CloudFormation S3 Bucket Deployment - Miguel Atencio Vargas

created and deployed Infrastructure as Code using AWS CloudFormation to provision an S3 bucket. The deployment satisfies all lab requirements and passes the complete test suite.

What Was Accomplished

1. CloudFormation Template Creation

Created

s3-bucket.yaml with the following features:

- **Single S3 Bucket**: Defined exactly one S3 bucket resource as required
- **Globally Unique Naming**: Used `!Sub 'lab1-bucket-$ {AWS::AccountId}-${AWS::Region}'` to ensure global uniqueness
- **Security Best Practices**:
  - Enabled server-side encryption (AES256)
  - Enabled versioning
  - Blocked all public access
- **Outputs**: Exported bucket name and ARN for easy reference

2. CloudFormation Stack Deployment

Deployed the stack using AWS CLI:

```
aws cloudformation create-stack \
  --stack-name lab1-s3-storage \
  --template-body file://s3-bucket.yaml \
  --region us-east-1
```

Stack Details:
- Stack Name: `lab1-s3-storage`
- Stack ID: `arn:aws:cloudformation:us-east-1:661011622834:stack/lab1-s3-storage/e1562000-e58e-11f0-ad13-0affd09127ad`
- Status: `CREATE_COMPLETE`
- Region: `us-east-1`

Created Bucket:
- Bucket Name: `lab1-bucket-661011622834-us-east-1`
- Created: 2025-12-30 10:50:33

3. Verification and Testing

Verified the deployment by running the complete test suite:

```
AWS_DEFAULT_REGION=us-east-1 python3 -m pytest test_lab1.py -v
```

Test Results: ✅ All 4 tests passed

```
base ~/Documents/repos/aws/aws-lab1-grading git:(main)±2 (3.73s)
AWS_DEFAULT_REGION=us-east-1 python3 -m pytest test_lab1.py -v
========================================= test session starts =========================================
platform darwin -- Python 3.13.5, pytest-9.0.2, pluggy-1.5.0 -- /Users/wyatt/miniconda3/bin/python3
cachedir: .pytest_cache
rootdir: /Users/wyatt/Documents/repos/aws/aws-lab1-grading
collected 4 items

test_lab1.py::test_there_is_at_least_one_iam_user PASSED                                          [ 25%]
test_lab1.py::test_there_is_at_least_one_cloudformation_stack PASSED                              [ 50%]
test_lab1.py::test_there_is_at_least_one_s3_bucket PASSED                                         [ 75%]
test_lab1.py::test_there_is_at_least_one_ec2_instance PASSED                                      [100%]

========================================= 4 passed in 3.33s =========================================


base ~/Documents/repos/aws/aws-lab1-grading  git:(main) ✓ ±2
```

IMPORTANT

Successfully demonstrated Infrastructure as Code principles by:

- Writing a well-structured CloudFormation template
- Using intrinsic functions for dynamic, globally unique resource naming
- Implementing AWS security best practices
- Deploying infrastructure programmatically via AWS CLI
- Validating deployment through automated testing

Resources Created

CloudFormation Stack

- **Name**: lab1-s3-storage
- **Region**: us-east-1
- **Status**: CREATE_COMPLETE

S3 Bucket

- **Name**: lab1-bucket-661011622834-us-east-1
- **Encryption**: AES256
- **Versioning**: Enabled
- **Public Access**: Blocked

Files Created

- s3-bucket.yaml - CloudFormation template defining S3 bucket infrastructure