your database up or down based on your application's needs.

Operational readiness

Performance: DynamoDB delivers low-latency performance, even at scale. This ensures that your applications can provide a responsive user experience and handle demanding workloads efficiently.

Enterprise outcomes

Cost-Effective: DynamoDB offers a pay-as-you-go pricing model, where you pay only for the resources you consume. This flexibility helps optimise costs by eliminating the need to overprovision resources.

What you'll be able to do

- ✓ Gain a solid understanding of the core concepts and architecture of DynamoDB.
- ✓ Learn effective data modeling techniques for DynamoDB
- ✓ Gain proficiency in using DynamoDB APIs and query mechanisms to interact with the database
- ✓ Learn techniques to optimise the performance and scalability of DynamoDB
- ✓ Understand the security features and best practices of DynamoDB
- ✓ Learn how to integrate DynamoDB with other AWS services

Who this is for

- Developers Database Administrators Solution Architects
Data Engineers Business Analysts

Curriculum

01 Introduction to AWS DynamoDB

- Overview of DynamoDB and its key features
- Benefits and use cases of DynamoDB in modern applications
- Understanding DynamoDB's pricing model and capacity considerations

02 Data Modeling in DynamoDB

- Understanding DynamoDB's data model and schema-less nature
- Designing efficient primary keys and secondary indexes
- Strategies for modeling relationships and complex data structures

03 Querying and Indexing in DynamoDB

- Performing basic CRUD operations in DynamoDB
- Querying data using primary keys and secondary indexes
- Leveraging advanced querying features like filter expressions and conditionals

04 Provisioned Throughput and Performance Optimization

- Understanding DynamoDB's provisioned throughput model
- Scaling read and write capacity to handle high traffic
- Techniques for optimizing performance, including batch operations and parallel scans

05 Advanced Querying and Indexing Techniques

- Leveraging DynamoDB's global secondary indexes (GSIs) and local secondary indexes (LSIs)
- Querying with sort keys and range queries
- Exploring advanced querying patterns like pagination and efficient sorting

06 Data Modeling Best Practices

- Applying best practices for data modeling in DynamoDB
- Understanding trade-offs between normalized and denormalized data models
- Using DynamoDB Streams for capturing and processing data changes

07 DynamoDB Streams and Real-time Data Processing

- Understanding the concept and benefits of DynamoDB Streams
- Setting up and configuring DynamoDB Streams
- Building real-time data processing pipelines using AWS Lambda and Kinesis

08 Security and Access Control in DynamoDB

- Implementing IAM policies for fine-grained access control
- Encrypting data at rest and in transit with DynamoDB
- Securing DynamoDB tables using VPC endpoints and security best practices

09 Data Backup, Restore, and Disaster Recovery

- Configuring automated backups and point-in-time recovery
- Restoring data from backups and snapshots
- Planning and implementing disaster recovery strategies for DynamoDB

10 Integration with Other AWS Services

- Integrating DynamoDB with AWS Lambda for serverless application development
- Using DynamoDB with Amazon S3 for storing and querying large objects
- Leveraging DynamoDB as a source or destination for Amazon Redshift and other services

11 Monitoring and Troubleshooting DynamoDB

- Monitoring DynamoDB performance using CloudWatch metrics and alarms
- Analyzing and interpreting DynamoDB's CloudWatch logs and events
- Troubleshooting common performance and operational issues in DynamoDB

12 Best Practices and Design Patterns for DynamoDB

- Applying best practices for designing scalable and efficient DynamoDB applications
- Understanding DynamoDB's limitations and choosing alternative solutions when necessary
- Exploring real-world use cases and architectural patterns for DynamoDB