LAB # 10:

CLOUD COMPUTING:

FROM:

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2023-BSE-005

SECTION A

TO:

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TITLE:

GH CLI CODESPACES + AWS + TERRAFORM: CLI AUTOMATION OF VPC/SUBNET CREATION

Task 1 — GitHub CLI Codespace Setup & Authentication

Administrator: Command Prompt

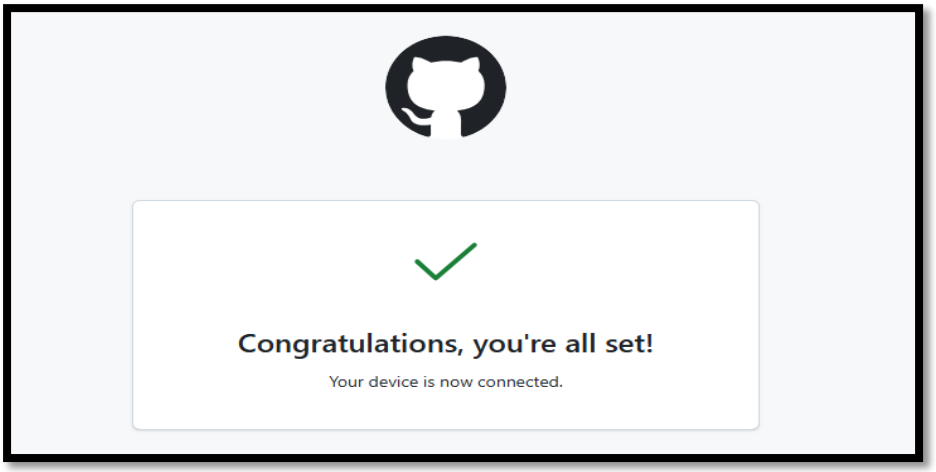
```
Microsoft Windows [Version 10.0.19045.6466]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>winget install --id GitHub.cli
Found an existing package already installed. Trying to upgrade the installed package...
No available upgrade found.
No newer package versions are available from the configured sources.

C:\Windows\system32>
```

```
C:\Windows\system32>gh --version
gh version 2.83.2 (2025-12-10)
https://github.com/cli/cli/releases/tag/v2.83.2

C:\Windows\system32>
```



```
C:\Users\ammar>gh codespace ssh -c studious-dollop-5vvjqwj5xgg3774x
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-1030-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

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Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

Task 2 — Install AWS CLI, Terraform CLI, Provider Setup

```
23-22411-005-droid /workspaces/Lab10 (main) $ curl "https
-eliv22.zip"
# Total       % Received % Xferd  Average Speed   Time     Tim
100    60.3M  100 60.3M    0       141M   Upload   Total    Spe
100 60.3M 00  100    60.3M :    0  -:-:--     0 --:--:--  --:--
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/licenses/
inflating: aws/dist/wheel-0.45.1.dist-info/direct_url.json
inflating: aws/dist/wheel-0.45.1.dist-info/METADATA
inflating: aws/dist/wheel-0.45.1.dist-info/entry_points.txt
inflating: aws/dist/wheel-0.45.1.dist-info/WHEEL
inflating: aws/dist/wheel-0.45.1.dist-info/LICENSE.txt
inflating: aws/dist/wheel-0.45.1.dist-info/RECORD
inflating: aws/dist/wheel-0.45.1.dist-info/REQUESTED
inflating: aws/dist/wheel-0.45.1.dist-info/REQUESTED
23-22411-005-droid /workspaces/Lab10 (main) $
```

```
23-22411-005-droid /workspaces/Lab10 (main) $ sudo ./aws/install
You can now run: /usr/local/bin/aws --version
23-22411-005-droid /workspaces/Lab10 (main) $ aws --version
aws-cli/2.32.24 Python/3.13.11 Linux/6.8.0-1030-azure exe/x86_64.ubuntu.24
23-22411-005-droid /workspaces/Lab10 (main) $
```

```
23-22411-005-droid /workspaces/Lab10 (main) $ aws configure

   [default]
   aws_access_key_id = AKIAUOYXER7W5QVZI1435
   aws_secret_access_key = VHSFCuayOtUPA1mmJr18gP)sUexRwhPDqNZ
   Default region name:
      [default]
      region = me-central-1
      output = json
```

