Terraform with AWS

Duration: 4 Days

Hands-On Format: This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

Module 1 - Getting Started & Setting Up Labs

Choosing a right Infrastructure as Code tool
Installing Terraform - Windows Users
Installing Terraform - MacOS and Linux Users
Choosing Right IDE for Terraform IAC development
Setting up AWS account

Module 2 - Deploying Infrastructure with Terraform

Creating first EC2 instance with Terraform
Understanding Resources & Providers
Understanding Resource & Providers - Part 2
Destroying Infrastructure with Terraform
Understanding Terraform State files
Understanding Desired & Current States
Challenges with the current state on computed values
Terraform Provider Versioning
Types of Terraform Providers

Module 3 - Read, Generate, Modify Configurations

Understanding Attributes and Output Values in Terraform
Referencing Cross-Account Resource Attributes
Terraform Variables
Approaches for Variable Assignment
Data Types for Variables
Fetching Data from Maps and List in Variable
Count and Count Index
Conditional Expressions
Local Values
Terraform Functions
Data Sources
Debugging in Terraform
Terraform Format
Validating Terraform Configuration Files
Load Order & Semantics
Dynamic Blocks
Tainting Resources
Splat Expressions
Terraform Graph
Saving Terraform Plan to File

Module 4 - Terraform Provisioners

Understanding Provisioners in Terraform
Types of Provisioners
Implementing remote-exec provisioners
Implementing local-exec provisioners

Module 5 - Terraform Modules & Workspaces

Understanding DRY principle
Implementing EC2 module with Terraform
Variables and Terraform Modules
Terraform Registry
Terraform Workspace
Implementing Terraform Workspace

Module 6 - Remote State Management

Integrating with GIT for team management
Security Challenges in Committing TFState to GIT
Remote State Management with Terraform
Implementing S3 Backend
Challenges with State File locking
Integrating DynamoDB with S3 for state locking
Terraform State Management
Importing Existing Resources with Terraform Import

Module 7 - Security Primer

Handling Access & Secret Keys the Right Way in Providers
Terraform Provider Use Case - Resources in Multiple Regions
Handling Multiple AWS Profiles with Terraform Providers
Terraform & Assume Role with AWS STS
Sensitive Parameter

Module 8 – Terraform Cloud and Enterprise Overview

Introduction to Terraform Cloud
Creating Infrastructure with Terraform Cloud
Overview of Sentinel Security
Introduction to Local and Remote Backends
Implementing Remote Backend in Terraform Cloud