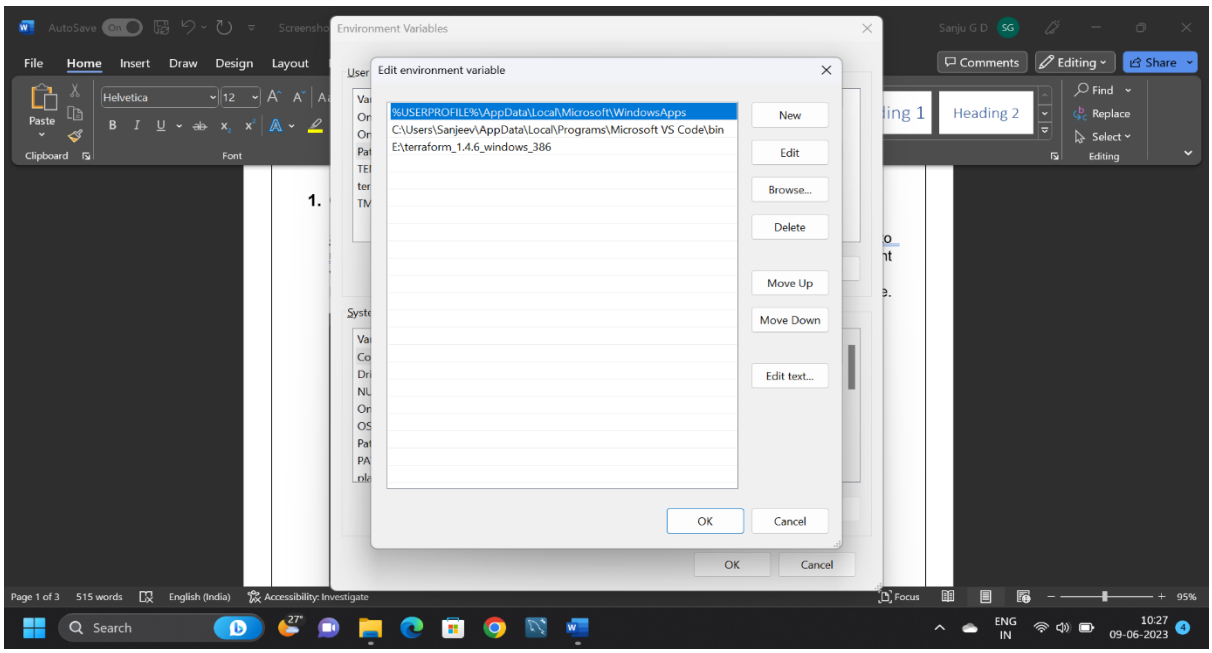
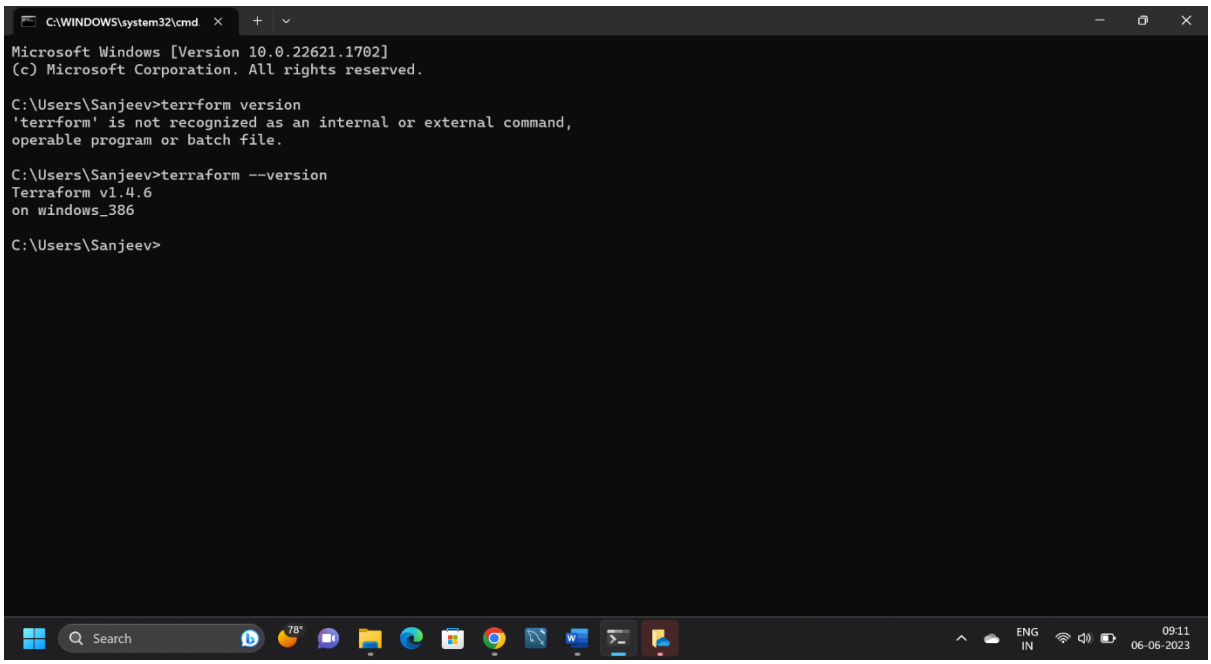
1. Creating an EC2 instance using Terraform.

Step-1: First we have to download the terraform file in our local machine. We have to unzip the file and move to the drive. Copy the path of the file and open Edit environment variables > environment variables > path > and paste the path and tap ok.

Now the terraform is installed in our local machine. Now we want to create a EC2 instance.

