6. Task on EC2:

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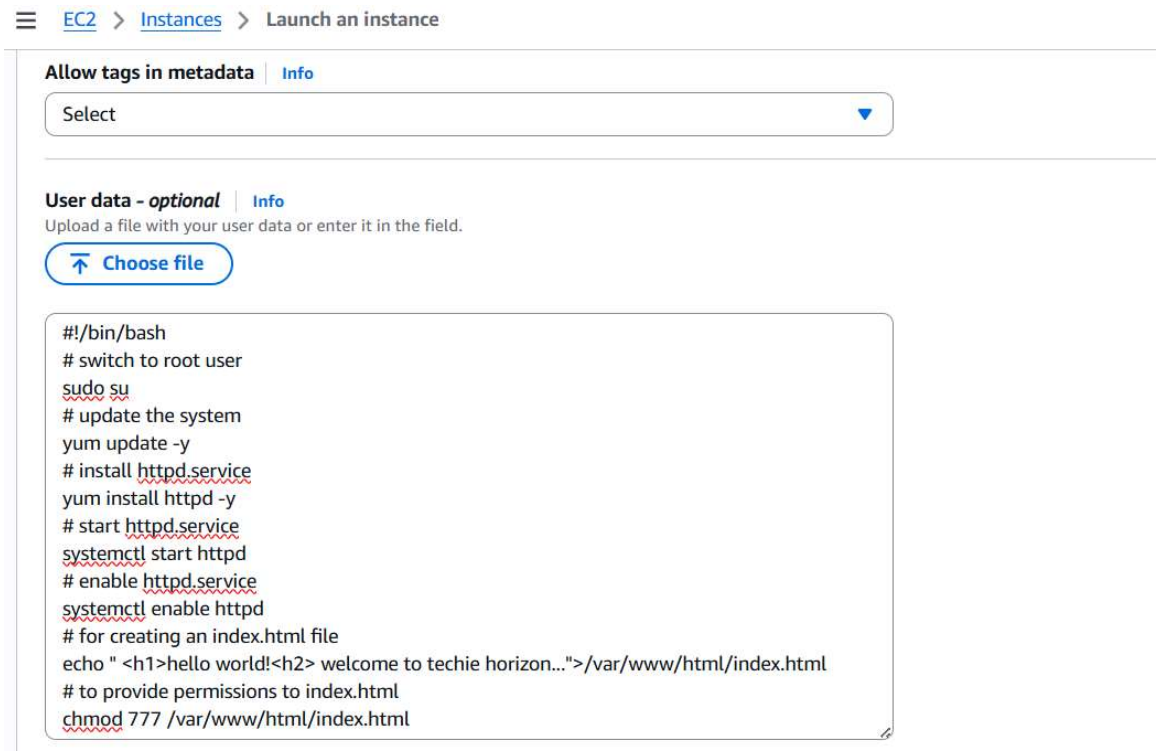
1) Launch one EC2 using the Amazon Linux 2 image and add a script in user data to install Apache.



define all the details like name--select ami (amazon linux2)--select keypair--create a security group with http and ssh enabled--scroll down and click advanced configuration--user data info (paste the code)

bash script to install httpd from userdata

#!/bin/bash

sudo su

yum update -y

yum install httpd -y

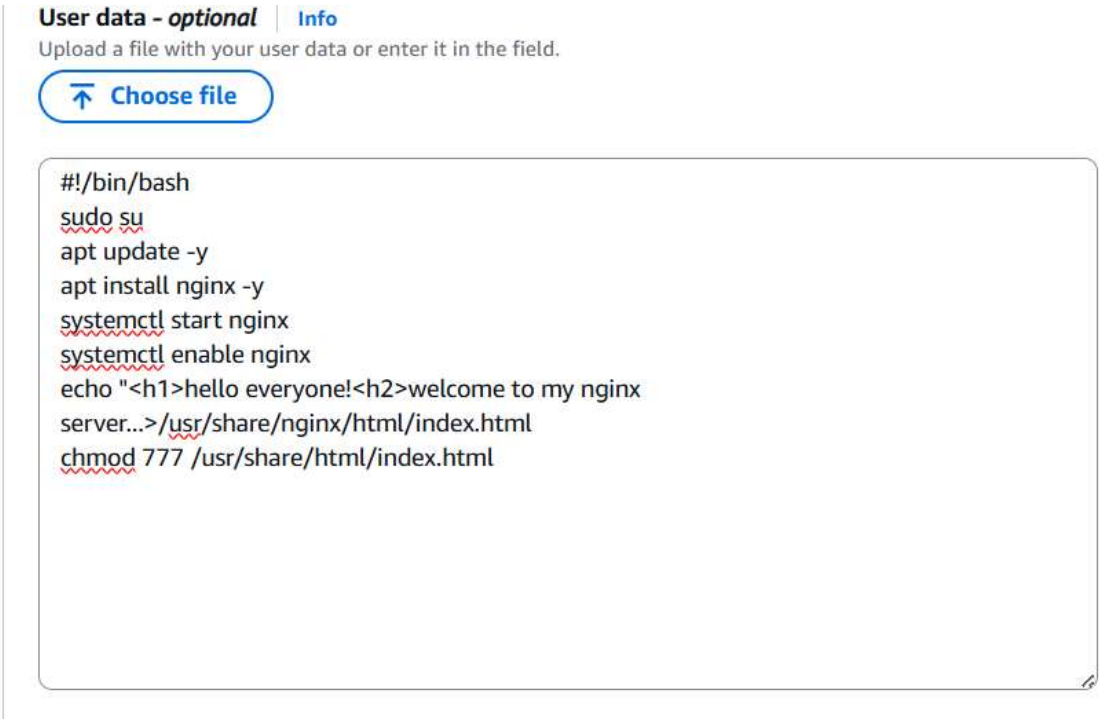
systemctl start httpd

systemctl enable httpd

echo "<h1>hello world!<h2>welcome to techie horizon.../var/www/html/index.html

chmod 777 /var/www/html/index.html

2) Launch one EC2 using the Ubuntu image and add a script in user data to install Nginx.



launch instance--define name--select ubuntu ami--select keypair--selectsecurity group with http--advanced details--user data(paste the script)

#!/bin/bash

sudo su

apt update -y

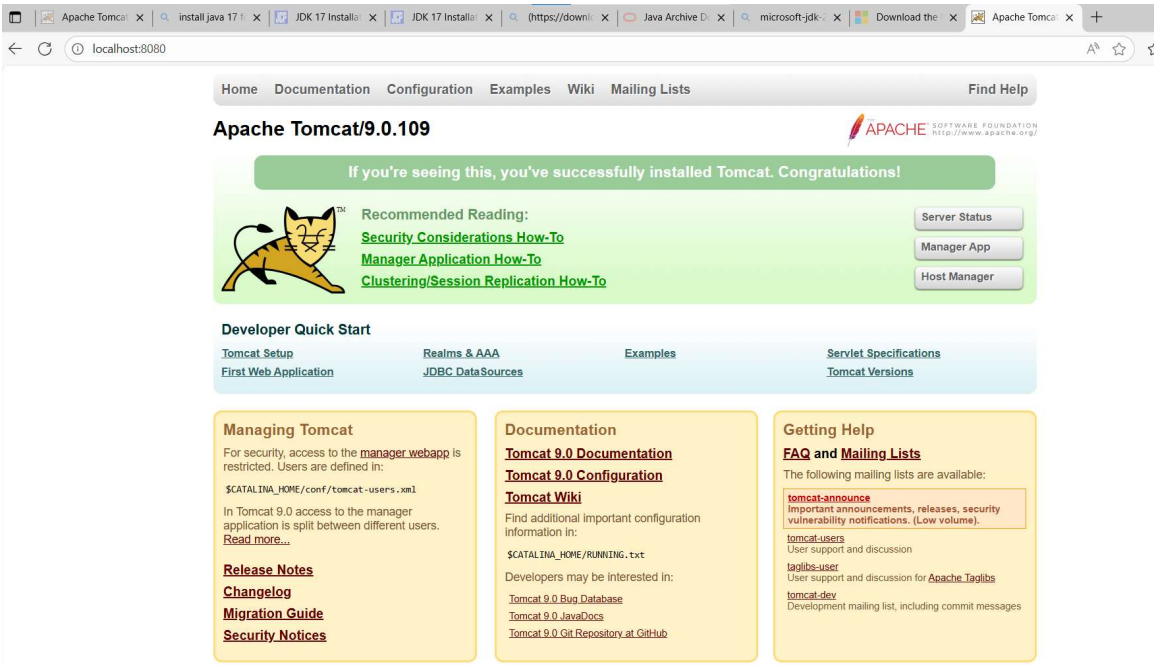
apt install nginx -y

systemctl start nginx

systemctl enable nginx

chmod 777 /usr/share/html/index.html

3) Launch a Windows server and install Tomcat in Windows.



steps:

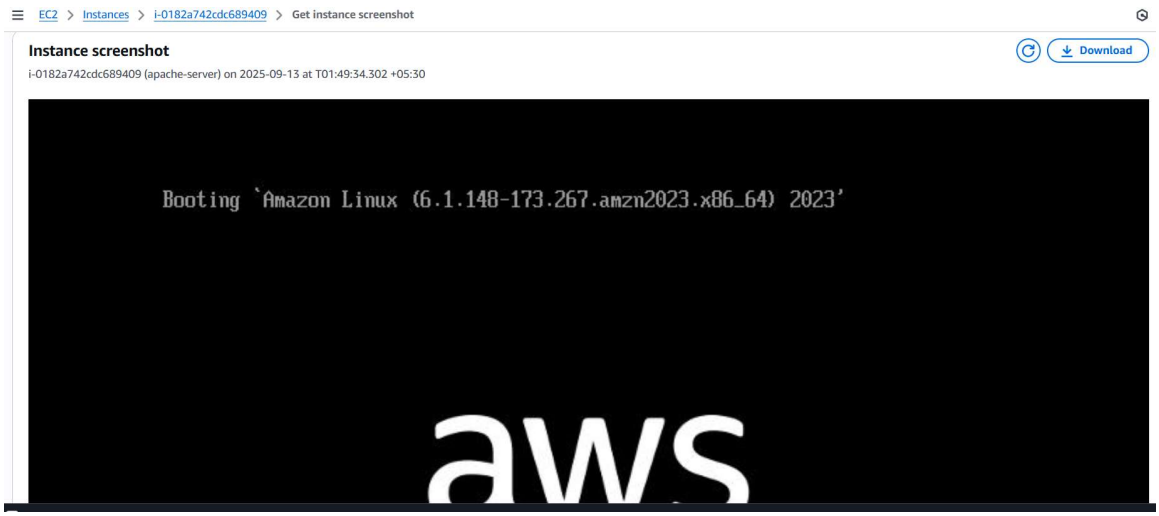
- **launch an instance---name---microsoft windows(under ami)---key pair---security group inbound ports tcp:8080,http:80 and rdp:3389---then launch**
- **then connect using rdp---download remote desktop file---upload private key and decrypt password---copy the password**
- **after downloading the remote file (msi file)you need to paste the password there then**
- **download java-17 (https://aka.ms/download-jdk/microsoft-jdk-17.0.16-windows-x64.msi) then install it**
- **download tomcat https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.109/bin/apache-tomcat-9.0.109.exe**
- **then install it on same directory where your java is installed (c:\Program Files\Microsoft\jdk-17.0.16.8-hotspot**
- **then a folder get created automatically C:\Program Files\Apache**

Software Foundation\Tomcat

- **go to bin directory start the tomcat manually and check it on internet using web url localhost:8080**

4) Take a snapshot of the instance created in Task 1.

screenshot/system snapshot



system log:

5) Assign passwordless authentication for the EC2 created in Task 2

```
[root@ip-172-31-16-234 /]# useradd techie
[root@ip-172-31-16-234 /]# passwd techie
Changing password for user techie.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ip-172-31-16-234 /]# cd /root/ssh
bash: cd: /root/ssh: No such file or directory
[root@ip-172-31-16-234 /]# cd /root/.ssh
[root@ip-172-31-16-234 .ssh]# ls
authorized_keys  id_rsa  id_rsa.pub
[root@ip-172-31-16-234 .ssh]# cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDbbjrFz4kmE9r9vqMU/zHoOxepl3BYVH8rqWuVOSShYhOjcGf74dc6b/hwXfHSgtH1oMTLg1I0hNRxS4MhLsFrf2qb6x9XC0NOfVytwkObIKoaAOQ0U7wZLAWyyjAjn33
Ae4BjyHDk9565CBsNKCmCK8Opk9Hx0czJti8SsfG4Tap1L6CJqzqYyVA/JcF14lKxcTmq7xEPH+EGaAYAAOR0WyjDNH92uL9n5QRiuLtrDvD2mEyrb0ZrLrVjFA+2VcXJQkwFCeSJ6WGRZ4HjF/uhdy7p/iE6x0ZSGP7o6o
D8OWmmWhfTmK2OIRN/5M/OI7Le5C64yRa9YBplePWPFRJIMKjOou7yEaJdA22/KkmucQ+yW6ftGik+uwS702bbdYQIR4P/JXQACOLLDt3M8eGQ6LCuJnmw5F2Z7n/su7WbpdDAlVwx7L7CW2eL2xq6USPD5+CjIvGwmPIG
oD57SiurXCr92yblmYnwKDZSJPWe3YJSA+lhyDUvHfcuLuKIHE= DELL@DESKTOP-RCNKJC4
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQCYSGBRc55WD9AVjqVnSfyLA+R3kmtCBPEx9WKjs6Z6Spb4DbjwvIhk9SbKowb5kdukxz7ghJCJY5RnnOv5rj6l6hyBGstHYplXUkl+Do+4DnQxO8PSdGXvNzsq5OhHqW
+3fHKhszV24rOKHiIaOf2s8XgUrxILog6lc8r0zosdlhWPXAQpRMxoIN4xlbf7YrytmelAPiUh5EgONPl6e6yLQuwa2wgNzA/fQY9yzwuEHalKRfTpeB0nvmOBOUtlxn2bqvgKyViUKsjkq0cIpeviKzMUVB6O67J6hXNOy
CytsaPh7EqQVyN58pH9es5VlzW6l0EQyfXvrVADX3UI63r8qYwJMy/z4HV9OYGa7fzI8WDa9/L6bGozdxkelD+Dv6zhyEzWtiARPadJFUcshEKH3zXzl0BMpChCBuhp9ZPXmBsasO1fJMICubD194e9biPZhfZNoNt0Kfd
3NlUC97sW0zaO+HRQSld/QCBDO3m8JIfaYDbAOQTR+yNG7D0Vs= root@ip-172-31-16-234.ec2.internal
[root@ip-172-31-16-234 .ssh]# vi /etc/ss
ssh/  ssl/  sssd/
[root@ip-172-31-16-234 .ssh]# vi /etc/ssh/sshd_config
```

```
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes

# Explicitly disable PasswordAuthentication. By presetting it, we
# avoid the cloud-init set_passwords module modifying sshd_config and
# restarting sshd in the default instance launch configuration.
PasswordAuthentication yes
PermitEmptyPasswords no

# Change to no to disable s/key passwords
#KbdInteractiveAuthentication yes

# Kerberos options
#KerberosAuthentication no
#KerberosOrLocalPasswd yes
#KerberosTicketCleanup yes
#KerberosGetAFSToken no
#KerberosUseKuserok yes

# GSSAPI options
#GSSAPIAuthentication no
#GSSAPICleanupCredentials yes
#GSSAPIStrictAcceptorCheck yes
#GSSAPIKeyExchange no
#GSSAPIEnablek5users no
```

<u>to create passwordless authentication:</u>
create a ssh-key in our local machine---ssh-keygen
then copy your public key using---cat `/c/Users/DELL/.ssh/id_rsa.pub`

launch an instance

create an user ---useradd techie

password for user---passwd techie

ssh-keygen---create a ssh key in ec2 machine

vi /root/.ssh/id_rsa.pub (paste your local machine key here by keeping present key as same...

vi /etc/ssh/sshd_config----enable password authentication as yes

systemctl restart sshd---restart your sshd
<u>now connect on your local machine:</u>

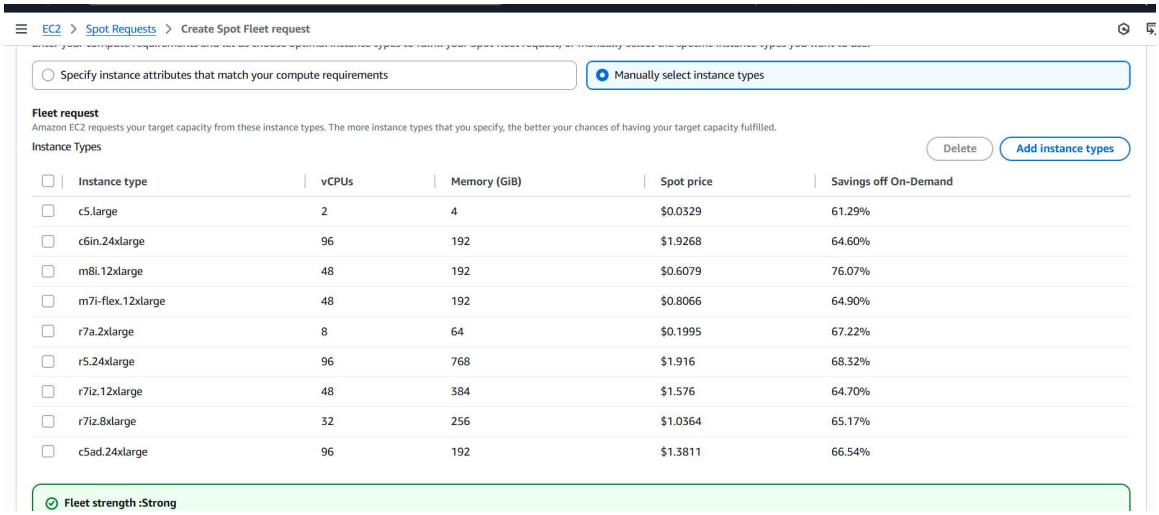
ssh techie@public-ip

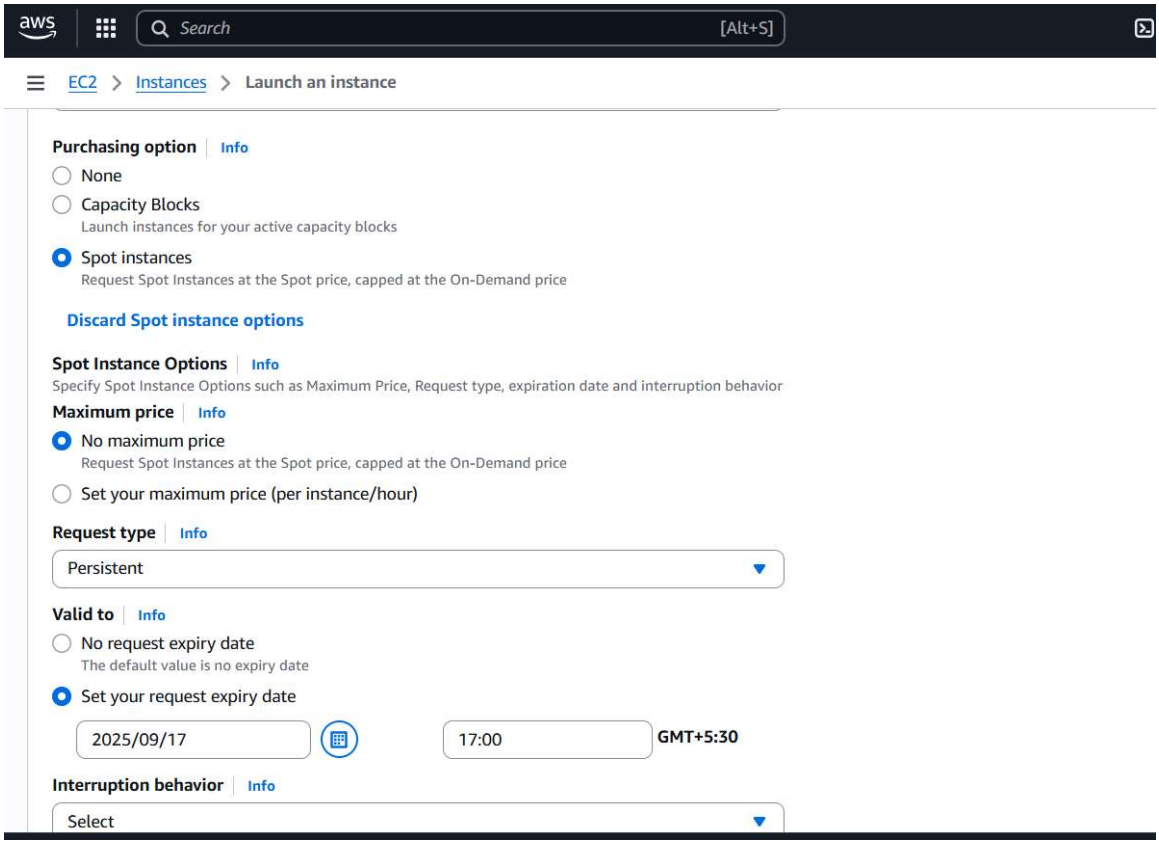
allow fingerprint authnetication:yes

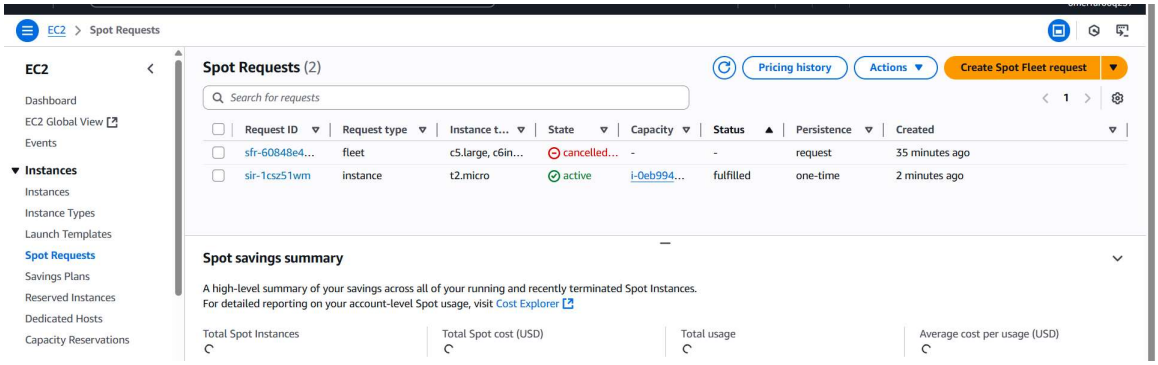
enter password

hence you will be able to connect your instance

