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Q-1 Create AWS Instance with docker engine installed, docker image of nginx pulled from dockerhub and docker container running on EC2 instance.

Answer:

Create a main.tf file.

Welcome main.tf

main.tf > resource "aws_instance" "my_ubuntu" > tags > Name

```
provider "aws" {
  region      = "ap-southeast-2"
  access_key  = "AKIA3AOH5BD6CJ2QQPEJ"
  secret_key  = "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"
}

resource "aws_instance" "my_ubuntu" {
  ami           = "ami-05f998315cca9bfe3"
  instance_type = "t2.micro"
  key_name      = "terraform"
  security_groups = [
    "terraform"
  ]

  tags = {
    Name  = "Terraform_EC2"
    Owner = "Bahargavi"
  }

 user_data = <<-EOF
#!/bin/bash
sudo apt-get update
sudo apt-get install -y docker.io
sudo systemctl start docker
sudo usermod -aG docker $USER
sudo docker pull nginx
sudo docker run -d -p 80:80 nginx
EOF
}
```

Initialise terraform:

```
PS C:\Users\bharg\Downloads\terraform_1.4.4_windows_amd64> terraform init

Initializing the backend...

Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v4.61.0

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.
PS C:\Users\bharg\Downloads\terraform_1.4.4_windows_amd64>
```

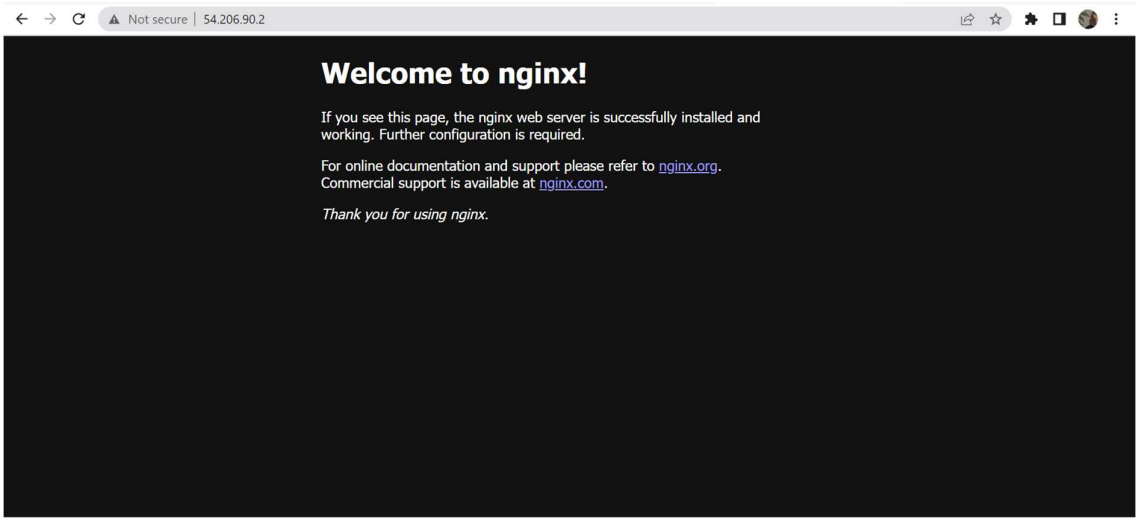
Plan and apply:

```
PS C:\Users\bharg\Downloads\terraform_1.4.4_windows_amd64> terraform apply
aws_instance.my_ubuntu: Refreshing state... [id=i-071a67165dfe669b5]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following
symbols:
  ~ update in-place

Terraform will perform the following actions:

  # aws_instance.my_ubuntu will be updated in-place
  ~ resource "aws_instance" "my_ubuntu" {
        id                                   = "i-071a67165dfe669b5"
        tags                                 = {
            "Name"  = "Terraform_EC2"
            "Owner" = "Bahargavi"
        }
```

```
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.my_ubuntu: Modifying... [id=i-071a67165dfe669b5]
aws_instance.my_ubuntu: Still modifying... [id=i-071a67165dfe669b5, 10s elapsed]
aws_instance.my_ubuntu: Still modifying... [id=i-071a67165dfe669b5, 20s elapsed]
aws_instance.my_ubuntu: Still modifying... [id=i-071a67165dfe669b5, 30s elapsed]
aws_instance.my_ubuntu: Still modifying... [id=i-071a67165dfe669b5, 40s elapsed]
aws_instance.my_ubuntu: Still modifying... [id=i-071a67165dfe669b5, 50s elapsed]
aws_instance.my_ubuntu: Still modifying... [id=i-071a67165dfe669b5, 1m0s elapsed]
aws_instance.my_ubuntu: Modifications complete after 1m7s [id=i-071a67165dfe669b5]

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

Instance is formed:

Nginx image:



Q-2 What is the command to create infrastructure?

Answer: terraform init

```
PS C:\Users\bharg\Downloads\terraform_1.4.4_windows_amd64> terraform init

Initializing the backend...

Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v4.61.0

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.
PS C:\Users\bharg\Downloads\terraform_1.4.4_windows_amd64> terraform plan
aws_instance.my_ubuntu: Refreshing state... [id=i-071a67165dfe669b5]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the followi
symbols:
  ~ update in-place

Terraform will perform the following actions:

  # aws_instance.my_ubuntu will be updated in-place
  ~ resource "aws_instance" "my_ubuntu" {
```

Q-3 What is the command to uninitialized infrastructure?

Answer: terraform destroy

```
PS C:\Users\bharg\Downloads\terraform_1.4.4_windows_amd64> terraform destroy
aws_instance.my_ubuntu: Refreshing state... [id=i-071a67165dfe669b5]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following
symbols:
  - destroy

Terraform will perform the following actions:

  # aws_instance.my_ubuntu will be destroyed
  - resource "aws_instance" "my_ubuntu" {
      - ami                                  = "ami-05f998315cca9bfe3"
      - arn                                  = "arn:aws:ec2:ap-southeast-2:756870351100:instance/i-071a67165dfe669b5"
      - associate_public_ip_address          = true
      - availability_zone                    = "ap-southeast-2c"
      - cpu_core_count                       = 1
      - cpu_threads_per_core                 = 1
      - disable_api_stop                     = false
```

```
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.my_ubuntu: Destroying... [id=i-071a67165dfe669b5]
aws_instance.my_ubuntu: Still destroying... [id=i-071a67165dfe669b5, 10s elapsed]
aws_instance.my_ubuntu: Still destroying... [id=i-071a67165dfe669b5, 20s elapsed]
aws_instance.my_ubuntu: Still destroying... [id=i-071a67165dfe669b5, 30s elapsed]
aws_instance.my_ubuntu: Still destroying... [id=i-071a67165dfe669b5, 40s elapsed]
aws_instance.my_ubuntu: Destruction complete after 42s

Destroy complete! Resources: 1 destroyed.
PS C:\Users\bharg\Downloads\terraform_1.4.4_windows_amd64>
```