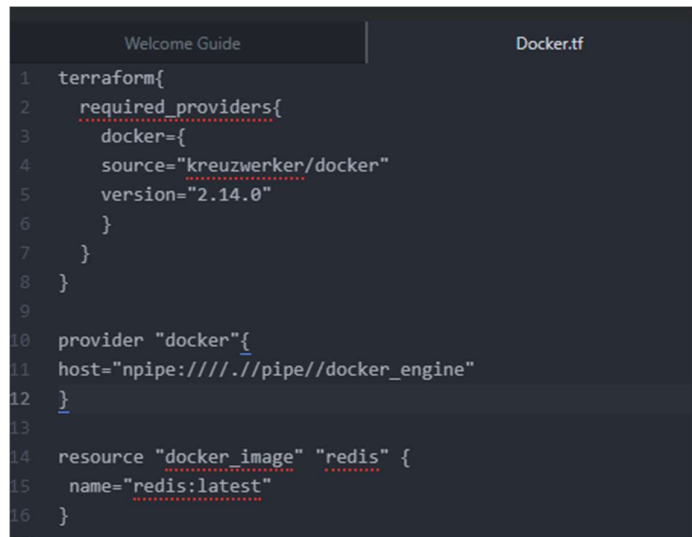Q5) To deploy Docker and build, apply, and destroy docker image using Terraform.

1. Create folder in C drive with your name
2. Now , open Atom and create a Docker.tf file(you need to also type the code given below) and save this file in the folder created in 1st step

```
terraform{
 required_providers{
  docker={
  source="kreuzwerker/docker"
  version="2.14.0"
  }
 }
}
provider "docker"{
host="npipe:////.//pipe//docker_engine"
}
resource "docker_image" "redis" {
 name="redis:latest"
}
```



```
Welcome Guide                          Docker.tf
1  terraform{
2    required_providers{
3      docker={
4      source="kreuzwerker/docker"
5      version="2.14.0"
6      }
7    }
8  }
9
10  provider "docker"{
11  host="npipe:////.//pipe//docker_engine"
12  }
13
14  resource "docker_image" "redis" {
15   name="redis:latest"
16  }
```

3. Now, open POWERSHELL and perform the following
   Change the working directory to the folder u have created

```
PS C:\Users\Rishabh> cd C:\Rishabh
```

   a) terraform init

```
PS C:\Rishabh> terraform init
Initializing the backend...
Initializing provider plugins...
- Finding kreuzwerker/docker versions matching "2.14.0"...
- Installing kreuzwerker/docker v2.14.0...
- Installed kreuzwerker/docker v2.14.0 (self-signed, key ID 24E54F214569A8A5)
Partner and community providers are signed by their developers.
If you'd like to know more about provider signing, you can read about it here:
https://developer.hashicorp.com/terraform/cli/plugins/signing
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.
```

b) terraform plan

```
PS C:\Rishabh> 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:

  # docker_image.redis will be created
  + resource "docker_image" "redis" {
      + id          = (known after apply)
      + latest      = (known after apply)
      + name        = "redis:latest"
      + output      = (known after apply)
      + repo_digest = (known after apply)
    }

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

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if
you run "terraform apply" now.
```

c) terraform apply

```
PS C:\Rishabh> terraform apply

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:

  # docker_image.redis will be created
  + resource "docker_image" "redis" {
      + id          = (known after apply)
      + latest      = (known after apply)
      + name        = "redis:latest"
      + output      = (known after apply)
      + repo_digest = (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

docker_image.redis: Creating...
docker_image.redis: Still creating... [00m10s elapsed]
docker_image.redis: Still creating... [00m20s elapsed]
docker_image.redis: Creation complete after 21s [id=sha256:5c7c0445ed86918cb9efb96d95a6bfc03ed2059fe2c5f02b4d74f477ffe47915redis:latest]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
```

Redis image created

```
  □   ○   redis              latest              5c7c0445ed86              1 day ago    200.45 MB  ⤢  ▷  ⋮  🗑
```

```
PS C:\Rishabh> docker images
REPOSITORY                      TAG
IMAGE ID        CREATED         SIZE
httpd                           latest
ecfd5ca1bfe1    31 hours ago    175MB
redis                           latest
5c7c0445ed86    34 hours ago    200MB
```

d) terraform destroy

```
PS C:\Rishabh> terraform destroy
docker_image.redis: Refreshing state... [id=sha256:5c7c0445ed86918cb9efb96d95a6bfc03ed2059fe2c5f02b4d74f477ffe47915redis:latest]

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

Terraform will perform the following actions:

  # docker_image.redis will be destroyed
  - resource "docker_image" "redis" {
      - id          = "sha256:5c7c0445ed86918cb9efb96d95a6bfc03ed2059fe2c5f02b4d74f477ffe47915redis:latest" -> null
      - latest      = "sha256:5c7c0445ed86918cb9efb96d95a6bfc03ed2059fe2c5f02b4d74f477ffe47915" -> null
      - name        = "redis:latest" -> null
      - repo_digest = "redis@sha256:5c7c0445ed86918cb9efb96d95a6bfc03ed2059fe2c5f02b4d74f477ffe47915" -> null
    }

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

Do you really want to destroy all resources?
  Terraform will destroy all your managed infrastructure, as shown above.
  There is no undo. Only 'yes' will be accepted to confirm.

  Enter a value: yes

docker_image.redis: Destroying... [id=sha256:5c7c0445ed86918cb9efb96d95a6bfc03ed2059fe2c5f02b4d74f477ffe47915redis:latest]
docker_image.redis: Destruction complete after 1s

Destroy complete! Resources: 1 destroyed.
```

```
PS C:\Rishabh> docker images
REPOSITORY                                      TAG                                                              IMAGE ID       CREATED         SIZE
httpd                                           latest                                                           ecfd5ca1bfe1   31 hours ago    175MB
r15habh/test                                    1                                                                1ebe1ab8b195   41 hours ago    117MB
image46                                         latest                                                           69fea3a7e71e   2 days ago      222MB
ubuntu                                          latest                                                           66460d557b25   4 weeks ago     117MB
docker/desktop-kubernetes                       kubernetes-v1.34.1-cni-v1.7.1-critools-v1.33.0-cri-dockerd-v0.3.20-1-debian   12d6673564e0   7 weeks ago     591MB
registry.k8s.io/kube-controller-manager         v1.34.1                                                          2bf47c1b01f5   8 weeks ago     101MB
registry.k8s.io/kube-apiserver                  v1.34.1                                                          b9d7c117f8ac   8 weeks ago     118MB
registry.k8s.io/kube-scheduler                  v1.34.1                                                          6e9fbc4e25a5   8 weeks ago     73.5MB
registry.k8s.io/kube-proxy                      v1.34.1                                                          913cc83ca0b5   8 weeks ago     102MB
registry.k8s.io/etcd                            3.6.4-0                                                          e36c08168342   3 months ago    273MB
registry.k8s.io/pause                           3.10.1                                                           278fb9dbcca9   4 months ago    1.06MB
registry.k8s.io/coredns/coredns                 v1.12.1                                                          e8c262566636   7 months ago    101MB
registry.k8s.io/pause                           3.10                                                             ee6521f290b2   17 months ago   1.06MB
docker/desktop-vpnkit-controller                dc331cb22850be0cdd97c84a9cfecaf44a1afb6e                         7ecf567ea070   2 years ago     47MB
docker/desktop-storage-provisioner              v2.0                                                             115d77efe6e2   4 years ago     59.2MB
```

Now the redis image is deleted and is not seen in the images