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⇒ Cloud :-

* It is the delivery of different services through the Internet.
* It includes tools and applications like data storage, servers, databases, networking and software.

Eg:- Google drive.

⇒ Diff b/w :- Cloud & Internet :-

Items	IOT (Internet of things) v/s Cloud Computing	
① Storage	Limited storage capabilities	unlimited storage capabilities
② Processing Capabilities	limited Computational Capabilities	unlimited Computational Capabilities
③ Big Data	Source of Big Data	Path or means to manage Big data
④ Connectivity	uses the Internet as Convergence point	uses the Internet to deliver solutions
⑤ Components	Runs on Hardware Components	Runs on virtual machines that mimic hardware Components
⑥ Characteristics	* It is Pervasive (things are everywhere) * These are real world objects	* It is Ubiquitous (Resources are available from everywhere) * These are virtual resources

⇒ Service model :-

* It is the way that a firm offers intangible value to customers.
* It is also be expansive descriptions of every interaction with different sets of target customers.

* It is the application, or service, is deployed from a centralized datacenter across a network - Internet, Intranet, LAN or VPN - providing access and on a recurring fee basis.

⇒ What are the 2 models available in cloud :-

Cloud Computing
| 2 Dif Types

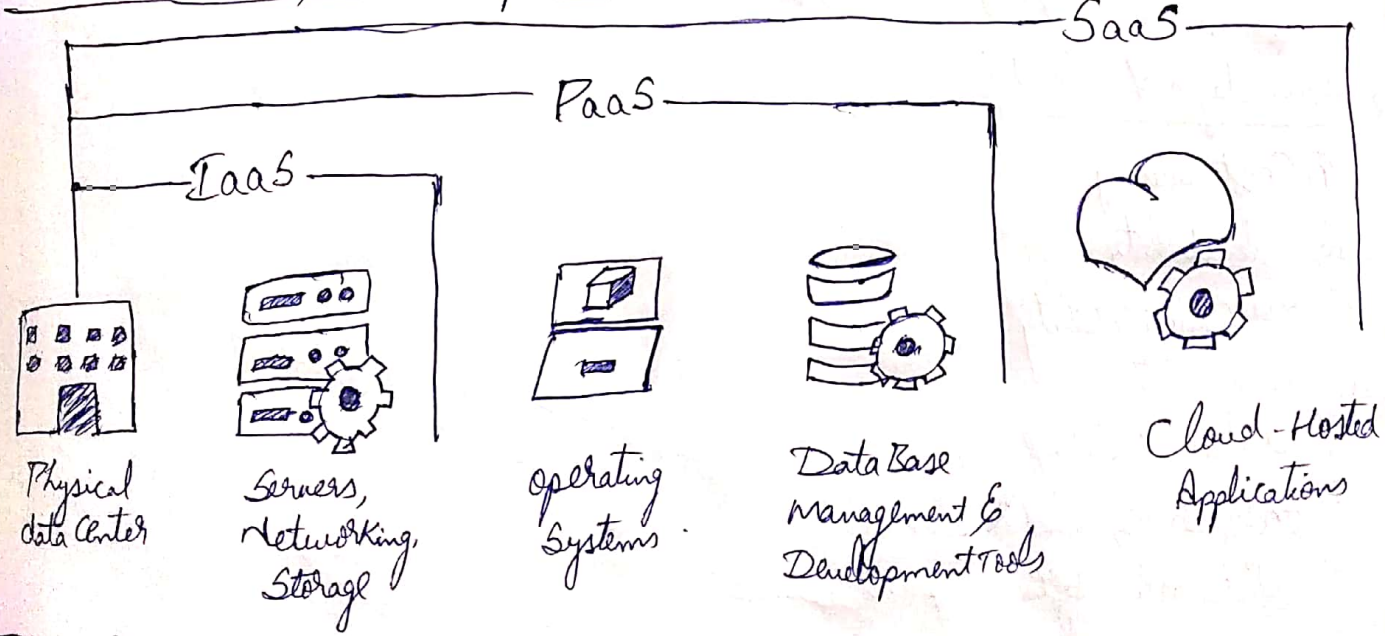
① Based on services
Dif into 3 major models
→ Infrastructure as a Service (IaaS)
→ Platform as a Service (PaaS)
→ Software as a Service (SaaS)

② Based on Deployment.
↳ Physical Availability
Dif into 4 types
→ Private Cloud
→ Public Cloud
→ Hybrid Cloud
→ Community Cloud.

⇒ Deployment models :-

* It Identifies the specific type of cloud environment based on ownership, Scale and access, as well as the cloud's nature and purpose.
* The location of the servers you're utilizing & who controls them are defined by a cloud deployment model.

⇒ What is IAAS, PaaS & SaaS & Explain :-



IaaS :- (Infrastructure as a service)

* It is a system of cloud Computing that delivers virtualized Computing resources over the Internet.
* It is a type of (as) cloud computing service that offers essential Compute, storage, and networking resources on demand, on a Pay as you go basis.

Eg:- IaaS → AWS.

⇒ PaaS:- (Platform as a service)

* It Provides you Computing platforms which typically Includes operating system, programming language execution environment, database, web server, etc.

Eg:- Windows Azure, Force.com, Google App Engine etc.

(or).

* It is a Cloud Computing model where a third party provider delivers Hardware and Software tools to users over the Internet.
* These tools are needed for application development.
* A PaaS provider hosts the H/W & S/W on its own Infrastructure.

⇒ SaaS:- (Software as a Server)

* It allows users to Connect to and use Cloud-based apps over the Internet.
* It Provides a Complete software solution which you purchase on a pay as you go basis from a cloud service provider.

Eg:- Gmail, E-mail, MS office 365.

(or).

* It is a way of delivering applications over the Internet as a service.

⇒ Advantages of Cloud:-

1. Cost Saving
2. Flexibility
3. 24/7 Availability
4. Reliability
5. Unlimited storage
6. Easy Backup and Restore
7. Automatic Software update
8. Performance -
9. Scalability -
10. Data Security
11. Document control

⇒ Private Cloud :-

* It is a model of cloud Computing where the Infrastructure is dedicated to a single user organization.

