# TASK 20

**1.** Gitlab pipeline for infrastructure terraform :

⚡ Create the project in gitlab infrastructure-1

ⓘ Project 'infrastructure-1' was successfully created.

| infrastructure-1 ⊕

| 🔀 main ⌄ | infrastructure-1 | | + ⌄ | Find file | Code ⌄ | ⋮ |

**Initial commit**
saravana G authored in 1 minute

d09850ac [⧉] History

| Name | Last commit | Last update |
|------|-------------|-------------|
| M↓ README.md | Initial commit | in 1 minute |

📄 **README.md**

⚡ Create the new directory firstpipeline

🗀 **infrastructure-1**

| + ⌄ | Find file | Code ⌄ | ⋮ |

**Update .gitlab-ci.yml file**
saravana G authored 13 minutes ago

✅ 11797dd7 [⧉] History

| Name | Last commit | Last update |
|------|-------------|-------------|
| 🗀 firstpipeline    firstpipeline | 4th | 37 minutes ago |
| 🦊 .gitlab-ci.yml | Update .gitlab-ci.yml file | 13 minutes ago |
| M↓ README.md | Initial commit | 45 minutes ago |

⚡ Create files in your directory :

| 🔀 future-branch ⌄ | infrastructure-1 / firstpipeline ⧉

🗀 **firstpipeline**

| + ⌄ | Find file | Code ⌄ | ⋮ |

**4th**
saravana G authored 38 minutes ago

2ca36e60 [⧉] History

| Name | Last commit | Last update |
|------|-------------|-------------|
| .. | | |
| ◆ .gitkeep | 1st | 42 minutes ago |
| 🌿 main.tf | 2nd | 40 minutes ago |
| ▣ user_data.sh | 4th | 38 minutes ago |
| 🌿 variable.tf | 3rd | 39 minutes ago |

# 🟦 Main.tf

**⑂ main.tf** 336 B

```
1   provider "aws" {
2     region = var.region
3   }
4
5   resource "aws_instance" "web" {
6     ami           = var.ami_id
7     instance_type = "t3.micro"
8     key_name      = var.key_name
9
10    user_data = file("${path.module}/user_data.sh")
11
12    tags = {
13      Name = "ApacheServer"
14    }
15  }
16
17  output "public_ip" {
18    value = aws_instance.web.public_ip
19  }
```

# 🟦 Variable.tf

**⑂ variable.tf** 164 B

```
1   variable "region" {
2     default = "us-west-1"
3   }
4
5   variable "ami_id" {
6     default = "ami-0623300d1b7caee89"
7   }
8
9   variable "key_name" {
10    default = "california"
11  }
```

# 🟦 User_data.sh

**user_data.sh** 176 B

```
1   #!/bin/bash
2   yum update -y
3   yum install -y httpd
4   systemctl start httpd
5   systemctl enable httpd
6   echo "<h1>Deployed using GitLab CI + Terraform</h1>" > /var/www/html/index.html
```

# 🟦 Last step create the .gitlab-ci.yml file

📁 **infrastructure-1**                                    [ + ∨ ]  [ Find file ]  [ Code ∨ ]  ⋮

| Update .gitlab-ci.yml file |  | ✅ 11797dd7 ⎘ History |
| saravana G authored 13 minutes ago | | |

| Name | Last commit | Last update |
| --- | --- | --- |
| 📁 firstpipeline   [firstpipeline] | 4th | 37 minutes ago |
| 🦊 .gitlab-ci.yml | Update .gitlab-ci.yml file | 13 minutes ago |
| M↓ README.md | Initial commit | 45 minutes ago |

## 🎴 .gitlab-ci.yml

```yaml
stages:
  - validate
  - plan
  - apply
  - destroy

image: alpine:3.18

before_script:
  - apk add --no-cache bash curl unzip
  - curl -LO https://releases.hashicorp.com/terraform/1.5.0/terraform_1.5.0_linux_amd64.zip
  - unzip terraform_1.5.0_linux_amd64.zip
  - mv terraform /usr/local/bin/
  - terraform --version

validate:
  stage: validate
  script:
    - cd firstpipeline
    - terraform init
    - terraform validate

plan:
  stage: plan
  script:
    - cd firstpipeline
    - terraform init
    - terraform plan -out=tfplan
  artifacts:
    paths:
      - firstpipeline/tfplan

apply:
  stage: apply
  when: manual
  script:
    - cd firstpipeline
    - terraform init
    - terraform apply -auto-approve tfplan
  artifacts:
    paths:
      - firstpipeline/terraform.tfstate
      - firstpipeline/terraform.tfstate.backup
    expire_in: 1 hour

destroy:
  stage: destroy
  when: manual
  dependencies:
    - apply
  script:
    - cd firstpipeline
    - terraform init
    - terraform destroy -auto-approve
```

## 🎴 Pipeline jobs are running automated to each stages

firstproject / infrastructure-1 / Pipelines / #2212802710

# Update .gitlab-ci.yml file

Delete

✅ Passed   Created in 1 minute by **saravana G**, finished in 1 minute

For commit `11797dd7` 📋

In `future-branch`

`latest` `branch`  🔗 4 jobs  ⏱ 1.81  ⏲ 3 minutes 13 seconds, queued for 3 seconds

**Pipeline**    Jobs 4    Tests 0

| validate | plan | apply | destroy |
|---|---|---|---|
| ✅ validate  🔄 | ✅ plan  🔄 | ✅ apply  ▶ | ✅ destroy  ▶ |

## validate

```
52   on linux_amd64
53   Your version of Terraform is out of date! The latest version
54   is 1.14.2. You can update by downloading from https://www.terraform.io/downloads.html
55   $ cd firstpipeline
56   $ terraform init
57   Initializing the backend...
58   Initializing provider plugins...
59   - Finding latest version of hashicorp/aws...
60   - Installing hashicorp/aws v6.26.0...
61   - Installed hashicorp/aws v6.26.0 (signed by HashiCorp)
62   Terraform has created a lock file .terraform.lock.hcl to record the provider
63   selections it made above. Include this file in your version control repository
64   so that Terraform can guarantee to make the same selections by default when
65   you run "terraform init" in the future.
66   Terraform has been successfully initialized!
67   You may now begin working with Terraform. Try running "terraform plan" to see
68   any changes that are required for your infrastructure. All Terraform commands
69   should now work.
70   If you ever set or change modules or backend configuration for Terraform,
71   rerun this command to reinitialize your working directory. If you forget, other
72   commands will detect it and remind you to do so if necessary.
73   $ terraform validate
74   Success! The configuration is valid.
75   Cleaning up project directory and file based variables                    00:01
76   Job succeeded
```

## plan

```
126          #!/bin/bash
127          yum update -y
128          yum install -y httpd
129          systemctl start httpd
130          systemctl enable httpd
131          echo "<h1>Deployed using GitLab CI + Terraform</h1>" > /var/www/html/index.html
132      EOT
133    + user_data_base64                    = (known after apply)
134    + user_data_replace_on_change         = false
135    + vpc_security_group_ids              = (known after apply)
136    }
137  Plan: 1 to add, 0 to change, 0 to destroy.
138  Changes to Outputs:
139    + public_ip = (known after apply)
140  ───────────────────────────────────────────────────────────
141  Saved the plan to: tfplan
142  To perform exactly these actions, run the following command to apply:
143      terraform apply "tfplan"
144  Uploading artifacts for successful job                                     00:01
145  Uploading artifacts...
146  firstpipeline/tfplan: found 1 matching artifact files and directories
147  Uploading artifacts as "archive" to coordinator... 201 Created  correlation_id=ebcaca4d9c0f4a11b12c0e643
     5f54844 id=12426326761 responseStatus=201 Created token=eyJraWQiO
148  Cleaning up project directory and file based variables                     00:01
149  Job succeeded
```

## apply

```
66  selections it made above. Include this file in your version control repository
67  so that Terraform can guarantee to make the same selections by default when
68  you run "terraform init" in the future.
69  Terraform has been successfully initialized!
70  You may now begin working with Terraform. Try running "terraform plan" to see
71  any changes that are required for your infrastructure. All Terraform commands
72  should now work.
73  If you ever set or change modules or backend configuration for Terraform,
74  rerun this command to reinitialize your working directory. If you forget, other
75  commands will detect it and remind you to do so if necessary.
76  $ terraform apply -auto-approve tfplan
77  aws_instance.web: Creating...
78  aws_instance.web: Still creating... [10s elapsed]
79  aws_instance.web: Creation complete after 13s [id=i-06f3cfc53957591c0]
80  Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
81  Outputs:
82  public_ip = "52.53.221.198"
83  Uploading artifacts for successful job                                    00:02
84  Uploading artifacts...
85  firstpipeline/terraform.tfstate: found 1 matching artifact files and directories
86  WARNING: firstpipeline/terraform.tfstate.backup: no matching files. Ensure that the artifact path is rel
    ative to the working directory (/builds/firstproject8110350/infrastructure-1)
87  Uploading artifacts as "archive" to coordinator... 201 Created  correlation_id=2f3c6e744fd740379b27207e5
    9f664dd id=12426326764 responseStatus=201 Created token=eyJraWQiO
88  Cleaning up project directory and file based variables                    00:00
89  Job succeeded
```

## destroy

```
167          - delete_on_termination = true -> null
168          - device_name           = "/dev/xvda" -> null
169          - encrypted             = false -> null
170          - iops                  = 3000 -> null
171          - tags                  = {} -> null
172          - tags_all              = {} -> null
173          - throughput            = 125 -> null
174          - volume_id             = "vol-0445686fcb4151e84" -> null
175          - volume_size           = 8 -> null
176          - volume_type           = "gp3" -> null
177        }
178      }
179  Plan: 0 to add, 0 to change, 1 to destroy.
180  Changes to Outputs:
181    - public_ip = "52.53.221.198" -> null
182  aws_instance.web: Destroying... [id=i-06f3cfc53957591c0]
183  aws_instance.web: Still destroying... [id=i-06f3cfc53957591c0, 10s elapsed]
184  aws_instance.web: Still destroying... [id=i-06f3cfc53957591c0, 20s elapsed]
185  aws_instance.web: Still destroying... [id=i-06f3cfc53957591c0, 30s elapsed]
186  aws_instance.web: Still destroying... [id=i-06f3cfc53957591c0, 40s elapsed]
187  aws_instance.web: Still destroying... [id=i-06f3cfc53957591c0, 50s elapsed]
188  aws_instance.web: Destruction complete after 50s
189  Destroy complete! Resources: 1 destroyed.
190  Cleaning up project directory and file based variables                    00:00
191  Job succeeded
```

Output :

| | Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public I |
|---|---|---|---|---|---|---|---|---|
| | ApacheServer | i-06f3cfc53957591c0 | ⊖ Terminated | t3.micro | – | View alarms + | us-west-1a | – |

**Instances (1)** Info

Connect | Instance state ▼ | Actions ▼ | **Launch instances** ▼

All states ▼

1