**School of Computer Science**

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**DEHRADUN, UTTARAKHAND**


# System Monitoring and Configuration Management

## Lab File

## (2024)

## for

## 6th Semester

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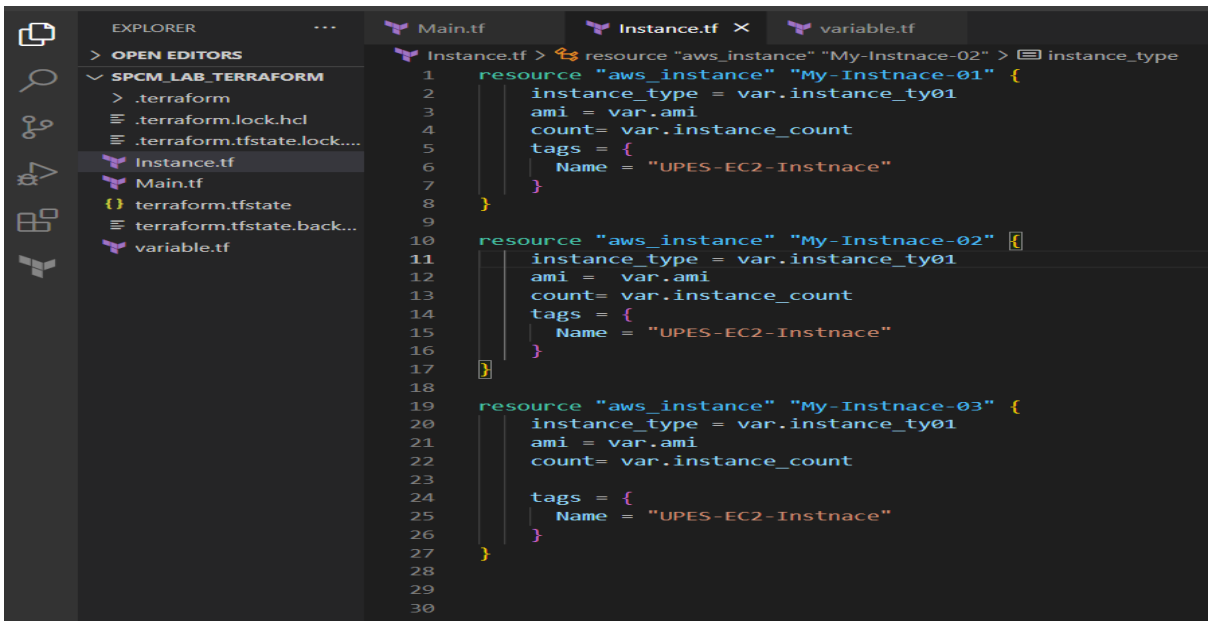
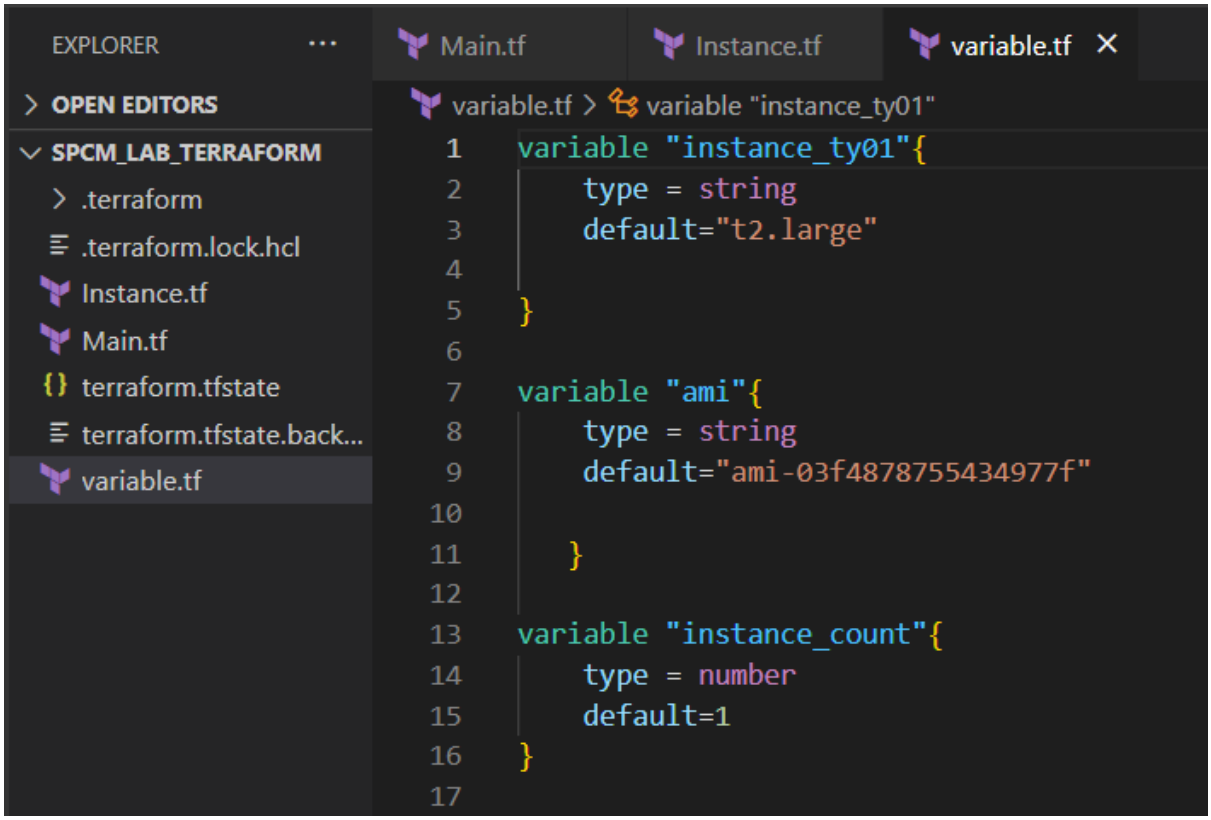
# LAB EXERCISE 5

**Aim:** Terraform Variables with Command Line Arguments

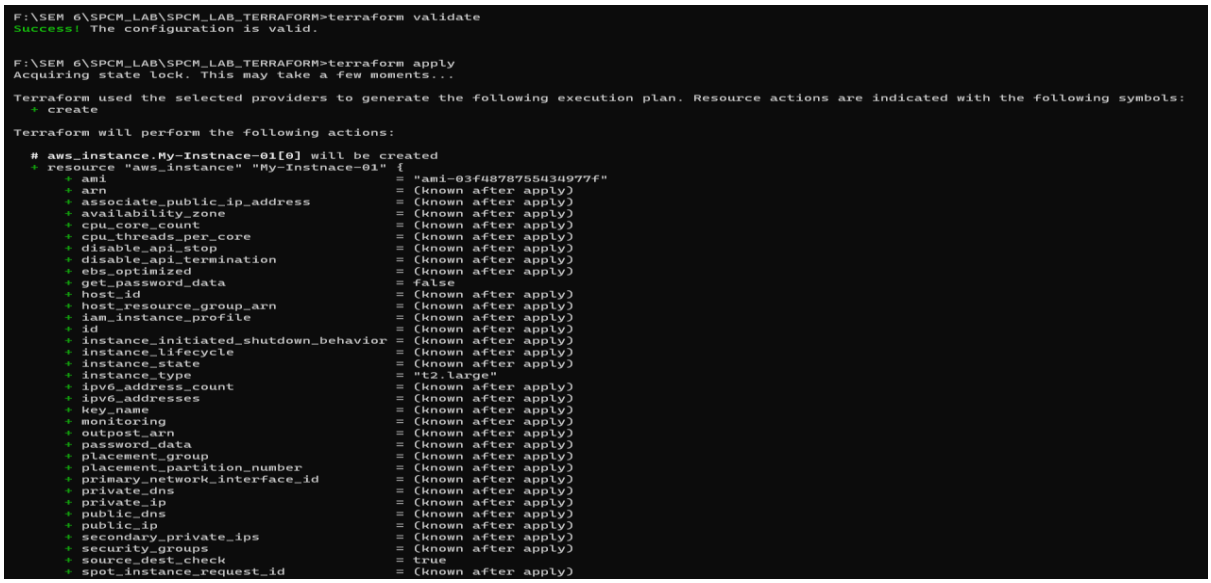
Step 1: Create a instance.tf file:




Step 2: Create a variable.tf file



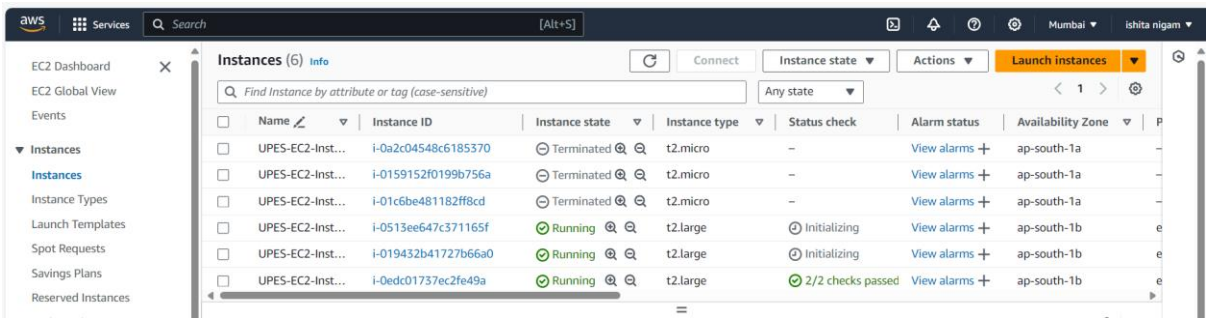

Step 3: Perform Terraform Validate And Apply



```
      + source_dest_check                    = true
      + spot_instance_request_id             = (known after apply)
      + subnet_id                            = (known after apply)
      + tags                                 = {
          + "Name" = "UPES-EC2-Instnace"
        }
      + tags_all                             = {
          + "Name" = "UPES-EC2-Instnace"
        }
      + tenancy                              = (known after apply)
      + user_data                            = (known after apply)
      + user_data_base64                     = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (known after apply)
    }

  # aws_instance.My-Instnace-02[0] will be created
  + resource "aws_instance" "My-Instnace-02" {
      + ami                                  = "ami-03f48787554349777f"
      + arn                                  = (known after apply)
      + associate_public_ip_address          = (known after apply)
      + availability_zone                    = (known after apply)
      + cpu_core_count                       = (known after apply)
      + cpu_threads_per_core                 = (known after apply)
      + disable_api_stop                     = (known after apply)
      + disable_api_termination              = (known after apply)
      + ebs_optimized                        = (known after apply)
      + get_password_data                    = false
      + host_id                              = (known after apply)
      + host_resource_group_arn              = (known after apply)
      + iam_instance_profile                 = (known after apply)
      + id                                   = (known after apply)
      + instance_initiated_shutdown_behavior = (known after apply)
      + instance_lifecycle                   = (known after apply)
      + instance_state                       = (known after apply)
      + instance_type                        = "t2.large"
      + ipv6_address_count                   = (known after apply)
      + ipv6_addresses                       = (known after apply)
      + key_name                             = (known after apply)
      + monitoring                           = (known after apply)
      + outpost_arn                          = (known after apply)
      + password_data                        = (known after apply)
      + placement_group                      = (known after apply)
      + placement_partition_number           = (known after apply)
      + primary_network_interface_id         = (known after apply)
      + private_dns                          = (known after apply)
      + private_ip                           = (known after apply)
      + public_dns                           = (known after apply)
      + public_ip                            = (known after apply)
      + secondary_private_ips                = (known after apply)
```

```
      + key_name                             = (known after apply)
      + monitoring                           = (known after apply)
      + outpost_arn                          = (known after apply)
      + password_data                        = (known after apply)
      + placement_group                      = (known after apply)
      + placement_partition_number           = (known after apply)
      + primary_network_interface_id         = (known after apply)
      + private_dns                          = (known after apply)
      + private_ip                           = (known after apply)
      + public_dns                           = (known after apply)
      + public_ip                            = (known after apply)
      + secondary_private_ips                = (known after apply)
      + security_groups                      = (known after apply)
      + source_dest_check                    = true
      + spot_instance_request_id             = (known after apply)
      + subnet_id                            = (known after apply)
      + tags                                 = {
          + "Name" = "UPES-EC2-Instnace"
        }
      + tags_all                             = {
          + "Name" = "UPES-EC2-Instnace"
        }
      + tenancy                              = (known after apply)
      + user_data                            = (known after apply)
      + user_data_base64                     = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (known after apply)
    }

  # aws_instance.My-Instnace-03[0] will be created
  + resource "aws_instance" "My-Instnace-03" {
      + ami                                  = "ami-03f48787554349777f"
      + arn                                  = (known after apply)
      + associate_public_ip_address          = (known after apply)
      + availability_zone                    = (known after apply)
      + cpu_core_count                       = (known after apply)
      + cpu_threads_per_core                 = (known after apply)
      + disable_api_stop                     = (known after apply)
      + disable_api_termination              = (known after apply)
      + ebs_optimized                        = (known after apply)
      + get_password_data                    = false
      + host_id                              = (known after apply)
      + host_resource_group_arn              = (known after apply)
      + iam_instance_profile                 = (known after apply)
      + id                                   = (known after apply)
      + instance_initiated_shutdown_behavior = (known after apply)
      + instance_lifecycle                   = (known after apply)
      + instance_state                       = (known after apply)
      + instance_type                        = "t2.large"
      + ipv6_address_count                   = (known after apply)
```

```
      + security_groups                      = (known after apply)
      + source_dest_check                    = true
      + spot_instance_request_id             = (known after apply)
      + subnet_id                            = (known after apply)
      + tags                                 = {
          + "Name" = "UPES-EC2-Instnace"
        }
      + tags_all                             = {
          + "Name" = "UPES-EC2-Instnace"
        }
      + tenancy                              = (known after apply)
      + user_data                            = (known after apply)
      + user_data_base64                     = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (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_instance.My-Instnace-03[0]: Creating...
aws_instance.My-Instnace-01[0]: Creating...
aws_instance.My-Instnace-02[0]: Creating...
aws_instance.My-Instnace-02[0]: Still creating... [10s elapsed]
aws_instance.My-Instnace-03[0]: Still creating... [10s elapsed]
aws_instance.My-Instnace-01[0]: Still creating... [10s elapsed]
aws_instance.My-Instnace-03[0]: Still creating... [20s elapsed]
aws_instance.My-Instnace-01[0]: Still creating... [20s elapsed]
aws_instance.My-Instnace-02[0]: Still creating... [20s elapsed]
aws_instance.My-Instnace-01[0]: Creation complete after 24s [id=i-0edc01737ec2fe49a]
aws_instance.My-Instnace-03[0]: Creation complete after 24s [id=i-019432b41727b66a0]
aws_instance.My-Instnace-02[0]: Creation complete after 24s [id=i-0513ee647c371165f]

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




Step 4: Perform Terraform Destroy:

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform destroy
aws_instance.My-Instnace-02[0]: Refreshing state... [id=i-0513ee647c371165f]
aws_instance.My-Instnace-03[0]: Refreshing state... [id=i-019432b41727b66a0]
aws_instance.My-Instnace-01[0]: Refreshing state... [id=i-0edc01737ec2fe49a]

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_instance.My-Instnace-01[0] will be destroyed
  - resource "aws_instance" "My-Instnace-01" {
      - ami                                  = "ami-03f4878755434977f" -> null
      - arn                                  = "arn:aws:ec2:ap-south-1:637423348062:instance/i-0edc01737ec2fe49a" -> null
      - associate_public_ip_address          = true -> null
      - availability_zone                    = "ap-south-1b" -> null
      - cpu_core_count                       = 2 -> null
      - cpu_threads_per_core                 = 1 -> null
      - disable_api_stop                     = false -> null
      - disable_api_termination              = false -> null
      - ebs_optimized                        = false -> null
      - get_password_data                    = false -> null
      - hibernation                          = false -> null
      - id                                   = "i-0edc01737ec2fe49a" -> null
      - instance_initiated_shutdown_behavior = "stop" -> null
      - instance_state                       = "running" -> null
      - instance_type                        = "t2.large" -> null
      - ipv6_address_count                   = 0 -> null
      - ipv6_addresses                       = [] -> null
      - monitoring                           = false -> null
      - placement_partition_number           = 0 -> null
      - primary_network_interface_id         = "eni-044f93e4535aa36f0b" -> null
      - private_dns                          = "ip-172-31-15-150.ap-south-1.compute.internal" -> null
      - private_ip                           = "172.31.15.150" -> null
      - public_dns                           = "ec2-13-201-4-12.ap-south-1.compute.amazonaws.com" -> null
      - public_ip                            = "13.201.4.12" -> null
      - secondary_private_ips                = [] -> null
      - security_groups                      = [
          - "default",
        ] -> null
      - source_dest_check                    = true -> null
      - subnet_id                            = "subnet-0e5f5e3d310ebacda" -> null
      - tags                                 = {
          - "Name" = "UPES-EC2-Instnace"
        } -> null
      - tags_all                             = {
          - "Name" = "UPES-EC2-Instnace"
        } -> null
      - tenancy                              = "default" -> null
      - user_data_replace_on_change          = false -> null
      - vpc_security_group_ids               = [
          - "sg-0c6b5aae418c53ba2",
        ] -> null

      - capacity_reservation_specification {
          - capacity_reservation_preference = "open" -> null
        }

      - cpu_options {
          - core_count       = 2 -> null
          - threads_per_core = 1 -> null
        }

      - credit_specification {
          - cpu_credits = "standard" -> null
        }

      - enclave_options {
          - enabled = false -> null
        }

      - maintenance_options {
          - auto_recovery = "default" -> null
        }

      - metadata_options {
          - http_endpoint               = "enabled" -> null
          - http_protocol_ipv6          = "disabled" -> null
          - http_put_response_hop_limit = 1 -> null
          - http_tokens                 = "optional" -> null
          - instance_metadata_tags      = "disabled" -> null
        }

      - private_dns_name_options {
          - enable_resource_name_dns_a_record    = false -> null
          - enable_resource_name_dns_aaaa_record = false -> null
          - hostname_type                        = "ip-name" -> null
        }

      - root_block_device {