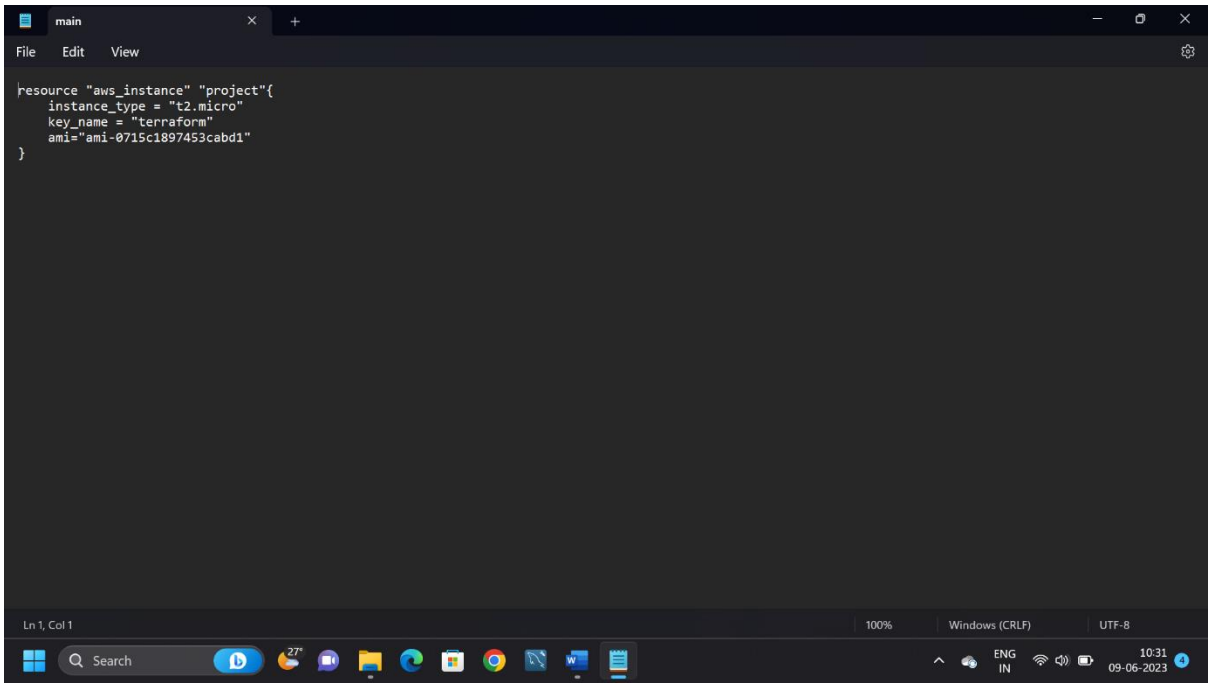




Step-2: Create a folder named terraform-project and cd into the folder. Now create a folder named as script and now we have to create two terraform files. These files have extension ".tf". we can name those two files as "main.tf" and "provider.tf". Now we have to add providers and resource commands to those two files.

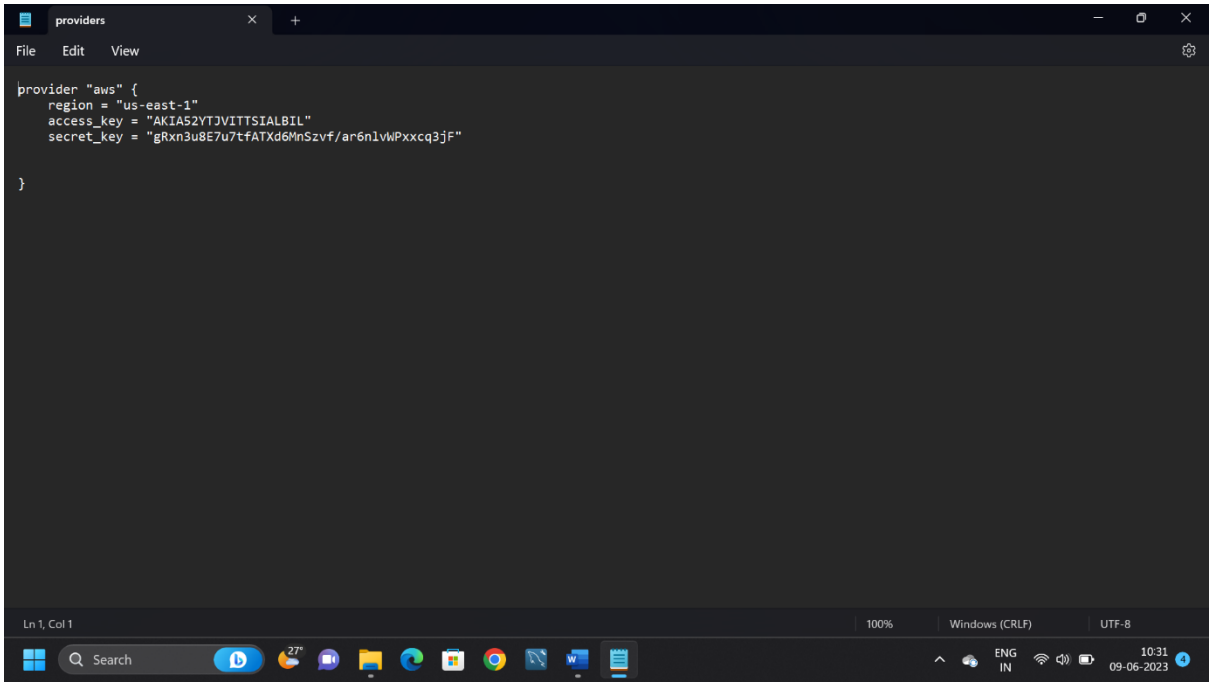
Step-3: Now open the main.tf by giving the command 'notepad main.tf' and open the notepad and define the resource.

```
resource "aws_instance" "web" {
    instance_type = "t2.micro"
    key_name = "terraform"
    ami="ami-053b0d53c279acc90"
}
```

