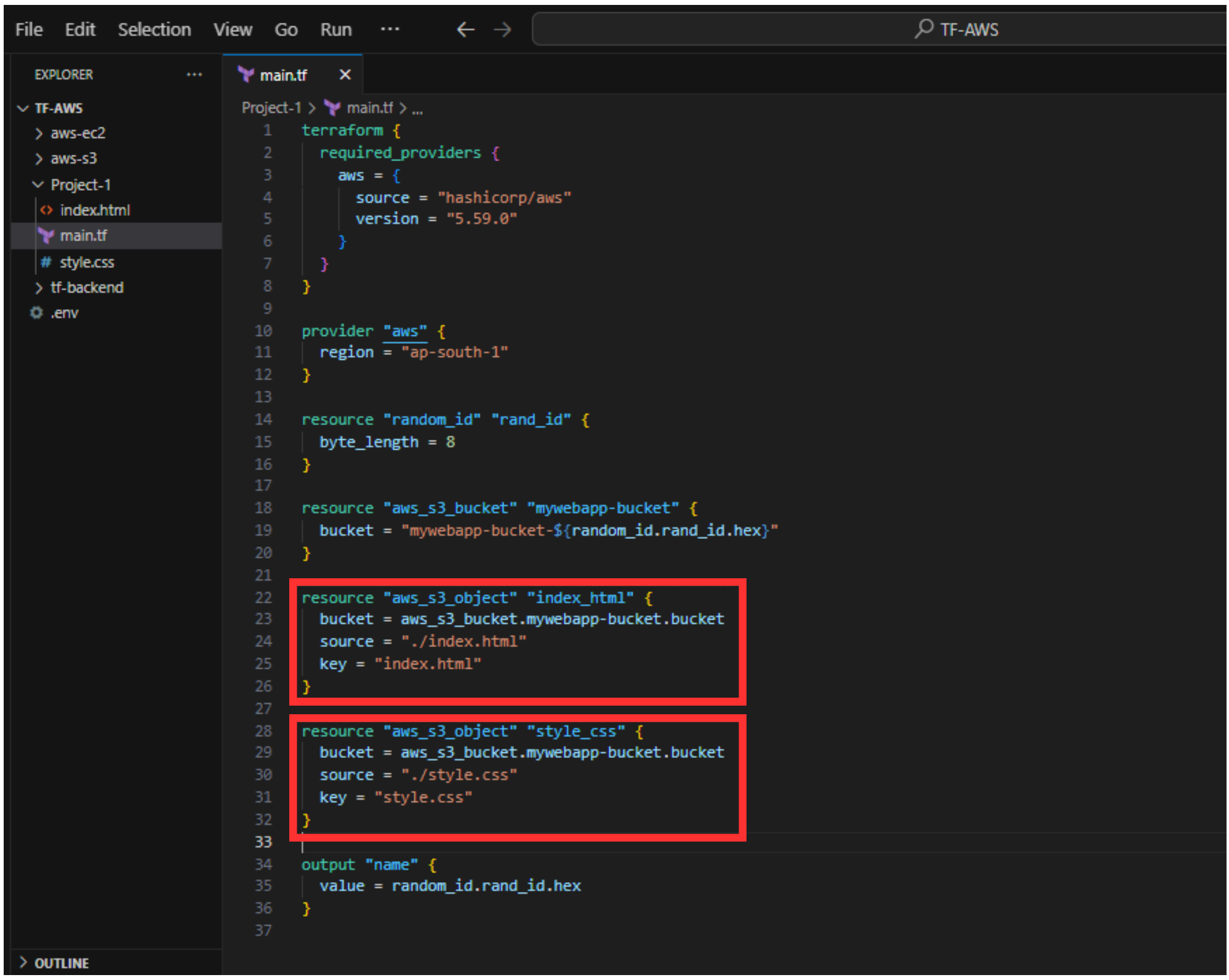
Project Title

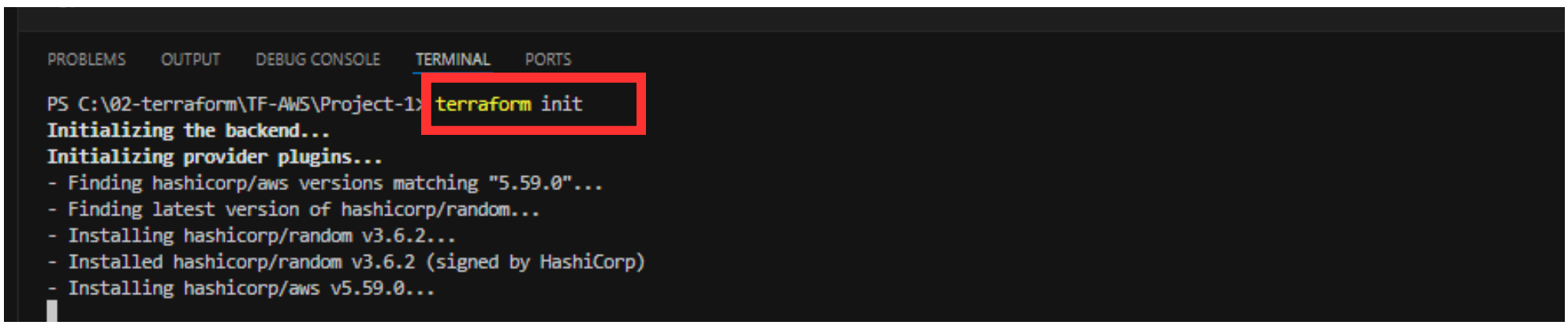
