



**|| Jai Shankar ||**

# PerfectLearn Software Testing Institute

-----Get UR Dream Job with our small support-----

# AWS DevOps

----- By Projects only -----

- **AWS Administration**
- **DevOps**

## WHO CAN LEARN?

- Aspirants looking for permanent jobs in big IT corporations
- Students/scholars willing to start their professional career as a “AWS DevOps Engineer” with any of the IT giants
- Proficient IT professionals who are willing to switch their field of work towards Cloud field
- Aspirants with additional IT skills and educational background who are willing to gain practical freelancing experience in the related field.

## PRE-REQUISITES?

- Any Graduate can enter in IT field like:  
Any engineering degree,B.Com,M.com,B.A.,BCA,MCA,BCS,MCS,MBA,BBA etc.
- No need of any programming language knowledge, only basic computer knowledge is essential.

## TRAINING OUTCOME?

- Confidence on AWS Services and DevOps tools to crack interview and to work efficiently in company as Cloud Admin/Cloud Engineer/DevOps Engineer/ CloudOps Engineer/Platform Engineer/ SRE etc.
- No need to view other videos or topics to take extra knowledge we take care of all.
- Programming language i.e. yaml templates, Linux Commands, only 10 to 15 % simple coding.
- Any student can work in Cloud Devops at any level in company.
- In AWS Cloud –You are perfect in to configuration of cloud management services on AWS in a company along with infrastructure management , configuration and monitoring of several AWS services.
- In DevOps tool- You are perfect in Git, Jenkins, Docker, Kubernetes, Ansible, Terraform.

## AWS DevOps SYLLABUS

**NOTE: Practically we teach all topics as project proceeds, you will apply that knowledge on Project.**

**Total process is as like IT Company.**

### **1. INTRODUCTION TO CLOUD COMPUTING**

- Introduction to Cloud Computing, Why Cloud Computing, Benefits of Cloud Computing.
- Cloud Computing Deployment Models: Private Cloud, Public Cloud, Hybrid Cloud
- Cloud Delivery/Service Models: Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS)
- Overview of Cloud platforms: comparison between the AWS vs Azure vs Google cloud services
- Introduction to Amazon Web Services, AWS Pillars, AWS Design Principles.
- AWS Global Infrastructure: Regions, Availability Zones, Edge Locations, Ways to access AWS: CLI, Console
- Hands-On: Ways to access AWS: CLI, Console, Overview of the AWS Management console, Configure AWS CLI.

### **2. ELASTIC CLOUD COMPUTE (EC2)**

- Introduction to AWS Compute Services.
- Introduction to EC2 service: EC2 instance types, Amazon Machine Image (AMI), EC2 Snapshots, Pricing.
- Security and Networking Layer in EC2: VPC, Elastic Network Interface (ENI) and Its Attributes, Different Categories of IP Address, Public IP vs. Elastic IP.

- EC2 Volumes and storage: Elastic Block Store (EBS), Instance Store-backed Instances, Instance Store-backed Instances, Elastic File System (EFS), Solid State Drive: General Purpose SSD and Provisioned IOPS, Hard Disk Drive: Throughput Optimized HDD and Cold HDD
- EC2 monitoring and Instance Metadata and User Data, Resources and Tagging
- **Hands-On:** EC2 creation (Linux & windows) , access ec2 using different ways, changing ec2 instance type, Add volume to EC2, increase existing volume size, AMI creation, Snapshot creation, EC2 backup, Cross-Region snapshot copy & use cases, Cross-Region snapshot copy & use cases.

### 3. Linux Commands

- Introduction & Basic Commands, User & Group Administration, Permission & Ownership, Special Permission & ACL, Package Management, Server Management, Networking.

### 4. SIMPLE STORAGE SERVICE (S3)

- Introduction to AWS Storage Services, Traditional Storage, Cloud Storage, Traditional vs. Cloud Storage Cost, Different Storage Options Available on AWS
- Simple Storage Service (S3) and Its Components, Bucket Policy Access Control List (ACL), Versioning, Cross-Region Replication (CRR) and Its Use Case, Same Region Replication (SRR), Amazon S3 Transfer Acceleration.
- Consistency Model in S3, Storage Classes on S3, Lifecycle Policy of S3 Bucket, S3 Event Notifications, Encryption in S3, Comparison between S3 vs EBS vs EFS.
- Use of Pre signed URL and S3 CORS policy
- **Hands-On:** Creating and deleting buckets, adding objects to buckets, getting objects, deleting objects Bucket Permissions / Versioning, Website hosting using S3 buckets.

