GCP Assignment 2

1. What is cloud computing, and how does it work?

Ans - Cloud computing is a network of servers connected using the Internet. Its main function is to share information, resources, and software. The Internet acts as the invisible cable that connects everything. This includes all physical and virtual servers all over the globe:

To understand how cloud computing really works. We need to divide the cloud computing sections into two, the front end and the back end.

The front end is the side where clients access the Internet for data. This includes computers, computer networks, applications, and all means for clients to access the cloud computing system.

The back end consists of all things needed for cloud computing services. This is the side of the cloud computing provider. This includes servers, computers, data storage systems, programs, and all necessary means to provide different cloud computing services. The cloud computing system houses various applications. It provides an exclusive dedicated server for each computer program.

What connects the front end and the back end is the network. The Internet is the network. It acts as the connection between clients and the cloud.

2. List all of the GCP deployment services available.

Ans - Google Cloud Deployment Manager is an infrastructure deployment service that automates the creation and management of Google Cloud resources. Write flexible template and configuration files and use them to create deployments that have a variety of Google Cloud services, such as
   a) Cloud Storage,
   b) Compute Engine, and
   c) Cloud SQL, configured to work together.

3. What is the GCP pub-sub with examples?

Ans- Google Cloud Pub/Sub provides messaging between applications. Cloud Pub/Sub is designed to provide reliable, many-to-many, asynchronous messaging between applications.
Publisher applications can send messages to a "topic" and other applications can subscribe to that topic to receive the messages.

Some example and use case for pub-sub are:
   a) Stream analytics
      Google's stream analytics makes data more organized, useful, and accessible from the instant it's generated. Built on Pub/Sub along with Dataflow and BigQuery, our streaming solution provisions the resources you need to ingest, process, and analyze fluctuating volumes of real-time data for

real-time business insights. This abstracted provisioning reduces complexity and makes stream analytics accessible to both data analysts and data engineers.

b) Asynchronous microservices integration
Pub/Sub works as a messaging middleware for traditional service integration or a simple communication medium for modern microservices. Push subscriptions deliver events to serverless webhooks on Cloud Functions, App Engine, Cloud Run, or custom environments on Google Kubernetes Engine or Compute Engine. Low-latency pull delivery is available when exposing webhooks is not an option or for efficient handling of higher throughput streams.

4. Make a script to manage files stored on Google Drive.

Ans - To create and run a script in Drive, follow these steps:
1. Create/open a Google Doc or Sheet. From Tools menu, select Script editor.
2. Remove existing code and add your code. Go to File > Save > add script name > Click OK.
3. To execute, click ►, or from the Run menu, select a function. If running the script for first time, it will ask for your authentication. Check the required permissions and click Allow.
4. A yellow bar will appear at the Centre-top, to indicate that the script is running.

5. Explain how Google's cloud billing system works?

Ans - A Cloud Billing account defines who pays for a given set of Google Cloud resources, and it can be linked to one or more Google Cloud projects. Your project usage is charged to the linked Cloud Billing account.

For self-serve Cloud Billing accounts, your Google Cloud costs are charged automatically in one of two ways:

a) Monthly billing: Costs are charged on a regular monthly cycle.
b) Threshold billing: Costs are charged when your account has accrued a specific amount.

6. What are the different parts of the Google Cloud Platform?

Ans – The different parts of Google Cloud Platform:
1. AI and Machine Learning
2. API Management
3. Compute
4. Containers
5. Data Analytics
6. Databases
7. Developer Tools
8. Healthcare and Life Sciences
9. Hybrid and Multicloud
10. Internet of Things (IoT)
11. Management Tools

12. Media and Gaming
13. Migration
14. Networking
15. Operations
16. Security and Identity
17. Serverless Computing
18. Storage

7. What is Google Cloud App Engine, and how does it work? What is Google Cloud App Engine's purpose?

Ans - App Engine is a fully managed, serverless platform for developing and hosting web applications at scale. You can choose from several popular languages, libraries, and frameworks to develop your apps, and then let App Engine take care of provisioning servers and scaling your app instances based on demand.

The purpose of App Engine is:
a) Modern web applications - Quickly reach customers and end users by deploying web apps on App Engine. With zero-config deployments and zero server management, App Engine allows you to focus on writing code. Plus, App Engine automatically scales to support sudden traffic spikes without provisioning, patching, or monitoring.
b) Scalable mobile back ends - Whether you're building your first mobile app or looking to reach existing users via a mobile experience, App Engine automatically scales the hosting environment for you. Seamless integration with Firebase provides an easy-to-use frontend mobile platform along with the scalable and reliable back end.

8. Use an example to demonstrate how to use Google Cloud App Engine.

Ans - Creating an application in the App Engine standard environment
Cloud Tools for Eclipse provides a wizard inside Eclipse to create new Java applications in the App Engine standard environment.
1. In the Google Cloud Console, on the project selector page, select or create a Google Cloud project.
2. Make sure that billing is enabled for your Cloud project. Learn how to check if billing is enabled on a project.
3. Enable the Cloud Build API.
4. Install and initialize the Google Cloud CLI.
5. Create an App Engine application for your Cloud project in the Google Cloud Console.
6. Select a region where you want your app's computing resources located.
7. Ensure you have the latest version of Cloud Tools for Eclipse.