**DevOps Course Content**

**New Things**

1. **Upgrade git , Jenkins ,Ansible,Docker,Kubernetes**
2. **Migration Application server from local to AMAZON Cloud**
3. **Application Cloning**

**Basic Knowledge on DevOps Culture**

**1. Introduction to DevOps Culture**

**2. History of DevOps**

**3. What was exited Before DevOps Culture**

**4. Principles of DevOps Culture**

**5. Advantage of DevOps**

**AWS Cloud**

**1. History of Cloud and Provided Companies**

**2. Basics of AWS Cloud and Free services available**

**3. To Create account in AWS Cloud**

**4. Provisioning of EC2 – Manually and through Terraform script**

**5. Complete Overview of EC2 Dashboard**

**6. How to Create a Amazon Machine Images - AMI**

**7. Different types of AMI’s**

**8. How to create our own AMI**

**9. Key Pairs Creation and details about ssh configuration – Through gitbash,putty**

**11. Different types of Volumes**

**12. Establish sshconnectivity toEC2 instances**

**13. Download pem file and convert into ppk file for putty login**

**14. Administrative activities using AWS Console (Login, Create, Stop, Start, Restart ext.....)**

**15. Creation of VPC and Subnets**

**16. Network Concepts**

**17. LBR – Complete Concept**

**Git**

**1. What is SCM and supporting tools**

**2. What is VCS**

**3. Creation of Bare Repository**

**4. About files and folders in-depth**

**5. Work space – Stagging(Buffer area) – Local Repository**

**6. Branching Concept**

**7. Commit-Check-in**

**8. Version/Version-ID/Commit-ID**

**9. Tag**

**10. Advantages of Git**

**11. Git Snapshots**

**12. Installation & configuration**

**13. Git add**

**14. Git commit**

**15. Git log**

**16. Git push**

**17. Git status**

**18. Git ignore**

**19. Git branch**

**20. Git checkout**

**21. git merge**

**22. Git Snapshots**

**23. Git conflict**

**24. Git stash**

**25. Git reset**

**26. Git revert**

**27. Repository (Central/bare)**

**28. Git remove**

**29. Git clean**

**30. Git tag**

**31. Git fetch**

**32. Git diff**

**33. Git cherry-pick**

**34. Git hub**

**35. Role of Git in Real Time**

**36. Git installation on Windows and Screen shots**

**37. Git installation on Linux**

**38. Git Architecture**

**39. What is GitRepository**

**40. Git with Local Repositories**

**41. Git with Remote Repositories**

**42. gitconfig command usage**

**43. Setup git repository using gitinit**

**44. Git Making Changes**

**45. git status color coding system**

**46. Exercises on adding single files, multiple files commits**

**47. Committing Changes in one go**

**48. Git History - log and show**

**49. View all commit logs**

**50. View only latest commit logs**

**51. git show command**

**52. Comparing git project files from working area with Local Repo using git diff**

**53. Git diff –staged**

**54. git remote commands**

**55. Introduction to Github**

**56. Various vendors of Remote Repository**

**57. Features of github**

**58. Create Account in github**

**59. Create Project Repository in github**

**60. Public Repository**

**61. Private Repository**

**62. Create files in github**

**63. Clone Github Repository**

**64. Pull changes from github Repository**

**65. Push changes to github Repository**

**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)**

**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. Jenkins installation & configuration**

**15. Free style project**

**17. Maven project by Jenkins**

**18. Jenkins Plugins**

**19. Scheduled Projects**

**20. Source code polling (Git)**

**21. Upstream & Downstream projects**

**22. CI-CD pipeline**

**23. Jenkins Views**

**24. User management**

**25. Jenkins Slaves**

**26. Tomcat web server**

**27. Minimum Hardware Requirements**

**28. Recommended Hardware Requirements**

**29. Jenkins Terminologies**

**30. Master**

**31. Slave or Node**

**32. Job or Project**

**33. Executor**

**34. Build**

**35. Plugin**

**36. Jenkins Dashboard Overview**

**37. Job Listing Section**

**38. Setup Jenkins Server**

**39. Jenkins Menu Section**

**40. Jenkins Menu- Item**

**41. Jenkins Menu-People**

**42. Jenkins Menu-Build History**

**43. Jenkins Menu-Manage Jenkins**

**44. Jenkins Menu-views**

**45. Build Executor status Section**

**46. Jenkins - Creating Jobs in Jenkins**

**47. Naming a Project**

**48. About Project Descriptions**

**49. How to disable the build systems**

**50. Source Code Management**

**51. Build Triggers**

**52. Create a Sample Project**

**53. Understand Jenkins Job Process**

**54. How to check Build Information**

**55. Jenkins