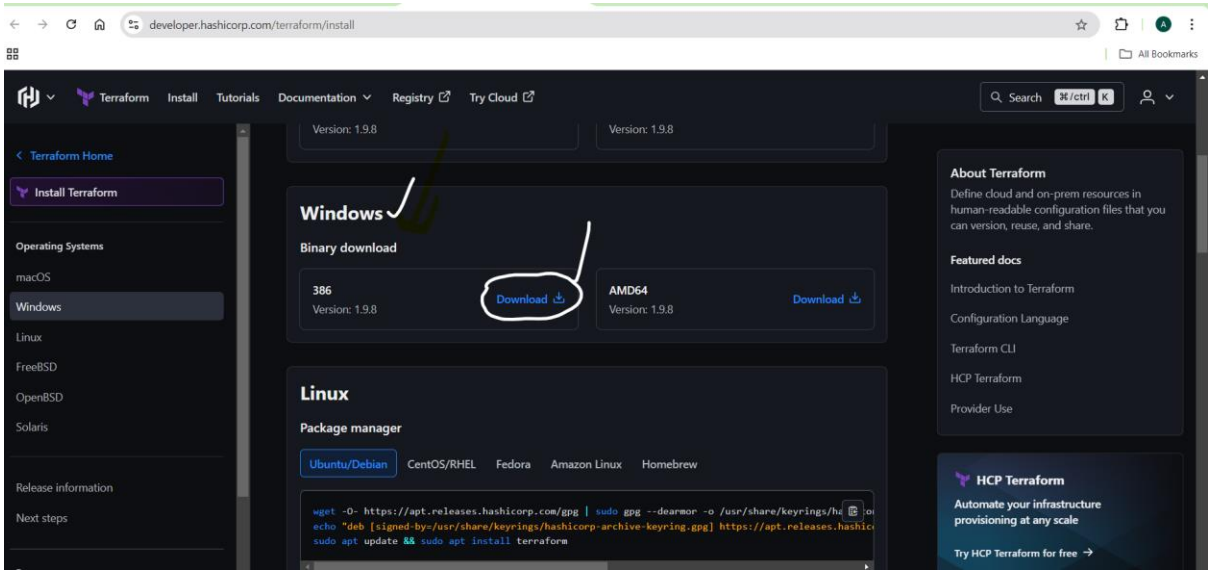
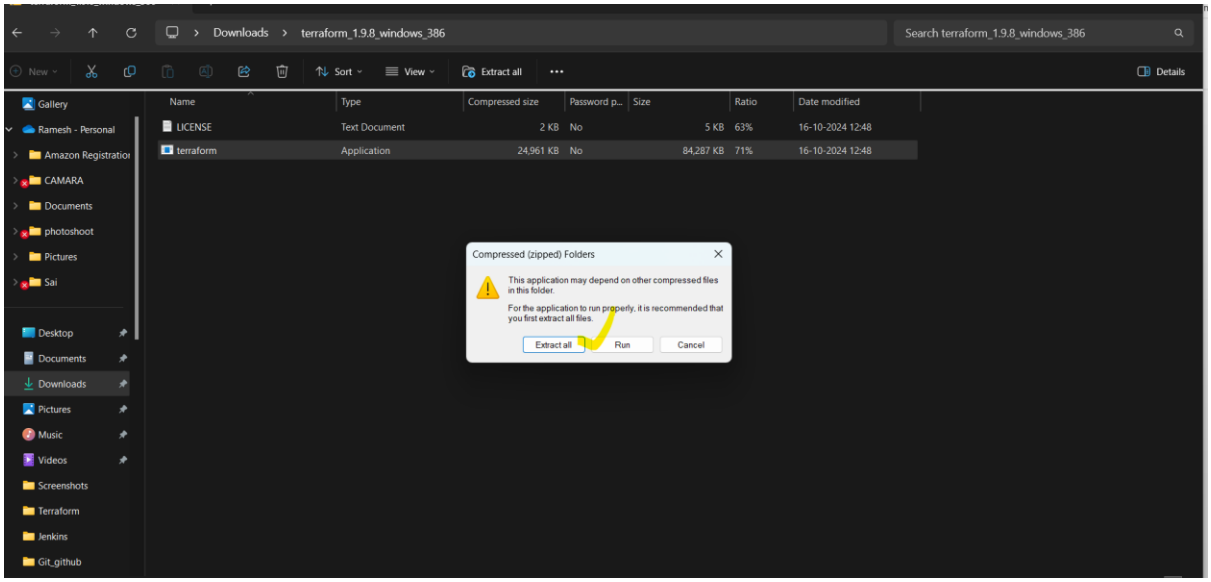
1) Install Terraform on your PC

To install terraform in our PC below steps we can follow.

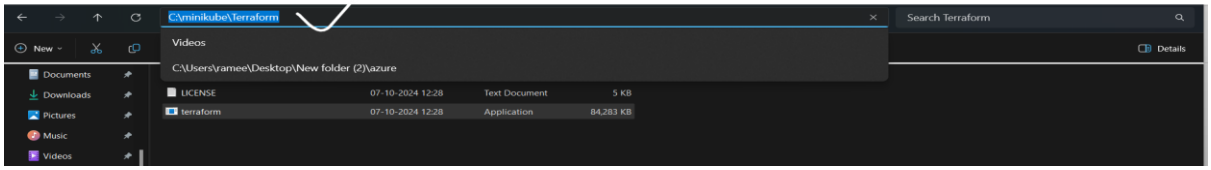
- Just click on this Link -- https://developer.hashicorp.com/terraform/install
- You see the below interface scroll down below there you find Windows.
- Just click on downloads.



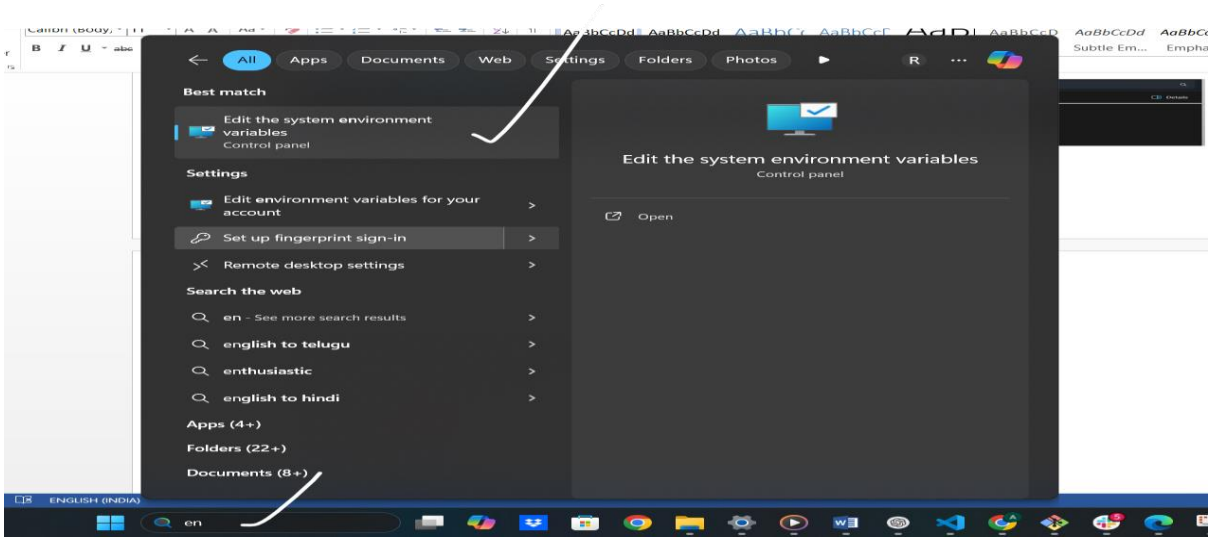
Extract the terraform folder.



