Cloud Application Developer

Track Structure

The Cloud Application Developer track consists of nine courses to help you build your skills to launch your career as a cloud developer in less than one year - regardless of your technical background.

Each course is a combination of digital e-learning content and live instructor-led training (ILT) sessions:

- E-learning content is delivered in modules that you can read, watch, and engage with on your own time, at your own pace. You complete the modules over the course of 11 weeks. Modules include text, video, audio, hands-on lab activities, knowledge checks and assessments.

- Each course is offered as a "pass/fail" course (no letter grades). You will complete an assessment after each module and a cumulative assessment at the end of each course. You have unlimited opportunities to achieve a passing score on the assessments. You must complete all assessments with a score of 80% or higher to receive credit for each course.

- ILT sessions focus on the topics presented in the e-learning content. Each course has instructor-led sessions that can be watched live or recorded.

The program also includes the following:

- Two Capstone projects: Capstones are lab challenges where you apply your AWS Cloud skills you gained in the program to solve business challenges using AWS products and services. You engage in potential real-world scenarios that help you further develop your AWS Cloud skills through simulated use cases in an AWS lab environment. Capstones are about applying the skills you gained in the program to build solutions for your customers.

- AWS Certification vouchers: Further validate your skills with exam prep content and vouchers for AWS Certified Cloud Practitioner, AWS Certified AI Practitioner, and AWS Certified Developer - Associate certifications.

As with all courses, the expectation is that you will complete your modules and associated assessments on a weekly basis. Taking advantage of this "flipped classroom" method is the best way to ensure that you develop the professional and technical skills required to be successful as a cloud application developer.

Quarter 1

Introduction to Cloud Foundations

In this course, you will develop a solid understanding of fundamental AWS Cloud computing concepts, services, and technologies. This course establishes the foundation for building your AWS Cloud knowledge through a combination of hands-on labs, digital learning, and live instructor-led sessions. You will develop the skills needed to navigate the AWS infrastructure and progress to more advanced topics with confidence.

- Course level: Fundamental

Course objectives

In this course, you learn to:

- Describe the fundamentals of cloud computing and AWS global infrastructure
- Identify appropriate AI solutions using AWS services for various business scenarios
- Explain scalable compute and storage solutions using AWS core services
- Outline AWS networking components and their role in enabling connectivity
- Recognize AWS IAM security controls and best practices for access management
- Identify appropriate AWS storage and database services for different workload requirements
- Describe global content delivery solutions using AWS edge services and load balancing
- Explain AWS serverless and container technologies for application deployment
- List comprehensive security controls using AWS security services and compliance frameworks
- Describe methods for optimizing AWS costs through monitoring, budgeting, and resource management
- Summarize AWS Well-Architected Framework principles for cloud architecture design

Course Outline
- Introduction to Cloud Computing and AWS
- Introduction to AWS AI and ML Services
- Compute and Storage
- Networking Fundamentals
- AWS Identity and Access Management
- AWS Storage and Database Services
- Content Delivery
- Serverless and Container Services
- Security and Compliance in AWS
- AWS Cost Management
- AWS Support and Architecture Best Practices

Hands-on Labs

In this course, you learn to:

- Navigate the AWS Management Console
- Identify basic functions of Amazon Bedrock for generative AI applications
- Deploy and configure Amazon EC2 instances
- Implement Amazon S3 storage solutions and basic access controls
- Build components of VPC networks including public and private subnets
- Implement network security controls within a VPC environment
- Create and manage IAM users, groups, and policies
- Configure and manage Amazon EBS volumes and basic backup strategies
- Deploy and manage key features of Amazon RDS databases and security controls
- Configure Amazon CloudFront distributions for content delivery
- Deploy serverless functions using AWS Lambda
- Deploy containerized applications using Amazon ECS
- Implement security monitoring and alerting features in Amazon CloudWatch
- Use AWS pricing tools for infrastructure cost calculation
- Evaluate architecture using the AWS Well-Architected Framework
- Implement basic backup strategies using AWS Backup

Ideal for anyone who wants to build and validate foundational AWS Cloud services and cloud computing knowledge.