6) Launch any EC2 using the spot purchasing option.







steps:

launch an instance

define all details

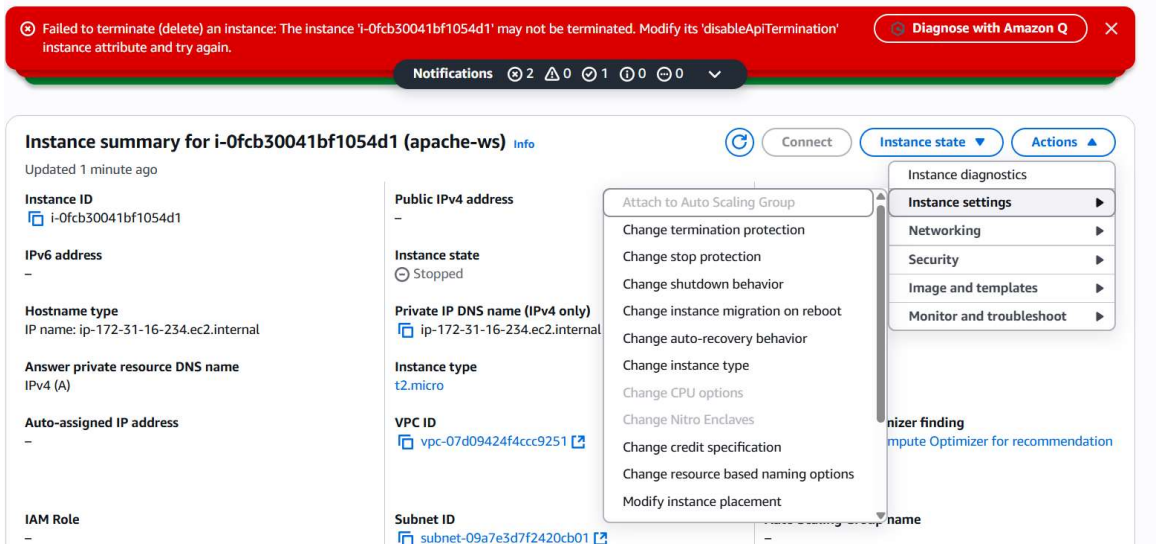
go to additional details

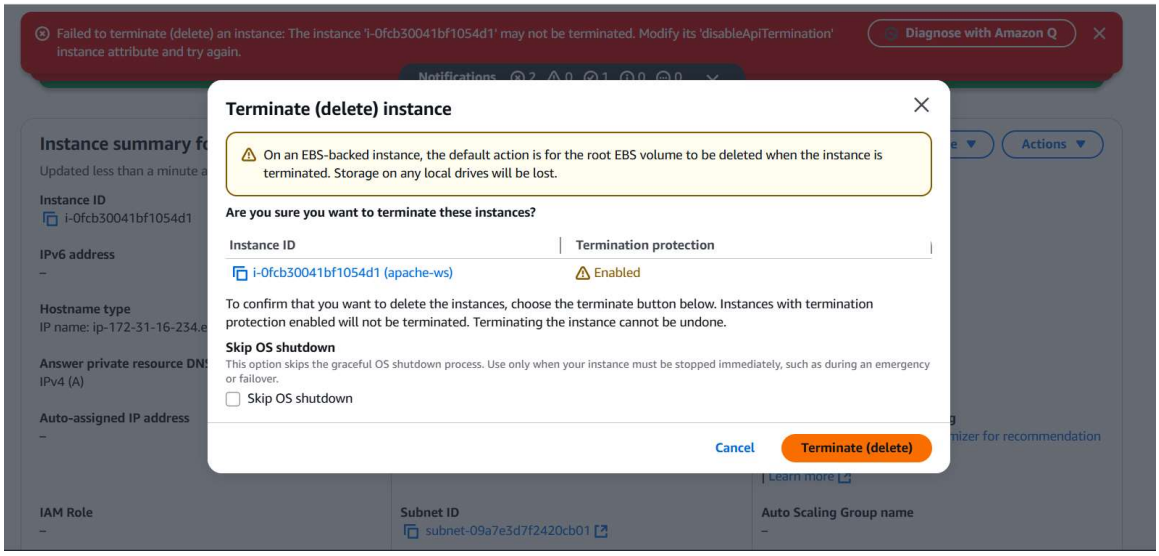
purchansing options----select spot instance

