

Linux Commands			
Commands	Use		
apt-get update	check if there are any packages available for update?		
sudo apt-get check	to clear the cache information from the cache directory		
sudo yum clean all	login with root user		
sudo -i	information of logged in user		
id	listing files and folder 's		
ls	its shows all details		
ls -lt	It is shows the all about particular file		
ls -l filename	shows present working directory		
pwd	logout from current user		
exit	clear the screen		
clear	chnage directory		
cd	make directory		
mkdir	folder under folder (Parent)		
mkdir -p	this command makes make a folder name as follows exampt1.example2.example.....example4		
mkdir example{1,2,...,4}	this command create directory of name ex1 to ex10 total 10 directories		
mkdir ex{1..10}	remove directory		
rmdir	to delete all folder with prefix		
rmdir ex*	determines the file type		
file filename	change to parent directory one step prev		
same directory	change to parent directory two step prev		
cd ./.	it will shows same directroy/ current location		
cd ..	used to change current directory to users home directroy		
cd ~	It will create file		
touch	read file on your console		
cat filename	it will combine all files and show output		
cat file1 file2	it will remove blank line and make one line		
cat -s filename	it will sho lin numbers but only for given lines		
cat -b filename	It will show all lines number including blank lines		
cat -n filename	It will show end of file with sign \$		
cat -E filename	reverse of cat		
tac -> cat example.txt tac	1. vim myfile 2. shift 3.Esc 4.Shift + : wq! q! exit without saving file		
vim	esc + : then dd		
to delete line in vim	to replace a word in vim editor		
%s/oldword/newword/gc	to connect with url It checks connectivity between two nodes to see if a server is available.		
ping (Packet Internet Groper)	It will sent 5 packets to url and give information		
Ping -c 5 ygminds.com	Linux netstat command stands for Network statistics. It displays information about different interface statistics, including open sockets, routing tables, and connection information.		
netstat -a	Herachy folder structure		
tree	print statement		
echo	To add contain in file		
echo "how" >> filename	To replace contain file		
echo "how" > filename	To see history which commands we used		
history			
history -c			
cp	copy	cp file1 foldername	
mv	move / cut paste	mv file foldername	
mv	rename	mv old name newName	
ls folder/	details of that folder		
ls -lt	to display all details/ Commandline argumnet		
ls -l file_name			
man ls	To see manual		
wget	for download from internet	wget www.google.com	
id	it will show id of user logged in		
chmod	to change ownership chmod 777 filename we chnage more than one file ex chmod 755 f1 f12 f1e3		
chown	change owner		
chgrp	change group		
groupadd new_group	to add new group		
usermod -a -G new_group existing_user	To add an existing user to the newly created group, use the usermod command with the -a -G options:		
usermod -a -G new_group.new_group2.new_group3 user_name	If you want to add a user to multiple groups at once, you can use this command		
passwd	password reset and password change		
su	switch user		
usermod	user modification		
to find log	go to var folder in that we find log folder		
cat auth.log grep "ubuntu"	command to search anything	this command is not casesensitive	
cat auth.log grep -i "ubuntu"	command to search anything -i for case sensitive	this command is case insensitive	
head auth.log	to display top 10lines		
