Teks academy®

Transferring Experts Knowledge To Students

AWS & DevOps

CURRICULUM

DevOps with AWS and Linux

Module 01: Introduction to DevOps

- What is DevOps?
- Software Development Life Cycle (SDLC)
- SDLC Models
- DevOps definition
- DevOps Main Objectives

Module 02: HA-Proxy (High Availability Proxy)

- HA Proxy Installation
- HA Proxy Configuration (haproxy.cfg)
- Backend Servers & Ports
- Load Balancing Algorithm
  - Roundrobin
  - Leastconn
- Multiple HA Proxy Configuration

Module 03: VERSION CONTROL - GIT

- Version Control System
- Centralized and Distributed Systems
- Differences between SVN & GIT
- GIT
  - GIT Hub Remote Repository
- Signup on GIT Hub
- GIT - Clone /Commit / Push
  - GIT Rebase & Merge
- GIT Stash, Reset, Checkout
- GIT Clone, Fetch, Pull
- GIT BranchStrategy
- GIT BranchManagement
- GIT Hard &Soft reset
- Ignoring Files from GIT
- Creating the GIT Hub repository using SSH, HTTP's from local GIT

Module 04: GIT Lab

- GIT Lab Installation
- GIT Lab Configuration
- Managing Projectsin GIT Lab
- Creating PrivateRepository
- Repository Maintenance
- Set up key for Repository
- Deleting Repository

Module 05: BUILD TOOLS

- Java Compiler
- Difference betweenANT & MAVEN
- Configure Build.xml
- MAVEN
  - Maven Installation
  - Maven Build requirements
  - Maven POM Builds (pom.xml)
  - Maven Build Life Cycle
  - Maven Local Repository (.m2)
  - Maven Global Repository
  - Group ID, Artifact ID, Snapshot
  - Maven Dependencies
  - Maven Plugins
  - Creating .jar, .war using Maven

Module 06: NEXUS

- Sonatype nexus download
- Nexus Configuration
- Configure settings.xml & pom.xml files
- Managing Nexus Releases and Snapshots
- Repository Maintenance
- Nexus user management

Module 07: CI/CD- JENKINS

- Introductionto Jenkins
- Continuous Integration with Jenkins
- Configure Jenkins
- Jenkins Management
- Scheduling buildJobs:
  - POLL SCM
  - Build Periodically
- Maven BuildScripts
- Support for the GIT version controlSystem
- Different types of JenkinsJobs
- Jenkins Build Pipe Line
- Parent and Child Builds
  - Sequential Builds
- Jenkins Master& Slave Node Configuration
- Jenkins Workspace Management
- Securing Jenkins
  - Authentication
  - Authorization (Matrix Based and Project Based)
  - Confidentiality
  - Creating Users
- Jenkins Plugins
  - Installing JenkinsPlugins
  - SCM plugin
  - Build and test
- Building delivery Pipe line

Module 08: NAGIOS

- Introductionto Nagios Core
- Installation of Nagios Server
- Configuration of Nagios Server& Agent

- NRPE (NagiosRemote Plugin Executer)
- Configuration of Nagios.cfg and Contacts.cfg
- Monitoring Hosts
- Monitoring Services
- Monitoring ServerInfrastructure

Module 09: TERRAFORM

- TerraformBasic
- Introduction to Terraform
- Syntax and Interpolation
- Terraform CLI – Console (Load balancing, S3, Dynamo DB)
- Building AWS Infrastructure - Getting Started
- Building AWS Infrastructure —EC2 Instance

Module 10: ANSIBLE

- Introductionto 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 SpecificData
- Ad-hoc Commands
- Playbooks
- Importing Playbooks
  - Variables
  - Conditionals

- Blocks
- Handlers
- Templates
- Modules
    - Core Modules
    - Extra Modules
- Ansible Roles
- Install and use Jenkins roles from ansible galaxy
- Ansible Role Directory Structure

Module 11: DOCKER

- How to get Docker Image?
- What is DockerImage?
- Docker Installation
- Working with Docker Containers
    - What is Container?
    - Docker Engine
    - Creating Containers with an Image
    - Working with Images
- Docker CommandLine Interface
- Docker Compose
- Use Docker Compose to create php, wordpress, mysql
- Docker Hub
- Docker TrustedRegistry
- Docker swarm
- Docker attach
- Docker File & Commands
- How to Publish Image on Docker Hub
- Introduction to Docker Networking
- Network Types in docker technology
- Docker Container Networking