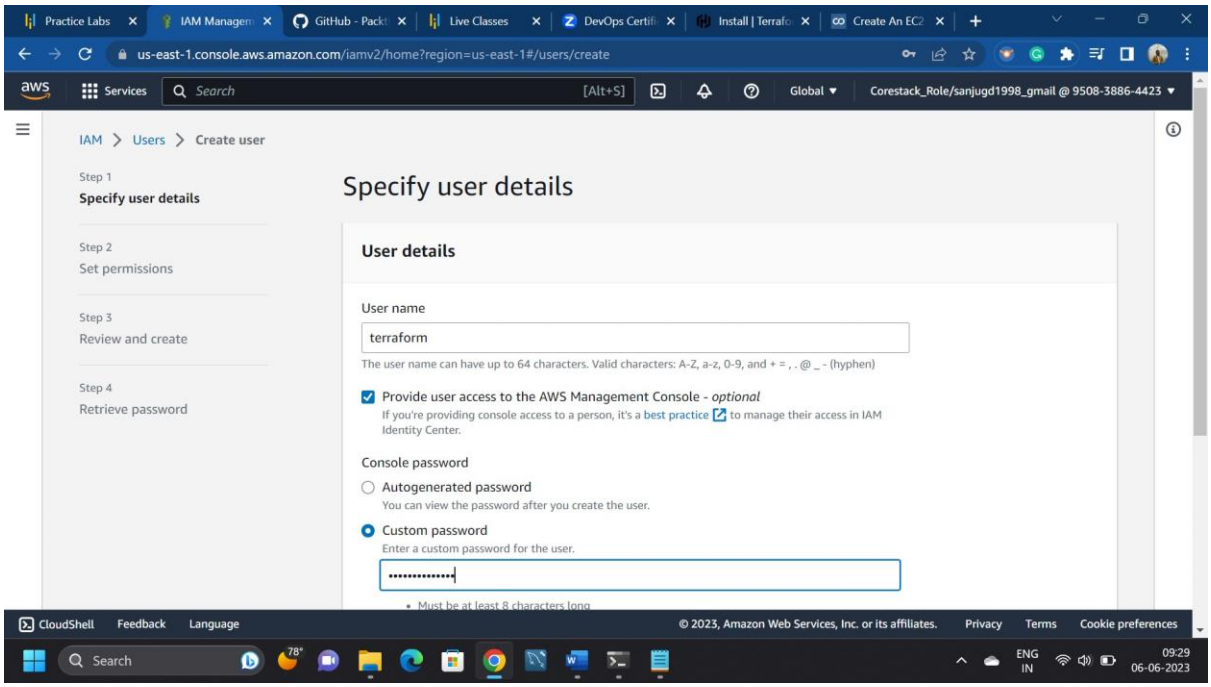


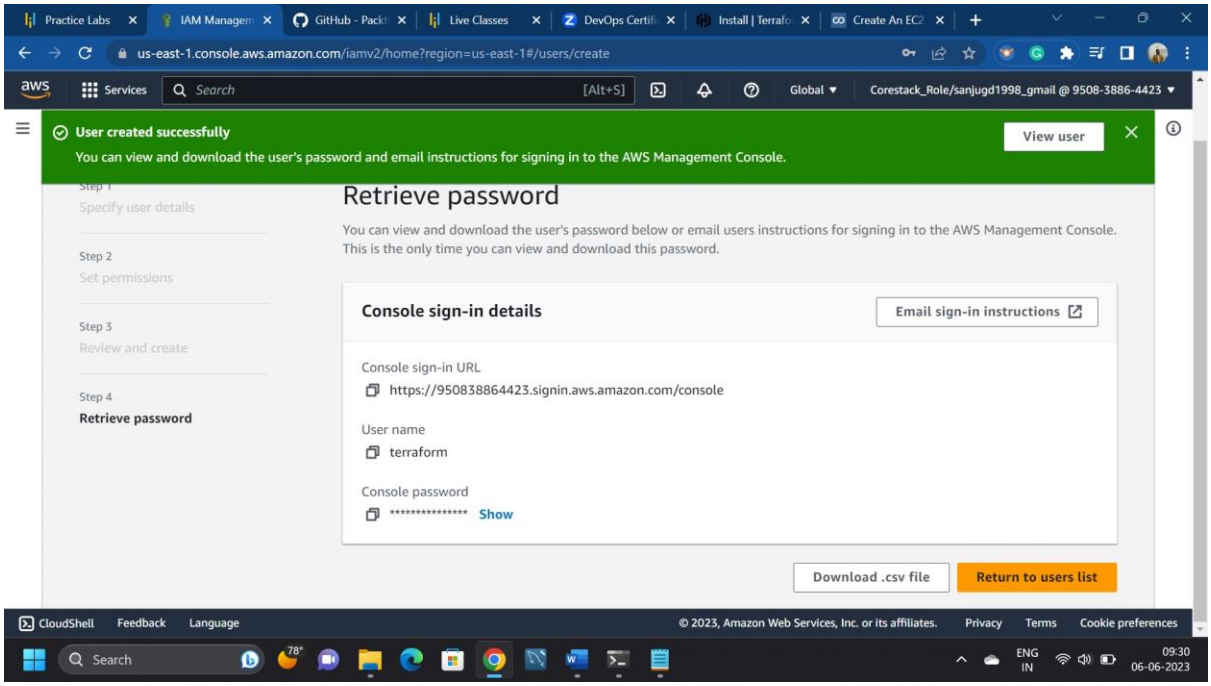
Now open the provider.tf by giving the command 'notepad provider.tf' and open the notepad and define the resource.

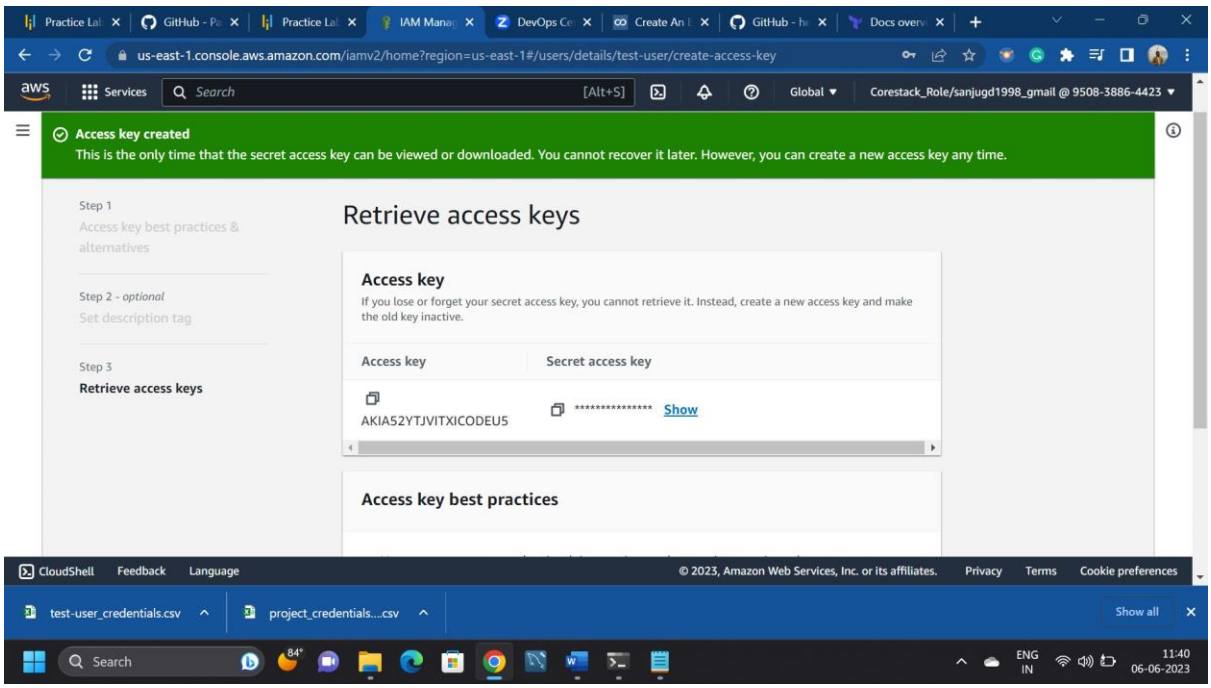
```
provider "aws" {
    region = "us-east-1"
    access_key = "AKIA52YTJVITXICODEU5"
    secret_key = "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"
}
```



We can generate the access_key and secret_key by creating a user at IAM in aws.







Now after configuring the user we have to run the commands

Terraform init

```
C:\WINDOWS\system32\cmd.

The following dependency selections recorded in the lock file are inconsistent with the current configuration:
  - provider registry.terraform.io/hashicorp/aws: required by this configuration but no version is selected

To make the initial dependency selections that will initialize the dependency lock file, run:
  terraform init


C:\Users\Sanjeev\terraform-project\script>terraform init

Initializing the backend...

Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.1.0...
- Installed hashicorp/aws v5.1.0 (signed by HashiCorp)

Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.

C:\Users\Sanjeev\terraform-project\script>
```

Terraform plan

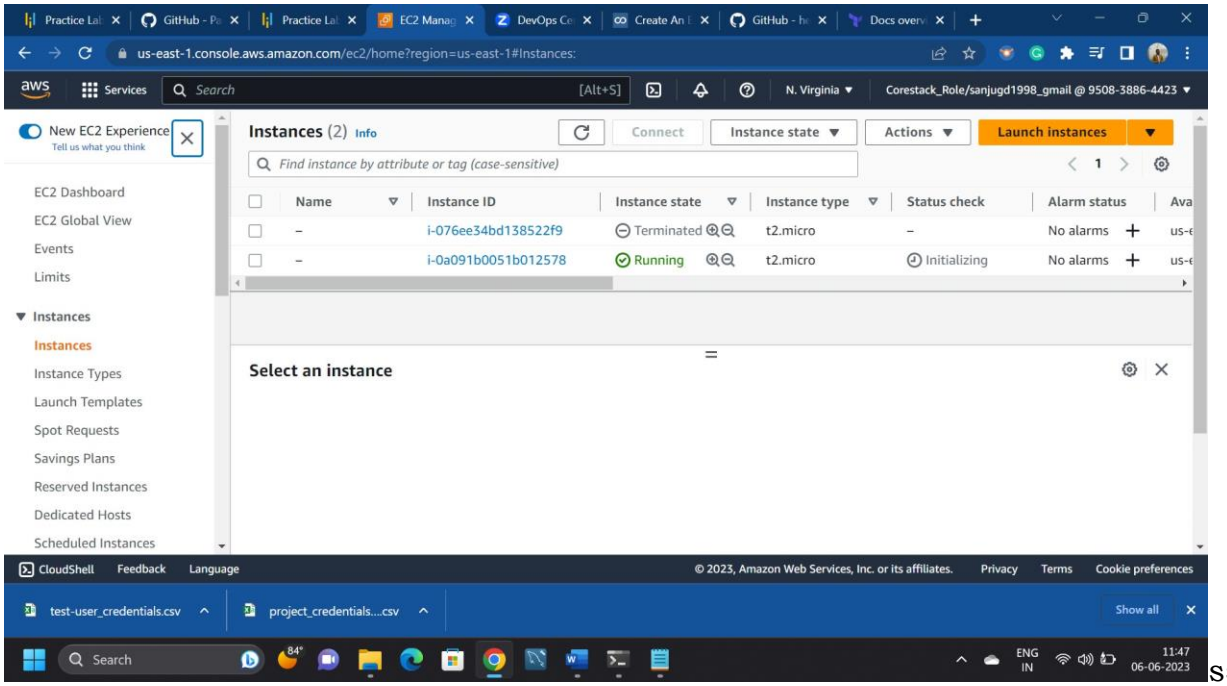
```
C:\WINDOWS\system32\cmd.

C:\Users\Sanjeev\terraform-project\script>terraform plan

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following
symbols:
  + create

Terraform will perform the following actions:

  # aws_instance.project will be created
  + resource "aws_instance" "project" {
      + ami                                  = "ami-053b0d53c279acc90"
      + arn                                  = (known after apply)
      + associate_public_ip_address          = (known after apply)
      + availability_zone                    = (known after apply)
      + cpu_core_count                       = (known after apply)
      + cpu_threads_per_core                 = (known after apply)
      + disable_api_stop                     = (known after apply)
      + disable_api_termination              = (known after apply)
      + ebs_optimized                        = (known after apply)
      + get_password_data                    = false
      + host_id                              = (known after apply)
      + host_resource_group_arn              = (known after apply)
      + iam_instance_profile                 = (known after apply)
      + id                                   = (known after apply)
      + instance_initiated_shutdown_behavior = (known after apply)
      + instance_state                       = (known after apply)
      + instance_type                        = "t2-micro"
      + ipv6_address_count                   = (known after apply)
      + ipv6_addresses                       = (known after apply)
      + key_name                             = "terraform1"
      + monitoring                           = (known after apply)
```

