Lab Exercise 7– Creating Multiple IAM Users in Terraform

main.tf U

main.tf > resource "aws_iam_user" "iam_users"

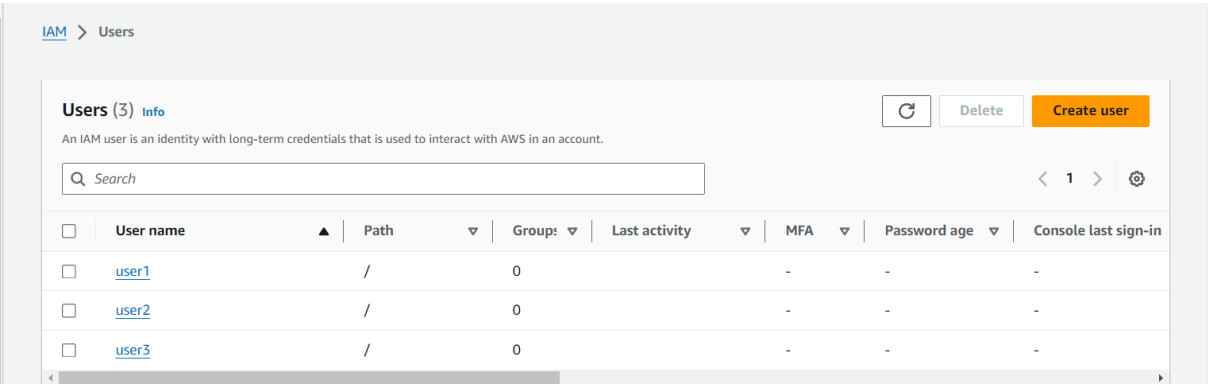
```
provider "aws" {
 access_key = "[redacted]7ZP7WBW5Q"
 secret_key = "[redacted]cXx0EeqRzjay62NwYlDJHzrdF"
 region = "us-east-1"
}
variable "iam_users" {
 type = list(string)
 default = ["user1", "user2", "user3"]
}
resource "aws_iam_user" "iam_users" {
 count = length(var.iam_users)
 name = var.iam_users[count.index]
 tags = {
 Name = "${var.iam_users[count.index]}-user"
 }
}
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.35.0...
- Installed hashicorp/aws v5.35.0 (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.
```

```
PS E:\SPCM Lab\terraform-iam-users> terraform apply

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

Terraform will perform the following actions:

  # aws_iam_user.iam_users[0] will be created
  + resource "aws_iam_user" "iam_users" {
```

```
aws_iam_user.iam_users[2]: Creating...
aws_iam_user.iam_users[0]: Creating...
aws_iam_user.iam_users[1]: Creating...
aws_iam_user.iam_users[1]: Creation complete after 3s [id=user2]
aws_iam_user.iam_users[2]: Creation complete after 3s [id=user3]
aws_iam_user.iam_users[0]: Creation complete after 3s [id=user1]

Apply complete! Resources: 3 added, 0 changed, 0 destroyed.
PS E:\SPCM Lab\terraform-iam-users>
```




```
Plan: 0 to add, 0 to change, 3 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

aws_iam_user.iam_users[2]: Destroying... [id=user3]
aws_iam_user.iam_users[1]: Destroying... [id=user2]
aws_iam_user.iam_users[0]: Destroying... [id=user1]
aws_iam_user.iam_users[2]: Destruction complete after 2s
aws_iam_user.iam_users[0]: Destruction complete after 2s
aws_iam_user.iam_users[1]: Destruction complete after 2s

Destroy complete! Resources: 3 destroyed.
```

Lab-8: Creating a VPC in Terraform

Step 1: Create a Terraform Directory

```
C:\Users\hp>mkdir terrafrom-vpc

C:\Users\hp>cd  terrafrom-vpc
```

main.tf

```
provider "aws" {
 region = "ap-south-1"
 access_key = "AKIAV2D7UZ5ZAAX5TNVG"
 secret_key = "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"
}
variable "iam_users" {
 type = list(string)
 default = ["user1", "user2", "user3"]
}
resource "aws_iam_user" "iam_users" {
 count = length(var.iam_users)
 name = var.iam_users[count.index]
 tags = {
 Name = "${var.iam_users[count.index]}-user"
 }
}
```

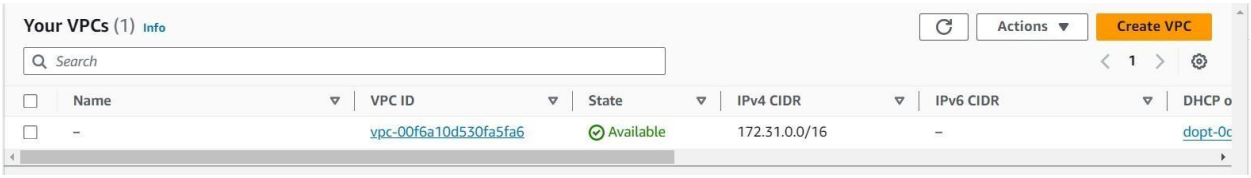
Step 2: Run the following commands

```
C:\Users\hp\terrafrom-vpc>terraform init

Initializing the backend...

Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.36.0...
- Installed hashicorp/aws v5.36.0 (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\hp\terrafrom-vpc>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:

  # aws_subnet.my_subnet[0] will be created
  + resource "aws_subnet" "my_subnet" {
      + arn                                            = (known after apply)
      + assign_ipv6_address_on_creation                = false
      + availability_zone                              = "us-east-1a"
      + availability_zone_id                           = (known after apply)
      + cidr_block                                     = "10.0.1.0/24"
      + enable_dns64                                   = false
      + enable_resource_name_dns_a_record_on_launch    = false
      + enable_resource_name_dns_aaaa_record_on_launch = false
      + id                                             = (known after apply)
      + ipv6_cidr_block_association_id                 = (known after apply)
      + ipv6_native                                    = false
      + map_public_ip_on_launch                        = true
      + owner_id                                       = (known after apply)
      + private_dns_hostname_type_on_launch            = (known after apply)
      + tags                                           = {
          + "Name" = "MySubnet-1"
        }
      + tags_all                                       = {
          + "Name" = "MySubnet-1"
```

```
      + owner_id                              = (known after apply)
      + tags                                  = {
          + "Name" = "MyVPC"
        }
      + tags_all                              = {
          + "Name" = "MyVPC"
        }
    }

Plan: 3 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_vpc.my_vpc: Creating...
aws_vpc.my_vpc: Still creating... [10s elapsed]
aws_vpc.my_vpc: Creation complete after 18s [id=vpc-0ccb810e9b0816eb0]
aws_subnet.my_subnet[0]: Creating...
aws_subnet.my_subnet[1]: Creating...
aws_subnet.my_subnet[0]: Still creating... [10s elapsed]
aws_subnet.my_subnet[1]: Still creating... [10s elapsed]
aws_subnet.my_subnet[0]: Creation complete after 15s [id=subnet-0d23ee873bde8cbec]
aws_subnet.my_subnet[1]: Creation complete after 15s [id=subnet-0159de7521427b1d6]

Apply complete! Resources: 3 added, 0 changed, 0 destroyed.
```

Step 3: Verify the Resources



Step 4: Clean up

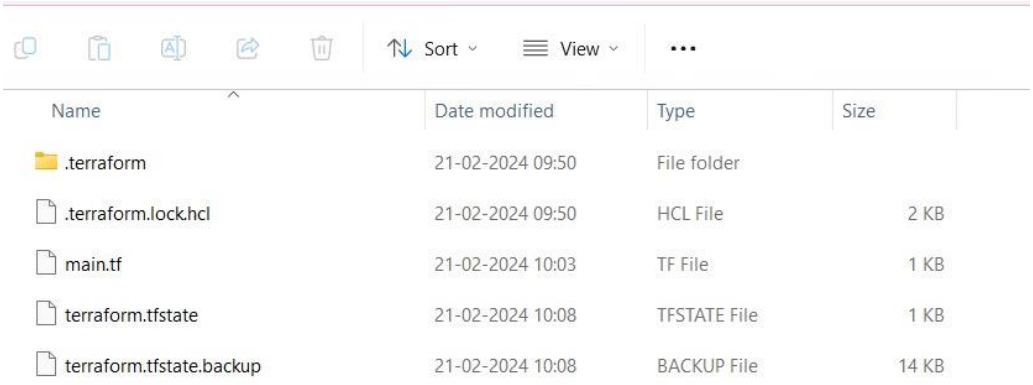
```
C:\Users\hp\terrafrom-vpc>terraform destroy
aws_vpc.my_vpc: Refreshing state... [id=vpc-0ccb810e9b0816eb0]
aws_subnet.my_subnet[1]: Refreshing state... [id=subnet-0159de7521427b1d6]
aws_subnet.my_subnet[0]: Refreshing state... [id=subnet-0d23ee873bde8cbec]

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:

  # aws_subnet.my_subnet[0] will be destroyed
  - resource "aws_subnet" "my_subnet" {
      - arn                                            = "arn:aws:ec2:us-east-1:399699660658:subnet/subnet-0d23ee873bde8
cbec" -> null
      - assign_ipv6_address_on_creation                = false -> null
      - availability_zone                              = "us-east-1a" -> null
      - availability_zone_id                           = "use1-az2" -> null
      - cidr_block                                     = "10.0.1.0/24" -> null
      - enable_dns64                                   = false -> null
      - enable_lni_at_device_index                     = 0 -> null
      - enable_resource_name_dns_a_record_on_launch    = false -> null
      - enable_resource_name_dns_aaaa_record_on_launch = false -> null
      - id                                             = "subnet-0d23ee873bde8cbec" -> null
      - ipv6_native                                    = false -> null
      - map_customer_owned_ip_on_launch                = false -> null
      - map_public_ip_on_launch                        = true -> null
      - owner_id                                       = "399699660658" -> null
      - private_dns_hostname_type_on_launch            = "ip-name" -> null
      - tags                                           = {
```

```
      - instance_tenancy                    = "default" -> null
      - ipv6_netmask_length                 = 0 -> null
      - main_route_table_id                 = "rtb-0a25ebb03b7bf05c3" -> null
      - owner_id                            = "399699660658" -> null
      - tags                                = {
          - "Name" = "MyVPC"
        } -> null
      - tags_all                            = {
          - "Name" = "MyVPC"
        } -> null
    }

Plan: 0 to add, 0 to change, 3 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

aws_subnet.my_subnet[1]: Destroying... [id=subnet-0159de7521427b1d6]
aws_subnet.my_subnet[0]: Destroying... [id=subnet-0d23ee873bde8cbec]
aws_subnet.my_subnet[0]: Destruction complete after 2s
aws_subnet.my_subnet[1]: Destruction complete after 3s
aws_vpc.my_vpc: Destroying... [id=vpc-0ccb810e9b0816eb0]
aws_vpc.my_vpc: Destruction complete after 3s

Destroy complete! Resources: 3 destroyed.
```

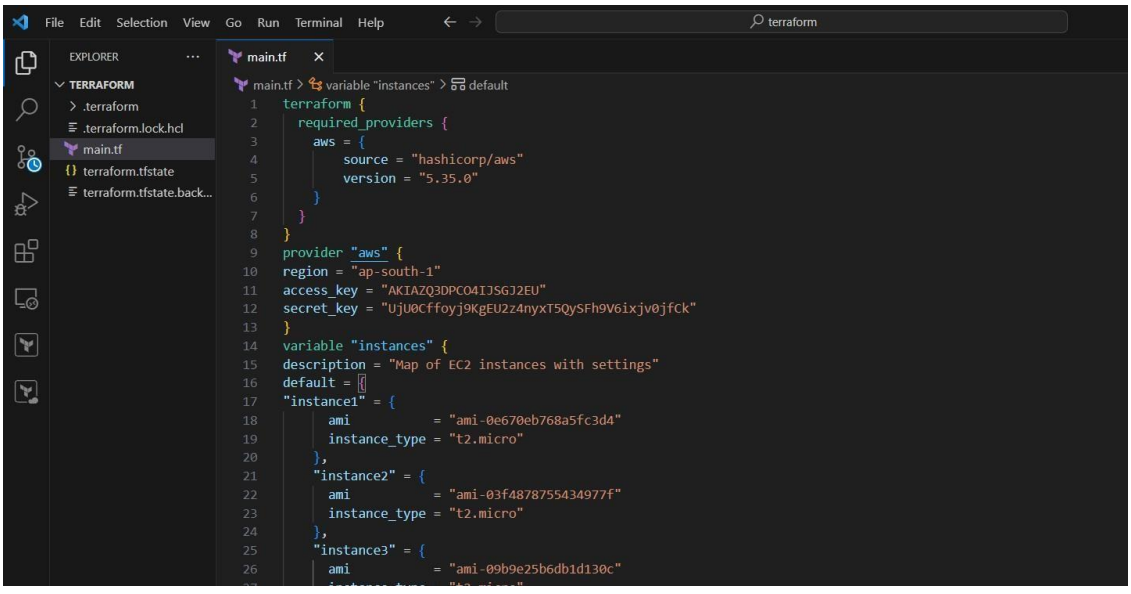
Lab Exercise 9– Creating Multiple EC2 Instances with for each in Terraform

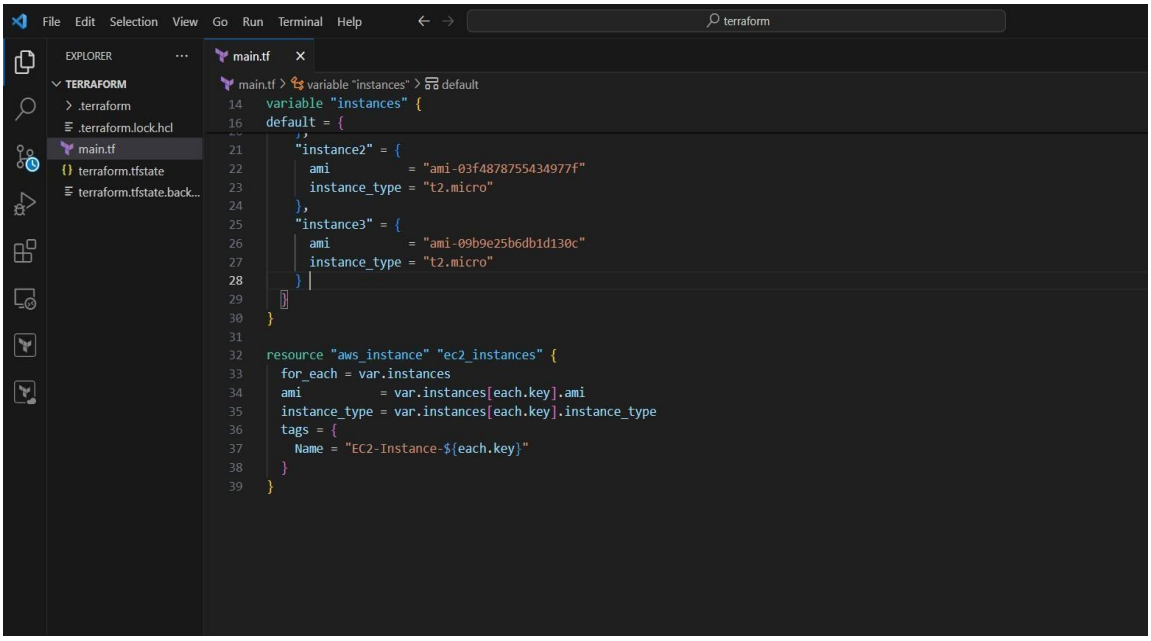
1. Create a Terraform Directory:

- Create Terraform Configuration Files:

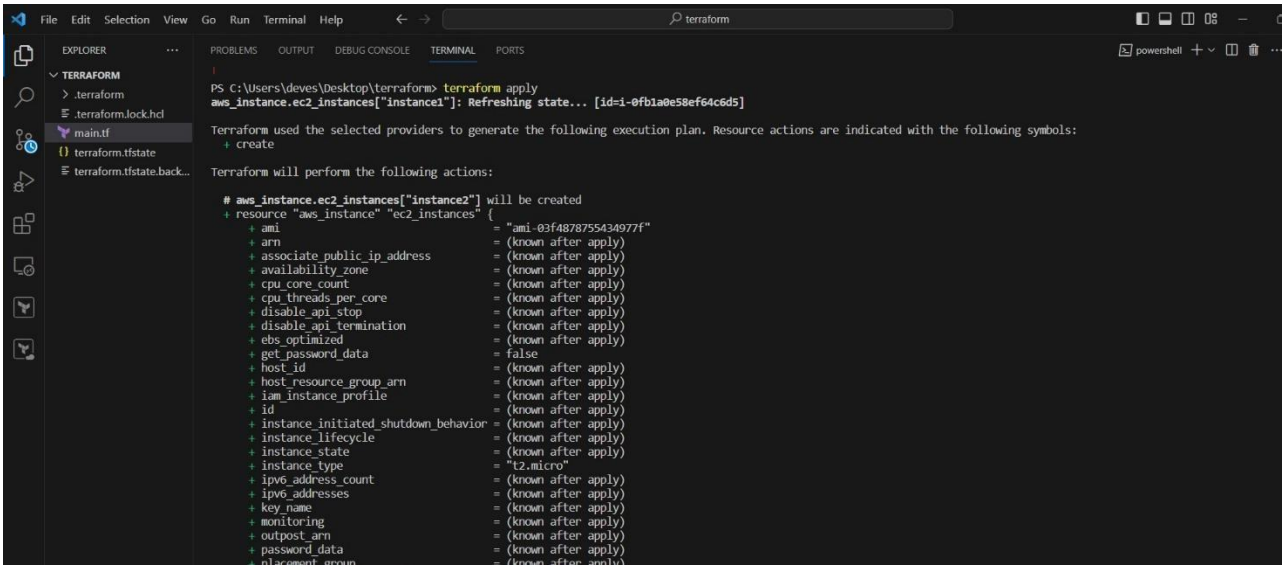


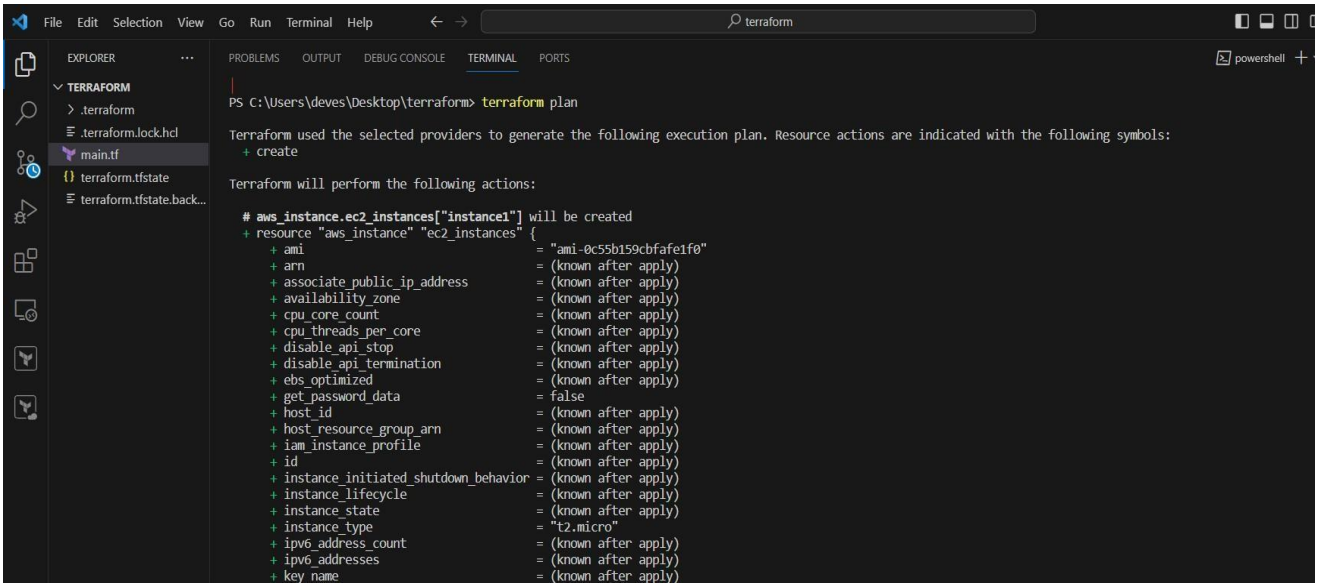
- Create a file named main.tf:

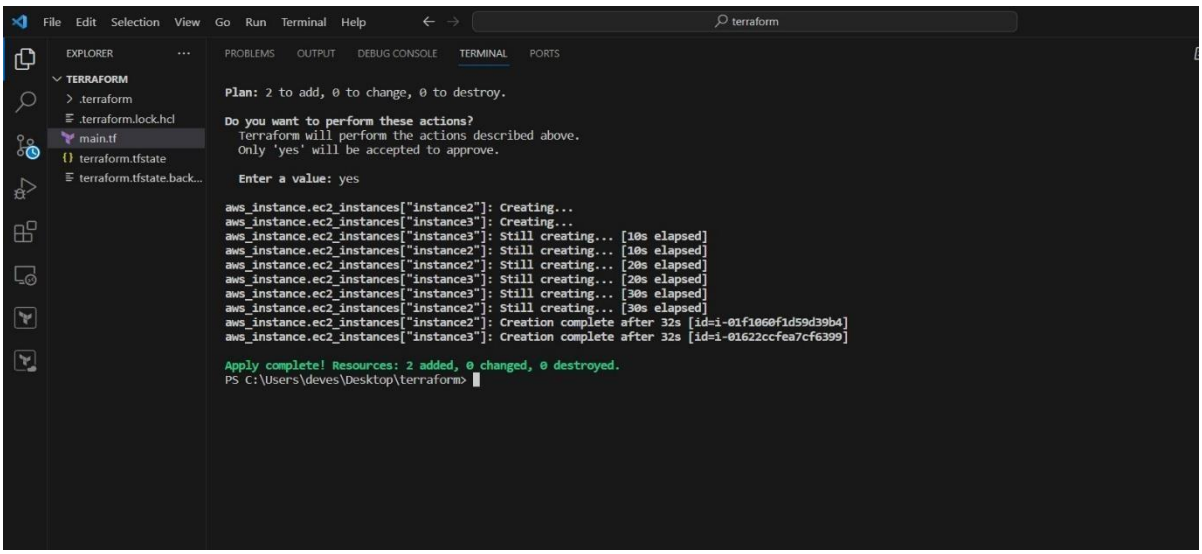




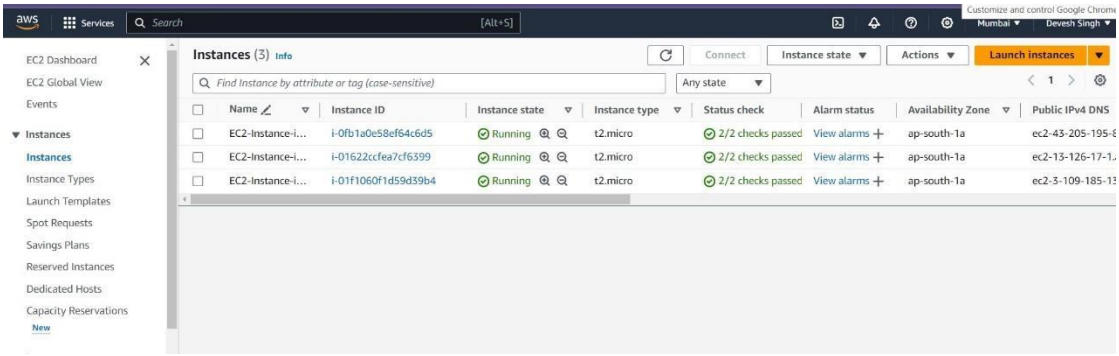
2. Initialize and Apply:




File Edit Selection View Go Run Terminal Help
terraform
EXPLORER
TERRAFORM
.terraform
.terraform.lock.hcl
main.tf
terraform.tfstate
terraform.tfstate.back...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
powershell
PS C:\Users\deves\Desktop\terraform> 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.ec2_instances["instance1"] will be created
+ resource "aws_instance" "ec2_instances" {
+ ami = "ami-0c55b159cbfafe1f0"
+ 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_lifecycle = (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 = (known after apply)


File Edit Selection View Go Run Terminal Help
terraform
EXPLORER
TERRAFORM
.terraform
.terraform.lock.hcl
main.tf
terraform.tfstate
terraform.tfstate.back...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Plan: 2 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.ec2_instances["instance2"]: Creating...
aws_instance.ec2_instances["instance3"]: Creating...
aws_instance.ec2_instances["instance3"]: Still creating... [10s elapsed]
aws_instance.ec2_instances["instance2"]: Still creating... [10s elapsed]
aws_instance.ec2_instances["instance2"]: Still creating... [20s elapsed]
aws_instance.ec2_instances["instance3"]: Still creating... [20s elapsed]
aws_instance.ec2_instances["instance3"]: Still creating... [30s elapsed]
aws_instance.ec2_instances["instance2"]: Still creating... [30s elapsed]
aws_instance.ec2_instances["instance2"]: Creation complete after 32s [id=i-01f1060f1d59d39b4]
aws_instance.ec2_instances["instance3"]: Creation complete after 32s [id=i-01622ccfea7cf6399]
Apply complete! Resources: 2 added, 0 changed, 0 destroyed.
PS C:\Users\deves\Desktop\terraform>

4. Update Instance Configuration:



5. Clean Up: