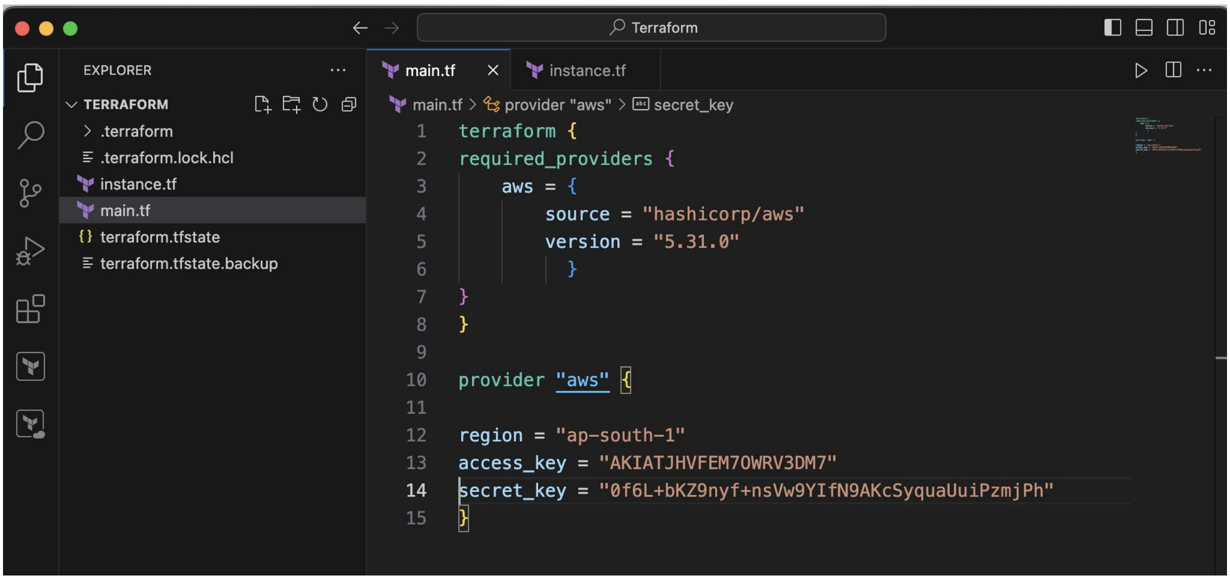
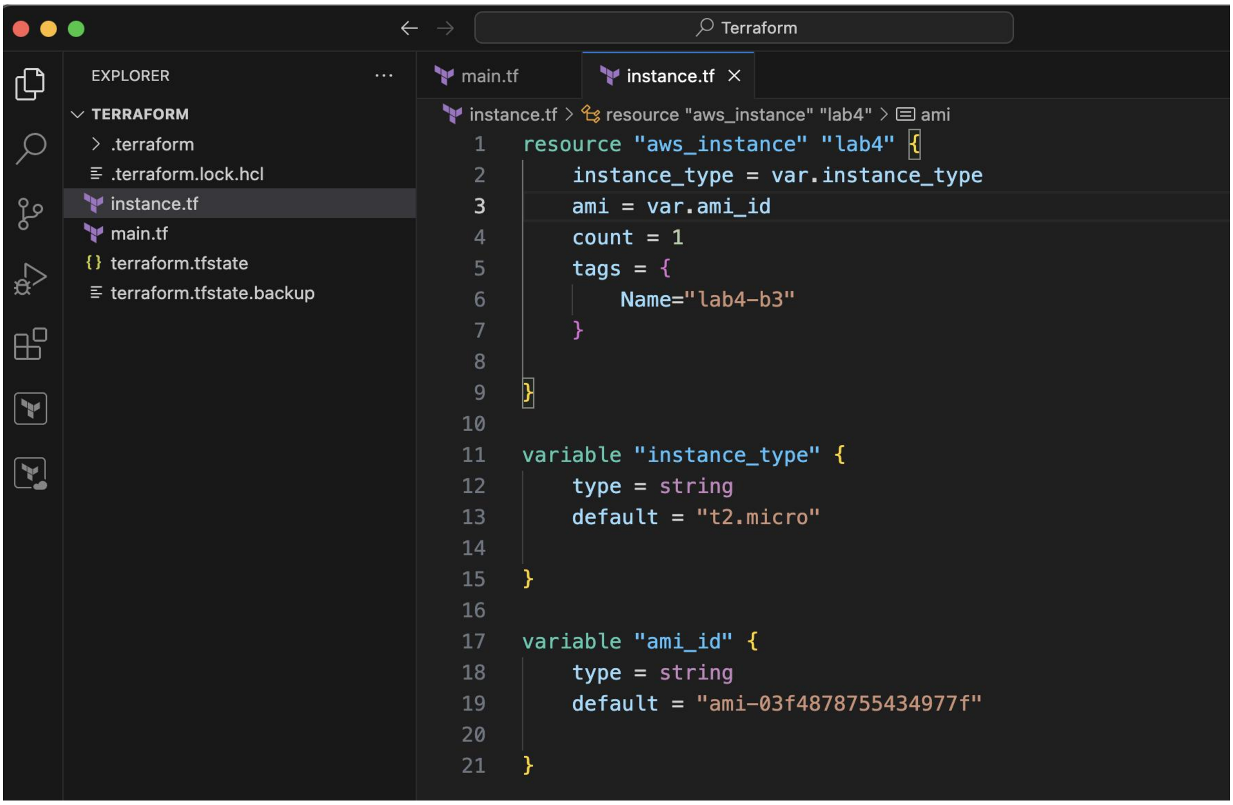
LAB-4 Terraform Variable

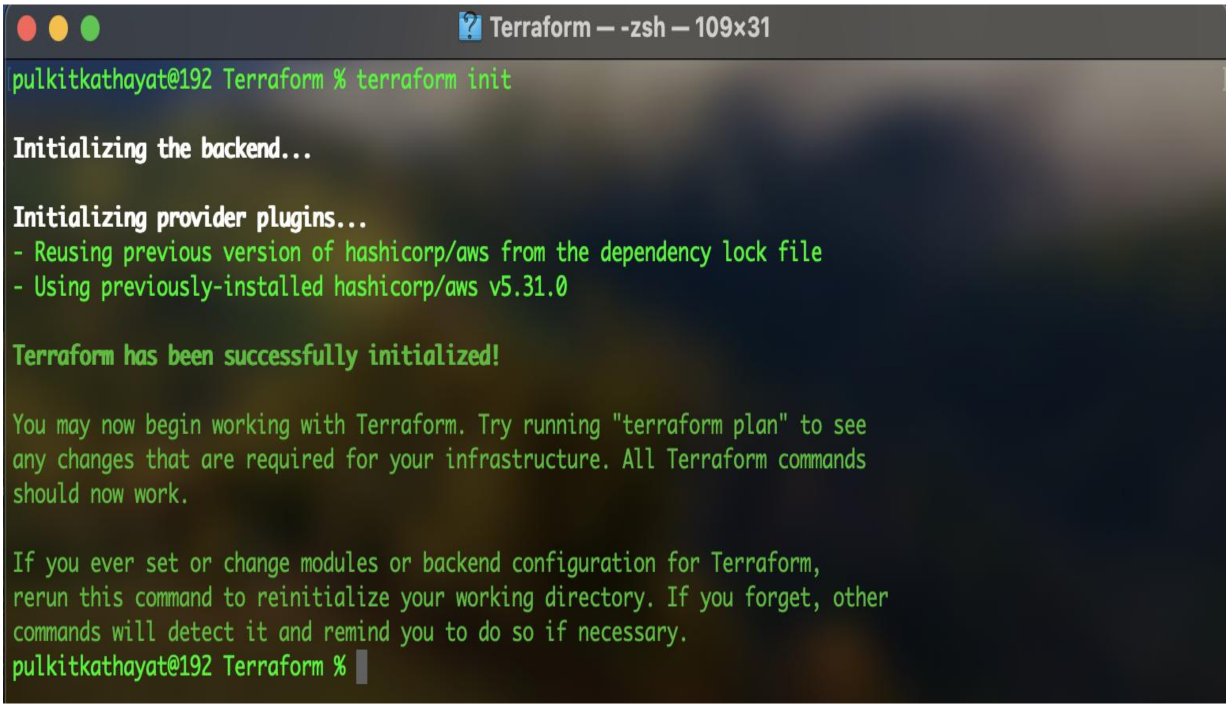
We will see different ways to declare variable in terraform Step 1: First we will see declaring variable in instance.tf file