Terraform apply.

```
C:\WINDOWS\system32\cmd.

      + outpost_arn                          = (known after apply)
      + password_data                        = (known after apply)
      + placement_group                      = (known after apply)
      + placement_partition_number           = (known after apply)
      + primary_network_interface_id         = (known after apply)
      + private_dns                          = (known after apply)
      + private_ip                           = (known after apply)
      + public_dns                           = (known after apply)
      + public_ip                            = (known after apply)
      + secondary_private_ips                = (known after apply)
      + security_groups                      = (known after apply)
      + source_dest_check                    = true
      + subnet_id                            = (known after apply)
      + tags_all                             = (known after apply)
      + tenancy                              = (known after apply)
      + user_data                            = (known after apply)
      + user_data_base64                     = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (known after apply)
    }

Plan: 1 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

aws_instance.web: Creating...
aws_instance.web: Still creating... [10s elapsed]
```

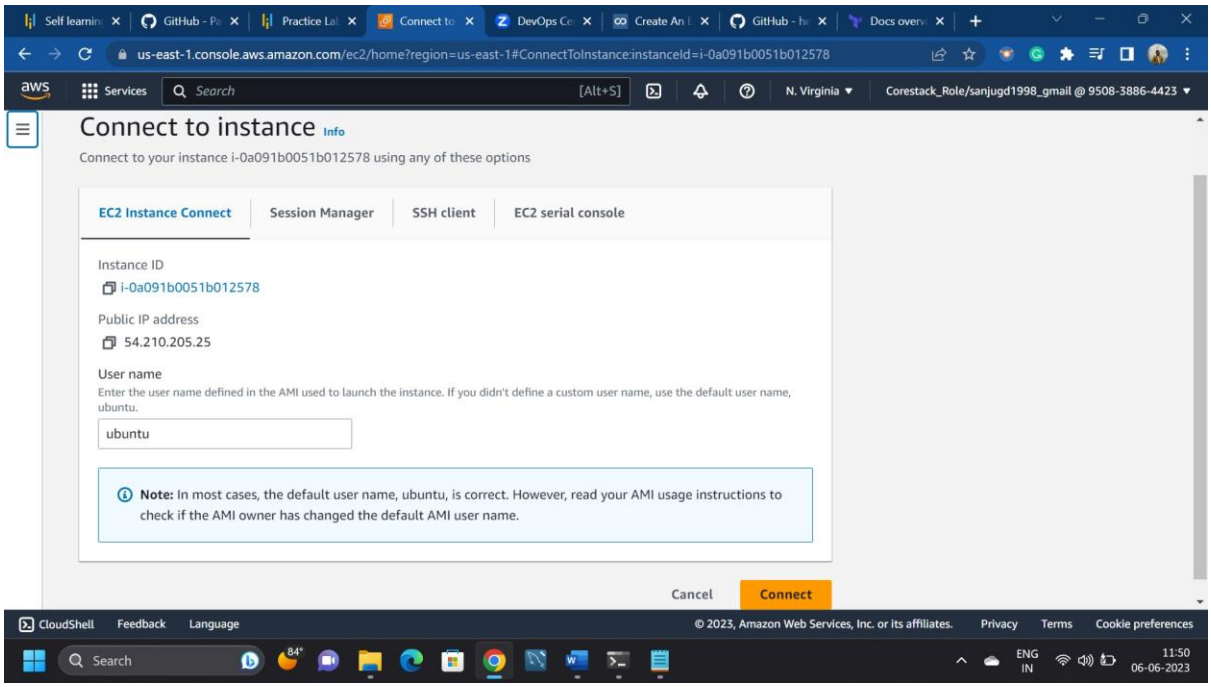
Now our instance is created in our AWS account.

