Q4: Configure a Webserver on ‘Regno_EC2_VM2’ Instance and host your organizations website (Static Website) and provide access only to your machine.

Solution:

Step 1: Navigate to S3 services

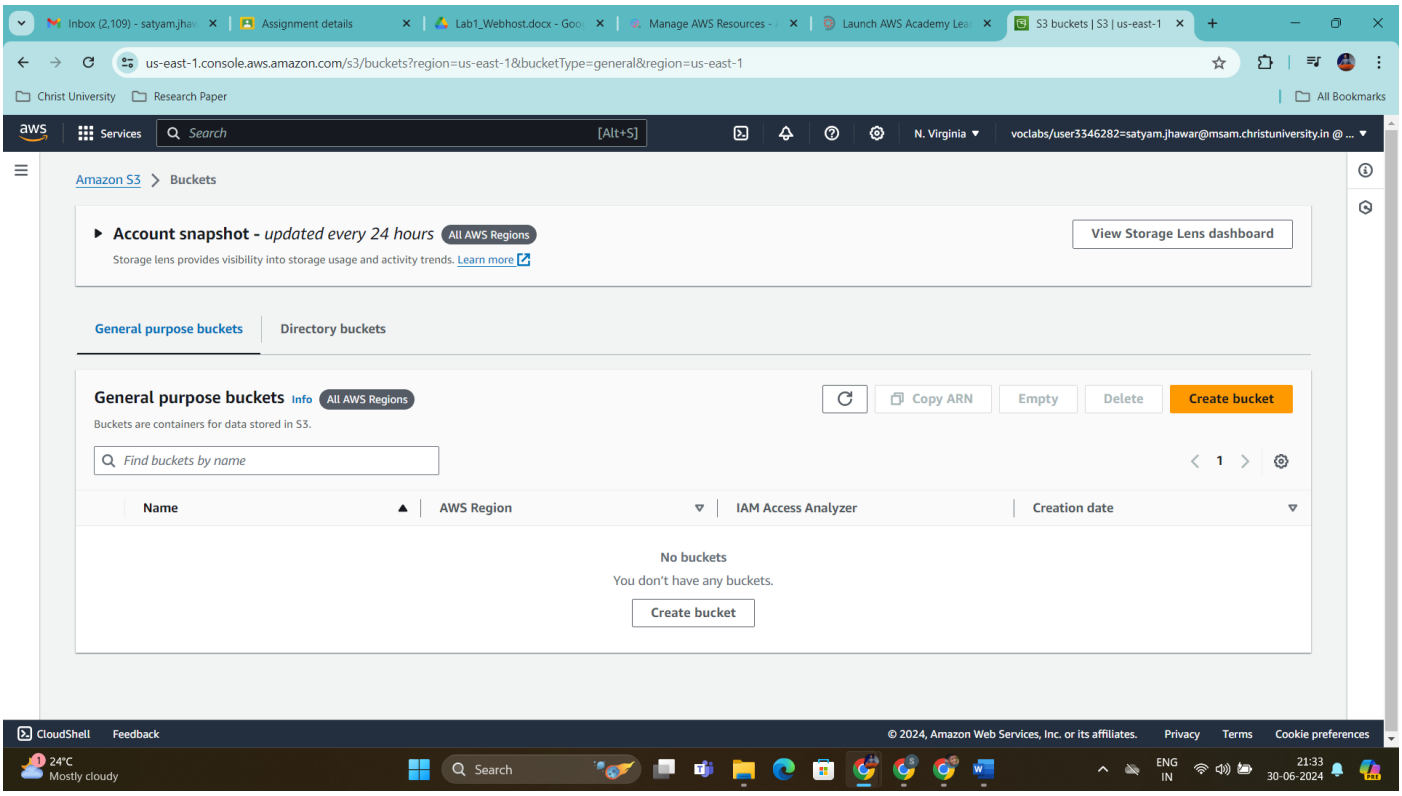


Figure 1: S3 Dashboard

Step 2: Click on Create Bucket

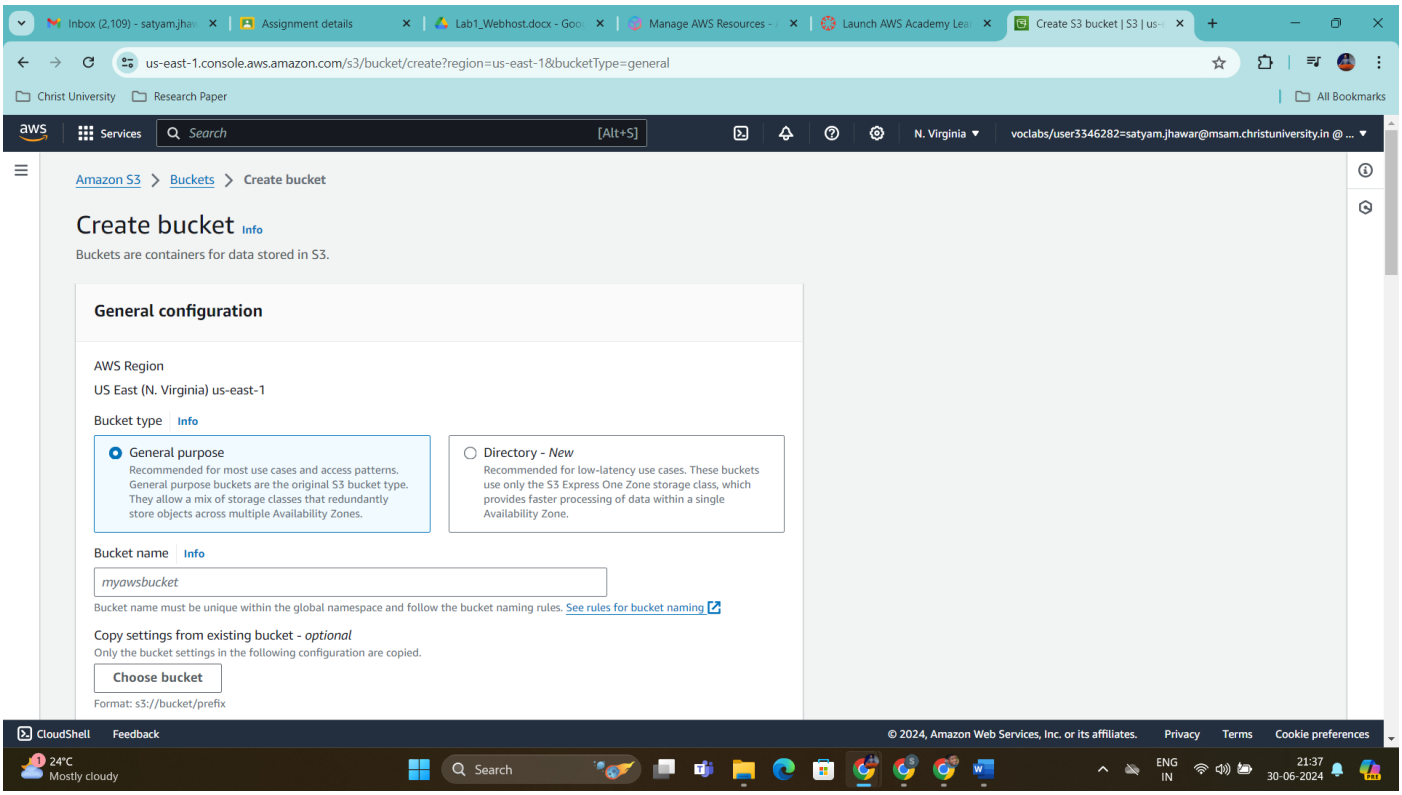


Figure 2: Create Bucket Dashboard Appears

Step 3: Configure the bucket

3.1) Add a name to the bucket (2348554s3)

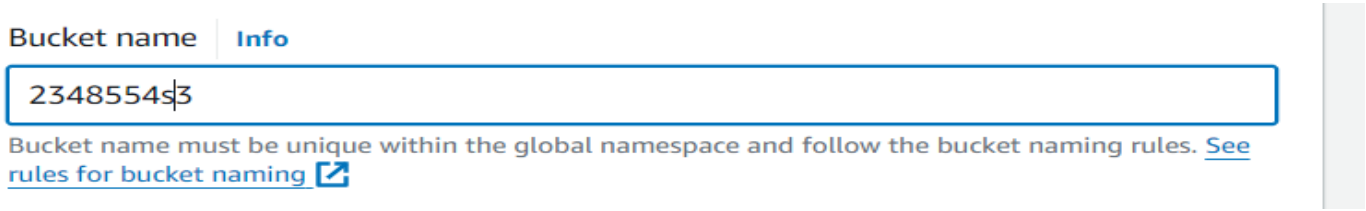


Figure 3: Bucket Name

3.2) Object Ownership – Leave it as default only

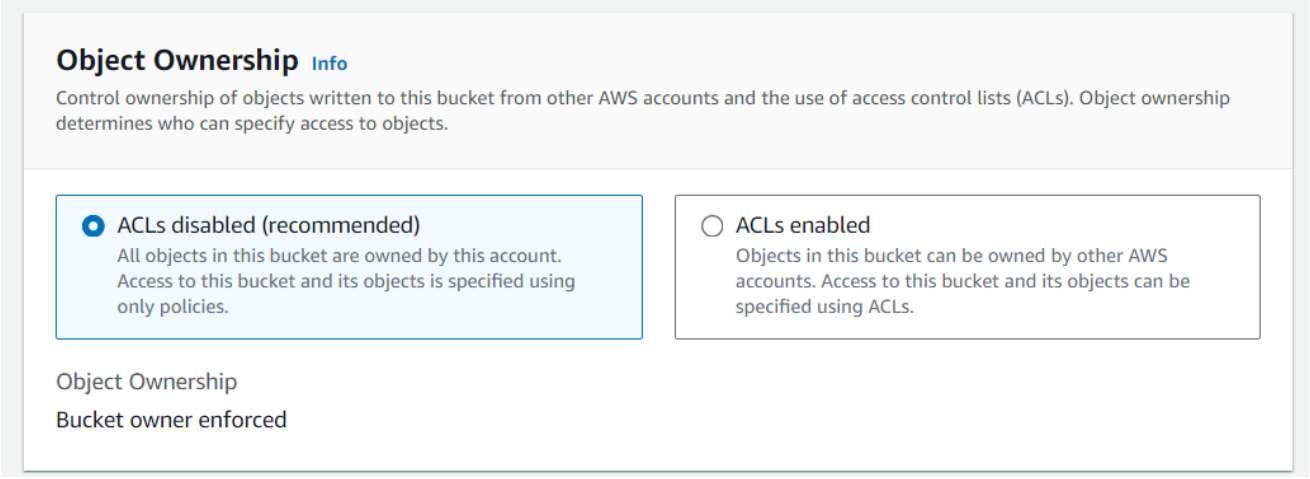


Figure 4: Object Ownership

3.3) Disable Block all public access checkbox and acknowledge the warning message

