

GOOGLE CLOUD PLATFORM AND DEVOPS

Introduction to Google Cloud Platform

- Introduction to Cloud Computing
- Overview of Google Cloud Platform
- Google Cloud Account Creation
- Overview of Billing and credits

An Overview of GCP Services

- Identity and Access Management
- Networking
- Compute
- Databases
- Storage
- Analytics
- DevOps and CI/CD

GCP Global Infrastructure

- Overview of Google Cloud Infrastructure
- Data Centers
- Regions
- Availability Zones
- Google Edge Locations

GCP Console Overview

- Learning about GCP Console
- Using console
- GCP Management
- GCP Project settings
- GCP Organization settings

GCP Cloud CLI and Cloud Shell

- Installation
- Configuration
- Accessing GCP Resources
- gcp commands over CLI
- gcp commands over Cloud Shell

GCP Identity and Access Management (IAM)

- What is Identity and Access Management
- Organizations
- Projects
- Roles
- Members
- Service Accounts
- Keys
- API
- Cloud IAM best practices

GCP Networking Module - Virtual Networks

- What is GCP Virtual Networks?
- Virtual Private Cloud (VPC)
- Subnetworks
- IP addresses
- Routes/Firewall rules
- Load Balancers
- Autoscaling
- Bastion Host
- DNS Servers resolution with VNET
- VNET endpoint resolution with Public IP

GCP Compute Engine Module – Compute Instance Windows

- Launching Public Subnet Windows VMs
- Launching Private Subnet Windows VMs
- Connections to Windows VMs
- Webserver Installation
- Deployment a Sample Application
- Resolution of Sample Application

GCP Compute Engine Module – Compute Instance Linux

- Launching Linux VMs in Cloud
- SSH to Linux VM in Cloud
- Webserver Installation
- Configure Apache
- Deployment of Sample Application
- Resolution of Sample Application

GCP Compute Module-App Engine Module

- About Google App Engine (GAE)
- Application Development in GAE
- Developing Spring Boot application
- Deploying apps to GAE
- Deploy apps using SDK
- Deploy apps using CLI and CloudShell

GCP DNS-CLOUD DNS

- What is DNS?
- How DNS Works?
- Understanding about DNS records
- Alias Records

GCP DNS -DNS ZONE Resolution

- Create a DNS Zone
- Configuration with different Policies
- Create Traffic Manager Profile
- Resolution of DNS Zone with Public IP
- Resolution of DNS Zone with Load Balancer

GCP Storage-Google Cloud Storage

- An Overview of Cloud Storage
- Types of Storages
- Block Storage
- File Storage
- Buckets
- Files
- Objects
- Using SDK, CLI and Cloud Shell

GCP SQL Databases-Google Cloud SQL

- What is GCP Cloud SQL?
- CloudSQL and MySQL
- Cloud SQL and PostgreSQL
- Configure the server firewall
- Loading Data to CloudSQL
- Query data from CloudSQL
- CRUD operations to CloudSQL

- Cloud Spanner
- Cloud Datastore
- Cloud Bigtable
- Big Query

GCP-Functions-Function as a Service-Cloud Functions

- Introduction to Cloud Functions
- Benefits for using Cloud Functions
- Implement a project using Cloud Functions
- Learning about Cloud Functions

GCP Serverless-Serverless Computing with Cloud Functions

- Introduction to Serverless Computing
- Serverless with Cloud Functions
- Real Time applications with Cloud Functions

GCP Containerization-DOCKER

- What is Docker
- Installing Docker on Windows, Linux
- Docker Pull, Build, Run
- Working with images
- Container Life cycle
- Dockerfile
- Pushing App to GitHub

GCP-Containers-GCP Cloud Run

- An Overview of GCP Cloud Run
- Using GCP Cloud RUN
- Deliver Cloud RUN
- Deploying apps to Cloud RUN

GCP-Container Orchestration-GCP Kubernetes Engine

- What is Kubernetes?
- Kubernetes Architecture
- Nodes
- Pods
- Services and Deployment
- GCP Kubernetes Engine
- Pushing App to Kubernetes Cluster

GCP Resource Management

- Cloud Resource Manager
- Quotas
- Labels
- Names
- Billing

GCP Resource Monitoring

- Monitoring
- Resource Monitoring
- Logging
- Error Reporting
- Tracing, Debugging
- Error Reporting and Debugging

GCP-Infrastructure Automation with Deployment Manager

- Deployment Manager
- Configuration
- Cloud Launcher
- Deployment Manager

INTRODUCTION TO DEVOPS

- Overview of DevOps
- DevOps Pipelines
- Why DevOps?
- Roles and Responsibilities
- DevOps Ecosystem