```
23-22411-005-droid /workspaces/Lab10 (main) $ cat ~/.aws/creentials

   [default]
   aws_access_key_id = AKIAUOYXER7W5QVZ1435
   aws_secret_access_key = VHSFCuayOtUPA1mmrI6gVJSsUexRwhPpNQZ
   [default]
      region = me-central-1
      output = json
```

```
23-22411-005-droid /workspaces/Lab10 (main) $ aws sts get-caller-identity
```

```
23-22411-005-droid /workspaces/Lab10 (main) $ sudo apt install terraform -y

   Reading package lists... Done
   Building dependency tree... Done
   Reading state information... Done
   The following NEW packages will bbe installed:
      terraform
   0 upgraded, 1    newly installed, 0 to remove and 51 not ugraded.

   Need to get 18.6 MB of archives.
   After this operation, 138 MB of addtional disk space will be used.
   Get:1 https://apt.releases.hashicorp.com stable/main amd64 terraform amd64 1.14.3-16]
   Fetched 18.6 MB in 1s (18.5 MBs)
   Selecting previously uncele-ted pakage terraform.
   (Reading database ... 121012  files and directones currently installed.)
   Preparing to unpack .../terraform_1.14.3-1 ...
   Unpacking terraform (1.14.3-1) ...
   Setting up terraform (1.14.3-1) ...
```

```
provider "aws" {
  shared_config_files      = ["~/.aws/config"]
  shared_credentials_files = ["~/.aws/credentials"]
}

~
~
~
```

```
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v6.27.0...
- Installed hashicorp/aws v6.27.0 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
```

```
# This file is maintained automatically by "terraform init".
# Manual edits may be lost in future updates.

provider "registry.terraform.io/hashicorp/aws" {
  version = "6.27.0"
  hashes = [
    "h1:bixp2PSsP5ZGBczGCxcbSDn6lF5QFlUXlNroq9cdab4=",
    "zh:177a24b806c72e8484b5cabc93b2b38e3d770ae6f745a998b54d6619fd0e8129",
    "zh:4ac4a85c14fb868a3306b542e6a56c10bd6c6d5a67bc0c9b8f6a9060cf5f3be7",
    "zh:552652185bc85c8ba1da1d65dea47c454728a5c6839c458b6dcd3ce71c19ccfc",
    "zh:60284b8172d09aee91eae0856f09855eaf040ce3a58d6933602ae17c53f8ed04",
    "zh:6be38d156756ca61fb8e7c752cc5d769cd709686700ac4b230f40a6e95b5dbc9",
    "zh:7a409138fae4ef42e3a637e37cb9efedf96459e28a3c764fc4e855e8db9a7485",
    "zh:8070cf5224ed1ed3a3e9a59f7c30ff88bf071c7567165275d477c1738a56c064",
    "zh:894439ef340a9a79f69cd759e27ad11c7826adeca27be1b1ca82b3c9702fa300",
    "zh:89d035eebf08a97c89374ff06040955ddc09f275ecca609d0c9d58d149bef5cf",
    "zh:985b1145d724fc1f38369099e4a5087141885740fd6c0b1dbc492171e73c2e49",
    "zh:9b12af85486a96aedd8d7984b0ff811a4b42e3d88dad1a3fb4c0b580d04fa425",
    "zh:a80b47ae8d1475201c86bd94a5dcb9dd4da5e8b73102a90820b68b66b76d50fd",
    "zh:d3395be1556210f82199b9166a6b2e677cee9c4b67e96e63f6c3a98325ad7ab0",
    "zh:db0b869d09657f6f1e4110b56093c5fcdf9dbdd97c020db1e577b239c0adcbce",
    "zh:ffc72e680370ae7c21f9bd3082c6317730df805c6797427839a6b6b7e9a26a01",
  ]
}
```

Task 3 — VPC/Subnet Creation, Initialization, Verification

```
provider "aws" {
  shared_config_files      = ["~/.aws/config"]
  shared_credentials_files = ["~/.aws/credentials"]
}
 "aws_vpc" "existing_vpc" {
  default = true
}

resource "aws_subnet" "dev_subnet_1_existing" {
  vpc_id     = data.aws_vpc.existing_vpc.id
  cidr_block = "172.31.48.0/24"
  availability_zone = "me-central-1a"
}
~
~
```