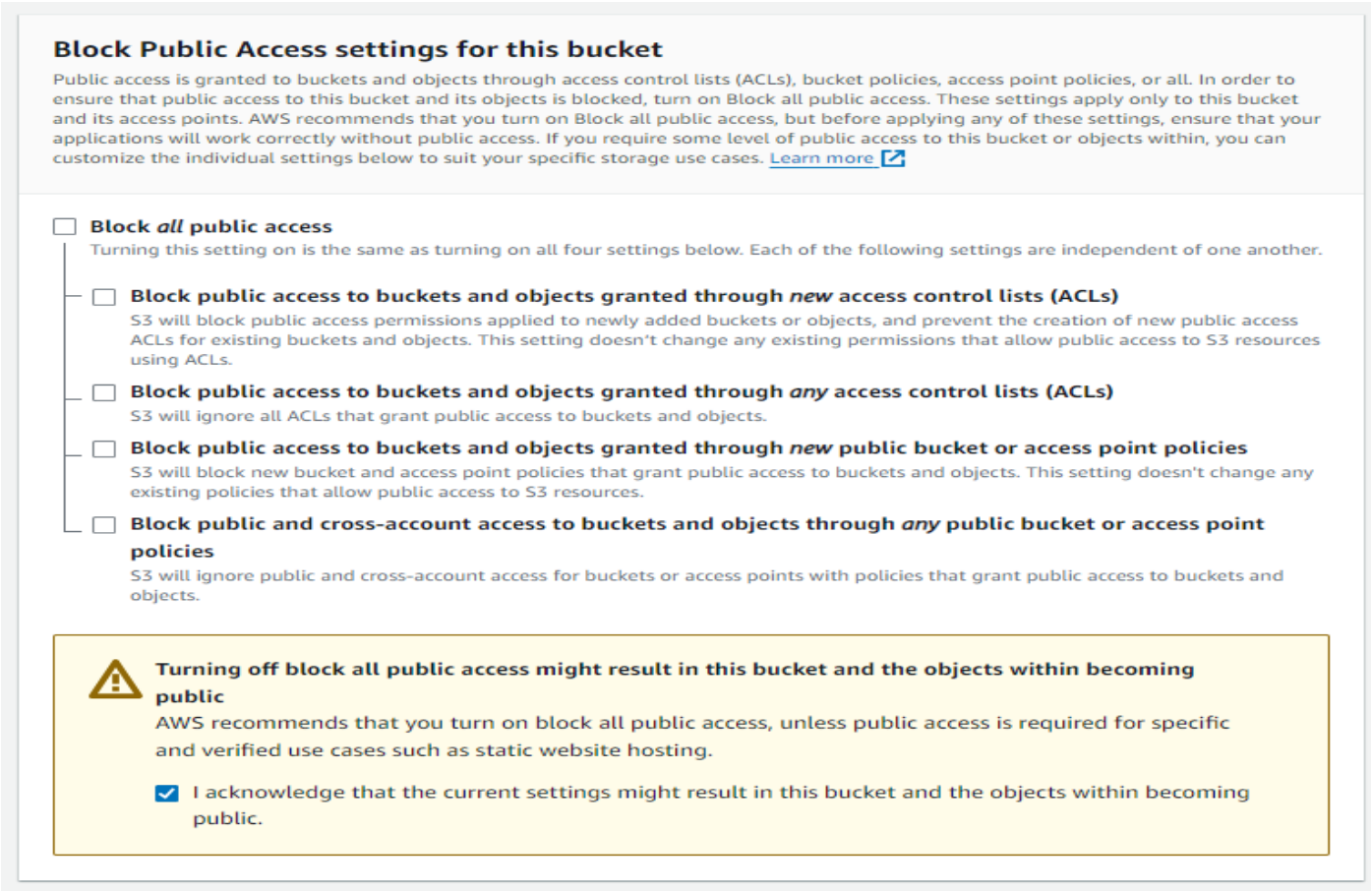


Figure 5: Block all public access

3.4) Disable Bucket Versioning

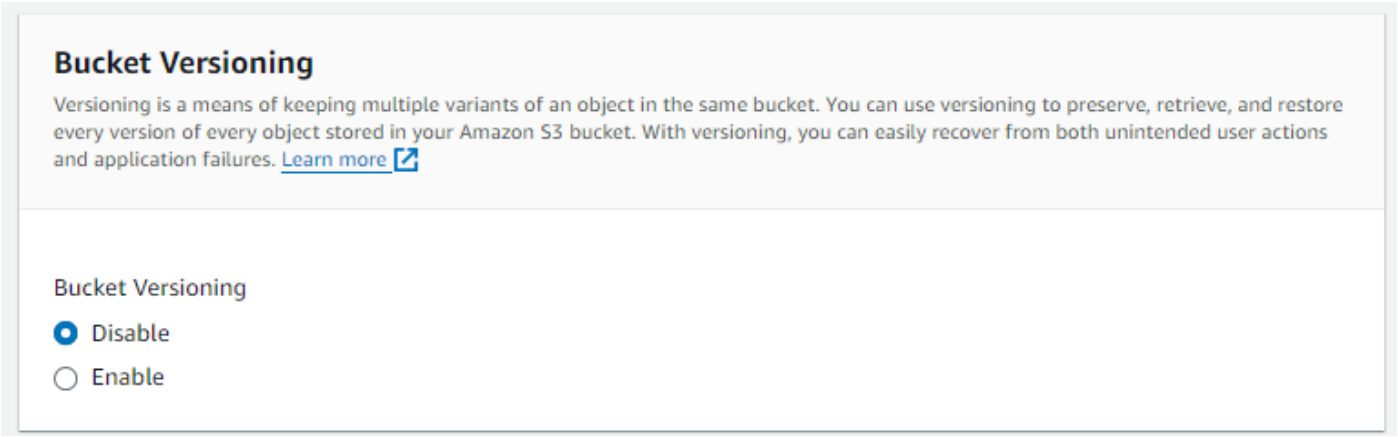


Figure 6: Bucket Versioning

3.5) Disable Default Encryption

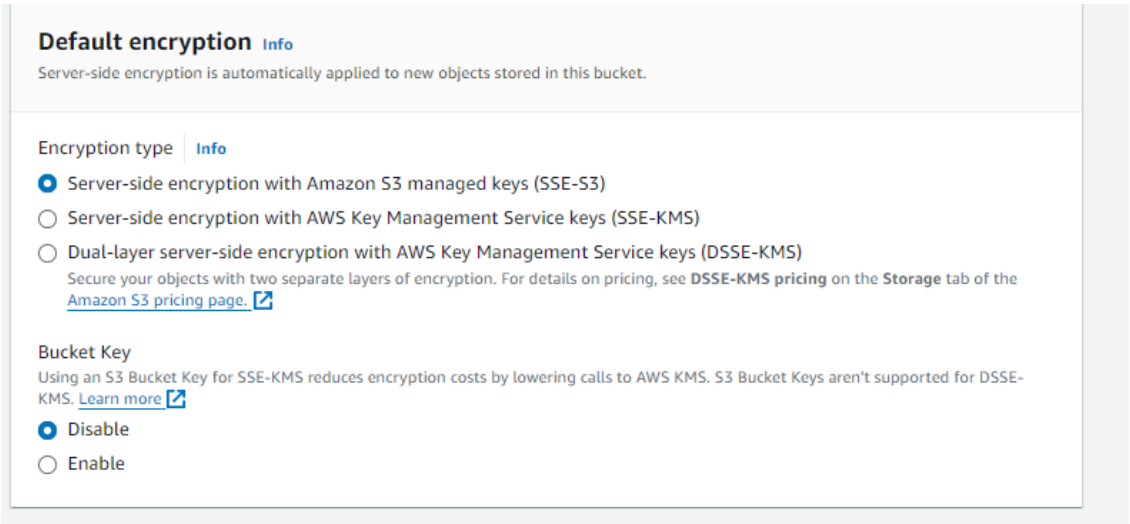


Figure 7: Bucket Encryption

3.6) Click on Create Bucket

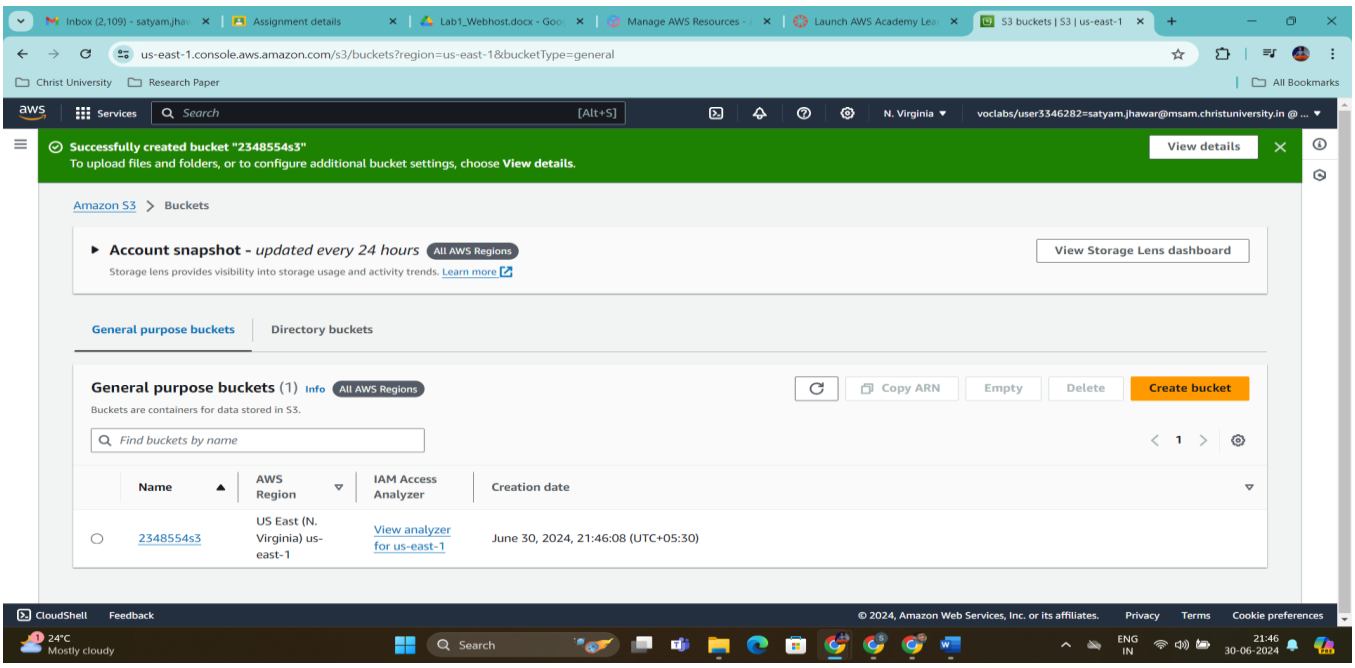


Figure 8: Bucket Creation Complete

Step 4: Click on the bucket name “2348554s3”

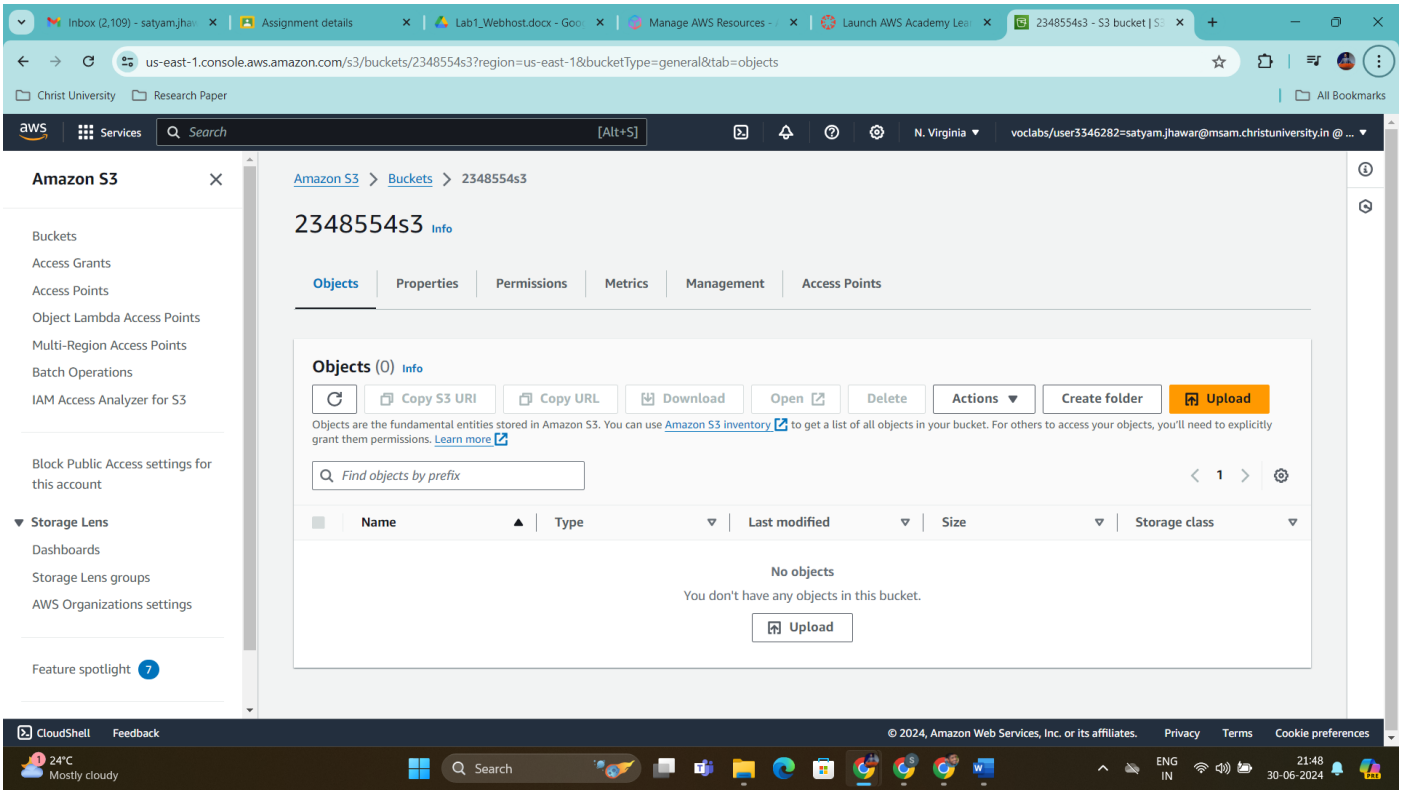


Figure 9: Within the bucket of 2348554s3

Step 5: Uploading the zip file of the static website

5.1) Click on Upload

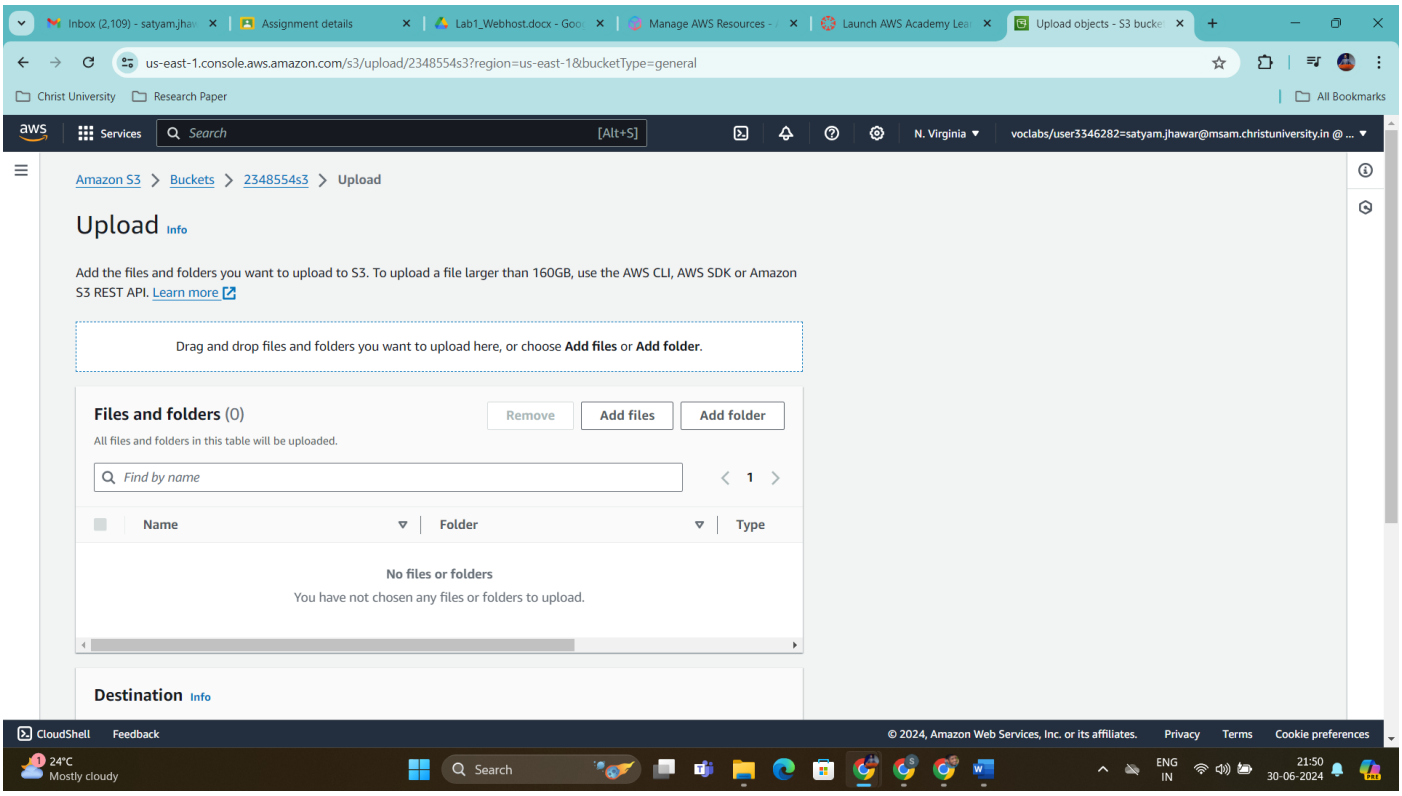
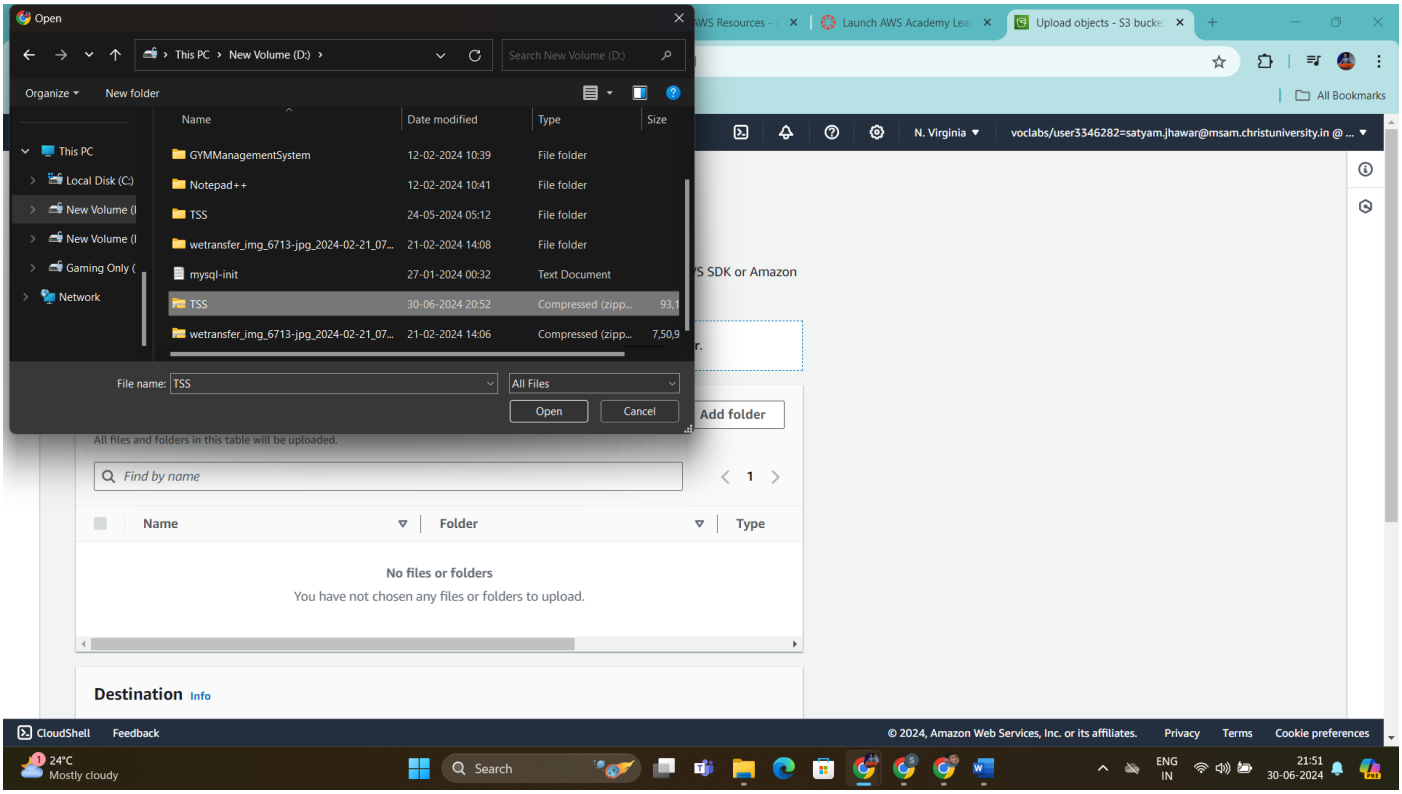