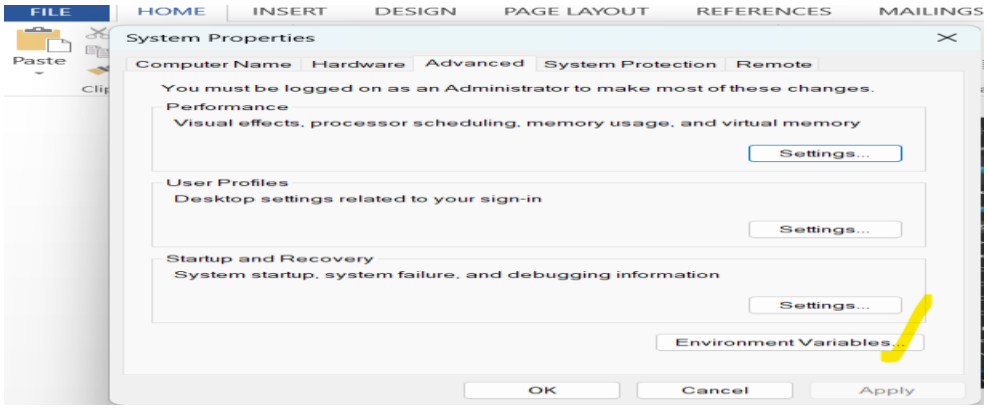
- Then go to the location of Terraform in C dirve.
- Now this path I want to pass inn environment veriables.



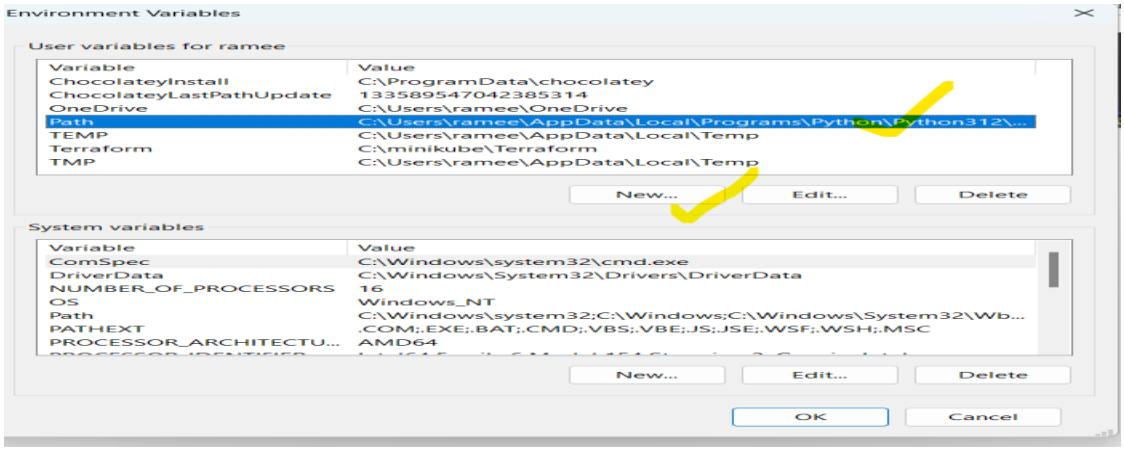
Search for system environments and click on that.

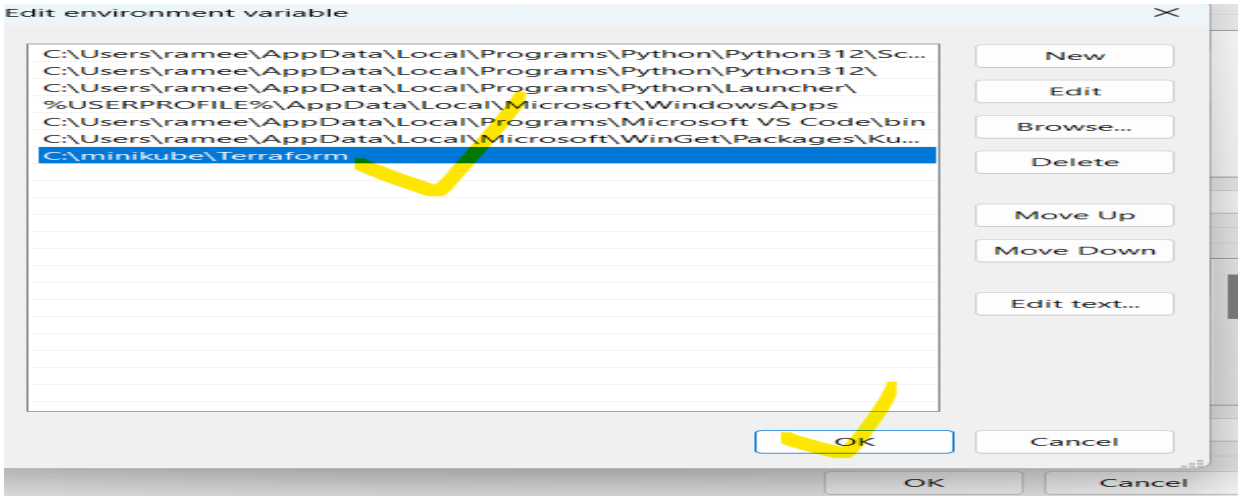


After that click on environmental veriables



Select the Path and click on new.





Now path is Setup.

Now I went to the git bash check the terraform version.

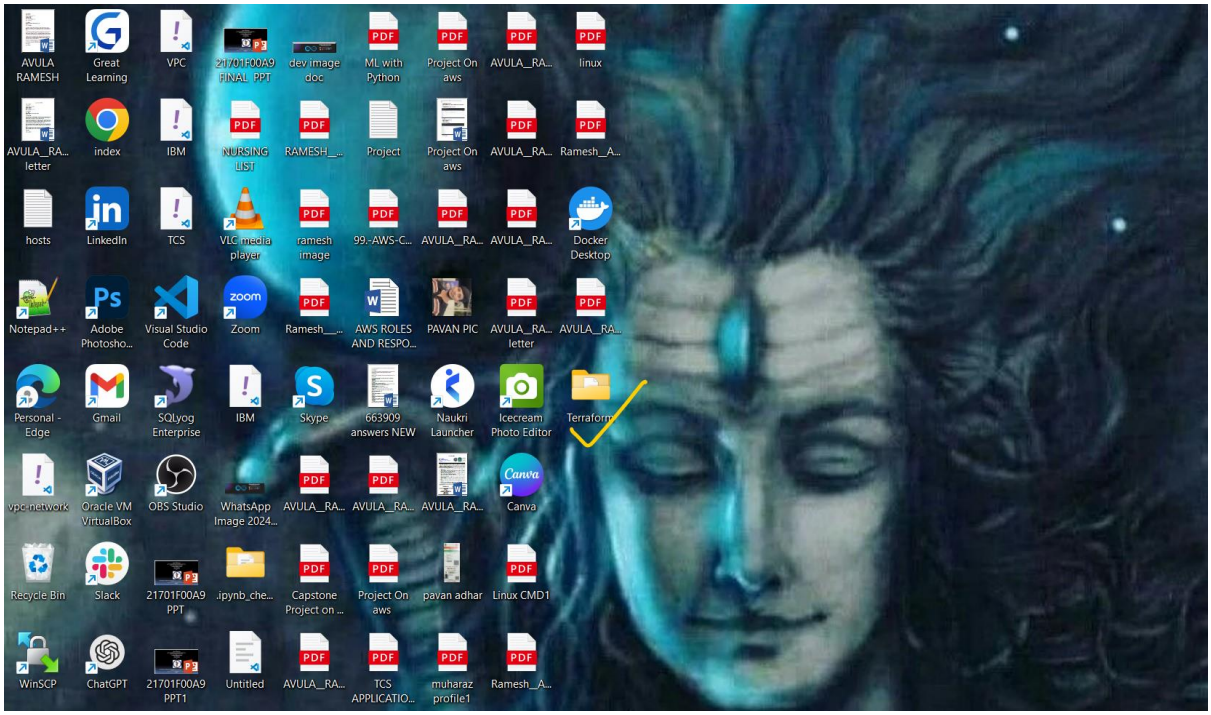
CMD: terraform -v

```
ramee@Ramesh MINGW64 ~ (master)
$ terraform -v
Terraform v1.9.7
on windows_386

Your version of Terraform is out of date! The latest version
is 1.9.8. You can update by downloading from https://www.terraform.io/downloads.
html

ramee@Ramesh MINGW64 ~ (master)
$ |
```

2) Execute all the templates shown in video.