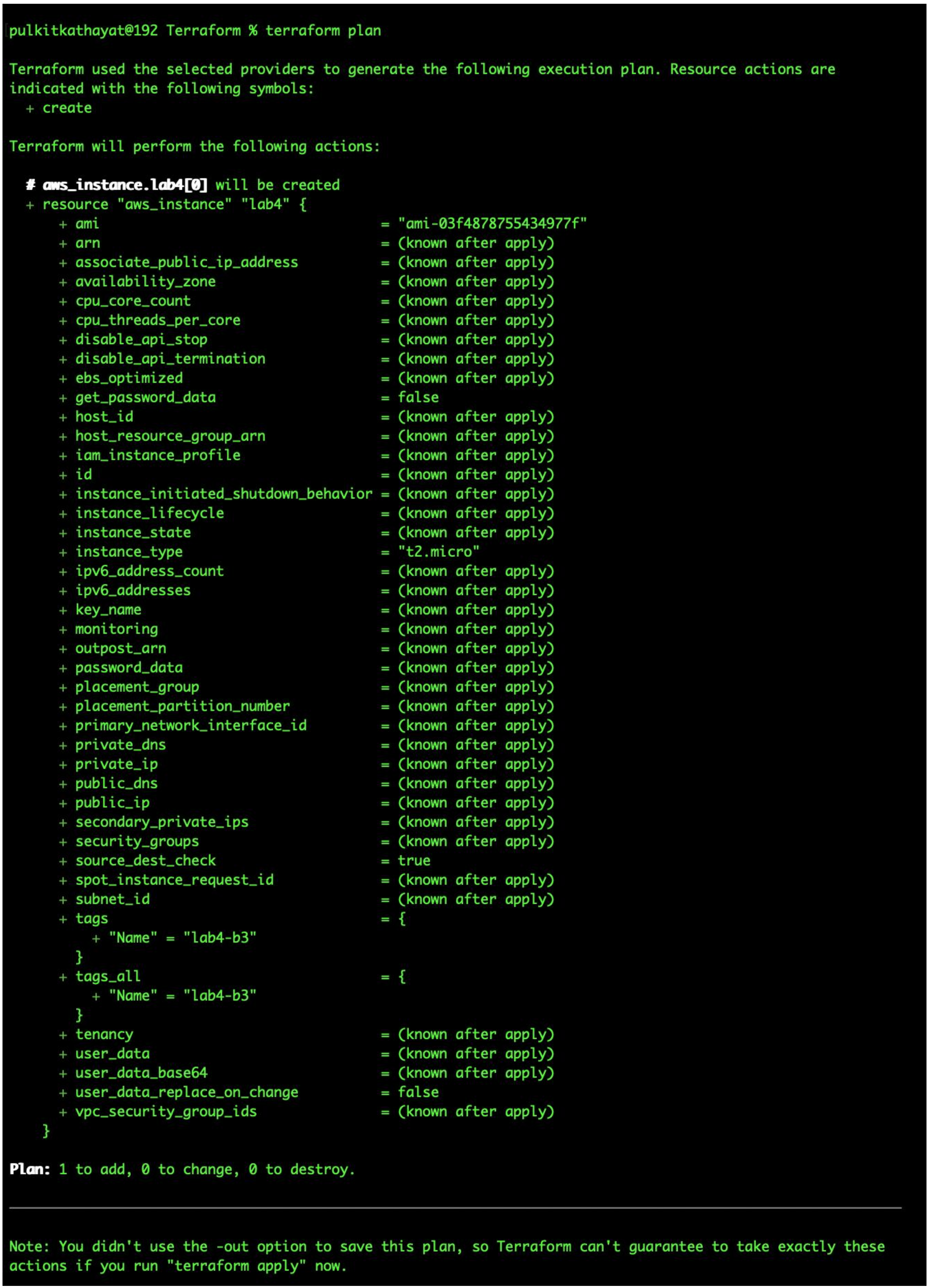
```
terraform {
required_providers {
    aws = {
        source = "hashicorp/aws"
        version = "5.31.0"
        }
}
}

provider "aws" {

region = "ap-south-1"
access_key = "AKIATJHVFEM7OWRV3DM7"
secret_key = "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"
}
```



```
resource "aws_instance" "lab4" {
    instance_type = var.instance_type
    ami = var.ami_id
    count = 1
    tags = {
        Name="lab4-b3"
    }

}

variable "instance_type" {
    type = string
    default = "t2.micro"

}

variable "ami_id" {
    type = string
    default = "ami-03f4878755434977f"

}
```



```
pulkitkathayat@192 Terraform % terraform init

Initializing the backend...

Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v5.31.0

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.

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.
pulkitkathayat@192 Terraform %
```



```
pulkitkathayat@192 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.lab4[0] will be created
  + resource "aws_instance" "lab4" {
      + ami                                  = "ami-03f4878755434977f"
      + 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)
      + monitoring                           = (known after apply)
      + 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
      + spot_instance_request_id             = (known after apply)
      + subnet_id                            = (known after apply)
      + tags                                 = {
          + "Name" = "lab4-b3"
        }
      + tags_all                             = {
          + "Name" = "lab4-b3"
        }
      + 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.

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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.
```
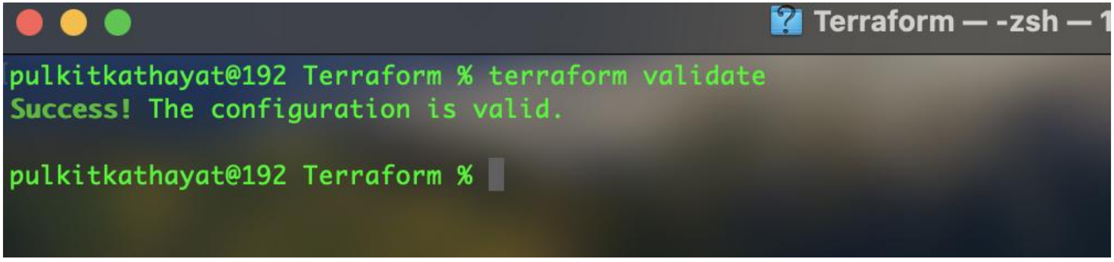
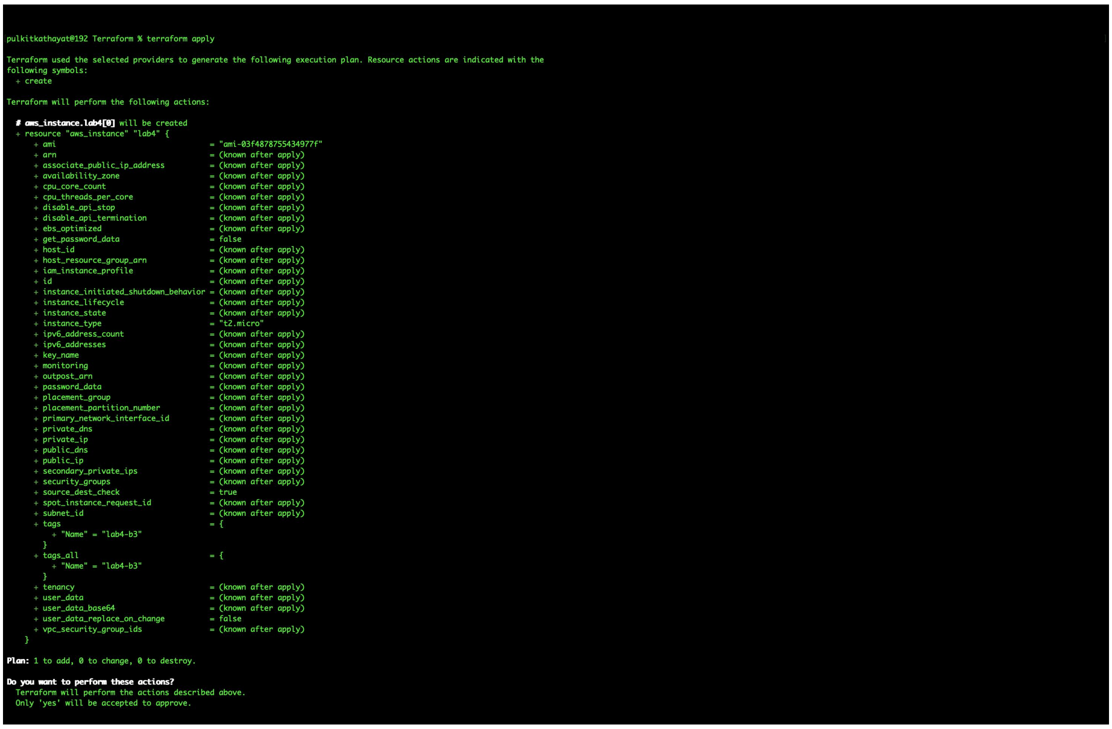
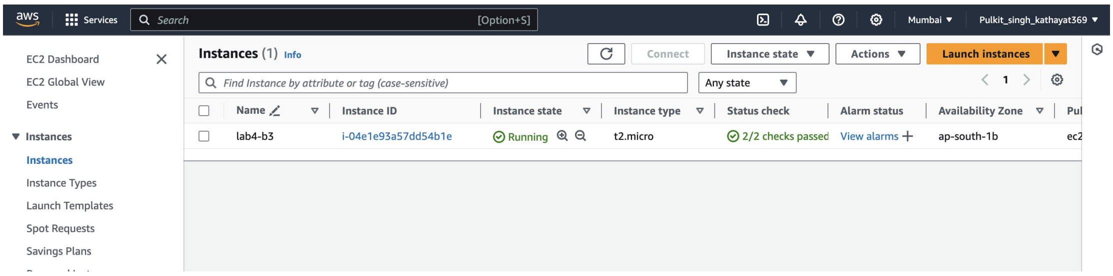



