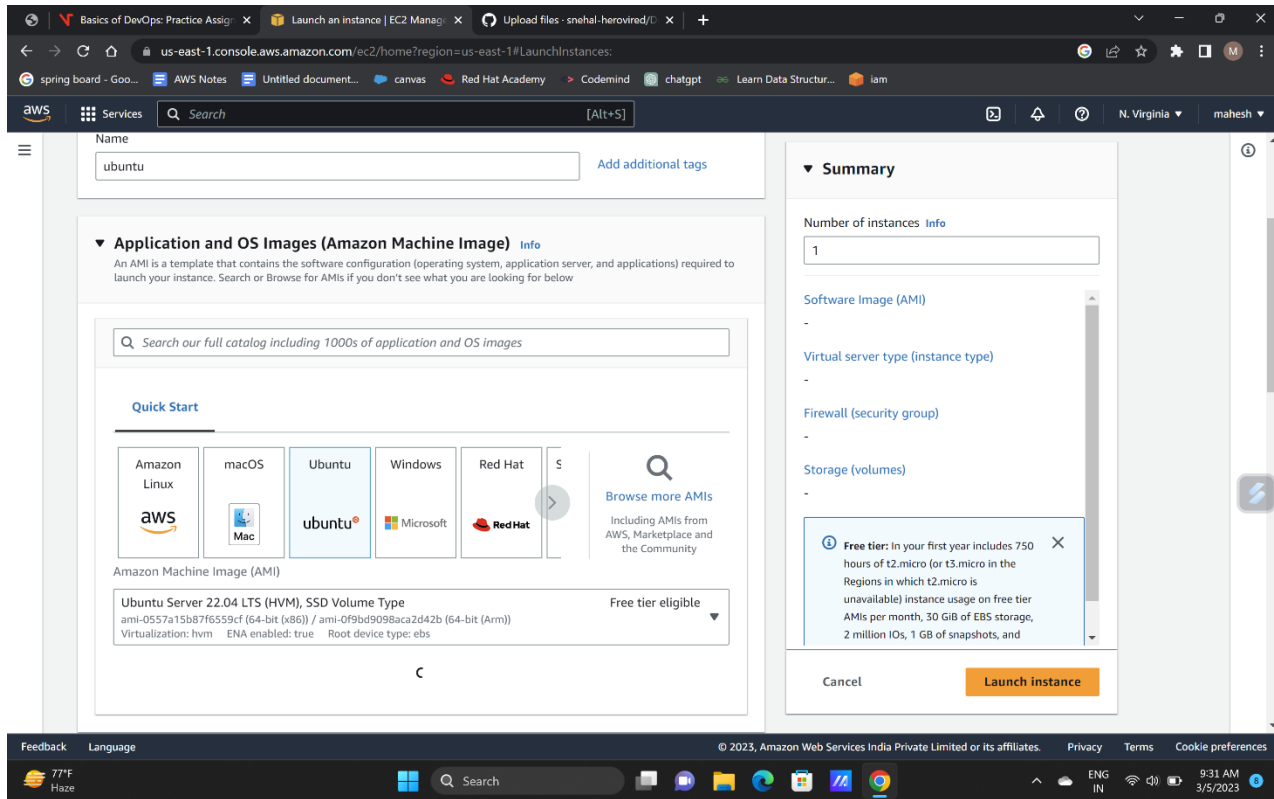
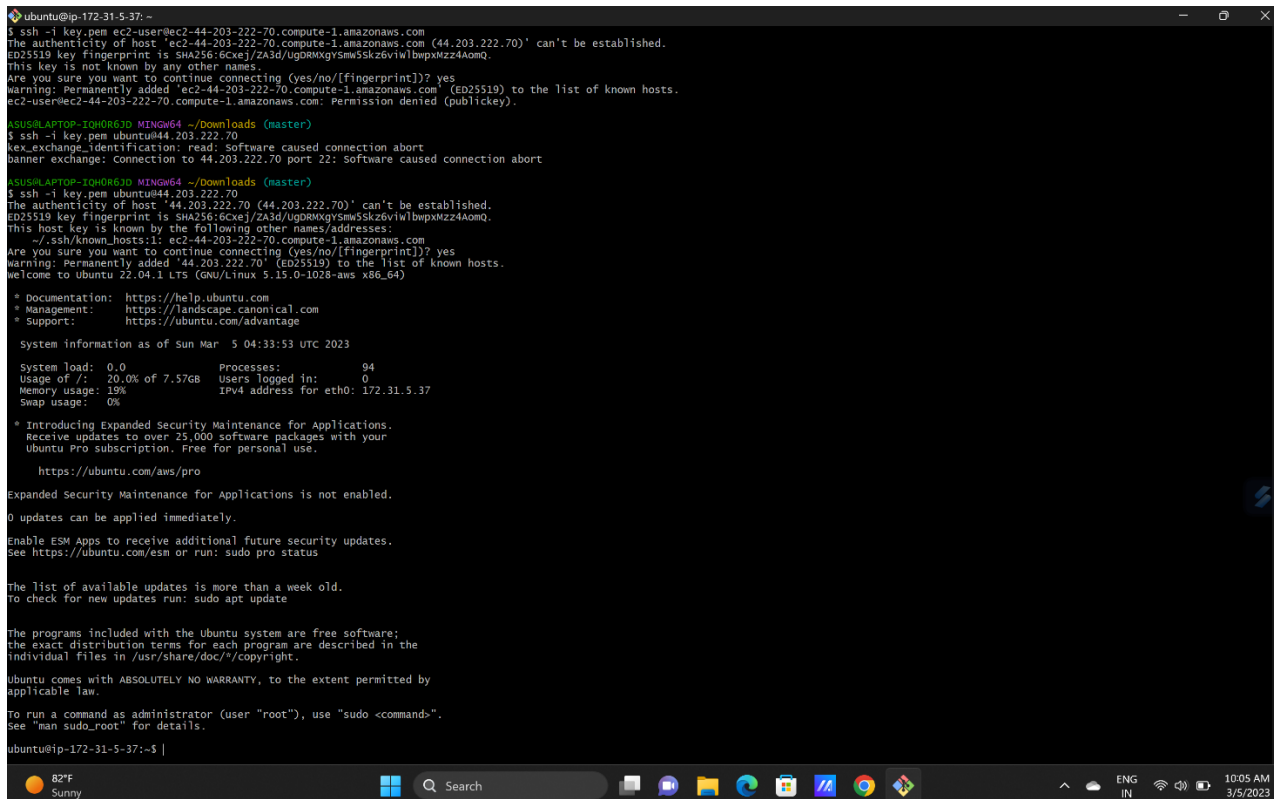