Developer Fundamentals

In this course, you will develop foundational knowledge of Python programming while leveraging AWS AI services. Starting with Python basics and development environments using Amazon Q Developer for assistance, you will progress through topics like data structures, functions, object-oriented programming, and Git version control. The course culminates with hands-on labs that integrate AWS services to build event-driven applications and AI-powered solutions.

- Course level: Fundamental

Course objectives

In this course, you learn to:

- Identify basic Python programming concepts and development environment setup
- Investigate and use Amazon Q Developer in your IDE for coding assistance
- Describe Python control structures and loop mechanisms for basic program flow
- Recognize the structure of Python lists and basic API concepts
- Identify the components of Python dictionaries and basic function creation
- Describe basic file operations and error handling techniques in Python
- Define fundamental object-oriented programming concepts in Python
- List basic Git commands and version control concepts
- Identify basic database concepts and Amazon DynamoDB operations

- Describe basic Amazon S3 storage operations and document processing concepts
- Explain basic concepts of event-driven architecture and serverless computing

Course Outline

- Kickstart Your Python Journey with AI-Powered Coding
- Control Flow and Repetitive Tasks
- Working with Python Lists and Getting Started with APIs
- Python Dictionaries and Functions
- File Processing, Error Handling, and Image Analysis
- Object-Oriented Programming
- Version Control with Git and Remote Collaboration
- Persistent Storage with Databases
- Document Processing and Cloud Storage
- Event-Driven Python Applications

Hands-on Labs

In this course, you learn to:

- Create simple Python programs using basic syntax and programming structures
- Apply control flow statements and loop structures to solve basic problems
- Build programs that manipulate lists and interact with basic APIs
- Implement text generation applications using AWS Bedrock services
- Write programs using dictionaries and functions to organize data
- Build a basic translation service using Amazon Translate
- Create programs that handle files and manage errors effectively
- Develop an image recognition application using Amazon Rekognition
- Build simple classes and objects using object-oriented programming
- Practice basic Git commands to manage code versions
- Perform basic database operations using Amazon DynamoDB
- Upload and manage files using Amazon S3 and process documents
- Set up document storage and extract data using Amazon S3 and Amazon Textract
- Configure basic serverless computing components
- Create a Lambda function to generate audio summaries with Amazon Polly

Ideal for anyone looking to develop foundational knowledge of Python and pursuing cloud roles such as developer.

AWS Cloud Operations 1

In this course, you will have an opportunity to develop systems management skills and explain the guiding principles and methodologies of Development Operations (DevOps). You will start the course by learning about the Linux operating system (OS) and how to get started with scripting in both Linux and Windows. The course will introduce you to Bash shell scripts, PowerShell, and the basic constructs of scripting. You will be able to define and discuss the purpose of AWS Command Line Interface (AWS CLI) and develop functional knowledge of Amazon CloudWatch, AWS CloudTrail, and Amazon EventBridge.

- Course level: Intermediate

Course objectives

In this course, you learn to:

- Identify basic Linux operating system concepts and command line operations
- Describe Linux file systems, security, and package management functions
- Recognize basic scripting concepts and AWS CLI operations
- Identify PowerShell scripting fundamentals and AWS Tools for PowerShell
- Describe basic compliance, monitoring, and security concepts using AWS services
- Identify Amazon EventBridge concepts and AWS Config monitoring capabilities
- Describe AWS Systems Manager setup and operations management features
- List application and change management capabilities in AWS Systems Manager
- Define fundamental DevOps principles and version control concepts
- Identify basic CI/CD automation and pipeline concepts
- Describe Infrastructure as Code (IaC) fundamentals and development practices