```
  # aws_vpc.development_vpc will be created
  + resource "aws_vpc" "development_vpc" {
      + arn                                  = (known after apply)
      + cidr_block                           = "10.0.0.0/16"
      + default_network_acl_id               = (known after apply)
      + default_route_table_id               = (known after apply)
      + default_security_group_id            = (known after apply)
      + dhcp_options_id                      = (known after apply)
      + enable_dns_hostnames                 = (known after apply)
      + enable_dns_support                   = true
      + enable_network_address_usage_metrics = (known after apply)
      + id                                   = (known after apply)
      + instance_tenancy                     = "default"
      + ipv6_association_id                  = (known after apply)
      + ipv6_cidr_block                      = (known after apply)
      + ipv6_cidr_block_network_border_group = (known after apply)
      + main_route_table_id                  = (known after apply)
      + owner_id                             = (known after apply)
      + region                               = "me-central-1"
      + tags_all                             = (known after apply)
    }

Plan: 2 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.
```

```
aws_vpc.development_vpc: Creating...
aws_vpc.development_vpc: Creation complete after 2s [id=vpc-009bd667843d3e4ec]
aws_subnet.dev_subnet_1: Creating...
aws_subnet.dev_subnet_1: Creation complete after 1s [id=subnet-073c3ad67c69b6cd1]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.
```

```
67c69b6cd1"
{
    "Subnets": [
        {
            "AvailabilityZoneId": "mec1-az1",
            "MapCustomerOwnedIpOnLaunch": false,
            "OwnerId": "306601824237",
            "AssignIpv6AddressOnCreation": false,
            "Ipv6CidrBlockAssociationSet": [],
            "SubnetArn": "arn:aws:ec2:me-central-1:306601824237:subnet/subnet-073c3ad67c69b6cd1",
            "EnableDns64": false,
            "Ipv6Native": false,
            "PrivateDnsNameOptionsOnLaunch": {
                "HostnameType": "ip-name",
                "EnableResourceNameDnsARecord": false,
                "EnableResourceNameDnsAAAARecord": false
            },
            "BlockPublicAccessStates": {
                "InternetGatewayBlockMode": "off"
            },
            "SubnetId": "subnet-073c3ad67c69b6cd1",
            "State": "available",
            "VpcId": "vpc-009bd667843d3e4ec",
            "CidrBlock": "10.0.10.0/24",
            "AvailableIpAddressCount": 251,
            "AvailabilityZone": "me-central-1a",
            "DefaultForAz": false,
```

```
{
    "Vpcs": [
        {
            "OwnerId": "306601824237",
            "InstanceTenancy": "default",
            "CidrBlockAssociationSet": [
                {
                    "AssociationId": "vpc-cidr-assoc-0725da0fcb1143ef6",
                    "CidrBlock": "10.0.0.0/16",
                    "CidrBlockState": {
                        "State": "associated"
                    }
                }
            ],
            "IsDefault": false,
            "BlockPublicAccessStates": {
                "InternetGatewayBlockMode": "off"
            },
            "VpcId": "vpc-009bd667843d3e4ec",
            "State": "available",
            "CidrBlock": "10.0.0.0/16",
            "DhcpOptionsId": "dopt-0ec269410dad158ce"
        }
    ]
}
```


Task 4 — Data Source, Targeted Destroy, Tags

```
resource "aws_subnet" "dev_subnet_1" {
  vpc_id     = aws_vpc.development_vpc.id
  cidr_block = "10.0.10.0/24"
  availability_zone = "me-central-1a"
} "aws_vpc" "existing_vpc" {
  default = true
}

resource "aws_subnet" "dev_subnet_1_existing" {
  vpc_id     = data.aws_vpc.existing_vpc.id
  cidr_block = "172.31.48.0/24"
  availability_zone = "me-central-1a"
```

```
      + map_public_ip_on_launch                      = false
      + owner_id                                     = (known after apply)
      + private_dns_hostname_type_on_launch          = (known after apply)
      + region                                       = "me-central-1"
      + tags_all                                     = (known after apply)
      + vpc_id                                       = "vpc-0123d94136d6f30b9"
    }

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_subnet.dev_subnet_1_existing: Creating...
aws_subnet.dev_subnet_1_existing: Creation complete after 0s [id=subnet-0ee7cea860bbe5827]

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

```
aws_subnet.dev_subnet_1_existing: Destroying... [id=subnet-0ee7cea860bbe5827]
aws_subnet.dev_subnet_1_existing: Destruction complete after 1s

  Warning: Applied changes may be incomplete

  The plan was created with the -target option in effect, so some changes requested in
  ignored and the output values may not be fully updated. Run the following command to
  pending:
      terraform plan

  Note that the -target option is not suitable for routine use, and is provided only f
  recovering from errors or mistakes, or when Terraform specifically suggests to use i


Destroy complete! Resources: 1 destroyed.
```

```
      + map_public_ip_on_launch                      = false
      + owner_id                                     = (known after apply)
      + private_dns_hostname_type_on_launch          = (known after apply)
      + region                                       = "me-central-1"
      + tags_all                                     = (known after apply)
      + vpc_id                                       = "vpc-0123d94136d6f30b9"
    }

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_subnet.dev_subnet_1_existing: Creating...
aws_subnet.dev_subnet_1_existing: Creation complete after 1s [id=subnet-087587ebd8865899c]

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

```
        # (4 unchanged attributes hidden)
    }

Plan: 0 to add, 0 to change, 3 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_subnet.dev_subnet_1: Destroying... [id=subnet-073c3ad67c69b6cd1]
aws_subnet.dev_subnet_1_existing: Destroying... [id=subnet-087587ebd8865899c]
aws_subnet.dev_subnet_1_existing: Destruction complete after 0s
aws_subnet.dev_subnet_1: Destruction complete after 0s
aws_vpc.development_vpc: Destroying... [id=vpc-009bd667843d3e4ec]
aws_vpc.development_vpc: Destruction complete after 1s

Destroy complete! Resources: 3 destroyed.
```

```
      + dhcp_options_id                     = (known after apply)
      + enable_dns_hostnames                = (known after apply)
      + enable_dns_support                  = true
      + enable_network_address_usage_metrics = (known after apply)
      + id                                  = (known after apply)
      + instance_tenancy                    = "default"
      + ipv6_association_id                 = (known after apply)
      + ipv6_cidr_block                     = (known after apply)
      + ipv6_cidr_block_network_border_group = (known after apply)
      + main_route_table_id                 = (known after apply)
      + owner_id                            = (known after apply)
      + region                              = "me-central-1"
      + tags_all                            = (known after apply)
    }

Plan: 3 to add, 0 to change, 0 to destroy.

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if
you run "terraform apply" now.
```

```
      + tags_all                            = (known after apply)
    }

Plan: 3 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_subnet.dev_subnet_1_existing: Creating...
aws_vpc.development_vpc: Creating...
aws_subnet.dev_subnet_1_existing: Creation complete after 1s [id=subnet-0a9f1321068fe07f8]
aws_vpc.development_vpc: Creation complete after 3s [id=vpc-0014662da6d536811]
aws_subnet.dev_subnet_1: Creating...
aws_subnet.dev_subnet_1: Creation complete after 1s [id=subnet-0bd9b8d2719608a45]

Apply complete! Resources: 3 added, 0 changed, 0 destroyed.
```

```
resource "aws_subnet" "dev_subnet_1_existing" {
  vpc_id     = data.aws_vpc.existing_vpc.id
  cidr_block = "172.31.48.0/24"
  availability_zone = "me-central-1a"
ource "aws_vpc" "development_vpc" {
  cidr_block = "10.0.0.0/16"
  tags = {
     Name: "development"
     vpc_env = "dev"
  }
}

resource "aws_subnet" "dev_subnet_1" {
  vpc_id     = aws_vpc.development_vpc.id
  cidr_block = "10.0.10.0/24"
  availability_zone = "me-central-1a"
  tags = {
     Name: "subnet-1-dev"
  }
}

resource "aws_subnet" "dev_subnet_1_existing" {
  vpc_id     = data.aws_vpc.existing_vpc.id
  cidr_block = "172.31.48.0/24"
  availability_zone = "me-central-1a"
  tags = {
     Name: "subnet-1-default"
  }
}
```

```
      }
    ~ tags_all                              = {
        + "Name"    = "development"
        + "vpc_env" = "dev"
      }
      # (19 unchanged attributes hidden)
  }

Plan: 0 to add, 3 to change, 0 to destroy.
aws_subnet.dev_subnet_1_existing: Modifying... [id=subnet-0a9f1321068fe07f8]
aws_vpc.development_vpc: Modifying... [id=vpc-0014662da6d536811]
aws_subnet.dev_subnet_1_existing: Modifications complete after 1s [id=subnet-0a9f1321068fe07f8]
aws_vpc.development_vpc: Modifications complete after 1s [id=vpc-0014662da6d536811]
aws_subnet.dev_subnet_1: Modifying... [id=subnet-0bd9b8d2719608a45]
aws_subnet.dev_subnet_1: Modifications complete after 0s [id=subnet-0bd9b8d2719608a45]

Apply complete! Resources: 0 added, 3 changed, 0 destroyed.
```

Task 5 — State File Inspection & Terraform State Commands

```
  }

# aws_vpc.development_vpc will be destroyed
  resource "aws_vpc" "development_vpc" {
      arn                                  = "arn:aws:ec2:me-central-1:306601824237:vpc/vpc-0014662da6d536811" -> null
      assign_generated_ipv6_cidr_block     = false -> null
      cidr_block                           = "10.0.0.0/16" -> null
      default_network_acl_id               = "acl-0a1b94f318e65be21" -> null
      default_route_table_id               = "rtb-0283a4d11cd6d3847" -> null
      default_security_group_id            = "sg-0587b70a5af7b657a" -> null
      dhcp_options_id                      = "dopt-0ec269410dad158ce" -> null
      enable_dns_hostnames                 = false -> null
      enable_dns_support                   = true -> null
      enable_network_address_usage_metrics = false -> null
      id                                   = "vpc-0014662da6d536811" -> null
      instance_tenancy                     = "default" -> null
      ipv6_netmask_length                  = 0 -> null
      main_route_table_id                  = "rtb-0283a4d11cd6d3847" -> null
      owner_id                             = "306601824237" -> null
      region                               = "me-central-1" -> null
      tags                                 = {
          "Name"    = "development"
          "vpc_env" = "dev"
      } -> null
      tags_all                             = {
```

```
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_subnet.dev_subnet_1: Destroying... [id=subnet-0bd9b8d2719608a45]
aws_subnet.dev_subnet_1_existing: Destroying... [id=subnet-0a9f1321068fe07f8]
aws_subnet.dev_subnet_1_existing: Destruction complete after 0s
aws_subnet.dev_subnet_1: Destruction complete after 0s
aws_vpc.development_vpc: Destroying... [id=vpc-0014662da6d536811]
aws_vpc.development_vpc: Destruction complete after 1s

Destroy complete! Resources: 3 destroyed.
```


```
{
  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 29,
  "lineage": "6625ccc8-04cc-0dcf-9c8a-626d11c182db",
  "outputs": {},
  "resources": [],
  "check_results": null
}
```

```
{
  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 24,
  "lineage": "6625ccc8-04cc-0dcf-9c8a-626d11c182db",
  "outputs": {},
  "resources": [
    {
      "mode": "data",
      "type": "aws_vpc",
      "name": "existing_vpc",
      "provider": "provider[\"registry.terraform.io/hashicorp/aws\"]",
      "instances": [
        {
          "schema_version": 0,
          "attributes": {
            "arn": "arn:aws:ec2:me-central-1:306601824237:vpc/vpc-0123d94136d6f30b9",
            "cidr_block": "172.31.0.0/16",
            "cidr_block_associations": [
              {
                "association_id": "vpc-cidr-assoc-0a6865451a0c3e5a0",
                "cidr_block": "172.31.0.0/16",
                "state": "associated"
              }
            ],
            "default": true,
            "dhcp_options_id": "dopt-0ec269410dad158ce",
            "enable_dns_hostnames": true,
            "enable_dns_support": true,
            "enable_network_address_usage_metrics": false,
```


```
# aws_vpc.development_vpc will be created
+ resource "aws_vpc" "development_vpc" {
    + arn                                  = (known after apply)
    + cidr_block                           = "10.0.0.0/16"
    + default_network_acl_id               = (known after apply)
    + default_route_table_id               = (known after apply)
    + default_security_group_id            = (known after apply)
    + dhcp_options_id                      = (known after apply)
    + enable_dns_hostnames                 = (known after apply)
    + enable_dns_support                   = true
    + enable_network_address_usage_metrics = (known after apply)
    + id                                   = (known after apply)
    + instance_tenancy                     = "default"
    + ipv6_association_id                  = (known after apply)
    + ipv6_cidr_block                      = (known after apply)
    + ipv6_cidr_block_network_border_group = (known after apply)
    + main_route_table_id                  = (known after apply)
    + owner_id                             = (known after apply)
    + region                               = "me-central-1"
    + tags                                 = {
        + "Name"    = "development"
        + "vpc_env" = "dev"
      }
    + tags_all                             = {
        + "Name"    = "development"
        + "vpc_env" = "dev"
      }
```

```
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_subnet.dev_subnet_1_existing: Creating...
aws_vpc.development_vpc: Creating...
aws_subnet.dev_subnet_1_existing: Creation complete after 1s [id=subnet-016e068146064e9be]
aws_vpc.development_vpc: Creation complete after 2s [id=vpc-0714b51279c0ec1e3]
aws_subnet.dev_subnet_1: Creating...
aws_subnet.dev_subnet_1: Creation complete after 1s [id=subnet-09b4b3a12a37d638f]

Apply complete! Resources: 3 added, 0 changed, 0 destroyed.
```

```
23-22411-005-droid /workspaces/Lab10 (main) $ cat terraram.tfstate

  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 30,
  "lineage": "6625ccc8-04cc-0dcf-9c8a-626d11c182db"
  "outputs": {}
   {
     "mode": "data",
      "type": "aws_vpc",
      "name": "existing_vpc",
      "provider": "provider["registryterraform.io/hashicorp/aws\"]",
      "instances": {
       {
         "schema_version": 0,
         "attributes": {
           "arn": "arn:aws:ec2:me-central-1:306601824237:vpc/vpc-0123d9413d6f8b9",
           "cidr_block": "172.31.0.0/16",
           "cidr_block_associations": [
             {
               "association_id": "vpc-cidr-assoc-0a6865451a08c3e5a0"
               "cidr_block": "172.31.0.0/16",
               "state": "associated"
             },
           ]
         ]
       },
     ]]
  }
}
```

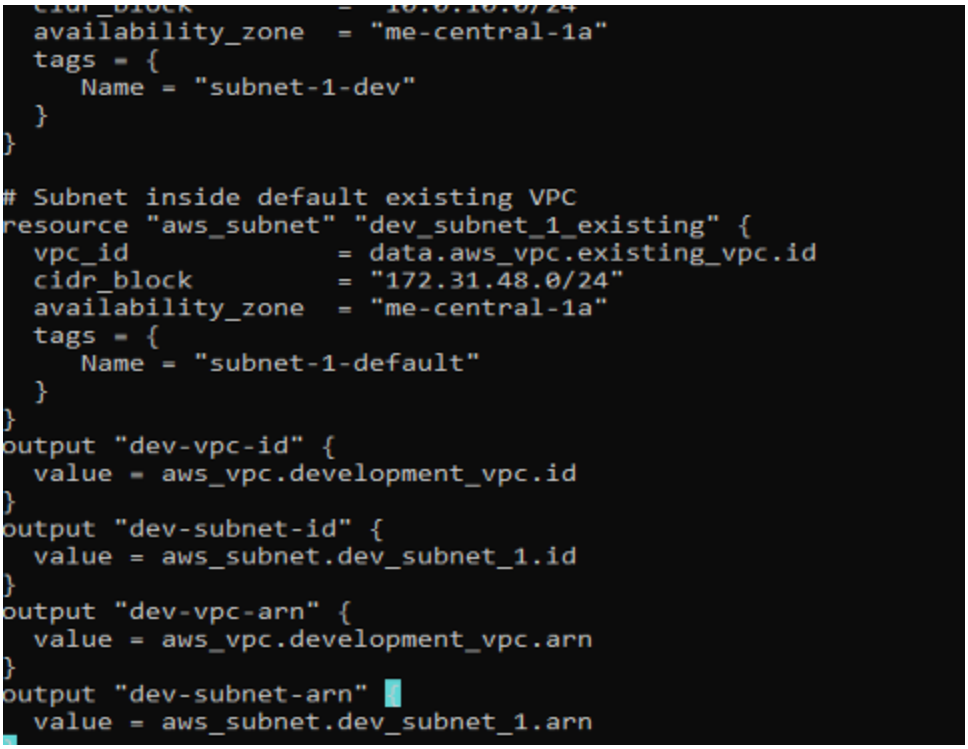
```
23-22411-005-droid /workspaces/Lab10 (main) $ cat terraform.tfstate.backup

