SAIDEMY

DevOps

DevOps

- Definition of SDLC
- Purpose of SDLC
- General Phases of SDLC
- Various Models of SDLC
- About Waterfall SDLC Model
- Waterfall SDLC Model - Advantages
- Waterfall SDLC Model - Disadvantages
- About Agile SDLC Model
- Agile SDLC Model - Advantages
- Introduction to DevOps
- History of DevOps
- What is DevOps
- Definition of DevOps
- Fundamental Principles of DevOps
- Benefits of DevOps
- After Implementation
- DevOps Roles and Responsibilities
- Continuous Integration in DevOps

AWS Cloud

- What is Cloud Computing
- What is AWS Cloud
- How AWS Cloud is being operated
- Cloud Advantages
- AWS Account Creation
- Free Tier AWS
- AWS Regions
- AWS Availability Zones
- AWS Services
- AWS Console Overview

EC2

- Introduction to EC2
- EC2 Dashboard Overview
- What is Elastic
- How scaling works
- Types of Operating Systems
- Windows and its versions
- Unix and its flavors
- Linux and its flavors
- About Amazon Machine Images (AMI)
- Different types of AMI's
- How to create AWS AMI
- How to create a Key Pairs
- Instance types
- What is EBS (Elastic Block Store)
- Download a key pair
- Access EC2 Windows instances
- Access EC2 Linux instances
- Putty and PuttyGen
- MobaXterm tool
- Browser Access
- What is pem file
- What is ppk file
- What are default usernames to connect AMI's
- How to reboot the Instance
- How to stop instance
- How to terminate instance
- Protection from Accidental termination
- Recover lost keys
- Linux Web Server
- Windows Web Server
- Security Groups

Unix/Linux

- Introduction to Unix/Linux
- Unix flavors
- Linux Flavors
- Why Linux?
- Advantages of Unix/Linux
- Architecture of Linux
- File system hierarchy
- cat (create & append file)
- touch (create blank file)
- nano (create & edit file)
- vi/vim (create & edit file)
- ls (list) (-a, -la)
- cd (change directory)
- pwd (print working directory)
- mkdir (create directory, multiple)
- cp (copy)
- mv (move)
- mv (rename)
- rm (remove file)
- tree (see in tree structure)
- rm -rf(remove directory & recursive)
- grep (pick & print)
- less (see output)
- head (see top 10 lines)
- tail (see last 10 lines)
- sort (display in Alphabetic/Numeric order)
- User creation
- Group creation
- Soft Link (shortcut)
- Hard Link (backup)
- tar (to pack)
- gz (to compress)
- yum (to install)
- wget (to download)

- File/Directory Permissions:
- chmod (permissions)
- chown (owner)
- chgrp (group)
- hostname (to see hostname)
- ifconfig (to get ip address)
- cat /etc/*rele* (to get os version)
- yum commands
- rpm commands
- service commands
- chkconfig commands
- Redirection (redirecting output)
- which (to see package installed or not)
- sudo (to get root privileges)
- whoami (to see user)
- find commands
- User Management
- Group management
- SSH Connection
- SUDO Permissions
- Password less SSH Connection
- Access Server as normal user
- Managing User permissions
- Generating SSH Keys
- Public vs Private keys

Git

- Source code management
- Version control system/Revision control system
- SCM tools
- Repository/Depot
- Server
- Work space/Work dir/Work tree
- Branch/Trunk/Code line
- Commit/Check-in
- Version/Version-ID/Commit-ID
- Tag
- Advantages of Git
- Git Snapshots
- Work space
- Staging area
- Buffer area
- Repository (Local/non-bare)
- Repository (Central/bare)
- Installation & configuration
- Git add
- Git commit
- Git log
- Git push
- Git status
- Git ignore
- Git branch
- Git checkout
- git merge
- Git Snapshots
- Git conflict
- Git stash
- Git reset
- Git revert
- Repository (Central/bare)
- Git remove
- Git clean
- Git tag
- Git fetch
- Git diff
- Git cherry-pick
- Git hub
- Role of Git in Real Time
- Git installation on Windows and Screen shots
- Git installation on Linux
- Git Architecture
- What is Git Repository
- Git with Local Repositories
- Git with Remote Repositories
- git config command usage
- Setup git repository using git init
- Git Making Changes
- git status color coding system
- Exercises on adding single files, multiple files commits
- Committing Changes in one go
- Git History - log and show
- View all commit logs
- View only latest commit logs
- git show command
- Comparing git project files from working area with Local Repo using git diff
- Git diff –staged
- git remote commands
- Introduction to GitHub Repository
- Push changes to GitHub Repository
- Create Account in GitHub
- Create Project Repository in GitHub
- Public Repository
- Private Repository

