deerwalk
training center

DIPLOMA IN DEVOPS

Nature of the Course: Theory + Practical
Total Hours per Day: 2 Hours
Course Duration: 2.5 Months + 1.5 Months (Internship)

Course Summary

In this course, we will learn the most common DevOps patterns to develop, deploy and maintain applications on the AWS platforms. We will explore the core principle of the DevOps methodology and examine a number of use cases applicable to startup, small to medium-sized business, and enterprise development scenarios.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module.

Required Textbooks

- The DevOps Handbook
- Effective DevOps
- Continuous Delivery

Prerequisites

- It is recommended that the learners of this course have the basic knowledge of system administration and web application development.

Course Details

Sdlc Automation

- Apply concepts required to automate a CI/CD pipeline
- Determine source control strategies and how to implement them
- Apply concepts required to automate and integrate testing
- Apply concepts required to build and manage artifacts securely
- Determine deployment/delivery strategy (eg., A/B, blue/green, canary, red/black) and how to implement them using AWS services.

Configuration Management And Infrastructure As Code

- Determine deployment services based on deployment needs
- Determine application and infrastructure deployment models based on business needs
- Apply security concepts in the automation of resource provisioning
- Determine how to implement lifecycle hooks on deployment
- Apply concepts required to manage systems using AWS configuration management tools and services.

Monitoring And Logging

- Determine how to set up the aggregation, storage, and analysis of logs and metrics
- Apply concepts required to automate monitoring and event management of an environment
- Apply concepts required to audit, log, and monitor operating system, infrastructure and application
- Determine how to implement tagging and other metadata strategies

Policies And Standard Automation

- Apply concepts required to enforce standard for logging, metrics, monitoring, testing and security
- Determine how to optimize cost through automation
- Apply concepts required to implement governance strategies

Incident And Event Response

- Troubleshoot issues and determine how to restore operations
- Determine how to automate event management and alerting

- Apply concepts required to implemented automated healing
- Apply concepts required to set up event-driven automated actions

High Availability, Fault Tolerance, And Disaster Recovery

- Determine appropriate use of multi-AZ versus multi-Region architectures
- Determine how to implement high availability, scalability, and fault tolerance
- Determine the right service based on business needs (e.g. TRO/RPO, cost)
- Determine how to design and automate disaster recovery strategies
- Evaluate a deployment for points of failure

Key Tools, Technologies, And Concepts

- Application deployment
- Application integration
- Application pipelines
- Automation
- Code repository best practices
- Cost optimization
- Deployment requirements
- Hybrid deployments
- IAM policies
- Metrics, monitoring, alarms, and logging
- Network ACL and security design and implementation
- Operational best practices
- Rollback procedures

Aws Services And Features Analytics

- Amazon Athena
- Amazon EMR
- Amazon Kinesis Data Firehose
- Amazon Kinesis Data Streams
- Amazon Quicksight

Compute

- Amazon EC2
- Amazon EC2 auto scaling

Database

- Amazon DynamoDB
- Amazon RDS
- Amazon Redshift

Containers

- AWS App Runner
- Amazon elastic container registry (Amazon ECR)
- Amazon elastic container service (Amazon ECS)
- Amazon elastic kubernetes service (Amazon EKS)
- AWS Fargate

Developer Tools

- AWS Cloud Development Kit (AWS CDK)
- AWS CloudShell
- AWS CodeArtifact
- AWS CodeBuild
- AWS CodeCommit
- AWS CodeDeploy
- Amazon CodeGuru
- AWS CodePipeline
- AWS CodeStar
- AWS Command Line Interface (CLI)
- AWS X-Rays

Management And Governance

- AWS CloudFormation
- AWS CloudTrial
- Amazon CloudWatch
- AWS Config
- AWS OpsWorks
- AWS Organizations
- AWS System Manager
- AWS Trusted Advisor

Security, Identity, And Compliance

- Amazon GuardDuty
- AWS Identity and access management (IAM)
- Amazon inspector
- AWS key management service (AWS KMS)
- AWS Secrets manager
- AWS Single sign-on
- AWS WAF

Serverless

- Amazon EventBridge (Amazon CloudWatch Events)
- AWS lambda
- AWS Serverless Application Model (AWS SAM)
- Amazon simple notification service (Amazon SNS)
- Amazon simple queue services (amazon SQS)
- AWS Step functions

Storage

- Amazon elastic block store (Amazon EBS)
- Amazon elastic file system (Amazon EFS)
- Amazon S3
- AWS storage gateway

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures; and introduce critical and fundamental problem-solving techniques to the students.

Learning Outcome

- Understanding of Agile and Lean principles and their integration with DevOps methodologies.
- Understanding the DevOps culture and principles.
- Knowledge of DevOps tools and technologies.