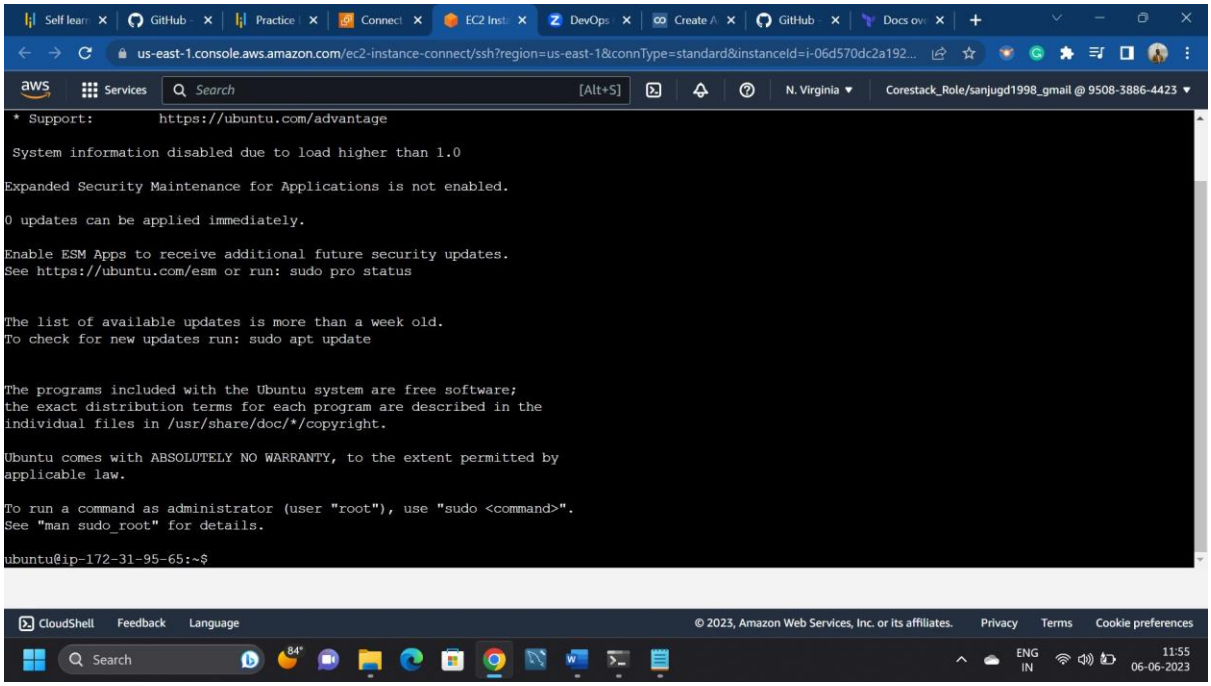

```
C:\WINDOWS\system32\cmd.

      + outpost_arn                          = (known after apply)
      + password_data                        = (known after apply)
      + placement_group                      = (known after apply)
      + placement_partition_number           = (known after apply)
      + primary_network_interface_id         = (known after apply)
      + private_dns                          = (known after apply)
      + private_ip                           = (known after apply)
      + public_dns                           = (known after apply)
      + public_ip                            = (known after apply)
      + secondary_private_ips                = (known after apply)
      + security_groups                      = (known after apply)
      + source_dest_check                    = true
      + subnet_id                            = (known after apply)
      + tags_all                             = (known after apply)
      + tenancy                              = (known after apply)
      + user_data                            = (known after apply)
      + user_data_base64                     = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (known after apply)
    }

Plan: 1 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

aws_instance.web: Creating...
aws_instance.web: Still creating... [10s elapsed]
```



2. Connecting to the EC2 instance.

Now we can see that our EC2 instance is running successfully, we will find the option in AWS to connect to our instance from there we can connect to our instance. A terminal will open and now we are connected to our instance.

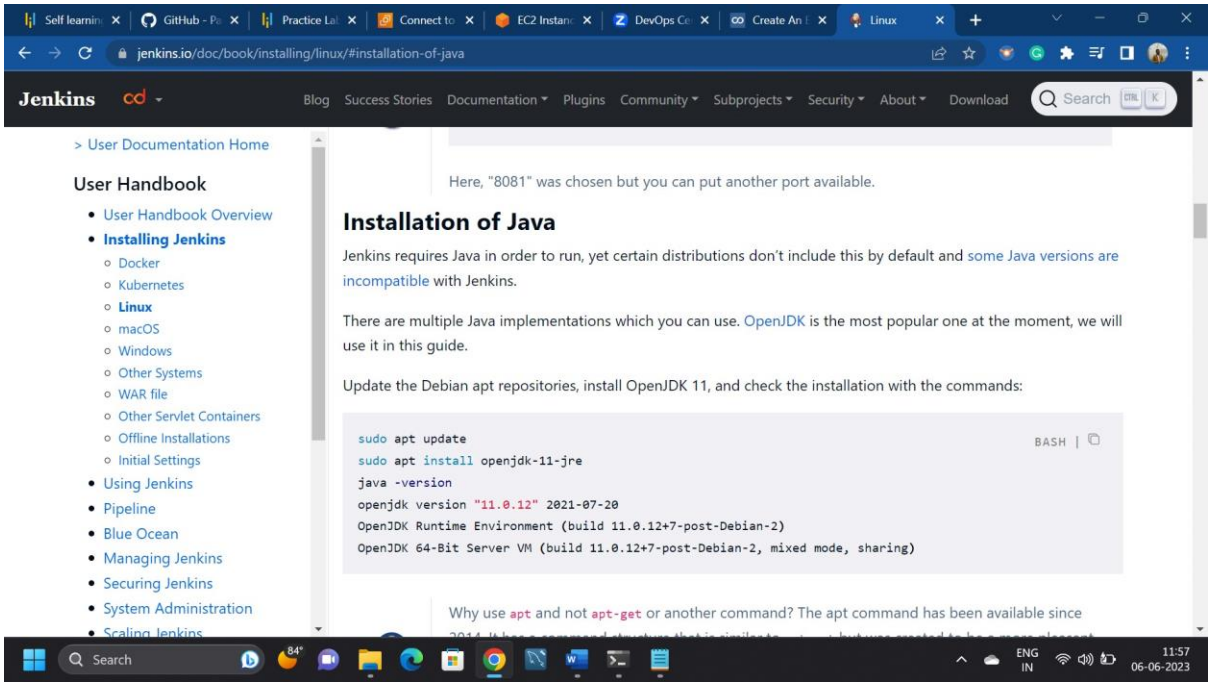




3. Installing Java in our EC2 instance.

We need to run few commands in our terminal to install Java in our local machine. To install Java the commands that we should run are,