Deployment of Website on AWS S3 using Terraform

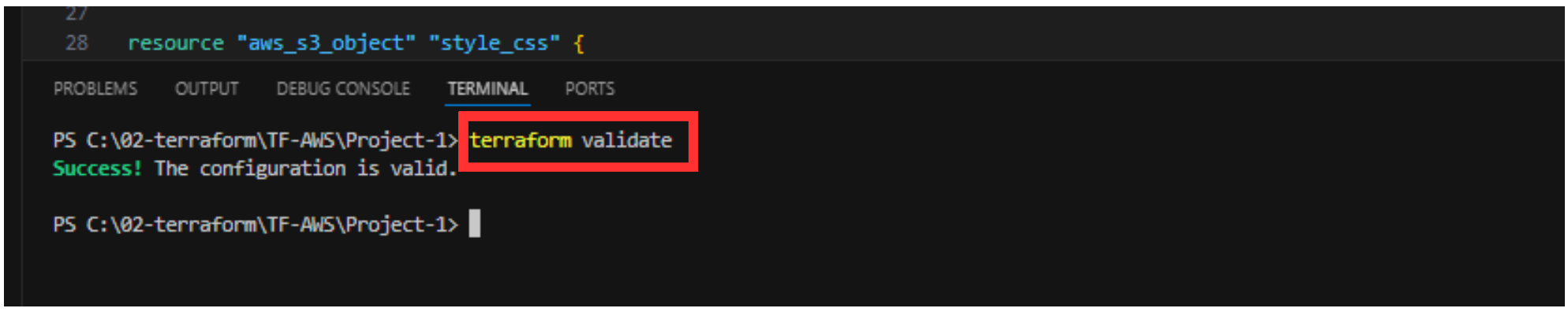
Project Overview:

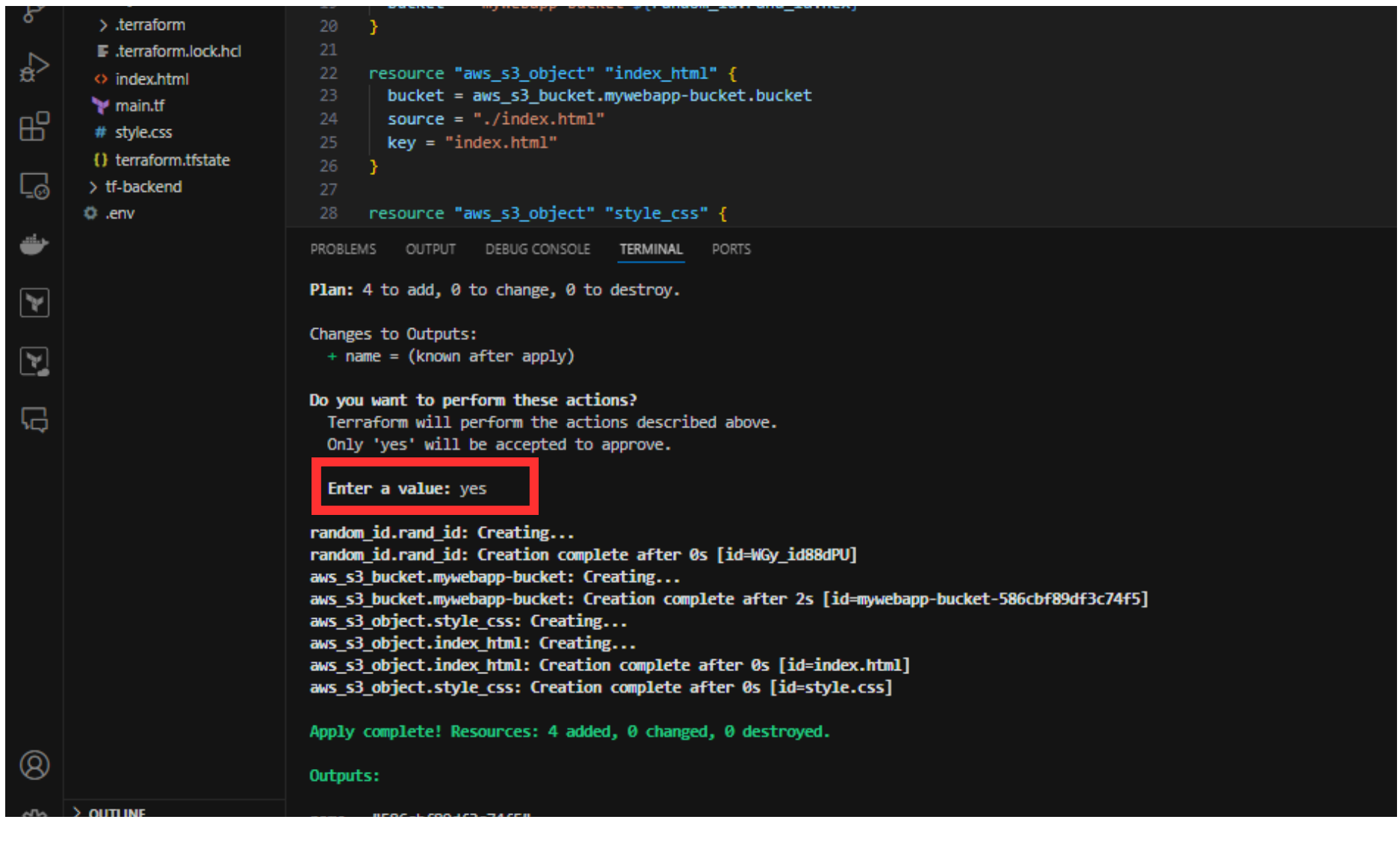
This project is to deploy a website on Amazon Web Services (AWS) S3 using Terraform. Terraform, an Infrastructure as Code (IaC) tool, will enable consistent and repeatable infrastructure deployment, making the process efficient and scalable. This project will leverage AWS S3's robust, scalable, and highly available object storage service to host and deliver web content.

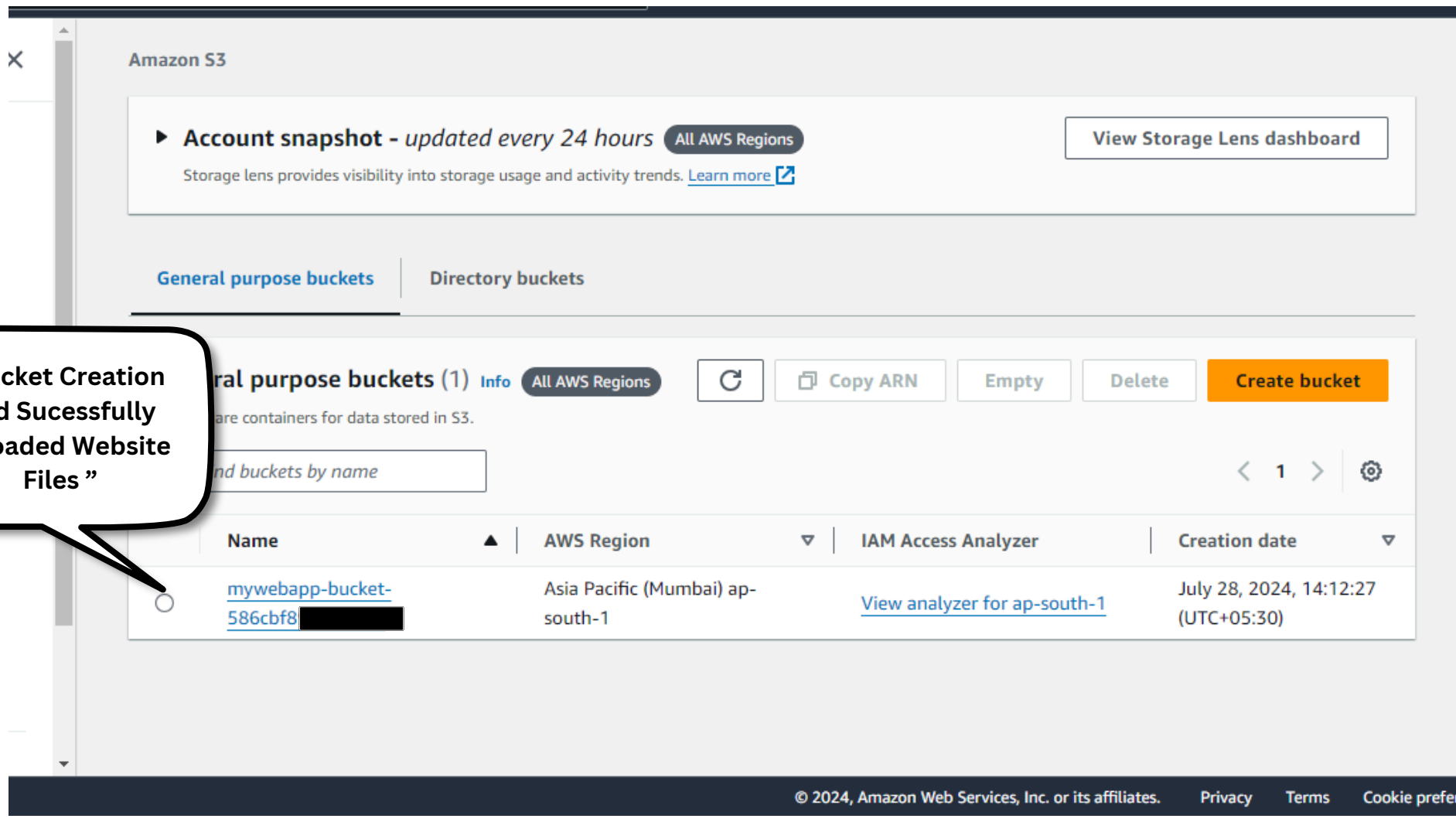
Step 1: Provider Configuration & Bucket Creation:








.terraform
.terraform.lock.hcl
index.html
main.tf
style.css
terraform.tfstate
tf-backend
.env
20 }
21
22 resource "aws_s3_object" "index_html" {
23 bucket = aws_s3_bucket.mywebapp-bucket.bucket
24 source = "./index.html"
25 key = "index.html"
26 }
27
28 resource "aws_s3_object" "style_css" {
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Plan: 4 to add, 0 to change, 0 to destroy.
Changes to Outputs:
+ name = (known after apply)
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
random_id.rand_id: Creating...
random_id.rand_id: Creation complete after 0s [id=WGy_id88dPU]
aws_s3_bucket.mywebapp-bucket: Creating...
aws_s3_bucket.mywebapp-bucket: Creation complete after 2s [id=mywebapp-bucket-586cbf89df3c74f5]
aws_s3_object.style_css: Creating...
aws_s3_object.index_html: Creating...
aws_s3_object.index_html: Creation complete after 0s [id=index.html]
aws_s3_object.style_css: Creation complete after 0s [id=style.css]
Apply complete! Resources: 4 added, 0 changed, 0 destroyed.
Outputs:


Amazon S3
Account snapshot - updated every 24 hours
All AWS Regions
Storage lens provides visibility into storage usage and activity trends. Learn more
View Storage Lens dashboard
General purpose buckets
Directory buckets
ral purpose buckets (1) Info
All AWS Regions
Copy ARN
Empty
Delete
Create bucket
are containers for data stored in S3.
nd buckets by name
1
Name
AWS Region
IAM Access Analyzer
Creation date
mywebapp-bucket-586cbf8
Asia Pacific (Mumbai) ap-south-1
View analyzer for ap-south-1
July 28, 2024, 14:12:27 (UTC+05:30)
"Bucket Creation and Sucessfully uploaded Website Files "

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Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (2) Info
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
u can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your
n more
Find objects
1
Name
Type
Last modified
Size
Storage class
index.html
html
July 28, 2024, 14:12:29 (UTC+05:30)
3.5 KB
Standard
style.css
css
July 28, 2024, 14:12:29 (UTC+05:30)
4.1 KB
Standard
"Here is the HTML & CSS Files"
"Open the index.html file"
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index.html Info

