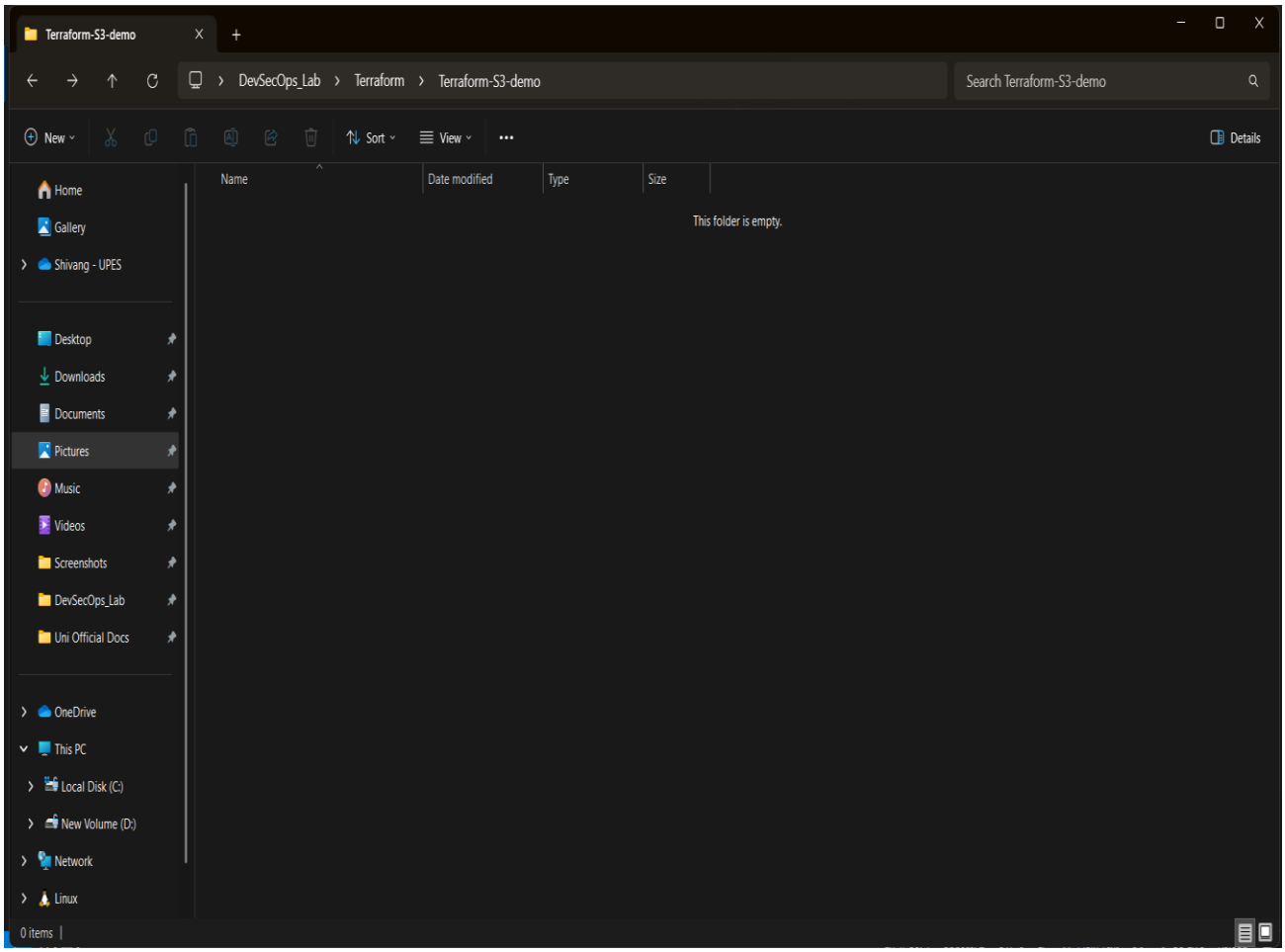
Lab Exercise 5–Provisioning an S3 Bucket on AWS

Exercise Steps:

Step 1: Create a New Directory:

Create a new directory to store your Terraform configuration:

```
mkdir Terraform-S3-Demo
cd Terraform-S3-Demo
```

