

School of Computer Science
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
DEHRADUN, UTTARAKHAND



**System Monitoring and Configuration
Management**

Lab File

(2024)

for

6th Semester

Submitted To:

Dr. Hitesh Kumar Sharma

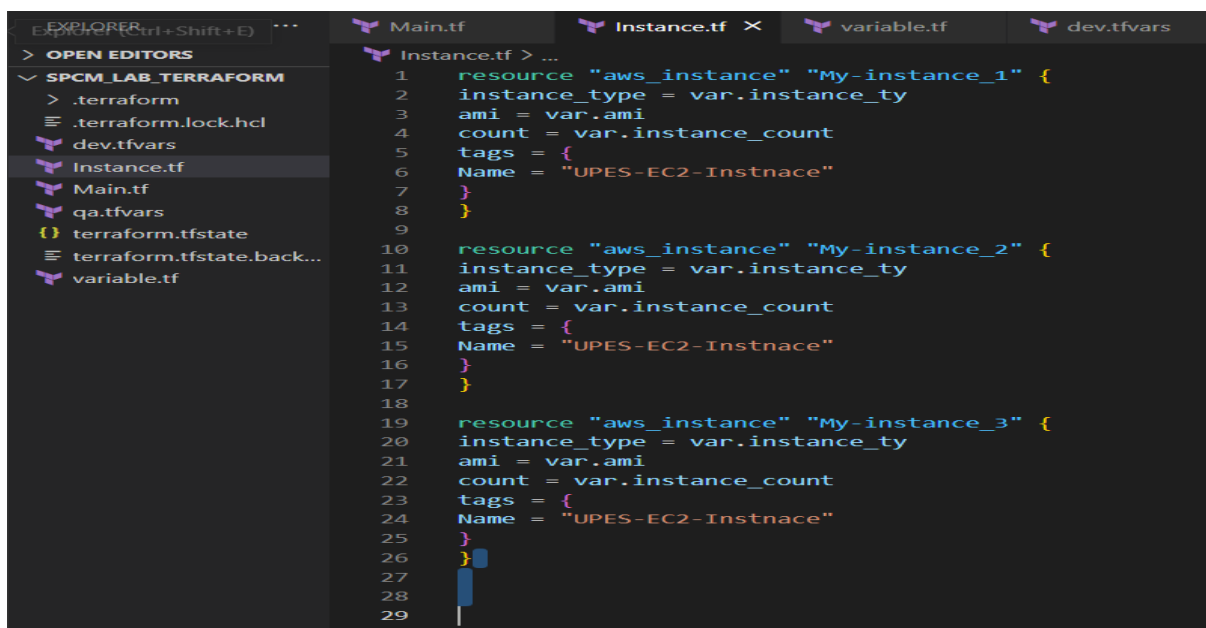
Submitted By:

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B. Tech. CSE DevOps
[6^h Semester]
Sap id- 500091532
Batch 1
R2142210300