          - delete_on_termination = true -> null
          - device_name           = "/dev/sda1" -> null
          - encrypted             = false -> null
          - iops                  = 100 -> null
          - tags                  = {} -> null
          - throughput            = 0 -> null
          - volume_id             = "vol-034e2e0dc0826b5c9" -> null
          - volume_size           = 8 -> null
          - volume_type           = "gp2" -> null
        }
    }

  # aws_instance.My-Instnace-02[0] will be destroyed
  - resource "aws_instance" "My-Instnace-02" {
      - ami                                  = "ami-03f4878755434977f" -> null
      - arn                                  = "arn:aws:ec2:ap-south-1:637423348062:instance/i-0513ee647c371165f" -> null
      - associate_public_ip_address          = true -> null
      - availability_zone                    = "ap-south-1b" -> null
      - cpu_core_count                       = 2 -> null
```

```
      - availability_zone                      = "ap-south-1b" -> null
      - cpu_core_count                         = 2 -> null
      - cpu_threads_per_core                   = 1 -> null
      - disable_api_stop                       = false -> null
      - disable_api_termination                = false -> null
      - ebs_optimized                          = false -> null
      - get_password_data                      = false -> null
      - hibernation                            = false -> null
      - id                                     = "i-0513ee647c371165f" -> null
      - instance_initiated_shutdown_behavior = "stop" -> null
      - instance_state                         = "running" -> null
      - instance_type                          = "t2.large" -> null
      - ipv6_address_count                     = 0 -> null
      - ipv6_addresses                         = [] -> null
      - monitoring                             = false -> null
      - placement_partition_number             = 0 -> null
      - primary_network_interface_id           = "eni-0561ad241b40cc666" -> null
      - private_dns                            = "ip-172-31-12-140.ap-south-1.compute.internal" -> null
      - private_ip                             = "172.31.12.140" -> null
      - public_dns                             = "ec2-13-235-49-48.ap-south-1.compute.amazonaws.com" -> null
      - public_ip                              = "13.235.49.48" -> null
      - secondary_private_ips                  = [] -> null
      - security_groups                        = [
          - "default",
        ] -> null
      - source_dest_check                      = true -> null
      - subnet_id                              = "subnet-0e5f5e3d310ebacda" -> null
      - tags                                   = {
          - "Name" = "UPES-EC2-Instnace"
        } -> null
      - tags_all                               = {
          - "Name" = "UPES-EC2-Instnace"
        } -> null
      - tenancy                                = "default" -> null
      - user_data_replace_on_change            = false -> null
      - vpc_security_group_ids                 = [
          - "sg-0c6b5aae418c53ba2",
        ] -> null

      - capacity_reservation_specification {
          - capacity_reservation_preference = "open" -> null
        }

      - cpu_options {
          - core_count       = 2 -> null
          - threads_per_core = 1 -> null
        }

      - credit_specification {
          - cpu_credits = "standard" -> null
        }

      - enclave_options {
          - enabled = false -> null
        }
```

```
      - private_dns_name_options {
          - enable_resource_name_dns_a_record    = false -> null
          - enable_resource_name_dns_aaaa_record = false -> null
          - hostname_type                        = "ip-name" -> null
        }

      - root_block_device {
          - delete_on_termination = true -> null
          - device_name           = "/dev/sda1" -> null
          - encrypted             = false -> null
          - iops                  = 100 -> null
          - tags                  = {} -> null
          - throughput            = 0 -> null
          - volume_id             = "vol-0c01d690dac16551f" -> null
          - volume_size           = 8 -> null
          - volume_type           = "gp2" -> null
        }
    }

  # aws_instance.My-Instnace-03[0] will be destroyed
  - resource "aws_instance" "My-Instnace-03" {
      - ami                                  = "ami-03f48787554349774" -> null
      - arn                                  = "arn:aws:ec2:ap-south-1:637423348062:instance/i-019432b41727b66a0" -> null
      - associate_public_ip_address          = true -> null
      - availability_zone                    = "ap-south-1b" -> null
      - cpu_core_count                       = 2 -> null
      - cpu_threads_per_core                 = 1 -> null
      - disable_api_stop                     = false -> null
      - disable_api_termination              = false -> null
      - ebs_optimized                        = false -> null
      - get_password_data                    = false -> null
      - hibernation                          = false -> null
      - id                                   = "i-019432b41727b66a0" -> null
      - instance_initiated_shutdown_behavior = "stop" -> null
      - instance_state                       = "running" -> null
      - instance_type                        = "t2.large" -> null
      - ipv6_address_count                   = 0 -> null
      - ipv6_addresses                       = [] -> null
      - monitoring                           = false -> null
      - placement_partition_number           = 0 -> null
      - primary_network_interface_id         = "eni-052e91421ce8664f2" -> null
      - private_dns                          = "ip-172-31-5-134.ap-south-1.compute.internal" -> null
      - private_ip                           = "172.31.5.134" -> null
      - public_dns                           = "ec2-15-207-114-216.ap-south-1.compute.amazonaws.com" -> null
      - public_ip                            = "15.207.114.216" -> null
      - secondary_private_ips                = [] -> null
      - security_groups                      = [
          - "default",
        ] -> null
      - source_dest_check                    = true -> null
      - subnet_id                            = "subnet-0e5f5e3d310ebacda" -> null
      - tags                                 = {
          - "Name" = "UPES-EC2-Instnace"
        } -> null
      - tags_all                             = {
```

```
      - cpu_options {
          - core_count       = 2 -> null
          - threads_per_core = 1 -> null
        }

      - credit_specification {
          - cpu_credits = "standard" -> null
        }

      - enclave_options {
          - enabled = false -> null
        }

      - maintenance_options {
          - auto_recovery = "default" -> null
        }

      - metadata_options {
          - http_endpoint               = "enabled" -> null
          - http_protocol_ipv6          = "disabled" -> null
          - http_put_response_hop_limit = 1 -> null
          - http_tokens                 = "optional" -> null
          - instance_metadata_tags      = "disabled" -> null
        }

      - private_dns_name_options {
          - enable_resource_name_dns_a_record    = false -> null
          - enable_resource_name_dns_aaaa_record = false -> null
          - hostname_type                        = "ip-name" -> null
        }

      - root_block_device {
          - delete_on_termination = true -> null
          - device_name           = "/dev/sda1" -> null
          - encrypted             = false -> null
          - iops                  = 100 -> null
          - tags                  = {} -> null
          - throughput            = 0 -> null
          - volume_id             = "vol-093a5f5a63c87d1d5" -> null
          - volume_size           = 8 -> null
          - volume_type           = "gp2" -> null
        }
    }

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_instance.My-Instnace-02[0]: Destroying... [id=i-0513ee647c371165f]
aws_instance.My-Instnace-03[0]: Destroying... [id=i-019432b41727b66a0]
aws_instance.My-Instnace-01[0]: Destroying... [id=i-0edc01737ec2fe49a]
```

```
aws_instance.My-Instnace-01[0]: Still destroying... [id=i-0edc01737ec2fe49a, 10s elapsed]
aws_instance.My-Instnace-02[0]: Still destroying... [id=i-0513ee647c371165f, 10s elapsed]
aws_instance.My-Instnace-03[0]: Still destroying... [id=i-019432b41727b66a0, 10s elapsed]
aws_instance.My-Instnace-02[0]: Still destroying... [id=i-0513ee647c371165f, 20s elapsed]
aws_instance.My-Instnace-03[0]: Still destroying... [id=i-019432b41727b66a0, 20s elapsed]
aws_instance.My-Instnace-01[0]: Still destroying... [id=i-0edc01737ec2fe49a, 20s elapsed]
aws_instance.My-Instnace-01[0]: Still destroying... [id=i-0edc01737ec2fe49a, 30s elapsed]
aws_instance.My-Instnace-02[0]: Still destroying... [id=i-0513ee647c371165f, 30s elapsed]
aws_instance.My-Instnace-03[0]: Still destroying... [id=i-019432b41727b66a0, 30s elapsed]
aws_instance.My-Instnace-01[0]: Destruction complete after 31s
aws_instance.My-Instnace-02[0]: Destruction complete after 32s
aws_instance.My-Instnace-03[0]: Destruction complete after 32s

Destroy complete! Resources: 3 destroyed.
```