(or).

* It is the Computer services offered either over the Internet or private Internal network and only to select users Instead of the general public.

⇒ Public cloud :-

* It is a subscription service that is also offered to any and all customers who want similar services.

Eg:- Amazon Elastic Compute cloud (EC_2) & Google cloud.

⇒ Hybrid Cloud :-

* It is a collection of cloud-based and on-premises IT resources that work together in Concert, offering businesses enhanced agility, and flexibility for workload and data deployment.

Eg:- Vmware Cloud on AWS.

⇒ Community Cloud :-

* It is a multitenant platform that is accessible only for a specific subset of Customers.

Eg:- U.S-based dedicated IBM Softlayer cloud for federal agencies.

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⇒ What is Scaling :-

* It is the Process of adding or removing Compute, storage, and network services to meet the demands a workload makes for resources in order to maintain availability and performance as utilization Increases.

(or)

* Cloud Scalability in Cloud Computing refers to the ability to Increase or decrease IT resources as needed to meet changing demand.

⇒ What are the D/f types of Scaling? Explain?

There are 2 types of Scaling,

① Vertical Scaling → * It is the ability to ↑ce the Capacity of existing Hardware or S/w by adding resources.

② Horizontal Scaling * It has limitations by the fact that you can only get as big as the size of the server.

(or)

① V-S :- * It refers to adding more or faster CPU's, Memory or I/O resources to an existing server, or replacing one server with a more powerful server.

② H-S :- * It means adding additional Instances Instead of moving to a larger Instant size.

(or)

* It is an approach to enhance the performance of the server node by adding new Instances of the server to the existing servers to distribute the workload equally.

* The strategy Involves decreasing the server's load rather than expanding the Capacity of the Individual server.

D/f b/w

Horizontal Scaling / Scaling up	vertical Scaling / Scaling out
* It simply adds more Machine resources to your existing machine Infrastructure.	* It adds power to your existing machine Infrastructure by Increasing Power from CPU or RAM to existing machines.

⇒ Cloud Services :-

* It is the delivery of various Computing services Including Servers, storage, databases, networking, software, analytics and Intelligence over the Internet ("The cloud") to offer faster Innovation, flexible resources, and economies of Scale.

⇒ what do you mean by Cloud Provider & list Some Examples of Cloud providers in market ?:-

* It is a third party Company offering a Cloud based platform, Infrastructure, Application or storage services.

Ex: Cloud service Providers in markets are listed below :-

① Alibaba Cloud.
② Amazon web Services (AWS)
③ Google Cloud platform (GCP)
④ IBM Cloud.
⑤ Oracle Cloud.
⑥ Microsoft Azure.

⇒ what do you mean by Multi-tenant?

* when the Several different Cloud Customers are accessing the Same Computing resources, Such as when Several d/f Companies are storing data on the same physical Server.

(or).

* It is a reference to the mode of operation of software where multiple Independent Instances of one or multiple applications operate in a shared environment.

⇒ Pay-as-you-go?

* It is a System in which a person or organization pays for the costs of Something when they occur rather than before or afterwards.

(or).

* It is a System of meeting costs as they arise or paying for a service before it is used.

⇒ Data center :-

* It is a large group of networked Computer Servers typically used by organizations for the remote storage, Processing or distribution of large amount of data.

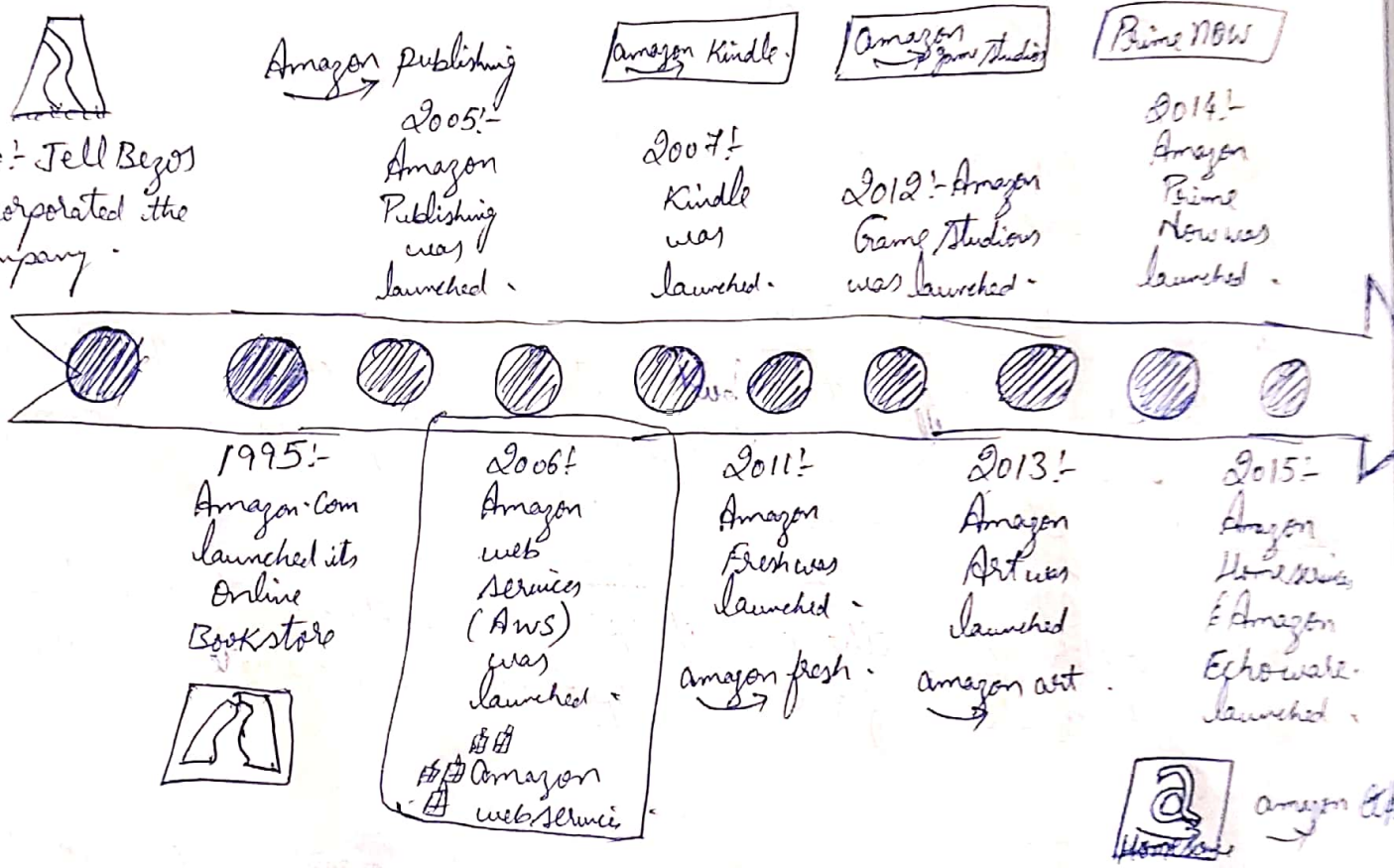
⇒ **What is AWS :-** * It is an online platform that provides scalable, cost-effective cloud computing solutions.

* Amazon web services (AWS) is a comprehensive, evolving cloud computing platform provided by Amazon that includes a mixture of Infrastructure as a service (IaaS), PaaS & Packaged SaaS offerings.

(or)

* It is designed to allow application providers, ISV's and Vendors to quickly and securely host your applications - whether an existing application or a new SaaS based application.
* You can use the Amazon web service (AWS) management console or well documented web services APIs to access AWS's application hosting platform.

⇒ **History of AWS :-**



AWS :-

* AWS is a broadly adopted Cloud platform that offers several on demand operations like Computer power, database storage, content delivery etc to help Corporates scale & grow.

⇒ What is AWS Region :-

* These are Separate geographic areas that AWS uses to house its Infrastructure.
* These are distributed around the world so that Customers can choose a region closest to them in order to host their cloud Infrastructure there.

(or)

* It is a geographical location with a Collection of availability zones mapped to physical data centers in that region.

⇒ Availability zone :-

* It is a logical data center in a region available for use by any AWS customer.
* Each zone in a region has redundant & separate power, networking & connectivity to reduce the likelihood of two zones failing simultaneously.

(or)

* These are Isolated locations within data center regions from which public cloud services originate & operate.

⇒ what is AMI ?

* AMI (Amazon machine Image) is used to Create virtual servers (Amazon Elastic Compute cloud or EC2 Instances) in the AWS environment.
* Dif types of Instances Can be launched from a Single AMI to support the H/w of the host Computer used for the Instance.

(or)

* AMI is a Supported and maintained Image provided by AWS that provides the Information required to launch an Instance.

⇒ Fault Tolerance :- * It is a process that enables an operating system to respond to a failure in hardware or software.

* It is also the system's ability to continue operating despite failures or malfunctions.

Eg :- ① A twin-engine airplane is a fault tolerant system - if one engine fails, the other one kicks in, allowing the plane to continue flying.

* It is necessary in systems that are used to protect people's safety (such as air traffic control Hardware & software systems), and in systems which Security, data protection and Integrity & high value transactions depend on.

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⇒ What is a Region?

* It is an area, espicially part of a country or the world having definable Characteristics but not always fixed boundaries.

⇒ What is Edge location?

* It is the nearest point to the Consumer (user) who is Consuming the AWS service.

(88).

* It is where end users access services located at AWS, the Cloud Computing division of US-headquartered Amazon.
* They are located in most of the major cities around the world and are specifically used by CloudFront (CDN) to distribute content to end users to reduce latency.

(89).

* A site that CloudFront uses to cache copies of your content for faster delivery to users at any location.

⇒ List & Explain few characteristics of Cloud Computing?

① On-demand Self service:-

Computing Capabilities such as Network storage can be set-up whenever required without requiring any human Interaction.

② Broad Network Access:-

All Capabilities are available over a network and can be accessible from anywhere by means of any client platforms. (Eg: mobile phones, Tablets, laptops & workstations).

③ Resource Pooling:-

Cloud service provider pools his Computer's resources to multiple Consumers with d/f physical resources dynamically assigned A/C to Consumer demand. (Eg: Storage, Processing, Memory & Network Bandwidth).

④ Rapid Elasticity:-

Capabilities can be elastically set-up and scaled rapidly A/C to Consumer demand.

⑤ measured service:-

Resource usage can be monitored, Controlled & reported Providing transparency for both the Provider & Consumer

⇒ what do you mean by Legacy IT?

* It refers to outdated Computer systems, programming languages or application software that are used Instead of available upgraded versions.
* A legacy system is also known as legacy platform.
* A legacy system may be problematic, due to Compatibility Issues, obsoletion or lack of security support.

⇒ Some of the limitations of legacy IT:-

1. very heavy Capital
2. Operational overhead is high.
3. Scalability is limited.

⇒ Explain about AWS global Infrastructure?

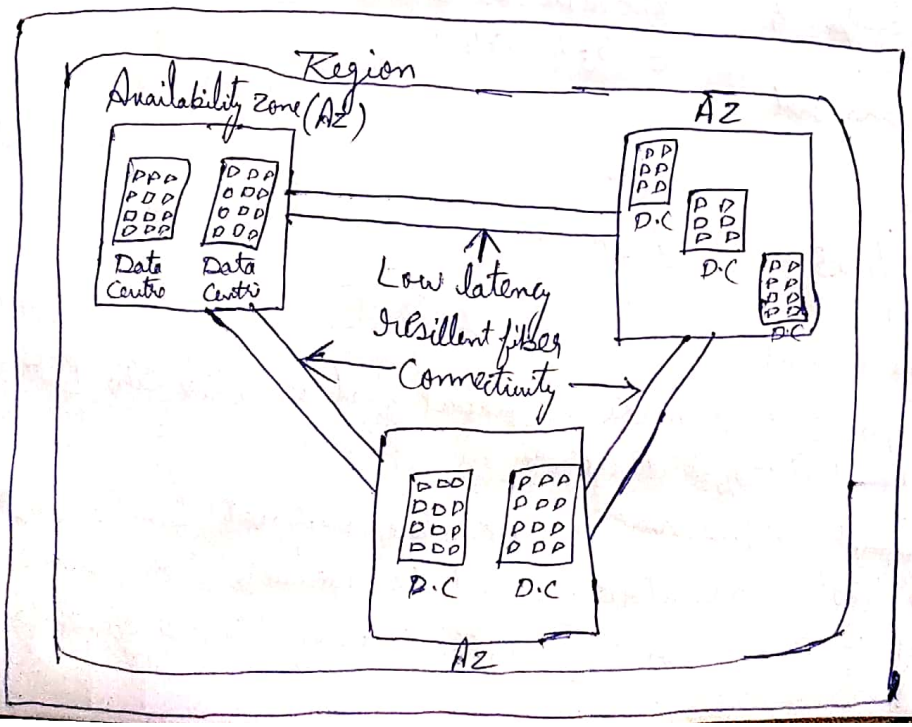
* The AWS global cloud Infrastructure is the most secure, extensive and reliable cloud platform, offering over 200 fully featured services from data Centers globally.
* It is the Backbone network of global data centers and other platforms that Amazon uses to deliver application workloads and AWS services.

→

Components of Global Infrastructure

- Availability Zones
- Region
- Edge locations
- Regional Edge Caches.

→



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⇒ What is IAM?

* Identity and Access Management (IAM) is the discipline that enables the right Individuals to access the right resources at the right times for the right reasons. (28).
* It is a web service that helps you securely control access to AWS resources.
* The use of IAM to control who is authenticated (Signed in) and authorized (has permissions) to use resources.

⇒ What is policy?

* It is a law, regulation, procedure, administrative action, Incentive or voluntary practice of governments & other Institutions. (08).
* It's a course of principle of action adopted or proposed by an organization or Individual.
* It Includes statements of rules or standards. & is Implemented as a Procedure or protocol.

⇒ What is Region & Global services?

Region Service :- * Any changes that you make to a feature in an Additional Region will be applied only to that region.
* It means transport services operated to meet the transport needs of a region.

* Eg :- ① Security groups
② VPC Endpoints
③ AMI's.
④ EBS Snapshot
⑤ Autoscaling
⑥ Elastic load balancer.
⑦ S3 buckets.

Global service :-

* Eg : ① Route 53
② WAF
③ CloudFront
④ IAM.

* Any changes that you make to global features while the 1° region is selected & will be applied across all regions.

* G.S are Internet-related services, Including but not limited to the Streaming Media, web site hosting, Maintenance, Content delivery & e-Commerce services offered by Global to its Customers in the Ordinary Course of its business.

⇒ What is user group?

* These are a collection of users who perform a similar task.

Eg:- a group of customer service representatives might be put in a customer service Representative group.

* User groups connect people to share strategies and best practices around a given product, often software.

* User group is a set of people who have similar interests, goals or concerns.

* The members have regular meetings where they can share their ideas. Ideally, the members of a user group live in the same geographic area, so they can get together in person.

⇒ What is?

(a) Authentication :-

* It is the process of verifying the identity of a person or a device to provide access to a system.

* Eg:- (1) Entering a username & password when you log into a website.

(2) Entering the correct login information lets the website know,

(a) who you are.

(b) that it is actually you accessing the website.

(b) Authorization :-

* It is the process of giving permission to access the resources.

* Eg:- Giving someone permission to download a particular file on a server or providing individual users with administrative access to an application.

* It is a process by which a server determines if the client has permission to use a resource or access a file.

⇒ What is MFA?

* Multi-factor Authentication (MFA) is an authentication method that requires the user to provide two or more verification factors to gain access to a resource such as an application, online A/C, or a VPN.

* It is used to protect against Hackers by ensuring that digital users are who they say they are.

* Eg:- Google Authenticator (an app on your phone), SMS text message with a code.

⇒ What are the 3 Components on which Billing & Pricing is done in AWS?

① Compute
② Storage
③ outbound data transfer.

⇒ What are Diff ways to access AWS Services or launch AWS Services?

* Services on AWS can be managed by 3 ways,
  - (a) AWS Console
  - (b) AWS CLI → Command line Interface.
  - (c) AWS SDK → Software development Kit.
* You need to create an AWS Account & this becomes a root user that has all the privileges.
* It's a best practice to create another IAM user for daily tasks and enable MFA on the root account.

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⇒ List down some IAM Best practices?

IAM Best Practices

1. Clearly define IAM vision
2. Develops a Strong Foundation
3. Stage-wise Implementation
4. Stakeholder awareness
5. Consider Identity as primary security perimeter
6. Enforce MFA.
7. Establish Single sign-on
8. Implement Zero-Trust policy
9. Enforce a strong password Policy.
10. Secure privileged Accounts
11. Conduct Regular access Audits
12. Implement passwordless login.

⇒ what are the d/f Authentication methods?

Authentication methods

3 D/f types

1. Token Based
   - Passwords
   - Pin number
2. Biometric Based
   - Contact Biometric Technologies
     - Finger print
     - Hand/Finger geometry
     - Dynamic signature verification
     - Keystroke Dynamics.
   - Contactless Biometric Technologies
     - Facial Recognition
     - Voice Recognition
     - Iris Scan
     - Retinal Scan
3. Knowledge Based
   - Recognition Based System
   - Recall Based Syst
   - Cued Recall Base Systems

⇒ Write the steps to Create a IAM user & attach an existing policy?

* Login to AWS management Console.
  ↓ Go to/Search
* IAM
  ↓ Navigate Dashboard.
* Users.
  ↓
* Add users.
  ↓.
* Set user details page will open.

User name * [Give an unique name] Rajesh

Access type * ☐ Programatic Access

Select this ☐ AWS management Console access.

Console password ⊙ Autogenerated Password → it will take 8 to password & Afterwards we have to Change Password.

⊙ custom password → At starting stage itself while creating user can we set password.

Require password reset ☑

[Next] ✓

↓.

* Set permissions page will open.

[Add user to group] [Copy permissions from existing users] [Attach existing policies directly] ✓

Filter policies ▾ [Search] Elemental Appliances & Software Full Access → permission click on.

↓

[Next] ✓

* Add tags (optional).

[Next] ✓

↓.

↓

* Review (In this page check all about user details).

user details

username :- Raju.

Aws access type :-

Console password type :-

Require password reset :-

Permissions Boundary :-

Create user ✓

* Success (The user A/C creation successfull msg will appear).

↓

users with Aws management Console access Can Sign-in at : https://198002147593.signin.aws.amazon.com/console → new URL will occur login with this URL in new Incognito window.

Download .csv → Download this file.

User.

Raju

Password.

**** Show.

Email login instructions.

Send email

Close ✓

* Afterwards we can see our new created user file in Aws console.

⇒ write the steps to create a Group & Assign users to it (IAM)?

* login to Aws management Console

↓

* IAM

↓ Dashboard read.

* Groups

↓

* Create New groups.

↓

Group name : Developers. Give an group name

Continue ✓

↓

Create a New group wizard

* Set permissions for policies

Select policy Template

Policy Generator — Select

* Edit permissions

Effect Allow Deny

AWS service — Amazon S3

Actions — All action (wildcard)

Amazon Resource Name (ARN) — arn:aws:s3:::*ga* Cookbooks (Paste this)

Add statement

* Policy name

Policygen-Developers-20140514355

Policy Document

```
"Statement":[
  "Effect": "Allow",
  "Action": [
  "Resource":
```

Continue

* Review

Group name : Developers

Permissions : Policygen-Developers-20140514355

Edit Groupname

Edit permissions

Create group

Afterwards go & check in console the newly created group will shown.

Then go to users in IAM dashboard.

* users

↓

* Create new users

Enter user names.

1. Frank.
2.
3.
4.
5.

Generate an access key for each user.

Create.

↓

Your 1 user(s) have been created Successfully.

Access Key ID :-

Secret Access Key :-

Download Credentials

close

↓

Download it & open it will show Access Key & Secret Access Key to Connect to Developers & users.

02/05/2022.

⇒ What are the basic Components of a Computer system & what are all the Measurement units of it?

* Motherboard.
* Input unit
* output unit
* Central processing unit (CPU)
* Graphics processing unit (GPU)
* Random Access Memory (RAM)
* Storage unit like SSD (Solid State Drive) or Hard disk drive (HDD)
* Keyboard
* Monitor

Measurement units are,

① CPU is measured in → Gigahertz
② RAM → GB
③ HDD → GB.
④ NIC (Network Interface Card) → Mbps or Gbps.

⇒ What is EC2 Instance?

* An Amazon EC2 Instance is a virtual server in Amazon's Elastic Compute Cloud (EC2) for running applications on the Amazon web services (AWS) Infrastructure.
* By using AWS EC2 helps the users to avoid the Investment in hardware upfront, so the user can deploy & develop applications easier.
* It is also used to launch many virtual servers, Configure Networking and security and managing storage.

⇒ What is Elastic IP?

* It is a static public IPV4 address associated with your AWS A/C in a specific Region (or).
* It is a reserved public IP address that you can assign to any EC2 Instance in a particular region, until you choose to release it.
* By using Elastic IP address, you can mask the failure of an Instance or software by rapidly remapping the address to another Instance in your account.

⇒ What are the Benefits of EC2 Instances?

① Reliability :- Amazon EC2 offers 99.9% availability for each Amazon EC2 region.
② Security :- Amazon works with Amazon VPC to provide robust networking & security for the Compute resources.
③ Flexibility
④ Cost saving
⑤ Complete Computing solution
⑥ Elastic web-Scale Computing
⑦ Completely Controlled.

⇒ What is Customized AMI?

* An AMI defines the programs and settings that will be applied when you launch an EC2 Instance.
* once you have finished Configuring the data, services & applications on your ARC GIS Server Instance, you can save your work as a Custom AMI Stored in Amazon EC2.
* with Amazon EC2 Instance store-Backed AMI's, each time you Customize an AMI & Create a new one, all of the parts are stored in Amazon S3 for each AMI.
* It is used to launch Elastic Beanstalk Environments to ↑ provisioning speed & Customize low-level Components.

⇒ What are the 3 categories of AMI?

① My AMI.
② Aws marketplace.
③ Community AMI.

⇒ How to Create an EC2 Instance in AWS

* Login to Aws Console
  ↓ click on
* Services
  ↳ click on Compute
  ↳ EC2 ✓
  ↓ Scroll down to click on
* Launch Instance ✓
  ↓
  a Total of 7 Steps options will show on top to Create an EC2 Instance.

1st Steps ⓐ Choose AMI → To choose an operating system.
  ↳ make sure always use Free tier one which in eligible should be selected.
  ↳ Amazon Linux AMI 2018.03.0 (HVM) SSD Volume Type.
  Select ✓
  ↓ Next ✓

ⓑ Choose Instant Type.
  ↳ Free Tier one select
  ↓ Next ✓

ⓒ Configure Instance
  ↳ No of Instances 1 or as required.
  ↓ Next ✓

ⓓ Add Storage.
  ↓ Next ✓

ⓔ Add Tags
  ↓

ⓕ Configure Security group
  ↓

ⓖ Review
  ↓
Launch.
  ↳ A new Key Pair Page will open ⓐ Create a new Key Pair *
  ⓑ Key Pair name Give any name. Download Key Pair. ⇒ Launch Instance

After launch Instance → A new page will shown below will open. Connect | Instance state | Actions | Launch Instances

Name	Instance ID	Instance type	AZ	Instance state	Status checks	Alarm status
Praju	i-08a1cd348b4...	t2.micro	us-east-2c	Running	2/2 checks passed. Came. The instance is created & Ready to use.	none

Click on Create key pair name.

=> How to Connect to Amazon Linux EC2 Instance?

* After EC2 Instance launch creation is done as shown in Above.

↓ Click on.

* Connect *

↳ Connect to Instance Info page will open.

EC2 Instance Connect (Click 1) / Session Manager 2 / SSH Client 3.

Instance ID!

ID with (user name like Praju).

Public IP address.

34-24... --

username!

ec2-user ✓ write ✓

↓

Connect ✓

* a Dark Black Colored Screen will open Showing Automatic Connection of EC2 Instance to Amazon Linux!

EC2 Amazon Linux 2 AMI.

https://aws.amazon.com/amazon-linux-2/

(ec2-user@ip-172-31-46-188 ~)$ with Sudo click/Enter

· a no of options & Command will appear.

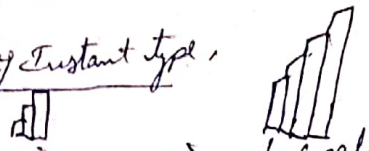
In a Security group!

SSH option should be enabled Compulsory without this option the EC2 will never connect to Linux!

⇒ How to Change the EC2 Instance type?

1) By Considering an Example,

* EC2 Changing Instant type.



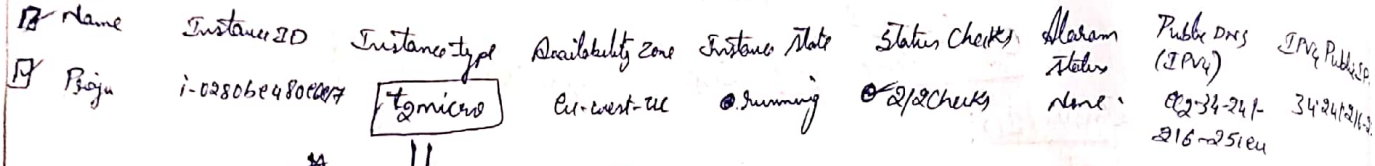
Ex

Steps:

(a) This only works for EBS Backed Instances.
(b) Stop the Instance
(c) Instance settings ⇒ Change Instance type
(d) Start Instance

Ex

1st Step:



* Right click on Instance type
  - Instance settings ✓
    - Stop ✓

At 1st stop the EC2 Instance &

2nd Step: * After the Instance gets stopped

↳ Right click again

- Instance settings ✓
  - Change Instance type ✓

↳ Change Instant type Box will open.

Instance ID i-0280be480e6e67a

Instance type t2 micro ⇄ changed to t2 small ✓

☐ EBS optimized

Cancel Apply ✓

After Apply & Then go & see.

3rd Step: Instant type

t2 small Here u can see the change of EC2 Instance

↳ Then Right click on Instance type

- Instance setting ✓
  - Start the Instance ✓

Ex

* For every Stop & Start of an EC2 Instance The Public IP address will get Change but the Private IP will remain Same.

⇒ How to terminate the EC2 Instance?

* open Aws management Console
  ↓ click on
* EC2
  ↓ on
* Choose Running EC2 Instances
  (OR) Select any.
* Existing Instance
  ↓ Go to
* Actions
  ↳ Instance state ✓
  Terminate ✓
  ↓
* Terminate Instances Page will open
  ↳ Yes terminate ✓
  ↓
* The Instance gets now changed to terminated.

⇒ How to Shutdown the EC2 Instance?

* open Aws management Console.
  ↓ click on
* EC2
  ↓
* Chose any Running EC2 Instances
  ↓
* Actions
  ↳ Instance State ✓
  Stop ✓
  ↓
* Stop Instances ~~Note~~ Page will arise.
  ↳ Yes, Stop ✓ (The data present in these Instance will lost by stopping the Instance).
  ↓
* The Instance gets now Stopped or Shutdown.

(A)

Public IP address ⇒ ~~Remains~~ will get changed } at every time stop & start of an Instance

Private IP address ⇒ will Remains the same (B).

⇒ How to Restart the EC2 Instance?

* Open AWS Console
  ↓
* EC2
  ↓
* Choose any Running EC2 Instance
  ↓
* Actions
  ↓
  → Instant state ✓
  Start / Restart ✓
  ↓
* Start Instances will open.
  ↓
  → Yes, start ✓
  ↓
* The Instance will get Start Running with new public IP address

04/05/2022

⇒ write the steps to Create an windows EC2 Instance?

* login to Aws Console
  ↓ Go to
* EC2
  ↓
* Launch New EC2 Instance (or) Launch Instance
  ↓ Select

Follow 7 steps to Create New Instance

1st Step: AMI — Microsoft windows server 2019 Base (Free Tier) → Select

↓

2nd Step: Choose an Instance Type — General purpose — t2 micro → Next

↓

3rd Step: Configure Instance — No of Instance = 1 → Next

↓

4th Step: Add Storage — Size (GiB) 30 → Next

5th Step: Add tags — Next

6th Step: Configure security group — Assign a security group (or) Create a new security group.

Type	Protocol	Port
RDP (Remote Desktop Protocol)	TCP	3389

Connects Windows with another windows

→ Review & Launch

↓

7th Step: Review Instance Launch → Launch

↓

* Select an existing Key Pair (or) Create new Key Pair
  Create a new key pair / Add an existing key pair.
  Key Pair name: windows-Pem
  Download Key Pair (we want to download if we use Create a new Key Pair only @ top)
  Launch Instance

* The newly created windows EC2 Instance will appear. Edit & Name an Instance & Name of Instance.

⇒ Write the steps to Connect to windows EC2 Instance from a window machine.

* Once, the Newly Created window EC2 Instance is done.

↓ Select it & Go to

* Connect

↳ Connect to your Instance page will appear

Download Remote Desktop file

↳ click it & Download it.

Public DNS! - - - - -

User name: Administrator

Password! Get Password ✓ click on it.

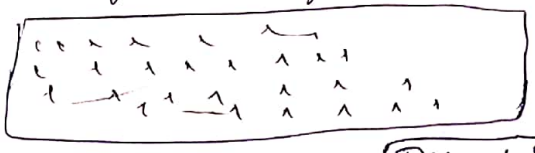
↓

* Connect to your Instance > Get password page will open.

↳

Key name! windows.pem.

Key Pair path Choose file / Browse. ↳ Note Downloads that will be available like ".pem file & Select it.



Decrypt Password ✓

Bank. Close.

↓

* Connect to your Instance.

↳

Password! K27J (=)92 - Dev2 ymd4 HJ5

↳ Select it & Copy these password into a Notepad (Temporarily) for further Connect of Instance.

↓

* Open Remote Desktop

↳ Connect

↓

* Enter your Credentials

Administrator

Paste the Password Here ✓

↳ OK.

↓

* Remote Connection established

↳ Click Yes

* The newly created windows EC2 Instance will appear with new Public IP address & Edit & Name an Instance & Name(s) Portion.

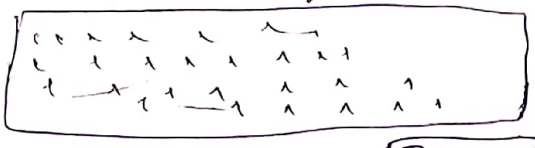
⇒ Write the steps to Connect to windows EC2 Instance from a window machine?

* Once, the newly created window EC2 Instance is done.
  ↓ Select it & Go to
* Connect
  ↳ Connect to your Instance page will appear

  Download Remote Desktop file
  ↳ click it & Download it.

  Public DNS: - - - - -
  User name: Administrator
  Password: Get Password ✓ click on it.

  ↓
* Connect to your Instance > Get password page will open.
  ↳
  Key name: windows.pem.
  Key Pair path: Choose file / Browse. → Goto Downloads then will be available like windows .pem file & select it.

  Decrypt Password ✓

  Back. Close.

  ↓
* Connect to your Instance.
  ↳
  Password: K27J (-)92 -Dcv2 \mu d4 HJ5
  ↳ Select it & Copy these password into a Notepad (Temporarily) for further Connect of Instance.

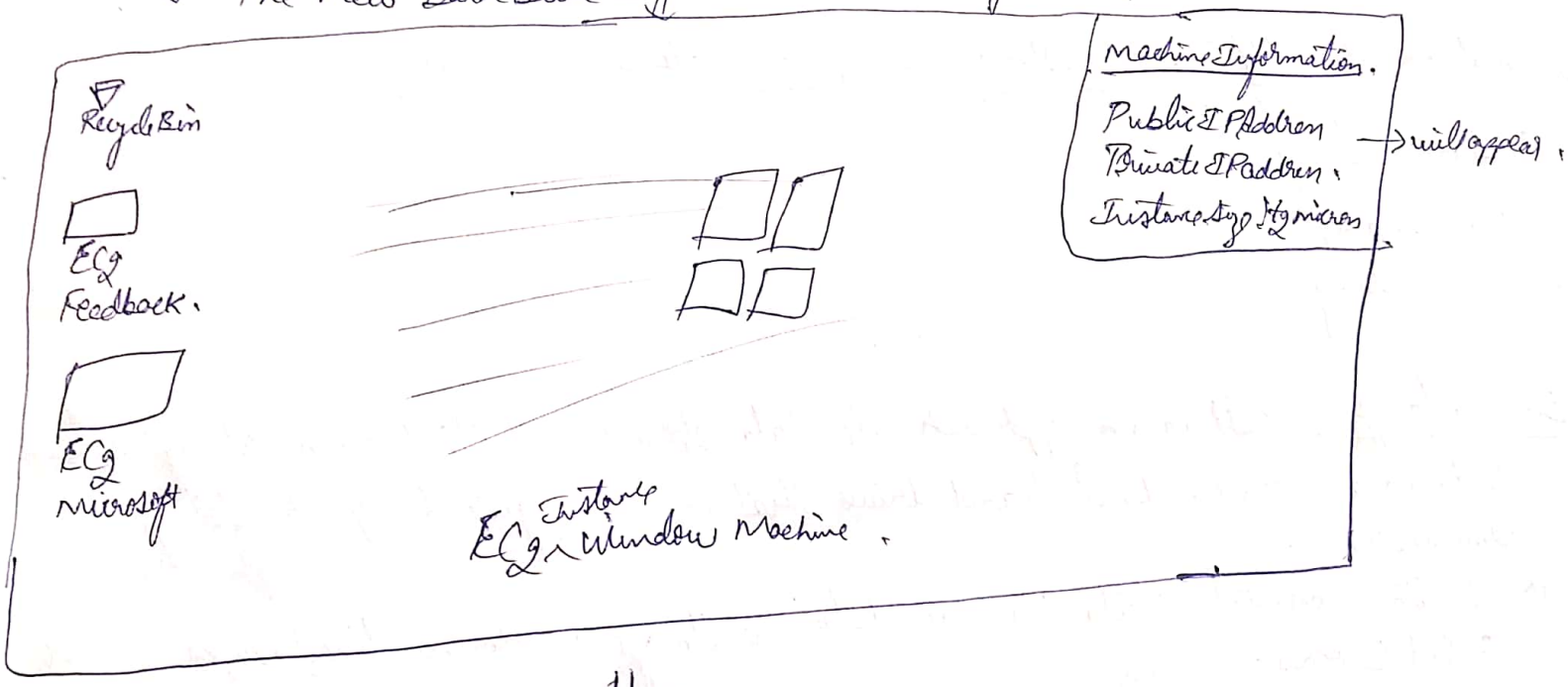
  ↓
* Open Remote Desktop
  ↳ Connect

  ↓
* Enter your Credentials
  Administrator
  Paste the Password here ✓
  ↳ OK.

  ↓
* Remote Connection established
  ↳ Click Yes

Then EC2 Instance machine

* The new Dark Blue coloured window Page will open/appear as shown below.



* At last terminate the newly created EC2 Instance. (end of work)

6/05/2022

⇒ What are the d/f types of storages? Explain with pros & cons?

① Block storage
② File storage
③ object storage.

① Block storage :- * It is an approach to data storage in which each storage volume acts as an individual hard drive that is configured by the storage administrator.
* In this model, data is saved to the storage media in fixed-sized chunks called Blocks.
* It is an Amazon block-level storage solution used with the EC2 Cloud servi to store persistent data.
* This means that the data is kept on the AWS EBS servers even when the EC2 instances are shut-down.

Advantages:-

① Performance :- Ideal for applications that require a high number of IOPS & low latency such as data servers.

② Flexibility :- As storage needs grow, organizations can add block storage volumes without sacrificing performance. Block storage can be moved b/w servers by changing the destination route.

③ Ease of file modification :- When a user changes a file in block storage, the system only needs to change the specific block affected by the changes. By contrast, in file or object storage, the file or the entire object must be overwritten.

④ Operating system Bootability :- O.S can be booted directly from block storage using SAN (Assuming the server BIOS supports this option).

Drawbacks:-

① Server binding :- Block storage is tightly connected to the server & cannot be accessed by other servers at the same time. Some S/w solutions can solve this problem, but put more pressure on file system & can degrade performance.

② metadata limitations :- Block storage uses very limited metadata, much less than in file & object storage. This can affect application performance in metadata critical operations such as search & retrieval, because the application cannot identify the storage location by meaningful metadata, & may have to scan a large no of blocks to find the

③ Cost :- It is expensive. SAN requires a heavy Investment & require highly trained maintenance personnel. larger organizations will find that block storage becomes a large part of their expenses on the cloud.

② File storage :- * It is a method for storing data in the cloud that provides servers and applications access to data through shared file systems.

* It is also called as file-level or file based storage.

(or).

* It is a hierarchical storage methodology used to organize and store data on a computer hard drive or on network-attached storage (NAS) device.

Advantages :-

* Backup your data to the cloud.
* Remotely update & Sync your files.
* Remote work made easy.
* Low price
* Easily Scalable.
* Easy to use.

limitations :-

* Slow access times.
* Data Inconsistency
* Limited Data sharing.

③ Object storage :- * It manages data & links it to associated metadata.

* It is a strategy that manages and manipulates data storage as distinct units called objects.

* All data is stored in one large repository which may be distributed across multiple physical storage devices, Instead of being divided into files or folders.

Advantages :-

① Highly Scalable.
② Flat structure
③ Rich metadata
④ Reduction in Cost
⑤ Can store unlimited storage is provided.
⑥ Used to store large files.

limitations :-

① Changes are time Consuming
② It doesn't allow you to alter just a piece of a data blob, you must read & write an entire object at once.

⇒ What is EBS :-

* Amazon Elastic Block store (Amazon EBS) is an easy-to-use, Scalable, high-Performance, Block-storage service designed for Amazon Elastic Compute Cloud (Amazon EC2).

* It is like a Hard drive in the cloud that provides persistent block storage volumes for use with Amazon EC2 Instances.

* EBS volumes are placed in an availability zones, where they are automatically replicated to protect data loss from failure of a single component.

⇒ What is Snapshot :-

* It is a base feature for Creating backups of your EBS volumes.

* A Snapshot takes a copy of the EBS volume and places it in Amazon S3 where it is stored redundantly in multiple Availability Zones.

* EBS Snapshots are a point in time copy of your data and can be used to enable disaster recovery, migrate data across regions & Accounts and Improve backup Compliance.

* Can Create & Manage your EBS Snapshots through,
  1. AWS Management Console.
  2. AWS Command line Interface (CLI)
  3. AWS SDKs.

⇒ Write the Hands on Steps for Creating a volume, attaching it & detaching it?

① Creating a volume :-

* login to AWS Console
  ↓ Go to
* EC2
  ↓ In the left side scroll down & get Volume
* Volumes
  ↳ Create a volume
  ↓

Volume type: Select required type

Size (GiB): 100

Availability zone: Should select the EC2 instance creating region.
↳ Should check AZ id chose for volume is matches the AZ in EC2 instance (i.e same AZ for both EC2 & creating volume).

Snapshot ID

Encryption D

Create volume

* volume gets created successfully.
  volume ID: vol-0a1510bbd95b15174.
  ↳ click this.

* The particular volume created will be opened
  ↳ modify the name that required in newly created volume.
  ↳ In this we can see * size of volume
  * AZ selected for this particular zone.
  * Time & date of creation of new volume.

② Attach the volume:

Actions

* In the newly created volume.
  Go to
  * Actions
    ↳ ① Modify volume
    ② Create snapshot
    ③ Delete volume
    ④ Attach volume
  * Attach volume Box will open
    ↳ volume: Volume ID along with File name & AZ will be visible here.
    Instance: Choose the instance ID. (newly created one)
    Device: xvdf.

Attach

* The existing volume will show the Attach information in selected newly created volume.

③ Detach the volume:

* After Attaching the volume.
  ↓ Go to
* Actions
  ↓
* Detach volume
  ↳ Yes Detach ✓

(50) If required, we can also modify the volume by changing the size of volume which is attached to the EC2 Instance. (51)

=> write the steps with screenshots to Create a Snapshot & Delete a Snapshot?

① Create a Snapshot:

* Login to AWS Console
  ↓ Go to
* EC2.
  ↓
* Select an Running EC2 Instance
  ↳ Root device type: ebs
  Root device: /dev/sda1
  ↳ click
  ↳ EBS SD
  ↳ click
  ↓
* The EC2 Instance with volume attached screen will open
  ↓ Select
* Volume Running Page will open. ✓
  ↳ Actions
  ↳ Create a Snapshot ✓
  ↓
* Create Snapshot Box will open.
  volume : vol-xxxxxxxx
  Name : Give a volume with Instance name to get Backup. ✓
  Description : Write Date of Creation of Snapshot / Purpose of Creating Snapshot ✓

Create

↓

* Snapshot Creation Started Box will open.

Close

↓ Go to the left dashboard pain downwards.

The daily created Snapshot will appear.

Delete a Snapshot:

* Select the daily created Snapshot

↓

* Actions
  - Delete Snapshots

↓

The created Snapshot will get deleted.