Course Outline

- Introduction to Linux
- Using Linux
- Linux Scripting
- Windows Scripting
- Security and Compliance with AWS
- Monitoring with AWS
- Systems Management
- DevOps 1

Hands-on Labs

In this course, you learn to:

- Practice basic Linux command line operations in an Amazon EC2 environment
- Edit files using Vim and Nano text editors in Linux
- Create and manage Linux file system structures and permissions
- Configure user access and file ownership in Linux
- Perform package management and monitoring tasks in Linux

- Execute AWS CLI commands in Bash to manage AWS resources
- Create automation scripts using AWS CLI and Bash
- Implement error handling in Linux environments
- Use AWS Tools for PowerShell to interact with AWS services
- Create automation scripts using PowerShell
- Configure Amazon CloudWatch alarms and monitoring
- Set up AWS CloudTrail logging and alerting
- Configure Amazon EventBridge rules and patterns
- Implement AWS Config rules and remediation
- Create and manage AWS Systems Manager documents
- Configure AWS Systems Manager parameters and automation
- Create packages using AWS Systems Manager Distributor
- Create and manage AWS CodeCommit repositories
- Deploy applications using AWS CodeDeploy
- Create infrastructure using AWS CloudFormation

Ideal for anyone pursuing cloud roles like developer, cloud administrator, cloud support associate, and DevOps Engineer.

Quarter 2

AWS Cloud Fundamentals 1

This intermediate course deepens your understanding of the AWS services and operations essential for entry-level cloud administrators and support engineers. Through hands-on labs and real-world scenarios, you will develop practical skills in managing AWS resources, implementing basic security measures, and providing first-level support for common AWS infrastructure components.

- Course level: Intermediate

Course objectives

In this course, you learn to:

- Deploy and manage EC2 instances for basic workloads
- Configure basic VPC networking components
- Apply AWS identity security best practices
- Implement serverless computing basics using AWS Lambda
- Implement block storage solutions using Amazon EBS
- Manage data storage using Amazon S3
- Implement Amazon S3 storage solutions using S3 Storage Lens, CloudFront, and hybrid storage services
- Manage relational databases using Amazon RDS
- Configure content delivery and DNS services
- Optimize resource costs and utilize AWS support
- Implement compliance controls and security monitoring

Course Outline

- EC2 Instance Operations
- VPC Architecture and Design
- Identity and Access Control
- Serverless Computing Essentials
- Block Storage Operations
- Object Storage Management
- Amazon S3 Lens, Edge, and Hybrid Storage
- Relational Database Administration
- Content Delivery and DNS Service Configurations
- Cloud Storage Economics
- Security Operations and Compliance

Hands-on Labs

In this course, you learn to:

- Install, configure, and secure a WordPress blog on an Amazon Linux instance
- Use basic network troubleshooting commands that can be used to identify network issues
- Use the Network Access Analyzer feature in Amazon VPC
- Secure Amazon API Gateway Using an Amazon Cognito Authorizer
- Generate a Flask application and deploy it to an AWS Elastic Beanstalk environment using command line tools
- Create a Lambda function and configure an event notification for Amazon Simple Storage Service (Amazon S3)
- Create of Amazon Elastic Block Store (Amazon EBS) volumes
- Implement Amazon S3 lifecycle management policies to optimize storage costs
- Perform essential Amazon S3 operations using the AWS Management Console
- Work with Amazon RDS Databases
- Restore an Amazon RDS DB Instance
- Create a CloudFront distribution that uses a CloudFront domain name as the URL to distribute a publicly accessible image file
- Encrypt an AWS Secrets Manager secret with an AWS Key Management Service (AWS KMS) key

Ideal for anyone pursuing cloud roles like developer, cloud administrator, cloud support associate, and DevOps Engineer.