- Create files in GitHub
- Clone GitHub Repository
- Pull changes from GitHub
- Push changes to GitHub Repository

Docker

- What is Container
- Docker features
- Docker history
- Docker usage
- Docker Architecture
- Docker Editions
- Docker system Requirements
- Docker installation and setup
- How to verify docker installation
- About Docker version
- OS-Level-Virtualization
- Layered file system
- VM Ware vs Docker
- Docker components
- Docker workflow
- Docker benefits
- Docker images
- Docker Container
- Docker file
- Docker hub/registry
- Docker daemon
- Docker Install & Configure
- Docker all commands
- Docker Volumes
- Volume (container-container)
- Volume (Host- Container)
- Port mapping
- Registry server
- Pull/push images from /to registry
- CMD
- RUN
- ENTRYPOINT
- Relation between container and docker
- Why docker is so popular
- Difference b/w container and image

- Containers History
- How to see list images in docker
- What is Docker Registry
- How to see all docker images
- How to pull images from docker registries
- What is pulling in docker?
- Difference between Docker Pull, run, Push
- How to run docker image
- How to exit from container without killing it
- How to exit from container by killing it
- How to see all running container on docker host
- How to check the history of all containers
- How to stop a container that is running
- How to find latest containers that are created
- How to get inside of already a running container
- How to start a container and remove it once task is completed
- How to delete or remove a container
- How to delete or remove image from docker host
- How to attach a port of docker host to docker container
- How to run a container in background
- Difference between docker container run and docker container start
- How to specify a name to docker container
- How to see container logs
- How to see all commands related to a container
- How to remove docker multiple containers
- How to check docker container metadata using docker inspect
- How to list what ports are being used by docker container
- How to tag docker images
- How to log into docker registries using docker CLI
- How to logout from docker registries using docker CLI
- How to push docker image to docker registries
- About Docker file
- How to create Dockerfile to build an image
- How to build an image from Dockerfile
- About Dockerfile Instructions
- Docker Compose
- How to write Docker Compose files
- Services in Docker Compose
- Scaling in Docker Compose
- Managing containers with Docker Compose
- Docker Swarm
- How to write Docker Swarm files
- Services in Docker Swarm
- Managing Manager and Nodes with
- Docker Swarm
- Scaling in Docker Compose
- Managing containers with Docker Swarm
- Stacks, Services, and Tasks in Docker Compose
- Replicated and Global modes in Docker Swarm

- Declarative and imperative ways of using Docker Swarm
- Playing with Manager and Nodes statuses in Docker Swarm

Ansible

- Configuration Management tool
- Introduction To Ansible
- History
- Advantages of CM tool
- Why Ansible
- Ansible Advantages
- Ansible Architecture setup
- Install & configure Ansible
- Features Of Ansible
- Use Cases Of Ansible
- What Can Do In Production Environment
- Ansible Documentation
- How Ansible Is Different From Configuration Management Tools
- Ansible Architecture
- Ansible Control Machine Requirements
- Ansible Installation Process
- Ansible Terminologies
- How Ansible Works
- Ansible Lab-setup
- Ansible Inventory
- Test Environment setup
- Host Patterns
- Ad-Hoc commands
- Modules
- Gathering facts
- Playbooks
- YAML Language
- Target section
- Variable section
- Task section
- Handle section
- Dry run
- Loops

- Conditionals
- Vault
- Representation Of Dictionary In Yaml
- Representation Of List In Yaml
- Group Inventory File
- Ansible Inventory Parameters
- Ansible Exercise - To Setup Inventory File And Perform Ping Test
- Ansible Playbooks and Modules
- Ansible Playbooks
- Sample Ansible Playbook
- Ansible Playbook Format
- Ansible Modules
- Ansible Tasks
- File management Playbook
- Directory management Playbook
- User management Playbook
- Group management Playbook
- Package management Playbook
- Services management Playbook
- Web Server Playbook
- Conditionals Playbook
- Tags
- With Items
- Shell Commands
- Error Handling
- How To Run A Playbooks
- How to check the syntax of a Playbook
- How to Run a playbook on multiple hosts
- How to Run a playbook on target hosts
- Ansible Run Command Methods
- Ansible custom host file
- Install Tomcat
- Install Jenkins
- Ansible Roles

Kubernetes

- What is kubernetes
- Features of kubernetes
- Architecture of kubernetes
- Kubernetes Master
- Kubernetes nodes
- Kubernetes components
- Kube-api server
- etcd (cluster store)
- Kube-scheduler
- Node
- Kube-proxy
- Kubelet
- Installation of Kubernetes
- Kubernetes Objects
- Kubernetes Spec
- Kubernetes Status
- K8S Object Management models (Imperative and Declarative)
- Pod Fundamentals
- Everything about Pod
- K8S Installation and Configuration models (All 3 types)
- Kubernetes YAML scripting rules
- Setting up a single-node K8S cluster with minikube
- Installation of kubectl
- Service discovery
- Kubernetes restart policy
- Managing Pods and containers
- Kubernetes pods logs
- Executing commands in containers
- Managing multi container pods
- Pod Environment Variables
- Labels & Selectors

- Selectors (Set-based)
- Kubernetes Node Selectors
- Kubernetes Scaling
- Kubernetes Replication
- Kubernetes Replication Controller
- Kubernetes Replica Set
- Selectors (Equality-based)
- Kubernetes Deployments
- Rolling Update
- Rollback/Rollout
- Kubernetes Networking
- Kubernetes Services
- Communication among containers
- in same pod
- Pod to Pod communication
- Cluster IP (Virtual IP)
- Node Ports (30000-32767)
- Node IP
- Node to Pod communication
- Deploying applications in Pod's containers
- Kubernetes Volumes
- emptyDir
- hostPath
- Persistent Volumes
- Persistent Volume Claim
- Deployment Persistent Volume
- AWS Elastic Block Store
- Health Checks
- Liveness Probe
- Readiness check
- Kubernetes Namespace
- Secrets
- ConfigMap
- Secrets from a text file
- Secrets from a Yaml file
- Secrets as environment variables
- Secrets as volumes in the pod
- ConfigMap from a text file
- ConfigMap from a Yaml file
- ConfigMap as environment variables
- ConfigMap as volumes in the pod
- Managing Computer Resources for Containers
- CPU Limits
- Memory (RAM) Limits
- Resource Quotas
- Setting Limit for Name Space
- Kubernetes Jobs
- Parallism
- Cron Job
- Init Containers
- Logging
- Pod Life Cycle
- Pod Conditions
- Container States

Cloud Watch

- What is Cloud Watch
- Why to monitor
- What is default monitoring
- What is detailed monitoring
- Time interval
- Increasing Load on Server
- Creating Alarms
- Creating Graphs
- Line
- Stacked
- Number
- Text
- Create Billing Alarm
- Monitor Billing
- Deleting Billing Alarm
- Why only cloud watch
- How to see metrics
- Custom metrics
- CPU% Monitoring
- RAM% Monitoring
- Connecting EC2 with Cloud Watch with IAM Role

IAM (Identity and Access Management)

- What is Cloud Watch
- What is IAM
- How to create Users
- How to assign limited permissions
- Provide login access
- Graphical access
- Command line/Programmatic access
- IAM Roles
- Username & Passwords
- Access & Secret keys
- Recover lost credentials
- Recover lost .PEM keys
- IAM user administration

Maven

- What is Build
- Purpose of Build Tools
- Build Tools Ideology
- Evolution of Build Tools
- Few Notable Build Tools
- Java Based Build Tools
- Build management
- Advantages of Build tool
- Architecture of Maven
- Maven build life-cycle
- Maven repositories
- Pom.xml
- Multi module project (over view)
- Maven directory structure
- Maven link to GitHub
- Maven link to Jenkins
- How Developers use maven
- List of Maven Templates

Terraform

- What is terraform
- What are the advantages of terraform
- why we have to use terraform
- What is IAC?
- What are the advantages of IAC?
- list of cloud providers
- What are the cloud providers support terraform
- How to download terraform software
- Terraform installation on windows & Linux Servers
- how to set terraform path temporarily and permanently
- What is IAM in AWS?
- How to create IAM user?
- How to launch windows instance
- How to launch Linux instance
- Creation of S3 bucket
- Launch multiple instances at a time (Windows and Linux)
- Change configuration of EC2 Instances with Terraform Script
- Create and attach our own Security groups to Instances
- Convert Linux instance into Web Server with Terraform Script
- Launch multiple instances by giving different names
- Create VPC with Subnets, Internet Gateways, Route Tables and connecting all of them with Terraform Script
- Create RDS (MySQL) database in AWS with Terraform Script

Web Servers

- HTTPD
- Apache2
- IIS (Internet Information Services)
- Installation
- Types of web packages
- Configuration
- Directory Structure
- Index file
- Starting service
- Enabling Service

SNS

- SNS (Simple Notification Service)
- What is SNS?
- Need of notifications
- Formats of SNS
- Topics in SNS
- Subscribers in SNS
- Subscription in SNS
- SNS integration with Cloud Watch
- How to clean up SNS

Tomcat (Application Server)

- Installation
- Configuration
- Tomcat manager
- Application management
- App deployment methods
- Accessing from other machines
- User creation
- Services management

Jenkins

- Introduction to Jenkins
- Why Jenkins
- Relation between Jenkins and Hudson
- History of Jenkins
- Why Jenkins is so popular
- Features of Jenkins
- Jenkins Architecture
- Jenkins Prerequisites
- Continues Integration(CI)
- Jenkins workflow
- Ways of CI
- Benefits of CI
- Why only Jenkins
- Git for Windows
- Java installation & configuration
- Maven installation & Configuration
- Jenkins installation & configuration
- Free style project
- Maven project by maven
- Maven project by Jenkins
- Jenkins Plugins
- Scheduled Projects
- Source code polling (Git)
- Related/Linked projects
- Upstream & Downstream projects
- CI-CD pipeline
- Jenkins Views
- User management
- Jenkins Slaves
- Tomcat web server
- Minimum Hardware Requirements
- Recommended Hardware Requirements
- Jenkins Dashboard Overview
- Job or Project
- Executor
- Build
- Plugin
- Setup Environment Variables
- Jenkins Terminologies
- Master
- Slave or Node
- Job Listing Section
- Setup Jenkins Server
- Jenkins Menu Section
- Jenkins Menu- Item
- Jenkins Menu-People
- Jenkins Menu-Build History
- Jenkins Menu-Manage Jenkins
- Jenkins Menu-views
- Build Queue Section
- Build Executor status Section
- Jenkins - Creating Jobs in Jenkins
- Naming a Project
- About Project Descriptions
- How to disable the build systems
- Source Code Management
- Build Triggers
- Create a Sample Project
- Understand Jenkins Job Process
- How to check Build Information
- Jenkins Build Color Code system
- Configure Jenkins Build Server
- Configure Java JDK for Jenkins Build Server
- Configure Apache Maven for Jenkins Build Server
- Configure the JAVA JDK for Build jobs in Jenkins
- Configure the Maven for Build Jobs in Jenkins

- Configure GitHub for Build Jobs in Jenkins
- Configure SCM-Git Plugin for Build Jobs in Jenkins
- Secure Jenkins
- Manage Jenkins Plugins
- Install Plugins
- Upgrade Plugins
- Backup plugins
- Jenkins User administration
- Create Jenkins User Accounts
- Delete Jenkins User Accounts
- How to change the Jenkins Admin Password
- Change Home Directory
- Configure - Executors, Labels, SCM Checkout Retry Count
- Build Triggers
- Configure Poll Source Code management in Jenkins
- Configure Poll SCM Changes using Crontab in Jenkins
- Trigger Builds Remotely using URL
- Trigger Builds based on build Pipeline or other Projects
- Build triggers Periodically
- Build triggers when changes pushed to GitHub or SCM
- Architecture of Distributed Build
- Configure Jenkins Master Server
- Configure Jenkins Slave Server
- Configure authentication between Jenkins master and Slave Server
- Setup Relationship between Master and Slave
- Configure Project to build on Jenkins slave server

- Email Notifications in Jenkins
- Purpose of Email Notification
- Email Notification plugins
- CI-CD Pipeline Project
- Jenkins Pipelines
- Types of pipelines
- Advantages of Pipeline Script
- CI-CD Pipeline Project
- Jenkins Pipelines
- Types of pipelines
- Advantages of Pipeline Script

Projects

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

Additional Support

- **Provides Regular Recorded Class Video**
- **Provides Softcopy Material**
- **Resume preparation explanation for**
    a. **Fresher**
    b. **Experienced**
        i. **IT**
        ii. **Non-IT (even > 10 Years also)**
- **Resume Validation**
- **We will conduct One-to-One Discussion at the end of course to provide guidance**
- **Explanation of**
    a. **Day-to-Day tasks**
    b. **Errors & Troubleshooting**
    c. **Dealing with client calls**
    d. **Real-time scenarios**
    e. **Interview cracking tips**
    f. **Interview & Exam Questions**
    g. **IT Working Environment**
- **Job Assistance will be provided**
- **Doubts clarification in English, Hindi & Telugu**
- **Explanation from "0" level**
- **Any "Edu" Qualification is accepted (Including Non IT)**
- **Provides Course Completion Certificate**

Thank You