Lab Exercise 6– Terraform Variables

Objective:

Learn how to define and use variables in Terraform configuration.

Prerequisites:

- Install Terraform on your machine.

Steps:

1. Create a Terraform Directory:

- Create a new directory for your Terraform project.

```
mkdir terraform-variables

cd terraform-variables
```

2. Create a Terraform Configuration File:

- Create a file named main.tf within your project directory.

```
resource "aws_instance" "myinstance-1" {
  ami = var.myami
  instance_type = var.my_instance_type
  count = var.mycount
  tags = {
   Name= "My Instance"
  }
}
```

```
main.tf > resource "aws_instance" "myinstance-1"
1    resource "aws_instance" "myinstance-1" {
2      ami = var.myami
3      instance_type = var.my_instance_type
4      count = var.mycount
5      tags = {
6       Name= "My Instance"
7      }
8    }
```

3. Define Variables:

- Open a new file named variables.tf. Define variables for region, ami, and instance_type.

```
variable "myami" {
 type = string
 default = "ami-08718895af4dfa033"
}


variable "mycount" {


 type = number
 default = 5
}


variable "my_instance_type" {
  type = string
  default = "t2.micro"
}
```

```
variable.tf > variable "my_instance_type"
1        variable "myami" {
2        type = string
3         default = "ami-0df8c184d5f6ae949"
4        }
5
6        variable "mycount" {
7
8         type = number
9         default = 5
10       }
11
12       variable "my_instance_type" {
13          type = string
14          default = "t2.micro"
15       }
```

4. Initialize and Apply:

- Run the following Terraform commands to initialize and apply the configuration.

terraform init

terraform plan

terraform apply -auto-approve

Observe how the region changes based on the variable override.

```
    + tags                              = {
        + "Name" = "My Instance"
      }
    + tags_all                          = {
        + "Name" = "My Instance"
      }
    + 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)

    + capacity_reservation_specification (known after apply)

    + cpu_options (known after apply)

    + ebs_block_device (known after apply)

    + enclave_options (known after apply)

    + ephemeral_block_device (known after apply)

    + instance_market_options (known after apply)

    + maintenance_options (known after apply)

    + metadata_options (known after apply)

    + network_interface (known after apply)

    + private_dns_name_options (known after apply)

    + root_block_device (known after apply)
  }

Plan: 5 to add, 0 to change, 0 to destroy.
```

```
Plan: 5 to add, 0 to change, 0 to destroy.
 aws_instance.myinstance-1[4]: Creating...
 aws_instance.myinstance-1[3]: Creating...
 aws_instance.myinstance-1[1]: Creating...
 aws_instance.myinstance-1[2]: Creating...
 aws_instance.myinstance-1[0]: Creating...
 aws_instance.myinstance-1[0]: Still creating... [10s elapsed]
 aws_instance.myinstance-1[3]: Still creating... [10s elapsed]
 aws_instance.myinstance-1[2]: Still creating... [10s elapsed]
 aws_instance.myinstance-1[1]: Still creating... [10s elapsed]
 aws_instance.myinstance-1[4]: Still creating... [10s elapsed]
 aws_instance.myinstance-1[3]: Creation complete after 18s [id=i-0c4645ebcdd191070]
 aws_instance.myinstance-1[0]: Creation complete after 18s [id=i-09b74c861fe706897]
 aws_instance.myinstance-1[4]: Creation complete after 18s [id=i-010789cda4fe333c4]
 aws_instance.myinstance-1[2]: Creation complete after 19s [id=i-0459177b585a2d8bb]
 aws_instance.myinstance-1[1]: Creation complete after 19s [id=i-09b5435853bf14faa]

 Apply complete! Resources: 5 added, 0 changed, 0 destroyed.
 palakgupta@Palaks-MacBook-Air terraform-variables %
```
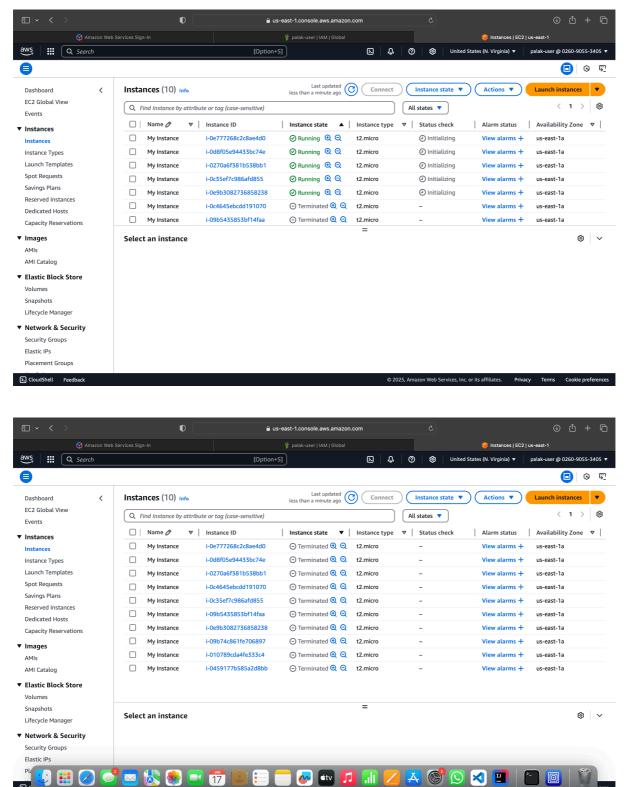
5. Clean Up:

After testing, you can clean up resources.

terraform destroy

Confirm the destruction by typing yes.

```
Plan: 0 to add, 0 to change, 5 to destroy.
aws_instance.myinstance-1[2]: Destroying... [id=i-0459177b585a2d8bb]
aws_instance.myinstance-1[3]: Destroying... [id=i-0c4645ebcdd191070]
aws_instance.myinstance-1[4]: Destroying... [id=i-010789cda4fe333c4]
aws_instance.myinstance-1[1]: Destroying... [id=i-09b5435853bf14faa]
aws_instance.myinstance-1[0]: Destroying... [id=i-09b74c861fe706897]
aws_instance.myinstance-1[0]: Still destroying... [id=i-09b74c861fe706897, 10s elapsed]
aws_instance.myinstance-1[4]: Still destroying... [id=i-010789cda4fe333c4, 10s elapsed]
aws_instance.myinstance-1[1]: Still destroying... [id=i-09b5435853bf14faa, 10s elapsed]
aws_instance.myinstance-1[3]: Still destroying... [id=i-0c4645ebcdd191070, 10s elapsed]
aws_instance.myinstance-1[2]: Still destroying... [id=i-0459177b585a2d8bb, 10s elapsed]
aws_instance.myinstance-1[2]: Still destroying... [id=i-0459177b585a2d8bb, 20s elapsed]
aws_instance.myinstance-1[0]: Still destroying... [id=i-09b74c861fe706897, 20s elapsed]
aws_instance.myinstance-1[1]: Still destroying... [id=i-09b5435853bf14faa, 20s elapsed]
aws_instance.myinstance-1[4]: Still destroying... [id=i-010789cda4fe333c4, 20s elapsed]
aws_instance.myinstance-1[3]: Still destroying... [id=i-0c4645ebcdd191070, 20s elapsed]
aws_instance.myinstance-1[3]: Still destroying... [id=i-0c4645ebcdd191070, 30s elapsed]
aws_instance.myinstance-1[1]: Still destroying... [id=i-09b5435853bf14faa, 30s elapsed]
aws_instance.myinstance-1[0]: Still destroying... [id=i-09b74c861fe706897, 30s elapsed]
aws_instance.myinstance-1[4]: Still destroying... [id=i-010789cda4fe333c4, 30s elapsed]
aws_instance.myinstance-1[2]: Still destroying... [id=i-0459177b585a2d8bb, 30s elapsed]
aws_instance.myinstance-1[3]: Destruction complete after 34s
aws_instance.myinstance-1[0]: Still destroying... [id=i-09b74c861fe706897, 40s elapsed]
aws_instance.myinstance-1[2]: Still destroying... [id=i-0459177b585a2d8bb, 40s elapsed]
aws_instance.myinstance-1[1]: Still destroying... [id=i-09b5435853bf14faa, 40s elapsed]
aws_instance.myinstance-1[4]: Still destroying... [id=i-010789cda4fe333c4, 40s elapsed]
aws_instance.myinstance-1[1]: Destruction complete after 44s
aws_instance.myinstance-1[2]: Destruction complete after 44s
aws_instance.myinstance-1[0]: Still destroying... [id=i-09b74c861fe706897, 50s elapsed]
aws_instance.myinstance-1[4]: Still destroying... [id=i-010789cda4fe333c4, 50s elapsed]
aws_instance.myinstance-1[0]: Destruction complete after 54s
aws_instance.myinstance-1[4]: Destruction complete after 55s

Destroy complete! Resources: 5 destroyed.
palakgupta@Palaks-MacBook-Air terraform-variables %
```

6. Conclusion:

This lab exercise introduces you to Terraform variables and demonstrates how to use them in your configurations. Experiment with different variable values and overrides to understand their impact on the infrastructure provisioning process.