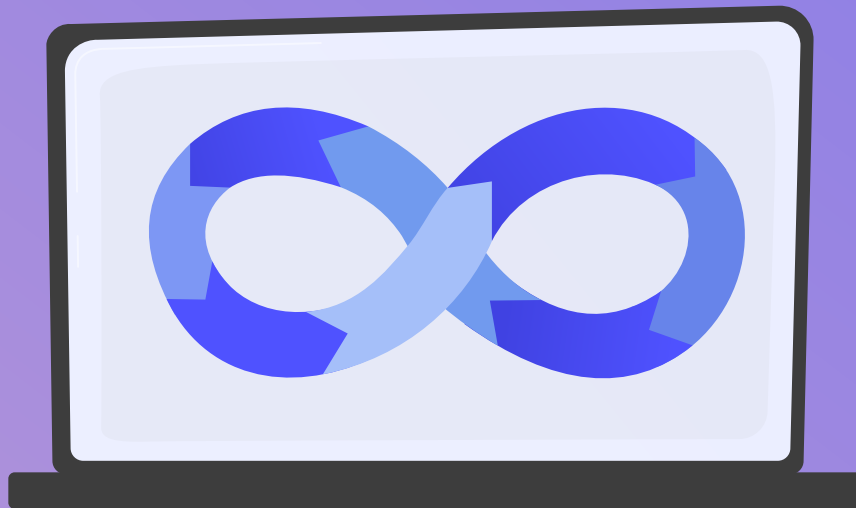




GeeksforGeeks

DEVOPS

Live



Detailed
Course Syllabus

CONTENTS

Week 01

DevOps Fundamentals and Git

- Introduction to DevOps
- Linux Fundamentals
- YAML
- Networking Basics
- What is Git and GitHub?
- What is version control system, repositories, .git folder
- Git Components
- Git workflow
- Git Branching: Checkout, merge, rebase
- Merge Conflicts & Pull request
- GitHub Commands
- Creating Git repository and pushing it to GitHub

Week 02

Docker & Containerization

- Introduction to Containers
- What is Docker?
- What is Docker image, Docker file, Docker hub?
- Docker commands
- Managing Images & Containers
- Docker volume
- Docker networking
- Docker compose

Projects:

- Deploying a Containerized Web Application using docker
- Build multi container app using Docker compose

Week 03

CI/CD with Jenkins and GitHub Actions

- Introduction to CI/CD
- What is Jenkins?

CONTENTS

- What are Jenkin jobs, Jenkin pipeline & Jenkin file?
- Build triggers: SCM polling, GITScm polling, Build periodically, etc
- What is Github Action?
- Components of GitHub Action: Workflows, Jobs, Steps
- Creating and running workflows
- Github Action triggers
- Github token
- Integration with Docker, AWS

Projects:

- CI/CD pipeline Project (with github action and jenkins)

Week 04

Kubernetes & Container Orchestration

- Introduction to Container Orchestration
- What is Kubernetes?
- Kubernetes Architecture
- Kubernetes Components: Pods, Replica, Deployment, Services, Volume, Secrets, Configmap
- Namespaces and Namespaces creation
- Types of Deployment
- Deploying Applications using Kubernetes including Namespaces, Deployments & ConfigMaps

Week 05

Cloud Services & AWS Fundamentals

- Introduction to Cloud
- AWS Services Overview
- AWS EC2: Basic, instance types, security groups
- AWS Elastic Beanstalk
- AWS S3: creating and accessing bucket, static website, versioning, storage classes, bucket policy
- AWS IAM: Users, groups, policies, roles
- AWS Container Services (ECR, ECS, and Fargate)
- Devops pipeline with AWS
- Deploying Application Using AWS ECR, ECS and Fargate

CONTENTS

Week 06

Configuration Management with Ansible & DevOps Services

- Introduction to Configuration Management, Ansible Basics, Inventory, Ad-hoc Commands, and Playbooks
- Ansible Roles
- Modules
- Integration with AWS
- Ansible Project (provisioning EC2 instances and deploying applications using Ansible)
- AWS DevOps Services (CodeCommit, CodeBuild, CodeStar, CodePipeline, Cloud9, and CloudShell)

Week 07

Infrastructure as Code (IAC) with Terraform

- Introduction to IAC
- Terraform
- HCL
- Terraform providers
- Terraform with AWS
- Deploying AWS services using Terraform
- IAC project

Week 08

Monitoring, Logging, and Project

- Introduction to Monitoring and Logging
- Prometheus
- Grafana
- Creating Custom Dashboards
- Project Integration

Projects:

- DevOps pipeline with AWS, CI/CD pipeline with GitHub Actions and Jenkins, deploying containerized applications using Docker and Kubernetes, deploying AWS services using Terraform, and Ansible configuration management