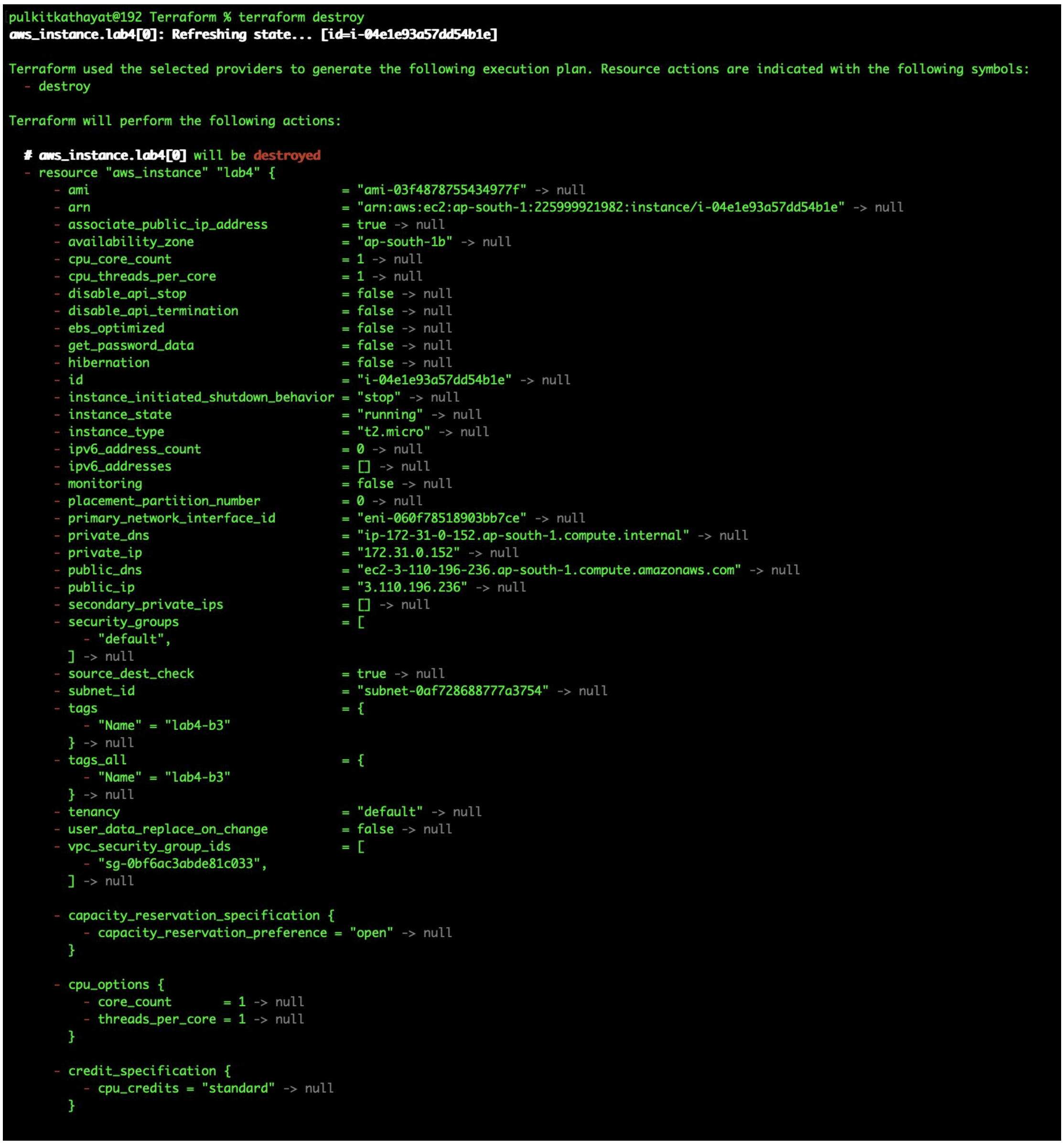
```
pulkitkathayat@192 Terraform % terraform validate
Success! The configuration is valid.

pulkitkathayat@192 Terraform % 
```



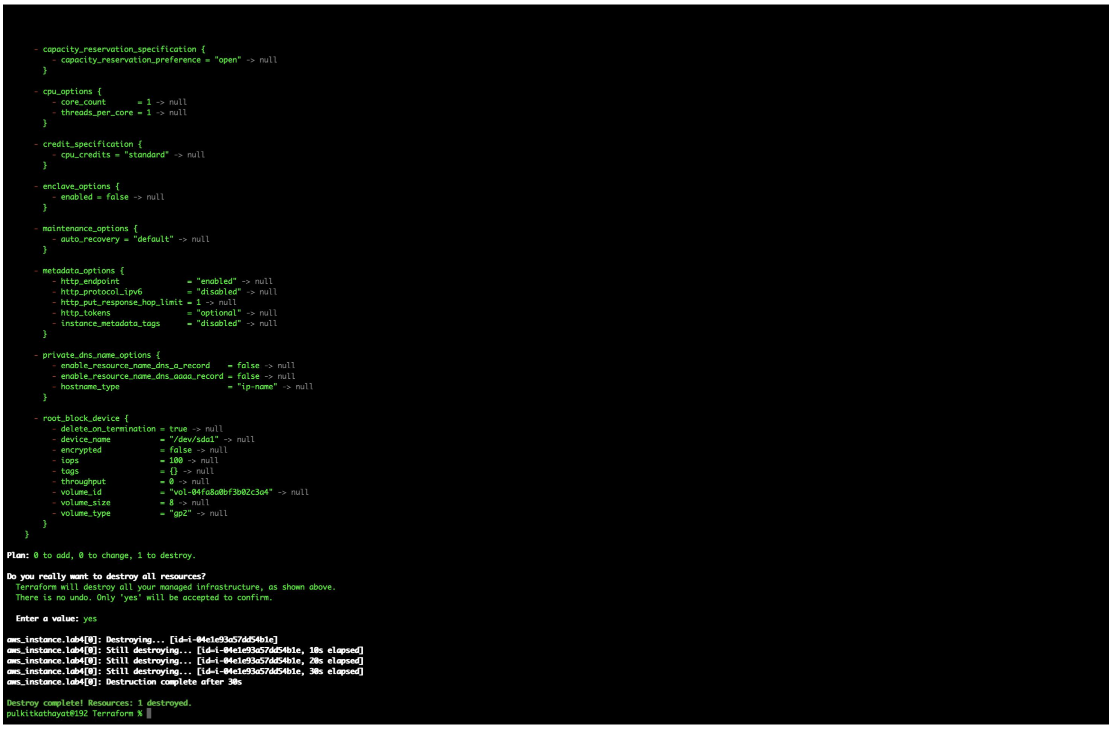
```
pulkitkathayat@192 Terraform % terraform apply

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_instance.lab4[0] will be created
  + resource "aws_instance" "lab4" {
      + ami                                  = "ami-03f4878755434977f"
      + 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)
      + monitoring                           = (known after apply)
      + 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
      + spot_instance_request_id             = (known after apply)
      + subnet_id                            = (known after apply)
      + tags                                 = {
          + "Name" = "lab4-b3"
        }
      + tags_all                             = {
          + "Name" = "lab4-b3"
        }
      + 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.
```



