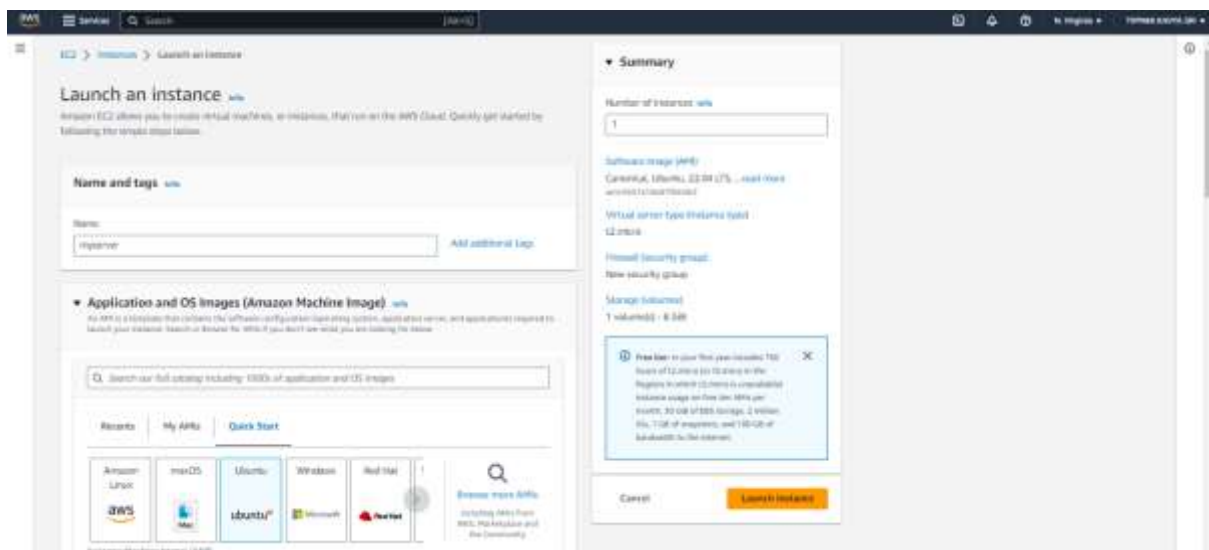At first create an ec2 instance with the ubuntu operating system

