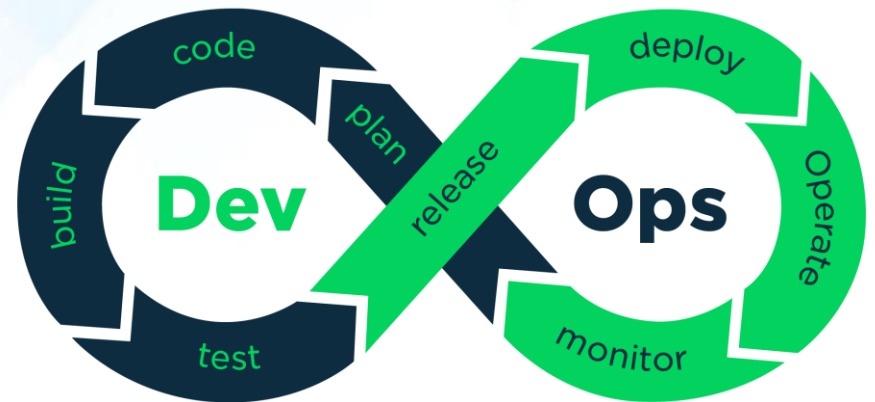




**ONLINE
TRAINING**

DevOps

Course Curriculum





Introduction to DevOps

1. Definition of SDLC
2. Purpose of SDLC
3. General Phases of SDLC
4. Various Models of SDLC
5. About Waterfall SDLC Model
6. Waterfall SDLC Model - Advantages
7. Waterfall SDLC Model - Disadvantages
8. About Agile SDLC Model
9. Agile SDLC Model - Advantages
10. Introduction to DevOps
11. History of DevOps
12. What is DevOps
13. Definition of DevOps
14. Fundamental Principles of DevOps
15. Benefits of DevOps after Implementation
16. DevOps Roles and Responsibilities
17. Continuous Integration in DevOps





AWS Cloud

1. What is Cloud Computing
2. What is AWS Cloud
3. How AWS Cloud is being operated
4. Cloud Advantages
5. AWS Account Creation
6. Free Tier AWS
7. AWS Regions
8. AWS Availability Zones
9. AWS Services
10. AWS Console Overview





EC2

1. Introduction to EC2
2. EC2 Dashboard Overview
3. What is Elastic
4. How scaling works
5. Types of Operating Systems
6. Windows and its versions
7. Unix and its flavors
8. Linux and its flavors
9. About Amazon Machine Images (AMI)
10. Different types of AMI's
11. How to create a AWS AMI
12. How to create a Key Pairs
13. Instance types
14. What is EBS (Elastic Block Store)
15. Download a key pair
16. Access EC2 Windows instances
17. Access EC2 Linux instances
18. Putty and PuttyGen
19. MobaXterm tool
20. Browser Access
21. What is PEM file
22. What is PPK file
23. What are the default usernames to connect AMI's
24. How to reboot the instance
25. How to stop instance
26. How to terminate instance
27. Protection from Accidental termination
28. Recover lost keys
29. Linux Web Server
30. Windows Web Server
31. Security Groups





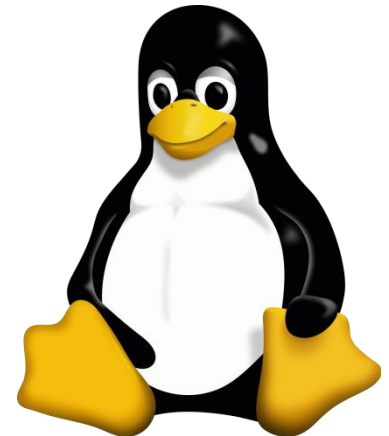
Unix/Linux

1. Introduction to Unix/ Linux
2. Unix Flavors
3. Linux Flavors
4. Why is Linux?
5. Advantages of Unix/ Linux
6. Architecture of Linux
7. File system hierarchy
8. cat (create & append file)
9. touch (create blank file)
10. nano (create & edit file)
11. vi/vim (create & edit file)
12. ls (list) (-a, -la)
13. cd (change directory)
14. pwd (print working directory)
15. mkdir (create directory, multiple)
16. cp (copy)
17. mv (move)
18. mv (rename)
19. rm (remove file)
20. tree (see in tree structure)
21. rm-rf (remove directory & recursive)
22. grep (pick & print)
23. less (see output)
24. head (see top 10 lines)
25. tail (see last 10 lines)
26. Sort (display in Alphabetic/Numeric order)
27. User Creation
28. Group Creation
29. Soft Link (shortcut)
30. Hard Link (backup)
31. tar (to pack)
32. gz (to compress)
33. yum (to install)
34. wget (to download)