Q1: Create an ec2 instance with the ubuntu operating system, set all the required parameters such as security groups and key pair, and also do SSH with git bash to the running instance.



Use command “ssh -i **keypairname** **username** @ **publicip** or **public DNS**” to access the instance in git bash.



install NodeJS on top of the instance and check for the version of the node to cross-check if NodeJS is installed successfully.

Command: **“apt install nodejs”**

```
root@ip-172-31-5-37: /home/ubuntu
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [107 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [939 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [203 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [13.6 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [679 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [106 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [584 B]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [877 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [172 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [17.9 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [9652 B]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [3260 B]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [444 B]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [40.7 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [9800 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [392 B]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [19.5 kB]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [14.0 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [392 B]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [680 kB]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [139 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [528 B]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [637 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [99.7 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [696 kB]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [111 kB]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [13.5 kB]
Get:39 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [4960 B]
Get:40 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [996 B]
Get:41 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [240 B]
Fetched 26.2 MB in 5s (5723 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
38 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-5-37:~$ apt install nodejs
E: Could not open lock file /var/lib/dpkg/lock-frontends - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontends), are you root?
ubuntu@ip-172-31-5-37:~$ sudo su
root@ip-172-31-5-37:/home/ubuntu# apt install nodejs
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  javascript-common libc-ares2 libjs-highlight.js libnode72 nodejs-doc
Suggested packages:
  apache2 | lighttpd | httpd npm
The following NEW packages will be installed:
  javascript-common libc-ares2 libjs-highlight.js libnode72 nodejs nodejs-doc
0 upgraded, 6 newly installed, 0 to remove and 38 not upgraded.
Need to get 13.7 MB of archives.
After this operation, 53.9 MB of additional disk space will be used.
Do you want to continue? [y/n]
```

Command: **nodejs --version**

```
root@ip-172-31-5-37:/home/ubuntu
root@ip-172-31-5-37:/home/ubuntu# nodejs --version
v12.22.9
root@ip-172-31-5-37:/home/ubuntu#
```

Q2: configure the instance with an elastic IP to show the static public IP address.

The screenshot shows the AWS Management Console interface for Elastic IP addresses. The main content area is titled "Elastic IP addresses" and contains a search bar and a table with columns: Name, Allocated IPv4 address, Type, Allocation ID, and Reverse DNS record. The table is currently empty, with a message "No Elastic IP addresses" displayed. The left sidebar shows the navigation menu with "Instances" and "Images" expanded. The top bar shows the AWS logo and search bar. The bottom status bar shows the date and time as 10:26 AM on 3/5/2023.

This screenshot is identical to the one above, showing the AWS Management Console interface for Elastic IP addresses. The main content area is titled "Elastic IP addresses" and contains a search bar and a table with columns: Name, Allocated IPv4 address, Type, Allocation ID, and Reverse DNS record. The table is currently empty, with a message "No Elastic IP addresses" displayed. The left sidebar shows the navigation menu with "Instances" and "Images" expanded. The top bar shows the AWS logo and search bar. The bottom status bar shows the date and time as 10:26 AM on 3/5/2023.

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AllocateAddress:

Allocate Elastic IP address [Info](#)

Elastic IP address settings [Info](#)

Network Border Group [Info](#)

us-east-1

Public IPv4 address pool

- ☒ Amazon's pool of IPv4 addresses
 - Public IPv4 address that you bring to your AWS account (option disabled because no pools found) [Learn more](#)
 - Customer owned pool of IPv4 addresses (option disabled because no customer owned pools found) [Learn more](#)

Global static IP addresses

AWS Global Accelerator can provide global static IP addresses that are announced worldwide using anycast from AWS edge locations. This can help improve the availability and latency for your user traffic by using the Amazon global network. [Learn more](#)

[Create accelerator](#)

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

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key.pem Show all

85°F Sunny 10:27 AM 3/5/2023

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AssociateAddress:PublicIp=54.236.211.30

Elastic IP address: 54.236.211.30

Choose the instance or network interface to associate to this Elastic IP address (54.236.211.30)

Resource type

Choose the type of resource with which to associate the Elastic IP address.

- ☒ Instance
- ☐ Network interface

⚠ If you associate an Elastic IP address with an instance that already has an Elastic IP address associated, the previously associated Elastic IP address will be disassociated, but the address will still be allocated to your account. [Learn more](#)

If no private IP address is specified, the Elastic IP address will be associated with the primary private IP address.

Instance

i-Oeb74c7549a1a9770

Private IP address

The private IP address with which to associate the Elastic IP address.

172.31.5.37

Reassociation

Specify whether the Elastic IP address can be reassocated with a different resource if it already associated with a resource.

