Lab Exercise 8– Terraform Multiple tfvars Files

Objective:

Learn how to use multiple tfvars files in Terraform for different environments.

Prerequisites:

- Terraform installed on your machine.
- Basic knowledge of Terraform configuration and variables.

Steps:

1. Create a Terraform Directory:

```
mkdir terraform-multiple-tfvars
cd terraform-multiple-tfvars
```

- Create Terraform Configuration Files:
- Create a file named main.tf:

# main.tf

```
provider "aws" {
  region = var.region
}

resource "aws_instance" "example" {
  ami           = var.ami
  instance_type = var.instance_type
}
```

- Create a file named variables.tf:

# variables.tf

```
variable "ami" {
  type = string
}

variable "instance_ty" {
  type = string
}
```

2. Create Multiple tfvars Files:

- Create a file named dev.tfvars:

# dev.tfvars

```
ami           = "ami-0123456789abcdef0"
instance_type = "t2.micro"
```

- Create a file named prod.tfvars:

# prod.tfvars

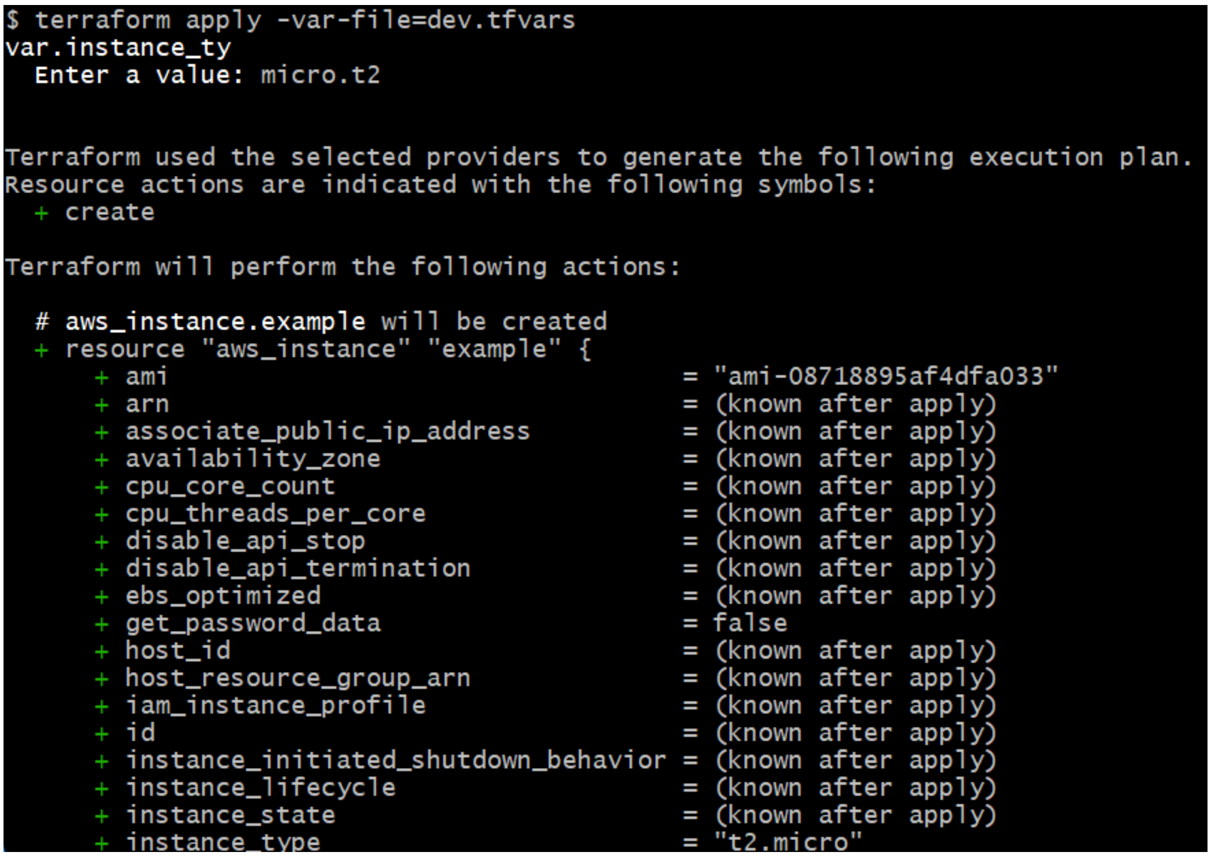
```
ami           = "ami-9876543210fedcba0"
instance_type = "t2.large"
```

- In these files, provide values for the variables based on the environments.

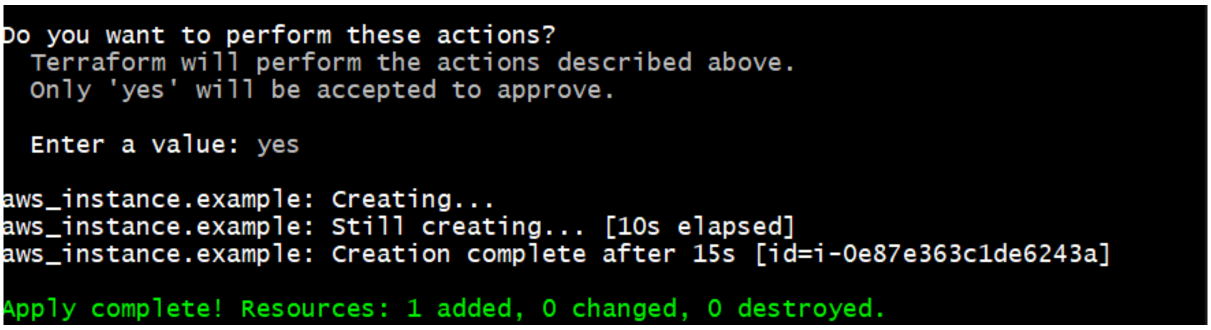
3. Initialize and Apply for Dev Environment:

- Run the following Terraform commands to initialize and apply the configuration for the dev environment:

```
terraform init
terraform apply -var-file=dev.tfvars
```



```
$ terraform apply -var-file=dev.tfvars
var.instance_ty
  Enter a value: micro.t2


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.example will be created
  + resource "aws_instance" "example" {
      + ami                                  = "ami-08718895af4dfa033"
      + 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"
```

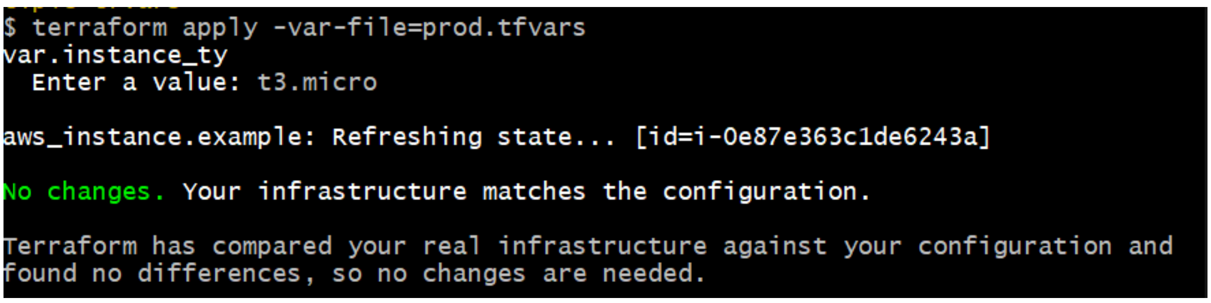


```
Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

aws_instance.example: Creating...
aws_instance.example: Still creating... [10s elapsed]
aws_instance.example: Creation complete after 15s [id=i-0e87e363c1de6243a]

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

4. Initialize and Apply for Prod Environment:

- Run the following Terraform commands to initialize and apply the configuration for the prod environment:

```
terraform init
terraform apply -var-file=prod.tfvars
```



```
$ terraform apply -var-file=prod.tfvars
var.instance_ty
  Enter a value: t3.micro

aws_instance.example: Refreshing state... [id=i-0e87e363c1de6243a]

No changes. Your infrastructure matches the configuration.

Terraform has compared your real infrastructure against your configuration and
found no differences, so no changes are needed.
```

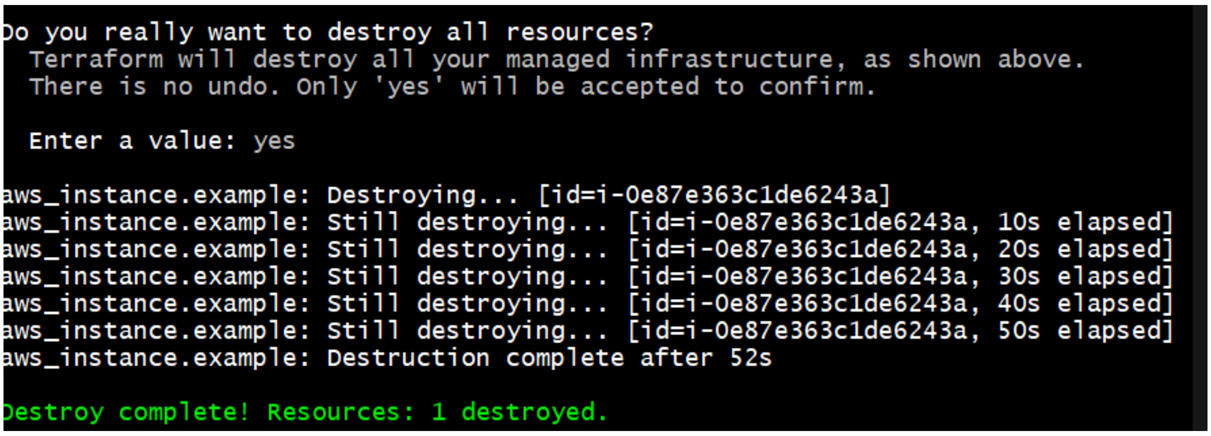
5. Test and Verify:

- Observe how different tfvars files are used to set variable values for different environments during the apply process.
- Access the AWS Management Console or use the AWS CLI to verify the creation of resources in the specified regions and instance types.

6. Clean Up:

- After testing, you can clean up resources:

```
terraform destroy -var-file=dev.tfvars
terraform destroy -var-file=prod.tfvars
```



```
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.example: Destroying... [id=i-0e87e363c1de6243a]
aws_instance.example: Still destroying... [id=i-0e87e363c1de6243a, 10s elapsed]
aws_instance.example: Still destroying... [id=i-0e87e363c1de6243a, 20s elapsed]
aws_instance.example: Still destroying... [id=i-0e87e363c1de6243a, 30s elapsed]
aws_instance.example: Still destroying... [id=i-0e87e363c1de6243a, 40s elapsed]
aws_instance.example: Still destroying... [id=i-0e87e363c1de6243a, 50s elapsed]
aws_instance.example: Destruction complete after 52s

Destroy complete! Resources: 1 destroyed.
```

Confirm the destruction by typing yes.

7. Conclusion:

This lab exercise demonstrates how to use multiple tfvars files in Terraform to manage variable values for different environments. It allows you to maintain separate configuration files for different environments, making it easier to manage and maintain your infrastructure code. Experiment with different values in the dev.tfvars and prod.tfvars files to observe how they impact the infrastructure provisioning process for each environment.