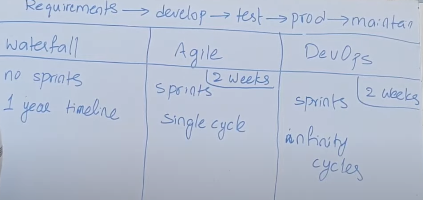
**What is devops and devops life cycle ?**

DevOps defines an agile relationship between operations and Development. It is a process that is practiced by the development team and operational engineers together from beginning to the final stage of the product. Here SDLC (software development life cycle )involved in devops

* plan
* build
* integrate
* deploy
* monitor
* operate and
* offer continuous feedback throughout the software's lifecycle.

**What is difference between devops and agile model?**

****

* Agile is a philosophy about how to develop and deliver software based sprint time line that is one sprint =one release , while
* DevOps describes how to continuously deploy code through the use of modern tools and automated processes here one sprint =infinity releases until satisfy the customer requirement

**1.what are different models which is available in cloud computing ?**

**1. service models :**

Cloud computing services offer shared resources such as servers, databases, and networks via the internet.

* Software as a Service (SaaS),
* Infrastructure as a Service (IaaS), and
* Platform as a Service (PaaS)

**2. deployment models :**

Cloud Deployment Model functions as a virtual computing environment with a deployment architecture that varies depending on the amount of data you want to store and who has access to the infrastructure.

* [Public Cloud](https://www.geeksforgeeks.org/difference-between-public-cloud-and-private-cloud/)
* Private Cloud
* [Hybrid Cloud](https://www.geeksforgeeks.org/public-cloud-vs-private-cloud-vs-hybrid-cloud/)
* Community Cloud

**2.What are the service models in cloud computing ?**

1. **Software as a Service (SaaS) :**

* *It is a way of delivering services and applications over the Internet. Instead of installing and maintaining software, we simply access it via the Internet, freeing ourselves from the complex software and hardware management. It removes the need to install and run applications on our own computers or in the data centers eliminating the expenses of hardware as well as software maintenance*.
* without any downloads or installations required. The SaaS applications are sometimes called **Web-based software, on-demand software, or hosted software**

**Advantages of SaaS :**

* **Cost-Effective:** Pay only for what you use.
* **Reduced time:** U sers can run most SaaS apps directly from their web browser without needing to download and install any software. This reduces the time spent in installation and configuration and can reduce the issues that can get in the way of the software deployment.
* **Accessibility:** We can Access app data from anywhere.
* **Automatic updates:** Rather than purchasing new software, customers rely on a SaaS provider to automatically perform the updates.
* **Scalability:**It allows the users to access the services and features on-demand.

**Disadvantages of Saas :**

* Limited customization
* Dependence on internet connectivity
* Security concerns
* Limited control over data

**Example:**

Restaurant , Google search

1. **Infrastructure as a Service (IaaS) :**

* IaaS is a service where infrastructure is provided as outsourcing to enterprises such as networking equipment, devices, database, and web servers.
* IaaS customers pay on a per-user basis, typically by the hour, week, or month. Some providers also charge customers based on the amount of virtual machine space they use.

**Advantages of IaaS:**

* Cost-Effective
* Website hosting
* Security
* Maintenance

**Disadvantages of laaS :**

* Limited control over infrastructure
* Security concerns
* Limited access

**Example :** licenced s/w and uber , ola

1. **Platform as a Service (PaaS ) :**

* [*PaaS*](https://www.geeksforgeeks.org/platform-as-a-service-paas-and-its-types/)*is a category of cloud computing that provides a platform and environment to allow developers to build applications and services over the internet. PaaS services are hosted in the cloud and accessed by users simply via their web browser.*
* *A PaaS provider hosts the hardware and software on its own infrastructure. As a result, PaaS frees users from having to install in-house hardware and software to develop or run a new application. Thus, the development and deployment of the application take place****independent of the hardware****.*

**EXAMPLE :**

* To make it simple, take the example of an annual day function, you will have two options either to create a venue or to rent a venue but the function is the same.

