Assignment-6
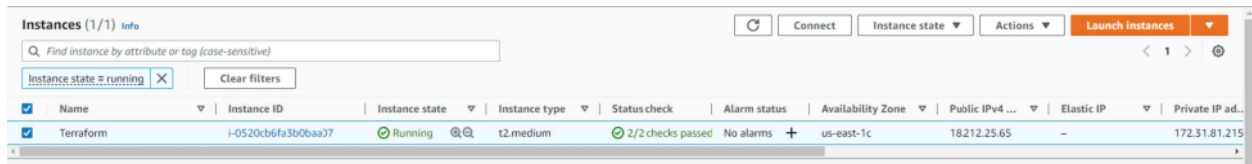
Create EC2 instance and install terraform on it.

1- I have created using ubuntu ec2-instance

2- Install terraform and verify

```
ubuntu@ip-172-31-44-111:~$ sudo -i
root@ip-172-31-44-111:~#  terraform --version
Terraform v1.3.3
on linux_amd64
+ provider registry.terraform.io/hashicorp/aws v4.37.0
root@ip-172-31-44-111:~# echo "export AWS_ACCESS_KEY_ID="AKIAQ7I5LWT7UOZPFLIS" " >> ~/.bashrc
root@ip-172-31-44-111:~#  set | grep -i AWS
AWS_ACCESS_KEY_ID=AKIAQ7I5LWT7UOZPFLIS
AWS_SECRET_ACCESS_KEY=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
_='export AWS_ACCESS_KEY_ID=AKIAQ7I5LWT7UOZPFLIS '
root@ip-172-31-44-111:~#
```

3- Create a main.tf file as follows

```
provider "aws" {
region   = "us-east-1"
}
variable "zones_east" {
  default = ["us-east-1a", "us-east-1b"]
}
variable "zones_east-1" {
  default = ["us-east-1c", "us-east-1d"]
}
resource "aws_instance" "east_frontend" {
  ami            = "ami-0149b2da6ceec4bb0"
  instance_type = "t2.micro"
  availability_zone = var.zones_east[count.index]
  count          = 2
  depends_on     = [ aws_instance.east_backend ]
  lifecycle {
    create_before_destroy = true
  }
  tags = {
    Name = "east-front-${count.index}"
    Team = "DevOps"
  }
}
resource "aws_instance" "west_frontend" {
  ami            = "ami-0149b2da6ceec4bb0"
  instance_type = "t2.micro"
  availability_zone = var.zones_east-1[count.index]
  count          = 2
  depends_on     = [ aws_instance.west_backend ]
  lifecycle {
    create_before_destroy = true
  }
```

```
    }
}
resource "aws_instance" "east_backend" {
  ami             = "ami-0149b2da6ceec4bb0"
  instance_type   = "t2.micro"
  availability_zone = var.zones_east[count.index]
  count           = 2
  lifecycle {
    prevent_destroy = false
  }
  tags = {
    Name = "east-back-${count.index}"
    Team = "DevOps"
  }
}
resource "aws_instance" "west_backend" {
  ami             = "ami-0149b2da6ceec4bb0"
  instance_type   = "t2.micro"
  availability_zone = var.zones_east-1[count.index]
  count           = 2
  lifecycle {
    prevent_destroy = false
  }
  tags = {
    Name = "west-back-${count.index}"
    Team = "DevOps"
  }
}
}
output "PublicIP_East_Frontend" {
  value = aws_instance.east_frontend.*.public_ip
}
```

4- Run the **terraform init** command and **terraform apply --autoapprove**

```
Initializing the backend ...

Initializing provider plugins ...
- Finding latest version of hashicorp/aws ...
- Installing hashicorp/aws v4.37.0 ...
- Installed hashicorp/aws v4.37.0 (signed by HashiCorp)

Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
ubuntu@ip-172-31-44-111:~$
```

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5- The Output is as follows and the ec-2 instances in creating


```
aws_instance.east_frontend[0]: Still creating... [30s elapsed]
aws_instance.east_frontend[1]: Still creating... [30s elapsed]
aws_instance.west_frontend[0]: Still creating... [40s elapsed]
aws_instance.west_frontend[1]: Still creating... [40s elapsed]
aws_instance.east_frontend[1]: Creation complete after 32s [id=i-0cc0cae99faeebc44]
aws_instance.west_frontend[1]: Creation complete after 42s [id=i-0ed298e0f776c0a94]
aws_instance.east_frontend[0]: Still creating... [40s elapsed]
aws_instance.west_frontend[0]: Still creating... [50s elapsed]
aws_instance.west_frontend[0]: Creation complete after 52s [id=i-061415ca8d2bcf882]
aws_instance.east_frontend[0]: Creation complete after 43s [id=i-02d8d4a85a5636e12]

Apply complete! Resources: 8 added, 0 changed, 0 destroyed.

Outputs:

PublicIP_East_Backend = [
  "34.228.241.127",
  "44.203.211.255",
]
PublicIP_East_Frontend = [
  "3.85.49.1",
  "44.204.114.52",
]
```

6- EC2 instances created

Instances (9) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 ...	Elastic IP	Private IP ad...
east-front-0	i-02d8d4a85a5636e12	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1a	3.85.49.1	–	172.31.43.244
east-back-0	i-03a9bb379bd43ff76	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1a	34.228.241.127	–	172.31.39.90
east-back-1	i-022e9da2de779c0e1	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1b	44.203.211.255	–	172.31.13.84
east-front-1	i-0cc0cae99faeebc44	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1b	44.204.114.52	–	172.31.0.92
Terraform	i-0520cb6fa3b0baa37	⊘ Running	t2.medium	⊘ 2/2 checks passed	No alarms +	us-east-1c	18.212.25.65	–	172.31.81.215
west-front-0	i-061415ca8d2bcf882	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1c	3.87.217.60	–	172.31.90.251
west-back-0	i-026e2097824b951c8	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1c	54.165.21.162	–	172.31.88.65
west-back-1	i-0f12ecb47a232c4ca	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1d	54.226.145.54	–	172.31.23.117
west-front-1	i-0ed298e0f776c0a34	⊘ Running	t2.micro	⊘ Initalizing	No alarms +	us-east-1d	54.173.38.174	–	172.31.21.208

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7- Terraform destroy command

```
Plan: 0 to add, 0 to change, 8 to destroy.

Changes to Outputs:
  - PublicIP_East_Backend   = [
      - "34.228.241.127",
      - "44.203.211.255",
    ] → null
  - PublicIP_East_Frontend  = [
      - "3.85.49.1",
      - "44.204.114.52",
    ] → null
aws_instance.east_frontend[1]: Destroying ... [id=i-0cc0cae99faeebc44]
aws_instance.east_frontend[0]: Destroying ... [id=i-02d8d4a85a5636e12]
aws_instance.west_frontend[0]: Destroying ... [id=i-061415ca8d2bcf882]
aws_instance.west_frontend[1]: Destroying ... [id=i-0ed298e0f776c0a94]
aws_instance.east_frontend[1]: Still destroying ... [id=i-0cc0cae99faeebc44, 10s elapsed]
aws_instance.east_frontend[0]: Still destroying ... [id=i-02d8d4a85a5636e12, 10s elapsed]
aws_instance.west_frontend[0]: Still destroying ... [id=i-061415ca8d2bcf882, 10s elapsed]
aws_instance.west_frontend[1]: Still destroying ... [id=i-0ed298e0f776c0a94, 10s elapsed]
aws_instance.east_frontend[1]: Still destroying ... [id=i-0cc0cae99faeebc44, 20s elapsed]
aws_instance.west_frontend[0]: Still destroying ... [id=i-061415ca8d2bcf882, 20s elapsed]
aws_instance.east_frontend[0]: Still destroying ... [id=i-02d8d4a85a5636e12, 20s elapsed]
aws_instance.west_frontend[1]: Still destroying ... [id=i-0ed298e0f776c0a94, 20s elapsed]
aws_instance.east_frontend[0]: Destruction complete after 30s
aws_instance.west_frontend[0]: Destruction complete after 30s
aws_instance.east_frontend[1]: Still destroying ... [id=i-0cc0cae99faeebc44, 30s elapsed]
aws_instance.west_frontend[1]: Still destroying ... [id=i-0ed298e0f776c0a94, 30s elapsed]
aws_instance.west_frontend[1]: Destruction complete after 40s
```

8- Instances destroyed

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone ▲	Public IPv4 ...	Elastic IP	Private IP ad...
☐	Terraform	i-0520cb6fa3b0baz07	⊘ Running ⊕⊖	t2.medium	⊘ 2/2 checks passed	No alarms ＋	us-east-1c	18.212.25.65	–	172.31.81.215