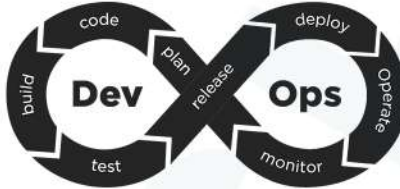




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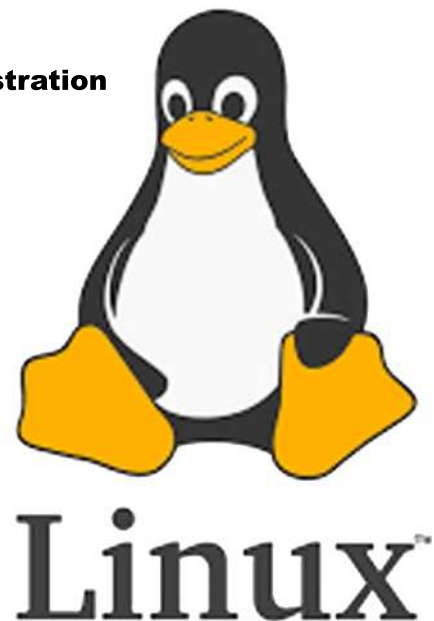
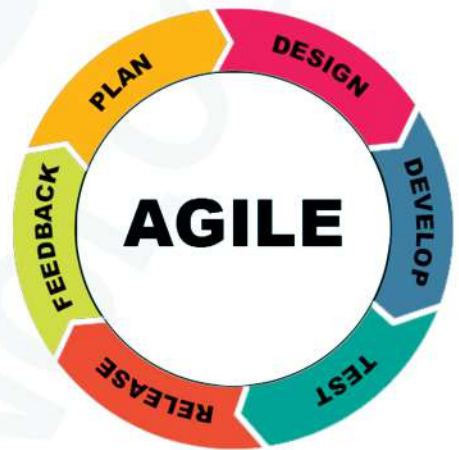
DevOps with AWS & LINUX

DEVOPS OVERVIEW

- Introduction to DevOps
- Overview of DevOps Tools
- Legacy system before DevOps
- Waterfall Model
- Agile Model
- DevOps Lifecycle

OPERATING SYSTEM & SHELL SCRIPT

- Datacenter Overview
- Linux Installation
 - Physical Machine
 - Virtual Machine
 - Cloud Services
 - Basic Requirements of Installation
- Basic Commands
- User Management
 - Types of Users in Linux
 - Creating and deleting Users and Groups
 - Modifying Users profile
 - Adding Users into the Groups
 - Important system files related to user & Group administration
 - The Privileges of Root
 - Delegating Root Privileges with Sudo
- Package Management
 - Description of a Repository
 - Difference between RPM and YUM
 - Configuration of YUM server
 - Installing and deleting software packages
 - Querying and updating software packages
- Backup and Recovery
 - Introduction to various types of backup media
 - Backup and restoring using tar commands
- File Permissions
 - Importance of Permissions
 - Types of Permissions
 - User Level Permissions



- Group level Permissions
- Setting Access Level Permissions on Users & Groups
- **SSH & SCP**
 - SSH Introduction
 - Installation and Configuration
 - Different ways to login using SSH
 - SCP file Transfer
 - Different ways to Copy files
- **Scripting Introduction**
 - Shell Basics Fundamentals
 - Searching and Replacing Techniques in files and Folders using grep,find sed,awk etc.
 - Bash Shell Syntax Overview
 - Using Variables and Loops
 - Automation techniques on Manual process

CONTINUOUS INTEGRATION:

GIT - Version Control

- Introduction to GIT
- Types of Version Control
- GIT Architecture
- GIT Setup
- Local and Remote Repositories
- GIT and GIT-HUB integration
- GIT-HUB Activities
- Web-hooks and Pull Request
- GIT Basics and Advanced Commands
- GIT Branching and Merging Strategies
- GIT Real Time Scenarios



MAVEN – Build Tool

- Introduction with Maven
- Types of Build tools
- Maven Phases
- Installation of Maven
- Maven Configuration
- jar/war project structure
- Creating Projects from Scratch
- Working on Existing Projects



JFROG - Artifactory Management

- Introduction to Jfrog
- Installation and Configuration
- Repository Management
- Integration with Maven and Jenkins
- Deploying Artifacts from Jenkins
- Deploying Artifacts from Maven Command line



