Google Cloud Platform

SevenMentor
PVT.LTD

- **Course Duration:** 2 Months (6 hours per week)
- **1 Session:** 1hour
- **Prerequisites:** Basic understanding of cloud computing conceptsand a Google account.

Unit 1:Introduction to GCP

- **Topics:** Introduction to cloud computing, GCP's role in cloud services, and core GCP concepts.
- **Duration: 2 Sessions**
- **Practical Assignments:** Create a GCP account, navigate the GCP Console, and deploy a simple virtual machine.
- **Task Assign:** Set up a basic web server on GCP and serve a simple website.

Unit 2: Compute Engine and Cloud Storage

- **Topics:** Deep dive into Google Compute Engine and Cloud Storage.
- **Duration: 2 Sessions**

- **Practical Assignments:** Launch virtual machines, set up auto-scaling, create and manage Cloud Storage buckets.
- **Task Assign:** Deploy a scalable web application using Compute Engine and store data in Cloud Storage.

Unit 3: Google Kubernetes Engine (GKE)

- **Topics:** Introduction to containerization, Docker, and Kubernetes, setting up and managing GKE clusters.
- **Duration: 2 Sessions**
- **Practical Assignments:** Deploy containerized applications, manage GKE clusters, and orchestrate containers with Kubernetes.
- **Task Assign:** Deploy a microservices-based application on GKE.

Unit 4: Cloud Networking

- **Topics:** VPCs, Firewall rules, Load Balancers, VPNs, and CDNs.

- **Duration: 2 Sessions**
- **Practical Assignments:** Create a VPC, set up firewall rules, configure a Load Balancer, establish a VPN connection, and optimize content delivery with CDN.
- **Task Assign: :** Design a secure and performant network architecture for a fictional company.

Unit 5: Data and Databases

- **Topics:** Big Query, Cloud SQL, Datastore, Firestore, and Cloud Spanner.
- **Duration: 2 Sessions**
- **Practical Assignments:** Create and query BigQuery datasets, set up Cloud SQL databases, work with NoSQL databases, and explore Cloud Spanner.
- **Task Assign:** Build a data analytics pipeline with Big Query and visualize the results, design a globally distributed database with Cloud Spanner.

Unit 6: Big Data and Machine Learning

- **Topics:** Cloud Pub/Sub, Dataflow, AI and ML services, Auto ML.

- **Duration: 2 Sessions**
- **Practical Assignments:** Set up data streaming with Pub/Sub,create Dataflow pipelines, and use AI/ML APIs. Explore Auto ML for custom machine learning models.
- **Task Assign:** 2 Sessions Develop a real-time data processing and analysis system using Pub/Sub and Dataflow, integrate AI services,and train a custom ML model with Auto ML.

Unit 7: Advanced GCP Services

- **Topics:** Cloud Functions, Cloud Run, Cloud Composer, Cloud Dataflow, and Cloud Dataprep.
- **Practical Assignments:** Create serverless applications with Cloud Functions, deploy containerized applications with Cloud Run, orchestrate work flows with Cloud Composer, perform ETL tasks with Cloud Dataflow, and clean and prepare data with Cloud Dataprep.
- **Task Assign:** Design and implement a data processing and analytics pipeline that utilizes these services.

Unit 8: Security and Compliance

- **Topics:** IAM and security policies, Identity Platform, Security Command Center, and compliance standards.
- **Duration: 3 Sessions**
- **Practical Assignments:** Configure IAM and security policies, set up Identity Platform for user management, monitor and detect security threats with Security Command Center, and ensure compliance with industry standards.
- **Task Assign:** Assess and enhance the security of a GCP environment based on a real-world use case.

Unit 9: Final Project

Throughout the course, students should work on a cumulative final project, combining their knowledge of GCP services and concepts.

The final project should be more comprehensive and sophisticated than the previous projects and can be a real-world scenario or a personal project.They should present this project to the class in the last week.

- **Duration: 3 Sessions**