AI for Developers

In this course, you will learn skills to leverage AWS AI/ML technologies in real-world projects. You will learn to explain the uses of AWS AI/ML tools to both technical and non-technical audiences, differentiate AI and ML concepts, and explore prompt engineering methods. You will build an AI application using AWS AI tools, leverage LangChain to create LLM-powered applications, and apply Retrieval Augmented Generation (RAG) techniques.

- Course level: Intermediate

Course objectives

In this course, you learn to:

- Understand the foundational concepts of artificial intelligence (AI), machine learning (ML), and deep learning, including their differences and use cases
- Explore generative AI, foundation models (FMs), and large language models (LLMs), including prompt anatomy and potential AI challenges
- Apply prompt engineering techniques to effectively utilize large language models in the Amazon Bedrock environment
- Use Amazon Quick Suite to solve real-world business challenges while understanding its capabilities and limitations

- Gain foundational knowledge of Amazon Bedrock, including its parameters, playgrounds, and backend architecture
- Develop generative AI applications using serverless architectures with Amazon Bedrock and AWS services
- Leverage AI for data analysis and visualization problems using AWS services and tools for image and video analysis
- Adapt LLMs to domain-specific tasks using Retrieval Augmented Generation (RAG) with Amazon Bedrock
- Create sophisticated workflows using LangChain's components and chains to build scalable, production-ready applications
- Implement responsible AI practices and principles to ensure AI systems are transparent, trustworthy, and ethically sound
- Use AWS services to protect AI applications against security threats, establish governance controls, and ensure compliance with regulations and standards

Course Outline

- Fundamentals of AI and ML
- Generative AI, FMs, and LLMs
- Basic Prompt Engineering
- Implementing AI-Powered Assistant for Business
- Developing an AI Application with Amazon Bedrock API
- Developing Generative AI Applications on AWS
- Using Amazon Bedrock for Data Analysis and Visualization
- Building LLM Apps with RAG
- Getting Started with LangChain
- Applying Responsible AI
- Governance, Compliance, and Security for Responsible AI

Hands-on Labs

In this course, you learn to:

- Navigate the Amazon Bedrock console to enable models, test prompts, adjust parameters, and generate AI images
- Practice prompt engineering techniques with large language models using Amazon Bedrock
- Use AWS SDK for Python to invoke foundation models, create question-answering functions, and integrate with Amazon Rekognition
- Build serverless backends with AWS Lambda and API Gateway to integrate Amazon Bedrock into applications
- Develop solutions for document text extraction and image/video analysis using AWS services
- Implement Retrieval Augmented Generation (RAG) with Amazon Bedrock Knowledge Bases to enhance model accuracy
- Create AI applications using LangChain components, chains, and memory systems backed by Amazon DynamoDB
- Secure AI applications using Amazon Bedrock Guardrails to align with responsible AI principles

Ideal for anyone pursuing cloud roles like developer, cloud administrator, cloud support associate, or data scientists.

Developer Intermediate 1

In this course, you will deploy microservices for event-driven applications on containers or in a serverless fashion. You will design and develop a working application using AWS services and Python code to solve employer-informed problem scenarios.

- Course level: Intermediate

Course objectives

In this course, you learn to:

- Design and develop a customer onboarding application using AWS services
- Construct web pages using HTML, CSS, and JavaScript
- Develop web applications using the Django framework
- Compare modern application architectures and microservices
- Implement serverless and container-based deployment patterns for microservices
- Integrate microservices using various AWS services and patterns
- Design workflows using AWS Step Functions for microservice orchestration
- Apply serverless application deployment frameworks in AWS environments
- Differentiate between synchronous and asynchronous communication patterns in microservices
- Construct AWS CloudFormation templates for infrastructure as code
- Develop applications using the AWS Cloud Development Kit (CDK)
- Implement serverless applications using AWS Serverless Application Model (SAM)

Course Outline

- Web Technologies and HTML Overview
- Organizing and Styling HTML Pages
- Building an Interactive HTML Page
- Django Overview and Models
- Django Views and Templates
- Django Administration and AWS Elastic Beanstalk Python Support
- Deploying a Django Web Application to AWS Elastic Beanstalk
- Modern Application Architecture and Developing Serverless Applications Part 1
- Modern Application Architecture and Developing Serverless Applications Part 2
- Modern Application Architecture and Developing Serverless Applications Part 3
- Modern Application Architecture and Developing Serverless Applications Part 4

Hands-on Labs

In this course, you learn to:

- Configure Amazon S3 bucket and AWS IAM roles for customer document storage
- Create Amazon DynamoDB table and Amazon SNS topic for customer data management
- Develop AWS Lambda functions for processing customer documents
- Deploy resources using AWS SAM CLI
- Implement face comparison using Amazon Rekognition
- Process ID documents using Amazon Textract
- Create API Gateway integration for license validation
- Configure Amazon SQS queue for third-party integration
- Refactor AWS Lambda functions for asynchronous processing
- Orchestrate workflows using Step Functions and X-Ray
- Create basic HTML webpages with various elements
- Apply CSS styling to web content
- Implement interactive forms using JavaScript
- Configure Django development environment
- Create Django models for data management
- Develop Django views for request processing
- Build Django templates for user interface
- Configure Django administration interface
- Deploy Django application on AWS Elastic Beanstalk
- Implement Amazon DynamoDB and AWS Lambda integration
- Create API Gateway endpoints for REST APIs
- Build serverless applications using AWS SAM

Ideal for anyone pursuing cloud roles like developer, solutions architect, cloud administrator, or cloud support associate.

Cloud Capstone 1: Building a Customer Onboarding App

In this capstone project, you will build a backend solution that validates customer documents submitted by a mobile application. The documents include a comma-separated values (.csv) file containing customer application information, a customer selfie photo, and a copy of the customer's driver's license.

Capstone objectives

In this capstone, you learn to:

- Configure secure access controls for AWS resources in customer data processing
- Implement serverless applications using AWS services for data storage and notifications
- Develop AWS Lambda functions for automating Amazon S3 event processing
- Apply AWS SAM for serverless application deployment
- Construct Python applications for AWS service integration and data manipulation
- Implement facial recognition workflows using AWS AI services, Amazon Rekognition

- Design automated document processing systems with AWS services
- Develop serverless APIs using AWS Lambda and API Gateway
- Integrate third-party services in serverless architectures using AWS SQS and AWS Lambda
- Refactor AWS Lambda functions for asynchronous processing
- Orchestrate serverless workflows using AWS Step Functions and AWS X-Ray

Quarter 3

AWS Cloud Fundamentals 2

In this you will develop advanced cloud computing skills essential for entry-level cloud administrators and support engineers. Through hands-on labs and real-world scenarios you will master complex AWS services, security implementations, and operational excellence practices. The course emphasizes practical skills in monitoring, troubleshooting, and optimizing cloud resources while maintaining security and compliance standards.

- Course level: Intermediate

Course objectives

In this course, you learn to:

- Secure serverless applications through effective credential management and access controls to protect cloud resources while enabling seamless service integration
- Classify sensitive data, implement encryption and data protection, and prepare for security incident response using AWS services
- Establish secure and reliable connections between on-premises networks and AWS to create hybrid architectures
- Implement robust security measures using AWS's network and application protection services to defend cloud resources through multiple security layers
- Design and implement database solutions using Amazon DynamoDB that meet the demands of modern applications
- Optimize DynamoDB through capacity management, streaming capabilities, and security features to build highly available, secure, and cost-effective database solutions
- Implement effective caching strategies using AWS services to improve application performance and reduce database costs
- Leverage Amazon EC2 and AWS Lambda for different application deployment scenarios to build scalable, cost-effective applications
- Work with containers and container orchestration services in AWS to deploy applications consistently across environments
- Apply AWS Well-Architected Framework principles and implement modern, event-driven application architectures using microservices patterns
- Design and implement data processing solutions using both batch and real-time streaming architectures