Create a ssh keypair

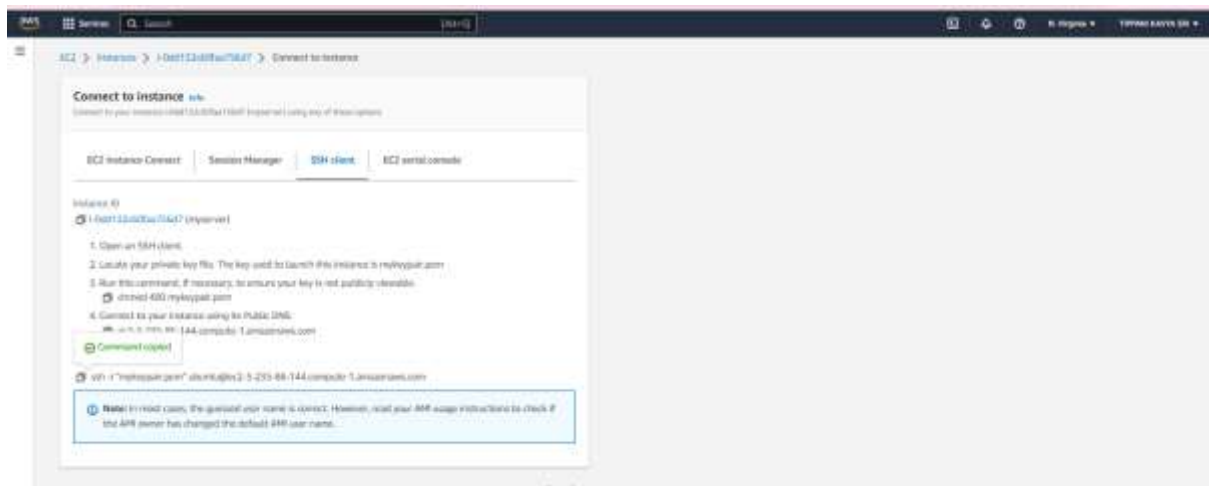After creating the security group launch the instance
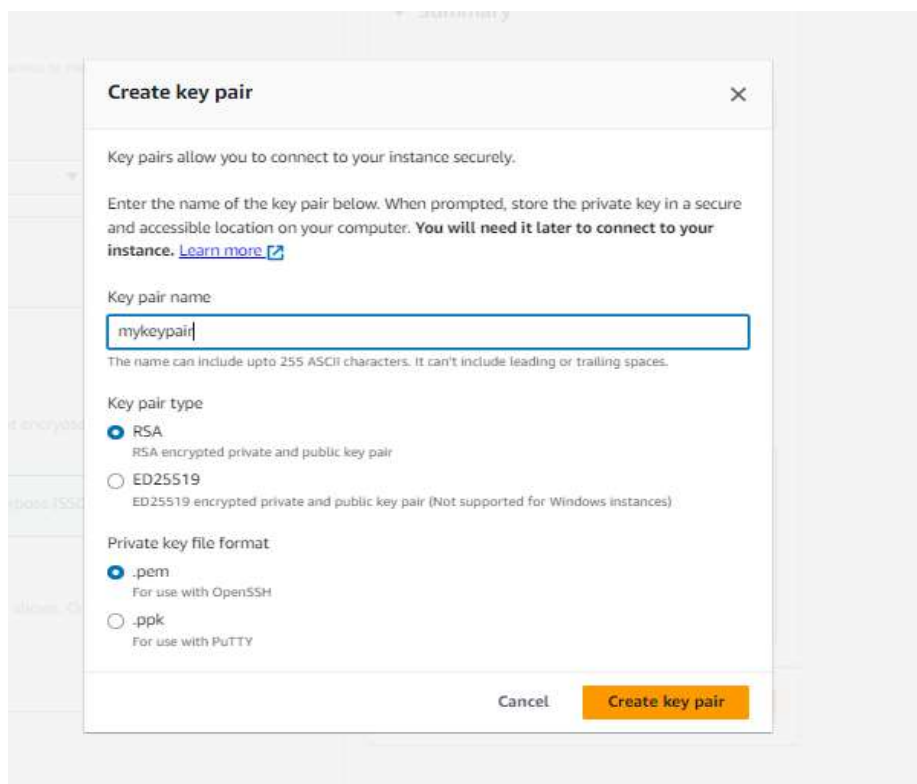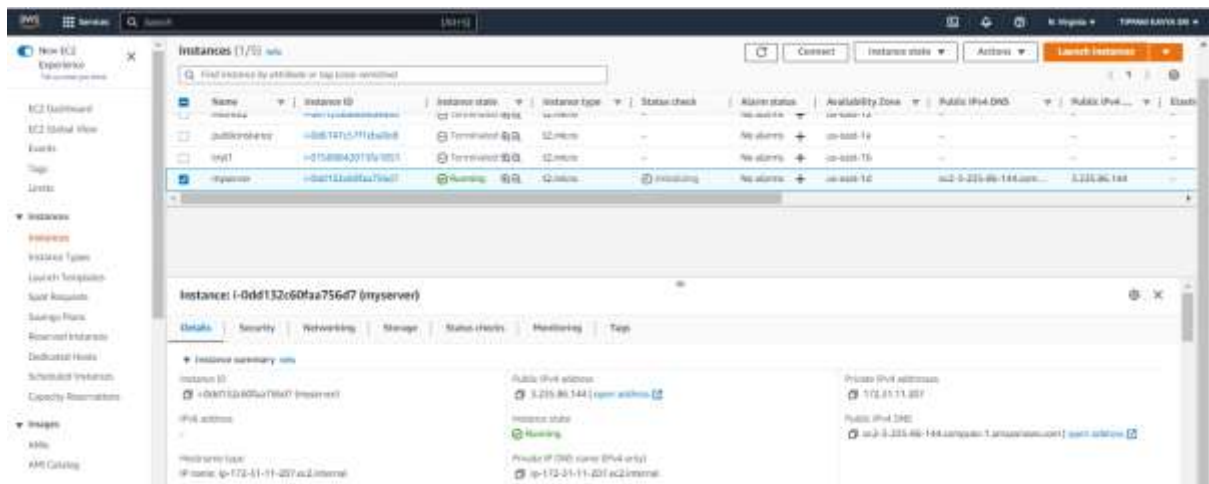
Now go to gitbash and type the command chmod 400 keypairname.filetype

```
tippanikavyasri@kavya    MINGW64 ~/Downloads (master)
$ chmod 400 mykeypair.pem

tippanikavyasri@kavya    MINGW64 ~/Downloads (master)
$ |
```

ubuntu@ip-172-31-11-207: ~

```
tippanikavyasri@kavya    MINGW64 ~/Downloads (master)
$ ssh -i "mykeypair.pem" ubuntu@ec2-3-235-8
6-144.compute-1.amazonaws.com
The authenticity of host 'ec2-3-235-86-144.
compute-1.amazonaws.com (3.235.86.144)' can
't be established.
ED25519 key fingerprint is SHA256:d6NsrKq8T
f1A1e3QQyUqPsTCvGTnnbBQtCI558czCMY.
This key is not known by any other names.
Are you sure you want to continue connectin
g (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-235-86-144.compute-1.amazonaws.com' (ED25519) to the list of known ho
sts.
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 Sat Mar  4 17:22:51 UTC 2023

  System load:  0.0185546875      Processes:             100
  Usage of /:   19.8% of 7.57GB   Users logged in:       0
  Memory usage: 19%               IPv4 address for eth0: 172.31.11.207
  Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

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


The list of available updates is more than a week old.
To check for new updates run: sudo apt update


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-11-207:~$ |
```

Now after typing some commands install node js by using sudo apt install nodejs command.

```
ubuntu@ip-172-31-11-207:~$ sudo apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
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 [680 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 [9696 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 [8528 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 (5658 kB/s)
```
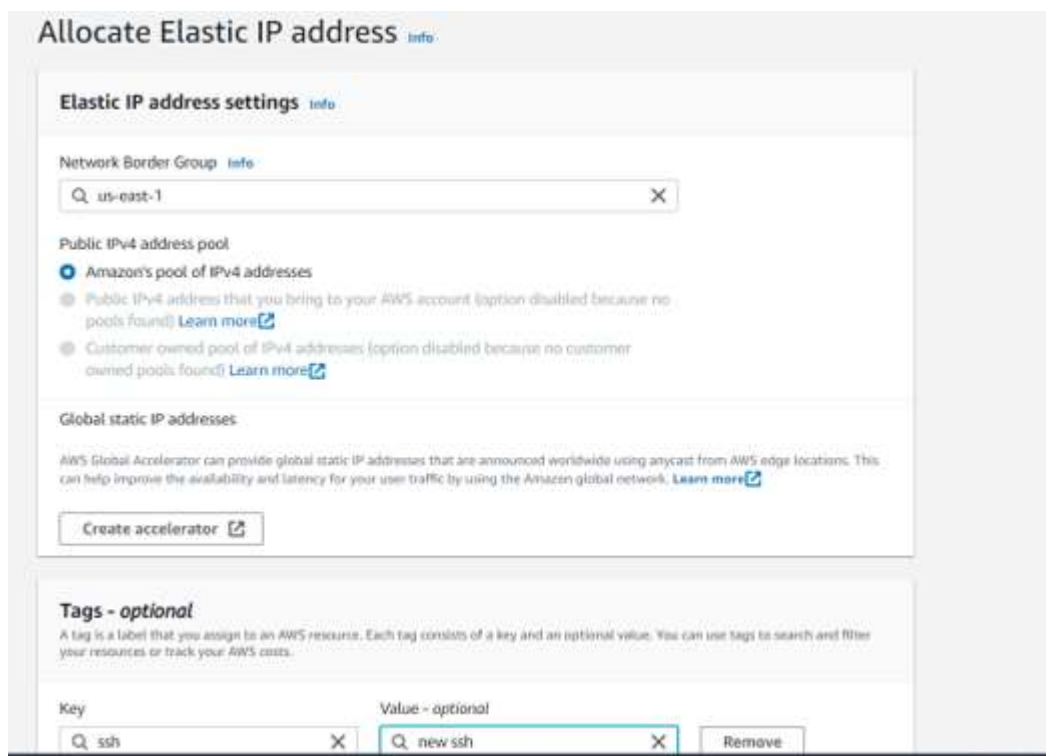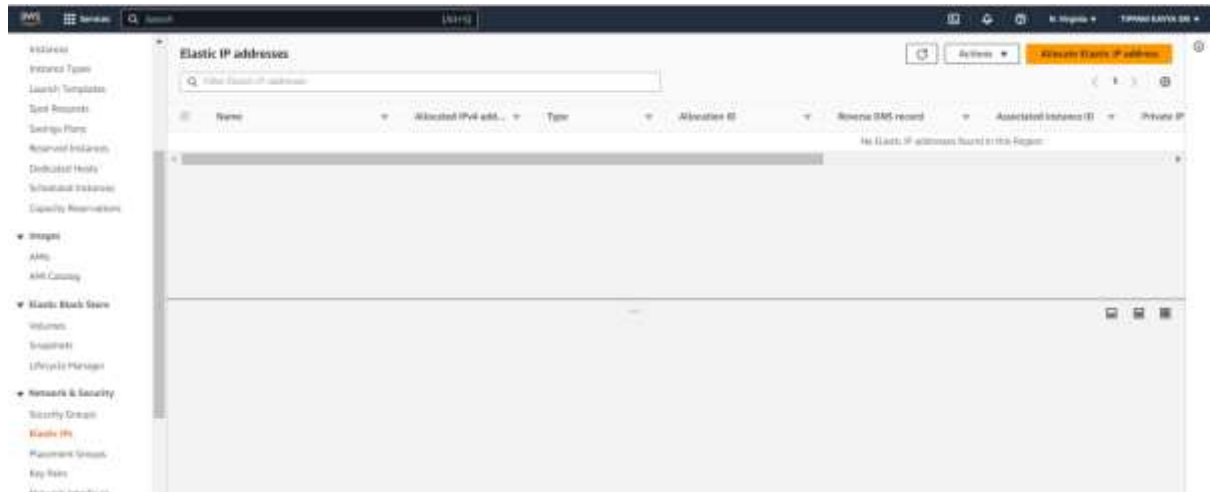
```
ubuntu@ip-172-31-11-207:~$ sudo apt install nodejs
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  javascript-common libc-ares2 libjs-highlight.js libnode72 nodejs-doc
Suggested packages:
  apache2 | 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] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 javascript-common all 11+nmu1 [5936 B]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libjs-highlight.js all 9.18.5+dfsg1-1 [367 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc-ares2 amd64 1.18.1-1ubuntu0.22.04.1 [45.1 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libnode72 amd64 12.22.9~dfsg-1ubuntu3 [10.8 MB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 nodejs-doc all 12.22.9~dfsg-1ubuntu3 [2409 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 nodejs amd64 12.22.9~dfsg-1ubuntu3 [122 kB]
Fetched 13.7 MB in 0s (47.8 MB/s)
Selecting previously unselected package javascript-common.
(Reading database ... 63605 files and directories currently installed.)
Preparing to unpack .../0-javascript-common_11+nmu1_all.deb ...
Unpacking javascript-common (11+nmu1) ...
Selecting previously unselected package libjs-highlight.js.
Preparing to unpack .../1-libjs-highlight.js_9.18.5+dfsg1-1_all.deb ...
Unpacking libjs-highlight.js (9.18.5+dfsg1-1) ...
Selecting previously unselected package libc-ares2:amd64.
Preparing to unpack .../2-libc-ares2_1.18.1-1ubuntu0.22.04.1_amd64.deb ...
Unpacking libc-ares2:amd64 (1.18.1-1ubuntu0.22.04.1) ...
Selecting previously unselected package libnode72:amd64.
Preparing to unpack .../3-libnode72_12.22.9~dfsg-1ubuntu3_amd64.deb ...
Unpacking libnode72:amd64 (12.22.9~dfsg-1ubuntu3) ...
Selecting previously unselected package nodejs-doc.
Preparing to unpack .../4-nodejs-doc_12.22.9~dfsg-1ubuntu3_all.deb ...
Unpacking nodejs-doc (12.22.9~dfsg-1ubuntu3) ...
Selecting previously unselected package nodejs.
Preparing to unpack .../5-nodejs_12.22.9~dfsg-1ubuntu3_amd64.deb ...
Unpacking nodejs (12.22.9~dfsg-1ubuntu3) ...
Setting up javascript-common (11+nmu1) ...
Setting up libc-ares2:amd64 (1.18.1-1ubuntu0.22.04.1) ...
Setting up libnode72:amd64 (12.22.9~dfsg-1ubuntu3) ...
Setting up libjs-highlight.js (9.18.5+dfsg1-1) ...
Setting up nodejs (12.22.9~dfsg-1ubuntu3) ...
update-alternatives: using /usr/bin/nodejs to provide /usr/bin/js (js) in auto mode
Setting up nodejs-doc (12.22.9~dfsg-1ubuntu3) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
```

