DevOps Tools for Beginners

Duration: 5 Days (8 hours per day)

DevOps Overview

Module 1 – DevOps Overview

What is DevOps
Why DevOps
DevOps Lifecycle

Docker

Module 2 – Docker Administration

Introduction to Containers
Introduction to Docker
Downloading and Installing Docker
Docker Essential Commands
Understanding Docker Images
Building Docker Images using Dockerfile
Storing and Retrieving Docker Images from Docker Hub
Pusing Image to Docker Registry

Kubernetes

Module 3 – Core Concepts

Overview of Container Orchestration
What is Kubernetes?
Why Kubernetes?
Creating Kubernetes Cluster

Module 4 – Managing Resources

Managing Pods
Managing Labels & Selector
Managing Replica Set
Managing Service – Cluster IP

Module 5 – Application Lifecycle Management

Overview of Deployment
Deployment Strategies – Rolling update
Managing Deployment

Module 6 – Environment Variable

Plain Key
Config Map
Secret

KOENIG
step forward

Module 7 – Logging and Monitoring

Understand how to Monitor all Cluster Components
Understand how to Monitor Applications
Manage Cluster Components Logs
Manage Application Logs

Terraform

Module 8 - Getting Started & Setting Up Labs

Choosing a right Infrastructure as Code tool
Terraform Overview
Installing Terraform
Setting up Azure Account
Authenticate Azure with Terraform
Terraform init, plan and apply

Module 9 – Building Cloud Infrastructure with Terraform

Introduction to Terraform with Azure
Create Resource Group
Terraform Destroy
Azure Virtual Networks
Azure Subnet
Azure Public IP
Azure Network Interface
Create Windows and Linux VM
Understanding Terraform State files
Understanding Desired & Current States
Terraform Provider Versioning
Types of Terraform Providers
Methods to define Terraform provider Version

Module 10 - Read, Generate, Modify Configurations

Understanding Attributes and Output Values in Terraform
Terraform Variables
Methods to Define Variables
Data Types for Variables
Fetching Data from Maps and List in Variable
Count and Count Index
For_each
Create multiple VMs with Terraform
Conditional Expressions
 Terraform Functions
Debugging in Terraform
Saving Terraform Plan to File

Module 11 - Terraform Provisioners

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

Ansible

Module 12 – Introduce Ansible

Introduction to Ansible
How Ansible Works?
Ansible Terminologies
Ansible Architecture

Module 13 – Ansible Deployment

Pre-requisites for Controller Node
Installation and Configuration
Ansible Configuration File
Pre-requisites for Managed Node
Ansible Inventory

Module 14 – Ad-hoc Commands

Introduction to Ansible Module
Ad-hoc Remote Executions
Ansible Commands
Privilege Escalation

Module 15 – Managing Playbooks

YAML Structure
Ansible Playbooks
Structure of Playbook
Syntax Check of Playbook
Run Playbook

Module 16 – Variables in Ansible

Introduction to Ansible Variables
Defining Ansible Variable in Ansible Code
Use Variable File
Ansible Facts -Basics
Facts in Playbooks
Use Cases of Facts

Module 17 – Conditionals, Loops, Handlers and Error Handling

Conditionals in Ansible
Loops in Ansible
Notify and Handlers in Ansible

Module 18 – Jinja 2 Templates

Introduction to Jinja2 Template
Create Jinja2 Template

Module 19 – Ansible Roles and Galaxy

Introduction to Role
Understanding Role Structure
Managing Roles

Module 20 – Ansible Vault

Introduction to Ansible Vault
Encrypt and Decrypt Playbooks
Ansible Vault Commands

<u>AKS Overview</u>

Module 21 – AWS AKS

AKS Architecture
Difference between On-Prem Kubernetes and AKS
Benefits of AKS