  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 29,
  "lineage": "6625ccc8-04cc-0dcf-9c8a-626d11c182db"
  "resources": []
   {
     "check_results": null
   }
}
```

```
data.aws_vpc.existing_vpc
aws_subnet.dev_subnet_1
aws_subnet.dev_subnet_1_existing
aws_vpc.development_vpc
```

```
# aws_vpc.development_vpc:
resource "aws_vpc" "development_vpc" {
    arn                                  = "arn:aws:ec2:me-central-1:306601824237:vpc/vpc-0714b51279c0ec1e3"
    assign_generated_ipv6_cidr_block     = false
    cidr_block                           = "10.0.0.0/16"
    default_network_acl_id               = "acl-043ae446e2f05c587"
    default_route_table_id               = "rtb-0b607b734815d9082"
    default_security_group_id            = "sg-065c19943d7065867"
    dhcp_options_id                      = "dopt-0ec269410dad158ce"
    enable_dns_hostnames                 = false
    enable_dns_support                   = true
    enable_network_address_usage_metrics = false
    id                                   = "vpc-0714b51279c0ec1e3"
    instance_tenancy                     = "default"
    ipv6_association_id                  = null
    ipv6_cidr_block                      = null
    ipv6_cidr_block_network_border_group = null
    ipv6_ipam_pool_id                    = null
    ipv6_netmask_length                  = 0
    main_route_table_id                  = "rtb-0b607b734815d9082"
    owner_id                             = "306601824237"
    region                               = "me-central-1"
    tags                                 = {
        "Name"    = "development"
        "vpc_env" = "dev"
    }
    tags_all                             = {
        "Name"    = "development"
        "vpc_env" = "dev"
    }
}
```

Task 6 — Terraform Outputs & Attributes Reporting



```
  availability_zone  = "me-central-1a"
  tags = {
     Name = "subnet-1-dev"
  }
}

# Subnet inside default existing VPC
resource "aws_subnet" "dev_subnet_1_existing" {
  vpc_id             = data.aws_vpc.existing_vpc.id
  cidr_block         = "172.31.48.0/24"
  availability_zone  = "me-central-1a"
  tags = {
     Name = "subnet-1-default"
  }
}
output "dev-vpc-id" {
  value = aws_vpc.development_vpc.id
}
output "dev-subnet-id" {
  value = aws_subnet.dev_subnet_1.id
}
output "dev-vpc-arn" {
  value = aws_vpc.development_vpc.arn
}
output "dev-subnet-arn" {
  value = aws_subnet.dev_subnet_1.arn
```

```
output "dev-subnet-arn" {
  value = aws_subnet.dev_subnet_1.arn
# VPC attributes
output "dev-vpc-cidr_block" {
  value = aws_vpc.development_vpc.cidr_block
}
output "dev-vpc-region" {
  value = aws_vpc.development_vpc.region
}
output "dev-vpc-tags_name" {
  value = aws_vpc.development_vpc.tags["Name"]
}
output "dev-vpc-tags_all" {
  value = aws_vpc.development_vpc.tags_all
}

# Subnet attributes
output "dev-subnet-cidr_block" {
  value = aws_subnet.dev_subnet_1.cidr_block
}
output "dev-subnet-region" {
  value = aws_subnet.dev_subnet_1.availability_zone
}
output "dev-subnet-tags_name" {
  value = aws_subnet.dev_subnet_1.tags["Name"]
}
output "dev-subnet-tags_all" {
  value = aws_subnet.dev_subnet_1.tags_all
}
```

```
data.aws_vpc.existing_vpc: Reading...
aws_vpc.development_vpc: Refreshing state... [id=vpc-0714b51279c0ec1e3]
data.aws_vpc.existing_vpc: Read complete after 1s [id=vpc-0123d94136d6f30b9]
aws_subnet.dev_subnet_1_existing: Refreshing state... [id=subnet-016e068146064e9be]
aws_subnet.dev_subnet_1: Refreshing state... [id=subnet-09b4b3a12a37d638f]

Changes to Outputs:
  + dev-subnet-arn        = "arn:aws:ec2:me-central-1:306601824237:subnet/subnet-09b4b3a12a37d638f"
  + dev-subnet-cidr_block = "10.0.10.0/24"
  + dev-subnet-id         = "subnet-09b4b3a12a37d638f"
  + dev-subnet-region     = "me-central-1a"
  + dev-subnet-tags_all   = {
      + Name = "subnet-1-dev"
    }
  + dev-subnet-tags_name  = "subnet-1-dev"
  + dev-vpc-arn           = "arn:aws:ec2:me-central-1:306601824237:vpc/vpc-0714b51279c0ec1e3"
  + dev-vpc-cidr_block    = "10.0.0.0/16"
  + dev-vpc-id            = "vpc-0714b51279c0ec1e3"
  + dev-vpc-region        = "me-central-1"
  + dev-vpc-tags_all      = {
      + Name    = "development"
      + vpc_env = "dev"
    }
  + dev-vpc-tags_name     = "development"
```

```
  Enter a value: yes


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

Outputs:

dev-subnet-arn = "arn:aws:ec2:me-central-1:306601824237:subnet/subnet-09b4b3a12a37d638f"
dev-subnet-cidr_block = "10.0.10.0/24"
dev-subnet-id = "subnet-09b4b3a12a37d638f"
dev-subnet-region = "me-central-1a"
dev-subnet-tags_all = tomap({
  "Name" = "subnet-1-dev"
})
dev-subnet-tags_name = "subnet-1-dev"
dev-vpc-arn = "arn:aws:ec2:me-central-1:306601824237:vpc/vpc-0714b51279c0ec1e3"
dev-vpc-cidr_block = "10.0.0.0/16"
dev-vpc-id = "vpc-0714b51279c0ec1e3"
dev-vpc-region = "me-central-1"
dev-vpc-tags_all = tomap({
  "Name" = "development"
  "vpc_env" = "dev"
})
dev-vpc-tags_name = "development"
```

```
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_subnet.dev_subnet_1: Destroying... [id=subnet-09b4b3a12a37d638f]
aws_subnet.dev_subnet_1_existing: Destroying... [id=subnet-016e068146064e9be]
aws_subnet.dev_subnet_1: Destruction complete after 1s
aws_vpc.development_vpc: Destroying... [id=vpc-0714b51279c0ec1e3]
aws_subnet.dev_subnet_1_existing: Destruction complete after 1s
aws_vpc.development_vpc: Destruction complete after 0s

Destroy complete! Resources: 3 destroyed.
```


```
{
  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 39,
  "lineage": "6625ccc8-04cc-0dcf-9c8a-626d11c182db",
  "outputs": {},
  "resources": [],
  "check_results": null
}
```

```
{
  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 34,
  "lineage": "6625ccc8-04cc-0dcf-9c8a-626d11c182db",
  "outputs": {
    "dev-subnet-arn": {
      "value": "arn:aws:ec2:me-central-1:306601824237:subnet/subnet-09b4b3a12a37d638f",
      "type": "string"
    },
    "dev-subnet-cidr_block": {
      "value": "10.0.10.0/24",
      "type": "string"
    },
    "dev-subnet-id": {
      "value": "subnet-09b4b3a12a37d638f",
      "type": "string"
    },
    "dev-subnet-region": {
      "value": "me-central-1a",
      "type": "string"
    },
    "dev-subnet-tags_all": {
      "value": {
        "Name": "subnet-1-dev"
      },
      "type": [
        "map",
        "string"
      ]
    }
```