DEVOPS COURSE CONTENT

LINUX Basics:
- Unix and linux difference
- Linux File system structure
- Basic linux/unix commands
- Changing file permissions and ownership
- Types of links soft and hard link
- Filter commands
- Simple filter and advance filter commands
- Start and stop services
- Find and kill the process with id and name
- Package installation using RPM and YUM

Introduction to Devops
- Define Devops
- What is Devops
- SDLC models, Lean, ITIL, Agile
- Why Devops?
- History of Devops
- Devops Stakeholders
- Devops Goals
- Important terminology
- Devops perspective
- Devops and Agile
- Devops Tools
- Configuration management
- Continuous Integration and Deployment

Introduction to Cloud computing
- What is cloud computing
- Characteristics of cloud computing
- Cloud implementation models
- Cloud service models
- Advantages of cloud computing
- Concerns of cloud computing

GIT: Version Control
- Introduction
  - What is Git
  - About Version Control System and Types
  - Difference between CVCS and DVCS
  - A short history of GIT
  - GIT Basics
  - GIT Command Line
- Installing Git
DEVOPS COURSE CONTENT

- Installing on Linux
- Installing on Windows
- Initial setup

- Git Essentials
  - Creating repository
  - Cloning, check-in and committing
  - Fetch pull and remote
  - Branching
  - Creating the Branches, switching the branches, merging the branches.

Chef for configuration management

- Overview of Chef
  - Common Chef Terminology (Server, Workstation, Client, Repository etc.)
  - Servers and Nodes
  - Chef Configuration Concepts

- Workstation Setup
  - How to configure knife
  - Execute some commands to test connection between knife and workstation

- Organization Setup
  - Create organization
  - Add yourself and node to organization

- Test Node Setup
  - Create a server and add to organization
  - Check node details using knife

- Node Objects and Search
  - How to Add Run list to Node
  - Check node Details

- Environments
  - How to create Environments
  - Add servers to environments

- Roles
  - Create roles
  - Add Roles to organization

- Attributes
  - Understanding of Attributes
  - Creating Custom Attributes
  - Defining in Cookbooks

- Data bags
  - Understanding the data bags
  - Creating and managing the data bags
  - Creating the data bags using CLI and Chef Console
  - Sample data bags for Creating Users.
DEVOPS COURSE CONTENT

AWS:
- Creating AWS account
- Free tier Eligible services
- Understanding AWS Regions and availability zones

- EC2 (Elastic Cloud Compute)
  - About EC2 and types, Pricing
  - EIP (Elastic IP address), Allocating, associating, releasing
  - Launch windows and Linux Instances in AWS
  - Connecting windows and Linux instances from windows desktop and Linux machines

- S3 (Simple Storage Service)
  - About AWS Storage services, EBS and S3
  - Creating S3 Buckets and putting objects in bucket
  - Discussion about Bucket Properties
  - S3 Pricing
  - About S3 glacier

- EBS (Elastic Block Storage)
  - Types of EBS Volumes
  - Creation, attaching and Detaching volumes

- ELB (Elastic Load Balancer)
  - Understanding the load balancing
  - Configuring ELB and adding the webservers under ELB

- Auto Scaling
  - Types of Scaling (Horizontal and Vertical)
  - Configuring Launch Configuration
  - Creating and defining the auto scaling group policy

- IAM (Identity Access Management)
  - Understanding of AWS Security using IAM
  - Definition of Roles, policies and Groups
  - Creating IAM Users and managing password policies

- RDS (Relational Database server)
  - About RDS and available RDS Engines in AWS
  - Configuring MYSQL RDS service
  - Connecting EC2 Instance to RDS Instance

Puppet for configuration management
- What is Puppet?
  - How puppet works
  - Puppet Architecture
  - Master and Agents
  - Puppet terminology and about Manifests

- Installation and Configuration
DEVOPS COURSE CONTENT

- Installing Puppet
- Configuring Puppet Master and Agent
- Connecting Agents

- Puppet Master
  - Puppet configuration files

- Puppet Language Basics
  - The declarative language
  - Resources
  - Using Basic resources like file, exec, package service
  - Resource Collectors
  - Virtual Resources
  - Exported Resources
  - Manifests
  - Modules and Classes
  - Class Parameters
  - Defined Type

- Templates
  - Static Contents Explosion
  - Using Dynamic Content with Templates
  - Templates Overview
  - ERB

- Example Code Manifests/Modules
  - NTP Module
  - Users Module
  - SSH
  - Sudo

- Puppet Forge
  - Understanding the Puppet Forge
  - Module structure
  - Install LAMP with preexisting modules
  - Installing Apache Tomcat with Puppet Modules

Jenkins – Continuous Integration

- Introduction.
  - Understanding continuous integration
  - Introduction about Jenkins
  - Build Cycle
  - Jenkins Architecture

- Installation
  - Obtaining and installing Jenkins
  - Installing and configuring Jenkins using WAR and RPM
  - Java installation and configuration
  - Maven Installation
  - Exploring Jenkins Dashboard.
DEVOPS COURSE CONTENT

- Jobs
  - Creating Jobs
  - Running the Jobs
  - Setting up the global environments for Jobs
  - Adding and updating Plugins
  - Disabling and deleting jobs

- Build Deployments
  - Understanding Deployment.
  - Tomcat installation and configuration

- Securing Jenkins
  - Authentication
  - Jenkins Plugin
  - Authorization
  - Confidentiality
  - Creating users
  - Best Practices for Jenkins

Docker– Containers.

- Introduction
  - What is a Docker
  - Use case of Docker
  - Platforms for Docker
  - Dockers vs. Virtualization

- Architecture
  - Docker Architecture.
  - Understanding the Docker components

- Installation
  - Installing Docker on Linux.
  - Understanding Installation of Docker on windows.
  - Some Docker commands.
  - Provisioning

- Docker Hub.
  - Downloading Docker images.
  - Uploading the images in Docker Registry and AWS ECS
  - Understanding the containers
  - Running commands in container.
  - Running multiple containers.

- Custom images
  - Creating a custom image.
  - Running a container from the custom image.
  - Publishing the custom image.

- Docker Networking
  - Accessing containers
  - Linking containers
DEVOPS COURSE CONTENT

- Exposing container ports
- Container Routing
  - Docker Compose
    - Installing The Docker compose
    - Terminology in Docker compose
    - Build word press site using Docker compose

VAGRANT
  - Introduction
    - Why and what is Vagrant
    - Uses of Vagrant in an environment
    - Alternatives of Vagrant
    - Vagrant versions
  - Installation and Configuration
    - Installing Virtual box
    - How to install Vagrant on Windows and Linux
    - Configuring Vagrant
  - Provisioning with Vagrant
    - Creating first VM with Vagrant
    - Operations on the VM
    - Connecting to the VM
    - Add required Images to Vagrant
    - Creating network and port forwarding using Vagrant

NEW RELIC
  - Introduction
    - About Monitoring tools
    - About New Relic
    - Installing and Configuring New Relic
    - Application Monitoring using New Relic
    - Server Monitoring using New Relic
    - Alerts policies

ELK
  - Introduction
  - What is ELK?
  - ELK Installation
  - ElasticSearch
  - Logstash
  - Configuring Logstash and Kibana