**Advantages of PaaS:**

* Simple and convenient for users
* application lifecycle.
* Efficiency**.**

**Disadvantages of Paas:**

* Limited control over infrastructure
* Dependence on the provider
* Limited flexibility

**3.What are the deployment models in cloud computing ?**

### ****Public Cloud****

* The public cloud makes it possible for anybody to access systems and services
* For example, Google App Engine etc.

### ****Private Cloud****

* The private cloud deployment model is the exact opposite of the public cloud deployment model. It’s a one-on-one environment for a single user (customer).
* For example,  organization’s IT department

### ****Hybrid Cloud****

* By bridging the public and private worlds with a layer of proprietary software, hybrid cloud computing gives the best of both worlds.
* Organizations can move data and applications between different clouds using a combination of two or more cloud deployment methods, depending on their needs.

### ****Community Cloud****

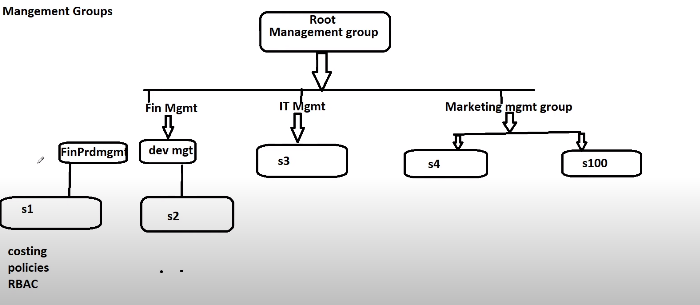
* It allows systems and services to be accessible by a group of organizations.
* It is a distributed system that is created by integrating the services of different clouds to address the specific needs of a community, industry, or business

1. what are the benefits of cloud computing ?



**5.What is hierarchy of Azure resources ?**

Azure provides four levels of management:

* **Azure tenant id** : contains unique tenant id
* **management groups** :  help you manage access, policy, and compliance for multiple subscriptions. All subscriptions in a management group automatically inherit the conditions that are applied to the management group. we can create the number of management groups but the hirerachy should 6 levels .
* 
* **Subscriptions** :
* logically associate user accounts with the resources that they create.
* Each subscription has limits or quotas on the amount of resources that it can create and use.
* Organizations can use subscriptions to manage costs and the resources that are created by users, teams, and projects.
* **Resource groups :** are logical containers wher
* e you can deploy and manage Azure resources like web apps, databases, and storage accounts.
* **Resources** : are instances of services that you can create, such as virtual machines, storage, and SQL databases.

**6 what are the linux commands we have**

Linux Directory Commands

**1. pwd Command**

The [pwd](https://www.javatpoint.com/linux-pwd) command is used to display the location of the current working directory.

**Syntax:** pwd

**2. mkdir Command**

The [mkdir](https://www.javatpoint.com/linux-mkdir) command is used to create a new directory under any directory.

**Syntax:** mkdir **<directory** name**>**

**3. rmdir Command**

The [rmdir](https://www.javatpoint.com/linux-rmdir) command is used to delete a directory.

**Syntax:** rmdir **<directory** name**>**

**ls Command**

The [ls](https://www.javatpoint.com/linux-ls) command is used to display a list of content of a directory.

**Syntax:** ls

**5. cd Command**

The [cd](https://www.javatpoint.com/linux-cd) command is used to change the current directory.

**Syntax:** cd **<directory** name**>**

Linux File commands

**6. touch Command**

The [touch](https://www.javatpoint.com/linux-touch) command is used to create empty files. We can create multiple empty files by executing it once.

**Syntax:** touch <file name>

touch <file1>  <file2> ....

**7. what is azure ?**

* often referred to as **Azure**  is a [cloud computing](https://en.wikipedia.org/wiki/Cloud_computing) platform run by [Microsoft](https://en.wikipedia.org/wiki/Microsoft), which offers access, management, and development of applications and services through global [data centers](https://en.wikipedia.org/wiki/Data_center). It provides a range of capabilities, including [software as a service (SaaS)](https://en.wikipedia.org/wiki/Software_as_a_service), [platform as a service (PaaS)](https://en.wikipedia.org/wiki/Platform_as_a_service), and [infrastructure as a service (IaaS)](https://en.wikipedia.org/wiki/Infrastructure_as_a_service). Microsoft Azure supports many [programming languages](https://en.wikipedia.org/wiki/Programming_language), tools, and frameworks, including Microsoft-specific and third-party software and systems.

