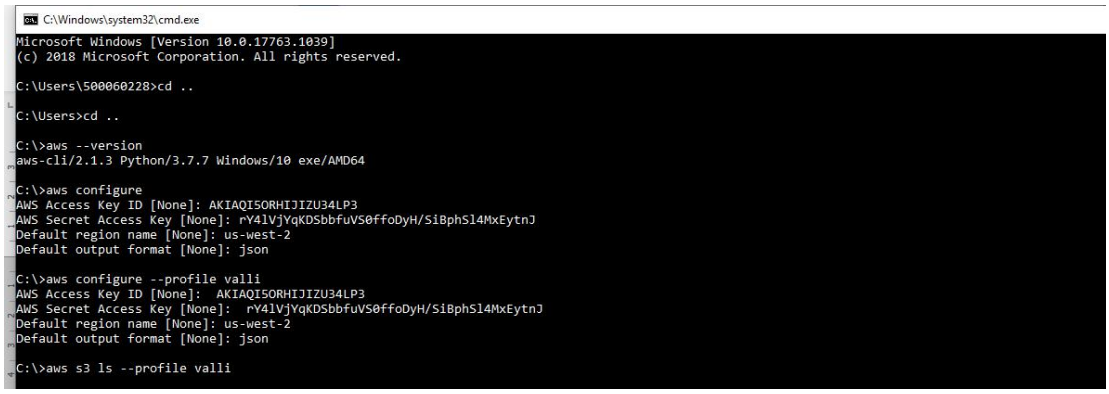
ASSIGNMENT 1

Terraform does all that for you by preparing the whole infrastructure using terraform scripts. Thus, it is a software tool that provides Infrastructure as code.

Download AWS CLI in the windows system. And install it.

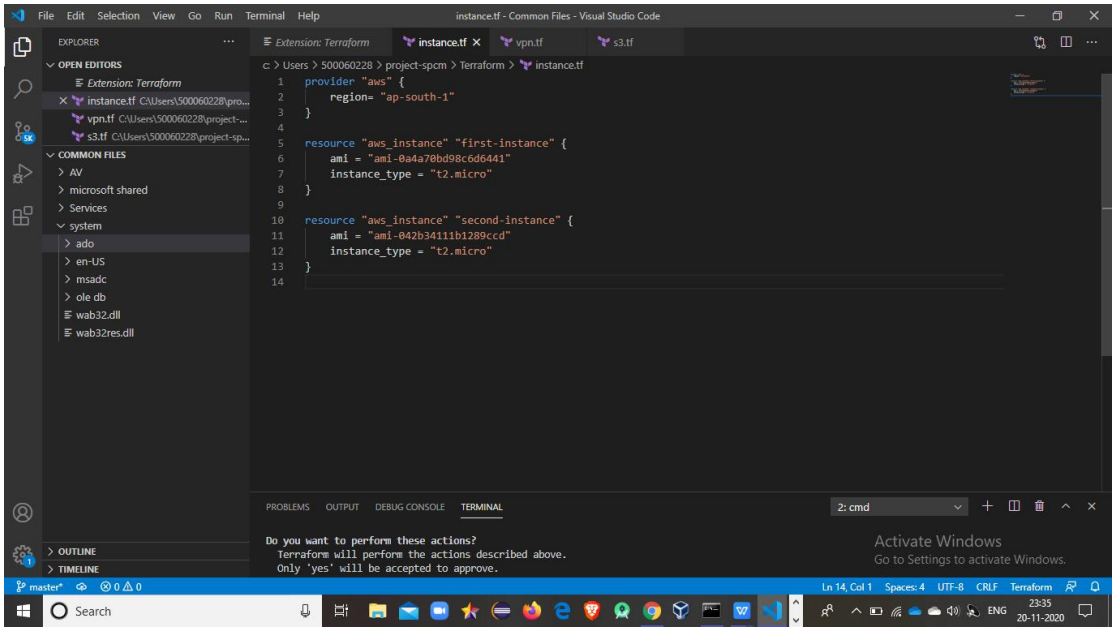


```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.17763.1039]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\500060228>cd ..

C:\Users>cd ..

C:\>aws --version
aws-cli/2.1.3 Python/3.7.7 Windows/10 exe/AMD64

C:\>aws configure
AWS Access Key ID [None]: AKIAQI5ORHIJIZU34LP3
AWS Secret Access Key [None]: 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
Default region name [None]: us-west-2
Default output format [None]: json

C:\>aws configure --profile valli
AWS Access Key ID [None]:  AKIAQI5ORHIJIZU34LP3
AWS Secret Access Key [None]:  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
Default region name [None]: us-west-2
Default output format [None]: json

C:\>aws s3 ls --profile valli
```

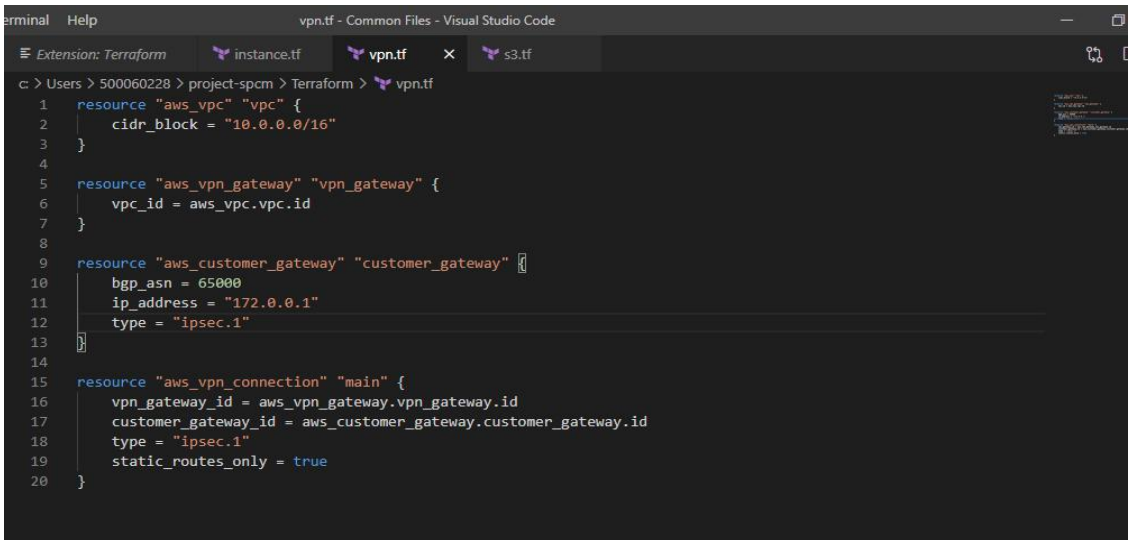
1. Download the terraform zip file, extract it in a folder.Create a path in the env variables.
Here I have extracted in -
C:\Users\500060228\project-spcm\Terraform

2. Open the visual studio code and install the “Terraform” extension.

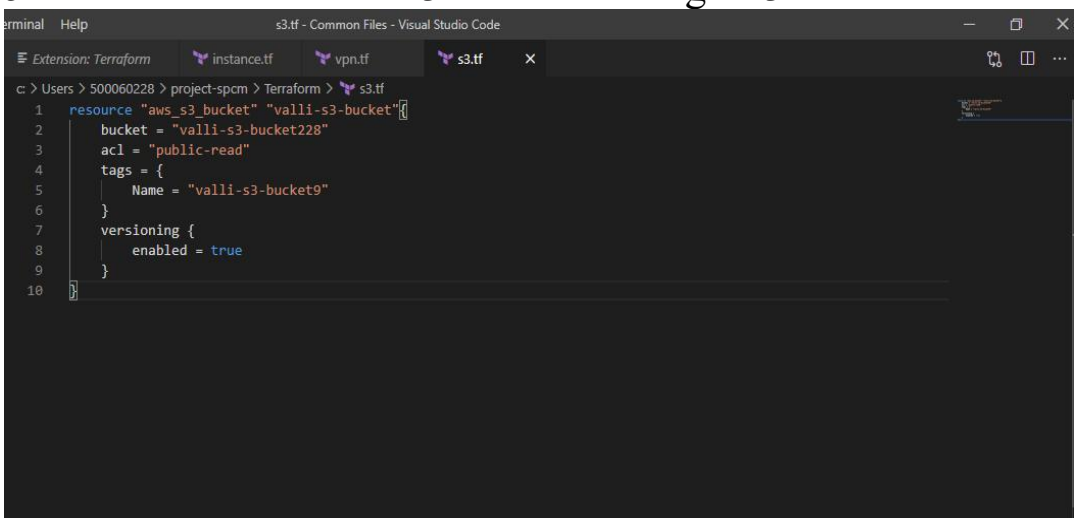
3. Create a file instance.tf and write code for creating 2 instances in a particular region.Create two T2 Micro EC2 Instances.