Course Outline

- Securing Serverless Access and Credentials
- Protecting Data Using AWS
- AWS Hybrid Network Connectivity
- Network Security and Optimization
- Developing Modern Applications

- Exploring Advanced DynamoDB Concepts
- Database Caching on AWS
- Infrastructure Automation
- Practice with Container Computing
- Building Modern, Event-Driven Applications
- Batch and Real-Time Processing Architectures

Hands-on Labs
In this course, you learn to:

- Set up OIDC providers and implement secure authentication using temporary credentials and JSON Web Tokens
- Implement Zero Trust architecture, enforce S3 encryption policies, and respond to security incidents in AWS environments
- Configure AWS Client VPN and establish secure hybrid network connections between on-premises and AWS
- Deploy AWS Network Firewall to filter and secure inbound and outbound traffic
- Create and optimize DynamoDB tables, indexes, and streaming capabilities for modern applications
- Implement caching strategies using DAX, ElastiCache, and CloudFront to improve application performance
- Deploy applications using Amazon EC2 and AWS Lambda for different automation scenarios
- Build, test, and deploy containerized applications using Docker, Amazon ECR, Amazon EKS, and Amazon ECS with Fargate
- Design event-driven architectures using Amazon SNS, SQS, and EventBridge to build decoupled applications
- Process data using Amazon Kinesis, DynamoDB Streams, and Lambda for both batch and real-time streaming architectures

Ideal for anyone pursuing cloud roles like developer, solutions architect, cloud administrator, or cloud support associate.

AWS Cloud Operations 2

In this course, you will work with application deployment services. You will learn about Development Operations (DevOps) team enablement, the AWS Cloud Development Kit (AWS CDK), and infrastructure as code (IaC) and its benefits. This course covers distributed tracing, troubleshooting, and open-source monitoring.

- Course level: Intermediate

Course objectives

In this course, you learn to:

- Explore CI/CD best practices and automate testing processes with AWS CodeBuild to ensure efficient software delivery pipelines
- Implement CI/CD pipelines with various deployment strategies and provide consistent DevOps environments
- Integrate security practices throughout the software development lifecycle using DevSecOps principles
- Discover AWS and third-party IaC tools, including CloudFormation, AWS CDK, and Terraform
- Identify AWS logging and monitoring services to optimize infrastructure management and performance
- Implement CloudWatch services, metric filters, log analysis, and application monitoring techniques
- Apply advanced observability techniques using custom metrics, Container Insights, Lambda Insights, and network monitoring tools
- Implement distributed tracing and network analysis using AWS X-Ray, VPC Reachability Analyzer, and AWS Distro for OpenTelemetry

Course Outline

- Continuous Integration
- Continuous Deployment
- DevSecOps
- Infrastructure as Code
- Scaling
- Observability and Troubleshooting
- Advanced Observability and Troubleshooting
- Tracing

Hands-on Labs

In this course, you learn to:

- Explore CI/CD best practices and automate testing processes with AWS CodeBuild to ensure efficient software delivery pipelines
- Implement CI/CD pipelines with various deployment strategies and provide consistent DevOps environments
- Integrate security practices throughout the software development lifecycle using DevSecOps principles
- Discover AWS and third-party IaC tools, including CloudFormation, AWS CDK, and Terraform
- Identify AWS logging and monitoring services to optimize infrastructure management and performance
- Implement CloudWatch services, metric filters, log analysis, and application monitoring techniques
- Apply advanced observability techniques using custom metrics, Container Insights, Lambda Insights, and network monitoring tools

- Implement distributed tracing and network analysis using AWS X-Ray, VPC Reachability Analyzer, and AWS Distro for OpenTelemetry

Ideal for anyone pursuing cloud roles like developer, solutions architect, cloud administrator, cloud support associate, or DevOps Engineer.

