



Developing on AWS

- 5 Days
- Lecture and Hands-on Labs

Course Overview

This course teaches experienced developers how to programmatically interact with AWS services to build web solutions. It guides you through a high-level architectural discussion on resource selection and dives deep into using the AWS Software Development Kits (AWS SDKs) and Command Line Interface (AWS CLI) to build and deploy your cloud applications. You will build a sample application during this course, learning how to set up permissions to the development environment, adding business logic to process data using AWS core services, configure user authentications, deploy to AWS cloud, and debug to resolve application issues. The course includes code examples to help you implement the design patterns and solutions discussed in the course. The labs reinforce key course content and help you to implement solutions using the AWS SDK for Python, .Net, and Java, the AWS CLI, and the AWS Management Console.

Review this course online at https://www.alta3.com/courses/dodeva

Who Should Attend

- Software developers
- Solutions architects
- IT professionals seeking to enhance AWS development skills

What You'll Learn

- Build a simple end-to-end cloud application using AWS SDKs and AWS CLI.
- Configure AWS Identity and Access Management (IAM) permissions.
- Use programming patterns to access AWS services in applications.
- Perform CRUD operations on Amazon S3 and DynamoDB resources using AWS SDKs.

Outline

Module 1: Course Overview

- 1. Logistics
- $2. \ {\rm Student} \ {\rm resources}$
- 3. Agenda
- 4. Introductions #### Module 2: Building a Web Application on AWS
- 5. Discuss the architecture of the application you are going to build during this course
- 6. Explore the AWS services needed to build your web application
- 7. Discover how to store, manage, and host your web application #### Module 3: Getting Started with Development on AWS
- 8. Describe how to access AWS services programmatically
- 9. List some programmatic patterns and how they provide efficiencies within AWS SDKs and AWS CLI
- 10. Explain the value of AWS Cloud9 #### Module 4: Getting Started with Permissions
- 11. Review AWS Identity and Access Management (IAM) features and components permissions to support a development environment

- 12. Demonstrate how to test AWS IAM permissions
- 13. Configure your IDEs and SDKs to support a development environment
- 14. Demonstrate accessing AWS services using SDKs and AWS Cloud9 #### Module 5: Getting Started with Storage
- 15. Describe the basic concepts of Amazon S3
- 16. List the options for securing data using Amazon S3
- 17. Define SDK dependencies for your code
- 18. Explain how to connect to the Amazon S3 service
- 19. Describe request and response objects #### Module 6: Processing Your Storage Operations
- 20. Perform key bucket and object operations
- 21. Explain how to handle multiple and large objects
- 22. Create and configure an Amazon S3 bucket to host a static website
- 23. Grant temporary access to your objects
- 24. Demonstrate performing Amazon S3 operations using SDKs #### Module 7: Getting Started with Databases
- 25. Describe the key components of DynamoDB
- 26. Explain how to connect to DynamoDB
- 27. Describe how to build a request object
- 28. Explain how to read a response object
- 29. List the most common troubleshooting exceptions #### Module 8: Processing Your Database Operations
- $30.\,$ Develop programs to interact with DynamoDB using AWS SDKs
- 31. Perform CRUD operations to access tables, indexes, and data
- 32. Describe developer best practices when accessing DynamoDB
- 33. Review caching options for DynamoDB to improve performance
- 34. Perform DynamoDB operations using SDK #### Module 9: Processing Your Application Logic
- 35. Develop a Lambda function using SDKs
- 36. Configure triggers and permissions for Lambda functions
- 37. Test, deploy, and monitor Lambda functions #### Module 10: Managing the APIs
- 38. Describe the key components of API Gateway
- 39. Develop API Gateway resources to integrate with AWS services
- 40. Configure API request and response calls for your application endpoints
- 41. Test API resources and deploy your application API endpoint
- 42. Demonstrate creating API Gateway resources to interact with your application APIs #### Module 11: Building a Modern Application
- 43. Describe the challenges with traditional architectures
- 44. Describe the microservice architecture and benefits
- 45. Explain various approaches for designing microservice applications
- 46. Explain steps involved in decoupling monolithic applications
- 47. Demonstrate the orchestration of Lambda Functions using AWS Step Functions #### Module 12: Granting Access to Your Application Users
- 48. Analyze the evolution of security protocols
- 49. Explore the authentication process using Amazon Cognito
- 50. Manage user access and authorize serverless APIs
- 51. Observe best practices for implementing Amazon Cognito
- 52. Demonstrate the integration of Amazon Cognito and review JWT tokens #### Module 13: Deploying Your Application
- 53. Identify risks associated with traditional software development practices
- 54. Understand DevOps methodology
- $55.\ {\rm Configure\ an\ AWS\ SAM\ template\ to\ deploy\ a\ serverless\ application}$
- 56. Describe various application deployment strategies
- 57. Demonstrate deploying a serverless application using AWS SAM #### Module 14: Observing Your Application
- 58. Differentiate between monitoring and observability
- 59. Evaluate why observability is necessary in modern development and key components

- 60. Understand CloudWatch's part in configuring the observability
- 61. Demonstrate using CloudWatch Application Insights to monitor applications
- 62. Demonstrate using X-Ray to debug your applications #### Module 15: Course Wrap-up
- 63. Course overview
- 64. AWS training courses
- 65. Certifications
- 66. Course feedback

Labs

- Configure the Developer Environment
- Develop Solutions Using Amazon S3
- Develop Solutions Using Amazon DynamoDB
- Develop Solutions Using AWS Lambda Functions
- Develop Solutions Using Amazon API Gateway
- Capstone Complete the Application Build
- Observe the Application Using AWS X-Ray

Prerequisites

- AWS Technical Essentials
- Working knowledge of AWS core services
- Programming experience in any one of the following languages: Python, .NET, Java

Next Courses

 ${\rm Course}\;1\;{\rm Course}\;2$

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