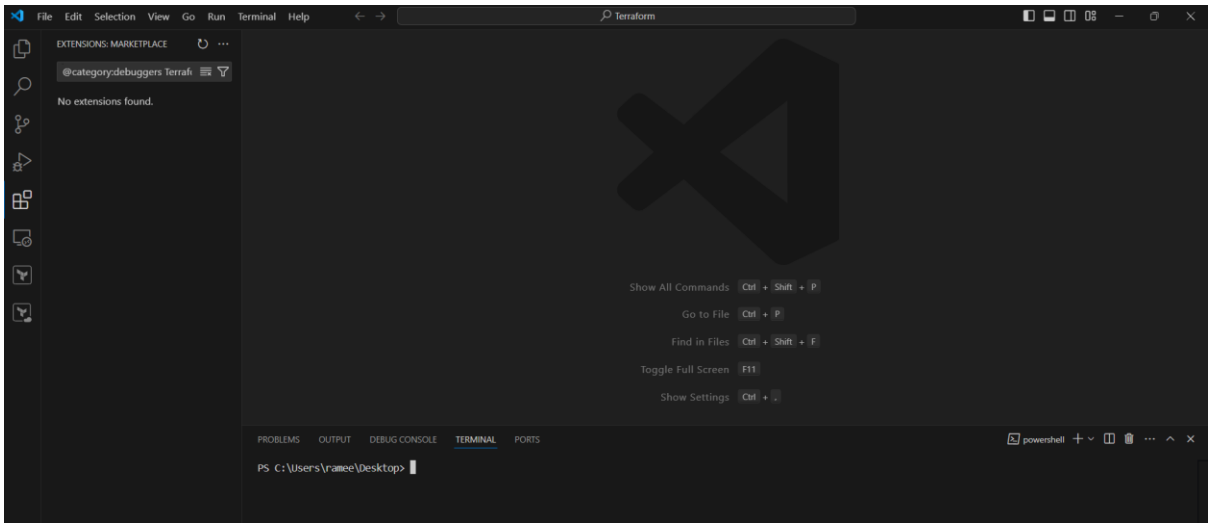
To execute the all templates created one separated folder.

Now we have to create one folder on Desktop with name Terraform.

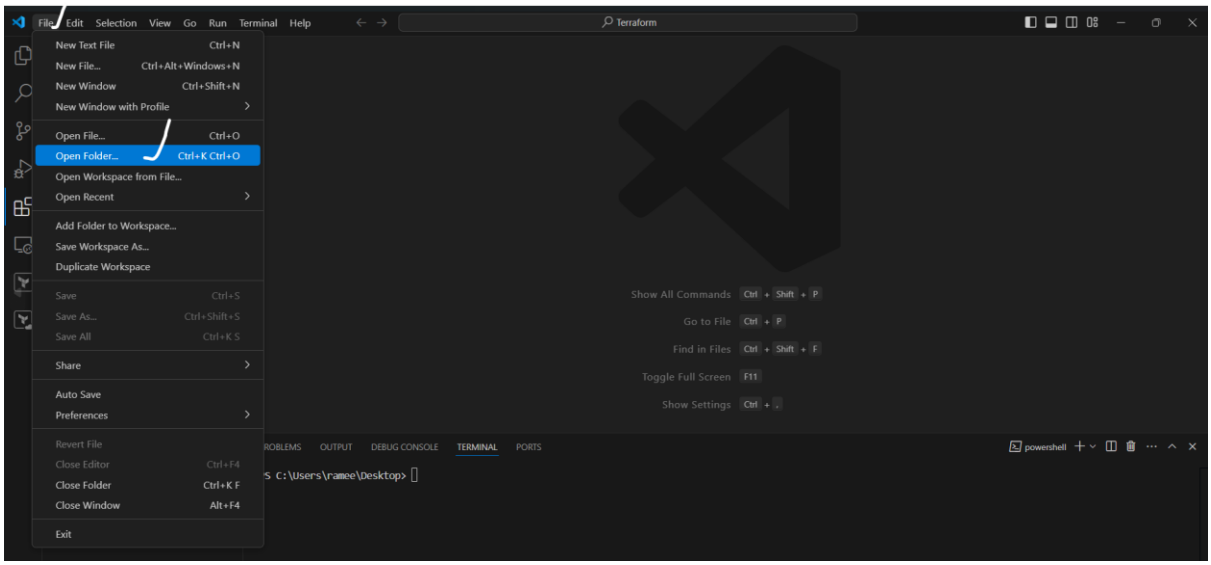


Now go to the Visual code.

You see the below that interface in visual code.

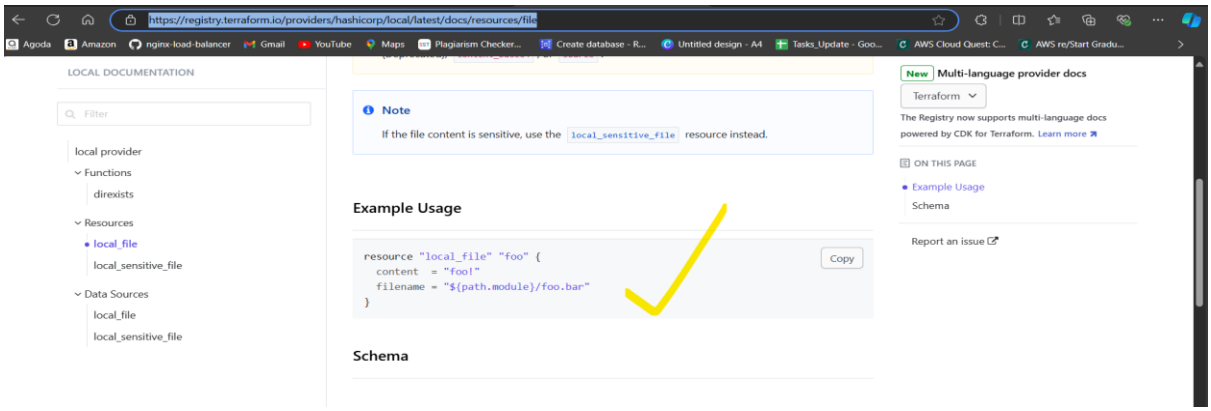


Now we have to click on the file and open folder.



