DevOps & AWS Course curriculum

Course Duration: 70+ hours (50-odd working days)

Linux:

- Platform setup for Linux practice
- AWS Account creation and spin up Linux EC2 Instance
- Linux mostly-widely used commands
- All necessary commands needed for DevOps Engineer

Git / GitHub:

- Version controls and its importance
- Introduction to Git and GitHub
- Understand the differences between Git, Git Hub
- Install and configure Git for use
- Use Git to manage files using CLI commands
- Create, Clone and manage repositories
- Perform Branching, Merging and Rebasing
- Git Stash, Cherry-pick
- Prevent and resolve merge conflicts
- How GitHub used by Industries
- Perform basic troubleshooting of Git
- Git Interview Questions and Real-time Usage

AWS Cloud Fundamentals:

- Introduction to Cloud Computing and AWS
- Compute Service – EC2
- Networking - Virtual Private Cloud
- Load Balancers
- Storage Service – S3 & EBS
- AWS Identity and Access Management
- RDS
- AWS Cloud watch
- AWS SNS & SQS

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Terraform:

- Getting Started – Terraform, What is it and why is it needed?
- Terraform Architecture
- Terraform Installation (Windows & Linux)
- Tools Installation (awscli & Visual Studio Code)
- Terraform Life Cycle
- Provisioning EC2 using Terraform
- Provisioning S3 buckets using Terraform
- Understand Terraform files
- Terraform providers, Variables & State files
- Configuring Remote state using AWS S3
- Terraform modules
- Terraform provisioners
- Terraform Interview Questions

Docker:

- Introduction to Docker
- Docker architecture & Docker repositories
- Creation of Dockerfile and build images
- Creation of Docker Containers
- Pulll , Create & Upload docker images

Kubernetes:

- Introduction to Kubernetes
- Kubernetes Architecture
- Kubernetes Lab setup (minikube, kubectl Installation)
- Kubernetes Objects
  - Pods
  - Replicaset
  - Deployment
  - Services

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- Persistent Volume , Persistent Volume Claim
- Storage Class
- Configmap & Secrets
- Namespace & Resource management
- Node Selector , Affinity and anti-affinity
- Taints and Tolerations
- StatefulSets
- Daemonset, Liveness and Readiness Probe
- Ingress
- Helm
- ArgoCD

Jenkins:

- Introduction to Jenkins
- Install & Configure Jenkins
- Features & Master-Slave Architecture of Jenkins.
- Jenkins users creation & Plugins Installation
- Configure Jenkins Job, RBAC, Pulgins.
- Creating and managing Declarative Pipelines.
- Integrating Jenkins with AWS, GitHub & Docker & Kubernetes, Ansible

SonarQube:

- Introduction to SonarQube
- Installation of Sonarqube on Linux server
- Sonarqube Dashboard Overview
- Creation of Users in SonarQube
- Integrating Sonarqube with Jenkins & Maven

Jfrog Artifactory:

- Introduction to Jfrog Artifactory
- Installation of Jfrog on Linux server
- Jfrog Artifactory Dashboard Overview
- Creation of Users in Artifatory
- Integrating Artifactory with Jenkins

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Maven:

- Introduction to Maven
- Installation of Maven
- Build LifeCycle
- pom.xml & Maven key points

Ansible:

- Understanding Configuration Management with Ansible
- Installation of Ansible on Linux servers
- Ansible Architecture
- Ansible Adhoc Commands with examples
- Ansible moduels Overview
- Installation of httpd & git using Ansible playbook
- Exploring Variables and with_items
- Installation of Tomcat using Ansible playbook
- Ansible Roles

Project1:

An end-to-end DevOps project leveraging GitHub, Jenkins, AWS ECR, Docker, Kubernetes, and ArgoCD for seamless code collaboration, automated CI/CD, secure containerization, and efficient deployment on a scalable and resilient infrastructure

Project2:

To build, containerize, and deploy a Java based application in kubernetes.

Project3:

Deploying python based application on to k8 using CI/CD

Project4:

Automation of Infrastructure provisioning using CI/CD (Github , Jenkins , Terraform)