Figure 10: Upload Window Pane

5.2) Click on Add Files and navigate to the location of the static website and click on Open



5.3) Click on Upload

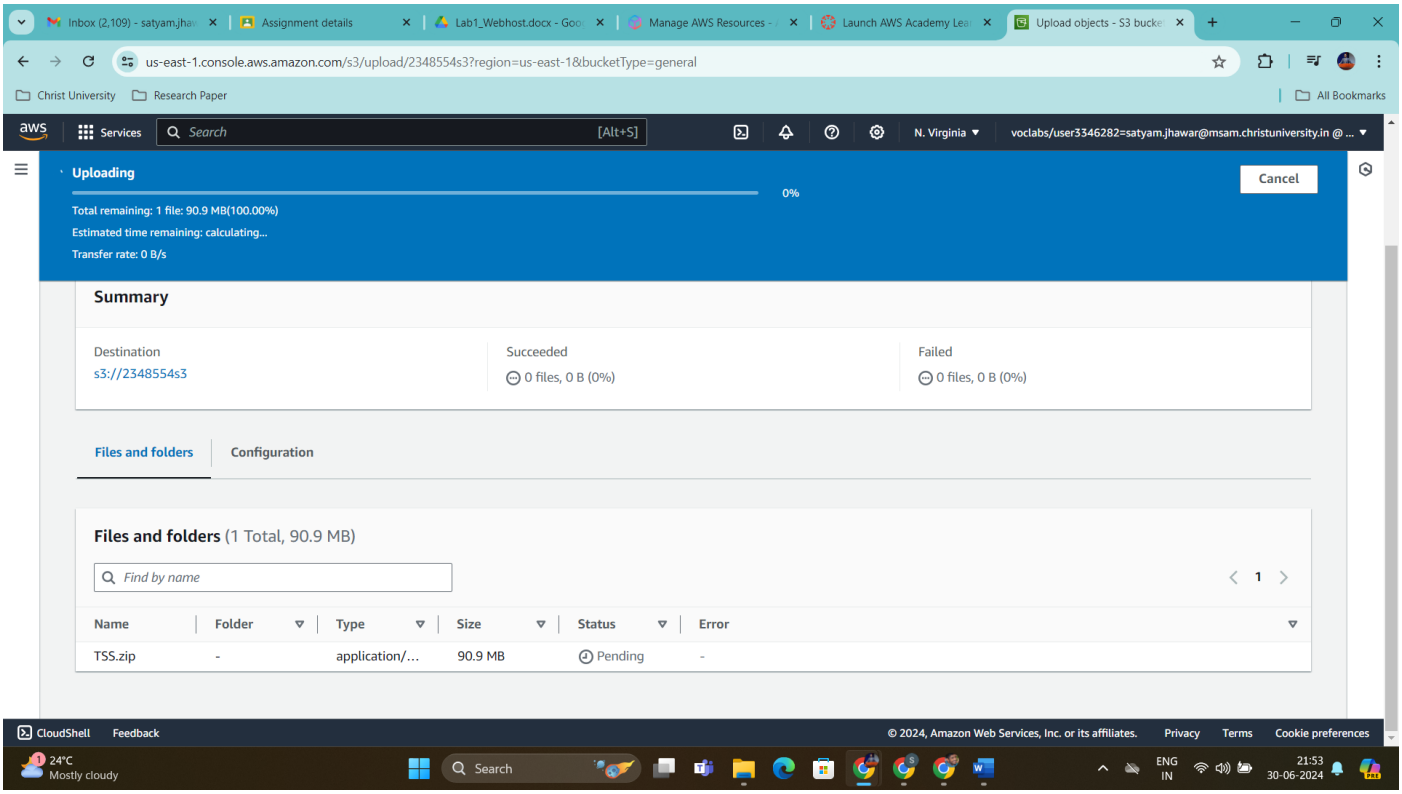
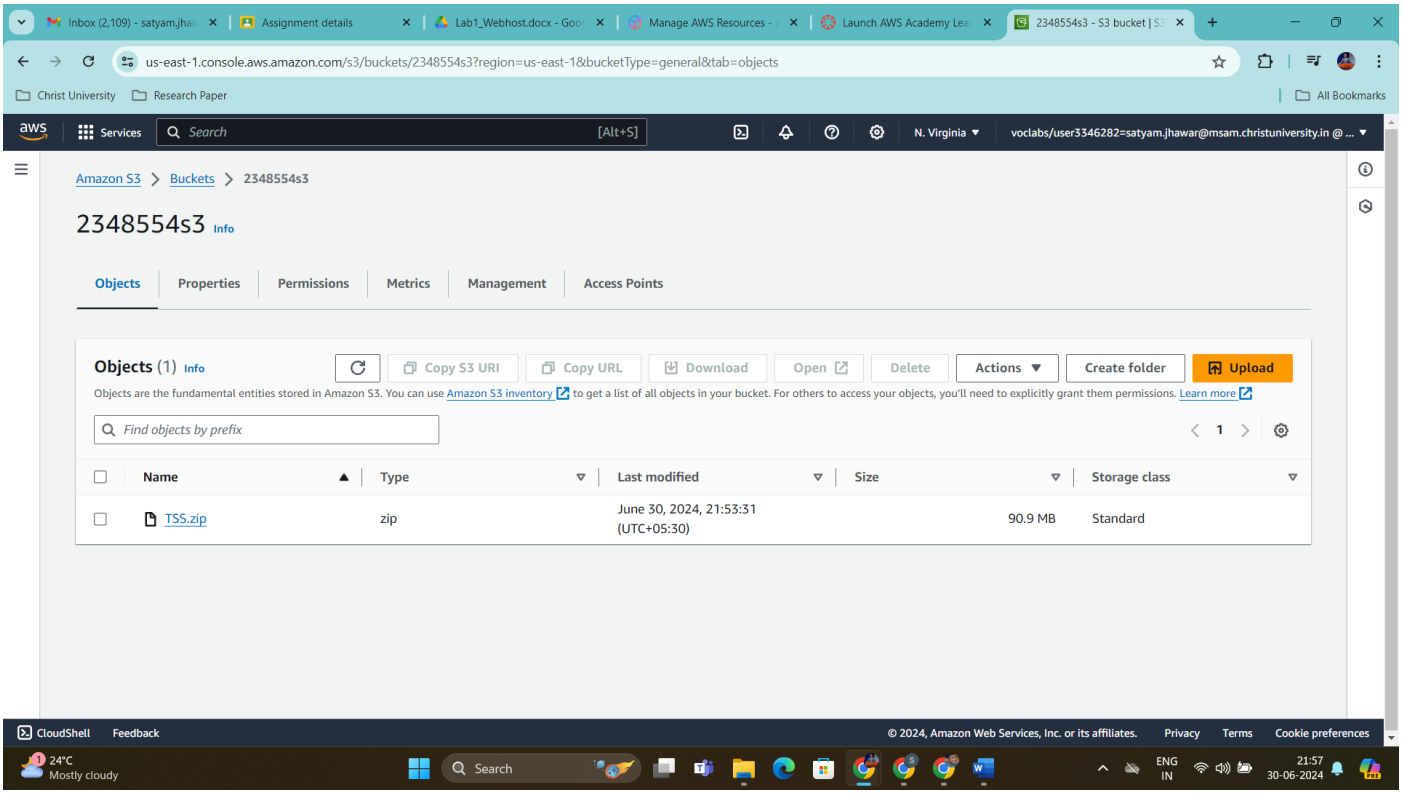


Figure 11: Confirmation of the Upload file awaited

Wait until the upload is completed

Once the Upload is completed. Click on Close and we will find the uploaded file within our bucket.