LAB EXERCISE 6

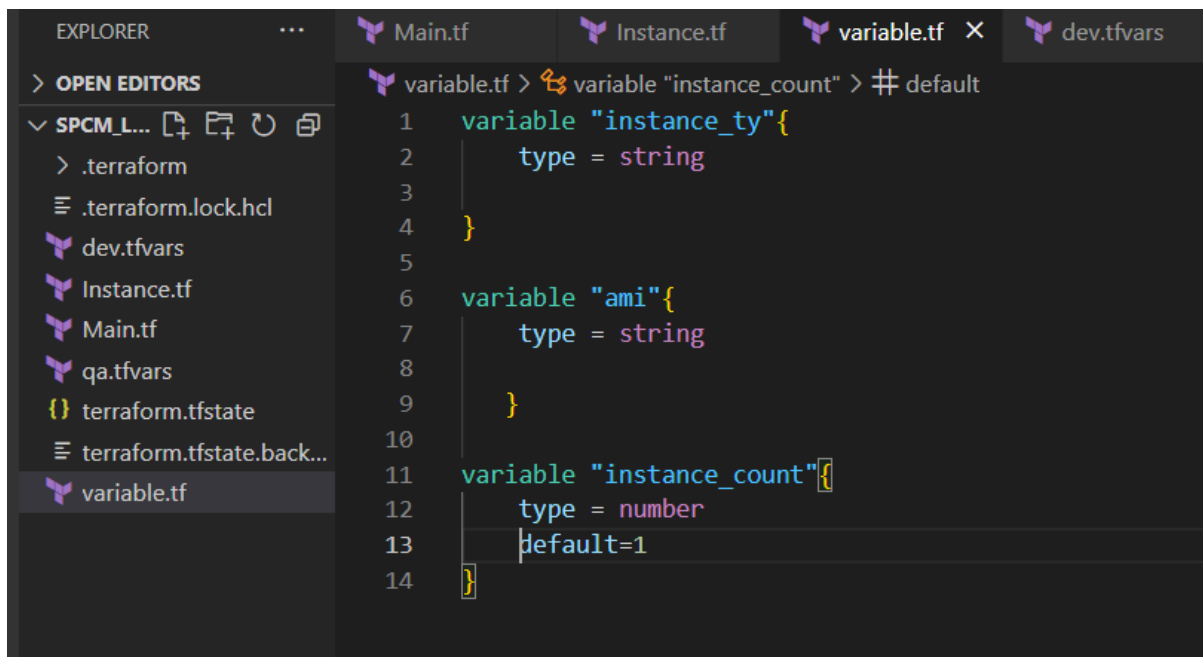
Aim: Terraform Multiple tfvars Files Objective:

Step 1: Create a instance.tf file

A screenshot of the Visual Studio Code editor interface. The Explorer sidebar on the left shows a project named 'SPCM_LAB_TERRAFORM' with files including '.terraform', '.terraform.lock.hcl', 'dev.tfvars', 'Instance.tf', 'Main.tf', 'qa.tfvars', 'terraform.tfstate', 'terraform.tfstate.back...', and 'variable.tf'. The 'Instance.tf' file is selected and its content is displayed in the main editor. The code defines three AWS EC2 instances, each with a unique name and common attributes like instance type, AMI, count, and tags.

```
1 resource "aws_instance" "My-instance_1" {
2   instance_type = var.instance_ty
3   ami = var.ami
4   count = var.instance_count
5   tags = {
6     Name = "UPES-EC2-Instnace"
7   }
8 }
9
10 resource "aws_instance" "My-instance_2" {
11   instance_type = var.instance_ty
12   ami = var.ami
13   count = var.instance_count
14   tags = {
15     Name = "UPES-EC2-Instnace"
16   }
17 }
18
19 resource "aws_instance" "My-instance_3" {
20   instance_type = var.instance_ty
21   ami = var.ami
22   count = var.instance_count
23   tags = {
24     Name = "UPES-EC2-Instnace"
25   }
26 }
27
28
29
```

