Étape 1: Installation de Homebrew

Description :

Homebrew est un gestionnaire de paquets pour macOS qui facilite l'installation de logiciels et de bibliothèques. Il simplifie également la gestion des dépendances.

Instructions :

a) Ouvrez le terminal sur votre Mac.
b) Installez Homebrew en utilisant la commande suivante :

```
/bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

Étape 2: Installation de Terraform

Description :
Terraform est un outil d'infrastructure en tant que code (IaC) qui permet de définir et de provisionner des infrastructures cloud de manière programmable.

Instructions :

a) Installation de HashiCorp

```
brew tap hashicorp/tap
```

b) Installation de Terraform

```
brew install hashicorp/tap/terraform
```

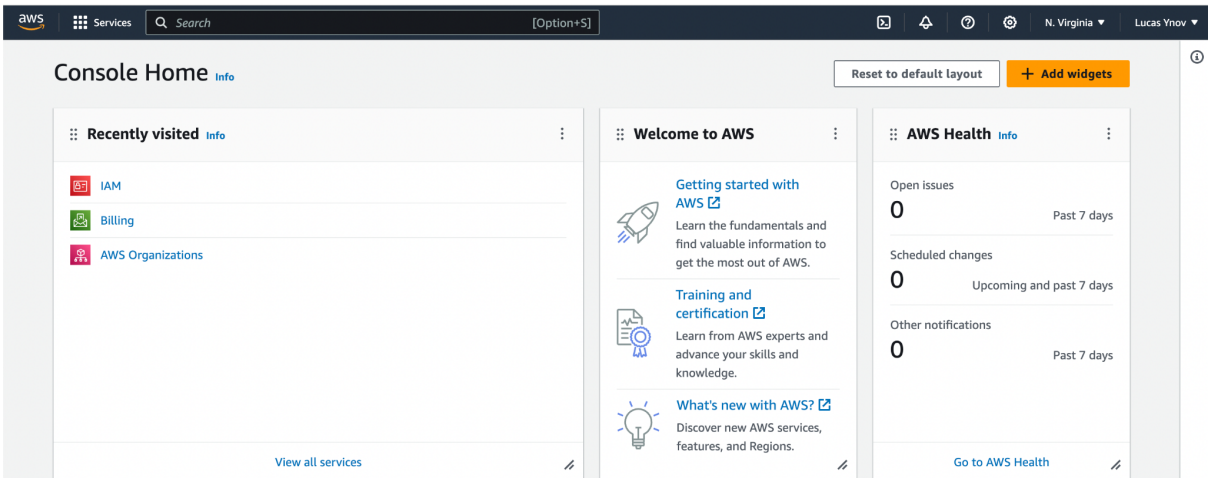
Étape 3: Création du Compte AWS

Description :
AWS (Amazon Web Services) est un service de cloud computing qui offre une variété de services et de ressources informatiques à la demande.

Instructions :

a) Accédez au site web d'AWS (https://aws.amazon.com/).

b) Cliquez sur "Create an AWS Account" et suivez les instructions pour créer un compte AWS.
c) Ici, on renseigne son compte Ynov.



Étape 4: Installation de AWS CLI

Description :

AWS CLI (Command Line Interface) est un outil en ligne de commande qui permet d'interagir avec les services AWS directement depuis le terminal.

Instructions :

a) Installez AWS CLI à l'aide de Homebrew avec la commande :

```
brew install awscli
```

b) Configurez AWS CLI en exécutant la commande :

```
aws configure
```

c) Création d’un user AMI

Fournissez les informations demandées, y compris votre clé d'accès AWS et votre région par défaut.

Étape 5: Création d'un Projet Terraform

Instructions :

a) Créez un répertoire pour votre projet Terraform :

```
mkdir teralucas
```

b) Naviguez dans le répertoire nouvellement créé :

```
cd teralucas
```

c) Exécutez la commande pour initialiser Terraform :

```
terraform init
```

Étape 6: 01_hello_terraform. Écriture du Code Terraform (main.tf)

Description :

Créez un fichier main.tf qui contient la configuration Terraform, notamment la définition du fournisseur (AWS) et des ressources à déployer.

Instructions :

a) Utilisez un éditeur de texte comme nano pour créer le fichier main.tf dans le répertoire de votre projet.
b) Ajoutez la configuration Terraform :

```
provider "aws" {
  region = "us-west-1"
}
resource "aws_instance" "example" {
  ami           = "ami-0aafdae616ee7c9b7"
  instance_type = "t2.micro"
}
```

Difficulté:

Il a fallu comprendre le notion de “ami” et “région” sur AWS.

Étape 7: Initialisation et Application Terraform

a) Utilisation de terraform apply:

terraform apply

```
lucas@MacBook-Pro-de-Lucas teralucas % terraform apply


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

Terraform will perform the following actions:

  # aws_instance.example will be created
  + resource "aws_instance" "example" {
      + ami                                  = "ami-0aafdae616ee7c9b7"
      + arn                                  = (known after apply)
      + associate_public_ip_address          = (known after apply)
      + availability_zone                    = (known after apply)
      + cpu_core_count                       = (known after apply)
      + cpu_threads_per_core                 = (known after apply)
      + disable_api_stop                     = (known after apply)
      + disable_api_termination              = (known after apply)
      + ebs_optimized                        = (known after apply)
      + get_password_data                    = false
      + host_id                              = (known after apply)
      + host_resource_group_arn              = (known after apply)
      + iam_instance_profile                 = (known after apply)
      + id                                   = (known after apply)
      + instance_initiated_shutdown_behavior = (known after apply)
      + instance_lifecycle                   = (known after apply)
      + instance_state                       = (known after apply)
      + instance_type                        = "t2.micro"
      + ipv6_address_count                   = (known after apply)
      + ipv6_addresses                       = (known after apply)
      + key_name                             = (known after apply)
      + monitoring                           = (known after apply)
      + outpost_arn                          = (known after apply)
      + password_data                        = (known after apply)
      + placement_group                      = (known after apply)
      + placement_partition_number           = (known after apply)
      + primary_network_interface_id         = (known after apply)
      + private_dns                          = (known after apply)
      + private_ip                           = (known after apply)
      + public_dns                           = (known after apply)
      + public_ip                            = (known after apply)
      + secondary_private_ips                = (known after apply)
      + security_groups                      = (known after apply)
      + source_dest_check                    = true
      + spot_instance_request_id             = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (known after apply)
    }

Plan: 1 to add, 0 to change, 0 to destroy.

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.example: Creating...
aws_instance.example: Still creating... [10s elapsed]
aws_instance.example: Still creating... [20s elapsed]
aws_instance.example: Still creating... [30s elapsed]
aws_instance.example: Still creating... [40s elapsed]
aws_instance.example: Still creating... [50s elapsed]
aws_instance.example: Still creating... [1m0s elapsed]
aws_instance.example: Still creating... [1m10s elapsed]
aws_instance.example: Still creating... [1m20s elapsed]
aws_instance.example: Still creating... [1m30s elapsed]
aws_instance.example: Creation complete after 1m35s [id=i-0f5dd5bf4eca3342c]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
lucas@MacBook-Pro-de-Lucas teralucas %
```

b) Fermeture de l’instance :

terraform destroy

```
lucas@MacBook-Pro-de-Lucas teralucas % terraform destroy
aws_instance.example: Refreshing state... [id=i-0f5dd5bf4eca3342c]

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.example will be destroyed
  - resource "aws_instance" "example" {
      - ami                                  = "ami-0aafdae616ee7c9b7" -> null
      - arn                                  = "arn:aws:ec2:us-west-1:691750145950:instance/i-0f5dd5b
f4eca3342c" -> null
      - associate_public_ip_address          = true -> null
      - availability_zone                    = "us-west-1c" -> null
      - cpu_core_count                       = 1 -> null
      - cpu_threads_per_core                 = 1 -> null
      - disable_api_stop                     = false -> null
      - disable_api_termination              = false -> null
      - ebs_optimized                        = false -> null
      - get_password_data                    = false -> null
      - hibernation                          = false -> null
      - id                                   = "i-0f5dd5bf4eca3342c" -> null
      - instance_initiated_shutdown_behavior = "stop" -> null
      - instance_state                       = "running" -> null
      - instance_type                        = "t2.micro" -> null
      - ipv6_address_count                   = 0 -> null
      - ipv6_addresses                       = [] -> null
      - monitoring                           = false -> null
      - placement_partition_number           = 0 -> null
      - primary_network_interface_id         = "eni-020b8a253de05c9e7" -> null
      - private_dns                          = "ip-172-31-6-49.us-west-1.compute.internal" -> null
```

```
  Enter a value: yes

aws_instance.example: Destroying... [id=i-0f5dd5bf4eca3342c]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 10s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 20s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 30s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 40s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 50s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 1m0s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 1m10s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 1m20s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 1m30s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 1m40s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 1m50s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 2m0s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 2m10s elapsed]
aws_instance.example: Still destroying... [id=i-0f5dd5bf4eca3342c, 2m20s elapsed]
aws_instance.example: Destruction complete after 2m24s
```

Étape 8: 02_hello_vpc

Description :

Un VPC est une section isolée du cloud AWS où vous pouvez lancer des ressources AWS dans un réseau virtuel que vous définissez. Il offre un contrôle complet sur l'environnement réseau, y compris la sélection de la plage d'adresses IP, la création de sous-réseaux, et la configuration des tables de routage et des passerelles réseau.

Code :

```
provider "aws" {
  region = "us-west-1"
}
resource "aws_vpc" "my_vpc" {
 cidr_block = "10.0.0.0/16"
 enable_dns_support = true
 enable_dns_hostnames = true
 tags = {
   Name = "MonVPC"
 }
}
resource "aws_subnet" "my_subnet" {
 vpc_id                  = aws_vpc.my_vpc.id
 cidr_block              = "10.0.1.0/24"
 map_public_ip_on_launch = true
```

Étape 9: 03_hello_apache

Code :

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

resource "aws_key_pair" "my_key_pair" {
 key_name   = "lucas_key"
 public_key = file("/Users/lucas/Downloads/lucas_key.pem")
}

resource "aws_security_group" "my_security_group" {
 name        = "lucas_group"
 description = "Allow incoming HTTP traffic"

 ingress {
   from_port = 80
   to_port   = 80
   protocol  = "tcp"
   cidr_blocks = ["0.0.0.0/0"]
 }
}

resource "aws_instance" "my_instance" {
 ami           = "ami-0aafdae616ee7c9b7"
 instance_type = "t2.micro"
 key_name      = aws_key_pair.my_key_pair.key_name
 vpc_security_group_ids = [aws_security_group.my_security_group.id]
```

```
 user_data = <<-EOF
             #!/bin/bash
             apt update
             apt install -y apache2
             echo "Hello Terraform" > /var/www/html/index.html
             systemctl start apache2
             systemctl enable apache2
             EOF

 tags = {
   Name = "MyEC2Instance"
 }
}
```

Étape 10. 04_hello_debug