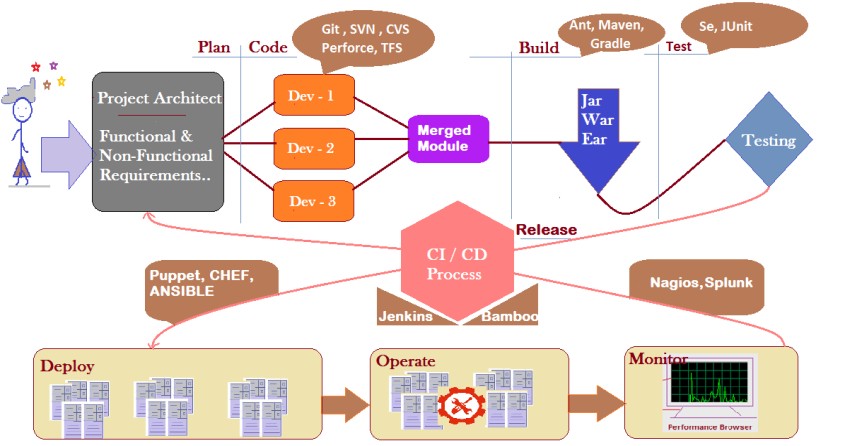
|  |
| --- |
| ` DEVOPS WITH CLOUD CONTENT |
| C:\Users\Sairam\Desktop\Git-Logo-2Color.png File:Maven logo.svg - Wikimedia Commons C:\Users\Sairam\AppData\Local\Microsoft\Windows\INetCache\Content.Word\download (1).png File:Ansible logo.svg - Wikimedia Commons File:Jenkins logo with title.svg  Related image SonarQube Logos and Usage | SonarQube Technokain | Information Technology Services Agency C:\Users\Sairam\Desktop\68747470733a2f2f63646e2e7261776769742e636f6d2f6f64622f6f6666696369616c2d626173682d6c6f676f2f6d61737465722f6173736574732f4c6f676f732f4964656e746974792f504e472f424153485f6c6f676f2d7472616e73706172656e742d62672d636f6c6.png Download Google Cloud Platform (GCP) Logo in SVG Vector or PNG ...  Docker Logos and Photos | Docker Related image  Itil Logo 1512*772 transprent Png Free Download - Logo, Itil ... |



**Course Summary**

DevOps

Operations) traditional development.

(Development

set

a

new

trend

and

in

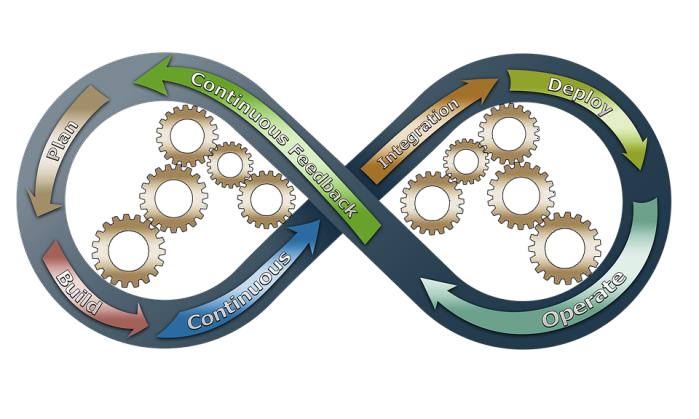
Enterprise

software

In this training we will discuss a real

time project with different stages of Continuous Integration and Continuous Deployment of using various tools like Git, Maven, Jenkins, Ansible, Nexus, Nagious, Sonarqube, Docker and Kubernates.

The aim of our course is giving better knowledge and real time experience of various Devops tools and which covers different aspects of IT Project development (CI & CD) process.