and you can define all details like expiry and stadard pirce per hour

launch instance

7) Enable Termination policy on EC2 created in Task 2.





go to actions

edit instance settings

enable termiation protection and save
now try to terminate the instance you will find error message...

similarly you can change the stop protections,shutdown behaviour,auto recovery behaviour and more...

8) Launch one EC2 using AWS CLI.

downlaod aws cli https://awscli.amazonaws.com/AWSCLIV2.msi

go to gitbash then
aws configure----add access id,access key,region and format (access credetials is available----profile---credentials---acceskey_id----- accesskey_password

default location of storing aws config detais: ~/.aws/ here we find two files aws config and aws credentials and we can modify these files also

aws ec2 describe-instances----to check all details of your instances on aws

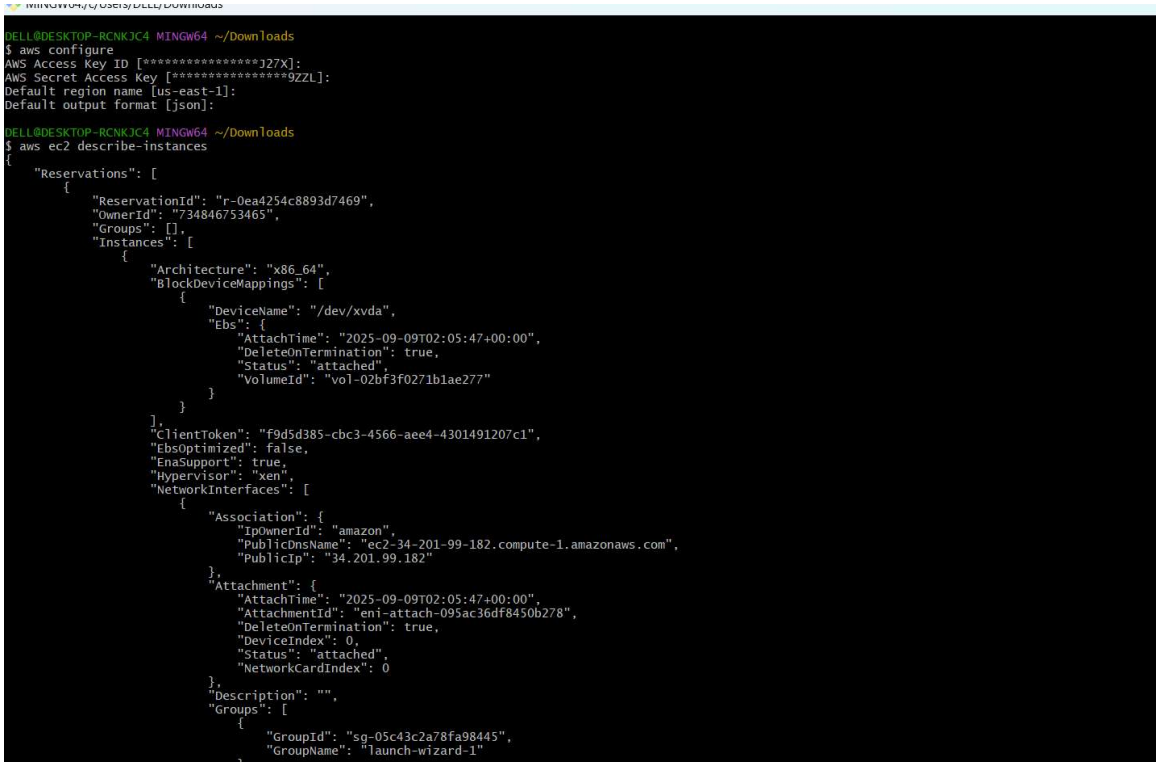
---

 # script to launch an instance:

 # to create a key pair:

```
 aws ec2 create-key-pair   --key-name cli-kp   --
query 'KeyMaterial'   --output text > cli-kp.pem
```

```
    # to create a security group:
aws ec2 create-security-group --group-name
MySecurityGroup --description "My security group"
    # to create ssh protocol:
aws ec2 authorize-security-group-ingress --group-
name MySecurityGroup --protocol tcp --port 22 --
cidr 0.0.0.0/0
    # to create http protocol:
aws ec2 authorize-security-group-ingress --group-
name MySecurityGroup --protocol tcp --port 80 --
cidr 0.0.0.0/0
    # to create an instance
aws ec2 run-instances --image-id
ami-08982f1c5bf93d976 --count 1 --instance-type
t2.micro --key-name cli-kp --security-groups
MySecurityGroup
aws ec2 describe-instances----to view our instances
```


DELL@DESKTOP-RCNKJC4 MINGW64 ~/Downloads
$ aws configure
AWS Access Key ID [****************J27X]:
AWS Secret Access Key [****************9ZZL]:
Default region name [us-east-1]:
Default output format [json]:
DELL@DESKTOP-RCNKJC4 MINGW64 ~/Downloads
$ aws ec2 describe-instances
{
"Reservations": [
{
"ReservationId": "r-0ea4254c8893d7469",
"OwnerId": "734846753465",
"Groups": [],
"Instances": [
{
"Architecture": "x86_64",
"BlockDeviceMappings": [
{
"DeviceName": "/dev/xvda",
"Ebs": {
"AttachTime": "2025-09-09T02:05:47+00:00",
"DeleteOnTermination": true,
"Status": "attached",
"VolumeId": "vol-02bf3f0271b1ae277"
}
}
],
"ClientToken": "f9d5d385-cbc3-4566-aee4-4301491207c1",
"EbsOptimized": false,
"EnaSupport": true,