To check the version of nodejs we use node –v . hence nodejs is successfully installed

```
No VM guests are running outdated hype
ubuntu@ip-172-31-11-207:~$ node -v
v12.22.9
ubuntu@ip-172-31-11-207:~$ |
```

Also, configure the instance with an elastic ip and static public ip address.

Associate Elastic IP address

Elastic IP address: 100.24.218.138

```
tippanikavyasri@kavya    MINGW64 ~/Downloads (master)
$ ssh -i "mykeypair.pem" ubuntu@100.24.218.138
The authenticity of host '100.24.218.138 (100.24.218.138)' can't be established.
ED25519 key fingerprint is SHA256:d6NsrKq8Tf1A1e3QQyUqPsTCvGTnnbBQtCI558czCMY.
This host key is known by the following other names/addresses:
    ~/.ssh/known_hosts:2: ec2-3-235-86-144.compute-1.amazonaws.com
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '100.24.218.138' (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 Sat Mar  4 17:34:38 UTC 2023

  System load:  0.0                Processes:            100
  Usage of /:   23.1% of 7.57GB    Users logged in:      1
  Memory usage: 22%                IPv4 address for eth0: 172.31.11.207
  Swap usage:   0%


Expanded Security Maintenance for Applications is not enabled.

36 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: Sat Mar  4 17:22:52 2023 from 223.196.170.35
ubuntu@ip-172-31-11-207:~$
```
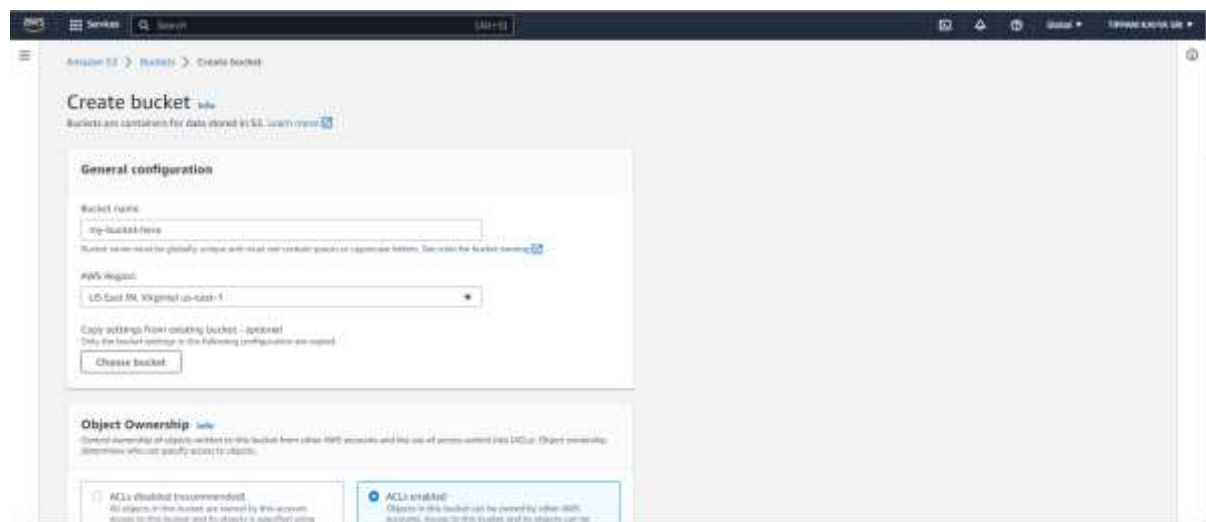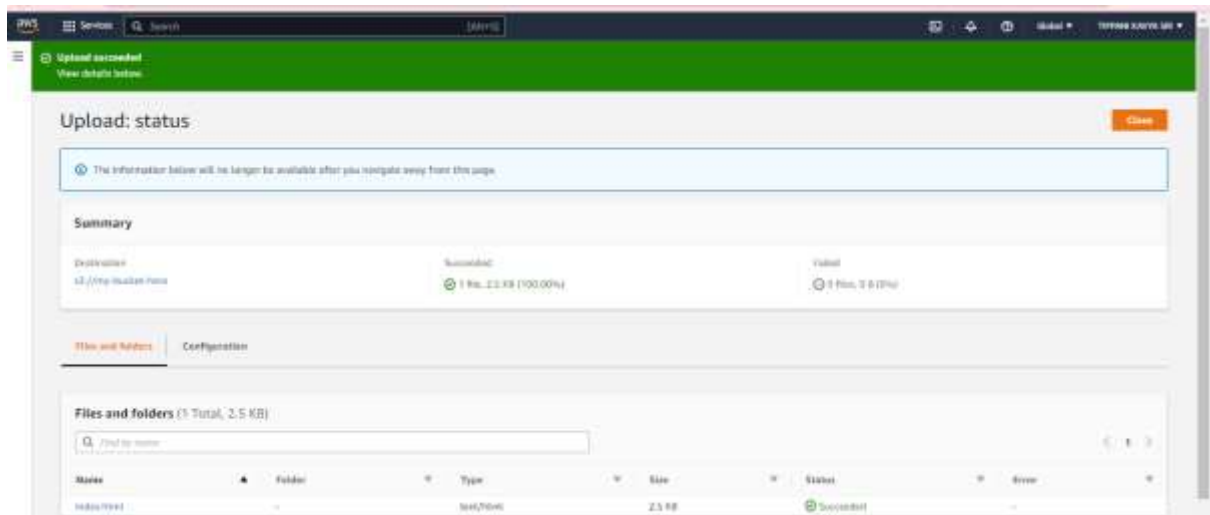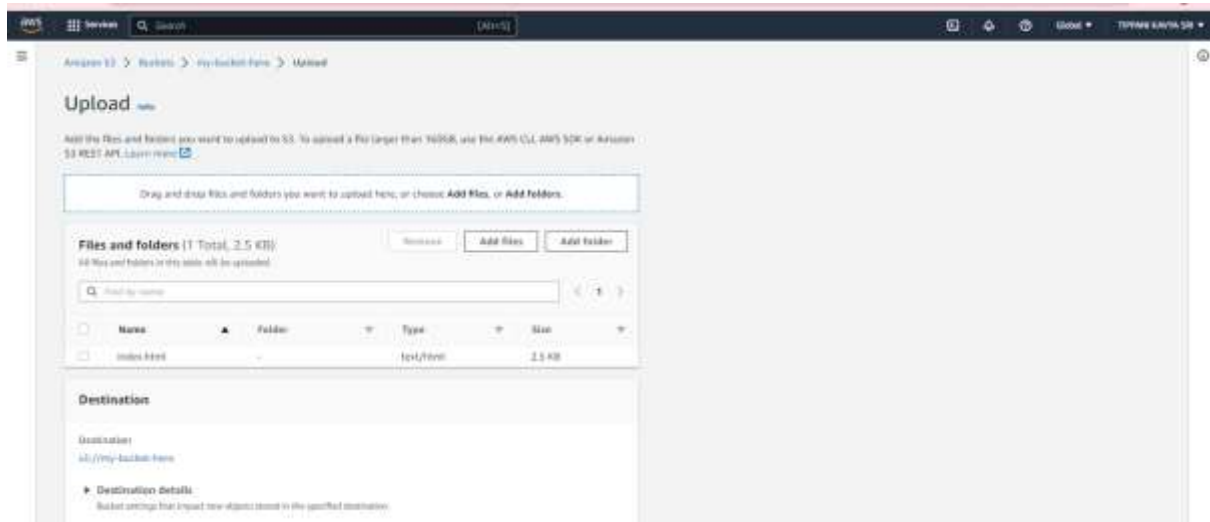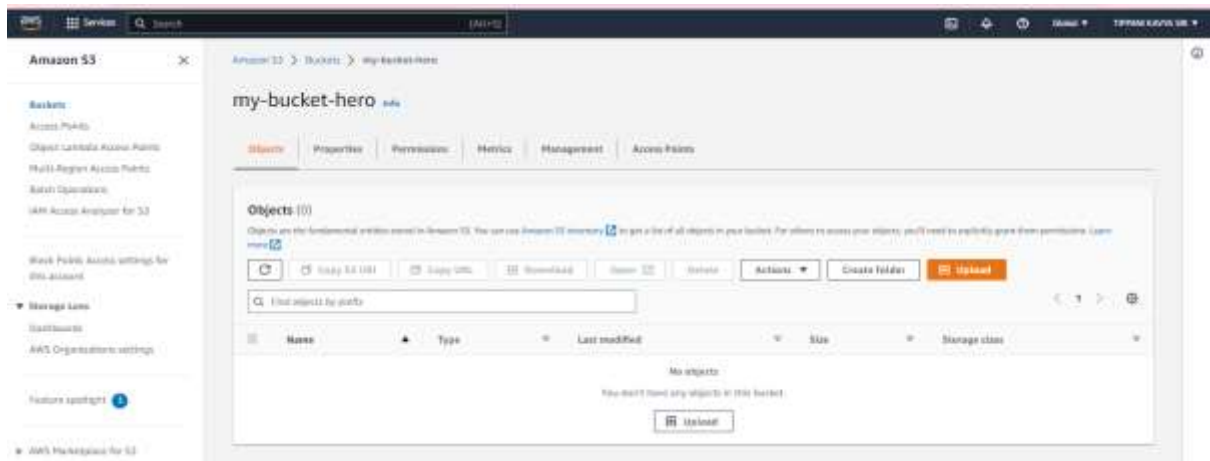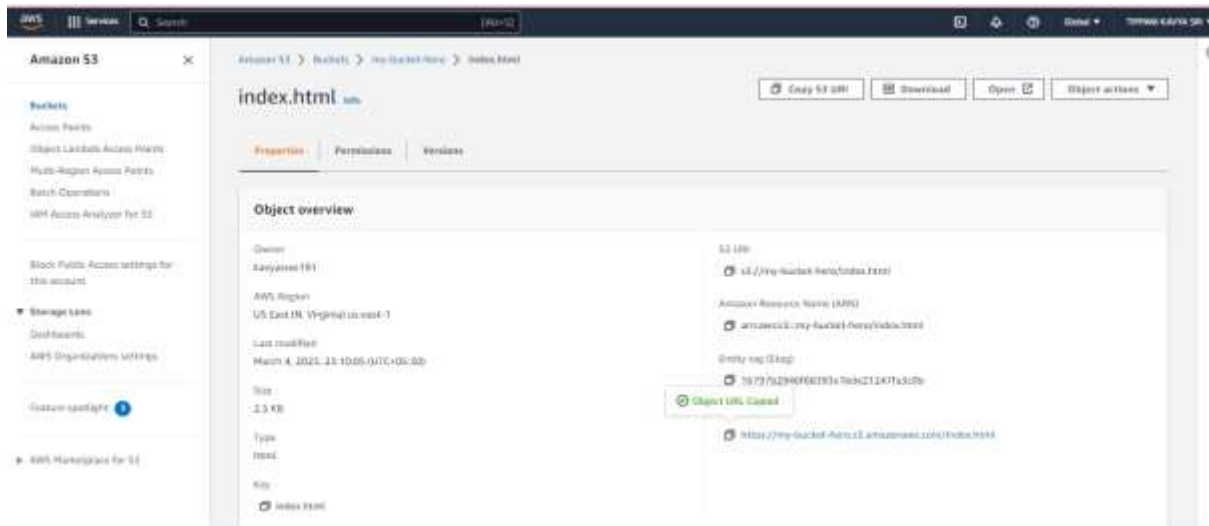
create an S3 bucket and upload an object to it