**Course Content**

# DevOps – About to start (Overview)

* How IT Industry deals with new Project.
  + What is project?
  + How it receives new project?
  + Who will involve in new project?
* What Project owner expect?
  + Who receives project owner requirements?
  + How initial project work flow will start
* What is SDLC ?
  + Phases of SDLC
  + Role of DEV in SDLC
  + Role of OPS in SDLC
* Models in SDLC?
  + Waterfall model
  + Agile model
  + Waterfall model Vs Agile model
* What is DevOps?
  + Definition(Dev+Ops)
  + DevOps Era
  + DevOps classification with stakeholders requirements
  + Why DevOps becomes more popular
  + Who will be involvaed in DevOps

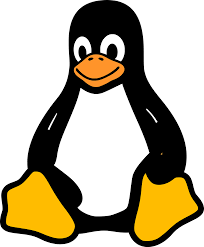


# IT Infrastructure management

* Physical servers Overview
  + Server behavior
  + Physical data centre Architecture
  + Server Configurations
  + Network concepts
* Virtualization Overview
  + What is VM?
  + VM Configurations and management
  + VM Network Concepts
  + Physical Server Vs Virtualization

# Amazon Web Services And Google Cloud Platform

* Cloud Infra Overview
  + What is Cloud
  + Cloud demand
  + SAAS , PAAS, IAAS
  + Account creation and management
  + Physical Server Vs Virtualization Vs Cloud
* AWS and GCP Account creation
* EC2 Instance and GCP instance Creation
* Security Group
* Elastic IP Addressing VS Dynamic IP Addressing
* EC2 Image Builder
* S3 Bucket versioning
* Route 53
* GCP Firewall Management



* GCP Cluster Creation
* Application management with GCP cluster
* AWS AMI
* Custom AMI Creation
* Overview of VPC
* 3 Tier Application deployment with AWS Nodes
* Overview Of AWS Developer Tools
  + Code commit
  + Code Build
  + Code Deploy
  + Code Pipeline
* Multi cloud strategy
* Cloud Real time use cases.

# Linux administration

* What is Operating System?
  + OS Behavior
  + Client OS Vs Server OS
  + Client Server Architecture
  + Internet and Intranet working
* Why Linux Operating System is more popular?
  + Linux Features
  + Security
  + Market demand
  + Windows Vs Linux
* Installation and configurations?
* Linux basic commands
* Ownership (User & Groups Management)
  + User account creation
  + Group creation
  + Make a user account in a member of group
  + Group management
  + User & Group deletion
  + Sudo user account management
  + [Changing Ownership and Group](https://www.guru99.com/file-permissions.html#6)
  + Changing Ownership with ‘chown’ command
* Permissions
  + File & Directory permissions
  + [Absolute(Numeric) Mode](https://www.guru99.com/file-permissions.html#4)
  + [Symbolic Mode](https://www.guru99.com/file-permissions.html#5)
  + Permissions management ( User, Group & All)
  + [Changing file/directory permissions with 'chmod' command](https://www.guru99.com/file-permissions.html#3)
* SSH Private & Public key configuration.
* Automating tasks with Cron.
* VIM editor.
* Service Management.
* Package Management.
* Linux troubleshooting.



# Version control system

* Version Control system?
  + Version Control overview
  + Version Control work flow
  + Version Control System tools
* Git Overview
  + VCS Terminology
  + Git Installation in Windows & Linux
  + Git repo management
  + Git Stages (Working DIR , Staging area/Index Area, Local Repo)
  + Repository creation
  + Git Configuration with user details.
  + Git ignore
  + SVN Vs Git
* Git Branch
  + Git branch overview
  + Git checkout
  + Git merge
  + Git branch use case
* Git Stash
  + Git stash overview
  + Git stash cmd
  + Git stash use case
* Git Diff
  + Git diff overview
  + Git diff cmd
  + Git diff use case



* Git Reset
  + Git reset overview
  + Git reset cmd
  + Git reset use case
* Git revert
* Git rebase
* Git reword
* Git Squesh
* Git Tag
* Git Private repo configuration
  + Private repo creation
  + User & Group management
  + Permissions
  + Repo sharing

# Build tool

* Build tool overview
* Build & Release Management
* JDK Installation in Windows & Linux
* Maven Installation in Windows & Linux
* Maven Repository
  + Local Repository
  + Central Repository
  + Remote Repository
* M2 Repo management
* Maven Project structure
* Project Creation using maven
* Maven Phases
* Maven Lifecycle
  + Goals
  + Phases
  + Build Lifecycle
* Maven Dependency management
* Project Object Model (POM.xml)
  + Groupid
  + Artifactid
  + Versionid
* SonarQube integration
* Package Management
  + JAR
  + WAR
  + EAR
* Package deployment in Application server
* Configuration of Settings.xml
* Creation of custom maven dependence

# Application Server



* Application Server Overview
* Tomcat Server installation in Windows & Linux
* Tomcat configuration & Variable declaration
* user management
* server.xml config
* Default port number change
* Logs management
* WebApps management
* Log tracking and troubleshooting
* App deployment
* Jenkins integration with tomcat for "War" deployment.

# 3 Tier architecture

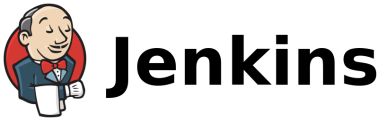
* 3-Tier Architecture Overview
* Web Server Configuration
* App Server Configuration
* DB Configuration
* Enterprise 3-tier Application layout
* Server provisioning
* Core Installation
  + Binary based installation
  + Basic compilation
  + Mod\_JK creation
  + APP deployment
* Servers setup using cloud Infrastructure
* Project deployment



* DB Installation
* MYSQL Table creation
* Data Base Management
* Query Management
* Data insertion from Web APP
* 3-Tier Use Case with real time example

# Shell Scripting

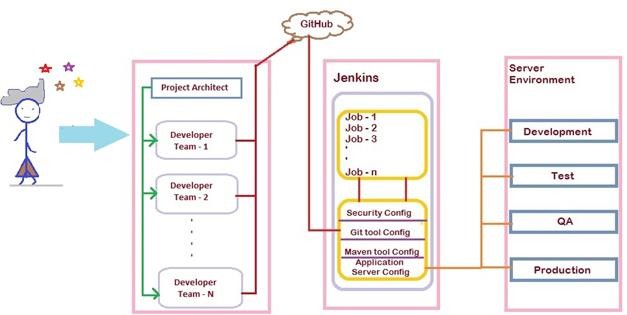
* What is Shell?
* Type of Shells?
  + K Shell
  + C Shell
  + Z Shell
  + Bash Shell
* Bash Scripting fundamentals
  + Variable declaration
  + Exit Status
  + Redirectors
    - Input redirectors
    - Output redirectors
  + Echo statement
  + Conditions
    - If
    - If , Else
  + Log file rotation
  + Operators
* Functions in Shell



* Automate Web server through Shell
* Managing App Server configuration
* Removing old logs using shell script
* Artifacts management
* Shell Color codes
* Regular Expressions
* Command Piping
* Stream line Editor
  + Basics of sed
  + Sed Commands
  + Cmd line customization
* Directory management
* AWK Fundamentals
* Real-time shell script use cases

# Jenkins

* What is Jenkins?
* Jenkins history
* What is CI & CD?
* CI & CD Automation Process
* Jenkins installation
  + Installation on Windows Server
  + Linux Server
  + JAR based installation
  + Custom port installation
  + WAR based deployment
* Jenkins Job Creation?
  + Freestyle Project
  + Maven Project
  + Pipeline Project
  + Folder
  + External Job
  + Multibranch Pipeline Project
  + Copy Project
* Manage Jenkins
  + Configure System
  + Configure Global Security
  + Configure Credentials
  + Global Tools Configuration
  + Manage and Assign Roles
  + Reload Configuration from Disk
  + Manage Plugins
    - Plug-in up gradation
    - Role based plug-in installation
    - Backup plug-in installation
    - Green ball plug-in
    - TFS Plug-in Installation
    - War Deploy plug-in installation
  + System Information
  + System Log
  + Load Statistics
  + Jenkins CLI
  + Script Console
  + Manage Nodes
    - Linux Node Configuration
    - Windows Node Config
    - Jobs management on specific node



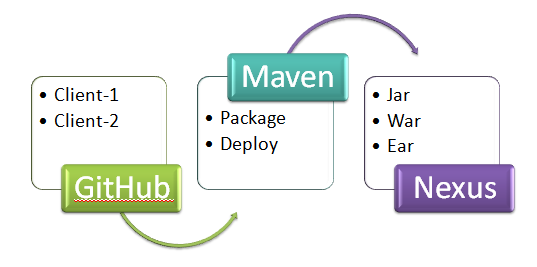
* + About Jenkins
  + Manage old Data
  + Manage Users
  + In-process Script Approvals
  + Prepare for Shutdown
* Credentials Management
* Pipeline View
* Integrating Jenkins With Ansible
* Dependency Job creation.
* Configuration of Jenkins email notifications.
* How to run Corn jobs used with tasks scheduling.
* War file deployment with job automation.
* Jobs automation.
* Jenkins SMTP Configuration
* Master and Slave nodes management
* Real time use case with Jenkins Project.

# Configuration management ( Ansible)

* What is Configuration Management ?
* How Ansible Works?
* Ansible installation and Configuration.
* Comparison between chef, puppet, ansible, salt stack.
* Ansible Architecture.
* Add nodes to Server.
* Ansible Documentation.
* YAML Scripting.
* Writing Playbooks and tasks.
* Configuring ssh on nodes.
* Ansible Components
  + Control machine
  + Remote machine
  + Inventory
  + Target machine
  + Task
  + Playbook
* Inventory files creation.
  + Specific group
  + Group of groups
  + All hosts
  + Ungrouped
* Organizing pem file
* ansible adhoc cmd
* Web server installation with adhoc cmd
* Playbook writing
* Playbook examples
  + Variables creation
  + Credentials management
  + Loops example
  + Advanced loops
  + Multi package management
* Ansible Modules
  + Debug module
  + Yum module
  + Service module
  + Unarchive module
  + Loop module
  + Shell module
  + Lineinfile module
  + Blockinfile
  + Set facts
  + Stat
  + Etc ..
* Conditions in Ansible
* Tags
* Installing Server Configurations through YAML Script.
* Real time use case of Playbooks.

# Nexus (Artifact management Tool)

* Nexus Overview
* Nexus Installation and Configuration
* Repository creation.
* Snapshot management
* Release management
* Nexus repository configuration .



* Artifacts Management.
* Uploading the artifacts to Nexus.
* Downloading the artifacts in CD process.
* Nexus repo management
* Managing of Versions**.**

# SonarQube

* SonarQube Overview
* Installation & Configuration of SonarQube
* Sonar
* Initiate code-scan with SonarQube server
* SonarQube dashboard
* Sample project to check code scan.

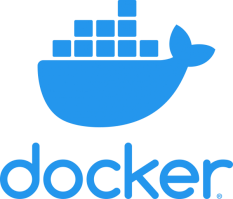


* Maven integration with Sonarqube
* Real-time use cases on Sonarqube

# ITIL (Information Technology Infrastructure Library)

* Overview
* Incident management
* Change management
* Problem management
* Requested Items
* Priority
* Severity
* Criticality
* Ticketing tool classification
* SLA
* ITIL Certification guidance
* CAB working scenarios
* Team hierarchy
* Difference Between Service-Now and Jira

# Docker



* Introduction to Docker.
* Docker Installation
* Difference between VM & Docker Container
* Docker Architecture
* Container configuration
* Dockerfile Creation
* Repositories
* Docker Hub
* Docker Images
* Managing Docker Images
* Customized Docker Containers and Images
* Docker Networking
  + Bridge network
  + Host Network
  + Overlay Network
* Docker Network Management.
* Docker Storage
* Cgroups memory limits.
* Docker Volumes
  + Bind mount
  + Volume
  + Tmpfs mount
* Running commands in container
* Accessing Containers
* Configure Web server using docker container.
* Docker Swarm architecture
* Docker Swarm Configuration.



* Manging Master and slave roles
* Docker Swarm Service Creation
* Docker Swarm nodes management.
* Docker Swarm Node Failure use cases.
* Docker Swarm real time use cases.

# Kubernetes

* Introduction of Kubernetes
* K8S Architecture

Server Components

* + API Server
  + Controller Manager
  + Kube Scheduler
  + Etcd

Client Components

* + Kubelet
  + Kube-Proxy
* Installation and Configuration
* MiniQube
* Pods Creation
* Pods Management
* Overview of Services, Labels
* Difference Between Docker Swarm and K8s
* K8S Service creation.
* K8S Cluster management.
* K8S Service Deployment.
* k8S manifest file



* GCP GKE Configuration
* GCP Kubernetes Clusters creation
* Difference Between GKE Standard and GKE Autopilot.
* K8S real time use cases.

# Nagios

* Introduction to Nagios.
* Installation and Configuration ofNagios
* Host management.
* Service Management.
* Introduction to ContinuousMonitoring.
* Adding of Hosts.
* Verifying configuration.
* Scheduling Downtime.
* Configuration check.
* NRPE Configuration and service monitoring.
* How to check Notifications?
* Nagios Admin and User management
* Nagios Permissions
* Nagios Service customization
* Configuration of email notification.
* Nagios real time use cases.

*Job Advice*

*CV Preparation. Interview tips and tricks Guidance for Job journey*