Developer Intermediate 2

In this course, you are challenged to design, build, test, and deploy microservices by emulating the activities of AWS developers. You are exposed to various AWS services and are required to make design choices, write code, troubleshoot issues, and iterate on your solution to meet new business requirements. The course aims to cultivate a developer mindset which includes thinking critically, leveraging relevant tools, and gaining practical experience in implementing cloud-based applications.

- Course level: Intermediate

Course objectives

In this course, you learn to:

- Design microservices architectures for web applications on AWS and create basic React applications
- Develop serverless microservices using AWS SAM framework to manage business logic with API Gateway, Lambda, and DynamoDB
- Build microservices that retrieve and display data from DynamoDB using nested attributes for one-to-many relationships
- Add functionality to microservices to handle POST requests for creating new data entries
- Design and implement microservices-based cloud solutions by converting monolithic applications into scalable architectures
- Secure applications through authentication and authorization using Amazon Cognito and API Gateway
- Track and report data using AWS Step Functions to orchestrate multi-step workflows with Lambda and Amazon SNS
- Implement comprehensive observability and distributed tracing using CloudWatch and AWS X-Ray to troubleshoot performance issues
- Enhance application security, monitoring, and automation by implementing authentication mechanisms and reporting features
- Apply AWS serverless services to deploy RESTful APIs and single-page applications for production-ready solutions
- Evaluate and implement serverless authentication and chatbot solutions using private data sources through multi-service AWS integrations

Course Outline

- Developing on AWS
- Building the Pets Microservice

- Building the Adoptions Microservice Part 1
- Building the Adoptions Microservice Part 2
- Bike Labs Project Part 1
- Securing the Application
- Adding a Reporting Microservice
- Observability and Tracing
- Bike Labs Project Part 2
- Serverless in Practice: Building Real-World Solutions
- Expanding Serverless Solutions: Multi-Service Integrations

Hands-on Labs

In this course, you learn to:

- Clone application code, run it in an IDE, and improve code coverage by adding unit tests
- Build CI pipelines that automate testing when developers commit changes
- Configure applications with Amazon RDS, build Docker container images, and push to Amazon ECR
- Deploy applications on Amazon EKS Kubernetes clusters and troubleshoot using kubectl logs
- Update Kubernetes deployments to use Application Load Balancers and automate deployments through pipelines
- Build serverless microservices using AWS SAM framework with API Gateway, Lambda, and DynamoDB
- Implement authentication and authorization using Amazon Cognito to secure application data
- Create reporting workflows using AWS Step Functions to generate and deliver reports
- Implement monitoring and distributed tracing using CloudWatch and AWS X-Ray to optimize performance
- Deploy RESTful APIs and single-page applications for production-ready solutions
- Build serverless chatbot applications that answer questions using private data sources

Ideal for anyone pursuing cloud roles like developer, solutions architect, cloud administrator, or cloud support associate.

Cloud Capstone 2: Building and Deploying an Appointments Scheduler App

In this capstone project, you will build and deploy an appointments scheduler application. You will face different challenges to improve the web application and deploy it into a containerized environment while through a continuous integration and continuous delivery (CI/CD) pipeline.

Capstone objectives

In this capstone, you learn to:

- Clone the code repository into the environment
- Run and view the application in the environment
- Make changes to the application UI and backend code

- Create and run new unit tests for the code
- Build and run a pipeline for continuous integration using AWS CodeBuild and AWS CodePipeline to automate unit tests
- Review test results using the continuous integration pipeline
- Build and tag a container image and push the image to Amazon ECR
- Update the CodePipeline to automate building, tagging, and pushing the container image
- Deploy the container image on a Kubernetes cluster managed by Amazon EKS
- Troubleshoot and remediate application issues
- Deploy application updates and perform rollbacks
- Update the application infrastructure to use an Application Load Balancer (ALB)
- Update the AWS CodePipeline to automate deploying the container image on the Kubernetes cluster