1. what is gcloud?

* Google Cloud (also known as Google Cloud Platform or GCP) is a provider of computing resources for developing, deploying, and operating applications on the Web.
* GCP is mainly a service for building and maintaining original applications, which may then be published via the Web from its hyperscale data center facilities.
* its cloud infrastructure does serve as the host for applications such as Google Workplace (formerly G Suite, and before that Google Apps).

2. How to use the gcloud shell?

* Cloud Shell is an online development and operations environment accessible anywhere with your browser.
* We can manage your resources with its online terminal preloaded with utilities such as the gcloud command-line tool, kubectl, and more.
* Cloud Shell provides command-line access to a virtual machine instance in a terminal window.

3. what is Helm? how to configure it, what is the purpose of using it?

* Helm is a deployment tool for Kubernetes which does the automation creation,packaging,configuration and deployment of applications on the Kubernetes Cluster.
* It is a popular open-source tool used to manage and configure your Kubernetes cluster.
* There is a huge shift in the way the server-side applications are defined, stored and managed that's why helm is very important.
* The main benefit of this approach is the ability to consider scalability from the start.
* The charts of all the images used by Helm are stored in a registry called Helm Workspace, so the DevOps teams can search them and add to their projects with ease.

4. what is a service mesh? How can istio be configured on the GCP?

* Service Mesh is an architecture helpful to have secure communications across your multiple servers.
* The developer can solely concentrate on the development of the microservices and need not bother on the underlying issues as it will be addressed by the service mesh.
* Service mesh allows you to separate the business logic of the application from observability, and network and security policies. It allows you to connect, secure, and monitor your microservices.
* **Connect**: Service Mesh enables services to discover and talk to each other. It enables intelligent routing to control the flow of traffic and API calls between services/endpoints. These also enable advanced deployment strategies such as blue/green, canaries or rolling upgrades, and more.
* **Secure**: Service Mesh allows you secure communication between services. It can enforce policies to allow or deny communication. E.g. you can configure a policy to deny access to production services from a client service running in the development environment.
* **Monitor**: Service Mesh enables observability of your distributed microservices system. Service Mesh often integrates out-of-the-box with monitoring and tracing tools (such as Prometheus and Jaeger in the case of Kubernetes) to allow you to discover and visualize dependencies between services, traffic flow, API latencies, and tracing.

**Istio** is an open service mesh that provides a uniform way to connect, manage, and secure microservices. It supports managing traffic flows between services, enforcing access policies, and aggregating telemetry data, all without requiring changes to the microservice code.

5. what is DNS, VPC?

**DNS**

* Domain Name System (DNS) is a standard by which names used on the internet are resolved to their corresponding IP addresses.
* A DNS hostname is a name that uniquely and absolutely names a computer; it's composed of a host name and a domain name.
* DNS servers resolve DNS hostnames to their corresponding IP addresses.

**VPC**

* VPC stands for Virtual Private Cloud.
* It provides much better security control over your AWS resources.
* We can create an internet gateway and attach it to our VPC.
* A virtual private cloud (VPC) is a secure, isolated private cloud hosted within a public cloud. VPC customers can run code, store data, host websites, and do anything else they could do in an ordinary private cloud, but the private cloud is hosted remotely by a public cloud provider.

6. what does cloud storage do?

* Cloud storage allows you to save data and files in an off-site location that you access either through the public internet or a dedicated private network connection.
* Data that you transfer off-site for storage becomes the responsibility of a third-party cloud provider.
* The provider hosts, secures, manages, and maintains the servers and associated infrastructure and ensures you have access to the data whenever you need it.

7. what is API gateway, how to configure the APIGEE?

* Apigee is a platform for developing and managing APIs. By fronting services with a proxy layer, Apigee provides an abstraction or facade for your backend service APIs and provides security, rate limiting, quotas, analytics, and more.
* **To build and deploy :**

1. Create an API proxy using the Apigee UI. ...
2. Deploy your API proxy to an environment.
3. Test your API proxy to make sure you're on track.
4. Change the target endpoint so your policy has more interesting data to play with.
5. Add a policy to convert the response from XML to JSON.

8. what is PUB/SUB? purpose of it?

* Pub/Sub allows services to communicate asynchronously, with latencies on the order of 100 milliseconds.
* Pub/Sub is used for streaming analytics and data integration pipelines to ingest and distribute data. It is equally effective as messaging-oriented middleware for service integration or as a queue to parallelize tasks.
* Publishers send events to the Pub/Sub service, without regard to how or when these events will be processed. Pub/Sub then delivers events to all services that need to react to them. Compared to systems communicating through RPCs, where publishers must wait for subscribers to receive the data, such asynchronous integration increases the flexibility and robustness of the system overall.

9. what is a topic?

Topic: A named resource to which messages are sent by publishers.

10. Go to the GCP site/platform and be familiar with the navigations of all the topics discussed. (YES/NO)

YES