

## **DevOps and AWS**

### **Version Control System ..... (5 Classes)**

- Installation & Git configuration
- Branching strategy
- Git user workflow
- Branching & Stash
- Git commands (merge, pull, push, revert, reset etc.,)
- How to rectify conflicts
- How to create new pull request

### **Build Management: ..... (4 classes)**

- Understanding Build Automation
- Java Build system
- Understanding Maven architecture
- Maven Lifecycle & standards
- Building Nodejs Application
- Building Golang Application
- Building Python Application

### **Deployment Tool (Tomcat): ..... (5 Classes)**

- How to deploy java base application
- Integration with Jenkins
- Deployment application using Jenkins
- Deployment application using Ansible

### **Containerization: ..... (7 Classes)**

- Understanding Containers vs Virtual Machines
- Docker Architecture
- Get to know Docker Components
- Docker Installation & setup
- Docker Container Management –
  - Container creation, start, stop, renaming, logs, deletion, stats, events
- Docker Images
- Data Volumes & Port redirection
- Building Images Interactively using containers
- Dockerfile & its Instructions
- Deploying a Registry server
- Microservice Architecture
- Docker-Compose & configuration file

### **Deployment Orchestration (Kubernetes): ..... (15 classes)**

- Kubernetes Architecture
- Install and Configure Master Controller
- Install and Configure the nodes
- Kubectl: Exploring our Environment
- Create and Deploy Pod Definitions

- Tags, Labels and Selectors
- Deployment State
- Kubernetes Deployment vs Statefulset vs Daemonset
- Difference between Configmaps vs Secrets
- Good knowledge on PV & PVC
- Multi-Pod (Container) Replication Controller
- Create and Deploy Service Definitions
- Creating Pod Definitions
- Labeling Your Pod Definition
- Creating Temporary Pods at the Command line
- Interacting with Pod Container
- Logs, Autoscaling and Scaling our Pods
- Failure and Recovery
- Running a Command in Your Pod Containers

#### **Helm Package Manager**

- Package Management in Kubernetes
- Charts and Repositories
- Helm Releases

#### **Kubernetes Advanced Concepts:**

- How to Upgrade Node Group in production Environment
- Use of GitOps
- How to Setup GitOps Repo
- How to Setup Flux in kubernetes
- How to deploy application with FluxCD
- How to deploy application with HelmCD
- Use of kustomization and How to deploy application using kustomization

### **Continuous Integration, Continuous Deployment (Jenkins): ..... (7 Classes)**

- Need of Continuous Integration
- Understanding Jenkins Architecture
- Master & Slave configurations
- Plugin Management
- Configuring different types of Jobs
- Security & Authentication in Jenkins
- Overview of popular plugins
- Jenkins Role based Authentication
- Integrate LDAP with Jenkins
- CI with code coverage, code analysis & continuous delivery
- Practical examples of different Jenkins use cases
- Jenkins Pipeline
- Backup & Restore of Jenkins jobs
- Migration of Jenkins
- How to integrate with Ansible

## **Cloud Computing (AWS Services): ..... (10 Classes)**

- Understanding Cloud computing
- AWS Account Basics
- Identity & Access Management (IAM)
- Virtual Private Cloud (VPC)
- Simple Storage Service (S3)
- Elastic Compute Cloud (EC2)
- Elastic Load Balancer (ELB)
- Auto Scaling
- Relational Database Service (RDS)
- AWS Lambda
- API Gateway
- Amazon Cognito
- Simple Notification Service (SNS)
- Simple Queue Service (SQS)
- Simple Email Service (SES)
- Systems Manager Agent (SSM Agent)
- Elastic Container Registry (ECR)
- Elastic Container Service (ECS)
- ELK Stack: Elasticsearch, Logstash, Kibana
- Elastic Beanstalk
- Elastic File System (EFS)

## **Configuration Management Tools (Ansible): ..... (7 Classes)**

- Ansible Setup
- Playbooks
- Ansible Vault
- Ansible Roles

## **Infrastructure As A Code (Terraform): ..... (7 Classes)**

- Terraform Lifecycle
- Resources and Dependencies
- Variables
- States & Backends
- Loops & Modules
- Terraform Modules
- Providers, Provisioners, Data Source
- Integrating with Ansible

## **Monitoring Tools: ..... (4 Classes)**

- Grafana
- Kibana
- Elastic Search, Logstash and Kibana
- AWS Cloudwatch

## **Scripting tools: ..... (12 Classes)**

- Shell scripting
  - Basic Commands
  - User Management
  - Group Management
  - File Management
  - Process Management
  - Package Management
  - Realtime Scripts
- Python scripting
  - Installation
  - Variable types
  - Decision Making
  - Loops
  - Functions
  - Realtime scripts

## **Databases: ..... (3 Classes)**

### **Structural Databases:**

- Mysql
- Postgres

### **Non- Structural Databases:**

- Mongo DB

## **Real-time Scenarios**

Here we can do all topics with real time

We provide links for practice on daily basis

## **Additional:**

- Azure Cloud
- Azure Devops