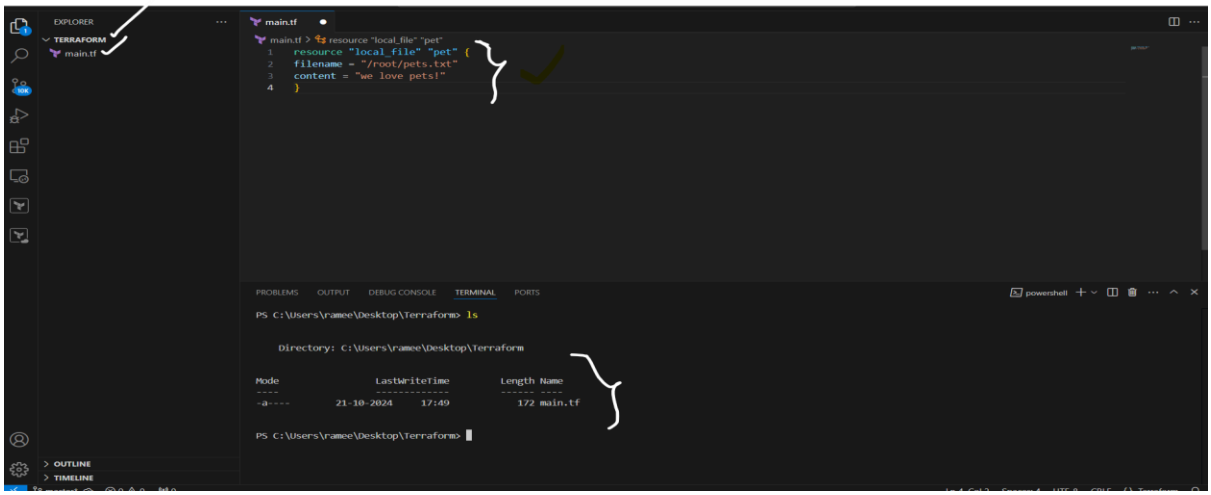
To create local template go to the terraform registry for reference.

Use the link -- [local_file | Resources | hashicorp/local | Terraform | Terraform Registry]



Here I am selected the terraform folder and created main.tf file.

In the main.tf i am created one simple template for local only.

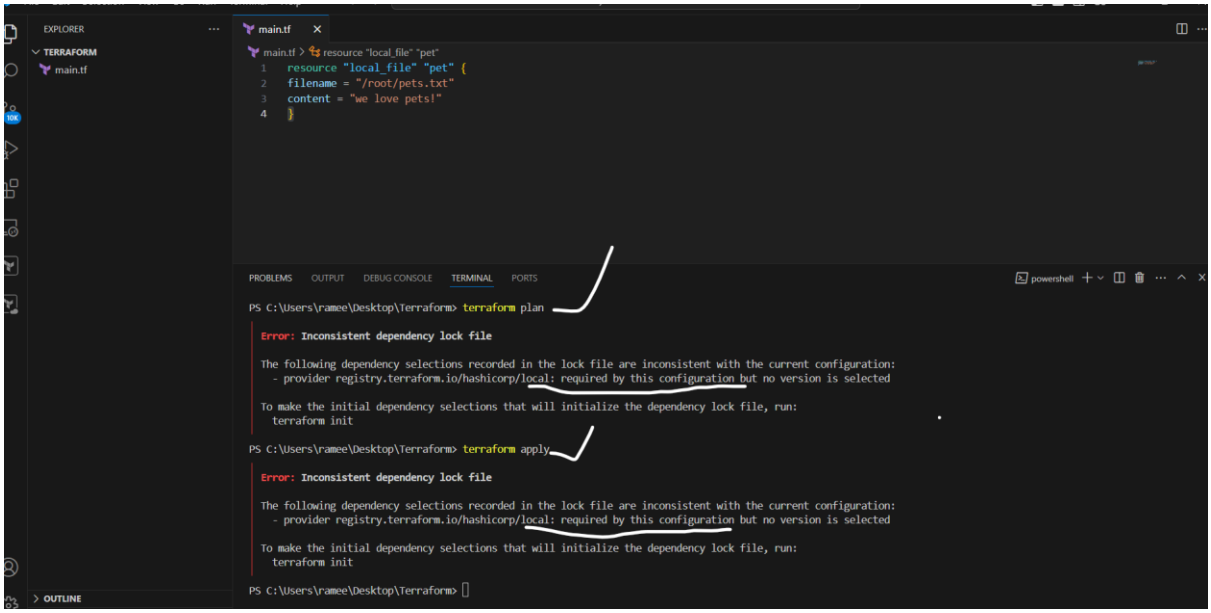


Now try to execute this template.

To check the blue print off the output I am entered the CMD: terraform plan

To create the output CMD: terraform apply.

Issue: provider registry.terraform.io/hashicorp/local: required by this configuration but no version is selected.

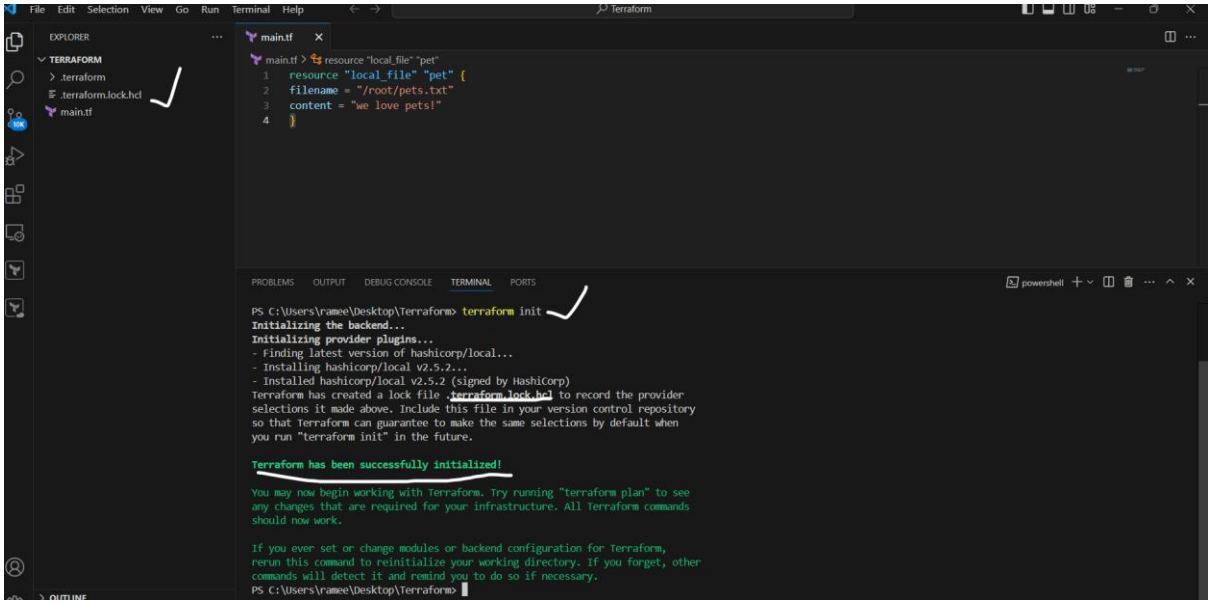


To solve this issue we need to to initliaze the repository and download the dependencies.

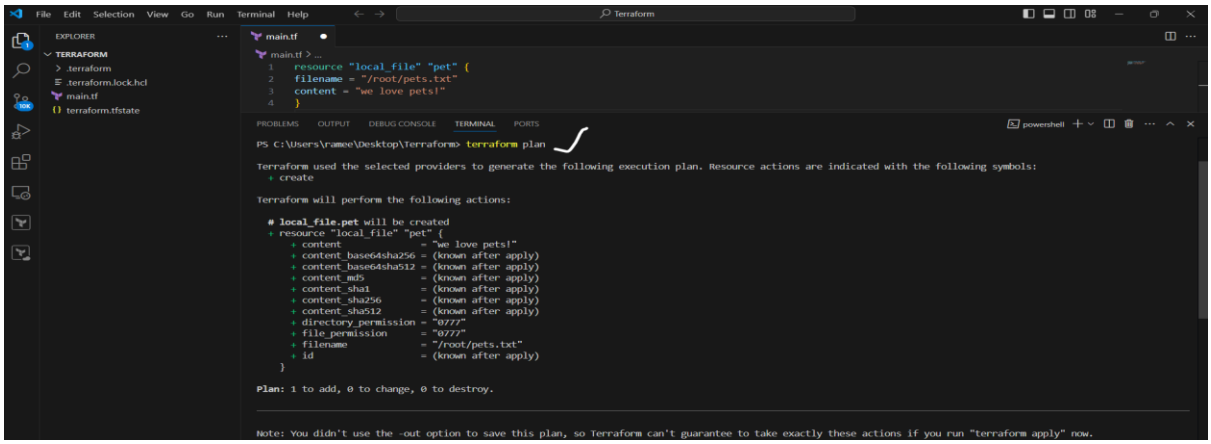
Using this CMD: terraform init ---- to initliaze the repository and download the dependencies.

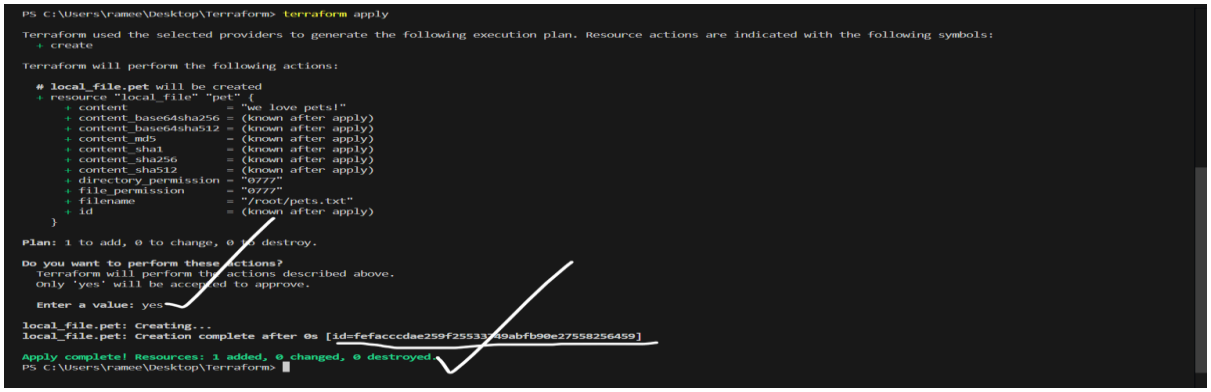
After that you see .terraform.lock.hcl file.

The .terraform.lock.hcl file ensures consistent provider versions across environments, preventing unexpected changes from version upgrades.



After that I am enter the commands then it will executed.

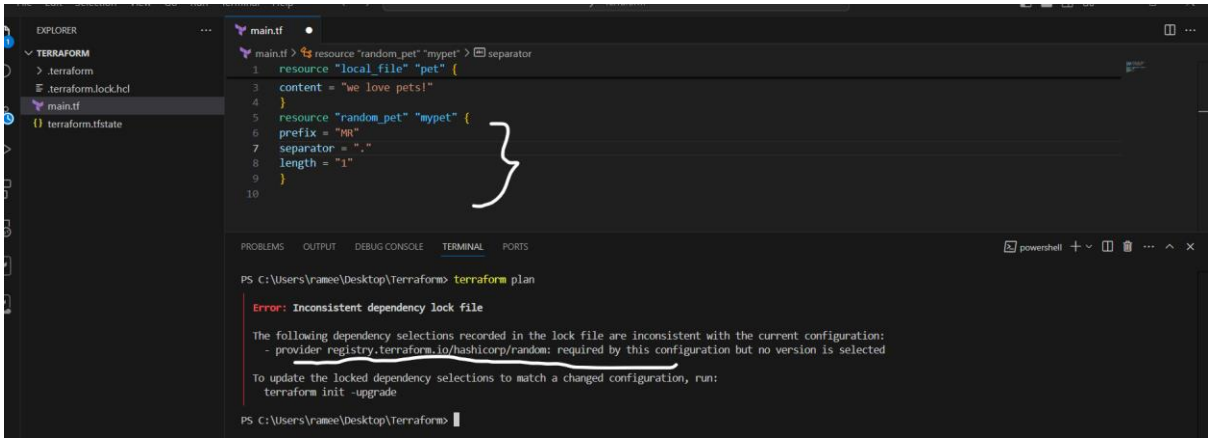




Again I am creating another resource provider as Random

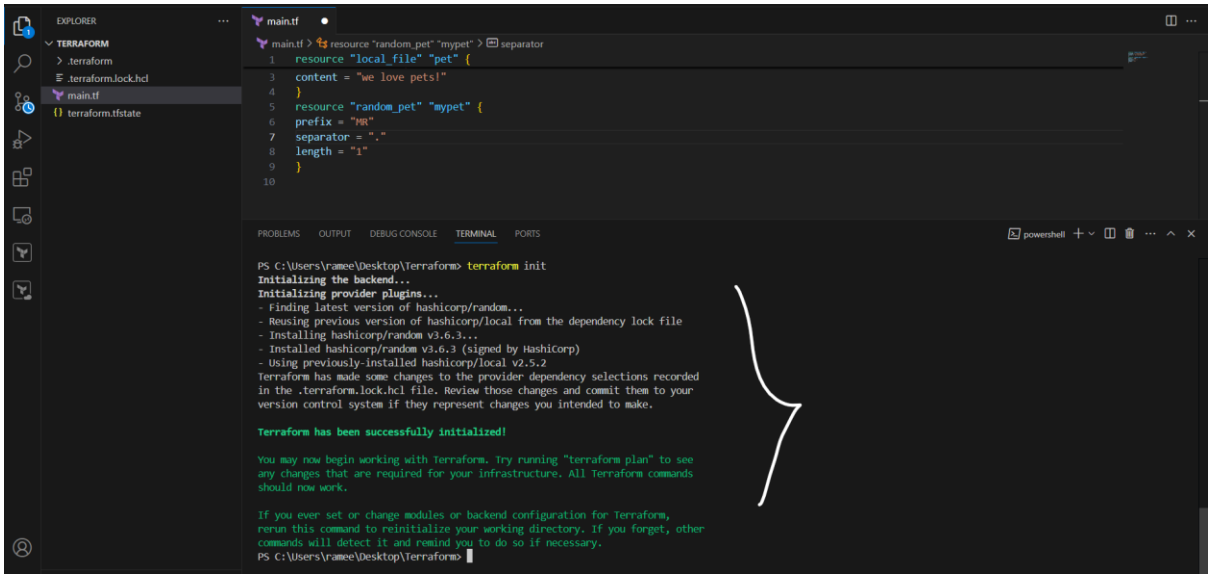
After adding the resource we need to save.

Again I a traied to see the plan but I am not able to see.

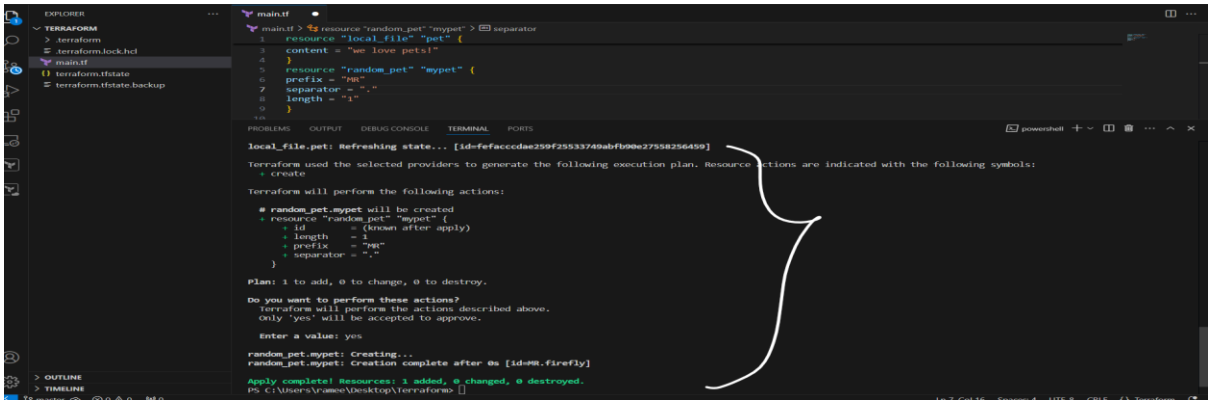


The provider changed so gain I need to initialize the random provider.