"Hypervisor": "xen",
"NetworkInterfaces": [
{
"Association": {
"IpOwnerId": "amazon",
"PublicDnsName": "ec2-34-201-99-182.compute-1.amazonaws.com",
"PublicIp": "34.201.99.182"
},
"Attachment": {
"AttachTime": "2025-09-09T02:05:47+00:00",
"AttachmentId": "eni-attach-095ac36df8450b278",
"DeleteOnTermination": true,
"DeviceIndex": 0,
"Status": "attached",
"NetworkCardIndex": 0
},
"Description": "",
"Groups": [
{
"GroupId": "sg-05c43c2a78fa98445",
"GroupName": "launch-wizard-1"

```
            "EnclaveOptions": {
                "Enabled": false
            },
            "BootMode": "uefi-preferred",
            "PlatformDetails": "Linux/UNIX",
            "UsageOperation": "RunInstances",
            "UsageOperationUpdateTime": "2025-09-17T13:35:34+00:00",
            "PrivateDnsNameOptions": {
                "HostnameType": "ip-name",
                "EnableResourceNameDnsARecord": false,
                "EnableResourceNameDnsAAAARecord": false
            },
            "MaintenanceOptions": {
                "AutoRecovery": "default",
                "RebootMigration": "default"
            },
            "CurrentInstanceBootMode": "legacy-bios",
            "NetworkPerformanceOptions": {
                "BandwidthWeighting": "default"
            },
            "Operator": {
                "Managed": false
            },
            "InstanceId": "i-0bb6aaf991b017d75",
            "ImageId": "ami-08982f1c5bf93d976",
            "State": {
                "Code": 32,
                "Name": "shutting-down"
            },
            "PrivateDnsName": "ip-172-31-18-230.ec2.internal",
            "PublicDnsName": "ec2-54-197-29-14.compute-1.amazonaws.com",
            "StateTransitionReason": "User initiated (2025-09-17 13:36:58 GMT)",
            "KeyName": "cli-kp",
            "AmiLaunchIndex": 0,
            "ProductCodes": [],
            "InstanceType": "t2.micro",
            "LaunchTime": "2025-09-17T13:35:34+00:00",
            "Placement": {
                "AvailabilityZoneId": "use1-az4",
                "GroupName": "",
                "Tenancy": "default",
                "AvailabilityZone": "us-east-1b"
            },
            "Monitoring": {
                "State": "disabled"
            },
            "SubnetId": "subnet-09a7e3d7f2420cb01",
            "VpcId": "vpc-07d09424f4ccc9251",
            "PrivateIpAddress": "172.31.18.230",
            "PublicIpAddress": "54.197.29.14"
        }
    ]
}
```