 # sudo apt update
 # sudo apt install openjdk-11-jre

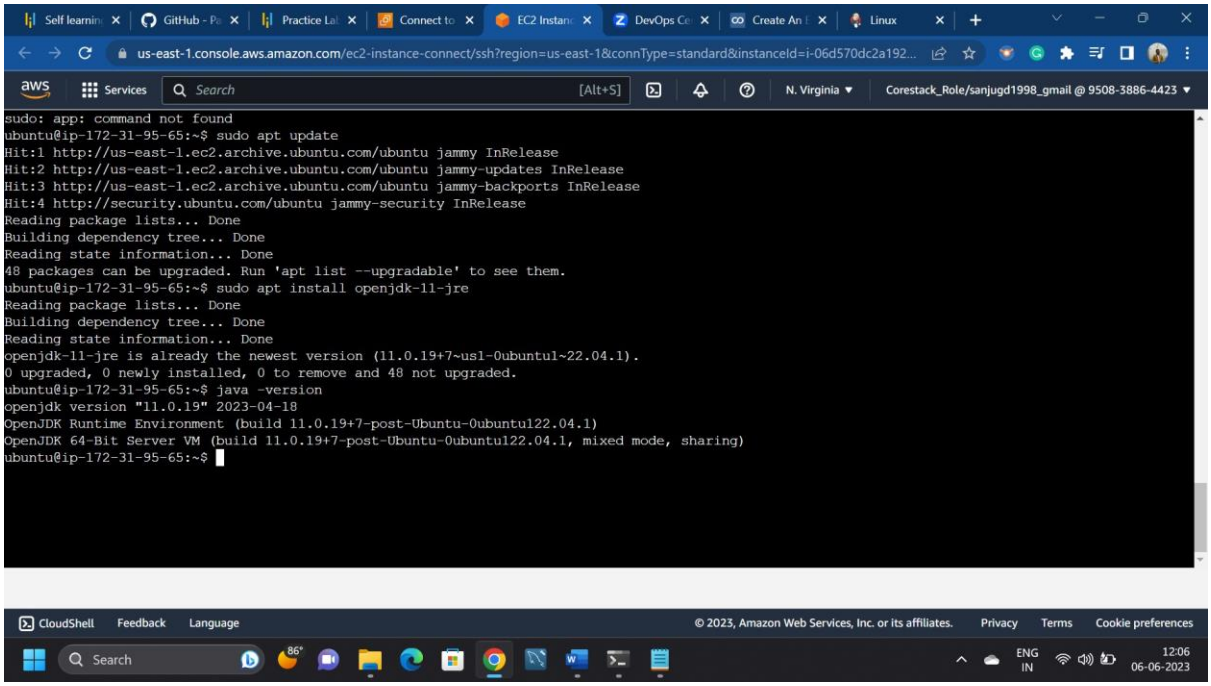


To check if Java is installed or not we need to run this command.

 # java -version

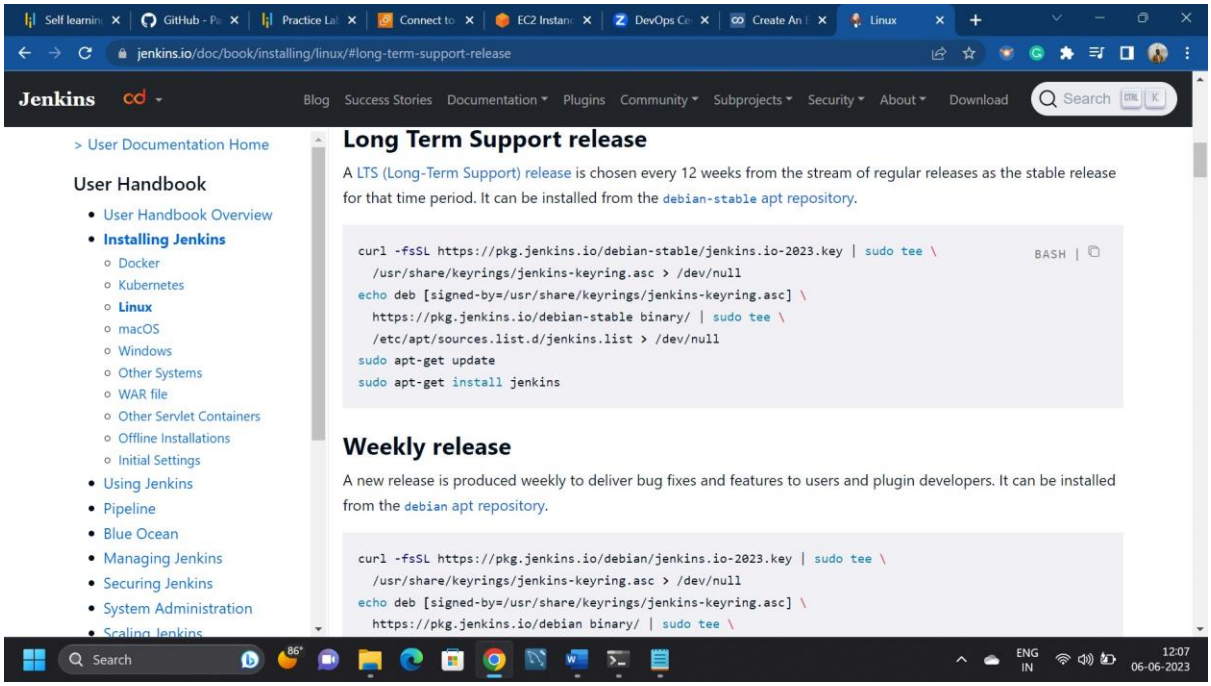
If Java is installed we will fine the result as this,

Openjdk version "11.0.12" 2021-07-20
OpenJDK Runtime Environment (build 11.0.12+7-post-Debian-2)
OpenJDK 64-Bit Server VM (build 11.0.12+7-post-Debian-2, mixed mode, sharing)



4. Installing Jenkins in our EC2 instance.

We need to run few commands in our terminal to install Jenkins in our local machine. To install Jenkins the commands that we should run are,



