

# DevOps with AWS & Linux Training

## Onsite / Online Classes

1.

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### What you will get:

- Training by **Sajid Ali Mansoori** - 8 years of experience
- Day-to-Day class videos and notes.
- Access to our Learning Management System App
- Interview & Resume preparation
- Dedicated Student Support Manager

### Course Coverage



#### 1. Introduction to DevOps

- What is DevOps
- History of DevOps
- DevOps definition
- DevOps culture
- DevOps main objectives
- DevOps & Software Development Life Cycle
  - Waterfall Model
  - Agile Model
  - CI/CD process

#### 2. CLOUD COMPUTING

- What is Cloud
- Evolution of Cloud Computing
- IAAS (Infrastructure as a Service)
- SAAS (Software as a Service)

- PAAS (Platform as a Service)
- Private,public & Hybrid Cloud
- Public Clouds
  - Amazon Web Services
  - Microsoft Azure
  - Google Cloud Platform

### 3. WEB SERVER & APPLICATION SERVER

- Apache web server
- Nginx Server Configuration
- Web server installation & configuration
- Apache Tomcat Server
- Tomcat server installation & configuration
- Manual and Automated Application deployment
- Ports configuration
- MySQL & Maria DB Server Installation
- Application deployments

### 4. HA Proxy (High Availability)

- HA Proxy Installation
- HA Proxy Configuration
- Backend Servers & Ports
- Load balancing Algorithm
  - Roundrobin
  - Leastconn
- Multiple HA Proxy configuration

### 5. VERSION CONTROL – GIT

- Version Control System
- Centralized and Distributed Systems
- Differences between SVN & GIT
- GIT
  - GIT Features
  - 3-Tree Architecture
  - GIT-Clone / Commit / Push
  - GIT Hub Projects
  - GIT Hub Management
  - GIT Hub Rebase & Merge
  - GIT Stash, Reset, Checkout
  - GIT Clone, Fetch, Pull
  - GIT Branch Strategy
  - GIT Branch Management
  - GIT Hard & Soft reset

### 6. BUILT TOOLS

- Java Compiler
- Difference between **ANT** & **MAVEN**
- Configure **Build.xml**
- MAVEN
  - Maven Installation
  - Maven Build requirements
  - Maven POM Builds (pom.xml)
  - Maven Built Life Cycle
  - Maven Local Repository(.m2)

- Maven Global Repository
- Group ID, Artifact ID, Snapshot
- Maven dependencies
- Maven plugin

## **7. GIT LAB**

- GIT LAB Installation
- GIT LAB Configuration
- Managing Projects in GIT Lab
- Creating Private Repository
- Deleting Repository

## **8. DOCKER**

- How to get Docker Image
- What is Docker Image
- Docker Installation
- Working with Docker Containers
  - What is container
  - Docker Engine
  - Creating containers with an Image
  - Working with Images
- Docker Command Line Interphase
- Docker compose
- Docker Hub
- Docker Trusted Registry
- Docker swarm
- Docker attach
- Docker file & Commands

## **9. KUBERNETES**

- Kubernetes into & Architecture
- Kubernetes Setup
- Running Docker containers in Kubernetes
- Kubectl
- What is pod, Service, Controller & Deployment in Kubernetes
- Deference between Docker Swarm and Kubernetes Orchestration
- Service running on manage node and minions
- Deploying the application through PODs
- Building multiple pods with high availability

## **10. PACKER**

- What is Packer?
- Packer installation
- Baking a website image for EC2
- Provisioning with configuration management tool
- Debugging
- Building hardened image

## **11. TERRAFORM**

- Terraform Basics
- Introduction to Terraform
- Syntax and Interpolation

- Terraform CLI-Console
- Building AWS Infrastructure – Getting started
- Building AWS Infrastructure –EC2 Instance

## 12. VAGRANT

- Introduction to Vagrant
- Setting Up Vagrant
  - Virtual Box Installation
  - Vagrant Installation
  - Vagrant Machines
  - Vagrant File
  - Vagrant Boxes
  - Environment Management
- Networking Basics
  - Private Network
  - Public Network
  - Network Adopters

## 13. NEXUS

- Sonatype Nexus download
- Nexus configuration
- Configure settings.xml & pom.xml files
- Managing Nexus releases and Snapshots
- Repository Maintenance
- Nexus Management

## 14. JENKINS

- Introduction to Jenkins
- Continuous integration with Jenkins
- Configure Jenkins
- Jenkins Management
- Scheduling build jobs
  - PLL SCM
  - Build Periodically
- Maven Build Scripts
- Support for the GIT version control system
- Different type of Jenkins jobs
- Jenkins build pipe line
  - Parent and child builds
  - Sequential Builds
- Jenkins Master & Slave Node Configuration
- Jenkins workspace Management
- Securing Jenkins
  - Authentication
  - Authorization
  - Confidentially
  - Creating Users
- Jenkins plugins
  - Installing Jenkins Plugins
  - SCM Plugins
  - Build and Test

## 15. NAGIOS

- Introduction to Nagios Core
- Installation of Nagios Server 6
- Configuration of Nagios Server & Agent
- NRPE (Nagios Remote Plugin Executer)
- Configuration of Nagios.cfg and Contacts.cfg
- Monitoring Hosts
- Monitoring Services
- Monitoring Server Infrastructure

