Syllabus: Full Stack DevSecOps & Cloud DevOps Bootcamp [Batch-4]

Enrolment Link: https://www.devopsshack.com/courses/DevSecOps--Cloud-DevOps--Batch-4--From-Scratch-65c79f62e4b0de0d089fb289

General Information:

- **Weekends**: Live sessions from 8 PM - 10 PM IST
- **Weekdays**: Custom recorded videos
- **Wednesdays**: Interview preparation sessions
- **1:1 Connects**: Available when needed
- **Doubt Clearance**: 1:1 sessions
- **Projects**: 10+ full-stack projects with hands-on database implementation in different programming languages
- **Corporate Projects**: Understanding with architecture (useful for interviews)
- **Assignments**: Weekly assignments

Module-1 | DevOps Intro

- DevOps Introduction
- Understanding the problems DevOps solves
- Workflow of DevOps in companies
- Assignment: Document the DevOps workflow of a real-world company

Module-2 | Linux

- Introduction to Linux OS
- Daily usage commands for DevOps
- Package management
- User & Group management
- Linux File System and Permissions
- Linux Security
- Basic Networking & commands
- Errors & Troubleshooting
- Shell Scripting
- Corporate Shell Scripts
- **Troubleshooting & Assignments**: Debug common Linux errors, write shell scripts for automating tasks, and design a security setup for a Linux server.

Module-3 | Build Tools

- Maven
  - Understanding project structure
  - Maven deep dive
  - Building projects with Maven
- .NET
  - Understanding project structure
  - DevOps projects execution with .NET
- Python
  - Understanding project structure
  - DevOps projects execution with Python
- Node.js
  - Understanding project structure
  - DevOps projects execution with Node.js
- **Troubleshooting & Assignments**: Troubleshoot build failures, and project builds using different programming languages.

Module-4 | CI Tools

- Jenkins
    - Setup and configuration
    - Jobs (freestyle, pipeline, multibranch)
    - Webhooks
    - Integration of tools like Maven, Git, SonarQube, Nexus, Trivy, Docker, Kubernetes
    - Mail notifications
- GitHub Actions
    - Setup & Full CI/CD
- GitLab CI/CD
    - Setup & Full stack CI/CD
- AWS CodePipeline
    - Setup & Full stack CI/CD
- Azure DevOps
    - Setup & Full stack CI/CD
- **Troubleshooting & Assignments**: Debug failed CI builds, configure complex pipelines, and integrate CI/CD with various tools effectively.

Module-5 | Security in DevOps

- SonarQube
    - Deep dive
    - Setup and integration
    - Report analysis
    - Code coverage
    - Backend configuration
- Trivy
    - File system scan
    - Docker image scan
    - Understanding vulnerabilities
- Prowler
    - Security scanning for cloud platforms
- Dockle
    - Best practices for Docker images
- **Troubleshooting & Assignments**: Create vulnerability reports for filesystem,dockerimages, cloud platforms

Module-6 | Artifact Management

- Nexus
  - o Setup & Understanding
  - o Publish artifacts
  - o Manage artifact versions
  - o Cleanup policies
- CodeArtifacts (AWS)
  - o Setup artifact repo
  - o Publish artifacts
- Azure Artifacts
  - o Setup & Understanding
- **Troubleshooting & Assignments**: Manage artifact versions, configure cleanup policies, and troubleshoot artifact resolution issues.

Module-7 | Docker

- Docker deep dive
- Dockerfile & Multistage Dockerfile
- Docker images & containers
- Docker container manipulation & debugging
- Docker networks & Docker Compose
- Docker volumes
- **Troubleshooting & Assignments**: Resolve Docker container issues, optimize Dockerfile for performance, and orchestrate multi-container deployments.

Module-8 | Kubernetes

- Kubernetes deep dive
- Kubernetes setup (self-hosted, EKS, AKS)
- Architecture & Workflow
- Kubernetes components
- Manifests YAMLs
- Scaling
- Deploying apps with databases & persistent volumes
- Liveness probe, readiness probe, resource management
- Debugging and fixing issues

- **Troubleshooting & Assignments**: Setup k8 cluster, Troubleshoot Kubernetes cluster issues, optimize resource utilization, and design scalable Kubernetes deployments.

Module-9 | Infrastructure as Code (IAC)

- IAC Introduction
- Terraform setup & basics
- Writing Terraform scripts
- Creating infrastructure with Terraform
- Creating EKS with Terraform
- Ansible Introduction & Setup
- Ad-hoc commands & Playbooks
- Ansible collections & Roles
- Ansible projects & Integration with Jenkins
- **Troubleshooting & Assignments**: Provision an infrastructure using Terraform and configure it using Ansible

Module-10 | Azure DevOps

- Azure account setup
- Azure organization setup
- Managing projects with Azure Repos
- Azure Pipelines
- Azure Artifacts
- Azure Kubernetes Service
- Azure Container Registry
- Azure WebApps
- Full stack CI/CD setup
- Assignment: Create a full CI/CD pipeline on Azure DevOps for a Full stack project

Module-11 | Monitoring

- Prometheus deep dive
- Grafana deep dive
- Setup & Monitoring with Grafana & Prometheus
- Real-time projects

- Assignment: Set up monitoring for a sample application using Prometheus and Grafana

Module-12 | Resume & Corporate Projects

- Detailed explanation of corporate projects with architecture
- Guidance on resume building
- Selection of projects to include in the resume
- Interview preparation