Step 6: Click on the Permissions Tab and navigate to edit bucket policy

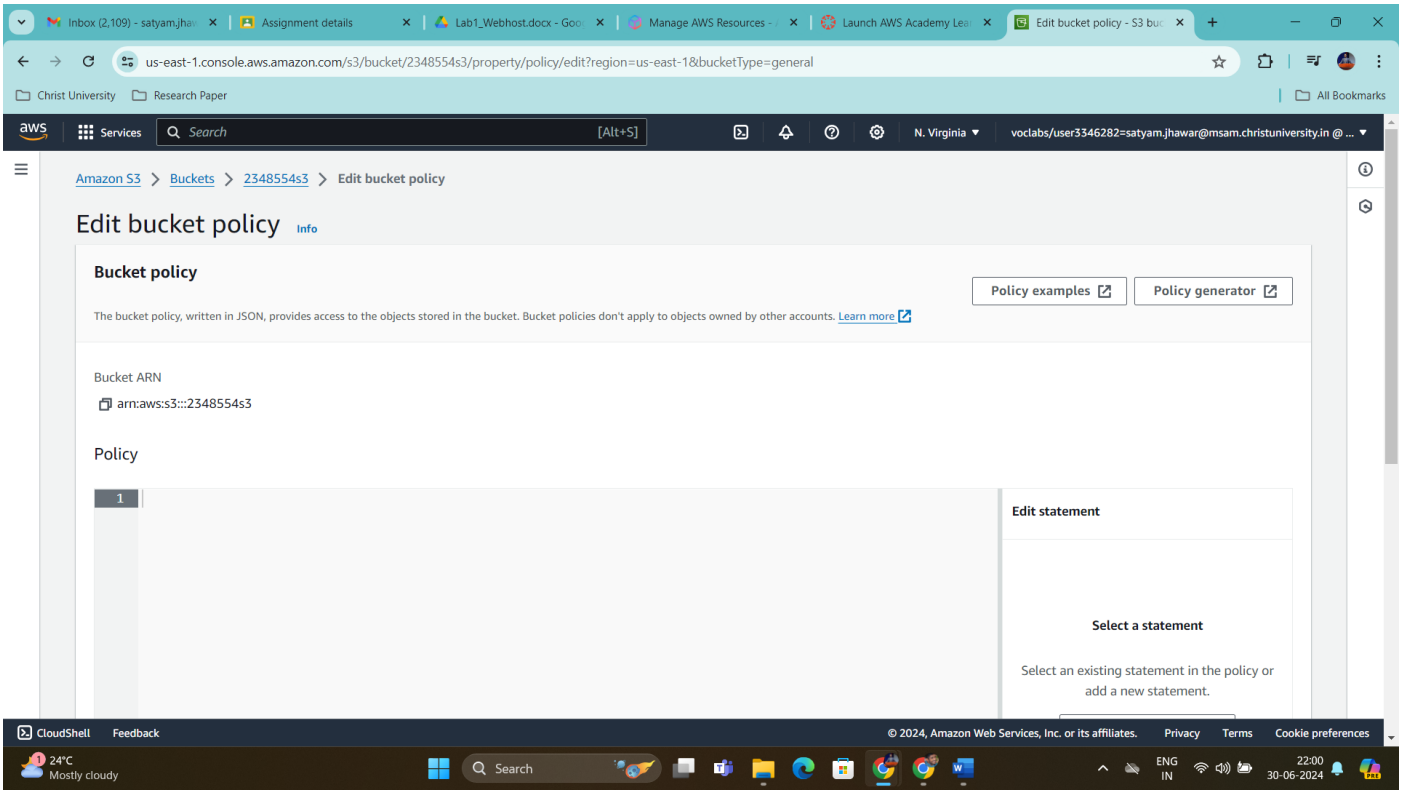


Figure 12: Bucket Policy Window

Step 7: Click on Policy Generator

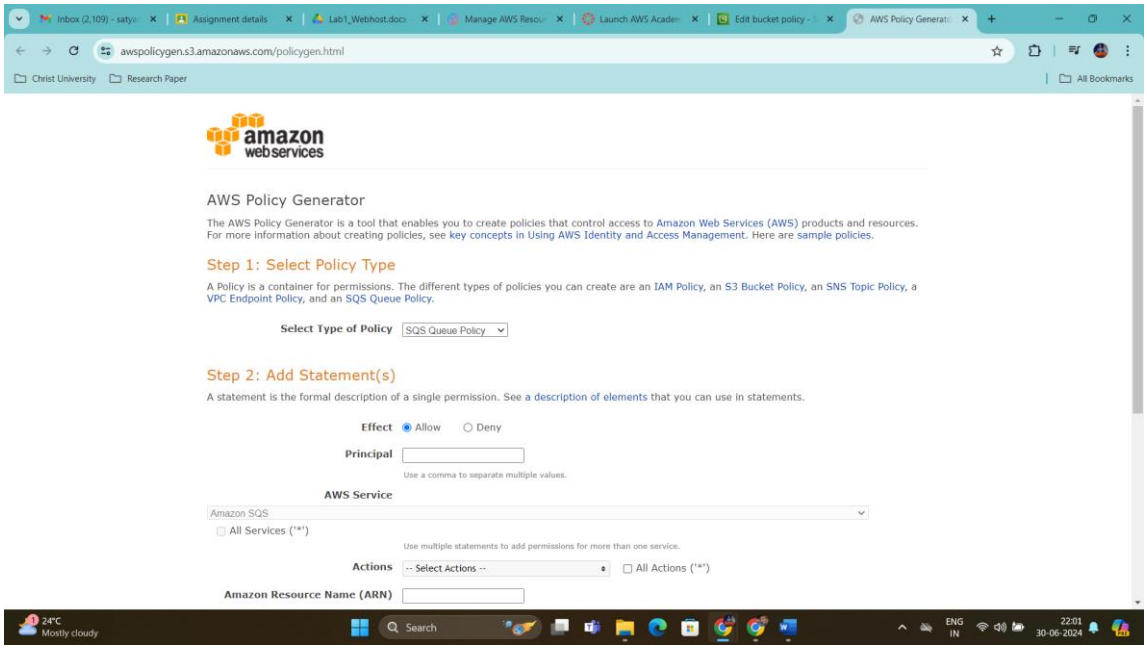


Figure 13: Policy Generator Window

Step 8: Configure Policy Generator

8.1) Select Policy Type as “S3 Bucket Policy” from the drop down menu

8.2) Enter Principal Text Field as “*”