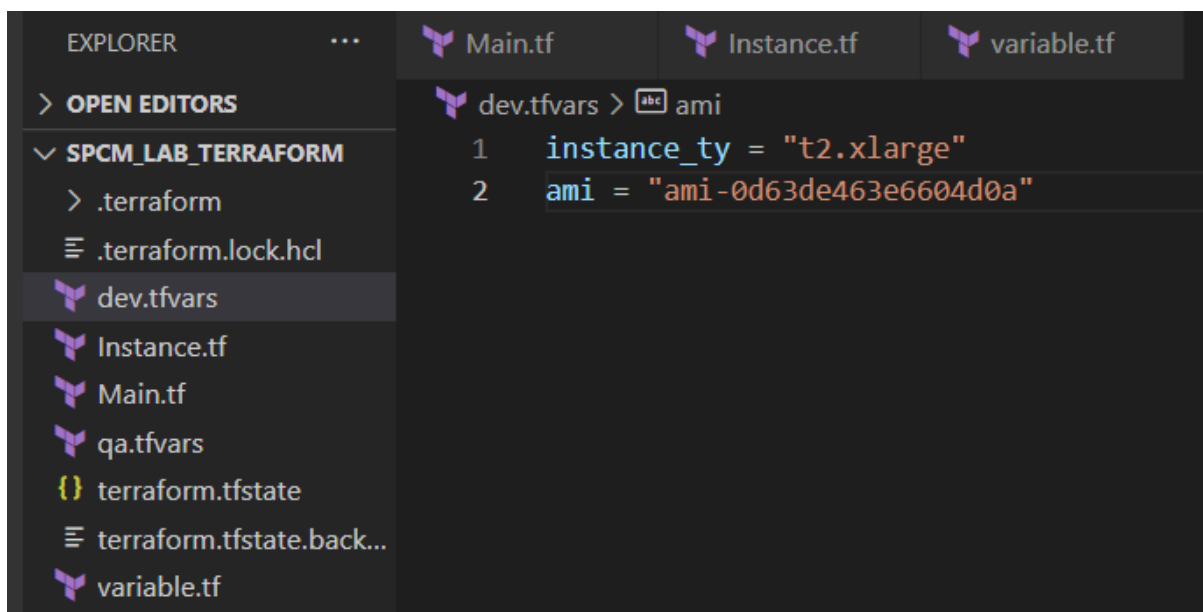
Step 2: Create a variable.tf file



```
variable.tf > variable "instance_count" > # default
1  variable "instance_ty"{
2      type = string
3  }
4
5
6  variable "ami"{
7      type = string
8  }
9
10
11 variable "instance_count"{
12     type = number
13     default=1
14 }
```

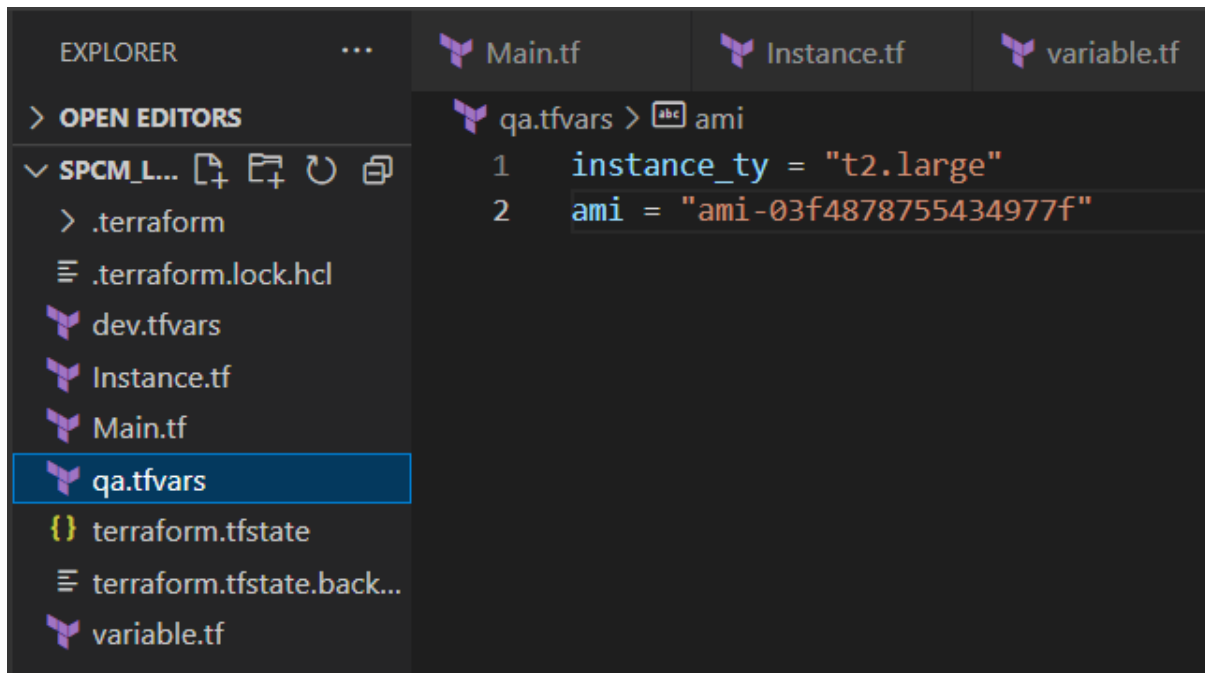
Step 3: Create Multiple tfvars Files:

dev.tfvars



```
dev.tfvars > ami
1  instance_ty = "t2.xlarge"
2  ami = "ami-0d63de463e6604d0a"
```

qa.tfvars



Step 4: Now initializes

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform init
```

```
Initializing the backend...
```

```
Initializing provider plugins...
```

- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v5.31.0

```
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.
```

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform validate
```

```
Success! The configuration is valid.
```

Step 5: Apply for Dev Environment

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform apply -var-file=dev.tfvars
```

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

Terraform will perform the following actions:

```
# aws_instance.My-instance_1[0] will be created
+ resource "aws_instance" "My-instance_1" {
  + ami                    = "ami-0d63de463e6604d0a"
  + 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.xlarge"
  + 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)
  + 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-instance_2[0] will be created
+ resource "aws_instance" "My-instance_2" {
  + ami                    = "ami-0d63de463e6604d0a"
  + 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.xlarge"
  + 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)
  + 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-instance_3[0] will be created
+ resource "aws_instance" "My-instance_3" {
  + ami                    = "ami-0d63de463e6604d0a"
```

```

+ "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-instance_2[0] will be created
+ resource "aws_instance" "My-instance_2" {
+   ami = "ami-0d63de463e6604d0a"
+   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.xlarge"
+   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)
+   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-instance_3[0] will be created
+ resource "aws_instance" "My-instance_3" {
+   ami = "ami-0d63de463e6604d0a"

```

```

aws_instance.My-instance_1[0]: Creating...
aws_instance.My-instance_3[0]: Creating...
aws_instance.My-instance_2[0]: Creating...
aws_instance.My-instance_3[0]: Still creating... [10s elapsed]
aws_instance.My-instance_1[0]: Still creating... [10s elapsed]
aws_instance.My-instance_2[0]: Still creating... [10s elapsed]
aws_instance.My-instance_3[0]: Creation complete after 14s [id=i-0c7c8f277790ae190]
aws_instance.My-instance_1[0]: Creation complete after 17s [id=i-07666f246d189f668]
aws_instance.My-instance_2[0]: Still creating... [20s elapsed]
aws_instance.My-instance_2[0]: Creation complete after 23s [id=i-0224bf2482e03e687]

```

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

aws	Services	Search	[Alt+S]	Mumbai	eksha_mahotra
EC2 Dashboard	Instances (3) Info	Connect	Instance state	Actions	Launch instances
EC2 Global View	Find Instance by attribute or tag (case-sensitive)	Any state	< 1 >		
Events					
▼ Instances					
Instances					
Instance Types					
Launch Templates					
Spot Requests					

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Put
<input type="checkbox"/>	UPES-EC2-Inst...	i-0c7c8f277790ae190	Running	t2.xlarge	Initializing	View alarms +	ap-south-1a	ec2
<input type="checkbox"/>	UPES-EC2-Inst...	i-0224bf2482e03e687	Running	t2.xlarge	Initializing	View alarms +	ap-south-1a	ec2
<input type="checkbox"/>	UPES-EC2-Inst...	i-07666f246d189f668	Running	t2.xlarge	Initializing	View alarms +	ap-south-1a	ec2

Step 6: Destroy Dev Environment

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform destroy -var-file=dev.tfvars
aws_instance.My-instance_3[0]: Refreshing state... [id=i-0c7c8f277790ae190]
aws_instance.My-instance_1[0]: Refreshing state... [id=i-07666f246d189f668]
aws_instance.My-instance_2[0]: Refreshing state... [id=i-0224bf2482e03e687]

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-instance_1[0] will be destroyed
- resource "aws_instance" "My-instance_1" {
  - ami                               = "ami-0d63de463e6604d0a" -> null
  - arn                               = "arn:aws:ec2:ap-south-1:637423348062:instance/i-07666f246d189f668" -> null
  - associate_public_ip_address      = true -> null
  - availability_zone                 = "ap-south-1a" -> null
  - cpu_core_count                    = 4 -> 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-07666f246d189f668" -> null
  - instance_initiated_shutdown_behavior = "stop" -> null
  - instance_state                    = "running" -> null
  - instance_type                     = "t2.xlarge" -> null
  - ipv6_address_count                = 0 -> null
  - ipv6_addresses                    = [] -> null
  - monitoring                        = false -> null
  - placement_partition_number        = 0 -> null
  - primary_network_interface_id      = "eni-092f1b4b8b39306b9" -> null
  - private_dns                       = "ip-172-31-35-201.ap-south-1.compute.internal" -> null
  - private_ip                        = "172.31.35.201" -> null
  - public_dns                        = "ec2-13-201-126-199.ap-south-1.compute.amazonaws.com" -> null
  - public_ip                         = "13.201.126.199" -> null
  - secondary_private_ips              = [] -> null
  - security_groups                    = [
    - "default",
  ] -> null
  - source_dest_check                  = true -> null
  - subnet_id                         = "subnet-0fb95688eaa188f7d" -> 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      = 4 -> 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 = 2 -> null
  - http_tokens        = "required" -> 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/xvda" -> null
  - encrypted             = false -> null
  - iops                  = 3000 -> null
  - tags                  = {} -> null
  - throughput            = 125 -> null
  - volume_id             = "vol-0eb890ee6d0eb8c4a" -> null
  - volume_size           = 8 -> null
  - volume_type           = "gp3" -> null
}

