DevOps Certification Course

- **Course Name:** DevOps (for Beginners, Intermediates & Experts)
- **Course Code:** IT6_P1
- **Instructor:** Mr. Dilip
- **For Whom:** S/W Engineers, High School & College Goers
- **Frequency:** 2 Sessions per week. 1 Session = 2 Hours.
- **Fees:** 199 US$ (Get Discount for Referrals and Group Joining)
- **Duration:** 40 Hours Approx. (10 Weeks Approx.)
- **Note:** First Session is completely FREE and open to all. Make Full Payment only after 1st FREE session and if interested to continue.
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Syllabus in Detail:

1. DevOps: Introduction

Chapters – 1

- What is DevOps?
- History of DevOps
- Overview of DevOps tools
- End-to-End DevOps workflow
- Roles and Responsibilities of DevOps Resource
- Real-time usage of DevOps Practices
- Overview of Version Control, Build and Deployment Process, Continuous Integration and Deployment, Configuration management, Containerization, Virtualization & Cloud platform. etc..
- Roles of Cloud platforms in DevOps

2. Module 1: Git & Github

Chapter – 1 : Version Control System Overview

Learnings:

- Introduction to version control systems (VCS)
- Different version control systems available
- Usage of VCS in Source code management
- What is Git & Github? Differences!
- Roles and Responsibilities of DevOps Engineer in Git & Github

Chapter – 2 : Getting started with Git & Github

Learnings:

1. Git Basics
2. End-to-End Git Work-flow
3. Git Vs BitBucket Vs Other commercial VCS
4. Git Command Line & GUI
5. Overview of GitHub, GitLab, Bitbucket. etc.

Hands-On:

- Applying Git commands and perform end-to-end hands-on
- Git Interview Questions

Chapter – 3 : Get Deep into Git & Github

Learnings:

- Git Installation, Uninstall, Upgradation on Linux
- Setting up Mandatory configurations & best practices
- '*git config*' command to setup User, Email, Editor and Credentials
- What is Source, Stage and Local repository, branching
- Git Revision Structure – SHA, User, Email, Commit Message and other metadata
- Git Pull, Fetch, Clone, Push
- Interview Questions

Hands-On:

- Setting up Remote repository on GitHub
- End-to-End git work-flow execution with commands
- First commit
- Commands: '*git add', 'git commit', 'git push', 'git stash'* with options
- More Commands: *'git log', 'git rm', 'git mv'*
- Git Pull and fetch commands
- Git Clone and Push commands with options

Chapter – 4 : Merging & Branching

Learnings:

- What, when and Why of Branching
- Branching Strategies
- Merging one branch into another

Hands-On:

- Difference between Public Private branches
- New branching model
- Merging & Conflict resolution

3. Module 2: Maven/ Gradle

Chapter – 1 Build tools and Deployment Process

Learnings:

- Build and Deployment automation
- Maven/ Gradle Build tool
- Artifact, Binaries, Executables, object code definition - Get terminology
- Setting and configuration for Build tool
- Test Driven Development (TDD) approach
- Software Development and Testing Best practices
- Interview Perspective Questions

Hands-On:

- Explain complete flow of software development, build and test process
- Setting up environment variables for any tool installation on Linux

Chapter – 2 Implementing Build Technologies

Learnings:

- Building first Project
- Understanding build output, test results, class files, packages etc.
- Verifying built artefacts, naming convention
- Dependency Management
- Understanding various Environment
- Test Driven Development (TDD) approach
- Software Development and Testing Best practices

Hands-On:

- Build the project that you have created
- Hands-on of Different Build commands
- Automate complete build and deployment process

4. Module 3: Jenkins

Chapter – 1 Jenkins & CICD Process

Learnings:

- Introduction to Agile Development
- Definition of Continuous Integration (CI), Continuous Delivery (CD), Continuous Deployment (CD)
- Jenkins Installation and Configuration in Production
- Different types of Jenkins Jobs. Freestyle, Pipeline, multi-configuration projects
- Creating Jenkins Pipeline jobs and understanding all project options
- Test Driven Development (TDD) approach
- Software Development and Testing Best practices

Hands-On:

- Explain complete flow of software development, build and test process
- Setting up Jenkins in your machine
- Create first Jenkins job and automate builds

Chapter – 2 Jenkins Pipeline Deep Dive

Learnings:

- Jenkins global configurations
- Setting up Security for Jenkins
- Advantages of build pipelines & Creating one
- What is a plugin? Plugins Installation,Un-installation and upgrade
- Distributed Master & Slave Approach
- Interview Perspective Questions

Hands-On:

- Integrating Jenkins with LDAP for Authentication
- Write deployment scripts for different environments
- Triggering build jobs from command line
- Configuring master and slave mechanism
- Configuring slave nodes and adding to master

5. Module 4: Docker & Kubernetes

Chapter – 1 Introduction of Docker & Kubernetes tools

Learnings:

- What is Dockerization/Containerization?
- What is Docker & main features
- Basics of Virtualization.
- Difference between Virtual machine (VM), Physical machine and Container
- Virtual machine and Docker usage in real-time and DevOps world.
- Why do we need Kubernetes?
- What are Pods,Replica Sets,Deployments,Services, Kube-DNS?
- What is Nodes and Master Nodes?
- What are the tools available for Kubernetes Dashboard?

6. Module 5: Shell Scripting Conditions

Chapter – 1 Shell Scripting Conditions

Learnings:

- Shell Scripting Introduction
- The First Script.
- The Arithmetic Expressions.
- IF Conditions, Else, Exit, Logic Conditions.
- String Connections.
- Loop, Until, Roles and many more

7. Module 6: Ansible

Chapter – 1 Configuration Management with Ansible

Learnings:

- Ansible way of Configuration Management.
- Ansible Architecture, Features, Inventory, Modules and its commands
- Ansible Playbooks, Ansible Variables
- Ansible Conditions, Loops and Handlers
- Ansible Vault and Ansible Includes
- Ansible Roles
- Ansible Tower Introduction
- Interview Perspective Questions

Hands-On:

- Installation and configuration
- Playbooks Hands-on
- Details Commands execution like *'yum', 'service', 'copy', 'script' etc.*

8. Module 7: Terraform

Chapter – 1 Lets get started with Terraform

Learnings:

- Terraform Introdcution
- Create/ Destroy Resources
- Provisions
- Input Output variables
- Interview Perspective Questions

Hands-On:

- Installation and configuration for Terraform
- Hands-on on resource creation

9. Module 8: Linux (Admin Level)

Chapter – 1 Learn Admin Level Linux

Learnings:

- Process Management
- Basic Commands like *'grep', 'tr', 'awk' etc*
- Work on services, utilities, important files and directories.
- Linux User Administration functions.
- File System Management (Generic & LVM).
- Learn to manage Advanced File System Management like Mount/lgdisplay
- Interview Perspective Questions

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