Copy S3 URI | Download | Open | Object actions

Properties | Permissions | Versions

Object overview

Owner
a4bae9be903ca86ecef6b44fb24cff8a5a8e7e779c806c3e6c90658e17efe62e

AWS Region
Asia Pacific (Mumbai) ap-south-1

Last modified
July 28, 2024, 14:12:29 (UTC+05:30)

Size
3.5 KB

Type
html

S3 URI
s3://mywebapp-bucket-586cbf89[redacted]/index.html

Amazon Resource Name (ARN)
arn:aws:s3:::mywebapp-bucket-586cbf89[redacted]/index.html

Entity tag (Etag)
3fcda4230b8199f86ef1f1320dfddaba

Object URL
https://mywebapp-bucket-586cbf8[redacted]6.s3.ap-south-1.amazonaws.com/index.html

"Click on website URL"

Acess Denied because the Public access block is ON.

mywebapp-bucket-586cbf8[redacted].s3.ap-south-1.amazonaws.com/index.html

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
▼<Error>
   <Code>AccessDenied</Code>
   <Message>Access Denied</Message>
   <RequestId>2CK1ZC4J9YHJ0QQZ</RequestId>
   <HostId>Ye3RaQ3ngyPIoxw06dd593XljNMh3SjJ5Mvuo8k8QZXikefiL1A+FSP3/9V8OLUMkkRdoc5pgdU=</HostId>
 </Error>
```

Amazon S3

- Buckets
- Access Grants
- Access Points
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- IAM Access Analyzer for S3

Block Public Access settings for this account

▼ Storage Lens
- Dashboards
- Storage Lens groups
- AWS Organizations settings

Permissions overview

Access finding

Access findings are provided by IAM external access analyzers. Learn more about How IAM analyzer findin

View analyzer for eu-north-1

Block public access (bucket settings)

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access p order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public ac only to this bucket and its access points. AWS recommends that you turn on Block all public access, but be these settings, ensure that your applications will work correctly without public access. If you require some your buckets or objects within, you can customize the individual settings below to suit your specific storag more

Block *all* public access
On

▶ Individual Block Public Access settings for this bucket

Bucket policy

Step 2: Public Access:

- **Configures public access to the bucket.**

54 matching results

- aws_s3_bucket_metric
- aws_s3_bucket_notification
- aws_s3_bucket_object
- aws_s3_bucket_object_lock_configuration
- aws_s3_bucket_ownership_controls
- aws_s3_bucket_policy
- aws_s3_bucket_public_access_block
- aws_s3_bucket_replication_configuration
- aws_s3_bucket_request_payment_configuration
- aws_s3_bucket_server_side_encryption_configuration
- aws_s3_bucket_versioning
- aws_s3_bucket_website_configuration
- aws_s3_directory_bucket

Example Usage

Copy

```
resource "aws_s3_bucket" "example" {
  bucket = "example"
}

resource "aws_s3_bucket_public_access_block" "example" {
  bucket = aws_s3_bucket.example.id

  block_public_acls       = true
  block_public_policy     = true
  ignore_public_acls      = true
  restrict_public_buckets = true
}
```

Argument Reference

File Edit Selection View Go Run ··· TF-AWS

EXPLORER

TF-AWS
- aws-ec2
- aws-s3
- Project-1
  - .terraform
  - .terraform.lock.hcl
  - index.html
  - main.tf
  - style.css
  - terraform.tfstate
  - terraform.tfstate.backup
- tf-backend
- .env

main.tf

Project-1 > main.tf > ...

```
10  provider "aws" {
11    region = "ap-south-1"
12  }
13
14  resource "random_id" "rand_id" {
15    byte_length = 8
16  }
17
18  resource "aws_s3_bucket" "mywebapp-bucket" {
19    bucket = "mywebapp-bucket-${random_id.rand_id.hex}"
20  }
21
22  resource "aws_s3_bucket_public_access_block" "example" {
23    bucket = aws_s3_bucket.mywebapp-bucket.id
24
25    block_public_acls       = false
26    block_public_policy     = false
27    ignore_public_acls      = false
28    restrict_public_buckets = false
29  }
30
31  resource "aws_s3_object" "index_html" {
32    bucket = aws_s3_bucket.mywebapp-bucket.bucket
33    source = "./index.html"
34    key = "index.html"
35  }
36
37  resource "aws_s3_object" "style_css" {
38    bucket = aws_s3_bucket.mywebapp-bucket.bucket
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\02-terraform\TF-AWS\Project-1> terraform apply
random_id.rand_id: Refreshing state... [id=WGy_id88dPU]
aws_s3_bucket.mywebapp-bucket: Refreshing state... [id=mywebapp-bucket-586cbf89df3c74f5]
aws_s3_object.style_css: Refreshing state... [id=style.css]
aws_s3_object.index_html: Refreshing state... [id=index.html]

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

OUTLINE
TIMELINE

Permissions overview

Access finding

Access findings are provided by IAM external access analyzers. Learn more about How IAM analyzer findings work

View analyzer for ap-south-1

Block public access (bucket settings)

Edit

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. Learn more

Block *all* public access

⚠ Off

▶ **Individual Block Public Access settings for this bucket**

Step 3: Bucket Policy:

WS DOCUMENTATION

s3

54 matching results

- aws_s3_bucket_metric
- aws_s3_bucket_notification
- aws_s3_bucket_object
- aws_s3_bucket_object_lock_configuration
- aws_s3_bucket_ownership_controls
- aws_s3_bucket_policy
- aws_s3_bucket_public_access_block
- aws_s3_bucket_replication_configuration
- aws_s3_bucket_request_payment_configuration
- aws_s3_bucket_server_side_encryption_configuration

Resource: aws_s3_bucket_policy

Attaches a policy to an S3 bucket resource.

Note

Policies can be attached to both S3 general purpose buckets and S3 directory buckets.

Example Usage

Basic Usage

```
resource "aws_s3_bucket" "example" {
  bucket = "my-tf-test-bucket"
}
```

View Go Run ··· TF-AWS

main.tf

Project-1 > main.tf > resource "aws_s3_bucket_policy" "mywebapp" > policy

```
22  resource "aws_s3_bucket_public_access_block" "example" {
24
25    block_public_acls       = false
26    block_public_policy     = false
27    ignore_public_acls      = false
28    restrict_public_buckets = false
29  }
30
31  resource "aws_s3_bucket_policy" "mywebapp" {
32    bucket = aws_s3_bucket.mywebapp-bucket.id
33    policy = jsonencode(
34      {
35      Version = "2012-10-17",
36      Statement = [
37          {
38              Sid = "PublicReadGetObject",
39              Effect = "Allow",
40              Principal = "*",
41              Action = "s3:GetObject",
42              Resource = "arn:aws:s3:::${aws_s3_bucket.mywebapp-bucket.id}/*"
43          }
44      ]
45
46    )
47  }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
  Enter a value: yes

aws_s3_bucket_policy.mywebapp: Creating...
aws_s3_bucket_policy.mywebapp: Creation complete after 1s [id=mywebapp-bucket-586cbf89df3c74f5]

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

Step 4: Website Configuration:

- **Sets up the bucket for static website hosting.**

AWS DOCUMENTATION

s3

54 matching results

- aws_s3_bucket_request_payment_configuration
- aws_s3_bucket_server_side_encryption_configuration
- aws_s3_bucket_versioning
- aws_s3_bucket_website_configuration
- aws_s3_directory_bucket
- aws_s3_object
- aws_s3_object_copy

Data Sources

- aws_canonical_user_id
- aws_s3_bucket

Resource: aws_s3_bucket_website_configuration

Provides an S3 bucket website configuration resource. For more information, see Hosting Websites on S3.

Note

This resource cannot be used with S3 directory buckets.

Example Usage

With `routing_rule` configured

```
resource "aws_s3_bucket_website_configuration" "example" {
  bucket = aws_s3_bucket.example.id
```

Copy

Type here to search

```
terraform.tfstate
terraform.tfstate.backup
-backend
env

45      }
46    )
47  }
48
49  resource "aws_s3_bucket_website_configuration" "mywebapp" {
50    bucket = aws_s3_bucket.mywebapp-bucket.id
51
52    index_document {
53      suffix = "index.html"
54      }
55  }
56
57  resource "aws_s3_object" "index_html" {
58    bucket = aws_s3_bucket.mywebapp-bucket.bucket
59    source = "./index.html"
60    key = "index.html"
61  }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
  Enter a value: yes

aws_s3_bucket_website_configuration.mywebapp: Creating...
aws_s3_bucket_website_configuration.mywebapp: Creation complete after 0s [id=mywebapp-bucket-586cbf89df3c74f5

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

Amazon S3 > Buckets > mywebapp-bucket-586cbf89[redacted]

mywebapp-bucket-586cbf89[redacted] Info

Objects | Properties | Permissions | Metrics | Management | Access Points

Bucket overview

AWS Region
Asia Pacific (Mumbai) ap-south-1

Amazon Resource Name (ARN)
arn:aws:s3:::mywebapp-bucket-586cbf89
[redacted]

Creation date
July 28, 2024, 14:12:27 (UTC+05:30)

Bucket Versioning

Edit

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. Learn more

Requester pays

Edit

When enabled, the requester pays for requests and data transfer costs, and anonymous access to this bucket is disabled. Learn more

Requester pays
Disabled

Static website hosting

Edit

Use this bucket to host a website or redirect requests. Learn more

Static website hosting
Enabled

Hosting type
Bucket hosting

Bucket website endpoint copied

int

bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. Learn more

http://mywebapp-bucket-e7ac8e1912[redacted]-website.ap-south-1.amazonaws.com

Not secure mywebapp-bucket-e7ac8[redacted]s3-website.ap-south-1.amazonaws.com

Industrial Tools Store

Home About Products Cart Contact

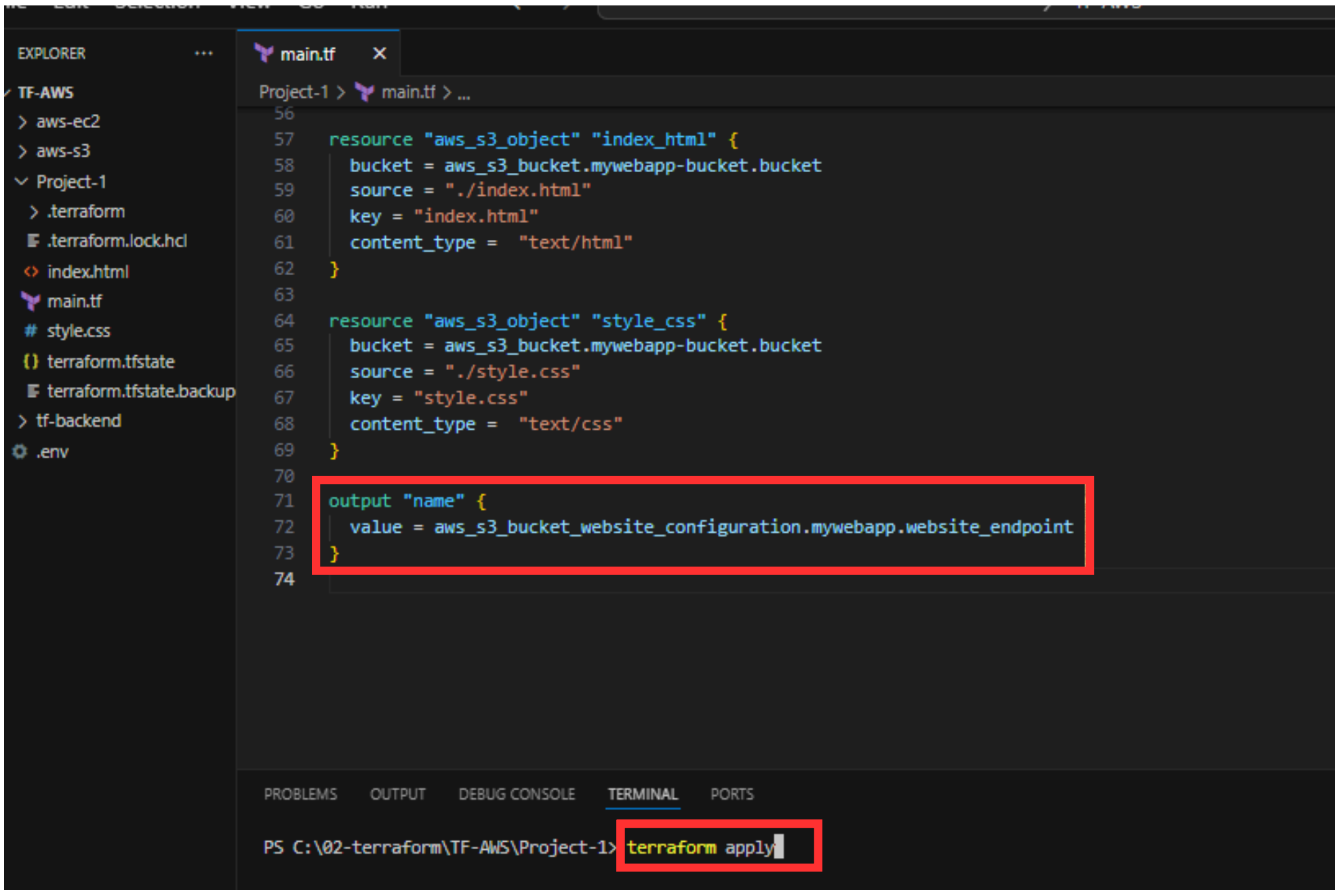
Welcome to Our Store

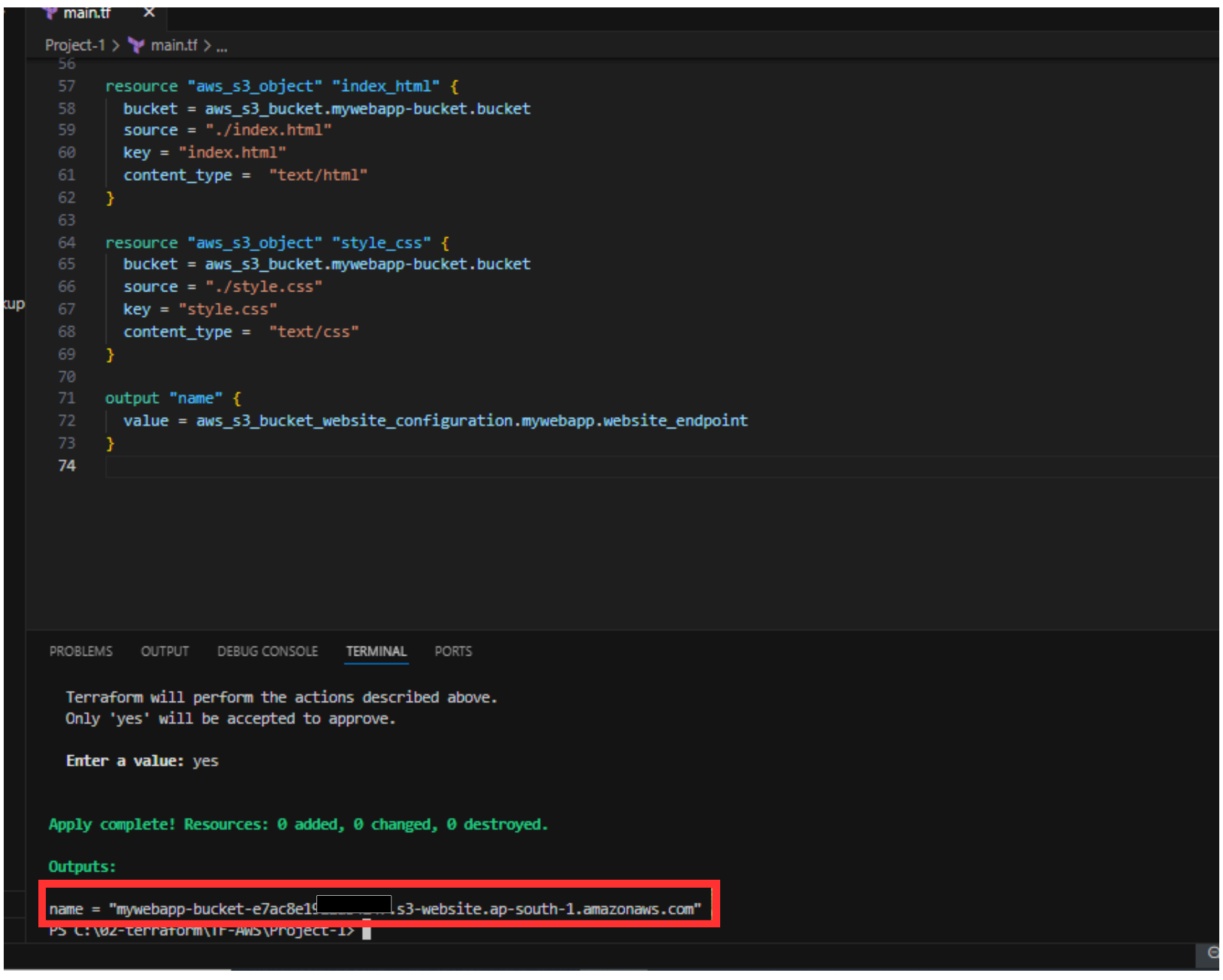
Find the best products here!

© 2024 My E-Commerce Store

Step 5: Website Endpoint:

- **Outputs the URL of the static website.**





Step 6: Access the website: