DevOps Course Content

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
16. After Implementation
17. DevOps Roles and Responsibilities
18. Continuous Integration in DevOps

AWS Cloud

1. Brief History of AWS
2. AWS Features
3. How to Create Account in AWS
4. Introduction to EC2
5. Features of EC2
6. EC2 Dashboard Overview
7. About Amazon Machine Images (AMI)
8. Different types of AMI's
9. How to create AWS AMI
10. How to create a Key Pairs
11. What is EBS Volumes
12. Download a key pairs
13. How to connect EC2 instances
14. What is pem file
15. What is ppk file
16. What are default usernames to connect AMI's
17. How to Login into LINUX AMI
18. How to reboot the Instance
19. How to stop instance
20. How to terminate instance

Unix/Linux

1. Introduction to Unix/Linux
2. Unix flavors
3. Linux Flavors
4. Why 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)
35. File/Directory Permissions:
36. chmod (permissions)
37. chown (owner)
38. chgrp (group)
39. hostname (to see hostname)
40. ifconfig (to get ip address)
41. cat /etc/*rele* (to get os version)
42. yum commands
43. rpm commands
44. service commands
45. chkconfig commands
46. Redirection (redirecting output)
47. which (to see package installed or not)
48. sudo (to get root privileges)
49. whoami (to see user)
50. find commands

Git

1. Source code management
2. Version control system/Revision control system
3. SCM tools
4. Repository/Depot
5. Server
6. Work space/Work dir/Work tree
7. Branch/Trunk/Code line
8. Commit/Check-in
9. Version/Version-ID/Commit-ID
10. Tag
11. Advantages of Git
12. Git Snapshots
13. Work space
14. Staging area
15. Buffer area
16. Repository (Local/non-bare)
17. Repository (Central/bare)
18. Installation & configuration
19. Git add
20. Git commit
21. Git log
22. Git push
23. Git status
24. Git ignore
25. Git branch
26. Git checkout
27. git merge
28. Git Snapshots
29. Git conflict
30. Git stash
31. Git reset
32. Git revert
33. Repository (Central/bare)
34. Git remove
35. Git clean
36. Git tag
37. Git fetch
38. Git diff
39. Git cherry-pick
40. Git hub
41. Role of Git in Real Time
42. Git installation on Windows and Screen shots
43. Git installation on Linux
44. Git Architecture
45. What is Git Repository
46. Git with Local Repositories
47. Git with Remote Repositories
48. git config command usage
49. Setup git repository using git init
50. Git Making Changes
51. git status color coding system
52. Exercises on adding single files, multiple files commits
53. Committing Changes in one go
54. Git History - log and show
55. View all commit logs
56. View only latest commit logs
57. git show command
58. Comparing git project files from working area with Local Repo using git diff
59. Git diff –staged
60. git remote commands
61. Introduction to Github
62. Various vendors of Remote Repository
63. Features of github
64. Create Account in github
65. Create Project Repository in github
66. Public Repository
67. Private Repository
68. Create files in github
69. Clone Github Repository
70. Pull changes from github Repository
71. Push changes to github Repository

Chef

1. Configuration Management tool
2. History
3. Advantages of CM tool
4. Advantages of Chef
5. Chef Architecture
6. Chef Workstation
7. Chef server
8. Chef nodes
9. Knife
10. Chef-client
11. Ohai
12. Idempotency
13. Install & configuration of chef
14. Cookbooks
15. Recipes
16. Berks file
17. Metadata
18. Ruby language
19. Deploying Apache web server
20. Run list
21. Include_recipe
22. Ohai
23. Attributes
24. Chef Resources
25. Chef server setup
26. Boot strapping node
27. Wrapper cookbook
28. Chef supermarket
29. Calling Dependency cookbooks
30. Chef Roles
31. Chef Client commands
32. Chef knife commands
33. Chef Resources
34. What is a chef Resource
35. Resource Types
36. What is Desired State in chef
37. What is Convergence in chef
38. How to Execute a Resource file (Recipe)
39. Exercise on Resources
40. What is Chef Cookbook
41. Chef Cookbook Components
42. Chef Common Cookbook Components
43. Chef Cookbook Types
44. Chef help procedures
45. How to create Cookbooks in Chef
46. About cookbook component – Recipes
47. How to track changes in chef using git
48. How to configure Git on a Chef cookbook
49. Procedure to be followed when made changes to a Cookbook
50. How to apply Semantic versioning on Cookbook
51. How to verify the syntax errors in recipe file
52. Setup apache web server
53. Applying chef-client methods
54. How to apply single recipes using chef-client in local mode
55. What is Local mode
56. How to apply chef-client using runlist on single cookbook
57. How to apply chef-client using runlist on multiple cookbooks
58. How to use include_recipe method
59. Chef knife commands
60. Create a cookbook using knife command
61. Delete a cookbook using knife command from workstation
62. Delete a cookbook using knife command
63. How to Upload a cookbook to chef server
64. How to attach a recipe or cookbook to chef node
65. list nodes using knife command
66. See details about node using knife command
67. knife command to check all cookbook list
68. Download a cookbook from Chef Server to Workstation
69. How to generate metadata of a cookbook
70. How to bootstrap a node
71. How to delete a node

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
31. RUN
32. ENTRYPOINT
33. Introduction to Docker
34. Why docker
35. Relation between container and docker
36. Why docker is so popular
37. Difference between container and image
38. Containers History
39. How to see list images in docker
40. What is Docker Registry
41. How to see all docker images
42. How to pull images from docker registries
43. What is pulling in docker?
44. Difference between Docker Pull, run, Push
45. How to run docker image
46. How to exit from container without killing it
47. How to exit from container by killing it
48. How to see all running container on docker host
49. How to check the history of all containers
50. How to stop a container that is running
51. How to find latest containers that are created
52. How to get inside of already a running container
53. How to start a container and remove it once task is completed
54. How to delete or remove a container
55. How to delete or remove image from docker host
56. How to attach a port of docker host to docker container
57. How to run a container in background
58. Difference between docker container run and docker container start
59. How to specify a name to docker container
60. How to see container logs
61. How to see all commands related to a container
62. How to remove docker multiple containers
63. How to check docker container metadata using docker inspect
64. How to list what ports are being used by docker container
65. How to tags docker images
66. How to log into docker registries using docker CLI
67. How to logout from docker registries using docker CLI
68. How to push docker image to docker registries
69. About Docker file
70. How to create Dockerfile to build an image
71. How to build an image from Dockerfile
72. About Dockerfile Instructions

Ansible

1. Configuration Management tool
2. Introduction To Ansible
3. History
4. Advantages of CM tool
5. Why Ansible
6. Ansible Advantages
7. Ansible Architecture setup
8. Install & configure Ansible
9. Features Of Ansible
10. Use Cases Of Ansible
11. What Can Do In Production Environment
12. Ansible Documentation
13. How Ansible Is Different From Configuration Management Tools
14. Ansible Architecture
15. Ansible Control Machine Requirements
16. Ansible Installation Process
17. Ansible Terminologies
18. How Ansible Works
19. Ansible Lab-setup
20. Ansible Inventory
21. Test Environment setup
22. Host Patterns
23. Ad-Hoc commands
24. Modules
25. Gathering facts
26. Playbooks
27. YAML Language
28. Target section
29. Variable section
30. Task section
31. Handle section
32. Dry run
33. Loops
34. Conditionals
35. Vault
36. Representation Of Dictionary In Yaml
37. Representation Of List In Yaml
38. Group Inventory File
39. Ansible Inventory Parameters
40. Ansible Exercise - To Setup Inventory File And Perform Ping Test
41. Ansible Playbooks and Modules
42. Ansible Playbooks
43. Sample Ansible Playbook
44. Ansible Playbook Format
45. Ansible Modules
46. Ansible Tasks
47. How To Run A Playbooks
48. How to check the syntax of a Playbook
49. How to Run a playbook on multiple hosts
50. How to Run a playbook on target hosts
51. Ansible Run Command Methods

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 directory structure
12. Maven repositories
13. Pom.xml
14. Multi module project(over view)

Nagios

1. Why monitoring tool
2. Ways of monitoring
3. Why Nagios so cool?
4. Architecture of Nagios
5. Plugins
6. Config files
7. Dashboard overview
8. Nagios working process
9. Nagios Installation
10. Naagios Configuration
11. Nagios Directory structure

Cloud Watch

1. What is Cloud Watch
2. Why to monitor
3. What is default monitoring
4. What is detailed monitoring
5. Time interval
6. Why only cloud watch
7. How to see metrics
8. Creating Alarms
9. Creating Graphs
10. Line
11. Stacked
12. Number
13. Text
14. Create Billing Alarm
15. Deleting Billing Alarm

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. Setup Environment Variables
34. Jenkins Terminologies
35. Master
36. Slave or Node
37. Job or Project
38. Executor
39. Build
40. Plugin
41. Jenkins Dashboard Overview
42. Job Listing Section
43. Setup Jenkins Server
44. Jenkins Menu Section
45. Jenkins Menu- Item
46. Jenkins Menu-People
47. Jenkins Menu-Build History
48. Jenkins Menu-Manage Jenkins
49. Jenkins Menu-views
50. Build Queue Section
51. Build Executor status Section
52. Jenkins - Creating Jobs in Jenkins
53. Naming a Project
54. About Project Descriptions
55. How to disable the build systems
56. Source Code Management
57. Build Triggers
58. Create a Sample Project
59. Understand Jenkins Job Process
60. How to check Build Information
61. Jenkins Build Color Code system
62. Configure Jenkins Build Server
63. Configure Java JDK for Jenkins Build Server
64. Configure Apache Maven for Jenkins Build Server
65. Configure the JAVA JDK for Build jobs in Jenkins
66. Configure the Maven for Build Jobs in Jenkins
67. Configure Github for Build Jobs in Jenkins
68. Configure SCM-Git Plugin for Build Jobs in Jenkins
69. Secure Jenkins
70. Manage Jenkins Plugins
71. Install Plugins
72. Upgrade Plugins
73. Backup plugins
74. Jenkins User administration
75. Create Jenkins User Accounts
76. Delete Jenkins User Accounts
77. How to change the Jenkins Admin Password

78. Change Home Directory
79. Configure - Executors, Labels, SCM Checkout Retry Count
80. Build Triggers
81. Configure Poll Source Code management in Jenkins
82. Configure Poll SCM Changes using Crontab in Jenkins
83. Trigger Builds Remotely using URL
84. Trigger Builds based on build Pipeline or other Projects
85. Build triggers Periodically
86. Build triggers when changes pushed to Github or SCM
87. Architecture of Distributed Build
88. Configure Jenkins Master Server
89. Configure Jenkins Slave Server
90. Configure authentication between Master-Slave
91. Setup Relationship between Master and Slave
92. Configure Project to build on Jenkins slave server
93. Email Notifications in Jenkins
94. Purpose of Email Notification
95. Email Notification plugins
96. CI-CD Pipeline Project

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
12. Kubelet
13. pods
14. Multi container pod
15. Pod limitations
16. Replica sets
17. Deployments
18. Installation of Kubernetes

Tomcat Web Server

1. Installation
2. Configuration
3. Tomcat manager
4. Application management
5. App deployment methods

Apache Web Server

1. Installation
2. Types of web packages
3. Configuration
4. Directory Structure
5. Index file
6. Starting service
7. Enabling Service

Virtual box

1. Installation
2. Configuration

Projects

- *DevOps Real time project - 1*
- *DevOps Real time project - 2*
- **CI-CD Pipeline projects**
- **Interview questions (Technical, Manager & HR)**
- **Resume preparation & Evaluation**
- **Real time Scenarios**
- **Day-to Day activities**
- **Provide Material**

My way of Teaching

- ✓ **Theoretical Knowledge**
- ✓ **Practical Knowledge**
- ✓ **Interview & Exam Points**
- ✓ **Provide material**
- ✓ **Resume preparation (Fresher's & Experience)**
- ✓ **Provide project**
- ✓ **Interview cracking tips**

Thank you