



1. GCP Infrastructure

- a. Understanding the fundamentals of Google Cloud Platform
- b. The Google Global infrastructure
- c. What are Regions?
- d. What is an Availability Zone?
- e. Datacenter Architecture
- f. IP Addressing & Subnetting

2. Account Setup & Cloud Identity Configuration

- a. Create Free Tier GCP Account
- b. Explore GCP Console
- c. Setting up billing alert
- d. Understanding Project hierarchy.
- e. Creating Cloud Identity & Creating admin users.
- f. Creating folders and projects.
- g. Understanding how billing works for free trial.

3. Cloud Billing:

- a. Cloud Billing
- b. Managing Cloud Billing
- c. Controlling costs and Budgets Alerts
- d. Billing Exports

4. Google Cloud Services:

- a. Introduction to Google Cloud services
- b. Managing Google services using command-line tools, app, and console
- c. Deploying Cloud Shell for GCP environment management
- d. Installing and configuring Cloud SDK

5. Identity and Access Management:

- a. Cloud IAM Overview
- b. What is a GSuite and Cloud Identity
- c. IAM Navigation and Organization Node
- d. IAM Roles
- e. Working with folders
- f. Custom roles creation and assigning to users
- g. Service accounts

6. Google Compute Engine

- a. Compute Engine Overview
- b. Cloud shell, Editor and web preview
- c. Instance options available in GCE
- d. Create and connect to a linux machine
- e. Create and connect to a windows machine
- f. Configuring Web Server for HTTPS
- g. Using gcloud to create compute instances
- h. Disks: Creating , editing and manipulating disks
- i. Creating custom images
- j. Taking snapshots from VM's
- k. Startup and Shutdown scripts
- l. Preemptible VMs
- m. SSH Keys and Metadata
- n. Creating SSH keys and connecting to a linux instance

7. Google Cloud Storage

- a. Cloud storage concepts
- b. Working with gsutil command
- c. Cloud storage security
- d. Gsutil commands
- e. Object Versioning and Lifecycle Management
- f. Creating Signed URL's
- g. What is FileStore ?
- h. How to create NFS from file store

8. Migration:

- a. How to migrate to GCP?
- b. Migrating On-Premises Servers(VMware) to Google Cloud.
- c. Migrating On-premises databases to Google Cloud.

9. Cloud SQL:

- a. What is Cloud SQL ?
- b. Creating a MYSQL instance in Google Cloud
- c. Viewing and Editing Instance Information in Cloud SQL
- d. How to Clone a Mysql Instance .
- e. How to Start | Stop | Restart | Delete a cloud sql instance
- f. Configuring Private and public ip configuration in Google cloud
- g. Connecting a Cloud Sql from Cloud shell
- h. Connecting a Cloud SQL from a computing engine instance
- i. Creating a High Available Cloud SQL Instance
- j. Creating and Managing Read Replicas in Cloud SQL
- k. Creating and Managing Automated Backups in Cloud SQL
- l. How to Import and Export data from or to Cloud SQL
- m. Creating and Managing Users in CCloud SQL

10. Virtual Networks:

- a. IP Address overview
- b. Creation of CIDR
- c. What is a Virtual Private Cloud (VPC)
- d. Creating Multiple VPC's and establishing connectivity
- e. How to Create Subnets
- f. What is a Public IP Address and Private IP Address
- g. How to create Firewalls
- h. What is Routing and how to create Routes
- i. What is a Shared VPC
- j. How to make VPC network Peering
- k. What are Bastion hosts , and how to configure.

11. Interconnection Networks:

- a. How to connect your network to google
- b. Cloud VPN
- c. Cloud Router
- d. Cloud DNS

12. Instance Groups

- a. Types of Instance Groups
- b. Creating Instance Templates.
- c. Deploying Stateful Instance Groups.
- d. Deploying Stateless Instance Groups.
- e. Understanding Managed Instance Groups(MIG)

13. Load Balancers

- a. Types of Load Balancers in Google Cloud
- b. L4 vs L7 Differences and uses cases
- c. Understanding TCP Layer 4 Load Balancer
- d. Deploying TCP Load Balancer
- e. What is TLS?
- f. Generating SSL certificates using LetsEncrypt.
- g. Understanding HTTPS Layer 7 Load Balancer
- h. Deploying HTTPS Load Balancer
- i. VPC Flow logs

14. Cloud CDN:

- a. What is a Content Delivery network?
- b. Creation of CDN
- c. Google Cloud armor

15. CI/CD Pipelines with Gitlab

- a. Creating GitLab Account
- b. Creating your first project and pushing the code
- c. Managing Secrets and Secure files in GitLab
- d. Configuring GitLab Runners
- e. Creating sample pipeline using YAML
- f. Integrating Terraform with GitLab Pipelines

16. Google Cloud Run:

- a. Introduction to Docker
- b. What are deployments?
- c. What are containers?
- d. What is cloud run
- e. Deploying an application in Cloud Run
- f. How to Rollout and Rollback version in Cloud run
- g. Traffic splitting in Cloud Run
- h. Triggering and scheduling Cloud run

22. Cloud Functions:

- a. Python Basics.
- b. Understanding Python Data Structures.
- c. Event Driven architecture with Cloud Functions
- d. Deploying Cloud Functions.
- e. Automating builds with Triggers
- f. Establishing a CI/CD pipeline with Google Cloud

23. Google Infrastructure as a Code(IaC):

- a. Understanding IaC
- b. Understanding Cloud Deployment Manager
- c. Creating Templates and Deploying templates.
- d. Comparing Cloud Deployment with Terraform

24. Google Kubernetes Engine(GKE):

- e. Understanding Kubernetes Architecture
- f. Deploy Kubernetes Engine Cluster
- g. Creating Deployments, Services, Ingress Controller and Ingress Resources
- h. Deploying TLS Secrets for Ingress Controllers.

25. Certifications & Project Discussions