DEVOPS TOOLS

COURSE DURATION – 90 HOURS

Module 1: Introduction to DevOps

Module 2: Version Control System, GIT/GIT Hub

Module 3: Jenkins

Module 4: Docker And Kubernetes

Module 5: Ansible

Module 6: SELENIUM

Module 7: MAVEN

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Module 1: Introduction to DevOps

·Understand DevOps, its roles and responsibilities
·DevOps problems and solutions
·Identify cultural impediments and overcome it
·Understand the infrastructure layouts and its challenges
·Network Concepts at Enterprise Scale

Module 2: Version Control System, GIT/GIT Hub

·Introduction to VCS
·Type of VCS Tools and working Style
·GIT Work Flow
·Working Locally with GIT
·Working Remotely with GITHUB
·Branching and Merging
·Resolve merge Conflict
·GIT reset and Stash operation
·How to setup Git on Premises Hardware
·Use Case In Devops Environment

Module 3: Jenkins

·Introduction to Jenkins
·Install and setup Jenkins
·Plugin Managemnent
·Introduction about Maven project
·Setup Jenkins with Maven Project
·Project Test and Auto deployment on Application Server
·Build Pipeline View Project
·Configure Remote tasks Using Jenkins
·Jenkins Slave Node Configuration
·Generate Reports & Enable Mail Notification
·Intregation With Ansible & Docker & GIT Server

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Module 4: Docker And Kubernetes

· Section 1: Dockers & Containers Introduction

- Dockers & Containers Evolution
- Differences between VM's and Containers
- Use Cases of Docker
- Benefits of using Containers in Docker
- Working with Docker Commands

Section 2: Installation and Architecture of Docker

- Installation and configuration of Docker in GCP VM
- Learn to installing & configuring Docker on GCP VM instance
- Validating the Docker installation

Section 3: Docker Images, Volumes & Networking

- Docker Images & Layers
- Docker Container Layers
- Working with Docker Images
- Building own Images using Dockerfile
- Working with Docker Volumes & Networking

Section 4: Registries in Docker

- Overview of Registries in Docker- Public and Private
- Deep Dive into Docker Hub
- Other Public and Private Registries

Section 5: Docker - Orchestration

- Overview of Docker Compose
- Docker Defining and running multi-container applications.
- Overview Docker Swarm
- Build your own Docker Swarm Cluster
- Filtering and Scheduling Containers

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Section 6: Kubernetes Introduction

- Kubernetes Evolution
- What is Kubernetes ?
- Use Cases of Kubernetes
- Differences between Kubernetes and Docker Swarm

Section 7: Architecture of Kubernetes

- Kubernetes Architecture
- Kubernetes Master Introduction
- Components of Kubernetes Master
- Node Components Introduction

Section 8: Installation Kubernetes

- Installation & Configuration of Kubernetes locally on VM machine
- Creating Kubernetes Cluster in Google Cloud

Section 9: Kubernetes Cluster - Deploying applications

- Pods Introduction
- Lifecycle of Pods
- Working with Pods to manage multiple containers
- Deploying Pods via Replication Controllers
- Testing resiliency

Section 10 : Services, Labels & Replica Sets

- Services Overview
- Labels and Selectors
- Scale out deployment using Replicas
- Horizontal Pod Autoscaling
- Load Balancing
- Rolling Updates

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Section 11 : Managing State with Deployments

- Working with StatefulSet
- Explain Deployment strategies
- Define Pod Management policies
- On Delete & Rolling Update Strategies
- Explain nodeSelector
- Node Affinity/Pod Affinity
- About Taints and tolerations

Section 12 : Kubernetes Templating Resources

- Creating reusable templates
- Helm's templating engine
- Understanding the Helm architecture
- Managing releases with Helm
- Reverting changes with Rollbacks

Section 13 : Kubernetes - Managing state

- Manage configurations
- Manage secrets
- Use Kubernetes Volumes
- Creation of Persistent Volumes
- Creation of Persistent Volume Claims
- Provisioning volumes dynamically
- Managing stateful application

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Section 14 : Kubernetes - Autoscaling

- Auto Scaling Introduction
- The Horizontal Pod Autoscaler
- The Kubernetes metrics registry
- Exposing metrics from your apps
- Installation and configuration Prometheus
- Understanding custom and external metrics adapters
- Tuning the Horizontal Pod Autoscaler

Module 5: Ansible

·Introduction about Automation
·Ansible architecture
·Ansible Modules and inventory
·Manage tasks by Add-hoc method
·How to write Playbooks
·Variables And Facts In Playbook
·Condition & Loop in playbook
·Notify & handler In playbook
·Manage Templates file
·Roles Structure and Ansible Galaxy Use case
·Vault Encryption In ansible for security
·Ansible Integration with Aws Cloud
·Dynamic inventory Administration
·Ansible Tower Management
·Manage jobs in Tower
·Tower Intregration With Devops Environment