SonarQube

- **Introduction to SonarQube**
- **Installation and Configuration**
- **Understanding of Static code Analysis,PMD, Checkstyle Generating Token**
- **Walkthrough Administration tasks**
- **Integration with Maven and Jenkins**
- **Running Sonarfrom Maven and Jenkins**
- **Explanation about sonar properties**



Jenkins (UI) - Continuous Integration Tool

- **Introduction to Jenkins**
- **Jenkins Installation**
- **User Profile**
- **User Management**
- **Plugins Management**
- **Tools Installation and Configuration**
- **Job Creation and Builds Setup**
- **Master – Slave Setup**
- **Distributed Builds**
- **Build & Delivery PipelineSetup**
- **Parameterized Builds**
- **Web-hooks Integration**
- **Scheduling Daily and Nightly Builds**
- **Troubleshooting Jenkins**
- **Integration with GIT-Hub, Maven,Tomcat, Nexus,Ansible etc**

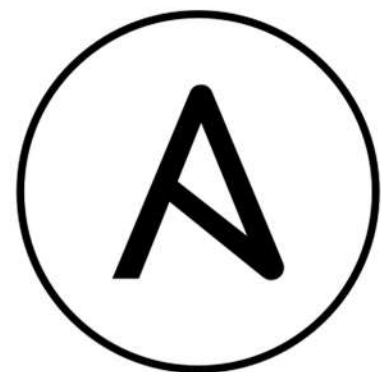


Jenkins

CONTINUOUS DELIVERY

ANSIBLE - Configuration Management Tool

- **Introduction to Ansible**
- **Types of Configuration Management tools**
 - **Ansible, Chef, Puppet**
- **Ansible Setup**
 - **Installation and Configuration**
 - **Ansible installation Repo**
 - **Different ways to install Ansible**
- **SSH Configuration and Root Privileges**
 - **SSH Key Generate**
 - **Password less Connection Setup**
 - **Providing Ansible user Sudo Privileges**
 - **Understanding Sudo Configuration**
- **Inventory Management**
 - **Default Inventory**
 - **Inventory Structure and Hierarchy**



ANSIBLE

- **Implementing Playbooks**
 - **Basic Playbook Structure**
 - **Running Playbook**
 - **Different Options for Manipulating Playbook Execution**
- **Modules in Ansible**
 - **Setup**
 - **Command**
 - **Shell**
 - **User**
 - **File**
 - **Copy**
 - **Yum**
 - **Service**
 - **Script**
 - **Ping**
 - **Debug**
- **Running Ad-hoc Commands using Modules**
- **Managing Multiple Tasks in Playbook**
 - **Tags**
 - **Registers**
 - **Handlers**
- **Managing Variables in Playbooks**
 - **Declaring Variables**
 - **Accessing Variables**
- **Ansible Roles**
- **Implementing Task Controls**
 - **Loops**
- **Ansible Templates**
 - **Creation of Jinja2 Templates**
 - **Managing Variables for Templates**
- **Ansible Tips and Tricks**



ANSIBLE

TOMCAT WEB SERVER

- **Installation and Configuration**
- **Tomcat Manager**
- **Application Management**
- **App Deployment Methods**
- **Troubleshooting web application failures**



Apache Tomcat

Docker and Kubernetes:

Docker:

- **Docker Introduction and overview**
- **Docker Basics syntax and Advanced Commands**
- **Docker Installation and Configuration**
- **Docker Images**
- **Docker Containers**
- **Dockerfile Instructions and Dockerfile Creation**
- **Dockerhub Registries**
- **Docker Volumes**



docker

- **Docker Networking**
- **Integration with Jenkins**

Kubernetes:

- **Introduction to Kubernetes**
- **Kubernetes Architecture**
- **Kubernetes Installation and configuration**
- **Components of Kubernetes**
 - **API Server**
 - **ETCD**
 - **Scheduler**
 - **Controller**
 - **Container Runtime**
 - **Kubelet**
 - **Kubectrl**
 - **Kubeadm**
- **POD's**
- **Replica Sets**
- **Deployments**
- **Deployment Strategies**
- **Services**
- **Secrets**
- **Kubernetes yamls**
- **Volumes**
- **Namespaces**
- **Resource Management**
- **Logging**
- **Kubernetes Installation and Configuration**
- **E2E Application Deployment**



kubernetes



PROJECT:

- **Realtime Web Application using CI/CD with no Manual Intervention**

Cloud Engineering - AWS

AWS Overview

- **Introduction to AWS Cloud Computing**
- **Difference between AWS and On-premise**
- **Types of cloud and cloud models**
- **Global Infrastructure. Explanation about availability zones, regions**
- **Networking**
 - **Virtual Private Cloud (VPC)**
 - **Subnets**
 - **Internet gateways**
 - **NAT gateways**
 - **route tables**
 - **Elastic IP's**



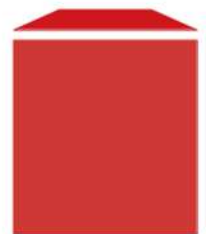
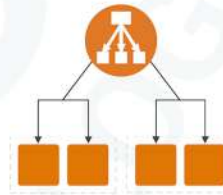
- **Compute**
 - **EC2 Instances creation & Instance types**
 - **Instance types in term CPU and memory**
 - **Instance types launch machines (on demand, reserved , spot requests)**
 - **Tendency**
 - **AMI & catalog of Images**
 - **Instance creation in detail**
 - **Launch static website on EC2 instance?**
- **Network & Security**
 - **Security groups (inbound & outbound)**
 - **Elastic IP's**
- **AMI - Amazon Machine Image**
 - **How to create AMI from running instance**
 - **How to launch new instance from Customized AMI**
- **Elastic Load Balancers**
 - **Application Load Balancer**
 - **Network Load Balancer**
- **EBS – Volumes**
 - **SSD Vs HDD**
 - **Creation & Deletion of volumes**
 - **How to attach and detach volumes to Instance?**
 - **How to take backup of volumes?**
 - **How to Identify and use volume inside an EC2 instance?**
 - **Formatting & creating filesystem to write data into it.**
- **Snapshots**
 - **Creation of snapshots**
 - **Snapshot -> How to create volume?**
 - **How to ship snapshot from one region to another region?**
- **Identity and Access Management**
 - **IAM user**
 - **IAM groups**
 - **IAM roles**
 - **IAM policies**
 - **AWS management console (SDK - AWS CLI)**
 - **Programmatic access (GUI)**
- **Storage**
 - **S3 CLI**
 - **S3 upload and download**
 - **S3 bucket policies**
 - **S3 bucket restrictions**
 - **S3 how to launch static website?**
- **Autoscaling**
 - **Create Autoscaling group**
 - **Create LaunchTemplates**
 - **How to scale up and down the instances**
- **Route53**
 - **Creating our website - Hostinger (website name)**



Amazon EC2



Amazon Machine Image (AMI)



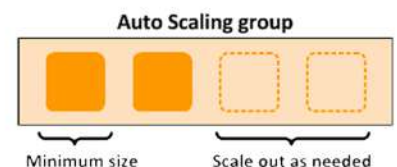
AWS EBS



AWS IAM



Amazon S3



- **Create Route53**
- **Record A, AAA, C etc.**
- **Validation of Domain registering at Domain verification website.**
- **Integrating Route 53 with Load balancer.**
- **Launch website using Route 53 via single instance of machine.**



Route53

Bonus Topics

Terraform

- **Introduction to Infrastructure as Code**
- **Terraform - Installation and configuration.**
- **Create and destroy infrastructure: Provider, Resources, Variables, Outputs.**
- **Multiple instances of resources: Count**



HashiCorp

Terraform

Monitoring Tools (Any One)

- **Grafana**
- **Prometheus**
- **Exporters**

Log Management (Any One)

- **Kibana**
- **Elasticsearch**
- **Logstash**
- **Filebeat**



Interview

- **Resume Preparation**
- **Interview Realtime Scenarios**
- **Interview Questions**
- **Self-Introduction preparation**
- **Technical Rounds preparation**
- **HR Round Salary Negotiation techniques**
- **Grooming for moving from non-technical to technical Background**
- **Grooming on Behavioral Skills and Mind Set Change**



Grafana

Additional sharing with Students:

- **Running Notes**
- **Diagrams**
- **Documentations**
- **Recorded Videos**
- **Scenario based Notes**
- **Interview Preparation Notes**
- **Fresher and Experience reference Resume**