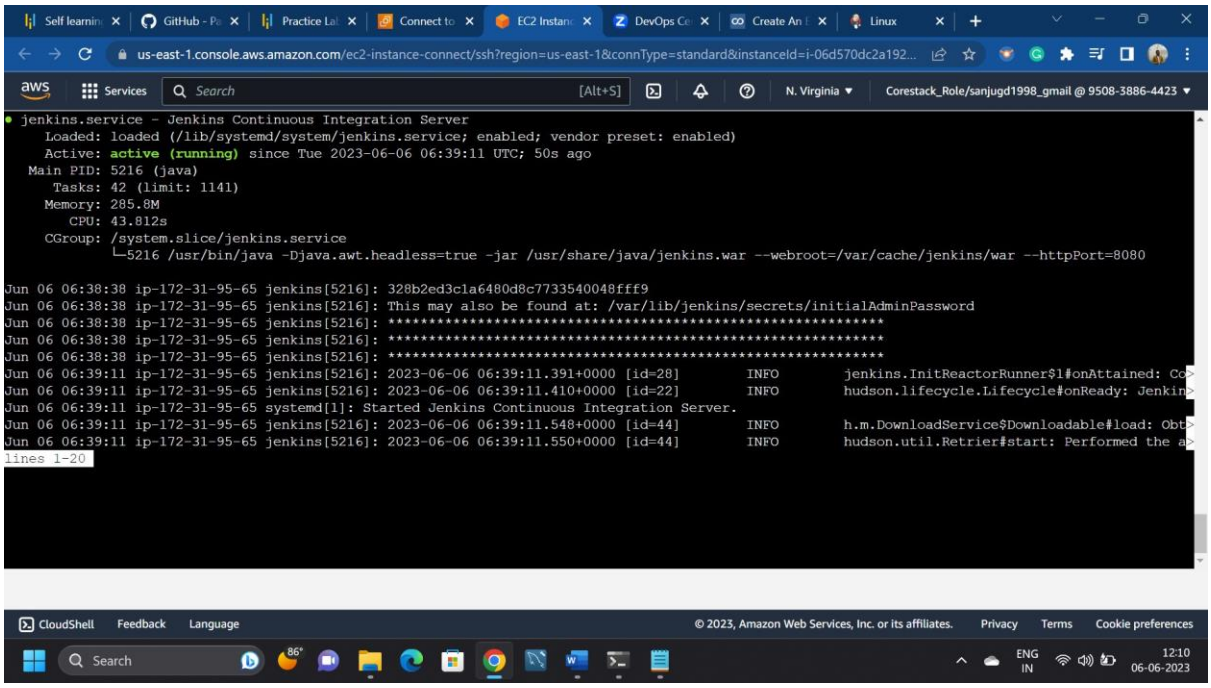
*# curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee *
/usr/share/keyrings/jenkins-keyring.asc > /dev/null

*# echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] *
*https://pkg.jenkins.io/debian-stable binary/ | sudo tee *
/etc/apt/sources.list.d/jenkins.list > /dev/null

 # sudo apt-get update

 # sudo apt-get install Jenkins

To check if Java is installed or not we need to run this command.
 # service Jenkins status



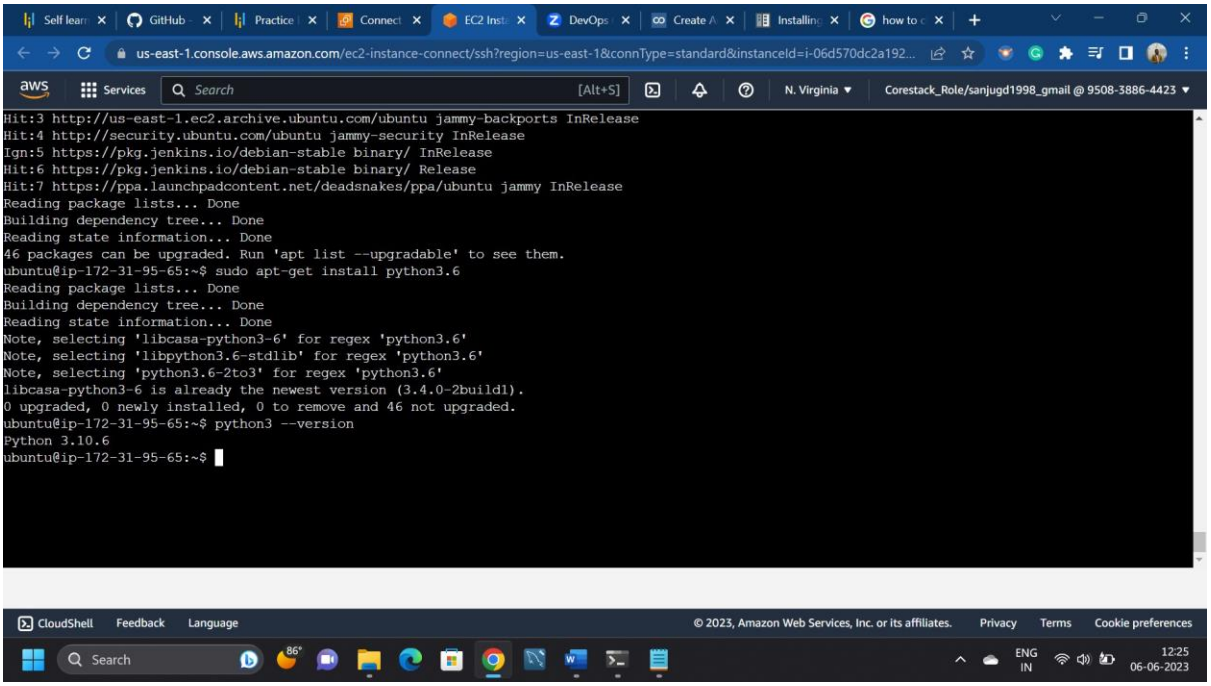
5. Installing Python in our EC2 instance.

We need to run few commands in our terminal to install Python in our local machine. To install python the commands that we should run are,

 # sudo apt-install get python3.6

To check the python is installed or not
 # python3 –version.

These are the steps and procedure that I have taken to complete the requirements.


us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-06d570dc2a192...
Services
Search
[Alt+S]
N. Virginia
Corestack_Role/sanjugd1998_gmail @ 9508-3886-4423
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Ign:5 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:6 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:7 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu jammy InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
46 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-95-65:~$ sudo apt-get install python3.6
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'libcasa-python3-6' for regex 'python3.6'
Note, selecting 'libpython3.6-stdlib' for regex 'python3.6'
Note, selecting 'python3.6-2to3' for regex 'python3.6'
libcasa-python3-6 is already the newest version (3.4.0-2build1).
0 upgraded, 0 newly installed, 0 to remove and 46 not upgraded.
ubuntu@ip-172-31-95-65:~$ python3 --version
Python 3.10.6
ubuntu@ip-172-31-95-65:~$
CloudShell
Feedback
Language
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Search
ENG
IN
12:25
06-06-2023