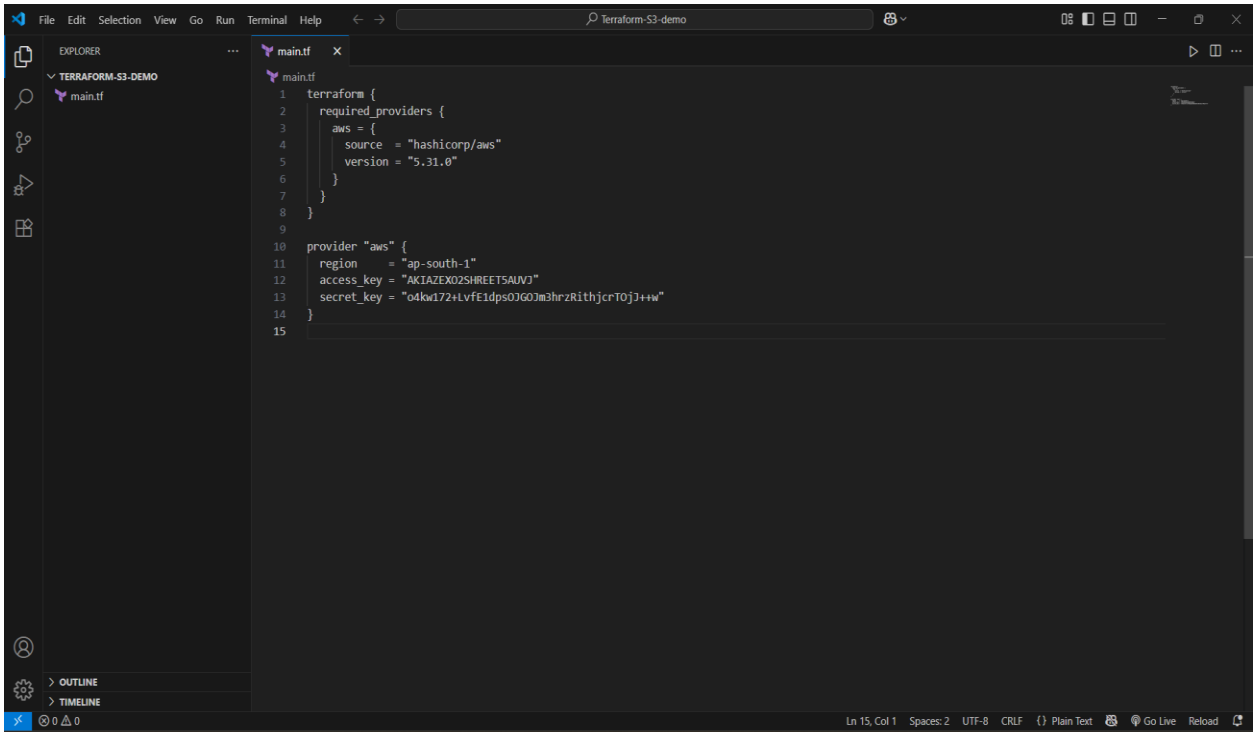


Step 2: Create the Terraform Configuration File (main.tf):

Create a file named main.tf with the following content:

```
terraform {
  required_providers {
    aws = {
      source  = "hashicorp/aws"
      version = "5.31.0"
    }
  }
}

provider "aws" {
  region     = "us-east-1"  # Replace with your preferred region
  access_key = "your IAM access key"  # Replace with your Access Key
  secret_key = "your secret access key"  # Replace with your Secret Key
}
```

This file sets up the Terraform AWS provider.

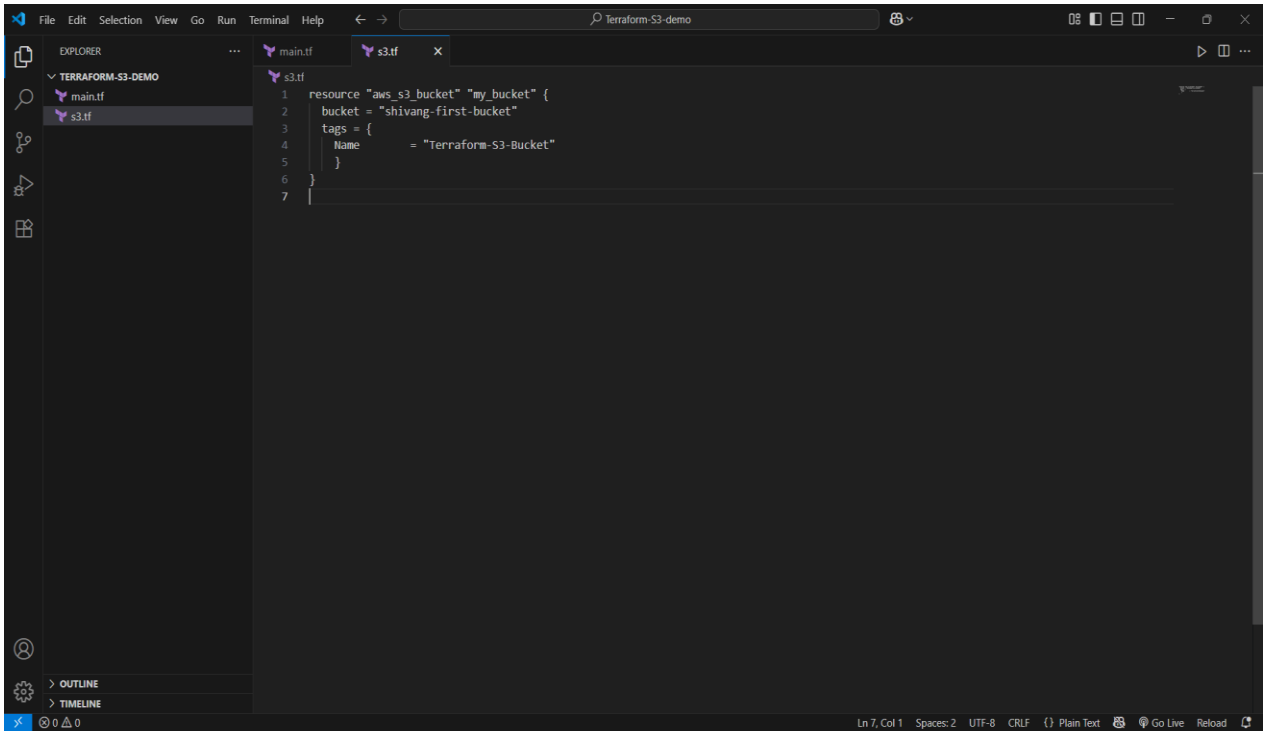


Step 3: Create a Terraform Configuration File for the S3 Bucket (s3.tf):

Create another file named s3.tf with the following content:

```
resource "aws_s3_bucket" "my_bucket" {
  bucket = "my-demo-s3-bucket"
  tags = {
    Name        = "Terraform-S3-Bucket"
    }
}
```

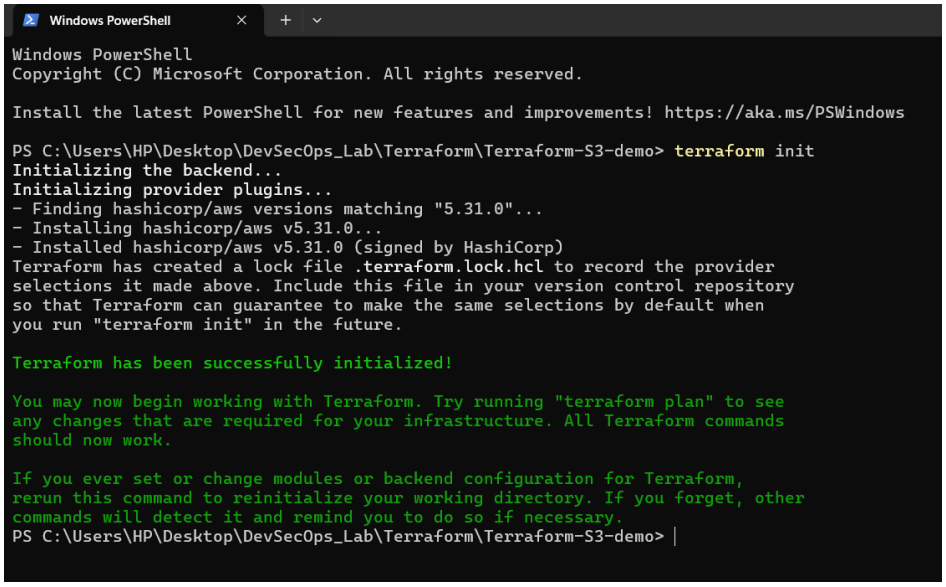
This file provisions an S3 bucket with a unique name using a random string suffix.



Step 4: Initialize Terraform:

Run the following command to initialize your Terraform working directory:

```
terraform init
```

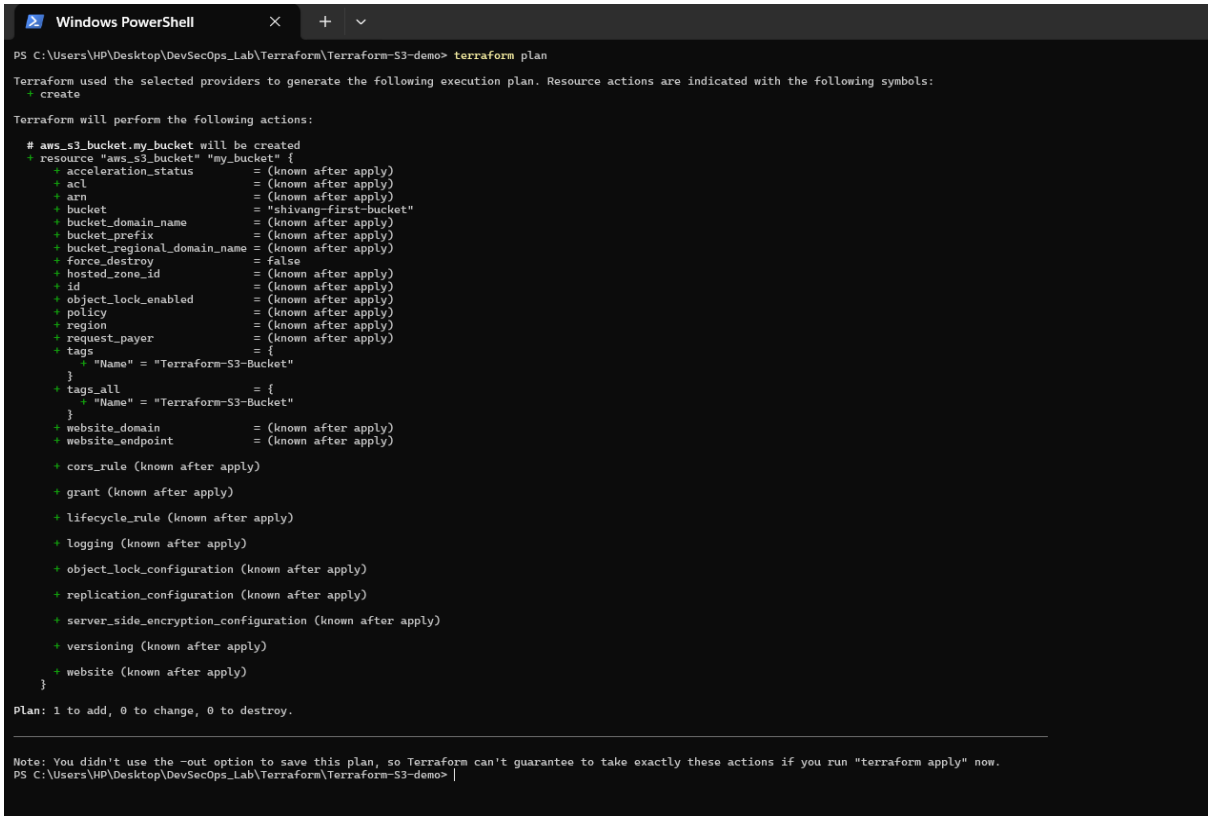


Step 5: Review the Plan:

Preview the changes Terraform will make:

```
terraform plan
```

Review the output to ensure it meets your expectations.



Step 6: Apply the Changes:

Create the resources:

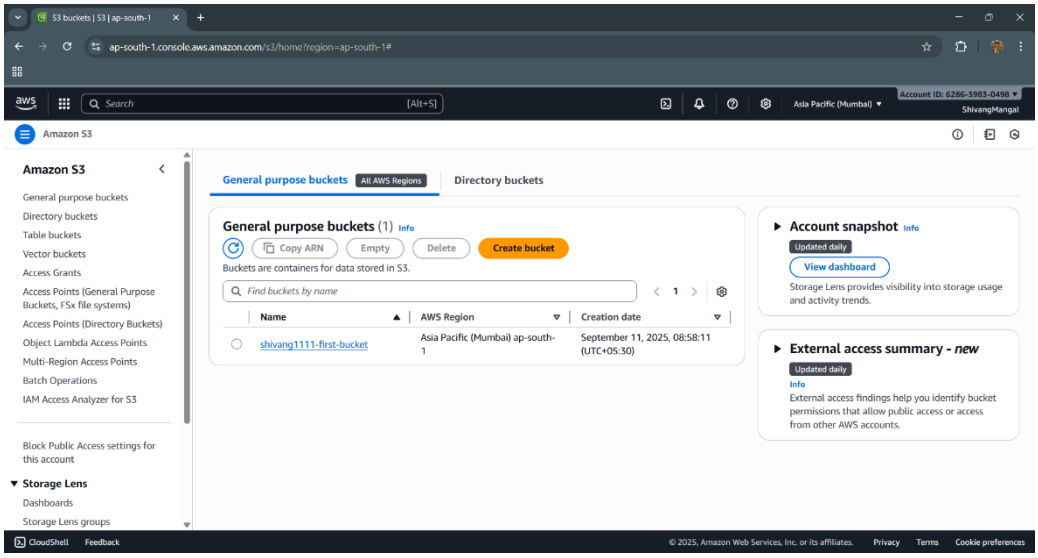
```
terraform apply
```

When prompted, type yes to confirm.

```
PS C:\Users\HP\Desktop\DevSecOps_Lab\Terraform\Terraform-S3-demo> 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_s3_bucket.my_bucket will be created
  + resource "aws_s3_bucket" "my_bucket" {
      + acceleration_status         = (known after apply)
      + acl                         = (known after apply)
      + arn                         = (known after apply)
      + bucket                      = "shivang1111-first-bucket"
      + bucket_domain_name          = (known after apply)
      + bucket_prefix               = (known after apply)
      + bucket_regional_domain_name = (known after apply)
      + force_destroy               = false
      + hosted_zone_id              = (known after apply)
      + id                          = (known after apply)
      + object_lock_enabled         = (known after apply)
      + policy                      = (known after apply)
      + region                      = (known after apply)
      + request_payer               = (known after apply)
      + tags                        = {
          + "Name" = "Terraform-S3-Bucket"
        }
      + tags_all                    = {
          + "Name" = "Terraform-S3-Bucket"
        }
      + website_domain              = (known after apply)
      + website_endpoint            = (known after apply)

      + cors_rule (known after apply)

      + grant (known after apply)

      + lifecycle_rule (known after apply)

      + logging (known after apply)

      + object_lock_configuration (known after apply)

      + replication_configuration (known after apply)

      + server_side_encryption_configuration (known after apply)

      + versioning (known after apply)

      + website (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_s3_bucket.my_bucket: Creating...
aws_s3_bucket.my_bucket: Creation complete after 3s [id=shivang1111-first-bucket]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
PS C:\Users\HP\Desktop\DevSecOps_Lab\Terraform\Terraform-S3-demo>
```

Step 7: Verify Resources:

1. Log in to your AWS Management Console.
2. Navigate to the **S3** dashboard.
3. Verify that the S3 bucket has been created with the specified configuration.



Step 8:

Cleanup Resources:

To remove the resources created, run the following command:

```
terraform destroy
```

When prompted, type yes to confirm.

```
PS C:\Users\HP\Desktop\DevSecOps_Lab\Terraform\Terraform-S3-demo> terraform destroy
aws_s3_bucket.my_bucket: Refreshing state... [id=shivang1111-first-bucket]

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_s3_bucket.my_bucket will be destroyed
  - resource "aws_s3_bucket" "my_bucket" {
      - arn                         = "arn:aws:s3:::shivang1111-first-bucket" -> null
      - bucket                      = "shivang1111-first-bucket" -> null
      - bucket_domain_name          = "shivang1111-first-bucket.s3.amazonaws.com" -> null
      - bucket_regional_domain_name = "shivang1111-first-bucket.s3.ap-south-1.amazonaws.com" -> null
      - force_destroy               = false -> null
      - hosted_zone_id              = "Z11RGJOFQNVJUP" -> null
      - id                          = "shivang1111-first-bucket" -> null
      - object_lock_enabled         = false -> null
      - region                      = "ap-south-1" -> null
      - request_payer               = "BucketOwner" -> null
      - tags                        = {
          - "Name" = "Terraform-S3-Bucket"
        } -> null
      - tags_all                    = {
          - "Name" = "Terraform-S3-Bucket"
        } -> null
        # (3 unchanged attributes hidden)

      - grant {
          - id          = "b282d3dec67f0a67373ac475227d48a78eb888cb436dcba58b27f64e25d9e26e" -> null
          - permissions = [
              - "FULL_CONTROL",
            ] -> null
          - type        = "CanonicalUser" -> null
            # (1 unchanged attribute hidden)
        }

      - server_side_encryption_configuration {
          - rule {
              - bucket_key_enabled = false -> null

              - apply_server_side_encryption_by_default {
                  - sse_algorithm     = "AES256" -> null
                    # (1 unchanged attribute hidden)
                }
            }
        }

      - versioning {
          - enabled    = false -> null
          - mfa_delete = false -> null
        }
    }

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

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_s3_bucket.my_bucket: Destroying... [id=shivang1111-first-bucket]
aws_s3_bucket.my_bucket: Destruction complete after 1s

Destroy complete! Resources: 1 destroyed.
PS C:\Users\HP\Desktop\DevSecOps_Lab\Terraform\Terraform-S3-demo>
```