



DevOps



About Course

DevOps is the combination of cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity: evolving and improving products at a faster pace than organizations using traditional software development and infrastructure management processes.

DevOps

CURRICULUM

① 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

② 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

③ GIT – A Version controlling 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 Repositor

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 Fil

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

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Jenkins

Essentials of Continuous Integration

An example scenario where CI is used

Know about Jenkins and its architecture in detail

Jenkins tool Management in detail

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
Maven 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

Adding a slave node to Jenkins
Building Delivery Pipeline
Notification settings in Jenkins
Plugin management in Jenkins

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Docker

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

6 Kubernetes

Introduction to Kubernetes

Kubernetes Cluster Architecture – An overview

Understanding concepts of Pods, Replica sets, deployments and namespaces

Understanding the concepts of services and networking

Persistent volumes and persistent volume claims –an overview

Design of Pods

Understanding labels, selectors, jobs, and schedulers

7 Ansible

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

Including and Importing

Includes vs. Imports

Importing Playbooks

Including and Importing Task Files

Including and Importing Roles



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