INFRASTRUCTURE SETUPS AND INSTALLATIONS

- An Overview of DevOps Tool's
- Git Installation
- Java JDK Installation
- Maven Installation
- Jenkins Configuration
- Apache Tomcat
- Packer
- Terraform

SOURCE CODE MANAGEMENT - GIT/GITHUB

- What is Version Control System?
- GIT/GITHUB
- GITHUB Desktop
- Configuration
- Working with Commands
- Branches
- Merging
- Pull Requests

CONTINUOUS BUILD - MAVEN

- What is Continuous Build
- Maven as Build Tools
- Maven Structure /Maven Dependencies
- Maven Repositories
- Maven Plugins
- Integrated Maven Build with Jenkins

CONTINUOUS BUILD - GRADLE

- Gradle Build Scripts
- High-level overview of using plugins
- Defining Tasks
- Executing Tasks
- Built-in Tasks
- Build Lifecycle
- Source layout conventions
- Building a Java project with the java-library plugin

CONTINUOUS TESTING - SELENIUM

- What is Continuous Testing?
- Selenium – Webdriver
- Creating Test Cases in Selenium WebDriver (Waits)
- Running Test Cases on Chromium Web Driver
- Handling different controls on Webpage
- Framework in Selenium
- Selenium Integration with Jenkins

CONTINUOUS INTEGRATION - JENKINS

- Configuring Jenkins
- Jobs/Plugins
- Creating Application Builds
- Creating the Jenkins job and Configuring a Git Repo
- Browsing the workspace in Jenkins
- App Packaging in Jenkins
- Cleaning up past build

ARTIFACTORY STORAGE - JFROG ARTIFICATORY

- What is Artifactory
- Use Cases
- Install Artifactory
- Setup Artifactory
- Using Artifactory

MIDDLEWARE TIER - APACHE TOMCAT

- What is Apache Tomcat?
- Installation, Setup and configuration
- Running Apache Tomcat
- Jenkins Integration of Apache Tomcat

CONTINUOUS IMAGING - PACKER

- What is Packer?
- Why do we use Packer?
- How to Install Packer?
- Running Packer to create AWS AMI Images

CONTINUOUS PROVISIONING – TERRAFORM

- Use Cases
- Infrastructure as Code
- Terraform Commands
- Launching infra using Terraform
- Learn how to Create AWS Infrastructure using Terraform
- Learn how to manage AWS Infrastructure using Terraform
- Deploying an end-to-end architecture on AWS using Terraform

CONTAINER ORCHESTRATION – KUBERNETES

- Introduction to Container Orchestration
- Kubernetes Core Concepts

- Kubernetes Architecture
- YAML Files
- Understanding Pods
- ReplicaSet and Replication Controller
- Deployments
- DaemonSets
- Rolling Updates and Rollbacks
- Scaling Application
- Creating a Deployment in Kubernetes using YAML

CONTAINER ORCHESTRATION – KUBERNETES ADVANCED

- Volume in Kubernetes
- Secrets in Kubernetes
- Services in Kubernetes
- Ingress in Kubernetes
- Services
- Persistent Storage in Kubernetes
- Primitives for PersistentVolumeClaims
- Secrets and ConfigMaps
- Headless Services
- StatefulSets
- Helm Charts

CONFIGURATION MANAGEMENT - ANSIBLE

- Introduction to Ansible
- Installing Ansible
- Testing with First Ansible
- Ansible Configuration Basics
- Plays & Playbooks' basics
- Basic Play book
- Advanced Playbook usage

CONTINUOUS CODE INSPECTION – SONARQUBE

- What is SonarQube?
- Installation on Sonar Qube
- Installation of PostgreSQL
- Configuration of Sonar Qube
- How to use Sonar Qube?
- Integration of SonarQube with Maven Project

CONTINUOUS MONITORING – PROMETHEUS AND GRAFANA

- Introduction to Prometheus
- Grafana Overview
- Installation and setup for Prometheus
- Installation and setup for Grafana Setup
- Monitoring using Prometheus
- Dashboard Visualization using Grafana
- Creating a Dashboard to monitor the Pipeline

CONTINUOUS MONITORING – NAGIOS

- Introduction to Nagios
- How the Nagios XI works
- Add windows and Linux Hosts to Nagios
- Monitoring different services and resource

CONTINUOUS LOG ANALYSIS TOOLS– ELK

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