4. Now create another file “vpn.tf” to create the vpc in the aws.



5. Create another file “s3.tf” for creating a s3 bucket in the aws.



6. Now to run the “.tf” files , run the following commands-

- ✓ Terraform init: initiates the terraform files in the particular location/path
- ✓ Terraform validate:checks the files whether it is having any errors or not.
- ✓ Terraform plan:It create execution plan that helps you check whether execution plan matches your expectations.
- ✓ Terraform apply: applies the changes to the desired state.

Init

```
Microsoft Windows [Version 10.0.17763.1039]
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C:\Program Files\Common Files>cd ..

C:\Program Files>cd ..

C:\>cd Users

C:\Users>cd 500060228

C:\Users\500060228>cd project-spcm

C:\Users\500060228\project-spcm>cd Terraform

C:\Users\500060228\project-spcm\Terraform>terraform init

Initializing the backend...

Initializing provider plugins...
- Using previously-installed hashicorp/aws v3.16.0

The following providers do not have any version constraints in configuration,
so the latest version was installed.

To prevent automatic upgrades to new major versions that may contain breaking
changes, we recommend adding version constraints in a required_providers block
in your configuration, with the constraint strings suggested below.

* hashicorp/aws: version = "~> 3.16.0"

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.
```
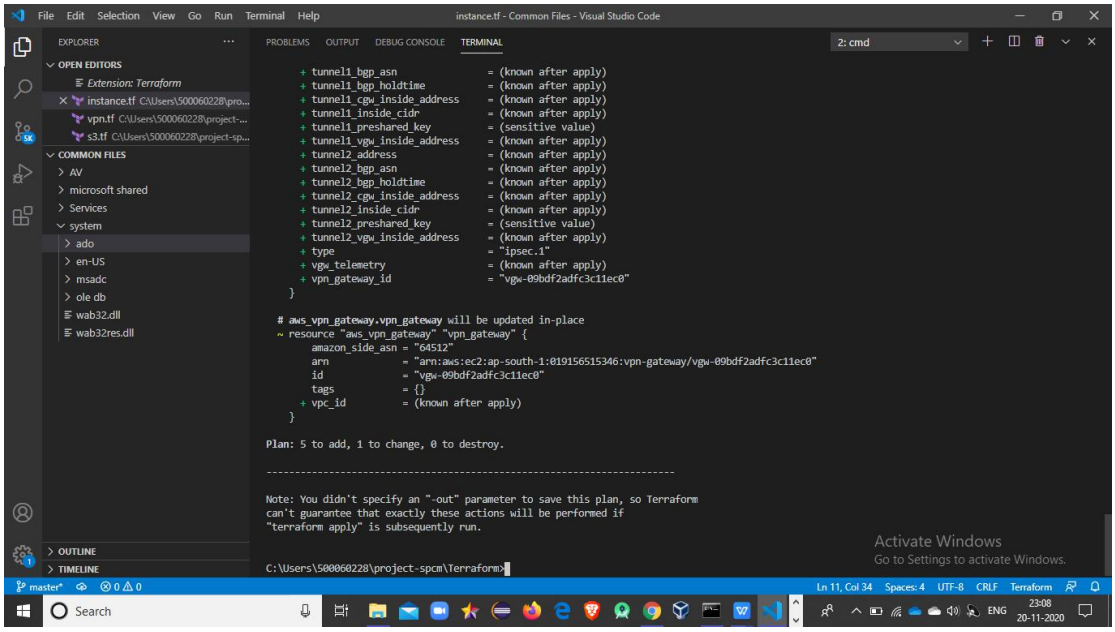