☐ Allow this Elastic IP address to be reassocated

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key.pem Show all

85°F Sunny 10:27 AM 3/5/2023

Static public IP:54.236.211.30

```
ubuntu@ip-172-31-5-37: ~
root@ip-172-31-5-37:/home/ubuntu# nodejs --version
v12.22.9
root@ip-172-31-5-37:/home/ubuntu# client_loop: send disconnect: Connection reset by peer
ASUSLAPTOP-TQI0R63D MINGW64 ~/Downloads (master)
$ ssh -i key.pem ubuntu@54.236.211.30
The authenticity of host '54.236.211.30 (54.236.211.30)' can't be established.
ED25519 key fingerprint is SHA256:6Cxej/ZA3d/UgDRMKgy5mW5Skz6v1wlbwpxMz24AomQ.
This host key is known by the following other names/addresses:
  ~/.ssh/known_hosts:1: ec2-44-203-222-70.compute-1.amazonaws.com
  ~/.ssh/known_hosts:2: 44.203.222.70
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '54.236.211.30' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-1028-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sun Mar  5 04:59:44 UTC 2023

System load:  0.0          Processes:    102
Usage of /:   23.1% of 7.57GB Users logged in:  1
Memory usage: 24%         IPv4 address for eth0: 172.31.5.37
Swap usage:   0%

 * Introducing Expanded Security Maintenance for Applications.
 * Receive updates to over 25,000 software packages with your
 * Ubuntu Pro subscription. Free for personal use.
 * https://ubuntu.com/aws/pro

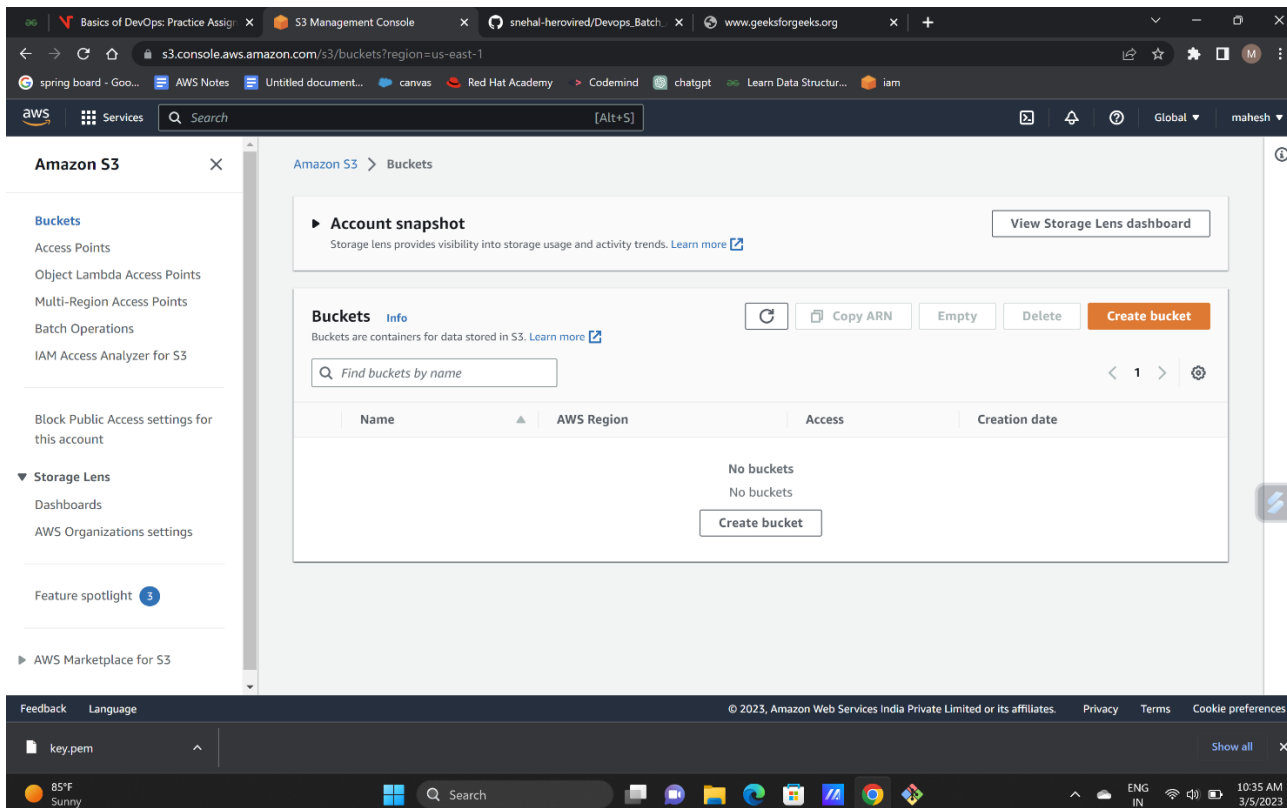
Expanded Security Maintenance for Applications is not enabled.

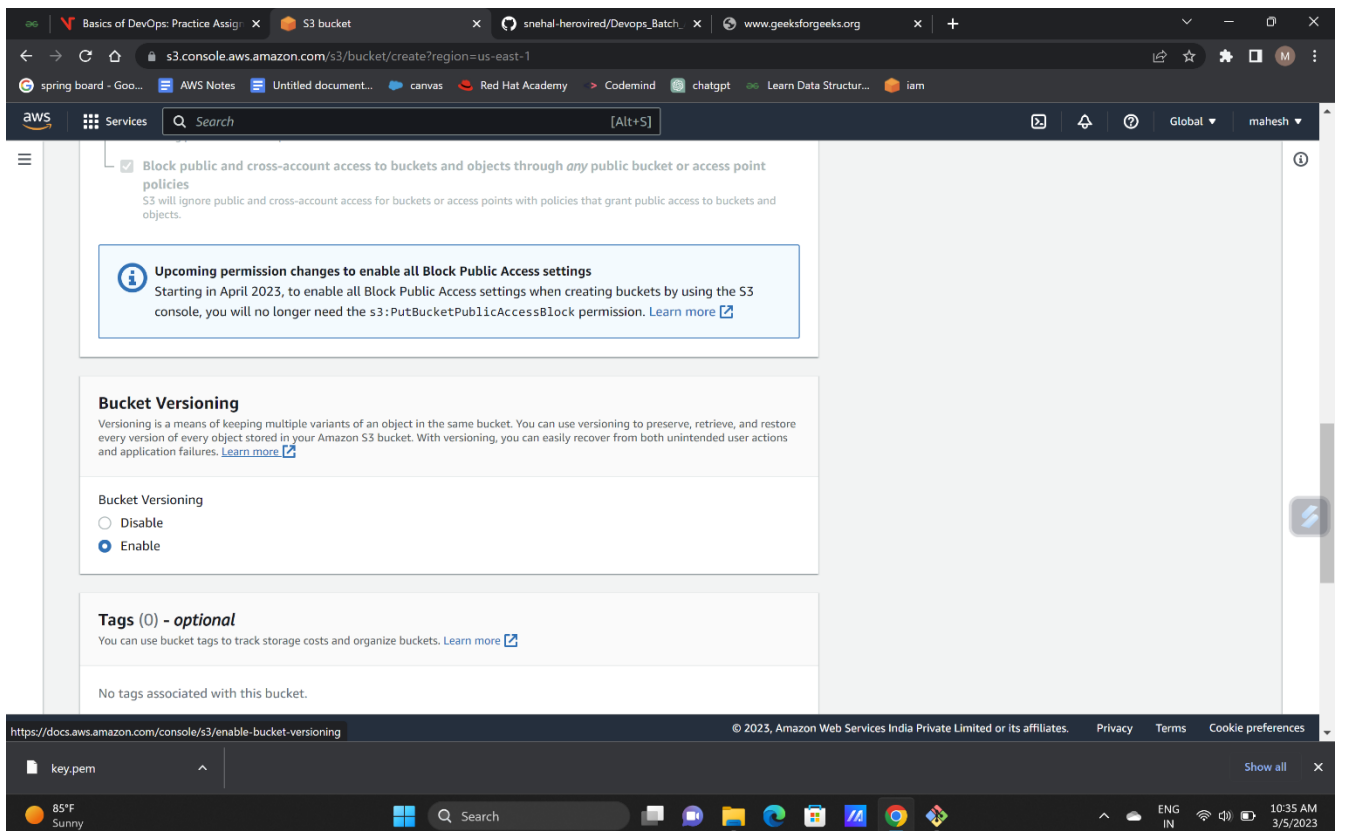