```



```

    }
}

# aws_instance.My-instance_2[0] will be destroyed
- resource "aws_instance" "My-instance_2" {
  - ami = "ami-0d63de463e6604d0a" -> null
  - arn = "arn:aws:ec2:ap-south-1:637423348062:instance/i-0224bf2482e03e687" -> null
  - associate_public_ip_address = true -> null
  - availability_zone = "ap-south-1a" -> null
  - cpu_core_count = 4 -> 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-0224bf2482e03e687" -> null
  - instance_initiated_shutdown_behavior = "stop" -> null
  - instance_state = "running" -> null
  - instance_type = "t2.xlarge" -> null
  - ipv6_address_count = 0 -> null
  - ipv6_addresses = [] -> null
  - monitoring = false -> null
  - placement_partition_number = 0 -> null
  - primary_network_interface_id = "eni-0092d5b00b8d6fb49" -> null
  - private_dns = "ip-172-31-34-41.ap-south-1.compute.internal" -> null
  - private_ip = "172.31.34.41" -> null
  - public_dns = "ec2-13-232-252-248.ap-south-1.compute.amazonaws.com" -> null
  - public_ip = "13.232.252.248" -> null
  - secondary_private_ips = [] -> null
  - security_groups = [
    - "default",
  ] -> null
  - source_dest_check = true -> null
  - subnet_id = "subnet-0fb95688eaa188f7d" -> 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
  }
}

```

```

    - "sg-0c6b5aae418c53ba2",
  ] -> null

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

  - cpu_options {
    - core_count = 4 -> 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 = 2 -> null
    - http_tokens = "required" -> 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/xvda" -> null
    - encrypted = false -> null
    - iops = 3000 -> null
    - tags = {} -> null
    - throughput = 125 -> null
    - volume_id = "vol-05ebf10ee25f7df75" -> null
    - volume_size = 8 -> null
    - volume_type = "gp3" -> null
  }
}

