Lab Exercise 8– Creating a VPC in Terraform Objective:

Objective:

Learn how to use Terraform to create a basic Virtual Private Cloud (VPC) in AWS.

Prerequisites:

- Terraform installed on your machine.
- AWS CLI configured with the necessary credentials.

Steps:

1. Create a Terraform Directory:

```
mkdir terraform-vpc
cd terraform-vpc
```

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

main.tf

```
provider "aws" {
  region = "us-east-1"
}

resource "aws_vpc" "my_vpc" {
  cidr_block = "10.0.0.0/16"
  enable_dns_support = true
  enable_dns_hostnames = true

  tags = {
    Name = "MyVPC"
```

```
  }
}

resource "aws_subnet" "my_subnet" {
  count = 2

  vpc_id                  = aws_vpc.my_vpc.id
  cidr_block              = "10.0.${count.index + 1}.0/24"
  availability_zone       = "us-east-1a"
  map_public_ip_on_launch = true

  tags = {
    Name = "MySubnet-${count.index + 1}"
  }
}
```

In this configuration, we define an AWS provider, a VPC with a specified CIDR block, and two subnets within the VPC.

2. Initialize and Apply:

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

```
terraform init
terraform apply
```

- Terraform will prompt you to confirm the creation of the VPC and subnets. Type yes and press Enter.

3. Verify Resources in AWS Console:

- Log in to the AWS Management Console and navigate to the VPC service.
- Verify that the VPC and subnets with the specified names and settings have been created.

4. Update VPC Configuration:

- If you want to modify the VPC configuration, update the main.tf file with the desired changes.
- Rerun the terraform apply command to apply the changes:

```
terraform apply
```

5. Clean Up:

After testing, you can clean up the VPC and subnets:

```
terraform destroy
```

Confirm the destruction by typing yes.

6. Conclusion:

This lab exercise demonstrates how to create a basic Virtual Private Cloud (VPC) with subnets in AWS using Terraform. The example includes a simple VPC configuration with two subnets. Experiment with different CIDR blocks, settings, and additional AWS resources to customize your VPC.