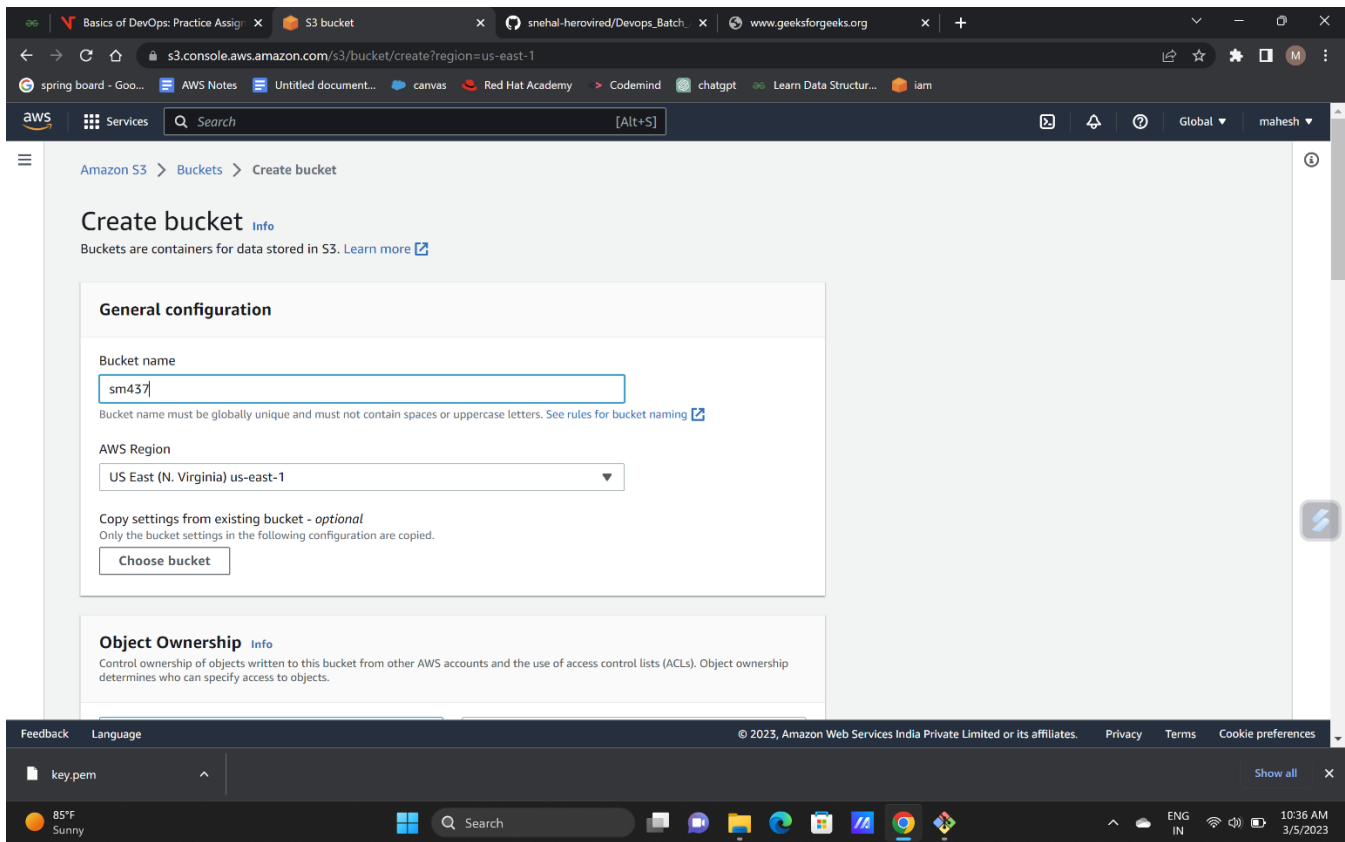
37 updates can be applied immediately.
18 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

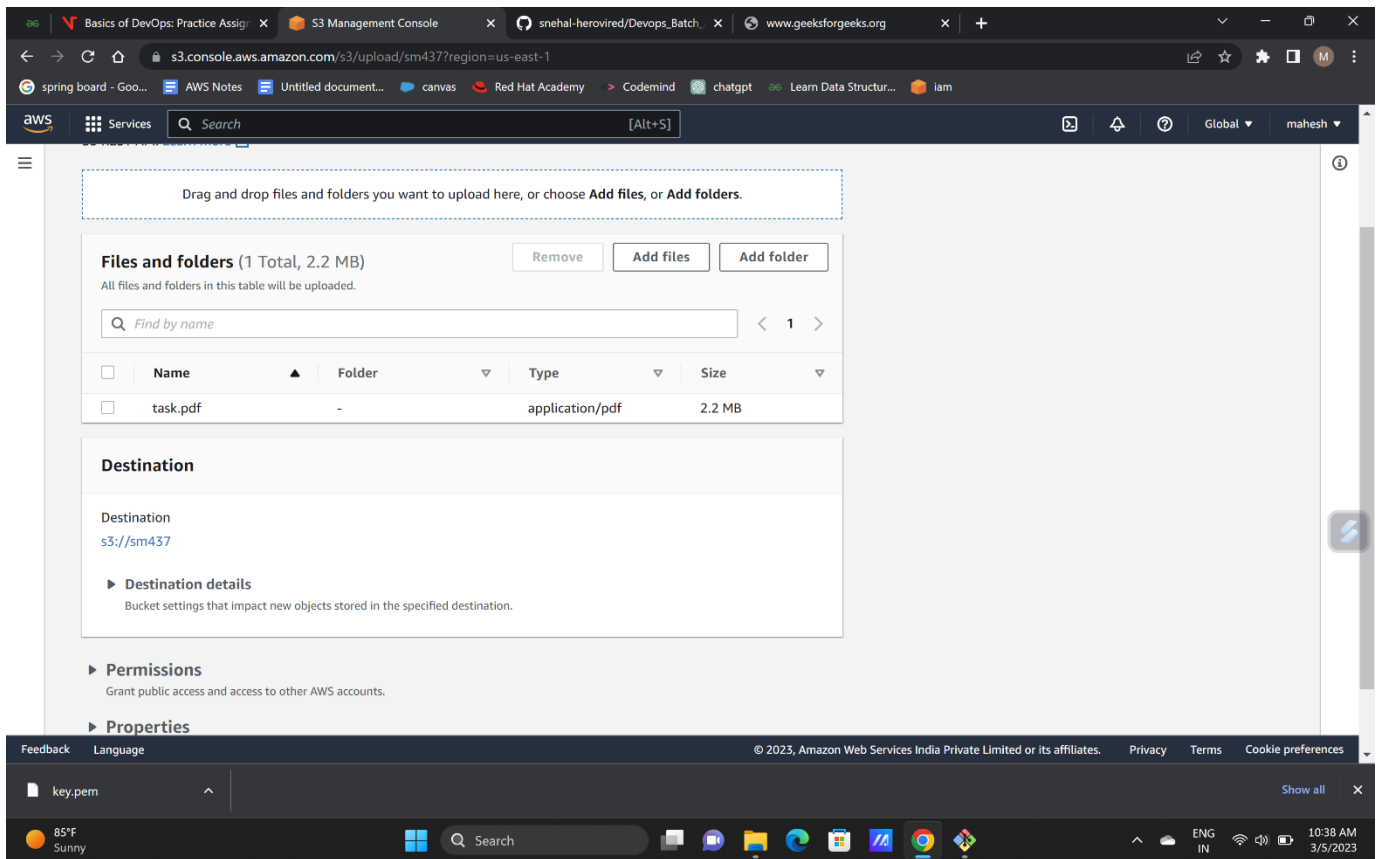
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Sun Mar  5 04:34:33 2023 from 157.47.24.132
ubuntu@ip-172-31-5-37:~$ touch sm
ubuntu@ip-172-31-5-37:~$ ls
sm
ubuntu@ip-172-31-5-37:~$
```

create an S3 bucket and upload an object to it and show the object URL for reference.







Uploading the file into the S3 bucket:

