



DevOps Bootcamp [Batch-5]

DevOps Shack: Zero To Hero | DevSecOps & Cloud

General Information

- **Weekends:** Live sessions from 8 PM - 10 PM IST
 - **Weekdays:** Custom recorded videos
 - **Projects:** For Projects, refer to the end of the document
 - **Corporate Projects:** Understanding with architecture (useful for interviews)
 - **Assignments:** Weekly assignments
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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 | Version Control with Git & Branching

- Introduction to Version Control Systems (VCS)
- Git Basics
- Branching Strategies
- Merge and Rebase
- Pull Requests
- **Troubleshooting & Assignments:** Practice branching strategies, resolving merge conflicts, and collaborating on Git repositories.

Module-4 | Build Tools

Maven

- Understanding project structure
- Maven deep dive
- Building projects with Maven

Node.js

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

Module-5 | CI Tools

Jenkins

- Setup and configuration
- Jobs (freestyle, pipeline, multibranch)
- Webhooks (pipeline & Multibranch)
- Adding a VM as agent
- Integration of tools like Maven, Git, SonarQube, Nexus, Trivy, Docker, Kubernetes
- Mail notifications
- Jenkins Backup

GitHub Actions

- Setup & Full 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-6 | Security in DevOps

SonarQube

- Deep dive
- Setup and integration
- Report analysis
- Code coverage
- Install 3rd party Plugin
- Backend configuration

Trivy

- File system scan
- Docker image scan
- Understanding vulnerabilities

Prowler

- Security scanning for cloud platforms

Docker Scout

- Security Tool For Docker
- **Troubleshooting & Assignments:** Create vulnerability reports for filesystem, docker images, cloud platforms.

Module-7 | Artifact Management

Nexus

- Setup & Understanding
- Publish artifacts
- Setup Docker Registry
- Setup maven Repo
- Cleanup policies

CodeArtifacts (AWS)

- Setup artifact repo
- Publish artifacts

Azure Artifacts

- Setup & Understanding
- **Troubleshooting & Assignments:** Manage artifact versions, configure cleanup policies, and troubleshoot artifact resolution issues.

Module-8 | 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-9 | 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-10 | 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-11 | 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-12 | Monitoring

- Prometheus, Node Exporter, BlackBox Exporter
- Grafana deep dive
- Setup & Monitoring with Grafana & Prometheus
- Real-time projects
- **Assignment:** Set up monitoring for a sample application using Prometheus and Grafana

Module-13 | Resume & Corporate Projects

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

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Projects for Batch-5

Hands-On Implementation

Multi-Tier Python + MySQL

Multi-Tier NodeJS + Postgres

Multi-Tier Golang + MongoDB

Microservice Application

Full Stack CRUD Project (Java)

Full Stack Spring Boot Application

Dynamic Portfolio Website

Virtual Browser Application

Python-based Monitoring
Application

Dotnet based Full stack Application

**Coporate Project
Workflow Understanding**

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