DevOps

DevOps Introduction
- Why DevOps?
- What is DevOps?
- Different Software Development Cycles
- How Agile be incomplete without DevOps
- History of DevOps
- DevOps Stakeholders
- DevOps Market Trends
- DevOps Tools & Purpose
- DevOps Pipeline
- Continuous Integration and Deployment
- Real-time Project Delivery Architecture

LINUX / UNIX /Ubuntu OS:
- UNIX / Linux difference
- Why Linux is needed in DevOps
- Linux File system structure
- Linux/Unix commands
- About Vi Editor and commands in Vi Editor
- Changing file permissions and ownership
- Types of links soft and hard link
- Filter commands
- Simple filter and advance filter commands
- Start and stop services
- Find and kill the process with id and name
- Installation of software in Linux ,Ubuntu OS
- Shell Scripting and Run the Scripts

Cloud computing (DevOps on Cloud AWS / Google Cloud)
- Introduction to cloud computing
- Advantages of Cloud
- Using AWS, Google Cloud..etc
- Using Compute Engines in Cloud, Configuration Settings
- Installation of Software in Cloud VM instances
- Connecting to VM using different services like Putty..etc
- EC2 Services in AWS

Git , GitHub
- What is version control?
- Difference between CVC and DVC Systems
- What is Git
- Why Git for your organization

- Install Git in windows and also in Linux / Ubuntu /Unix Commands in Git
- Working with Remote Repositories (Github)
- Difference between Forking, Cloning from Repository
- Working between Local Git and Remote Github (Fetch, Pull, Commit, Push)
- Git Branches, Working with Multiple Branches

Maven Build Tool
- Install Apache Maven
- Working with Maven Project in Eclipse
- Understand Maven Project Folders
- Understand Maven dependencies and control Maven classpaths
- Install plugins, manage plugins with a parent POM, and find available plugins
- Creating Project Builds using Maven
- Understand Maven Goals and maven Commands

Git, Jenkins & Maven Integration Introduction
- Understanding continuous integration
- Introduction about Jenkins
- Jenkins Architecture

Installation of Jenkins
- Installing and configuring Jenkins using WAR and RPM
- Java installation and configuration
- Maven Configuration with Jenkins
- About Jenkins Dashboard.
- Installing Different Plug ins

Jobs
- Creating Jobs
- Running the Jobs
- Setting up the global environments for Jobs
- Adding and updating Plugins
- Disabling and deleting jobs
- Working with Maven Jobs in Jenkins and Goals

Build Deployments
- Understanding Deployment.
- Tomcat installation and configuration

Securing Jenkins
- Creating users
- Implementing Different Security options like Matrix

Integrations
- Integration of Jenkins with other DevOps tools like Git, Maven, Docker..etc
- Jenkins Master Slave and Node Slaves
- Jenkins Delivery Pipe line Development

Continuous Testing with Selenium
- Introduction to Selenium
- Why Selenium?
- Selenium – Webdriver
- Creating Test Cases in Selenium WebDriver (Waits)
- What and why X-Path
- Handling different controls on Webpage
- Framework in Selenium
- Selenium Integration with Jenkins

Docker
- What is a Docker
- Use case of Docker
- Platforms for Docker
- Dockers vs. Virtualization
- Docker Architecture
- Understanding the Docker components
- Installing Docker on Linux
- Understanding Installation of Docker on windows
- Some Docker commands
- Provisioning

Docker Hub.
- Downloading Docker images
- Uploading images in Docker Registry and AWS ECS
- Understanding containers
- Running commands in container
- Running multiple containers

Custom images
- Creating a custom image
- Running a container from the custom image
- Publishing the custom image

Docker Networking
- Accessing containers
- Linking containers
- Exposing container ports

- Container Routing

Docker Networking & EcoSystem
- Introduction to Docker Ecosystem
- Docker Compose
- Docker Swarm
- Managing Containers
- Running Containers
- Introduction to Docker Networking
- Network Types
- Docker Container Networking

Puppet
- Introduction to Puppet
- Puppet Installation
- Puppet Configuration
- Puppet Master and Agent Setup
- Puppet Module
- Node Classification
- Puppet Environment
- Puppet Classes
- Automation & Reporting

Ansible
- What is Ansible?
- How Ansible works?
- Ansible Architecture?
- Ansible terminology and about Playbooks
- Installing Ansible on Linux(Redhat family and Debian family(ubuntu))
- Ansible client and server configuration
- Writing playbooks using YAML
- Deploy web applications using Ansible
- Host , Static & Dynamic Inventory files
- About Ansible Modules and Debugging
- Executing Ansible Adhoc Commands

Kubernetes
- Introduction to Kubernetes
- Kubernetes Architecture
- About Pods, Services, Namespaces, Replicaset, Jobs
- Spinning up Kubernetes Cluster on Ubuntu VMs / Linux
- Exploring the Cluster
- Understanding YAML
- Creating a Deployment in Kubernetes using YAML
- Creating a Service in Kubernetes
- Installing Kubernetes Dashboard
- Deploying an App using Dashboard
- Using Rolling Updates in Kubernetes
- Containers & Container Orchestration

Continuous Monitoring with Nagios
- Introduction to Continuous Monitoring
- Introduction to Nagios
- Installing Nagios on Windows, Linux
- Nagios Plugins (NRPE) and Objects
- Nagios Commands and Notification

End to End DevOps Project

Git   : For version control for tracking changes in the code files
Maven : For software packaging and Build Generation
Jenkins : For continuous integration and continuous deployment
Docker : For container image which is a lightweight, executable package of software which includes everything needed to run the image (eg. code, libraries etc)
Puppet : Open-source software configuration management tool
Nagios : Application monitoring tool