DevOps Training Syllabus

Module1: Introduction to DevOps

- DevOps Principles in detail

- DevOps Engineer Skills in the market

- Knowing DevOps Delivery Pipeline

- Market trend of DevOps

- DevOps Technical Challenges

- Tools we use in DevOps

Module 2: GIT – A version control tool

- Knowing about Version control

- Git – A CLI

- Essentials of GIT in industry

- How to setup GIT

  - Installing Git

  - First-Time Git Setup

  - Getting a Git Repository

- Working with various commands in GIT

- Recording Changes to the Repository

  - How to check the Status of Your Files

  - How to track New Files

  - Staging our modified files

  - Ignoring Files from GIT

  - Viewing Your Unstaged and Staged Changes

  - How to commit Your Changes

  - Skipping the Staging Area and commit

- Removing Files from GIT

- Viewing the Commit History

  - Limiting Log Output

  - Using a GUI to Visualize History

- Undoing Things

  - Changing Your Last Commit

  - Unstaging a Staged File

  - Unmodifying a Modified File

- Working with Remotes

  - Showing Your Remotes

  - Adding Remote Repositories

  - Fetching and Pulling from Your Remotes

  - Pushing to Your Remotes

  - Inspecting a Remote

  - Removing and Renaming Remotes

- Branching and Merging in Git

  - What a Branch Is

  - Basic in Branching and Merging

  - Branch Management in GIT

  - Branching Workflows and its usage

  - Remote Branches – create and delete

  - Rebasing

- Git workflows

- Git cheat sheet

Module 3: Jenkins – Continuous integration

- Essentials of Continuous Integration

- An example scenario where CI is used

- Know about Jenkins and its architecture in detail

- Jenkins tool Management in detail

- Installing Jenkins

- Post-installation setup wizard

  - Unlocking Jenkins

  - Customizing Jenkins with plugins

  - Creating the first administrator user

- Know about User management in Jenkins

- Authentication

  - Jenkins own database user creation

  - Options to enable integration with LDAP

- Authorization

  - Matrix based authorization

  - Project based authorization

- Overview of Maven

  - Maven project structure

  - Maven plugins

  - Project Object Model (POM) – fundamental unit of work in Maven project

  - Maven build lifecycle

  - Adding external dependencies to maven pom.xml

  - aven build and test project

- Creating jobs and automatic build settings

  - What is Jenkins Pipeline?

  - Why Pipeline?

  - Integration with GIT

  - How to enable project based authorization for a job

- Source code management while creating jobs

- Triggering automated build

- Maven job setup

- Know about post build options for jobs like notifications, trigger another build, publishing reports, etc.

  - Adding a slave node to Jenkins

  - Building Delivery Pipeline

  - Notification settings in Jenkins

  - Plugin management in Jenkins

Module 4: Docker – A containerization technology

- Introduction

  - Real-world Shipping Transportation Challenges

  - Introducing Docker and its technology

  - Understanding of Docker images and containers

- Working with container

  - How to Share and copy a container

  - Container Life Cycle

  - How to use Base Image and customize

  - Creation of Docker File

  - How to Publish Image on Docker Hub

- Introduction to Docker Networking

  - Network Types in docker technology

  - Docker Container Networking

  - Docker Compose – An introduction

- Docker Swarm – An introduction

  - Use Docker Compose to create php, wordpress, mysql

  - How to Start Containers on a Cluster with Docker Swarm

- Creating and Scaling an application in Docker swarm

Module 5: Ansible – A configuration Management

- Introducing Ansible – A configuration management tool
  - Basics / What Will Be Installed
  - Understanding Ansible architecture
  - Control Machine Requirements
  - Managed Node Requirements
- Inventory
  - Hosts and Groups
  - Host Variables
  - Group Variables
- Learn various ansible Modules
- How to use adhoc commands
  - Parallelism and Shell Commands
  - File Transfer
  - Managing Packages
  - Users and Groups
  - Deploying From Source Control
  - Managing Services
- Introduction to YAML script
- Playbook
  - About Playbooks
  - Playbook Language Example - YAML
  - How to Write Playbooks
  - Tasks in Playbooks
  - Understanding about various tasks in playbook

- Introduction to Handlers and variables

- Learn about using handlers, variables in the playbook

- Become (Privilege Escalation)

- Roles

  - Role Directory Structure

  - Using Roles

  - Role Duplication and Execution

  - Role Default Variables

  - Role Dependencies

  - Role Search Path

  - Ansible Galaxy

- Including and Importing

  - Includes vs. Imports

  - Importing Playbooks

  - Including and Importing Task Files

  - Including and Importing Roles

- Writing a playbook to install and configure webservers and deplo0y an application

- How to create Ansible Role and use it

- Using an ansible role in playbook

- How to use Ansible Galaxy to download roles.

- Example – Install and use Jenkins roles from ansible galaxy

Module 6: DevOps on Cloud

- Essentials of Cloud computing?

- Cloud and virtualization architecture

- Cloud deployment architecture

- Cloud providers – An overview

- Why we need DevOps on Cloud?

- Introducing to Amazon web services

- Various AWS services for Devops - An overview

- DevOps using AWS - Demo