Unix/ Linux

1. File/ Directory Permissions
2. chmod (permissions)
3. chown (owner)
4. chgrp (group)
5. hostname (to see hostname)
6. ifconfig (to get IP Address)
7. cat/ etc/ *rele* (to get OS Version)
8. yum commands
9. rpm commands
10. service commands
11. chkconfig commands
12. Redirection (redirecting output)
13. which (to see package installed or not)
14. sudo (to get root privileges)
15. whoami (to see user)
16. find commands
17. User Management
18. Group Management
19. SSH Connection
20. SUDO Permissions
21. Password less SSH Connection
22. Access Server as Normal User
23. Managing User Permissions
24. Generating SSH Keys
25. Public vs Private keys





Git

1. Source code management
2. Version control system
3. Revision control system
4. SCM tools
5. Repository/ Depot
6. Server
7. Work space/ Work dir/ Work tree
8. Branch/ Trunk/ Code line
9. Commit/ Check-in
10. Version/ Version-ID/ Commit-ID
11. Tag
12. Advantages of Git
13. Git Snapshots
14. Work space
15. Staging area
16. Buffer area
17. Repository (Local/ Non-bare)
18. Repository (Central/bare)
19. Installation & configuration
20. Git add, Git commit
21. Git log , Git push, Git status, Git ignore
22. Git branch, Git checkout , Git merge
23. Git Snapshots, Git conflict
24. Git stash, Git reset, Git revert
25. Repository (Central/ bare)
26. Git remove, Git clean, Git tag
27. Git fetch, Git diff, Git cherry-pick
28. Git hub, Role of Git in Real Time
29. Git installation on Windows
30. Git installation on Linux
31. Git Architecture
32. What is Git Repository
33. Git with Local Repositories



Git

1. Git with Remote Repositories
2. Git config command usage
3. Setup git repository using git init
4. Git Making Changes
5. Git status color coding system
6. Exercises on adding single files, multiple file commits
7. Committing changes in one go
8. Git History - log and show
9. View all commit logs
10. View only latest commit logs
11. Git show command
12. Comparing git project files from working area with Local Repo using Git diff
13. Git diff –staged
14. Git remote commands
15. Introduction to GitHub Repository
16. Push changes to GitHub Repository
17. Create Account in GitHub
18. Create Project Repository in GitHub
19. Public Repository
20. Private Repository
21. Create files in GitHub
22. Clone GitHub Repository
23. Pull changes from GitHub
24. Push changes to GitHub Repository



git



Docker

1. What is Container
2. Docker Features
3. Docker History
4. Docker Usage
5. Docker Architecture
6. Docker Editions
7. Docker System Requirements
8. Docker Installation and Setup
9. How to verify Docker Installation
10. About Docker version
11. OS-Level-Virtualization
12. Layered file system
13. VM Ware vs Docker
14. Docker Components
15. Docker Workflow
16. Docker Benefits
17. Docker Images
18. Docker Container
19. Docker File
20. Docker Hub/Registry
21. Docker Daemon
22. Docker Install & Configure
23. Docker all commands
24. Docker Volumes
25. Volume (Container-Container)
26. Volume (Host- Container)
27. Port Mapping
28. Registry Server
29. Pull/Push images from /to registry
30. CMD, RUN, ENTRYPOINT
31. Relation between container and docker
32. Why docker is so popular ?
33. Difference b/w container and image



Docker

1. Containers History
2. How to see list images in Docker
3. What is Docker Registry
4. How to see all Docker Images
5. How to pull images from Docker registries
6. What is pulling in Docker?
7. Difference between Docker Pull, Run and Push
8. How to run Docker Image
9. Exit from container without killing it
10. How to exit from container by killing it
11. How to see all running container on Docker Host
12. How to check the history of all containers
13. How to stop a container that is running
14. How to find latest containers that are created
15. How to get inside of already a running container
16. How to start a container and remove it once task is completed
17. How to delete or remove a container
18. How to delete or remove image from Docker Host
19. How to attach a port of Docker Host to Docker Container
20. How to run a container in background
21. Difference between Docker Container Run and Docker Container Start
22. How to specify a name to Docker Container
23. How to see container logs
24. How to see all commands related to a container
25. How to remove Docker Multiple Containers



Docker

1. How to check Docker container metadata using Docker inspect
2. How to list what ports are being used by Docker Container
3. How to tag Docker images
4. How to log into Docker registries using Docker CLI
5. How to logout from Docker registries using Docker CLI
6. How to push Docker image to Docker registries
7. About Docker file
8. How to create Docker file to build an image
9. How to build an image from Docker file
10. About Docker file Instructions
11. Docker Compose
12. How to write Docker Compose files
13. Services in Docker Compose
14. Scaling in Docker Compose
15. Managing containers with Docker Compose
16. Docker Swarm
17. How to write Docker Swarm files
18. Services in Docker Swarm
19. Managing Manager and Nodes
20. Docker Swarm
21. Scaling in Docker Compose
22. Managing containers with Docker Swarm
23. Stacks, Services, and Tasks in Docker Compose
24. Replicated and Global modes in Docker Swarm
25. Declarative and imperative ways of using Docker Swarm
26. Playing with Manager and Nodes status in Docker Swarm



Ansible

1. Configuration Management Tool
2. Introduction to Ansible
3. History & Advantages of CM Tool
4. Why Ansible & Ansible Advantages
5. Ansible Architecture setup
6. Install & Configure Ansible
7. Features of Ansible
8. Use Cases of Ansible
9. What can you do in Production Environment
10. Ansible Documentation
11. How Ansible is different from Configuration Management Tools
12. Ansible Architecture
13. Ansible Control Machine Requirements
14. Ansible Installation Process
15. Ansible Terminologies
16. How Ansible Works
17. Ansible Lab-setup
18. Ansible Inventory
19. Test Environment setup
20. Host Patterns
21. Ad-Hoc commands
22. Modules & Gathering facts
23. Playbooks & YAML Language
24. Target section & Variable section
25. Task section & Handle section
26. Dry run & Loops
27. Conditionals & Vault





Ansible

1. Representation of Dictionary in YAML
2. Representation of List in YAML
3. Group Inventory File
4. Ansible Inventory Parameters
5. Ansible Exercise - To Setup Inventory File and Perform Ping Test
6. Ansible Playbooks and Modules
7. Ansible Playbooks
8. Sample Ansible Playbook
9. Ansible Playbook Format
10. Ansible Modules
11. Ansible Tasks
12. File Management Playbook
13. Directory Management Playbook
14. User Management Playbook
15. Group Management Playbook
16. Package Management Playbook
17. Services Management Playbook
18. Web Server Playbook
19. Conditionals Playbook
20. Tags & With Items
21. Shell Commands
22. Error Handling
23. How to run a Playbooks
24. How to check the syntax of a Playbook
25. How to run a Playbook on multiple hosts
26. How to run a Playbook on target hosts
27. Ansible Run Command Methods
28. Ansible Custom Host File
29. Install Tomcat
30. Install Jenkins
31. Ansible Roles





Kubernetes

1. What is Kubernetes
2. Features of Kubernetes
3. Architecture of Kubernetes
4. Kubernetes Master
5. Kubernetes Nodes
6. Kubernetes Components
7. Kube-api Server
8. etcd (cluster store)
9. Kube-scheduler
10. Node
11. Kube-proxy & Kubelet
12. Installation of Kubernetes
13. Kubernetes Objects
14. Kubernetes Spec
15. Kubernetes Status
16. K8S Object Management models (Imperative and Declarative)
17. Pod Fundamentals
18. Everything about Pod
19. K8S Installation and Configuration models (All 3 types)
20. Kubernetes YAML scripting rules
21. Setting up a single-node K8S cluster with Minikube
22. Installation of Kubectl
23. Service Discovery
24. Kubernetes restart policy
25. Managing Pods and Containers
26. Kubernetes Pods logs
27. Executing commands in containers
28. Managing multi container pods
29. Pod Environment Variables
30. Labels & Selectors