Build Color Code system**

**56. Configure Jenkins Build Server**

**57. Configure Apache Maven for Jenkins Build Server**

**58. Configure the JAVA JDK for Build jobs in Jenkins**

**59. Configure the Maven for Build Jobs in Jenkins**

**60. Configure Github for Build Jobs in Jenkins**

**61. Configure SCM-Git Plugin for Build Jobs in Jenkins**

**62. Secure Jenkins**

**63. Manage Jenkins Plugins**

**64. Install Plugins**

**65. Upgrade Plugins**

**66. Backup plugins**

**67. Jenkins User administration**

**68. Create Jenkins User Accounts**

**69. Delete Jenkins User Accounts**

**70. Configure - Executors, Labels, SCM Checkout Retry Count**

**71. Build Triggers**

**72. Configure Poll Source Code management in Jenkins**

**73. Configure Poll SCM Changes using Crontab in Jenkins**

**74. Trigger Builds Remotely using URL**

**75. Trigger Builds based on build Pipeline or other Projects**

**76. Build triggers Periodically**

**77. Build triggers when changes pushed to Github or SCM**

**78. Architecture of Distributed Build**

**79. Configure Jenkins Master Server**

**80. Configure Jenkins Slave Server**

**81. Configure authentication between MasterSlave**

**82. Setup Relationship between Master and Slave**

**83. Configure Project to build on Jenkins slave server**

**84. Pipeline**

**85. Purpose of Jenkins backup**

**86.Backup Notification plugins**

**87. CI-CD Pipeline Project**

**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. Docker Networking**

**26.Docker Compose**

**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. AboutDockerfile Instructions**

**73.Docker file**

**74.Docker swarm introduction and advatages**

**75.Docker swarm setup**

**76.Creatingservicees in docker swarm**

**77.Docker universal Control pane**

**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**

**19.Installation and setup kubernetes**

**20.Adding worker in Kubernetes master**

**21.Pod creation**

**22.Service creation**

**Linux**

**1.Introduction to Linux**

**2.Why Linux**

**3.Linux Architecture**

**4.File system hierarchy**

**5.Linux and networking Commands**

**5.su**

**6.sudo**

**7.whoami**

**8.cd**

**9.pwd**

**10.ls -latr**

**11.touch**

**12.cat**

**13.vi**

**14.mkdir**

**15.cp**

**16.mv**

**17.rmdir**

**18.rm**

**19.grep**

**20.Less**

**21.Head**

**22.tail**

**23.Sort**

**24.Clear**

**25.tree**

**26.History**

**27.wget**

**28.Tar**

**29.Rpm**

**30.Yum**

**31.User**

**32.Group**

**33.History**

**34.Du**

**35.Df**

**36.Free**

**37.Uptime**

**38.wc**

**39.os-release**

**40.Diff**

**41.Find**

**42.systemctl**

**43.tracerout**

**44.Ping**

**45.Ifconfig**

**46.Route**

**47.Hostname**

**Ansible**

**1. Configuration Management tool**

**2. Introduction ToAnsible**

**3. History**

**4. Advantages of CM tool**

**5. Why Ansible**

**6. Ansible Advantages**

**7. Ansible Architecture setup**

**8. Install & configure Ansible**

**9. Features OfAnsible**

**10. Use Cases OfAnsible**

**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. Group Inventory File**

**37. Ansible Inventory Parameters**

**38.Ansible Exercise - To Setup Inventory File And Perform Ping Test**

**39. Ansible Playbooks and Modules**

**40. Ansible Playbooks**

**41. Sample Ansible Playbook**

**42. Ansible Playbook Format**

**43. Ansible Modules**

**44. Ansible Tasks**

**45. How To Run A Playbooks**

**46. How to check the syntax of a Playbook**

**47. How to Run a playbook on multiple hosts**

**48. How to Run a playbook on target hosts**

**49. Ansible Run Command Methods**

**50.Ansible Roles**

**51.Ansible Tower**

**52.Ansible Galaxy**

**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**

**Tomcat Web Server**

**1. Installation**

**2. Configuration**

**3. Tomcat manager**

**4. Application management**

**5. App deployment methods.Deployment creation**

**SonarQube**

**1.What is sonarqube**

**2.Advantages of sonar**

**3.installation and configuring sonar**

**4.Integration sonar with jenkins**

**Release management**

**1.What is Release management**

**2.What is CRQ and CAB prcess**

**Projects**

**1. End to End CI-CD pipeline project**

**2.Interview questions and Mock tests**

**3. Resume preparation**

**4. Real time Scenarios**

**5.Devops Engineer – Daily activities**

**6. Provide Material**

**7. Exam at the end of each tool**

**Process of Teaching**

**1. Theoreticaland Practical Knowledge**

**2. Scenario based and Interview Point of View explanation**

**3. Project Explanation**

**4. Providing Interview facing skill set by self**