8.3) Within Actions select “Get Object” from the drop down menu

8.4) Enter the bucket ARN

8.4.1) Go back to the bucket

8.4.2) Click on Properties tab and copy the ARN of the bucket

8.4.3) Paste it in the text field

8.5) Click on Add Statement

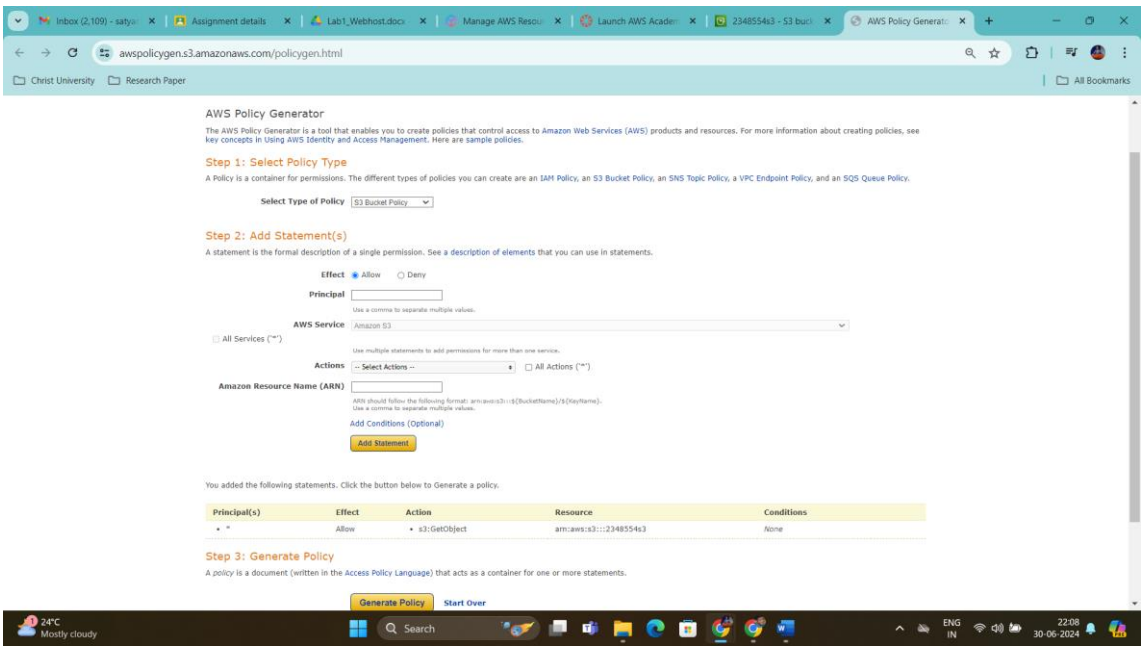


Figure 14: Bucet Policy Configuration

Step 9: Click on Generate Policy

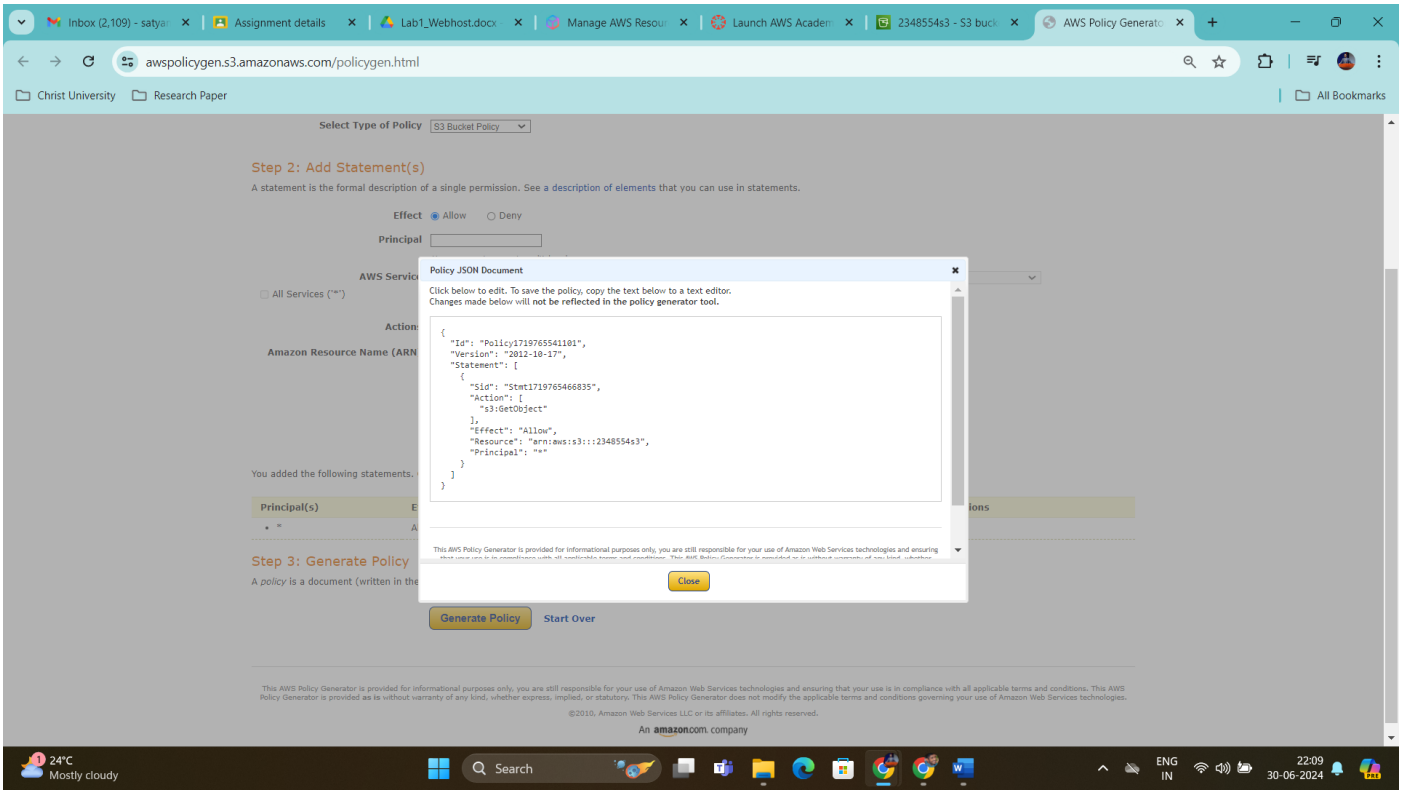


Figure 15: Policy Generated

Step 10: Copy the Policy and Paste it in the Edit Bucket Policy Page

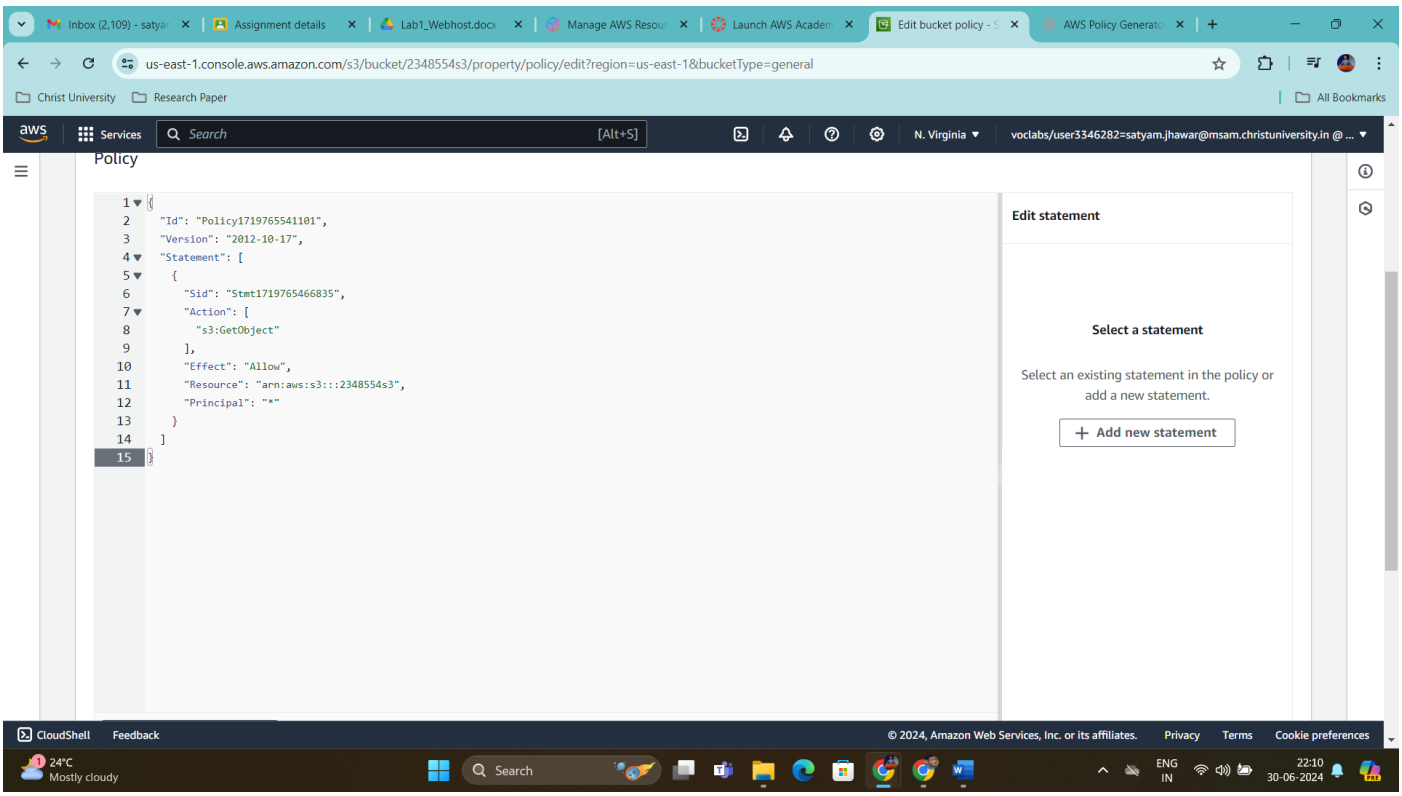


Figure 16: Policy Pasted

Step 11: Click on Save Changes

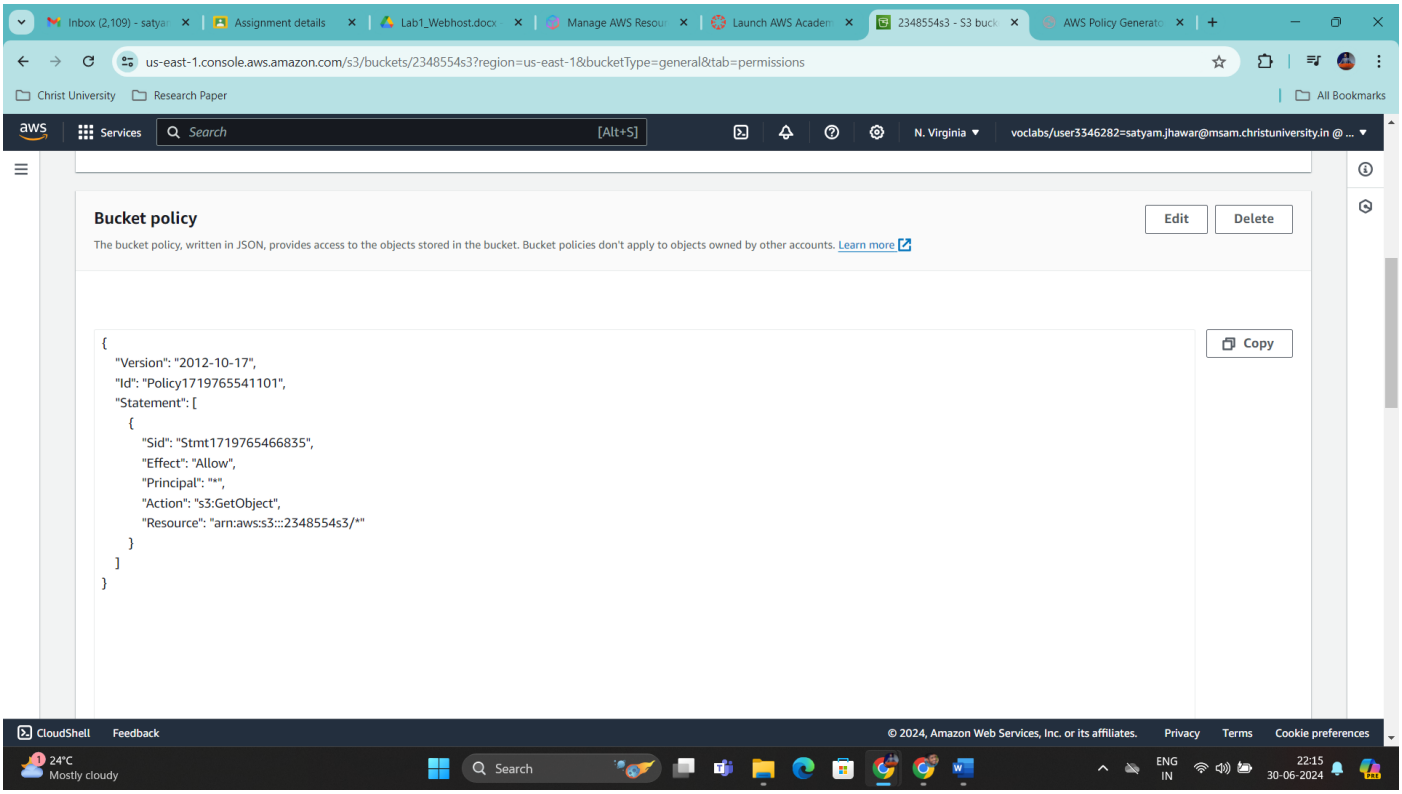


Figure 17: Bucket Policy Appears

Now the object within the bucket is publicly accessible

Step 12: Now go back to the EC2 Instance named 2348554_EC2_VM2 and connect it to the terminal