Kubernetes

1. Selectors (Set-based)
2. Kubernetes Node Selectors
3. Kubernetes Scaling
4. Kubernetes Replication
5. Kubernetes Replication Controller
6. Kubernetes Replica Set
7. Selectors (Equality-based)
8. Kubernetes Deployments
9. Rolling Update
10. Rollback/ Rollout
11. Kubernetes Networking
12. Kubernetes Services
13. Communication among containers in same pod
14. Pod to Pod communication
15. Cluster IP (Virtual IP)
16. Node Ports (30000-32767)
17. Node IP
18. Node to Pod communication
19. Deploying applications in Pod's containers
20. Kubernetes Volumes
21. emptyDir
22. hostPath
23. Persistent Volumes
24. Persistent Volume Claim
25. Deployment Persistent Volume
26. AWS Elastic Block Store
27. Health Checks
28. Liveness Probe
29. Readiness check
30. Kubernetes Namespace
31. Secrets
32. ConfigMap
33. Secrets from a text file



Kubernetes

1. Secrets from a YAML file
2. Secrets as environment variables
3. Secrets as volumes in the pod
4. ConfigMap from a text file
5. ConfigMap from a YAML file
6. ConfigMap as environment variables
7. ConfigMap as volumes in the pod
8. Managing Computer Resources for Containers
9. CPU Limits
10. Memory (RAM) Limits
11. Resource Quotas
12. Setting Limit for Name Space
13. Kubernetes Jobs
14. Parallism
15. Cron Job
16. Init Containers
17. Logging
18. Pod Life Cycle
19. Pod Conditions
20. Container States



kubernetes



Cloud Watch

1. What is Cloud Watch?
2. Why monitoring Cloud Watch?
3. What is default monitoring?
4. What is detailed monitoring?
5. Time interval
6. Increasing Load on Server
7. Creating Alarms
8. Creating Graphs
9. Line
10. Stacked
11. Number
12. Text
13. Creating a Billing Alarm
14. Monitoring Billing
15. Deleting Billing Alarm
16. Why only Cloud Watch
17. How to see Metrics
18. Custom Metrics
19. CPU% Monitoring
20. RAM% Monitoring
21. Connecting EC2 with Cloud Watch with IAM Role



AWS CloudWatch



IAM (Identity and Access Management)

1. What is IAM?
2. How to create Users?
3. How to assign limited permissions?
4. Provide login access
5. Graphical Access
6. Command line/ Programmatic access
7. IAM Roles
8. Username & Passwords
9. Access & Secret keys
10. Recover lost credentials
11. Recover lost .PEM keys
12. IAM user administration



Maven

1. What is Build?
2. Purpose of Build Tools
3. Build Tools Ideology
4. Evolution of Build Tools
5. Few Notable Build Tools
6. Java Based Build Tools
7. Build management
8. Advantages of Build tool
9. Architecture of Maven
10. Maven build life-cycle
11. Maven repositories
12. Pom.xml
13. Multi module project (over view)
14. Maven directory structure
15. Maven link to GitHub
16. Maven link to Jenkins
17. How Developers use Maven
18. List of Maven Templates





Terraform

1. What is Terraform?
2. What are the advantages of Terraform?
3. why we have to use Terraform
4. What is IAC?
5. What are the advantages of IAC?
6. List of Cloud Providers
7. What are the cloud providers support Terraform?
8. How to download Terraform software?
9. Terraform installation on Windows & Linux Servers
10. How to set Terraform path temporarily and permanently
11. What is IAM in AWS?
12. How to create IAM user
13. How to launch windows instance
14. How to launch Linux instance
15. Creation of S3 bucket
16. Launch multiple instances at a time (Windows and Linux)
17. Change configuration of EC2 Instances with Terraform Script
18. Create and attach our own Security groups to Instances
19. Convert Linux Instance into Web Server with Terraform Script
20. Launch multiple Instances by giving different names
21. Create VPC with Subnets, Internet Gateways, Route Tables and connecting all of them with Terraform Script
22. Create RDS (MySQL) database in AWS with Terraform Script



Web Servers

1. HTTPD
2. Apache2
3. IIS (Internet Information Services)
4. Installation
5. Types of web packages
6. Configuration
7. Directory Structure
8. Index file
9. Starting Service
10. Enabling Service



SNS

1. SNS (Simple Notification Service)
2. What is SNS?
3. Need of Notifications
4. Formats of SNS
5. Topics in SNS
6. Subscribers in SNS
7. Subscription in SNS
8. SNS integration with Cloud Watch
9. How to clean up SNS



Tomcat (Application Server)

1. Installation
2. Configuration
3. Tomcat Manager
4. Application Management
5. App Deployment Methods
6. Accessing from other machines
7. User Creation
8. Services Management



Jenkins

1. Introduction to Jenkins
2. Why Jenkins
3. Relation between Jenkins and Hudson
4. History of Jenkins
5. Why Jenkins is so popular
6. Features of Jenkins
7. Jenkins Architecture
8. Jenkins Prerequisites
9. Continues Integration(CI)
10. Jenkins Workflow
11. Ways of CI
12. Benefits of CI
13. Why only Jenkins
14. Git for Windows
15. Java Installation & configuration
16. Maven Installation & Configuration
17. Jenkins Installation & configuration
18. Free style project
19. Maven project by maven
20. Maven project by Jenkins
21. Jenkins Plugins
22. Scheduled Projects
23. Source code polling (Git)
24. Related/ Linked projects
25. Upstream & Downstream projects
26. CI-CD pipeline
27. Jenkins Views
28. User Management
29. Jenkins Slaves
30. Tomcat Web Server
31. Minimum Hardware Requirements
32. Recommended Hardware Requirements
33. Jenkins Dashboard Overview
34. Job or Project



Jenkins

1. Executor
2. Build & Plugin
3. Setup Environment Variables
4. Jenkins Terminologies
5. Master & Slave or Node
6. Job Listing Section
7. Setup Jenkins Server
8. Jenkins Menu Section
9. Jenkins Menu- Item
10. Jenkins Menu-People
11. Jenkins Menu-Build History
12. Jenkins Menu-Manage Jenkins
13. Jenkins Menu-Views
14. Build Queue Section
15. Build Executor Status Section
16. Jenkins - Creating Jobs in Jenkins
17. Naming a Project
18. About Project Descriptions
19. How to disable the build systems
20. Source Code Management
21. Build Triggers
22. Create a Sample Project
23. Understand Jenkins Job Process
24. How to check Build Information
25. Jenkins Build Color Code System
26. Configure Jenkins Build Server
27. Configure Java JDK for Jenkins Build Server
28. Configure Apache Maven for Jenkins Build Server
29. Configure the JAVA JDK for Build jobs in Jenkins
30. Configure the Maven for Build Jobs in Jenkins



Jenkins

1. Configure GitHub for Build Jobs in Jenkins
2. Configure SCM-Git Plugin for Build Jobs in Jenkins
3. Secure Jenkins
4. Manage Jenkins Plugins & Install Plugins
5. Upgrade Plugins & Backup Plugins
6. Jenkins User Administration
7. Create Jenkins User Accounts
8. Delete Jenkins User Accounts
9. How to change the Jenkins Admin Password
10. Change Home Directory
11. Configure - Executors, Labels, SCM Checkout Retry Count
12. Build Triggers
13. Configure Poll Source Code Management in Jenkins
14. Configure Poll SCM changes using Crontab in Jenkins
15. Trigger Builds Remotely using URL
16. Trigger Builds based on build Pipeline or other Projects
17. Build Triggers Periodically
18. Build Triggers when changes pushed to GitHub or SCM
19. Architecture of Distributed Build
20. Configure Jenkins Master Server
21. Configure Jenkins Slave Server
22. Configure authentication between Jenkins master and Slave Server
23. Setup Relationship between Master and Slave
24. Configure Project to build on Jenkins Slave Server



Jenkins

1. Email Notifications in Jenkins
2. Purpose of Email Notification
3. Email Notification Plugins
4. CI-CD Pipeline Project
5. Jenkins Pipelines
6. Types of Pipelines
7. Advantages of Pipeline Script

Projects

1. DevOps Real time project - 1
2. DevOps Real time project - 2
(CI-CD Pipeline projects)



Additional Support

1. Provides regular recorded class video
2. Provides softcopy material
3. Resume preparation explanation for
 - a. Fresher
 - b. Experienced
 - i. IT
 - ii. Non-IT (even > 10 Years also)
4. Resume Validation
5. We will conduct one-to-one discussion at the end of course to provide guidance
6. Explanation of -
 1. Day-to-Day tasks
 2. Errors & Troubleshooting
 3. Dealing with client calls
 4. Real-time scenarios
 5. Interview Cracking Tips
 6. Interview & Exam Questions
 7. IT Working Environment



Additional Support

1. Job Assistance will be provided
2. Doubts clarification in English, Hindi & Telugu
3. Explanation from “0” level
4. Any “Education” Qualification is accepted (Including Non IT)
5. Provides Course Completion Certificate



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