## 16. ANSIBLE

- Introduction to Ansible
- Ansible server Configuration
- Ansible.cfg Configuration
- Infrastructure Management
- SSH Connection in Ansible Master
- YAML Scripts
- YAML Data types
- Host Inventory
  - Hosts and Groups
  - Host variables
  - Group variables
  - Host and Group Specific Data
- Ad-hoc Commands
- Playbooks
  - Variables o vars & vars\_prompt
  - Conditionals
  - Loops
  - Blocks
  - Handlers
  - Templets
- Modules
  - Core Modules
  - Extra Modules
- Ansible Roles
- Ansible Role Directory Structure

## 17. CHEF

- Introduction to Chef
- Installation of Chef Master
- Installation of Chef DK and Nodes
- Configuration of Chef Master
- Knife utility
- Chef Responsibility
- Workstation setup
  - How to configure knife
  - Workstation installation
  - Connection between knife and Master
- Organization Setup
  - Create an organization
  - Add user & Node to and organization
- Node Setup
  - Create a Server & Add to organization

- Cookbooks creation
- Check nodes details using knife
- Node Objects
  - How to add Run List to Nodes
  - Check node details
  - Managing Multiple Nodes
- Roles & Environments
- Chef Data Bags
- Chef Market Place

## **18. AWS (Amazon Web Services)**

- Subscription to AWS
- Introduction to the AWS Management Console
- Why AWS Cloud
- EC2 Essentials & Build EC2 Instances
- Security Groups
- Key Pairs (Public Key, Private Keys)

## **19. Elastic Compute Cloud (EC2) Instances**

- Regions and Availability Zones
- Amazon Machine Images
- Working with AMIs
- EC2 Reserved instance Market Place
- EC2 instance Creation
  - Building and Instance
  - Different type of Instances
  - Security with Key Pairs
  - Different Ips assign to EC2 Instance
  - Elastic IP Address
  - Login Access to the Instance

## **20. Identity and Access Management (IAM)**

- Creation of user's accounts
- Roles in IAM
- Groups in IAM
- Account Settings
- Creating Permissions for Users
- Deleting Permissions for Users
- Accounting Settings

## **21. Virtual Private Cloud (VPC)**

- Creating a custom VPC
- Security Groups
- Creating Identity Gateway (IGW)
- Connecting Instances in the gateway
- Subnets
- Route Table
- VPN Components

## **22. Elastic Load Balancer (ELB)**

- What is Elastic Load balancing
- How Elastic Load Balancing works

- Creating Load Balancer
- Load Balancing Protocols
- Attach & Detach Subnets
- Adding Instances to Load Balancer

### **23. Auto Scaling**

- What is Auto Scaling
- Auto Scaling Components
- Advantages of Auto Scaling
- Auto Scaling Groups (ASG)
- Attach & Detach EC2 instances in ASG
- Monitoring Auto Scaling Instances
- Health Checks

### **24. Simple Storage Services(S3)**

- Creating and Deleting Buckets
- Adding Objects to Buckets
- Deleting Objects
- Uses of S3 storage
- Notifications
- Uses of S3 storage

### **25. Route 53**

- Configuring Amazon Route 53
- Public Hosted Zones
- Private Hosted Zones
- Resource Record Sets
- Managing Health Checks
- Working with Public & Private Hosted Zones

### **26. Elastic Block Store (EBS)**

- EBS Volume types
- EBS Performance
- Instance Store Volumes
- Creating and Deleting Volumes
- Attach and Detach Volumes
- Mount and Un-Mounting Volumes

### **27. Relational Database Services (RDS)**

- Data Base Instances
- Data Base Engine
- Creating Data Base
- RDS Limits
- Working with Storage types

### **28. Linux Admin Commands**

- Redhat / Ubuntu Linux Installation
- Hierarchical File System
- Basic Commands
- Create files and Directories
- File Management

- File Links
  - Hard Link
  - Soft Link
- User administration
- Group Administration
- File permissions (chmod)
- File Search
  - Find
  - Which
  - What is
- Basic and advanced File Permissions
- File Ownership (chown, chgrp)
- Access Control List (ACLs)
  - setfacl
  - getfacl
- Sudo Permissions (Suders)
- Job Scheduling (Crontab)
- Memory Management (df, free, du)
- Process management (ps, top, kill, pkill)
- Linux Package Installation
  - rpm
  - yum 10
  - apt ▪ apt-get
- Install and configure web server (Apache)
- Install and configure App server (Tomcat)
- Install and configure DB (MySQL / MariaDB)
- File Compression and Extraction
  - tar
  - GunZip
  - BunZip
  - Unzip
- Server Connections
  - Password method
  - SSH Keys (secure Shell)
  - SSL (Secure Socket Layer)
- Secure Copy (scp)
- Linux filters
  - Grep
  - Sed (Stream Editor)
  - Awk (Field Processor)
- Linux Head, Tail, More commands
- Service Management
  - Service
  - Systemctl
- Linux Editors (Vi / Vim)
- Linux Users Communications
  - write
  - wall
  - Mail (send / receive mails)

## 29. SCRIPTING

- Shell Scripting
- DSL (Declarative Domain Specific Language)



- Python Scripting Overview
- Ruby Scripting
  - Introduction
  - Variables
  - Flow Controls
  - Loops
  - Functions
  - Lists
  - Manipulating Strings
  - Reading and Writing files
  - Positional Parameters

### **30. REALTIME PROJECT**

### **31. Bonus - INTERVIEW QUESTIONS**

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