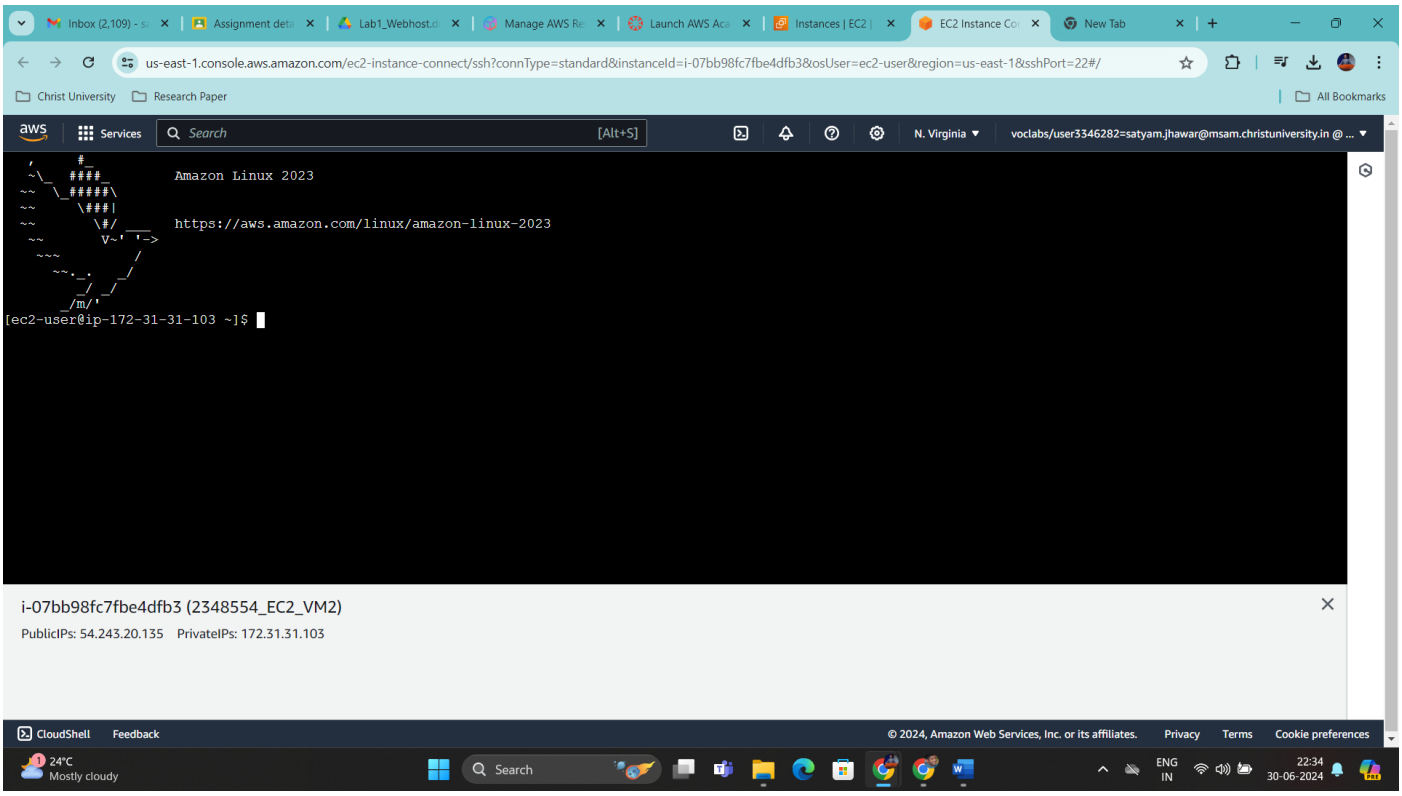


Figure 18: 2348554_EC2_VM2 Terminal

Step 13: Change to root user using the below command

Sudo su

```
[ec2-user@ip-172-31-31-103 ~]$ sudo su
[root@ip-172-31-31-103 ec2-user]#
```

Figure 19: Switched to Root User

Step 14: Update the instance

Yum update -y

```
[root@ip-172-31-31-103 ec2-user]# yum update -y
Last metadata expiration check: 0:06:46 ago on Sun Jun 30 16:59:16 2024.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-31-103 ec2-user]#
```

Figure 20: Update command

Step 15: Install Apache Server using the below command

Sudo yum install httpd -y

```
[root@ip-172-31-31-103 ec2-user]# sudo yum install httpd
Last metadata expiration check: 0:08:28 ago on Sun Jun 30 16:59:16 2024.
Dependencies resolved.
================================================================================================================================
 Package                         Architecture        Version                          Repository                        Size
================================================================================================================================
Installing:
 httpd                           x86_64              2.4.59-2.amzn2023                amazonlinux                       47 k
Installing dependencies:
 apr                             x86_64              1.7.2-2.amzn2023.0.2             amazonlinux                      129 k
 apr-util                        x86_64              1.6.3-1.amzn2023.0.1             amazonlinux                       98 k
 generic-logos-httpd             noarch              18.0.0-12.amzn2023.0.3           amazonlinux                       19 k
 httpd-core                      x86_64              2.4.59-2.amzn2023                amazonlinux                      1.4 M
 httpd-filesystem                noarch              2.4.59-2.amzn2023                amazonlinux                       14 k
 httpd-tools                     x86_64              2.4.59-2.amzn2023                amazonlinux                       81 k
 libbrotli                       x86_64              1.0.9-4.amzn2023.0.2             amazonlinux                      315 k
 mailcap                         noarch              2.1.49-3.amzn2023.0.3            amazonlinux                       33 k
Installing weak dependencies:
 apr-util-openssl                x86_64              1.6.3-1.amzn2023.0.1             amazonlinux                       17 k
 mod_http2                       x86_64              2.0.27-1.amzn2023.0.2            amazonlinux                      166 k
 mod_lua                         x86_64              2.4.59-2.amzn2023                amazonlinux                       61 k
```

```
  Installing       : httpd-core-2.4.59-2.amzn2023.x86_64                                                          8/12
  Installing       : mod_http2-2.0.27-1.amzn2023.0.2.x86_64                                                       9/12
  Installing       : mod_lua-2.4.59-2.amzn2023.x86_64                                                            10/12
  Installing       : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch                                           11/12
  Installing       : httpd-2.4.59-2.amzn2023.x86_64                                                              12/12
  Running scriptlet: httpd-2.4.59-2.amzn2023.x86_64                                                              12/12
  Verifying        : apr-1.7.2-2.amzn2023.0.2.x86_64                                                              1/12
  Verifying        : apr-util-1.6.3-1.amzn2023.0.1.x86_64                                                         2/12
  Verifying        : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64                                                 3/12
  Verifying        : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch                                            4/12
  Verifying        : httpd-2.4.59-2.amzn2023.x86_64                                                               5/12
  Verifying        : httpd-core-2.4.59-2.amzn2023.x86_64                                                          6/12
  Verifying        : httpd-filesystem-2.4.59-2.amzn2023.noarch                                                    7/12
  Verifying        : httpd-tools-2.4.59-2.amzn2023.x86_64                                                         8/12
  Verifying        : libbrotli-1.0.9-4.amzn2023.0.2.x86_64                                                        9/12
  Verifying        : mailcap-2.1.49-3.amzn2023.0.3.noarch                                                        10/12
  Verifying        : mod_http2-2.0.27-1.amzn2023.0.2.x86_64                                                      11/12
  Verifying        : mod_lua-2.4.59-2.amzn2023.x86_64                                                            12/12

Installed:
  apr-1.7.2-2.amzn2023.0.2.x86_64                    apr-util-1.6.3-1.amzn2023.0.1.x86_64          apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64
  generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch  httpd-2.4.59-2.amzn2023.x86_64                httpd-core-2.4.59-2.amzn2023.x86_64
  httpd-filesystem-2.4.59-2.amzn2023.noarch          httpd-tools-2.4.59-2.amzn2023.x86_64          libbrotli-1.0.9-4.amzn2023.0.2.x86_64
  mailcap-2.1.49-3.amzn2023.0.3.noarch               mod_http2-2.0.27-1.amzn2023.0.2.x86_64        mod_lua-2.4.59-2.amzn2023.x86_64

Complete!
[root@ip-172-31-31-103 ec2-user]#
```

Figure 21: Apache Server Installed

Step 16: Start and enable apache server using the below commands

Systemctl start httpd

Systemctl enable httpd

Systemctl status httpd

```
[root@ip-172-31-31-103 ec2-user]# systemctl start httpd
[root@ip-172-31-31-103 ec2-user]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-31-103 ec2-user]# systemctl status httpd
● httpd.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
     Active: active (running) since Sun 2024-06-30 17:11:44 UTC; 23s ago
       Docs: man:httpd.service(8)
   Main PID: 26203 (httpd)
     Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec:   0 B/sec"
      Tasks: 177 (limit: 1114)
     Memory: 12.9M
        CPU: 74ms
     CGroup: /system.slice/httpd.service
             ├─26203 /usr/sbin/httpd -DFOREGROUND
             ├─26226 /usr/sbin/httpd -DFOREGROUND
             ├─26227 /usr/sbin/httpd -DFOREGROUND
             ├─26228 /usr/sbin/httpd -DFOREGROUND
             └─26229 /usr/sbin/httpd -DFOREGROUND

Jun 30 17:11:44 ip-172-31-31-103.ec2.internal systemd[1]: Starting httpd.service - The Apache HTTP Server...
Jun 30 17:11:44 ip-172-31-31-103.ec2.internal systemd[1]: Started httpd.service - The Apache HTTP Server.
Jun 30 17:11:44 ip-172-31-31-103.ec2.internal httpd[26203]: Server configured, listening on: port 80
[root@ip-172-31-31-103 ec2-user]#
```

