

# DevOps Bootcamp

## Course Outline

### Outcomes

By the end of this boot camp, you will

- Have a great understanding of DevOps tools and principles.
- Have a Hands-on implementation of real-time projects.
- Know how to get an Associate level job in DevOps.

## Breakdown

### List of Tools:

By the end of this boot camp, you will have a great understanding of the following tools

- Linux
- Bash
- Git
- Basics of Networking
- Docker
- Docker compose
- Jenkins
- Ansible
- Terraform
- Grafana
- Prometheus
- Kubernetes
- ArogCD

### Cloud:

By the end of this boot camp, you will have a great understanding of the following cloud.

- AWS:
  - VPC
  - EC2 ALB
  - ASG
  - S3
  - CDN
  - Route53
  - EKS

## **Timeline**

### **Week-1 (operating system)**

- Orientation
- AWS account setup
- Understand Linux and learn basics commands
- Understand file permissions and user management.
- Familiarization with package management and software installation
- Master the Bash scripting language
- Automate repetitive tasks using shell scripts.

### **Week-2 (webservers)**

- Understand webservers
- Understand Nginx and Apache2
- Deployments of Servers (LAMP and LEMP)
- Host WordPress website using Nginx and Apache2
- Host Laravel website using Nginx and Apache2

### **Week-3 (containerization)**

- Setting Up Docker and Docker Compose on Linux Server
- Understand Docker concepts
  - Look into Docker Architecture
  - Docker Volumes
  - Bind Mounts
  - Networking
  - Writing custom docker files
  - Pushing Docker images to dockerhub.io
  - Understand Docker compose
- Hands-on project to Containerize a Laravel application using docker and docker-compose

### **Week-4 (Monitoring and Configuration Management)**

- Deployments of Analytical tools like (Grafana, Zabbix, Nagios)
- General Troubleshooting and debugging
- Set up Jenkins and automate the deployment process.
- Understand Ansible roles and Playbooks
  - Writing playbooks to setup lemp stack on different servers

### **Week-5 (Cloud Provider)**

- Looked into AWS concepts
  - Understand VPC, Subnets, NACLs, Security Groups

- Understand ALB, ASG, Route53, CDN
- Understand S3, RDS, and Elasticache
- Host a sample website on AWS, the website must be scalable and fault tolerant

### **Week-6 (Infrastructure as a Code)**

- Understand Terraform and its different concepts
  - Variables
  - Provider
  - Module
  - State
  - Resources
  - Data Sources
  - Plan
  - Apply
- Hands-on Project involving terraform, docker, and different AWS services

### **Week-7 (container orchestration)**

- Deep understanding of Kubernetes
  - K8's architecture
  - Node
  - Cluster
  - Pod
  - Namespaces
  - Deployment
  - ReplicaSet
  - DaemonSet
  - StatefulSet
  - HorizontalPodAutoScaler
  - PodDisruptionBudget
  - Job
  - CronJob
  - Configmaps
  - Secrets
  - Ingress
  - Service
  - RBAC

### **Week-8 (GitOps Principle)**

- Understand Gitops Principles
- Understand ArgoCD
  - Setup Argocd
  - Look into Various ArgoCD concepts like Application, Applicationset, etc
- Finding a good Job