So we need to use the CMD: terraform init – it will download the all dependencies of random provider.



Now you can run apply.



Now it’s successfully Done.

3) Note down below points,

- **Terraform init:** Terraform Init initializes the working directory, downloads necessary plugins, and sets up backend configuration to manage the state file.

- **Terraform Plan:** Terraform Plan creates a detailed preview of the changes that will be made, helping us verify the resources to be added, modified, or destroyed without making any actual changes.

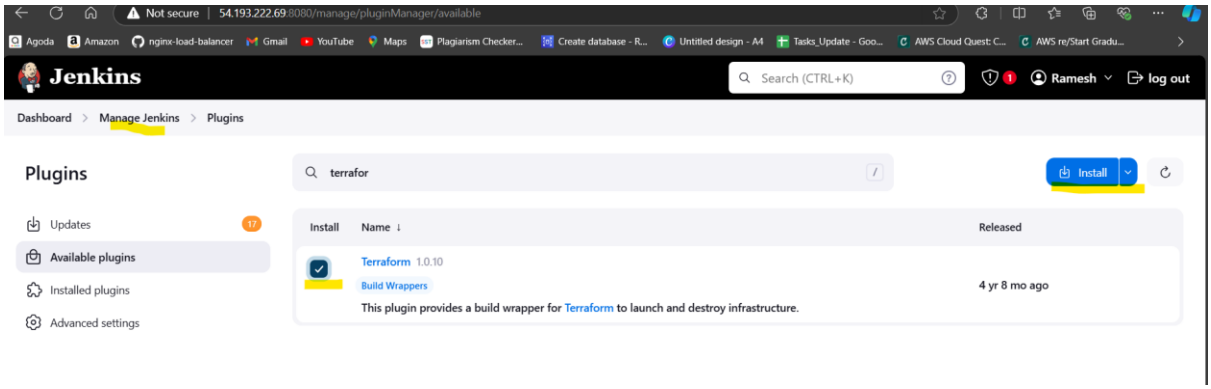
- **Terraform Apply:** Terraform Apply executes the changes identified in the plan, provisioning or modifying the resources. It updates the state file to keep track of the infrastructure.

- **Terraform Provider:** Terraform Providers are plugins that allow Terraform to interact with specific cloud platforms like AWS or Azure. They define the resources and services Terraform can manage.

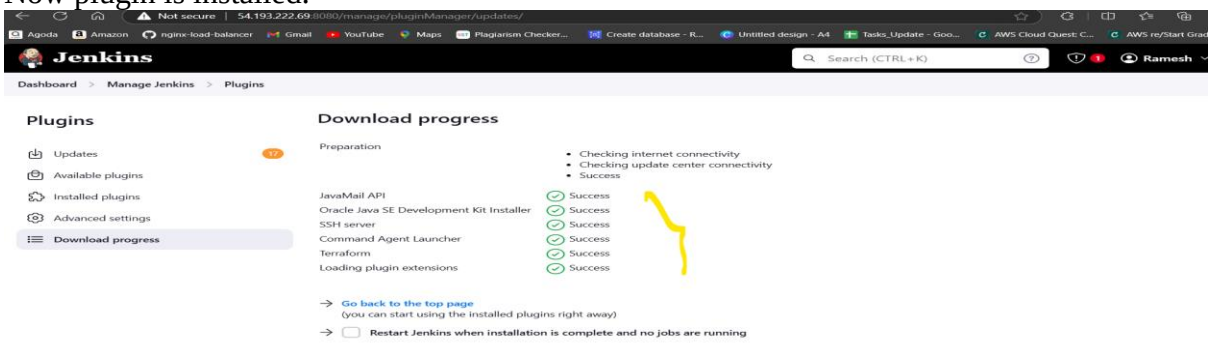
3) Integrate a sample Terraform template in jenkins.

To integrate a sample Terraform template in Jenkins.

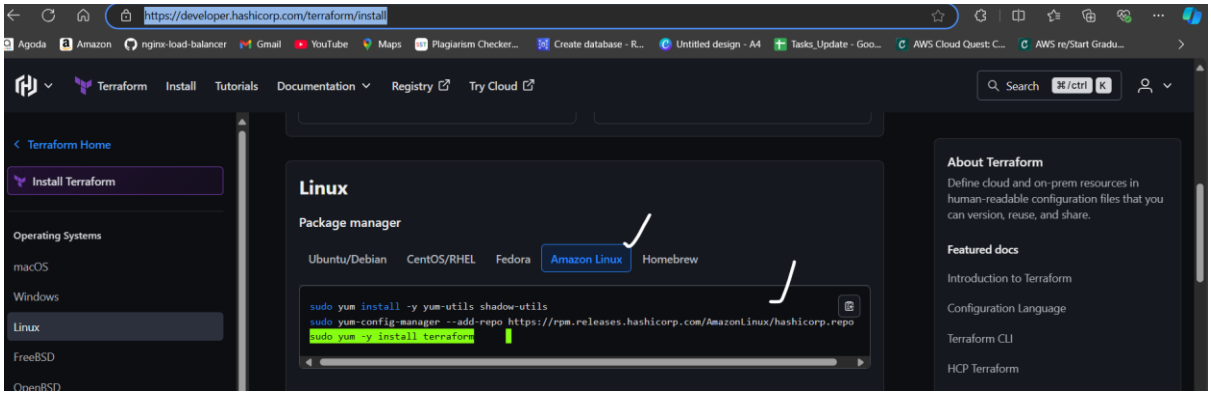
- First we need to launch ec2 server.
- With in the server you need to install Jenkins.
- Go to the Jenkins GUI.
- Go to manage Jenkins > Plugins.
- Click on Available plugins there you need to search terraform plugin.
- Click on check box and install.



Now plugin is installed.



- Now we want to down load the terraform in the Ec2 server where Jenkins is installed.
- To install terraform click on the Link : [Install | Terraform | HashiCorp Developer]
- Here I am selecting amazon Linux based on your requirement you can select.



This all commands you need to perform the in the server.

```
Last metadata expiration check: 19:20:31 ago on Wed Oct 23 14:58:47 2024.
Package dnf-utils-4.3.0-13.amzn2023.0.4.noarch is already installed.
Package shadow-utils-2:4.9-12.amzn2023.0.4.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-1-15 ~]# sudo yum-config-manager --add-repo https://rpm.releases.hashicorp.com/AmazonLinux/hashicorp.repo
Adding repo from: https://rpm.releases.hashicorp.com/AmazonLinux/hashicorp.repo
[root@ip-172-31-1-15 ~]# sudo yum -y install terraform
Hashicorp Stable - x86_64                                                                    13 MB/s | 1.4 MB     00:00
Dependencies resolved.
================================================================================================================================
 Package                    Architecture                Version                     Repository                          Size
================================================================================================================================
Installing:
 terraform                  x86_64                      1.9.8-1                     hashicorp                           27 M

Transaction Summary
================================================================================================================================
Install  1 Package

Total download size: 27 M
Installed size: 85 M
Downloading Packages:
terraform-1.9.8-1.x86_64.rpm                                                                 49 MB/s |  27 MB     00:00
--------------------------------------------------------------------------------------------------------------------------------
Total                                                                                        49 MB/s |  27 MB     00:00
Hashicorp Stable - x86_64                                                                   108 kB/s | 3.9 kB     00:00
Importing GPG key 0xA621E701:
 Userid     : "HashiCorp Security (HashiCorp Package Signing) <security+packaging@hashicorp.com>"
 Fingerprint: 798A EC65 4E5C 1542 8C8E 42EE AA16 FCBC A621 E701
 From       : https://rpm.releases.hashicorp.com/gpg
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                                                            1/1
  Installing       : terraform-1.9.8-1.x86_64                                                                                   1/1
  Verifying        : terraform-1.9.8-1.x86_64                                                                                   1/1
================================================================================================================================
WARNING:
  A newer release of "Amazon Linux" is available.
```

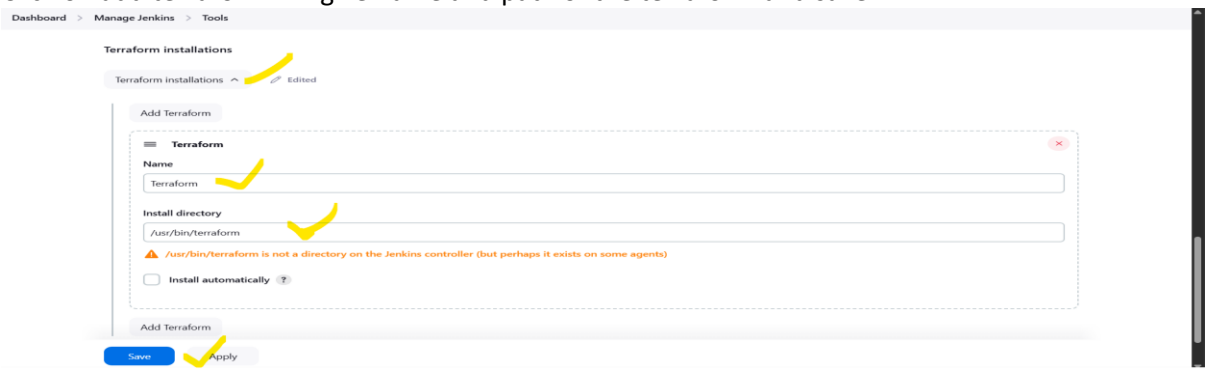
Now terraform is downloaded.

Terraform path you need to give in Jenkins GUI.

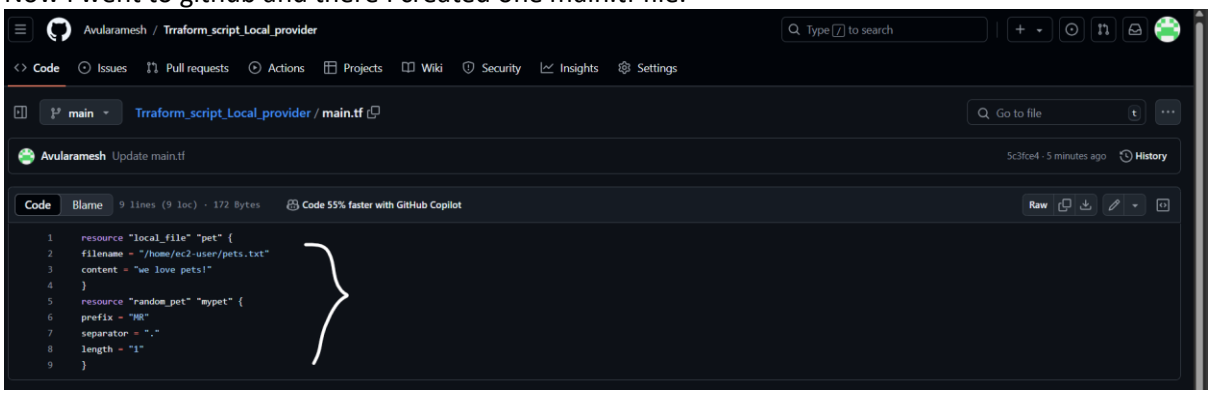
```
[root@ip-172-31-1-15 ~]# which terraform
/usr/bin/terraform
```

Go to the manage jenkins > tools

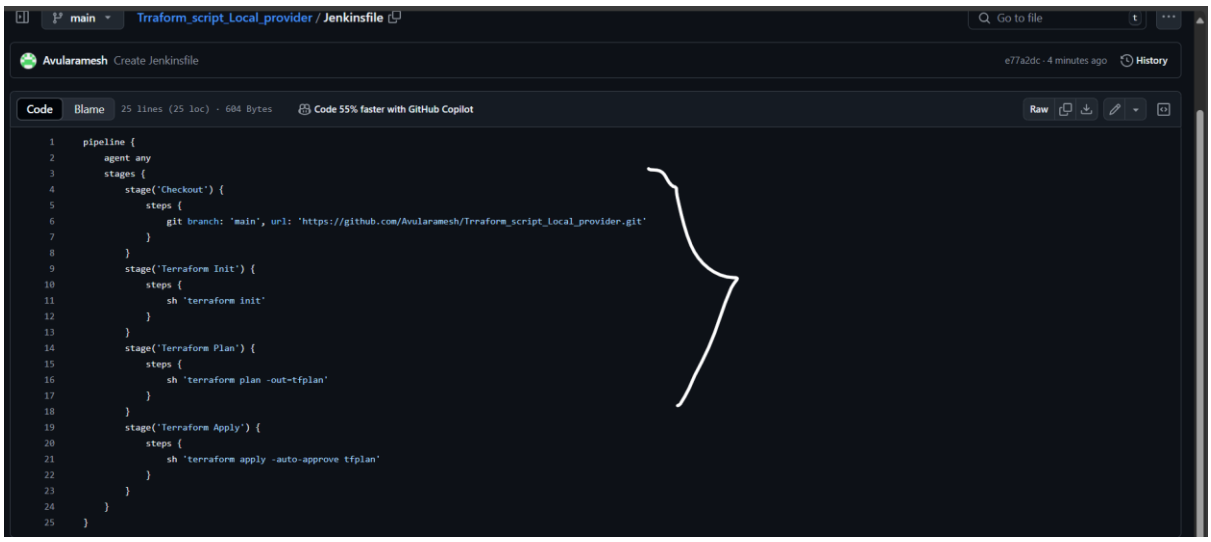
Click on add terraform----- give name and path of the terraform and save.



Now I went to github and there I created one main.tf file.

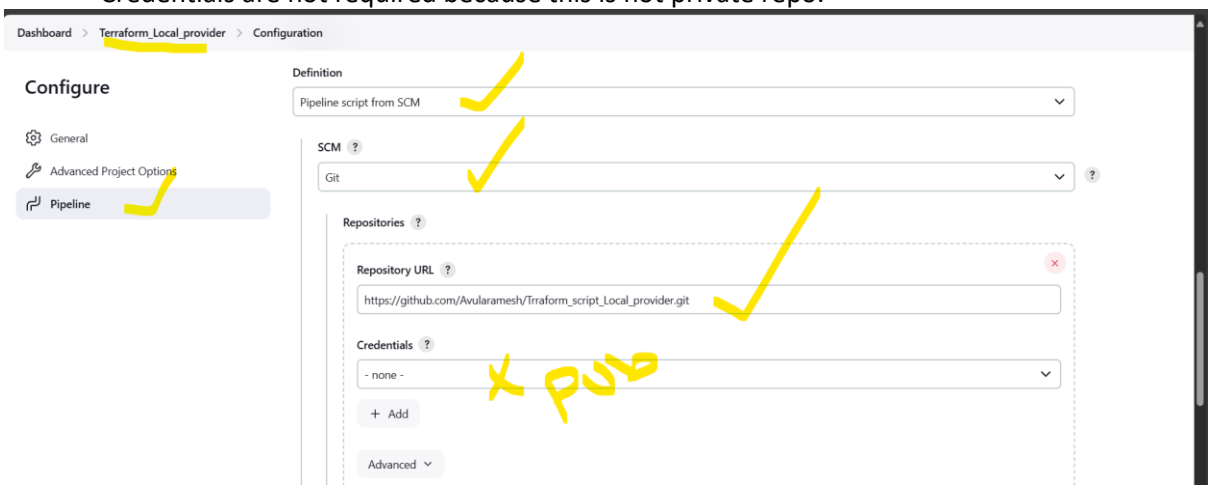


And also created Jenkinsfile.

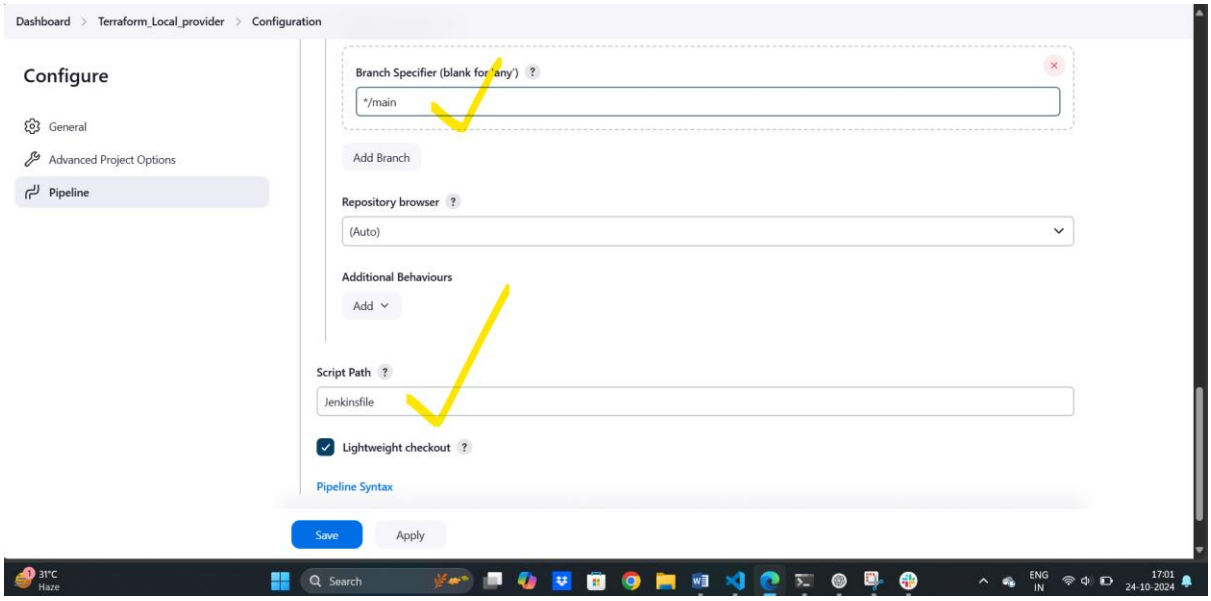


Now I went to the Jenkins GUI and I am created the one pipelinejob.

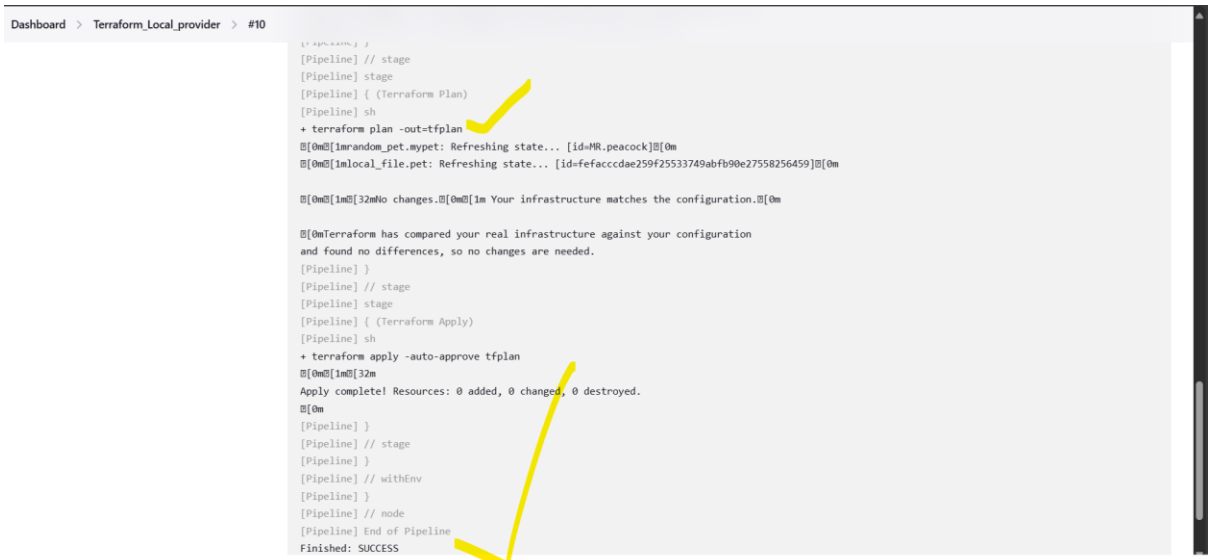
- The job name given as ---- Terraform_Local_provider
- Select job – pipeline
- Click on ok.
- After that go to the pipeline and select ---- pipeline script from SCM
- Give repo URL
- Credentials are not required because this is not private repo.

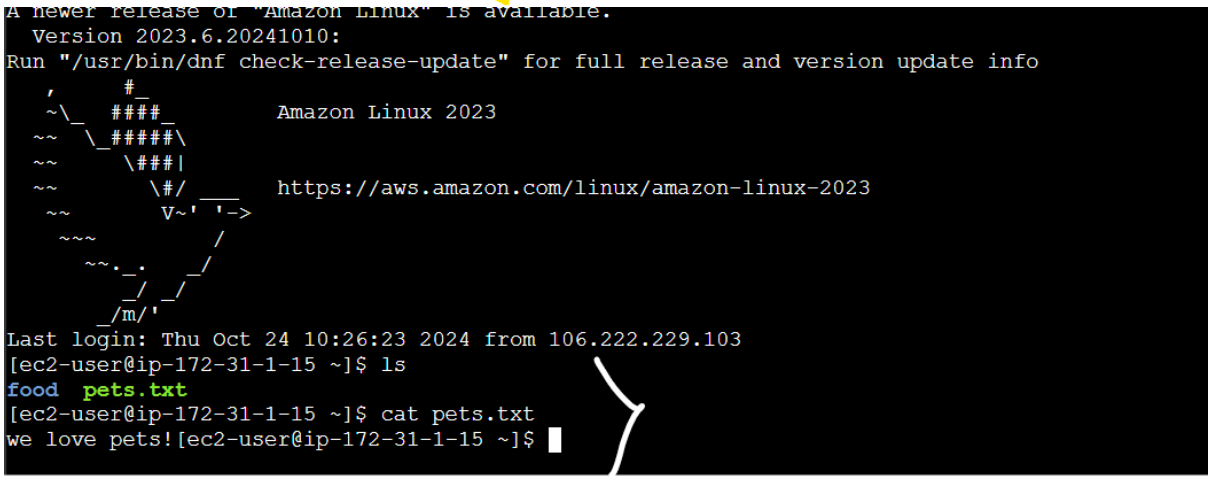


- Branch --- main
- Script path---- Jenkinsfile
- After that click on save and build.



Build is Succees.





Task is Done.