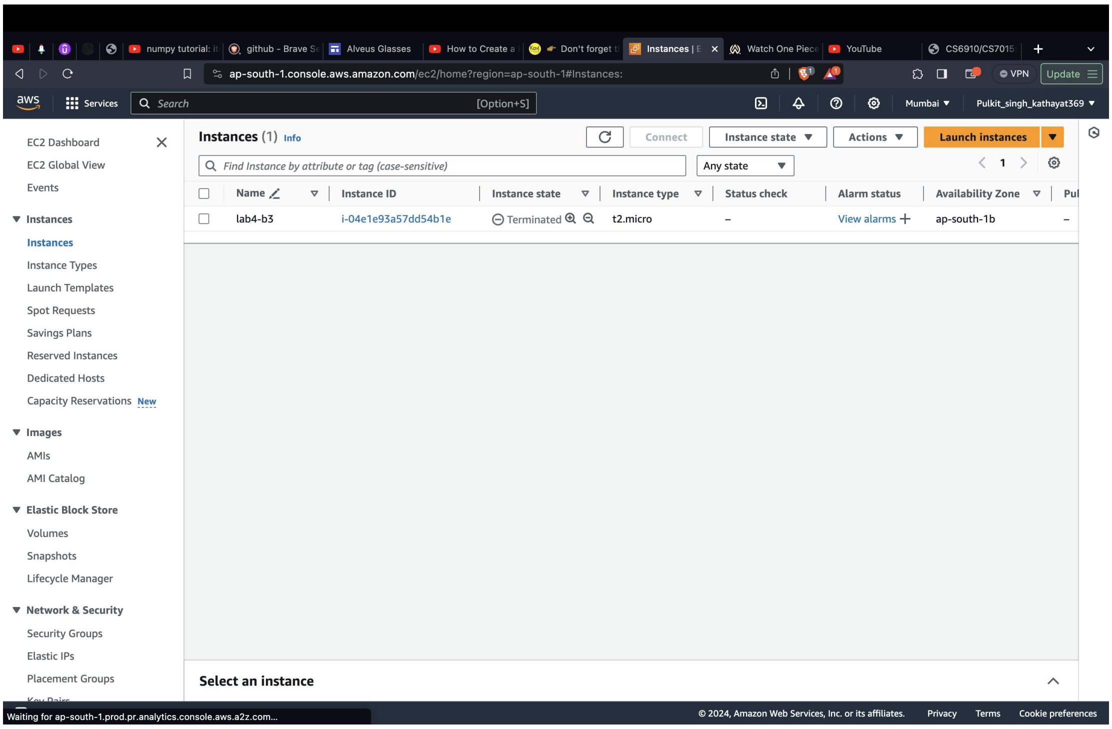
□	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Pul
□	lab4-b3	i-04e1e93a57dd54b1e	✓ Running	t2.micro	✓ 2/2 checks passed	View alarms +	ap-south-1b	ec2



```
pulkitkathayat@192 Terraform % terraform destroy
aws_instance.lab4[0]: Refreshing state... [id=i-04e1e93a57dd54b1e]

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_instance.lab4[0] will be destroyed
  - resource "aws_instance" "lab4" {
      - ami                                  = "ami-03f4878755434977f" -> null
      - arn                                  = "arn:aws:ec2:ap-south-1:225999921982:instance/i-04e1e93a57dd54b1e" -> null
      - associate_public_ip_address          = true -> null
      - availability_zone                    = "ap-south-1b" -> null
      - cpu_core_count                       = 1 -> null
      - cpu_threads_per_core                 = 1 -> null
      - disable_api_stop                     = false -> null
      - disable_api_termination              = false -> null
      - ebs_optimized                        = false -> null
      - get_password_data                    = false -> null
      - hibernation                          = false -> null
      - id                                   = "i-04e1e93a57dd54b1e" -> null
      - instance_initiated_shutdown_behavior = "stop" -> null
      - instance_state                       = "running" -> null
      - instance_type                        = "t2.micro" -> null
      - ipv6_address_count                   = 0 -> null
      - ipv6_addresses                       = [] -> null
      - monitoring                           = false -> null
      - placement_partition_number           = 0 -> null
      - primary_network_interface_id         = "eni-060f78518903bb7ce" -> null
      - private_dns                          = "ip-172-31-0-152.ap-south-1.compute.internal" -> null
      - private_ip                           = "172.31.0.152" -> null
      - public_dns                           = "ec2-3-110-196-236.ap-south-1.compute.amazonaws.com" -> null
      - public_ip                            = "3.110.196.236" -> null
      - secondary_private_ips                = [] -> null
      - security_groups                      = [
          - "default",
        ] -> null
      - source_dest_check                    = true -> null
      - subnet_id                            = "subnet-0af728688777a3754" -> null
      - tags                                 = {
          - "Name" = "lab4-b3"
        } -> null
      - tags_all                             = {
          - "Name" = "lab4-b3"
        } -> null
      - tenancy                              = "default" -> null
      - user_data_replace_on_change          = false -> null
      - vpc_security_group_ids               = [
          - "sg-0bf6ac3abde81c033",
        ] -> null

      - capacity_reservation_specification {
          - capacity_reservation_preference = "open" -> null
        }

      - cpu_options {
          - core_count       = 1 -> null
          - threads_per_core = 1 -> null
        }

      - credit_specification {
          - cpu_credits = "standard" -> null
        }
```



```
      - capacity_reservation_specification {
          - capacity_reservation_preference = "open" -> null
        }

      - cpu_options {
          - core_count       = 1 -> null
          - threads_per_core = 1 -> null
        }

      - credit_specification {
          - cpu_credits = "standard" -> null
        }

      - enclave_options {
          - enabled = false -> null
        }

      - maintenance_options {
          - auto_recovery = "default" -> null
        }

      - metadata_options {
          - http_endpoint               = "enabled" -> null
          - http_protocol_ipv6          = "disabled" -> null
          - http_put_response_hop_limit = 1 -> null
          - http_tokens                 = "optional" -> null
          - instance_metadata_tags      = "disabled" -> null
        }

      - private_dns_name_options {
          - enable_resource_name_dns_a_record    = false -> null
          - enable_resource_name_dns_aaaa_record = false -> null
          - hostname_type                        = "ip-name" -> null
        }

      - root_block_device {
          - delete_on_termination = true -> null
          - device_name           = "/dev/sda1" -> null
          - encrypted             = false -> null
          - iops                  = 100 -> null
          - tags                  = {} -> null
          - throughput            = 0 -> null
          - volume_id             = "vol-04fa8a0bf3b02c3a4" -> null
          - volume_size           = 8 -> null
          - volume_type           = "gp2" -> 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

aws_instance.lab4[0]: Destroying... [id=i-04e1e93a57dd54b1e]
aws_instance.lab4[0]: Still destroying... [id=i-04e1e93a57dd54b1e, 10s elapsed]
aws_instance.lab4[0]: Still destroying... [id=i-04e1e93a57dd54b1e, 20s elapsed]
aws_instance.lab4[0]: Still destroying... [id=i-04e1e93a57dd54b1e, 30s elapsed]
aws_instance.lab4[0]: Destruction complete after 30s

Destroy complete! Resources: 1 destroyed.
pulkitkathayat@192 Terraform % 
```



ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Instances:

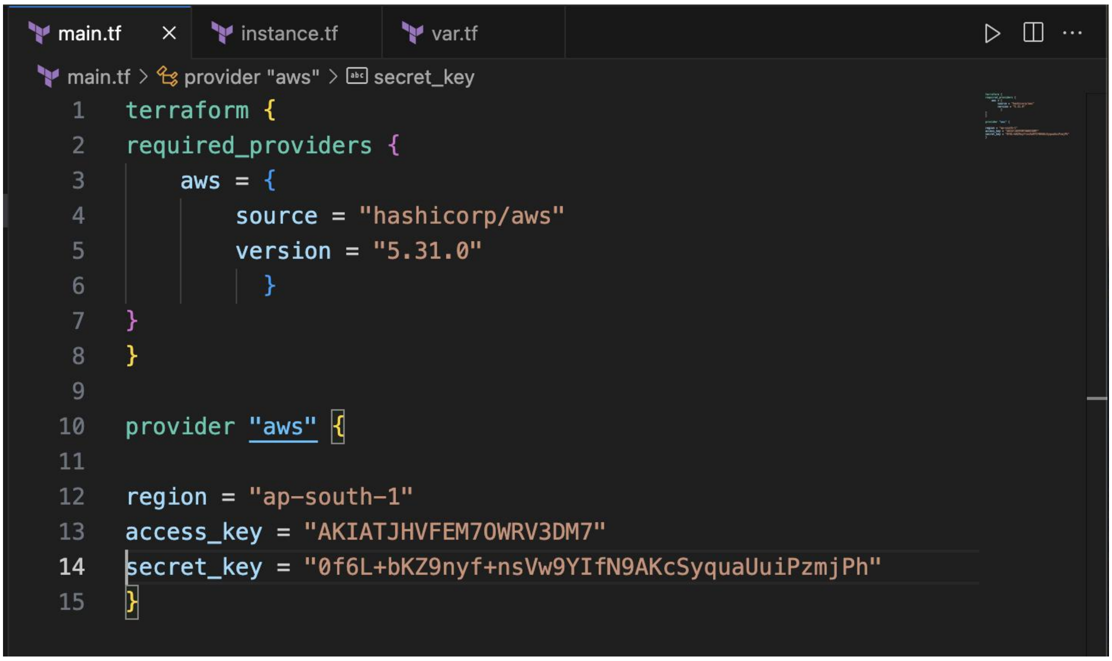
Instances (1) Info

Find Instance by attribute or tag (case-sensitive)

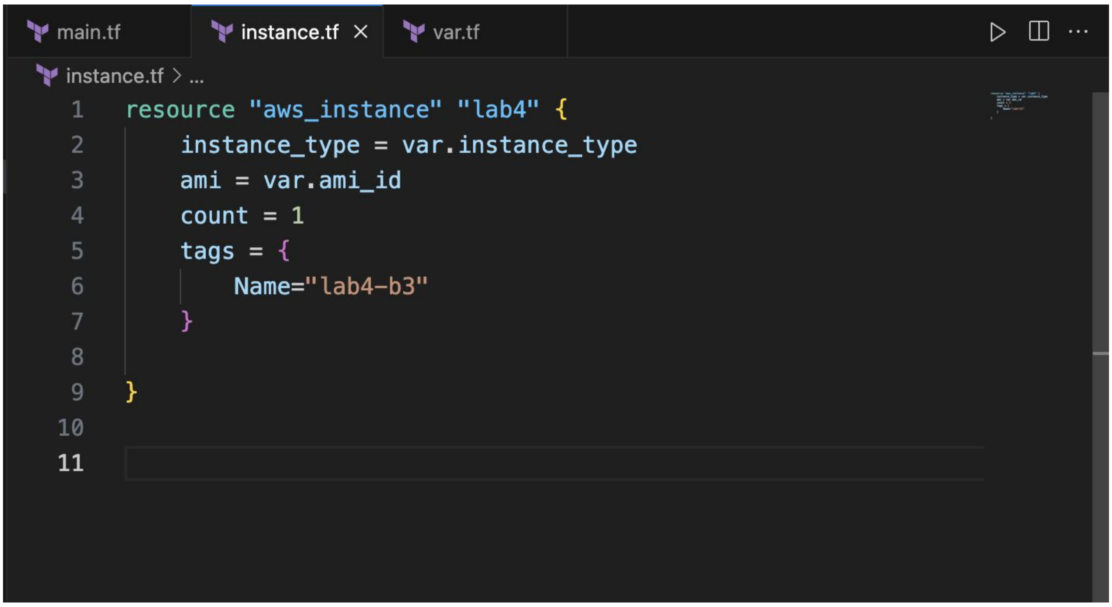
□	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Pu
□	lab4-b3	i-04e1e93a57dd54b1e	Terminated	t2.micro	–	View alarms +	ap-south-1b	–

Waiting for ap-south-1.prod.pr.analytics.console.aws.a2z.com...

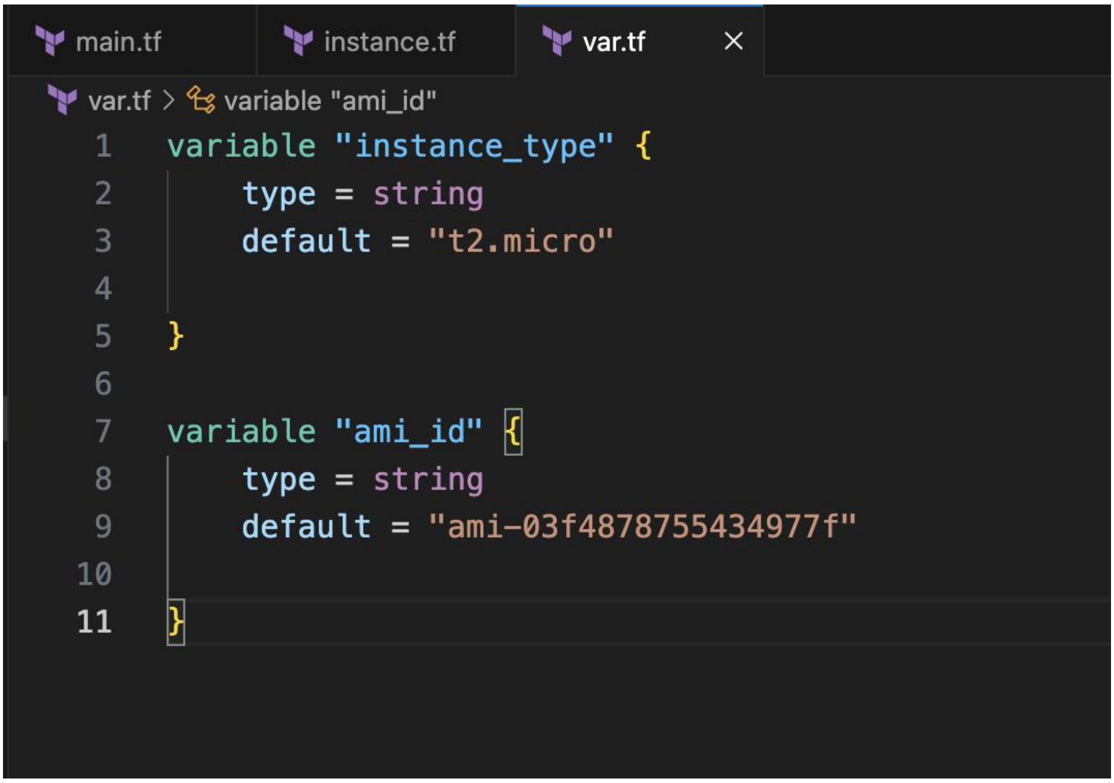
Step 2: Now we will to create a var.tf file to create variable



```
terraform {
required_providers {
    aws = {
        source = "hashicorp/aws"
        version = "5.31.0"
          }
}
}

provider "aws" {

region = "ap-south-1"
access_key = "AKIATJHVFEM7OWRV3DM7"
secret_key = "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"
}
```



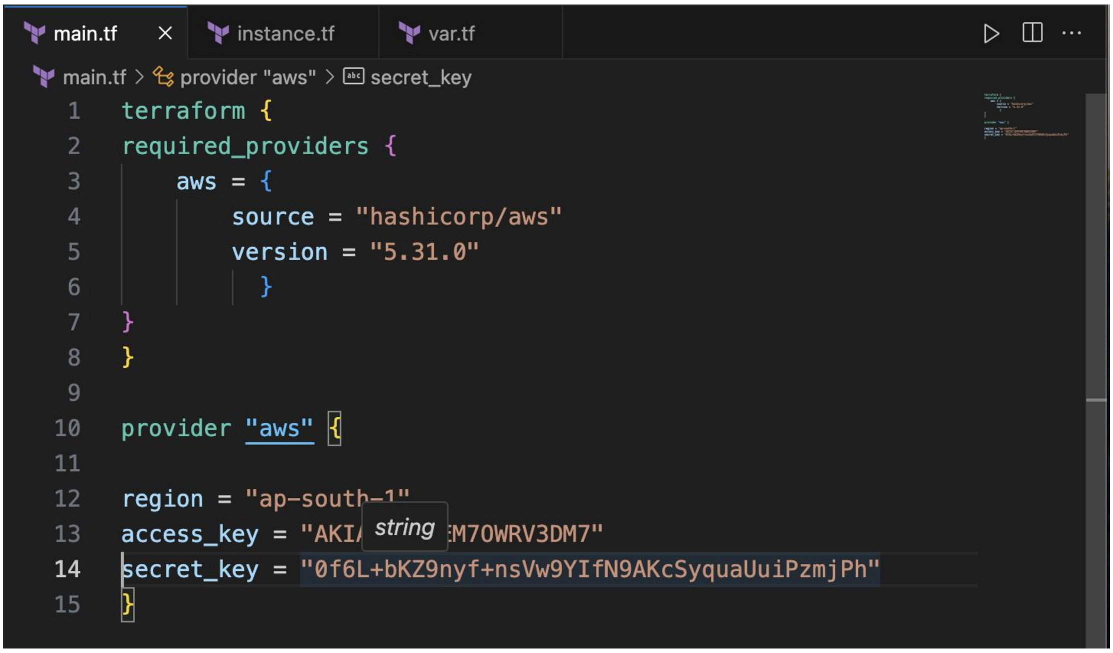
```
resource "aws_instance" "lab4" {
    instance_type = var.instance_type
    ami = var.ami_id
    count = 1
    tags = {
        Name="lab4-b3"
    }

}


