1. **What is cloud?**

The **cloud** refers to servers and services accessed over the internet instead of on a local computer or physical device. It allows you to store data, run applications, and access resources remotely from anywhere with an internet connection.

1. **What is the difference b/w public cloud and private cloud?**

The difference between **public cloud** and **private cloud** mainly lies in ownership, access, and use.

**1.Public cloud**

**Definition**: A public cloud is a cloud service offered over the internet to anyone who wants to use it. It is shared by multiple users (businesses, organizations, individuals).

**Ownership**: Managed and owned by third-party providers (e.g., Amazon Web Services, Microsoft Azure, Google Cloud).

**Access**: Available to the general public or a large group of users.

**Scalability**: Highly scalable, allowing users to increase or decrease resources based on demand.

**Cost**: Generally lower cost since the infrastructure is shared among multiple users (pay-as-you-go model).

**Security**: Security is managed by the cloud provider, but it may not meet the strictest compliance requirements.

**Examples**:

* Google Cloud Platform (GCP)
* Amazon Web Services (AWS)
* Microsoft Azure

**2.Private Cloud**

**Definition**: A private cloud is a dedicated cloud environment used exclusively by a single organization, either on-premises or hosted by a third-party provider.

**Ownership**: Owned and managed by the organization or a third-party service provider dedicated to that organization.

**Access**: Restricted to a specific organization, offering greater control over data and resources.

**Scalability**: Offers scalability, but it may be limited by the organization’s own infrastructure capacity.

**Cost**: Typically higher cost due to dedicated resources and infrastructure maintenance.

**Security**: Higher security and control, making it suitable for organizations with strict regulatory and compliance requirements.

**Examples**:

* VMware Private Cloud
* IBM Cloud Private
* Microsoft Azure Stack (for on-premises private cloud)

1. **What are top 10 cloud providers?**
   1. Amazon Web Services (AWS)
   2. Microsoft Azure
   3. Google Cloud Platform (GCP)
   4. IBM Cloud
   5. Oracle Cloud
   6. Alibaba Cloud
   7. Salesforce Cloud
   8. Tencent Cloud
   9. Digital Ocean
   10. VMware Cloud

**4.What is Server?**

A server is a powerful computer or software that provides services, data, and resources to other computers, known as clients, over a network (like the internet or a local network). The main job of a server is to handle requests from clients and deliver the required data or services.

**Key Points about a Server:**

1. **Role**: Servers store, process, and manage data, and can handle multiple requests at the same time.
2. **Functionality**: They can host websites, manage emails, store files, run applications, and handle databases.
3. **Always On**: Servers are designed to run continuously and are often kept online 24/7 for reliability.

**5.Difference b/w cloud and server?**

**Cloud:**

A network of remote servers providing various services over the internet

Hosted remotely by cloud providers (e.g., AWS, Azure, Google Cloud). Accessible from anywhere via the internet.

Highly scalable resources can be easily increased or decreased based on demand.

Pay-as-you-go pricing; users pay only for what they use. No need to buy physical hardware.

Managed by cloud providers, including updates, backups, and security.

**Server:**

A physical or virtual machine that provides data, services, or resources to other computers

Can be hosted locally (on-premises) or in a data center. Access may be limited to a specific network or location.

Limited scalability requires adding more hardware or servers to increase capacity.

Upfront investment in hardware and ongoing maintenance costs. Often a fixed cost regardless of usage.

Full control over security, but requires strong in-house management and expertise.

**Example Use Cases:**

* **Cloud**: A startup using AWS for hosting a website, storing user data, and running machine learning models without owning physical hardware.
* **Server**: A company hosting its internal file server or business application on a dedicated machine in its office.

**6. What is cloud computing?**

Cloud computing is the delivery of computing services via internet or cloud. Using cloud computing we can store and run applications and access the data from the cloud virtually via internet. And it allocates the space how much we need and pay as per the storage we used.

**7. What are the types of cloud computing?**

1.Iaas (Infrastructure as a Service):

It provides resources virtually through internet such as virtual machines storage networking and processing power we can rent instead of owning it.

2.Paas (Platform as a Service):

It provides services for the developer to build and deploy the code it provides built-in software development tools

3.Saas(Software as a Service):

Software as a service provides fully managed software through the internet these applications are provided by the cloud providers users need not to install any manage and maintain every thing is provided by the cloud providers.

**8.Basic knowledge about software development lifecycle?**

This software development lifecycle method includes step by step procedure

**1.Requirement gathering and analysis:**

In this phase we study the whole document and gather the requirements which are necessary including technical financial by meeting the stakeholders

**2.System Design:**

We plan how the system will work and how it will be structured and in this phase we design the document.

**3.Implementation:**

In this phase we build the software based on the document we designed and also we break down tasks into smaller components for development.

**4.Testing:**

In this phase we test the code without any bugs in the code if we find out any bug in the code we convey to the developer to fix that bug.

**5. Deployment:**

Make the software available for the end user

**6. Maintenance and Support:**

After the process of deployment also we should provide continuous support to the end user we should resolve the issues arise after the deployment

Some of the popular software life cycle models are:

**1.waterfall model:**

It follows step by step procedure after the completion of one phase it goes to the another phase going return to the previous phase is not supported in this model

**2. Agile Model:**

It is an iterative approach it provides the feedback and changes through out the development process.

**3.Vmodel:**

It is similar to waterfall model but it focus on testing at every phase.

1. **Iterative Model:**

In this model instead of doing all the requirements and features in one go we do it in iterative steps we break the project into small parts and each part go through the SDLC in a iterative manner and the suggestions given in the previous phase will be implemented in the present phase.

**5.Spiral Model:**

It is the combination of both waterfall model and iterative model and this phase is suited for large and complex projects this process under goes cyclical process and the software is refined and improved after the each cycle.