**Terraform**

Terraform is an open-source Infrastructure as Code (IaC) tool developed by HashiCorp. It allows users to define and provision infrastructure using a high-level configuration language called HashiCorp Configuration Language (HCL) or JSON.

**Write** → Define infrastructure in .tf files (HCL format).

**Plan** → Preview the execution plan using terraform plan.

**Apply** → Deploy the infrastructure using terraform apply.

**Destroy** → Remove all managed infrastructure using terraform destroy.

terraform {

  required\_providers {

    aws = {

      source = "hashicorp/aws"

      version = "5.92.0"

    }

  }

}

provider "aws" {

  # Configuration options

}

Terraform version:

terraform {

  required\_providers {

    aws = {

      source  = "hashicorp/aws"

      version = "~> 5.0"

    }

  }

}

# Configure the AWS Provider

provider "aws" {

  region = "us-east-1"

}

# Create a VPC

resource "aws\_vpc" "example" {

  cidr\_block = "10.0.0.0/16"

}

region = "us-east-1"

resource "aws\_vpc" "myvpc" {

  cidr\_block       = "10.0.0.0/16"

  tags = {

    Name = "demovpc"

  }

resource "aws\_subnet" "pubsub" {

  vpc\_id     = aws\_vpc.myvpc.id

  cidr\_block = "10.0.1.0/24"

  availability\_zone = "us-east-1a"

  tags = {

    Name = "sn1"

  }

}

Internet Gateway:

resource "aws\_internet\_gateway" "tfigw" {

  vpc\_id = aws\_vpc.myvpc.id

  tags = {

    Name = "tfigw"

  }

}

resource "aws\_route\_table" "tfpubrt" {

  vpc\_id = aws\_vpc.myvpc.id

  route {

    cidr\_block = "0.0.0.0/0"

    gateway\_id = aws\_internet\_gateway.tfigw.id

  }

  tags = {

    Name = "tfpublicroute"

  }

}

resource "aws\_route\_table\_association" "pubsn1" {

  subnet\_id      = aws\_subnet.pubsub.id

  route\_table\_id = aws\_route\_table.tfpubrt.id

}

resource "aws\_route\_table\_association" "pubsn2" {

  subnet\_id      = aws\_subnet.pub\_sub.id

  route\_table\_id = aws\_route\_table.tfpubrt.id

}

resource "aws\_eip" "tfeip" {

  domain   = "vpc"

}

resource "aws\_nat\_gateway" "tfnat" {

  allocation\_id = aws\_eip.tfeip.id

  subnet\_id     = aws\_subnet.pub\_sub.id

  tags = {

    Name = "gw NAT"

  }

}

resource "aws\_route\_table" "tfprirt" {

  vpc\_id = aws\_vpc.myvpc.id

  route {

    cidr\_block = "0.0.0.0/0"

    gateway\_id = aws\_nat\_gateway.tfnat.id

  }

  tags = {

    Name = "tfprivateroute"

  }

}

resource "aws\_instance" "pub\_ins" {

  ami                          = "ami-0fc5d935ebf8bc3bc"

  instance\_type                = "t2.micro"

  subnet\_id                    = aws\_subnet.pub\_sub.id

  vpc\_security\_group\_ids        = [aws\_security\_group.allow\_tfsg.id]

 key\_name                      = "David"

 associate\_public\_ip\_address   =  "true"

}

resource "aws\_instance" "pri\_ins" {

  ami                          = "ami-0fc5d935ebf8bc3bc"

  instance\_type                = "t2.micro"

  subnet\_id                    =  aws\_subnet.prisub.id

  vpc\_security\_group\_ids        = [aws\_security\_group.allow\_tfsg.id]

  key\_name                     = "David"

}

#terraform init

#terraform validate

#terraform plan

#terraform apply

#terraform destroy