Figure 22: Apache server in running mode

Step 17: Change the current directory to var/www/html using the below command

Cd /var/www/html

```
[root@ip-172-31-31-103 ec2-user]# pwd
/home/ec2-user
[root@ip-172-31-31-103 ec2-user]# cd /var/www/html
[root@ip-172-31-31-103 html]# pwd
/var/www/html
[root@ip-172-31-31-103 html]#
```

Figure 23: Directory changed

Step 18: Navigate back to s3 in the AWS console and copy the uploaded file's Object URL

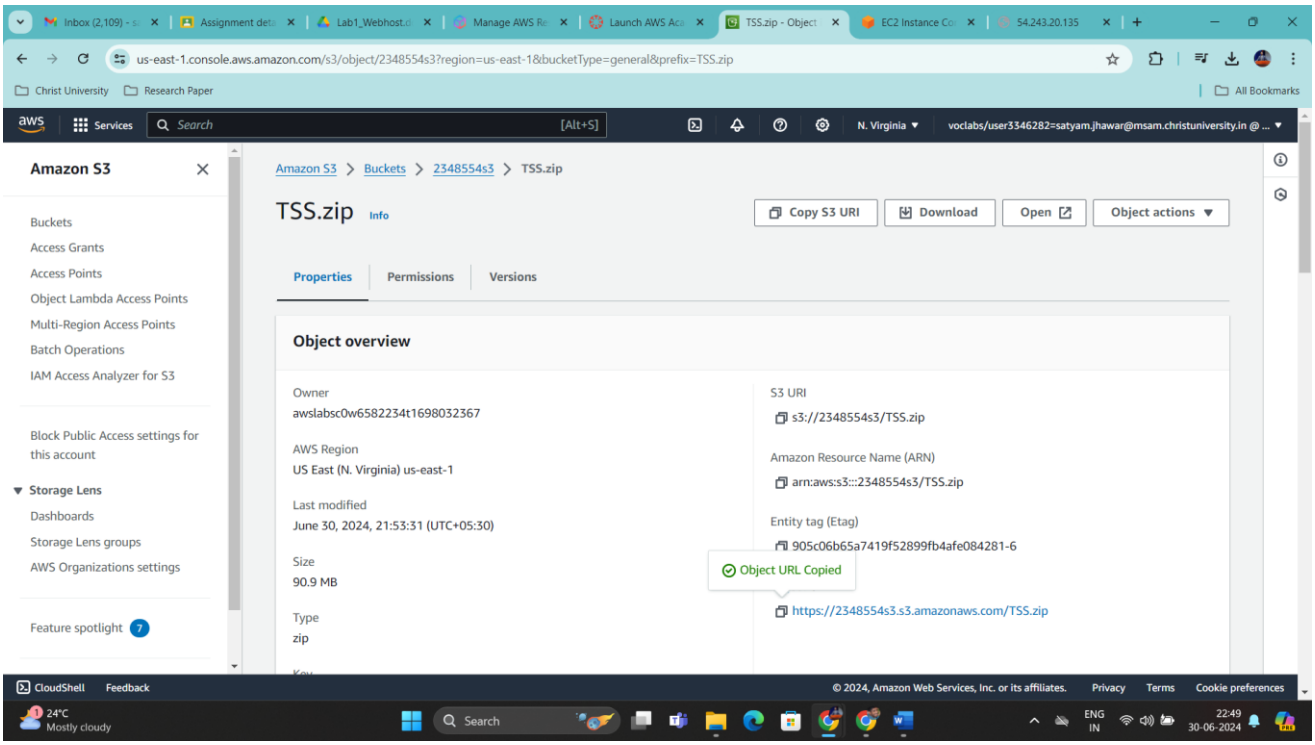


Figure 24: Object URL of the uploaded file

Step 19: Download the uploaded file in the s3 to our EC2 instance using the below command

Wget https://2348554s3.s3.amazonaws.com/TSS.zip

```
[root@ip-172-31-31-103 html]# wget https://2348554s3.s3.amazonaws.com/TSS.zip
--2024-06-30 17:22:38--  https://2348554s3.s3.amazonaws.com/TSS.zip
Resolving 2348554s3.s3.amazonaws.com (2348554s3.s3.amazonaws.com)... 54.231.130.225, 54.231.193.17, 54.231.230.49, ...
Connecting to 2348554s3.s3.amazonaws.com (2348554s3.s3.amazonaws.com)|54.231.130.225|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 95337809 (91M) [application/zip]
Saving to: 'TSS.zip'

TSS.zip                                   100%[===================================================================================>]  90.92M  77.5MB/s    in 1.2s

2024-06-30 17:22:39 (77.5 MB/s) - 'TSS.zip' saved [95337809/95337809]

[root@ip-172-31-31-103 html]# ls
TSS.zip
```

Figure 25: Downloading the file

Step 20: Unzip the file using the below command

Unzip TSS.zip

```
[root@ip-172-31-31-103 html]# unzip TSS.zip
Archive:  TSS.zip
   creating: TSS/css/
  inflating: TSS/css/developerstyle.css
  inflating: TSS/css/mainstyle.css
  inflating: TSS/css/style.css
  inflating: TSS/developers.html
   creating: TSS/images/
  inflating: TSS/images/bg.jpg
  inflating: TSS/images/bg1.jpg
  inflating: TSS/images/christina.jpg
 extracting: TSS/images/models - checkpoint 50.zip
  inflating: TSS/images/reeve.jpg
  inflating: TSS/images/satyam.jpg
  inflating: TSS/index.html
[root@ip-172-31-31-103 html]# ls
TSS  TSS.zip
[root@ip-172-31-31-103 html]#
```

Figure 26: Folder unzipped

Step 21: Move all the files of the folder to the directory var/www/html using the below command

Mv TSS/*

```
[root@ip-172-31-31-103 html]# mv TSS/* .
[root@ip-172-31-31-103 html]# ls
TSS  TSS.zip  css  developers.html  images  index.html
[root@ip-172-31-31-103 html]#
```

Figure 27: Files have been moved

Step 22: Start the apache server again using the below command

Systemctl start httpd

Step 23: Now navigate back to EC2 and copy it public IP address and paste it in a browser, we will find the output of our Static website

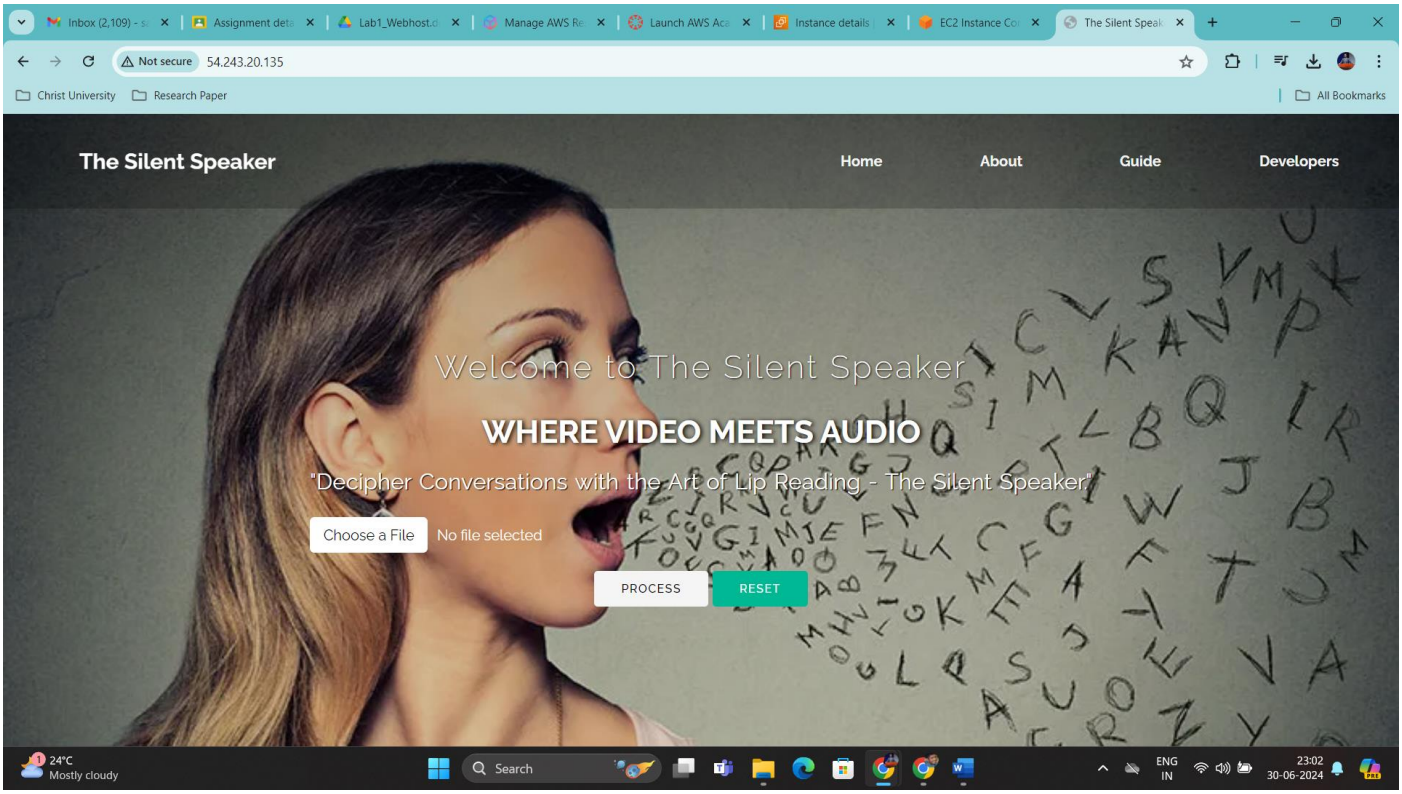


Figure 28: Static Website Deployed on EC2