tail auth.log	to display bottom 10 lines		
head -15 auth.log	to display top line which you want		
tail -15 auth.log	to display bottom lines which you want		
more auth.log	It will show % how much file is read		
less auth.log	It will less the file % read		
ifconfig	to get ipdress and all information		
hostname -i	to get ip address only		
ifconfig eth0	Get details of specific interface		
traceroute	traceroute ygminds.com The traceroute can display the routes, IPaddresses, and hostnames of routers over a network.		
tracpath	tracpath ygminds.com It traces the network path of the specified destination and reports each hop along the pa	If you have a slow network then tracpath will show you where your network is weak.	
dig (Domain Information Groper)	domain onformation this command is used dns related query	dig www.ygminds.com	
nslookup	domain information this command is used dns related query	dig www.ygminds.com	
find -name "*.log"	to find file	find -name "au*.log" find file within directoy	
locate	locate auth.log	to locate file all over machine	
date	to display current date and time	It will show utc time add 5:30 to get indian time	
apt-get check	to check anything update		
apt install nginx	to install package		
apt list	list packages		
apt list --installed	show installed packages		
apt remove nginx	remove/uninstall package		
nginx --version	to check version		
systemctl start nginx	to start service		
systemctl status nginx	to check status		
systemctl stop nginx	to stop service		
systemctl restart nginx	to restart service		
yum check update	amazone linux commnad		
yum install vsftpd	amazone linux commnad		
yum remove vsftpd	amazone linux commnad		
yum list	amazone linux commnad		
yum info vsftpd	amazone linux commnad		
cut -d '-' -f2 filename	extract sections from ech line d = delimeter . '' = seprator		
cut -b 2 filename	extract section with bites		
cut -c 1-5	extract section with characters		
comm file1.txt file2.txt	It compares two file or streams		
echo class1 class0 sed 's/class/devops/g'	this commands change or replace words		
sed '3s/Red/Blue/' filename	it will change		
cat filename.txt sed 's/word/d'	It will remove hole line which word is existed		
sed '1,3s/red/blue/' filename	command will update the specified text in lines 1 and 3.		
sed -i '1,3s/Red/Blue/' filename	command will update the specified text in lines 1 and 3. this command wil insert data		
sed '3cIwe are lerning lnux' filename	command will update the line three.		
sed -i '3cIwe are learning Linux' filename	command will update the line three. this command wil insert data		
wc filename	to count lines words letters		
wc file1 file2	to count two files words letters lines		
wc -l filename	to count letters		
wc -w	to count words		
awk '{print \$0}' filename	to print as it is its work like cat command		
awk '{print \$1}' filename	this command print colum 1/ we can print specific column		
awk '{print \$NF}' file5	this command print last column		
awk '{print \$1}' file5 head -3	You can also specify the line you want printed from your chosen column using this command		
awk '{print NR,\$0}' file5	to get with line numbers		
df	this command used to display disk space		
df -i	command can be used to check how many inodes are free and left unused in the filesystem.		
df -h	this command used display disk space in human redable format		
du	this command used displat disk usage		
du -h	this command used to display disk space in human redable format		
mail -s "welcome" s@gmail.com			
ls -a	to find hidden folders		

mkdir .foldername	to create hidden folder			
cd .foldername	to open hidden folder			
ls -lrtah / ls -ahlt	all information including hidden folder			
ps -aux	to check how many process runnings			
ps -aux grep nginx	to get particular servie			
kill -9 processid	to kill process			
top	to get live data of process runnings			
yes > /devnull &	generate artificial laod			
stress				
uname	to get username			
uname -r	to get kernel information			
In filename hard_link	to creat ehard link of file. in this we can in one file it will upodat ein both. If we delete original file still hardlink is available			
In -s filename soft_link	to create soft link/shortcut. in this sif we delet eoriginal fi et will soft link also.			
tar -czvf file.tar.gz file.txt	It will make zip file for backup			
tar -xvzf file.tar.gz	it will unzip file			
zcat zippedfilename	we can show data of zipped file using this command			
init0	this command shutdown our machine			
init6	this command will resatrft our machine			
scp -i .pmlfile filename server / path /	from this command we can past file from our laptop to virtual machine Secure copy protocol	scp -i "Young Minds.pem" ex.txt ubuntu@ec2-65-1-112-10.ap-south-1.compute.amazonaws.com:/tmp/		
free	this command shows free memory of machine			
rsync				
rename	used to rename file folder			
Shell Script Commands				
#!/bin/bash	shebang			
set nu	to get lines in vim			
./filename.sh	to run shell script file			
export	command used to set environment variable export name = value , export new_var = 10 , echo \$new_var			
-z				
-f				
echo \$?	to check previous comment is correct or not . It will shows 0 if previous command is succesfull otherwise non zero value.			
stress -cpu 8 -timeout 60s				
echo \$PATH				
echo \$HOME	it will show path where the package files			
which nginx				
rm -rt filename				
Cloud Shell				
Command for Launch instance using Cloudshell	aws ec2 run-instances --image-id ami-03f4b787554349771 --count 1 --instance-type t2.micro --key-name ec2 --security-group-ids sg-0ce0412505d3f5992 --subnet-id subnet-0c978a693130a76c7			
zombi process	when process p1 is executed and completed then needs to send exit status to parent process p0 but parent process p0 is in sleep mode then p1 cant send exit status to p0. so p1 process is completed but still exist in process stable so this is known as Zombi process.			
thread	path of execution/ Sequence of the flow of tasks within the process / Single sequence stream.			
S3				
aws s3 ls	show list of bucktes			
aws s3 mb s3://ec3bucketshubham --region us-east-2	to make bucket			
aws s3 rb s3://ec3bucketshubham	it will remove bucket			
aws s3api list-object-versions --bucket shubhamec2bucket				
aws s3api list-object-versions --bucket shubhamec2bucket				
aws s3api delete-objects --bucket batch23bucket --delete "\$(aws s3api list-object-versions --bucket batch23bucket --output json jq '[Objects: [Versions[]] (Key: Key, VersionId: VersionId)] , Quiet:false)'"	above command is to remove versions			
aws s3 ls s3://bucket9545/ --recursive	to get all data inside bucket			
aws s3 sync C:\shubhamReact s3://bucket9545	to upload folder from windows to aws s3 bucket			
aws s3 sync s3://bucket1 s3://bucket2	to move data from one bucket to another			
dpkg --get-selections	to see all packages			
EBS Practical				
create ec2 instance and connect				
create volume and attach to ec2 instance through console				
lsblk	to see existing partition			
mkdir /tmp/videos	make this folder			
fdisk -l	to see disks			
fdisk /dev/xvdf	to enter inside partition format			
m	to get help			
n	to create new partion			
p	for primary			
w	to save			
partprobe	to see any problem in partition			
mkfs.xfs /dev/xvdf1	it will create xvdf1 under xvdf			
mount /dev/xvdf1 /tmp/videos	it will mount			
vim /etc/fstab	edit this file			
	/dev/xvdf /tmp/videos xfs default 00			
IAM				
ELB				
Practical Steps				
1. create security group (You can use existing security group also)				
2.Launch 2 Ec2 instace. Add shellscript in advanced section.	#!/bin/bash yum update -y yum install httpd -y service httpd start chkconfig httpd on cd /var/www/html echo "This is server-Z" > index.html			
3. Create Target Group	choose target type- instace name -> fill as per your requirements Next choose your instances create target group register targets included as pending register pending targets			
4. Create Load Balancer	name load Balancer choose internet facing / Internet (choose as per your requirement) select vpc/AZ Select Target group create load balancer			
5 Check	check with DNS			
Autoscaling				

			CloudTrail	
Steps	scene-1			
1	Launch 1/2 Ec2 instances			
2	Go to CloudTrail			
3	Create Trail			
4	Trail Name			
5	Choose Bucket	New Bucket / existing Bucket		
6	Next			
7	Go to bucket you will see logs inside bucket			
	scene-2			
8	Go to cloud trail			
9	Go to event History			
10	we see activity details here.			
	scene-3			
11	Create SNS topic and Subscription			
12	Create Cloud Trail			
13	Select Bucket			
14	Select Management Event (Read/Write)			
15	Select Data Events			
		Data Event Type s3		
		Log Selector Template	Log All Events	
16	Cloud watch Logs			
		Cloudwatch logs -> Enabled		
		Log Group Name		
		IAM Role		
17	Cloudwatch-group			
		Filter matrix		
		Assign Matrix		
18				

S3

		S3	
aws s3 ls		show list of buckets	
aws s3 mb s3/ec3bucketshubham --region us-east-2		to make bucket	
aws s3 rb s3/ec3bucketshubham		it will remove bucket	
aws s3api list-object-versions --bucket shubhamec2bucket			
aws s3api list-object-versions --bucket shubhamec2bucket			
aws s3api delete-objects --bucket batch23bucket --delete "\$[aws s3api list-object-versions --bucket batch23bucket --output json jq '[Objects Versions[] Key-Value.SortVersionId].Quiet=false']"		above command is to remove versions	
aws s3 ls s3://bucket054/ --recursive		to get all data inside bucket	
aws s3 sync C:\shubhamReact s3://bucket0545		to upload folder from windows to aws s3 bucket	
aws s3 sync s3://bucket1 s3://bucket2		to move data from one bucket to another	
dpkg --get-selections		to see all packages	
Q1		How can you lock the Object in AWS S3?	
		In AWS S3, you can lock objects using Object Lock. Object Lock provides two different retention modes, Governance Mode and Compliance Mode, to enforce retention policies for objects. Once an object is locked, its retention mode cannot be changed, and the object cannot be deleted or overwritten until the retention period expires.	
steps			
		1 create bucket enable object lock while creating bucket in advance settings	
		2 go to permission tab you get object lock enable and define retention mode 1. governance and compliance	
		1 Governance Users with specific IAM permissions can overwrite or delete protected object versions during the retention period.	
		2 compliance No users can overwrite or delete protected object versions during the retention period.	

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-		Project -1
1	<u>terraform-code-to-create-jenkins-server</u>	Clone this code from ygminds repo and run terraform init, plan and apply
2	IAM	
	1. Roles	
	2. create Roles	
	3. service and use case	EC2
	4. Administrative Full Access	
	5. Role Name	Project-Admin-Access
3	Assign Role to EC2 Machine	
	1. Select EC2 machine	
	2. Go To Action	
	3. Security Group	
	4. Modify IAM Role	
	5. Select IAM Role	
	6. Update IAM Role	
4	Terraform Automation	
	1. Create New folder and clone repo Terraform Automation in it.	
	2. Create Bucket in S3 with name given in backend.tf file	
		3
5	DynamoDB Table Creation	
	1. Tables	
	2. Create Table	
	3. Name	
	4. Partiion Key	LockID
	5. Create Table	
6	Take acces of EC2 and open jenkins	
	1. open Jenkins	
	2. create pipeline	
	3. Select Pipiline Script from SCM	
	4. Select Git	
	5. Enter URI Of Repository	
	6. Set parameter/ Choice parameter	
	7. action -> pamn , apply	
	8. Apply and save	
	9. Now Build	

Important Terraform Command	
1 terraform init	terraform init command is used to initialize a working directory containing Terraform configuration files
2 terraform validate	terraform validate command validates the configuration files in a directory, referring only to the configuration and not accessing any remote services such as remote state, provider APIs, etc.
3 terraform fmt	The terraform fmt command is used to rewrite Terraform configuration files to a canonical format and style.
4 terraform plan	The terraform plan command is used to create an execution plan. Terraform performs a refresh, unless explicitly disabled, and then determines what actions are necessary to achieve the desired state specified in the configuration files.
5 terraform apply	The terraform apply command is used to apply the changes required to reach the desired state of the configuration, or the pre-determined set of actions generated by a terraform plan execution plan.
terraform document	https://docs.google.com/document/d/1Jitl9u0RxmO_Y0sFweilMpcTgTddHhm1XT62Zy7yDya8ledtPusp/edit?usp=sharing
Some of the most useful Terraform commands are:	
terraform init - initializes the current directory	
terraform refresh - refreshes the state file	
terraform output - views Terraform outputs	
terraform apply - applies the Terraform code and builds stuff	
terraform destroy - destroys what has been built by Terraform	
terraform graph - creates a DOT-formatted graph	
terraform plan - a dry run to see what Terraform will do	
Meta Arguments	Meta arguments in terraform are special arguments that can be used with resource block and modules to control their behaviour or influence in the infra provisioning process.
count	allows you to create multiple instances of resources based on a count value. It is useful when you want to create multiple similar resources without duplicating the configuration block.
for each	
Terraform Workspace	
terraform plan --var-file dev-terraform.tfvars	
terraform workspace list	
terraform workspace new workspace_name	create and switch to workspace
terraform workspace show	
terraform apply --auto-approve --var-file dev-terraform.tfvars	

1	apt-get update -y			
2	apt install docker -y			
3	apt install docker.io -y			
4	docker pull centos			
5	docker images			
6	docker run -it --name cont-1 ubuntu /bin/bash	-it is interactive terminal	create container and login inside container	
7	docker ps	command is used to list all running containers on your system	it will show only running container	
8	docker ps -a	If you want to see all containers (including stopped ones), you can add the -a flag,	running / stop both container	
9	docker start	to start container		
10	docker stop	to stop container		
11	docker search jenkins		to search image	
12	docker run -d --name jenkins -p 8080:8080 jenkins/jenkins		d is detach mode	just create container dont login i port forwarding 8080:8080
13	docker start <container id>	to go inside container		
<h2>Create docker file</h2>				
1	#name of the base os			
	FROM Ubuntu			
2	#owner or maintainer of image			
	MAINTAINER "shubhamkamble0809@gmail.com"			
3	#installing nginx on ubuntu base os			
	RUN apt update -y && apt install nginx -y			
4	#exposing port 80			
	EXPOSE 80			
5	#starting nginx container with nginx service			
	CMD ["/usr/sbin/nginx"]			
<h2>Create Image</h2>				
	docker build -t nginx .			
<h2>Create Container</h2>				
	docker run -it --name my-nginx-cont nginx /bin/bash			
	docker images -a -q			
	docker rmi -f \$(docker images -a -q)			
	docker stop \$(docker ps -a -q)			
	docker start \$(docker ps -a -q)			
<h2>Docker Composer</h2>				
	install Docker composer			
1	sudo curl -L "https://github.com/docker/compose/releases/download/1.29.0/docker-compose-\$(uname -s)-\$(uname -m)" -o /usr/local/bin/docker-compose			
2	sudo chmod +x /usr/local/bin/docker-compose			
3	sudo ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose			
4	docker-compose --version			
5	start all containers - docker start <container id>			
6	docker-compose up			
7	check with public ip on port 8000			
<h2>Docker Volume</h2>				
	Type1- container to container volume sharing			
1	create dockerfile	Code inside docker file		
		FROM ubuntu		
		volume /volume1		
2	docker build -t batch23 .	images builded		
3	docker run -it --name cont1 batch23 /bin/bash	it will create container		
4	start conatiner and create folder and file inside volume			
5	docker run -it --name cont2 --privileged=true --volumes-from cont1 ubuntu /bin/bash	to create another container with same volume inside cont2		
6	check volume			
	type2			
	docker run -it --name cont3 -v /volume2 centos /bin/bash	we created one container and volume using command		
	type3			
	docker run -it --name cont4 --privileged=true --volumes-from cont3 centos /bin/bash			
	type4			
	echo \$HOME			
<h2>Docker Port Forwarding</h2>				
	docker run -d --name jenkins -p 8080:8080 jenkins/jenkins			

		Install Jenkins on Ubuntu
1	Launch EC2 Instance	
2	Take Access of EC2 instance	
3	open port	ALL TCP/ALL Traffic
4	sudo apt update	it will update system
5	java -version	check javav is instales allredy or not
6	apt install openjdk-11-jdk -y	install jdk 11
7	again check java vesion	java -vesrion
8	install jenkins on ubuntu	Serch on google you will get steps. long term support relese
9	follow steps	
10	apt get-update	
11	apt install jenkins	
12	chek with Public ip and port 8080	
13	/var/lib/jenkins/secrets/initialAdminPassword	go to this path and copy password
14	choose install sugested plugins	
15	create first admin user	
16	save and finish	
		Launch Job On Jenkins
	steps	
		1 Login to Jenkins dashboard
		2 New Item
		3 Enter Name
		4 select job type
		5 Delete workspace before build starts
		6
		Create Node on Jenkins
1	create EC2 and install jdk 11 on ec2	
2	Open jenkins poratal	
3	Go to Manage Jenkins	
4	Go to nodes	
5	Add node	
6	Add name and description	
7	Add number of Executors	this number denote how many jobs can build one time.
8	Add Label	This label i again used in pipline
9	Usage	use this node as much as possible
10	launch method	launch agent via ssh
11	Host	add dns of node machine
12	credittitials	Add jenkins
13	global creds	
14	ssh username with private key	

15	username	ubuntu
16	add private key from .ppk file	
17	save	
18	accept trusted host key	

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Steps				
1	create Dashboard			
2	dashboard name			
3	select Graph			
4	copy instance id and search			
5	click on ec2-intsance parameters			
6	select parameters			
7	create widget			
				SNS
1	Create topic			
2	Standard			
3	Name	HighCPU		
4	Create topic			
5	create subscription			
6	Topic ARN	select from list		
7	protocol	email		
8	endpoint			
9	create subscription			
10	confirm subscription	email		
11	Again go to Clouwatch			
12	Alarms			
13	create alarms			
14	select matric			
15	search with instance id			
16	ec2 instance parameters			
17	select parameters			
18	select matric			
19	static			
20	greater than equal to			
21	trashhold value			
22	select SNS topic			
23	choose action	eg. terminate ec2		
24	Alarm name			
25	create alarm			

Vlookup Formula	=VLOOKUP(H6,A2:D1730,4,0)		
		Database	
Data	Data is Raw fact which describes atributes on an entity.		
Database	It is place or container used to store the data in systymatic and organised manner.		
DBMS	It is software used to maintain and manage the database.		
Query Language	To communicate with the database we can use query language. example-SQL		
TYPES Of Database	Relational, Non-Relational database, Hierarchical, Network, Object-Oriented		
SQL	It is the language used to communicate and manipulate data in RDBMS and Table.		

		Launch Ubuntu Instance with NGINX					
#!/bin/bash							
sudo apt update							
sudo apt upgrade -y							
sudo apt install nginx -y							
sudo systemctl start nginx							
sudo systemctl enable nginx							
cd /var/www/html							
rm index.nginx-debian.html							
echo "This is server" >> index.html							
or							
echo "this is server" > index.nginx-debian.html							

Steps					
1	Launch EC2 Instace				
2	Take acces of EC2 Instace	Go to RDP Client			
		Download Remote Desktop file			
		Get password			
3	after access go to server manager and install	go to add roles and features and install web server IIS			
4	go to C drive	1. initpub			
		2. wwwroot			
		3. Create HTML File			
5	check with public IP				

		<h3>S3 Lifecycle</h3>		
	1 Go to s3 bucket			
	2 Go Management			
	3 Create lifecycle rule			
	4 Lifecycle rule name			
	5 Lifecycle rule actions			
	6 Select option			
	7 Add Your Transitions			
	8 Create Rule			
		<h3>VPC</h3>		
Step				
1	create VPC	Resources to create	Use VPC Only	
		Name	Name your Vpc	
		IPv4 CIDR	10.0.0.0/16	Request these values to Design Architect
		create VPC		
2	create IGW	Create Internet Gateway		
		Name Your IGW		
3	Attach IGW to VPC	Select IGW and Attach to VPC		
4	Create Subnet	Select VPC		
		Subnet Name	Public Subnet 1	
		Choose AZ		
		IPv4 subnet CIDR block	10.0.0.0/24	Request these values to Design Architect
		Do Same Process For Private Subnet		
5	Create Route Table Public / Private	Name Your Route Table		
		Select VPC		
		Do Same Process For Private Route Table Also		
6	Subnet Association	Select Subnet and Associate with Route Table		
7	Routes	Select Subnet and edit route	Add route 0.0.0.0/0 and select IGW	
8	Create Nat Gateway	Choose Public Subnet		
		Connect With Private Route table		
		<h3>ELB</h3>		
Practical Steps				
1. create security group (You can use existing security group also)				
2.Launch 2 Ec2 instace. Add shell: #!/bin/bash				
	yum update -y			
	yum install httpd -y			
	service httpd start			
	chkconfig httpd on			
	cd /var/www/html			
	echo "This is server-2" > index.html			
3. Create Target Group	choose target type- instace			
	name --> fill as per your requirements			
	Next			
	choose your instances			
	create target group			
	register targets			
	included as pending			
	register pending targets			
4. Create Load Balancer	name load Balancer			
	choose internet facing / Internet (choose as per your requirement)			
	select vpc/AZ			
	Select Target group			
	create load balancer			
5 Check	check with DNS			