## 5. VIRTUAL PRIVATE CLOUD, LOAD BALANCING & AUTO SCALING

- Introduction to AWS Networking & Content Delivery services, AWS Management Tools
- **VPC:** Introduction to VPC, VPC Networking Components: Subnet, Route Table, Internet Gateway (IG), Security Groups, Network Access Control List (NACL), VPC Peering, Transit Gateway, NAT Gateway, Elastic IP, VPC Endpoints, VPN Connection. VPC pricing and monitoring
- **Elastic Load Balancer:** Understanding High Availability Configuration, Types of Load balancers: Application, Network, Gateway and Classic, Internal & External Load balancers, Security groups for the load balancer, Cross-Zone Load Balancing, Sticky Sessions, Listeners & Target Groups.
- **Autoscaling:** Launch template, Launch Configurations, Amazon EC2 Auto Scaling Lifecycle Hooks, Lifecycle of Auto-Scaling, Auto-Scaling policy.
- **Hands- On:** Building a Virtual Private Cloud from Scratch & Securing Your VPC, creating a NAT Instance in a VPC, Configuring VPC Peering & Routing Between VPCs, Creation of load balancer and Autoscaling groups.
- Troubleshooting scenarios.

## 6. AWS DATABASE SERVICES

- Introduction to AWS Database Services
- RDS: Introduction, DB Engines, RDS instances, Read replicas, High availability, RDS Backups and Manual snapshots, DB Parameter group and Option group
- **Hands-On:** RDS instance creation

## 7. AWS MANAGEMENT TOOLS

- Introduction to AWS Management Tools, Configuration Management and Automation
- **CloudWatch & CloudTrail Service:** CloudWatch Functionality, CloudWatch Dashboard, CloudWatch metrics, alarms, CloudWatch events. CloudTrail events, monitoring.

- **CloudFormation:** Infrastructure as Code, CloudFormation and its components Templates in CloudFormation Stack in CloudFormation, Changesets, Stack sets, Drift Detection
- **Hands-On:** CloudWatch Dashboard configurations, Alarms, Metrics, Resources provisioning using CloudFormation templates.

## 8. INTRODUCTION TO GIT

- Introduction, Basic Concept, Lifecycle, Installation, Configuration
- Git stages, Git SSH, Git Clone, Git commands push & pull, Git Branching Strategy, Git with DevOps Team Management, Git Pull requests, Creating the Branches, switching the branches, merging the branches
- Git Teams and User management, forking a Repository, Tagging Commits, creating repository, Fetch pull and remote

## 9. TERRAFORM

- Introduction to Terraform, Terraform Setup and AWS integrations.
- Terraform Core Concepts: AWS providers, Resources for VPC, Subnets, ec2 instances, Data Sources, Terraform State, Variables in Terraform
- Provisioners in Terraform, Terraform Modules: Introduction to Modules, Creating Local Modules, Module Outputs, using in-built Modules from Terraform Registry Modularize the entire Terraform Project. Remote State in Terraform.
- Terraform Projects

## 10. JENKINS

- Getting started with Jenkins: Jenkins Introduction, Introduction to Continuous Integration, Jenkins Installation on windows and Linux, Setup of Dev/QA/Prod Environment for Jenkins, Jenkins' Architecture, Jenkins Dashboard and Menus, Create Our First Jenkins Job.
- Jenkins User Managements, Role Management, Understanding stages of CI – CD, Continuous Integration with Jenkins: Plugin Management, Tools Integration, Email Configuration.
- Jenkins Pipeline and Distributed Builds: Introduction, Master Slave Setup, CICD using Jenkins, Groovy Scripting, Scripted and Declarative Jenkins Pipeline Jobs.
- Jenkins Projects

## 11. ANSIBLE

- Getting started with Ansibles: Ansible Introduction, Introduction to Configuration Management & Orchestration tools, Ansible Installation and Setup, Ansible Controller and Managed Node setup.
- Ansible Foundation: Ansible Inventory, Host, Ansible.cfg file, Playbooks, Play, Roles, Tasks. Ansible Modules and Adhoc Commands.
- Ansible Roles, Playbooks, Ansible Vault, YML scripting.

## 12. DOCKER:

- Downloading and Installing GIT Getting started with Docker: Introduction, Installation and Setup, Virtualization and Containerization.
- Docker Images, Creating and Using Containers, Docker Commands, Docker Volume, Docker Network
- Docker Swarm and Docker Compose.



### **13. KUBERNETES:**

- Getting started with Kubernetes: Introduction, Kubernetes Overview, Installation and Setup, Kubernetes Architecture.
- Kubernetes Concepts: PODs, Replica Set, Replication Controllers, Deployments, Stateful Sets, Ingress, Service Objects
- Hands-on