

AWS Cloud Development Kit (Custom course)

Duration: 5 days (4 hrs/day)

Course description:

In this course, we will commence by gaining insights into the fundamentals of the AWS Cloud Development Kit (CDK) and comprehending the imperative reasons for utilizing CDK. Participants will embark on creating their first CDK Stack, acquiring the skills to deploy it effectively, while also mastering the planning and visualization aspects of deployments. The curriculum delves into the intricacies of resources and reusability within CDK stacks, guiding individuals on launching EC2 instances through CDK. Additionally, the course encompasses the creation of IAM users and groups, along with the incorporation of pre-existing CloudFormation templates into CDK.

Participants will expand their knowledge to proficiently manage fully-managed message queues tailored for microservices. The latter part of the program focuses on advanced topics, including the creation of Lambda functions for event-driven architecture, scheduling Lambda functions using CRON in the cloud, and exploring CloudWatch live dashboards and widgets.

By the conclusion of this concise yet comprehensive course, participants will possess a thorough understanding of the AWS Cloud Development Kit and its practical applications.

Intended audience:

This course is intended for:

- Software Engineers
- DevOps Engineers
- Cloud Architects

Course objectives:

In this course, you will learn to:

- Define cloud infrastructure using a programming language with the AWS CDK.
- Understand the features and use cases of the AWS CDK Toolkit.
- Explore the AWS Construct Library.
- Explore the essentials of an AWS CDK project.
- How to synthesize and deploy AWS CloudFormation stacks using the AWS CDK.

Prerequisites:

We recommend that attendees of this course have:

- Knowledge and experience with core AWS core services.
- Have at least 1 year of experience operating AWS workloads and programming language

Course outline:

Day 1

1. Introduction to what is AWS CDK.
2. Getting started with AWS CDK.
3. Creating your first CDK stack and deploy it.
4. Learn to customize stack resources.
5. Version-control your infrastructure.
6. Plan and visualize your deployments: Diff your changes.

7. CDK Tokens: How to Export/Import stack values | cfn Intrinsic Functions.
8. Stack Cleanup: Destroying the app's resources.

Day 2

1. CDK: Multi-environment deployment.
2. Customize stack parameters: CDK context variables.
3. Build Multi-AZ production ready custom VPC.
4. Add tags to CDK resources on creation.
5. Tagging at Scale: Easily add tags to all resources in the stack.

Day 3

1. Import Pre-existing external resources: S3, VPC.
2. Create AWS SSM Parameter and AWS Secrets.
3. Create IAM Users, Groups.
4. Create IAM Role, inline, and managed policy.
5. IAM resource policy: S3 bucket policy.
6. Import Pre-existing CloudFormation templates into CDK.
7. Create SNS Topic and Subscriptions.

Day 4

1. Serverless: Create Lambda for Event-Driven Architecture.
2. Create and manage lambda log groups.
3. Serverless: Lambda source assets from S3.
4. Schedule your lambda function: CRON in the cloud.
5. DynamoDB: Key-value database.
6. Grant least privileges to your lambda functions.
7. API Gateway: An HTTP endpoint for your lambda function.

Day 5

1. Working with CDK Pipelines.
2. CDK best practices -- Do and Don't.
3. Construct Hub.(L1, L2, L3 ,L4)
4. CDK Patterns.