```



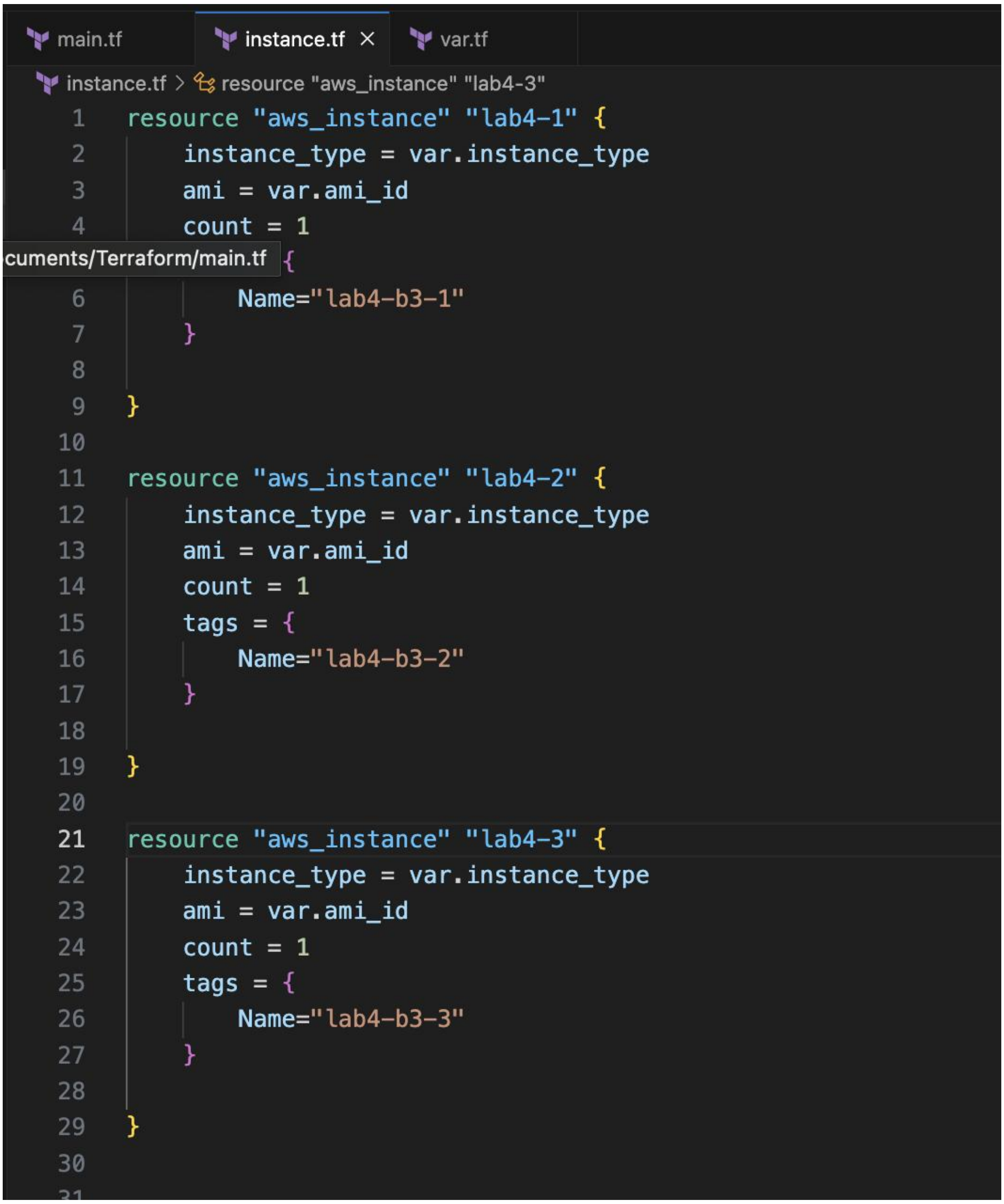
```
variable "instance_type" {
    type = string
    default = "t2.micro"

}

variable "ami_id" {
    type = string
    default = "ami-03f4878755434977f"

}
```

Now by again running the terraform plan and terraform apply instance will be created.

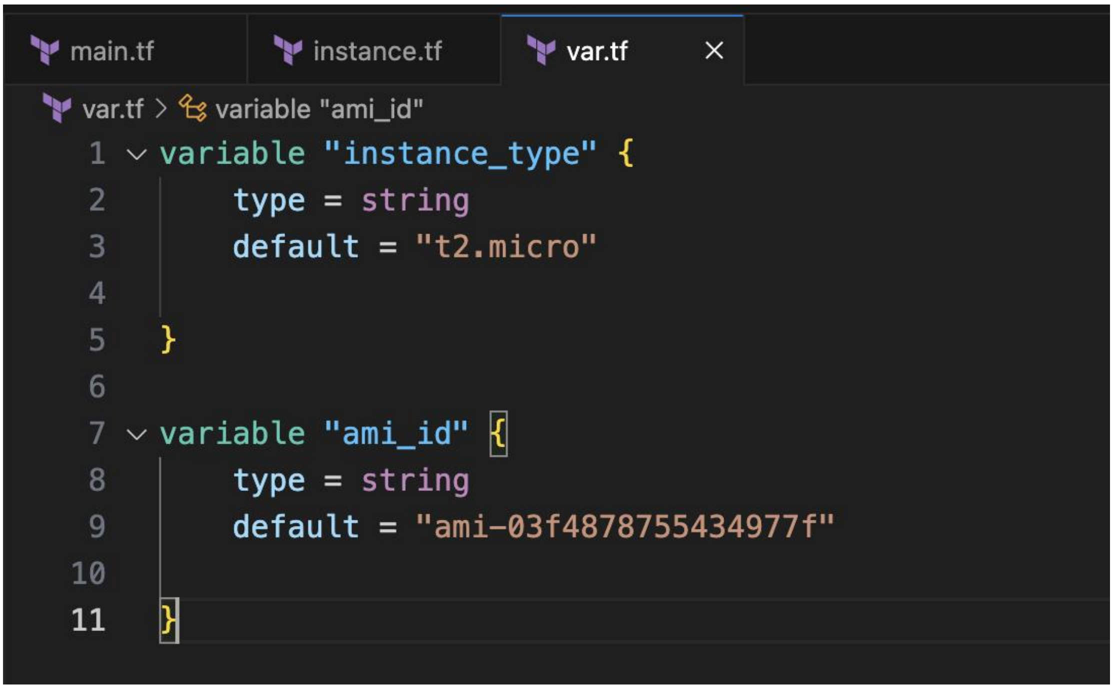
Step 3: To create multiple instances by changing instance.tf file



```
terraform {
required_providers {
    aws = {
        source = "hashicorp/aws"
        version = "5.31.0"
          }
}
}

provider "aws" {

region = "ap-south-1"
access_key = "AKIA EM7OWRV3DM7"
secret_key = "0f6L+bKZ9nyf+nsVw9YIfN9AKcSyquaUuiPzmjPh"
}
```


main.tf
instance.tf ×
var.tf
instance.tf > resource "aws_instance" "lab4-3"
cuments/Terraform/main.tf

```
resource "aws_instance" "lab4-1" {
    instance_type = var.instance_type
    ami = var.ami_id
    count = 1
           {
        Name="lab4-b3-1"
    }

}

resource "aws_instance" "lab4-2" {
    instance_type = var.instance_type
    ami = var.ami_id
    count = 1
    tags = {
        Name="lab4-b3-2"
    }

}

resource "aws_instance" "lab4-3" {
    instance_type = var.instance_type
    ami = var.ami_id
    count = 1
    tags = {
        Name="lab4-b3-3"
    }

}
```



```
variable "instance_type" {
    type = string
    default = "t2.micro"

}

variable "ami_id" {
    type = string
    default = "ami-03f4878755434977f"

}
```

Now by again running the terraform plan and terraform apply multiple instance will be created.