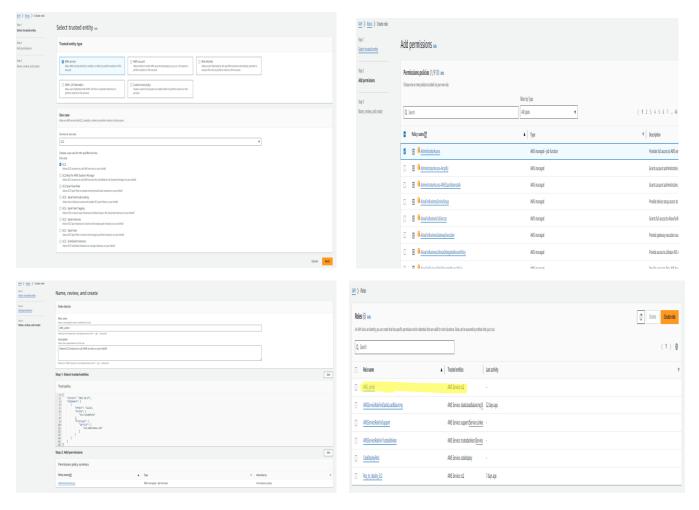
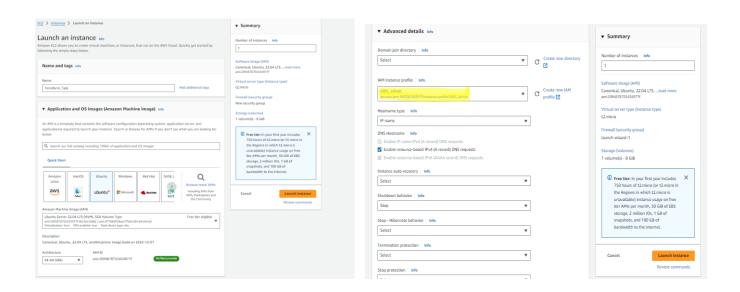
Write Terraform script to create highly available infrastructure in AWS. The infra should have1 vpc, 3 subnets setup in 3 different az and 2 instances setup in 2 different subnets

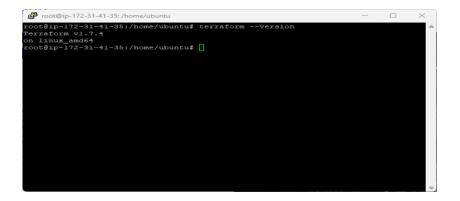
Step1: Creating the Roles for Terraform instance:



Step 2: Creating the Ec2 Instance with New Role.



Step 3: Updating the Instance and installation Terraform:



Step 4: Create a new .tf file in a new directory & wirte the Terraform code:

Step 5: Run the terraform init command inside the directory:

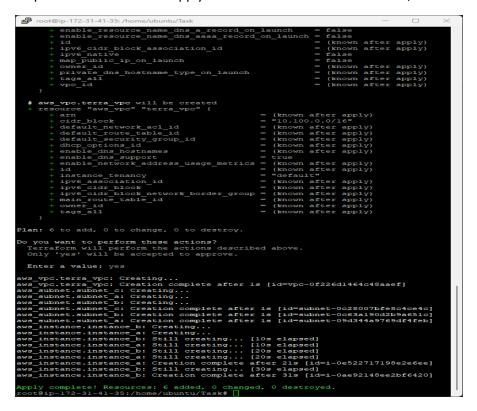
Step 6: Run the terraform plan command inside the directory:

```
root@ip-172-31-41-35: /home/ubuntu/Task
                                                                       proot@ip-172-31-41-35: /home/ubuntu/Task
                                                                                                                                                             oot@ip-172-31-41-35:/home/ubuntu/Task# terraform plan
                                                                                             enable_dns64
                                                                                           + enable resource name dns a record on launch
                                                                                                                                            = false
                                                                                           + enable_resource_name_dns_aaaa_record_on_launch = false
Terraform used the selected providers to generate the following execution plan.
Resource actions are indicated with the following symbols:
                                                                                                                                            = (known after apply)
                                                                                           + ipv6_cidr_block_association_id
                                                                                                                                            = (known after apply)
                                                                                           + ipv6 native
Gerraform will perform the following actions:
                                                                                           + map_public_ip_on_launch
                                                                                                                                            = (known after apply)
                                                                                           + owner id
                                                                                           + private_dns_hostname_type_on_launch
                                                                                                                                            = (known after apply)
 # aws_instance.instance_a will be created
                                                                                                                                            = (known after apply)
  + resource "aws instance" "instance a" {
                                                                                           + tags all
                                            = "ami-03f4878755434977f"
                                                                                           + vpc id
                                                                                                                                            = (known after apply)
                                            = (known after apply)
     + arn
      + associate_public_ip_address
                                           = (known after apply)
     + availability_zone
                                           = (known after apply)
                                                                                       # aws_subnet.subnet_c will be created
                                           = (known after apply)
                                                                                       + resource "aws_subnet" "subnet_c" {
                                           = (known after apply)
     + cpu threads per core
                                                                                                                                            = (known after apply)
     + disable_api_stop
                                           = (known after apply)
                                                                                           + assign_ipv6_address_on_creation
      + disable_api_termination
                                           = (known after apply)
                                                                                                                                            = "ap-south-lc"
                                                                                           + availability_zone
     + ebs_optimized
                                           = (known after apply)
                                                                                           + availability_zone_id
                                                                                                                                            = (known after apply)
                                                                                                                                            = "10.100.3.0/24"
      + get_password_data
                                                                                           + cidr_block
                                           = (known after apply)
     + host id
                                                                                           + enable dns64
                                                                                                                                            = false
                                           = (known after apply)
                                                                                           + enable_resource_name_dns_a record_on_launch = false
+ enable_resource_name_dns_aaaa_record_on_launch = false
                                                                                                                                           = false
     + host_resource_group_arn
                                           = (known after apply)
     + iam instance profile
                                           = (known after apply)
                                                                                                                                            = (known after apply)
                                                                                                                                            = (known after apply)
      + instance initiated shutdown behavior = (known after apply)
                                                                                           + ipv6_cidr_block_association_id
                                          = (known after apply)
                                                                                           + ipv6 native
     + instance lifecycle
                                           = (known after apply)
                                                                                                                                            = false
     + instance_state
                                                                                           + map_public_ip_on_launch
                                                                                                                                            = (known after apply)
     + instance_type
                                                                                           + owner id
     + ipv6 address count
                                           = (known after apply)
                                                                                           + private dns hostname type on launch
                                                                                                                                            = (known after apply)
                                           = (known after apply)
      + ipv6 addresses
                                                                                           + tags all
                                                                                                                                            = (known after apply)
                                           = (known after apply)
                                                                                                                                            = (known after apply)
                                                                                           + vpc_id
     + key name
                                           = (known after apply)
     + monitoring
                                           = (known after apply)
      + outpost_arn
      + password data
                                           = (known after apply)
                                                                                       # aws vpc.terra vpc will be created
     + placement_group
+ placement_partition_number
                                           = (known after apply)
                                                                                       + resource "aws_vpc" "terra_vpc" {
                                           = (known after apply)
                                                                                           + arn
                                                                                                                                  = (known after apply)
                                           = (known after apply)
       primary_network_interface_id
                                                                                           + cidr block
                                                                                                                                  = "10.100.0.0/16"
                                           = (known after apply)
       private dns
                                                                                           + default_network_acl_id
                                                                                                                                  = (known after apply)
                                           = (known after apply)
                                                                                           + default route table id
                                                                                                                                 = (known after apply)
      + private ip
                                           = (known after apply)
                                                                                           + default_security_group_id
                                                                                                                                  = (known after apply)
     + public dns
                                           = (known after apply)
                                                                                           + dhcp_options_id
                                                                                                                                  = (known after apply)
      + public_ip
                                                                                                                                  = (known after apply)
     + secondary_private_ips
                                           = (known after apply)
                                                                                           + enable_dns_hostnames
      + security_groups
                                           = (known after apply)
                                                                                           + enable_dns_support
     + source dest check
                                                                                           + enable_network_address_usage_metrics = (known after apply)
                                           = (known after apply)
                                                                                                                                 = (known after apply)
     + spot instance request id
                                                                                           + id
                                           = (known after apply)
                                                                                          + instance_tenancy
                                                                                                                                 = "default"
      + subnet id
                                           = (known after apply)
     + tags_all
                                                                                          + ipv6_association_id
                                                                                                                                 = (known after apply)
                                           = (known after apply)
                                                                                                                                  = (known after apply)
                                                                                           + ipv6_cidr_block
                                                                                           + ipv6_cidr_block_network_border_group = (known after apply)
                                            = (known after apply)
      + user data
                                            = (known after apply)
                                                                                                                                 = (known after apply)
                                                                                           + main_route_table_id
      + user_data_base64
                                                                                                                                 = (known after apply)
       user data replace on change
                                                                                           + owner id
       vpc security group ids
                                           = (known after apply)
                                                                                           + tags_all
                                                                                                                                  = (known after apply)
  # aws_instance.instance_b will be created
                                                                                     Plan: 6 to add, 0 to change, 0 to destroy.
   resource "aws instance" "instance b" {
                                            = "ami-03f4878755434977f"
     + ami
                                            = (known after apply)
      + associate_public_ip_address
                                            = (known after apply)
                                                                                     Note: You didn't use the -out option to save this plan, so Terraform can't
                                            = (known after apply)
                                                                                     guarantee to take exactly these actions if you run "terraform apply" now.

    availability_zone

       cpu core count
                                            = (known after apply)
                                                                                      oot@ip-172-31-41-35:/home/ubuntu/Task#
```

Step 7: Run the Terraform apply command to create the new VPN , Subnets & Instances.



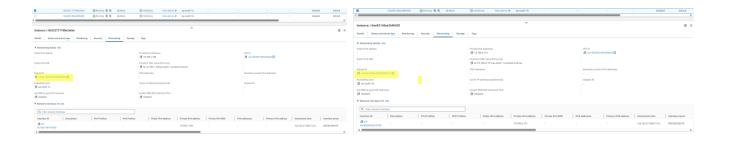
New VPC created.



Three new subnets created in three different AZ.



Two Instance created in two different subnets.



```
root@ip-172-31-41-35: /home/ubuntu/Task
                                                                               \times
                                                                          # aws vpc.terra vpc will be destroyed
    resource "aws_vpc" "terra_vpc" {
                                             = "arn:aws:ec2:ap-south-1:992382583
       arn
979:vpc/vpc-0f226d1464c48aaef" -> null
      assign_generated_ipv6_cidr_block
                                             = false -> null
                                             = "10.100.0.0/16" -> null
       cidr block
       default_network_acl_id
                                             = "acl-0dd9e6363b0e69393" -> null
                                             = "rtb-0e2ca528a46690982" -> null
       default_route_table_
                                             = "sg-07b85d790d75fb96a" -> null
       default security group id
      - dhcp_options_id
                                             = "dopt-02fda6f4a10c93e18" -> null
      - enable dns hostnames
                                             = false -> null
                                             = true -> null
      - enable dns support
      - enable network address usage metrics = false -> null
                                             = "vpc-0f226d1464c48aaef" -> null
                                              = "default" -> null
      - instance tenancy

    ipv6 netmask length

      - main route table id
                                             = "rtb-0e2ca528a46690982" -> null
                                             = "992382583979" -> null
      - owner id
      tags
       tags_all
Plan: 0 to add, 0 to change, 6 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.instance_a: Destroying... [id=i-0e522717198e2e6ee]
aws_instance.instance_b: Destroying... [id=i-0ae92148ee2bf6420]
aws_subnet.subnet_c: Destroying... [id=subnet-0c28007bfe8c4ce4c]
aws subnet.subnet c: Destruction complete after 0s
aws instance.instance a: Still destroying... [id=i-0e522717198e2e6ee, 10s elapse
d1
aws instance.instance b: Still destroying... [id=i-0ae92148ee2bf6420, 10s elapse
d]
aws instance.instance a: Still destroying... [id=i-0e522717198e2e6ee, 20s elapse
d]
aws instance.instance b: Still destroying... [id=i-0ae92148ee2bf6420, 20s elapse
d]
aws instance.instance a: Still destroying... [id=i-0e522717198e2e6ee, 30s elapse
d]
aws instance.instance b: Still destroying... [id=i-0ae92148ee2bf6420, 30s elapse
d]
aws instance.instance b: Destruction complete after 40s
aws subnet.subnet b: Destroying... [id=subnet-0c63a190d2b9a651c]
aws instance.instance a: Still destroying... [id=i-0e522717198e2e6ee, 40s elapse
d]
aws subnet.subnet b: Destruction complete after 0s
aws instance.instance a: Still destroying... [id=i-0e522717198e2e6ee, 50s elapse
d]
aws instance.instance a: Destruction complete after 50s
aws_subnet.subnet_a: Destroying... [id=subnet-09d344a9769df4feb]
aws subnet.subnet a: Destruction complete after 0s
aws_vpc.terra_vpc: Destroying... [id=vpc-0f226d1464c48aaef]
aws vpc.terra vpc: Destruction complete after ls
Destroy complete! Resources: 6 destroyed.
root@ip-172-31-41-35:/home/ubuntu/Task#
```