**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.

1. **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.

1. **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.

1. **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**

1. **Clean Up:**

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

**terraform destroy**

Confirm the destruction by typing yes.

1. **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.