Block Public Access settings for this bucket

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. Learn more

☐ **Block all public access**
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

☐ **Block public access to buckets and objects granted through new access control lists (ACLs)**
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

☐ **Block public access to buckets and objects granted through any access control lists (ACLs)**
S3 will ignore all ACLs that grant public access to buckets and objects.

☐ **Block public access to buckets and objects granted through new public bucket or access point policies**
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

☐ **Block public and cross-account access to buckets and objects through any public bucket or access point policies**
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

⚠ **Turning off block all public access might result in this bucket and the objects within becoming public**
AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.

☑ I acknowledge that the current settings might result in this bucket and the objects within becoming public.

Tags (0) - optional

You can use bucket tags to track storage costs and organize buckets. Learn more

No tags associated with this bucket.

[Add tag]

Default encryption info

Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption key type info
◉ Amazon S3 managed keys (SSE-S3)
◯ AWS Key Management Service key (SSE-KMS)

Bucket Key
When SSE-KMS encryption is used to encrypt new objects in this bucket, the bucket key reduces encryption costs by lowering calls to AWS KMS. Learn more
◯ Disable
◉ Enable

▶ Advanced settings

Amazon S3

Buckets
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
IAM Access Analyzer for S3

Block Public Access settings for this account

▼ Storage Lens
Dashboards
AWS Organizations settings

Feature spotlight

▶ AWS Marketplace for S3

⊙ **Successfully created bucket "my-bucket-here"**
To upload files and folders, or to configure additional bucket settings choose View details.

[View details]

Amazon S3 > Buckets

▶ Account snapshot
Storage lens provides visibility into storage usage and activity trends. Learn more

[View Storage Lens dashboard]

Buckets (1) info
Buckets are containers for data stored in S3. Learn more

[Create bucket]

Name	AWS Region	Access	Creation date
My-bucket-here	US East (N. Virginia) us-east-1	Objects can be public	March 4, 2023, 23:07:50 (UTC+05:30)

Copy the object reference url and paste it in the browser.

Now make the uploaded file into public by using ACL.

TO THE POWER OF MATH!

Base number: | | ...to the power of: | | CALCULATE