Module 12: KUBERNETES

- Kubernetesintro and Architecture
- Kubernetes Setup
- Running Docker containers on Kubernetes
- Kubectl
- What is Pod,Service, Controller and Deployment in Kubernetes
- Difference betweenDocker Swarm and Kubernetes Orchestration
- Service runningon manage node and minions
- Deploying the application throughPODs
- Building multiplepods with high availability
- Configmaps
    - Kubernetes – ConfigMap
    - Kubernetes - Create Config Map From Files
    - Kubernetes - Create ConfigMap From YAML File
    - Kubernetes - Config Map From Directory
    - Kubernetes - Injecting ConfigMap as Files
    - Kubernetes - Injecting ConfigMap in Pods

Module 13: Linux AdminCommands

- Hierarchical File System
- Basic Commands
- Create Files and Directories
- File Permissions (chmod)
- File Ownership (chown, chgrp)
- User &Group creation
- File Links
- File Search
    - find
    - which
    - what is
- Access ControlList (ACLs)
    - setfacl
    - getfacl

- Sudo Permissions (suders)
- Job Scheduling (Crontab)
- Memory Management (df, free, du)
- Process Management (ps, top, kill,pkill)
- Linux PackageInstallation (yum, rpm, 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, Zip, UnZip)
- Server Connections
    - password method
    - SSH Keys (Secure Shell)
    - SSL (SecureSocket Layer)
- Secure Copy (scp)
- Linux Filters(grep, sed, awk)
    - Service &systemctl Commands
- Linux Editors(Vi/Vim)

Module 14: SCRIPTING

- Shell Scripting
    - Introduction
    - Variables
    - Flow Controls
    - Loops
    - Functions
    - Lists
    - Manipulating
    - Strings
    - Reading and Writing Files
    - Positional Parameters

Amazon Web Services (AWS)

Module 01: Cloud Computing

- What is Cloud?
- Evolution of Cloud Computing
- Cloud ServiceModels (IaaS, PaaS, SaaS)
- Cloud Deployment Model (Public, Private & Hybrid)
- Public Cloud Providers (AWS,MS Azure, GCP)
- Virtualization – An essential in cloud
- Virtualization in Cloud model
- Different types of virtualization
- Hypervisor – Benefits

Module 02: AWS (Amazon Web Services)

- Introductionto AWS
- Global Infrastructure
- Free tier overview & limitations
- AWS Accountcreation
- Create BillingAlarm for unnecessary billing
- Create IAM User
- Assign Multi Factor Authentication to user
- Login into AWS Management Console
- Describe the features of Amazon Compute,Storage,Network,Database Services

Module 03: Elastic Compute Cloud(EC2) Instances

- Instance Types
- Pricing options
- Working with AMIs
- EC2 InstanceCreation
  - Windows & Linux instances
  - Login access to the Instance
- Security and Placement Groups
- Elastic IPs
- Key Pairs

Module 04: Elastic Block Store (EBS)

- EBS Volume Types
- Instance Store Volumes
- Optimizing Disk Performance
- Creating and Deleting Volumes
- Attach and Detach Volumes
- Creating Snapshot
- Creating Custom - AMI
- Mount and Un-mounting Volumes

Module 05: Identity and AccessManagement (IAM)

- Creation of Users Accounts
- Roles in IAM
- Groups in IAM
- Account Settings
- Creating Permissions for Users
- Deleting Permissions for Users
- Creating programmatic access and management console access for users

Module 06: Virtual Private Cloud (VPC)

- VPC Advantages and understanding IP addressing CIDR
- Creating a Custom VPC
- Security Groups
- Creating IdentityGate Way (IGW)
- Connecting Instances in the Gateway
- Subnets
- Route Tables
- VPC Peering
- NAT Gateway

Module 07: Elastic Load Balancer (ELB)

- What is ElasticLoad Balancing?
- How ElasticLoad Balancing Works
- Types of ELB
- Target Groups
- Creating Load Balancer

Module 08: Auto Scaling

- What is Auto Scaling?
- Auto ScalingComponents
- Advantages of Auto Scaling
- Auto ScalingGroups (ASG)
- Launch Templates
- Create Auto Scaling Group

Module 09: Lambda

- Serverless Introduction
- Lambda Synchronous Invocations
- Lambda Permissions - IAM Roles and Resource Policies
- Lambda Versions and Aliases

Module 10: Simple Storage Services (S3)

- Classes & Life Cycle
- Creating and Deleting Buckets
- Uploading & Deleting Objects
- S3 Object Versioning S3 Lifecycle Policies
- S3 Access Logs
- S3 Replication
- Hosting Static Website using S3

Module 11: Cloud Front

- Describing cloud front
- Creating a cloud front distribution

- Hosting a website of cloud front distribution
- Implementing global restrictions
- Configuring origins and behaviors

Module 12: Elastic File System(EFS)

- Creating & Deleting EFS
- Attaching & Detaching EFS to Instance

Module 13: Route 53

- DNS Records overview
- Describe Hosted zones and Domain name
- Understanding how to create hosted zones
- Routing Policies
- Hosting sampleWebsite and configuring Policies.

Module 14: Relational DatabaseServices (RDS)

- Data Base Instances
- Data Base Engine
- Launching a RDS Instances (MySQL, MSSQL &Aurora)
- Configuring backups
- Multi-AZ & Read Replicasfor RDS instances

Module 15: Dynamo DB

- Creating a dynamo dB
- Adding data manually
- Learn about strong and eventual consistency
- Calculating Read-write consistency
- Configuring alarms
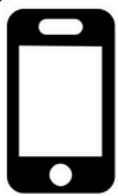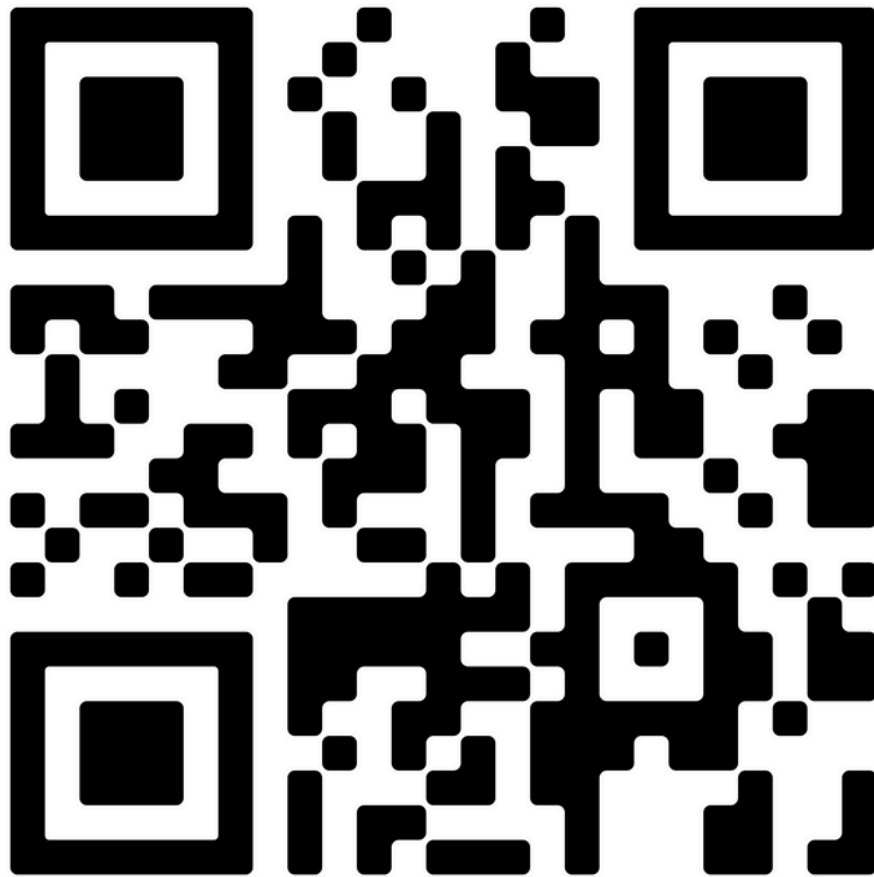
Module 16: Elastic Beanstalk

- Deploy, manage, scale an application
- Workflow of Elastic Beanstalk
- Create Application
- Launch Environment
- Manage Environment
- Creating application source bundle
- Modifying the properties of the deployment

Module 17: AWS Monitoring & Notification services

- Creating Cloud Watch Dashboard for EC2 Metrics
- Amazon Cloud Watch –Create Topics & Set Alarms
- CloudTrail
- Simple Notification Services
- Simple QueueService
- Simple EmailService

Scan to view the Syllabus

AWS curriculum