```

```

}

# aws_instance.My-instance_3[0] will be destroyed
- resource "aws_instance" "My-instance_3" {
  - ami = "ami-0d63de463e6604d0a" -> null
  - arn = "arn:aws:ec2:ap-south-1:637423348062:instance/i-0c7c8f277790ae190" -> null
  - associate_public_ip_address = true -> null
  - availability_zone = "ap-south-1a" -> null
  - cpu_core_count = 4 -> 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-0c7c8f277790ae190" -> null
  - instance_initiated_shutdown_behavior = "stop" -> null
  - instance_state = "running" -> null
  - instance_type = "t2.xlarge" -> null
  - ipv6_address_count = 0 -> null
  - ipv6_addresses = [] -> null
  - monitoring = false -> null
  - placement_partition_number = 0 -> null
  - primary_network_interface_id = "eni-01c0adddb4f13e45f" -> null
  - private_dns = "ip-172-31-39-226.ap-south-1.compute.internal" -> null
  - private_ip = "172.31.39.226" -> null
  - public_dns = "ec2-13-201-51-85.ap-south-1.compute.amazonaws.com" -> null
  - public_ip = "13.201.51.85" -> null
  - secondary_private_ips = [] -> null
  - security_groups = [
    - "default",
  ] -> null
  - source_dest_check = true -> null
  - subnet_id = "subnet-0fb95688eaa188f7d" -> 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
  }
}

```

```

  - core_count = 4 -> 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 = 2 -> null
  - http_tokens = "required" -> 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/xvda" -> null
  - encrypted = false -> null
  - iops = 3000 -> null
  - tags = {} -> null
  - throughput = 125 -> null
  - volume_id = "vol-094b704f3be5d5220" -> null
  - volume_size = 8 -> null
  - volume_type = "gp3" -> 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

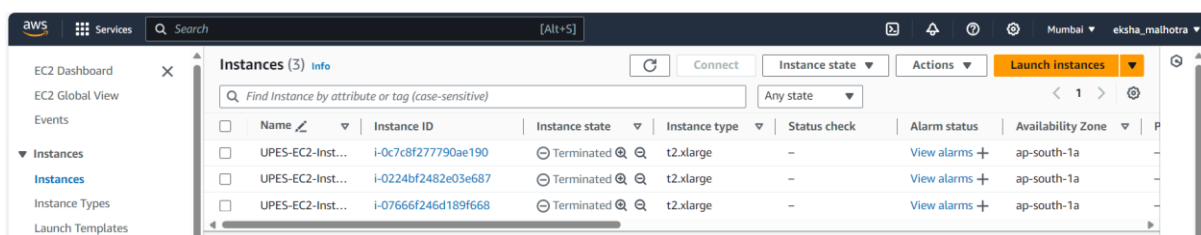
```

```

aws_instance.My-instance_3[0]: Destroying... [id=i-0c7c8f277790ae190]
aws_instance.My-instance_2[0]: Destroying... [id=i-0224bf2482e03e687]
aws_instance.My-instance_1[0]: Destroying... [id=i-07666f246d189f668]
aws_instance.My-instance_1[0]: Still destroying... [id=i-07666f246d189f668, 10s elapsed]
aws_instance.My-instance_2[0]: Still destroying... [id=i-0224bf2482e03e687, 10s elapsed]
aws_instance.My-instance_3[0]: Still destroying... [id=i-0c7c8f277790ae190, 10s elapsed]
aws_instance.My-instance_2[0]: Still destroying... [id=i-0224bf2482e03e687, 21s elapsed]
aws_instance.My-instance_3[0]: Still destroying... [id=i-0c7c8f277790ae190, 21s elapsed]
aws_instance.My-instance_1[0]: Still destroying... [id=i-07666f246d189f668, 21s elapsed]
aws_instance.My-instance_3[0]: Still destroying... [id=i-0c7c8f277790ae190, 31s elapsed]
aws_instance.My-instance_2[0]: Still destroying... [id=i-0224bf2482e03e687, 31s elapsed]
aws_instance.My-instance_1[0]: Still destroying... [id=i-07666f246d189f668, 31s elapsed]
aws_instance.My-instance_2[0]: Destruction complete after 32s
aws_instance.My-instance_3[0]: Destruction complete after 32s
aws_instance.My-instance_1[0]: Destruction complete after 32s

```

Destroy complete! Resources: 3 destroyed.



Step 7: Apply for Qa Environment

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform apply -var-file=qa.tfvars
```

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

Terraform will perform the following actions:

```

# aws_instance.My-instance_1[0] will be created
+ resource "aws_instance" "My-instance_1" {
  + ami                    = "ami-03f4878755434977f"
  + 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)
  + 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-instance_2[0] will be created
+ resource "aws_instance" "My-instance_2" {
  + ami = "ami-03f4878755434977f"
  + 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)
  + 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"
  }
}

```

```

+ 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-instance_3[0] will be created
+ resource "aws_instance" "My-instance_3" {
  + ami                    = "ami-03f4878755434977f"
  + 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)
  + 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)
}

```

```

+ 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)
}

```

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-instance_1[0]: Creating...
aws_instance.My-instance_2[0]: Creating...
aws_instance.My-instance_3[0]: Creating...
aws_instance.My-instance_3[0]: Still creating... [10s elapsed]
aws_instance.My-instance_2[0]: Still creating... [10s elapsed]
aws_instance.My-instance_1[0]: Still creating... [10s elapsed]
aws_instance.My-instance_2[0]: Creation complete after 18s [id=i-0bd87cae8f08e5266]
aws_instance.My-instance_1[0]: Still creating... [20s elapsed]
aws_instance.My-instance_3[0]: Still creating... [20s elapsed]
aws_instance.My-instance_3[0]: Creation complete after 23s [id=i-02656e705a096951b]
aws_instance.My-instance_1[0]: Creation complete after 24s [id=i-06c77fb7854044392]

```

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

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
UPES-EC2-Inst...	i-0c7c8f277790ae190	Terminated	t2.xlarge	-	View alarms +	ap-south-1a	-
UPES-EC2-Inst...	i-0224bf2482e03e687	Terminated	t2.xlarge	-	View alarms +	ap-south-1a	-
UPES-EC2-Inst...	i-07666f246d189f668	Terminated	t2.xlarge	-	View alarms +	ap-south-1a	-
UPES-EC2-Inst...	i-06c77fb7854044392	Running	t2.xlarge	Initializing	View alarms +	ap-south-1b	ec2
UPES-EC2-Inst...	i-0bd87cae8f08e5266	Running	t2.large	Initializing	View alarms +	ap-south-1b	ec2
UPES-EC2-Inst...	i-02656e705a096951b	Running	t2.large	Initializing	View alarms +	ap-south-1b	ec2

Step 8: Destroy for Qa Environment

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform destroy -var-file=qa.tfvars
aws_instance.My-instance_3[0]: Refreshing state... [id=i-02656e705a096951b]
aws_instance.My-instance_1[0]: Refreshing state... [id=i-06c77fb7854044392]
aws_instance.My-instance_2[0]: Refreshing state... [id=i-0bd87cae8f08e5266]

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-instance_1[0] will be destroyed
- resource "aws_instance" "My-instance_1" {
  - ami                    = "ami-03f40878755434977f" -> null
  - arn                   = "arn:aws:ec2:ap-south-1:637423348062:instance/i-06c77fb7854044392" -> 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-06c77fb7854044392" -> 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-010cd9a787ae74d6b" -> null
  - private_dns             = "ip-172-31-0-9.ap-south-1.compute.internal" -> null
  - private_ip              = "172.31.0.9" -> null
  - public_dns              = "ec2-3-109-122-109.ap-south-1.compute.amazonaws.com" -> null
  - public_ip               = "3.109.122.109" -> 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 {
```



```

- 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-0634da595e19b341c" -> null
  - volume_size           = 8 -> null
  - volume_type           = "gp2" -> null
}
}

# aws_instance.My-instance_2[0] will be destroyed
- resource "aws_instance" "My-instance_2" {

```



```

}

# aws_instance.My-instance_2[0] will be destroyed
- resource "aws_instance" "My-instance_2" {
  - ami = "ami-03f4878755434977f" -> null
  - arn = "arn:aws:ec2:ap-south-1:637423348062:instance/i-0bd87cae8f08e5266" -> 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-0bd87cae8f08e5266" -> 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-00149d125eaa4e34c" -> null
  - private_dns = "ip-172-31-3-20.ap-south-1.compute.internal" -> null
  - private_ip = "172.31.3.20" -> null
  - public_dns = "ec2-13-127-101-41.ap-south-1.compute.amazonaws.com" -> null
  - public_ip = "13.127.101.41" -> 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 {

```

```

- 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-0afbbb2fbd6ece80d" -> null
-   volume_size            = 8 -> null
-   volume_type            = "gp2" -> null
}
}

# aws_instance.My-instance_3[0] will be destroyed
- resource "aws_instance" "My-instance_3" {
-   ami              = "ami-03f4878755434977f" -> null
-   arn              = "arn:aws:ec2:ap-south-1:637423348062:instance/i-02656e705a096951b" -> 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

```

```

- 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-015d5dca14a82d6a5" -> null
- private_dns                        = "ip-172-31-2-204.ap-south-1.compute.internal" -> null
- private_ip                         = "172.31.2.204" -> null
- public_dns                         = "ec2-3-108-234-86.ap-south-1.compute.amazonaws.com" -> null
- public_ip                         = "3.108.234.86" -> 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
}

```

```

}

- 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-010656a1835c8dbff" -> 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-instance_2[0]: Destroying... [id=i-0bd87cae8f08e5266]
aws_instance.My-instance_3[0]: Destroying... [id=i-02656e705a096951b]
aws_instance.My-instance_1[0]: Destroying... [id=i-06c77fb7854044392]
aws_instance.My-instance_1[0]: Still destroying... [id=i-06c77fb7854044392, 10s elapsed]
aws_instance.My-instance_3[0]: Still destroying... [id=i-02656e705a096951b, 10s elapsed]
aws_instance.My-instance_2[0]: Still destroying... [id=i-0bd87cae8f08e5266, 10s elapsed]
aws_instance.My-instance_2[0]: Still destroying... [id=i-0bd87cae8f08e5266, 20s elapsed]
aws_instance.My-instance_3[0]: Still destroying... [id=i-02656e705a096951b, 20s elapsed]
aws_instance.My-instance_1[0]: Still destroying... [id=i-06c77fb7854044392, 20s elapsed]
aws_instance.My-instance_2[0]: Still destroying... [id=i-0bd87cae8f08e5266, 30s elapsed]
aws_instance.My-instance_1[0]: Still destroying... [id=i-06c77fb7854044392, 30s elapsed]
aws_instance.My-instance_3[0]: Still destroying... [id=i-02656e705a096951b, 30s elapsed]
aws_instance.My-instance_2[0]: Destruction complete after 33s
aws_instance.My-instance_1[0]: Destruction complete after 33s
aws_instance.My-instance_3[0]: Destruction complete after 33s

```

Destroy complete! Resources: 3 destroyed.

Instances (6) Info								
Find Instance by attribute or tag (case-sensitive)								
	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	
<input type="checkbox"/>	UPES-EC2-Inst...	i-0c7c8f27790ae190	Terminated	t2.xlarge	-	View alarms	ap-south-1a	
<input type="checkbox"/>	UPES-EC2-Inst...	i-0224bf2482e03e687	Terminated	t2.xlarge	-	View alarms	ap-south-1a	
<input type="checkbox"/>	UPES-EC2-Inst...	i-07666f246d189f668	Terminated	t2.xlarge	-	View alarms	ap-south-1a	
<input type="checkbox"/>	UPES-EC2-Inst...	i-06c77fb7854044392	Terminated	t2.large	-	View alarms	ap-south-1b	
<input type="checkbox"/>	UPES-EC2-Inst...	i-0bd87cae8f08e5266	Terminated	t2.large	-	View alarms	ap-south-1b	
<input type="checkbox"/>	UPES-EC2-Inst...	i-02656e705a096951b	Terminated	t2.large	-	View alarms	ap-south-1b	