Validate

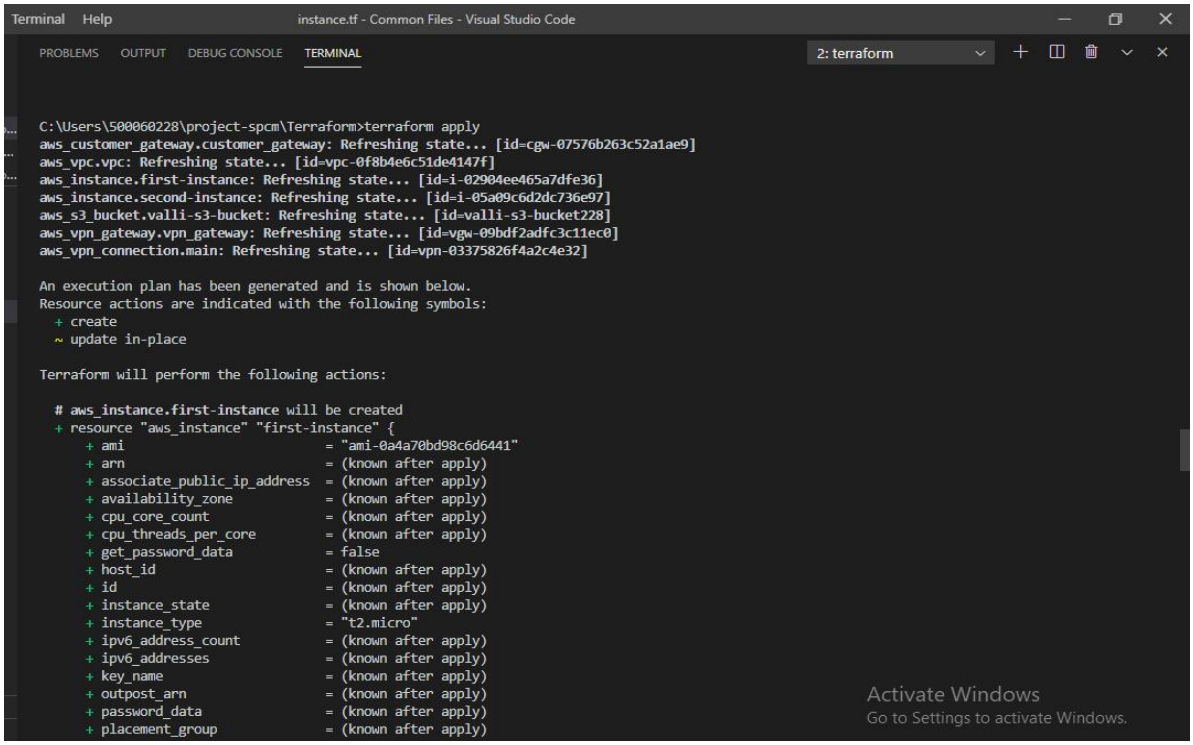
```
C:\Users\500060228\project-spcm\Terraform>terraform validate
Success! The configuration is valid.
```

Plan

```
C:\Users\500060228\project-spcm\Terraform>terraform plan
Refreshing Terraform state in-memory prior to plan...
The refreshed state will be used to calculate this plan, but will not be
persisted to local or remote state storage.

aws_customer_gateway.customer_gateway: Refreshing state... [id=cgw-07576b263c52a1ae9]
aws_vpc.vpc: Refreshing state... [id=vpc-0f8b4e6c51de4147f]
aws_instance.first-instance: Refreshing state... [id=i-02904ee465a7dfe36]
aws_s3_bucket.valli-s3-bucket: Refreshing state... [id=valli-s3-bucket228]
aws_instance.second-instance: Refreshing state... [id=i-05a09c6d2dc736e97]
aws_vpn_gateway.vpn_gateway: Refreshing state... [id=vgw-09bdf2adfc3c11ec0]
aws_vpn_connection.main: Refreshing state... [id=vpn-03375826f4a2c4e32]

------------------------------------------------------------------------

An execution plan has been generated and is shown below.
Resource actions are indicated with the following symbols:
  + create
  ~ update in-place

Terraform will perform the following actions:

  # aws_instance.first-instance will be created
  + resource "aws_instance" "first-instance" {
      + ami                          = "ami-0a4a70bd98c6d6441"
      + 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)
      + get_password_data            = false
      + host_id                      = (known after apply)
      + id                           = (known after apply)
      + instance_state               = (known after apply)
      + instance_type                = "t2.micro"
      + ipv6_address_count           = (known after apply)
```



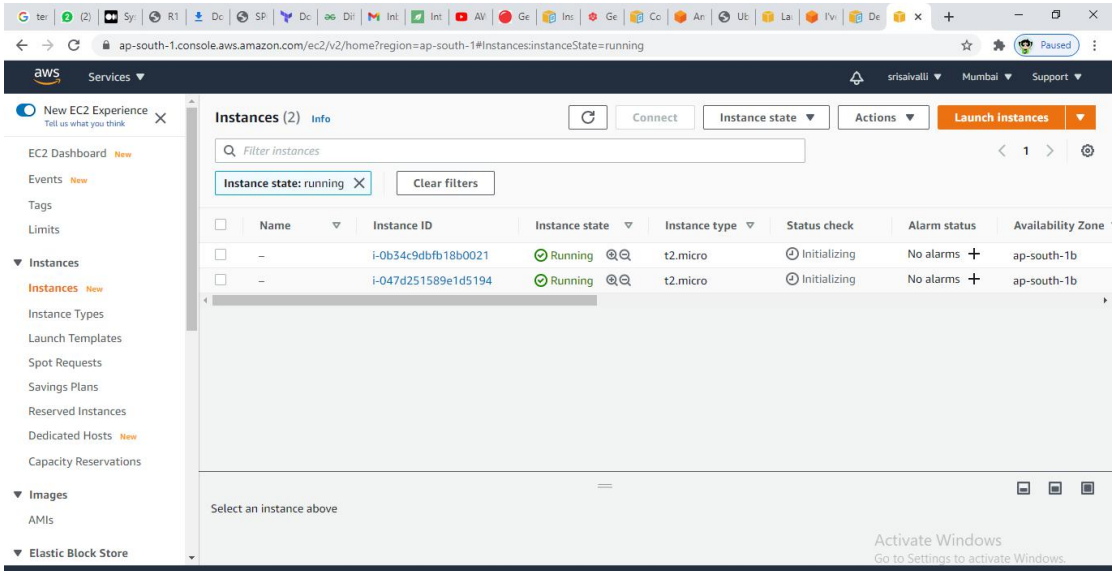
Apply (There was a small error while running the cmd at first time for creating instances, it is rectified and the "terraform apply" cmd is passed again)

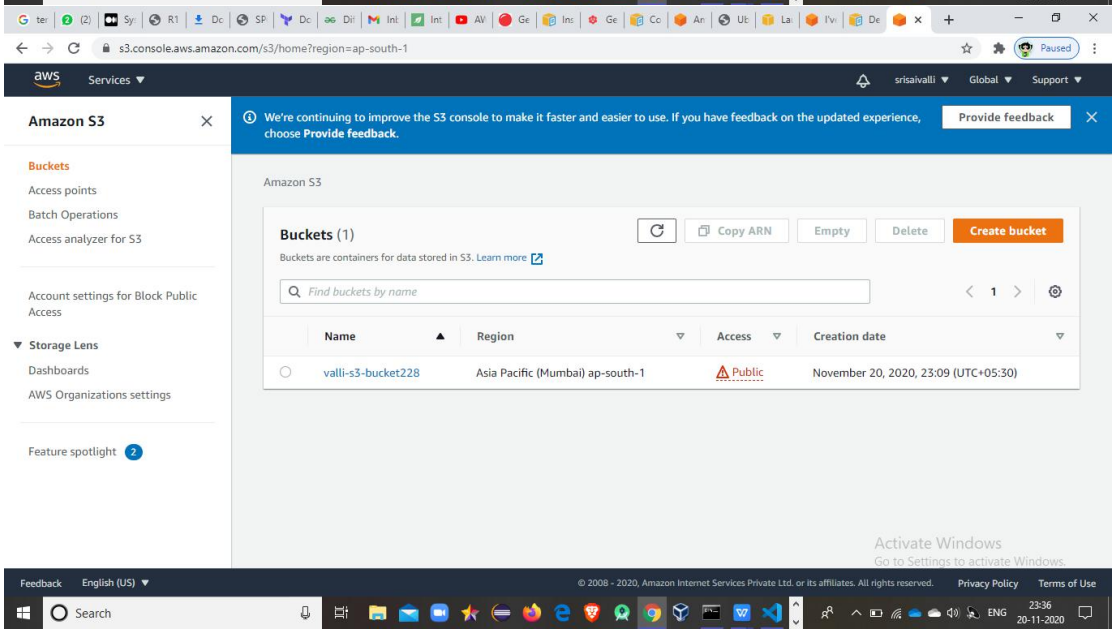


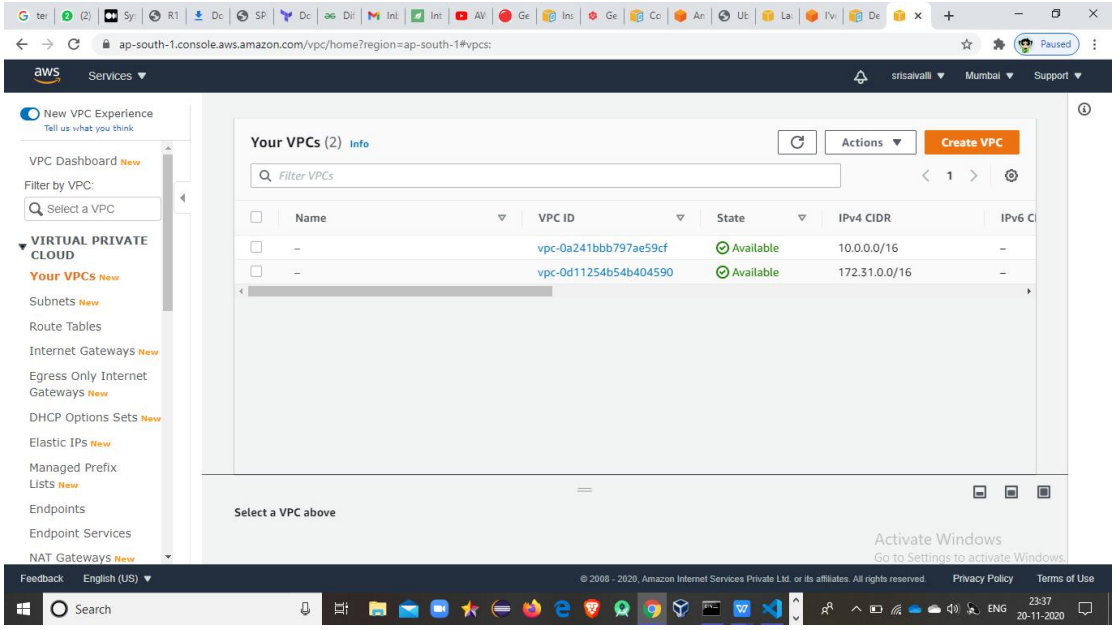
```
C:\Users\500060228\project-spcm\Terraform>terraform apply
Acquiring state lock. This may take a few moments...
aws_customer_gateway.customer_gateway: Refreshing state... [id=cgw-07576b263c52a1ae9]
aws_s3_bucket.valli-s3-bucket: Refreshing state... [id=valli-s3-bucket228]
aws_vpc.vpc: Refreshing state... [id=vpc-0a241bbb797ae59cf]
aws_vpn_gateway.vpn_gateway: Refreshing state... [id=vgw-09bdf2adfc3c11ec0]
aws_vpn_connection.main: Refreshing state... [id=vpn-06db7c8f582fccc71]

An execution plan has been generated and is shown below.
Resource actions are indicated with the following symbols:
  + create

Terraform will perform the following actions:

  # aws_instance.first-instance will be created
  + resource "aws_instance" "first-instance" {
      + ami                          = "ami-0a4a70bd98c6d6441"
      + 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)
      + get_password_data            = false
      + host_id                      = (known after apply)
      + id                           = (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)
      + outpost_arn                  = (known after apply)
```

```
      + device_name           = (known after apply)
      + encrypted             = (known after apply)
      + iops                  = (known after apply)
      + kms_key_id            = (known after apply)
      + volume_id             = (known after apply)
      + volume_size           = (known after apply)
      + volume_type           = (known after apply)
    }
  }

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.first-instance: Creating...
aws_instance.second-instance: Creating...
aws_instance.first-instance: Still creating... [10s elapsed]
aws_instance.second-instance: Still creating... [10s elapsed]
aws_instance.first-instance: Still creating... [20s elapsed]
aws_instance.second-instance: Still creating... [20s elapsed]
aws_instance.first-instance: Still creating... [30s elapsed]
aws_instance.second-instance: Still creating... [30s elapsed]
aws_instance.first-instance: Creation complete after 34s [id=i-047d251589e1d5194]
aws_instance.second-instance: Creation complete after 34s [id=i-0b34c9dbfb18b0021]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

C:\Users\500060228\project-spcm\Terraform>
```

OUTPUTS ON AWS:






ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#vpcs:
aws
Services
srisaivalli
Mumbai
Support
New VPC Experience
Tell us what you think
VPC Dashboard New
Filter by VPC:
Select a VPC
VIRTUAL PRIVATE CLOUD
Your VPCs New
Subnets New
Route Tables
Internet Gateways New
Egress Only Internet Gateways New
DHCP Options Sets New
Elastic IPs New
Managed Prefix Lists New
Endpoints
Endpoint Services
NAT Gateways New
Your VPCs (2) Info
Actions
Create VPC
Filter VPCs
Name
VPC ID
State
IPv4 CIDR
IPv6 C
vpc-0a241bbb797ae59cf
Available
10.0.0.0/16
vpc-0d11254b54b404590
Available
172.31.0.0/16
Select a VPC above
Activate Windows
Go to Settings to activate Windows.
Feedback
English (US)
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