**8. what are the different ways to authenticate the azure ?**

* SDK – software development kit An SDK is a set of tools to build software for a particular platform
* Power shell --  PowerShell is commonly used for automating the management of systems
* Azure CLI -- The Azure Command-Line Interface (CLI) is a cross-platform command-line tool to connect to Azure and execute administrative commands on Azure resources
* ARM template – (Azure Resource Manager) templete is a block of code that defines the infrastructure and configuration for your project

**9.what is virtual machine.. how to install window vm and linux vm in azure portal......?**

* A virtual machine is a computer file, typically called an image, that behaves like an actual computer. It can run in a window as a separate computing environment.

Installation steps : both window and linux installation is same need to change the image depends on window or linux need

* Open azure portal
* Search for virtul machine
* Click on it
* We have option called create in virtual machine page click on it those are called services for virtual machine
* It is redirecting to the creation tab in that we have basics , disk, networking, management, monitoring , tags and then review +creation
* In basic service we need to set the

-- project details : subscription , resource groups

-- instance details : vm name , region, availability options , availability zone , security type , image.

-- administrator account : authentication type ----- 1. Ssh key(linux), 2.password (windows) ,

--- if I select ssh key the we can get-- user name , ssh public key resource and key pair name

--- if I select password for windows then we can get user name , new password and confirm password.

-- inbound port rules : public inbound ports ---- none , allow selected ports , select inbound ports ------http,https,…..

* Networking

--virtual network , subset , public ip , nic security group , public inbound ports

* Management

--identity , azure ad, auto shutdown, backup, guest os updates

* Monitoring

--alerts , diagnostics

* Tags

--Name , value , resource

* Review + create : create if It is for linux click on the option called download public key and then enter , click on create

10. how do u authenticate to windows vm ?

----user name, password

**11. in how many ways u can authenticate to linux vm ?**

* ssh key (public key)
* user name , password
* .pem key

**12. what is ssh keys how do you creat it ?**

* SSH keys(secure shell) are a pair of public and private keys that are used to authenticate and establish an encrypted communication channel between a client and a remote machine over the internet.
* You can create SSH keys when you first create a VM. Your keys aren't tied to a specific VM and you can use them in future applications.
* You can create SSH keys in the Azure portal separate from a VM. You can use them with both new and old VMs.

1. Creation steps :   
     
   1 Open the [**Azure portal**](https://portal.azure.com/).  
    2. At the top of the page, type SSH to search.   
    3. Under \*Marketplace, select **SSH keys**.On the **SSH Key** page, select **Create**.  
    4. In **Resource group** select **Create new** to create a new resource group to store your keys.   
   5. Type a name for your resource group and select **OK**.  
   6. In **Region** select a region to store your keys. You can use the keys in any region, this option is just the region where you store them.  
   7. Type a name for your key in **Key pair name**.  
   8. In **SSH public key source**, select **Generate public key source**.   
    9. When you're done, select **Review + create**  
   10. After it passes validation, select **Create**.   
   11. You'll get a pop-up window to, select **Download private key and create resource** that downloads the SSH key as a .pem file.   
   12.Once you've downloaded the .pem file, you might want to move it somewhere on your computer where it's easy to point to from your SSH client.

**13. what is azure portal url ?**  portal.azure.com

**14. what is devop azure portal url ?**   
  
 ---dev.azure.com

**15. what are the different tools used to connet your linux vm ?**  
---Putty,  
---Gitbash,  
---Mobaxterm,  
---SSH client

**16. what are different falvours available in linux ?**   
   
---Ubantu ,   
---Redhat,  
---Centos ,   
----Kali linux,   
---Debian,   
---Fedora..........................

**17. what is the command used to connect the linux ?**

----- ssh -i<privatekey> azureuser@ip

**18.what is chmode ?**  
-------It is used to give the permissions for files and directories to read, write and access

**19. what is chown ?**

--------It is used to give the owner permissions for user, group and to read , write and access

**20. how many environments in project ?**

* Developemnt,
* Testing,
* Sandox,
* Quality assurance ,
* Integration ,
* Sit,
* Uat,
* Pre-Prod(non-prod)

**21.what is the difference between public ip address and private ip address ?**

* **Private IP address** of a system is the [IP address](https://www.geeksforgeeks.org/ip-addressing-introduction-and-classful-addressing/) that is used to communicate within the same network.
  + Using private IP data or information can be sent or received within the same network.
  + Private IP can be known by entering “ipconfig” on the command prompt
* **Public IP address** of a system is the IP address that is used to communicate outside the network.
  + A public IP address is basically assigned by the ISP (Internet Service Provider).
  + Public IP can be known by searching “what is my ip” on google.

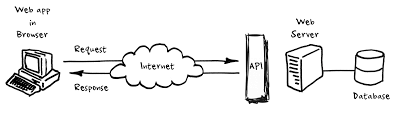
**22. what is ip address**

* a unique string of characters that identifies each computer using the Internet Protocol to communicate over a network.
  + There are four types of IP addresses: public, private, static, and dynamic
  + There are two versions of IP addresses that are commonly used on the internet: [IPv4](https://www.techtarget.com/whatis/definition/IPv4-address-class) and [IPv6](https://www.techtarget.com/searchnetworking/definition/IPv6-Internet-Protocol-Version-6)
* IPv4 is 32-bit, such as “ 192.168.35.4. The three digits in the first octet represent a particular network on the internet while the rest of the digits represent the actual [host](https://www.techtarget.com/searchnetworking/definition/host) address within the local network, such as a workstation or a server “
* whereas IPv6 is 128-bit. “ represents eight groups of four hexadecimal digits separated by colons, such as 2620:cc:8000:1c82:544c:cc2e:f2fa:5a9b.  “
* In IPv4, binary bits are separated by a dot (.); IPv6 separates binary bits by a colon (:).
* IPv4 follows the numeric addressing method and IPv6 is [alphanumeric](https://www.techtarget.com/whatis/definition/alphanumeric-alphameric).
* IPv4 offers 12 header fields and IPv6 offers eight header fields.

**24. what is subnet**

* A subnet is a range of IP addresses in the virtual network. You can create a virtual network into multiple subnets for organization and security

**25.what is api**

* When user put a request via the interent api take the request and give the respose for the request
* API - application programming interface
* 

**26.what are the things taking care by the cost optimization**

* Deleted unused resources
* Right sizing of vm’s
* Start and stop the services based upon our use

**27. what is sku’s in azure ?**

* Azure Load Balancer has 3 SKUs - Basic, Standard, and Gateway. Each SKU is catered towards a specific scenario and has differences in scale, features, and pricing.
* We have only 2 ku’s in normal services like public ip address creation
* SKU – stock keeping unit
* It have 8 alpha numeric digits and
* Standard SKU addresses are Static for both IPv4 and IPv6. And basic is the dynamic (“creation of pubic ip address” )

**28. what is the dynamic ip address in azure**

* Dynamic addresses are assigned after a public IP address is associated to an Azure resource and is started for the first time.
* Dynamic ip addresses can change if a resource such as a virtual machine is stopped (deallocated) and then restarted through Azure . static ip address doesn’t change until vm is deleted .

**29. what is command for to get the ip address for url’s like facebook or instagram or any**

* Traceroute is the commane to get ip address for url’s

**30. the question is how to create public and private ip for one vm**

* At starting creation of VM if you select Bastian to create private ip we can’t create public ip address in this scenario we have service called public ip from that we can create the public ip and we associate that ip to that particular VM

**27.** **what are the different types of vms**

* General purpose – used testing and development environments , low traffic web servers, small data base — example : Bseries,
* Compute optimized – applications servers , medium traffic web servers --- exmaple : fsv2 series
* Memory optimized --- relational data base servers --- example : N series
* Storage optimized – sql, no sql , data ware house --- example : lsv2 series
* Gpu--- deep learning , high graphic learning , vedio editing : N series
* High performance compute ---- high compute , machine high workloads : H series

**Storage concept :**

**1.what is storage ?**

* + To store variety of data objects in the cloud
  + Azure storage data objects are accessible from anywhere in the world over http or https via rest of api

Here 5 different types of storages

* + - 1. Azure blob storage or container storage
      2. Azure table storage
      3. Azure file storage
      4. Azure queue storage
      5. Azure disk storage

1. Azure blob storage :

It allows users to store large amounts of unstructured data | BLOB is binary large objects

2.Azure table storage :

It allows users to store structured data in the forme of tables like sql or azure cosmos DB

3.Azure file storage :

* + you can use to create a file share in the cloud ,  It is based on the Server Message Block (SMB) protocol
  + And enables you to access files remotely or on-premises via API through encrypted communications.

4.Azure queue storage :

* It is a storage service that stores messages that can be accessed through http or https from any were in the world
* Mainly works on notification like monitoring , mobile push , email notifications

5.Azure Disk storage :

We can store any kind of data like : structured and unstructured data

**2. What are the storage access tiers**

There are 4 access tiers

1.premium storage

2.hot storage

3.cool storage

4.archive storage

1.premium storage :

High performance hardware for data that is accessed frequently

2.hot storage :

It is optimized for storing data that accessed frequently || accessing the data 4 to 5 times a day

3. Cool storage :

It is optimized for storing that is accesses infrequently and store for at least 30 days ||| accessing data atleast 30 days a once

4.Archive storage :

It is optimized for storing files that are rarely accessed and stored for a minimum 180 days …

**3. what the redundancy of Storage Account or azure storage replications**

* Replicates the data or object in different place |||| incase if one object is not working or we are not able to access those objects in one place we can go access data or object in different place without data loss

We have 4 types here those are

1. LRS(locally redundant storage) :

* replicates the data into 3 disks with in a data center in primary region

2.ZRS(zone redundant storage) :

* replicates the data among three azure availability zones in a primary region : example store the data in different regions like banglr , hyd and Chennai

3.GRS(geographical redundant storage) :

* Stores the primary region data among three copies in another paired azure regions ||| stores another three copies of data in paired azure regions

4.GZRS(geo zone redundant storage) :

* Combination of grs and zrs

**5.what is availability set VS availability zone**

Availability sets :

* It is used to protect applications from hardware failures within an Azure data center
* Availability set meets SLA (service level agreement ) 99.995% if azure doesn’t meet the SLA azure provide that particular service for free of cost
* We have 2 or more vm’s available in available sets if something happen for one vm or server immediately we can replicate to access the another vm or server it will provide azure with sla as 99.995%
* It have 2 types : fault domain and updated domain
* Fault domain : protect your vm from physical power or network , fault domain are logical representation of physical server block
* Updated domain : update domain are designed to protect from situations where you need to restart a vm

Availability zone :

* availability zones, protect applications from complete Azure data centre failures.
* SLA meets 99.99%

1. **What are the Access Keys in storage account?**

* Suppose you created the one storage if you want to authenticate that particular storage account we have keys and connection strings through that will connect the storage .it is basically used in function app and logic app
* It allows to authenticate your application request to that particular storage account .

1. **What is SAS (shared Access Signature)?**

* that grants restricted access rights to Azure Storage resources , you can grant people access to a resource for a specified period of time, with a specified set of permission like which kind of service you need to access , resource type , versioning and from which date to which date , protocol access .. etc.,

1. **Deploy a static website in storage account?—> task**
2. **what is life cycle management in azure?**

* It is involves from create to delete the process that is called life cycle management
* We can set the rule for this in azure like last modified and then to delete
* deleting them when they are no longer needed. You can use this feature to move old data to an archive store or delete it to save on storage costs.
* General purpose for v2 and blob storage account.

1. **what are endpoints in storage account?**

* It is like url which we can access the complete application

1. **What are the types of encryptions available in storage ?**

* 1.CMK and (customer managed keys )
* 2.MMK(Microsoft managed keys )

**Port number concept**

1.what is port number