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Registration number:

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Submitted To

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LAB 15

Lab Project – Terraform + Ansible Roles: Nginx Frontend with 3 Backend HTTPD Servers (HA + Auto-Config)

```
@Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ terraform init
Initializing provider plugins...
- Finding latest version of hashicorp/local...
- Finding latest version of hashicorp/null...
- Finding latest version of hashicorp/http...
- Finding hashicorp/aws versions matching "~> 5.0"...
- Installing hashicorp/local v2.6.1...
- Installed hashicorp/local v2.6.1 (signed by HashiCorp)
- Installing hashicorp/null v3.2.4...
- Installed hashicorp/null v3.2.4 (signed by HashiCorp)
- Installing hashicorp/http v3.5.0...
- Installed hashicorp/http v3.5.0 (signed by HashiCorp)
- Installing hashicorp/aws v5.100.0...
- Installed hashicorp/aws v5.100.0 (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.

```
@Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $
```

```
@Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ terraform apply -auto-approve
null_resource.ansible_trigger (local-exec): ok: [100.48.6.169]

null_resource.ansible_trigger (local-exec): PLAY RECAP ****
null_resource.ansible_trigger (local-exec): 100.48.6.169 : ok=4    changed=0    unreachable=0    failed=0
null_resource.ansible_trigger (local-exec): 100.52.209.59 : ok=4    changed=0    unreachable=0    failed=0
null_resource.ansible_trigger (local-exec): 13.220.148.146 : ok=4    changed=0    unreachable=0    failed=0
null_resource.ansible_trigger (local-exec): 44.222.236.121 : ok=4    changed=0    unreachable=0    failed=0

null_resource.ansible_trigger: Creation complete after 2m2s [id=6832346895965874821]

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

Outputs:

```
backend_public_ips = [
  "100.52.209.59",
  "13.220.148.146",
  "44.222.236.121",
]
frontend_public_ip = "100.48.6.169"
frontend_url = "http://100.48.6.169"
```

```
@Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $
```

< > ⌂

⚠ Not secure 100.48.6.169

Backend Response

Serving from Host: 100.52.209.59

Private IP: 10.0.1.60

< > ⌂

⚠ Not secure 100.48.6.169

Backend Response

Serving from Host: 13.220.148.146

Private IP: 10.0.1.252

< > ⌂

⚠ Not secure 100.48.6.169

Backend Response

Serving from Host: 44.222.236.121

Private IP: 10.0.1.71

```
● @Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ terraform output frontend_url  
"http://100.48.6.169"  
○ @Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ █
```

```
● @Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ terraform output backend_public_ips  
[  
  "100.52.209.59",  
  "13.220.148.146",  
  "44.222.236.121",  
]  
○ @Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ █
```

```
@Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ tree -I ".git|.terraform"
```

```
ansible  
├── ansible.cfg  
├── inventory  
│   └── hosts  
├── inventory.tftpl  
├── playbooks  
│   └── site.yaml  
└── roles  
    ├── backend  
    │   ├── handlers  
    │   │   └── main.yml  
    │   ├── tasks  
    │   │   └── main.yml  
    │   └── templates  
    │       └── backend_index.html.j2  
    ├── frontend  
    │   ├── handlers  
    │   │   └── main.yml  
    │   ├── tasks  
    │   │   └── main.yml  
    │   └── templates  
    │       └── nginx_frontend.conf.j2  
    └── locals.tf  
    └── main.tf  
modules  
└── subnet  
    ├── main.tf  
    ├── outputs.tf  
    └── variables.tf  
outputs.tf  
screenshots  
terraform.tfstate  
terraform.tfstate.backup  
terraform.tfvars  
variables.tf
```

```
16 directories, 20 files
```

```
○ @Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ █
```

```
@Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) $ terraform destroy
aws_route_table_association.public_rt_assoc: Destroying... [id=rtbassoc-0f2a52d6018512ee7]
aws_instance.backend[2]: Destroying... [id=i-0757353786c8a03ea]
aws_instance.backend[0]: Destroying... [id=i-033f6d9961d4b57ef]
aws_route_table_association.public_rt_assoc: Destruction complete after 1s
aws_route_table.public_rt: Destroying... [id=rtb-08dfbc457d9c387b9]
aws_route_table.public_rt: Destruction complete after 1s
aws_internet_gateway.igw: Destroying... [id=igw-01939fcfad0157a0b]
aws_instance.backend[2]: Still destroying... [id=i-0757353786c8a03ea, 00m10s elapsed]
aws_instance.backend[0]: Still destroying... [id=i-033f6d9961d4b57ef, 00m10s elapsed]
aws_internet_gateway.igw: Still destroying... [id=igw-01939fcfad0157a0b, 00m10s elapsed]
aws_instance.backend[2]: Still destroying... [id=i-0757353786c8a03ea, 00m20s elapsed]
aws_instance.backend[0]: Still destroying... [id=i-033f6d9961d4b57ef, 00m20s elapsed]
aws_internet_gateway.igw: Still destroying... [id=igw-01939fcfad0157a0b, 00m20s elapsed]
aws_instance.backend[2]: Still destroying... [id=i-0757353786c8a03ea, 00m30s elapsed]
aws_instance.backend[0]: Still destroying... [id=i-033f6d9961d4b57ef, 00m30s elapsed]
aws_internet_gateway.igw: Still destroying... [id=igw-01939fcfad0157a0b, 00m30s elapsed]
aws_instance.backend[0]: Destruction complete after 33s
aws_internet_gateway.igw: Destruction complete after 31s
aws_instance.backend[2]: Still destroying... [id=i-0757353786c8a03ea, 00m40s elapsed]
aws_instance.backend[2]: Destruction complete after 43s
aws_security_group.web_sg: Destroying... [id=sg-0ffd399c661e4e2c6]
aws_key_pair.ssh_key: Destroying... [id=lab-project-key]
module.subnet.aws_subnet.public: Destroying... [id=subnet-0f5996650c3b7157e]
aws_key_pair.ssh_key: Destruction complete after 0s
module.subnet.aws_subnet.public: Destruction complete after 1s
aws_security_group.web_sg: Destruction complete after 1s
aws_vpc.main: Destroying... [id=vpc-073f99151ca40add0]
aws_vpc.main: Destruction complete after 1s

Destroy complete! Resources: 9 destroyed.
```

○ @Zaheena1 → /workspaces/cc_ZaheenaAnwar_070/LabProject_FrontendBackend (main) \$