WitZeal - DevOps Engineer - Assessment

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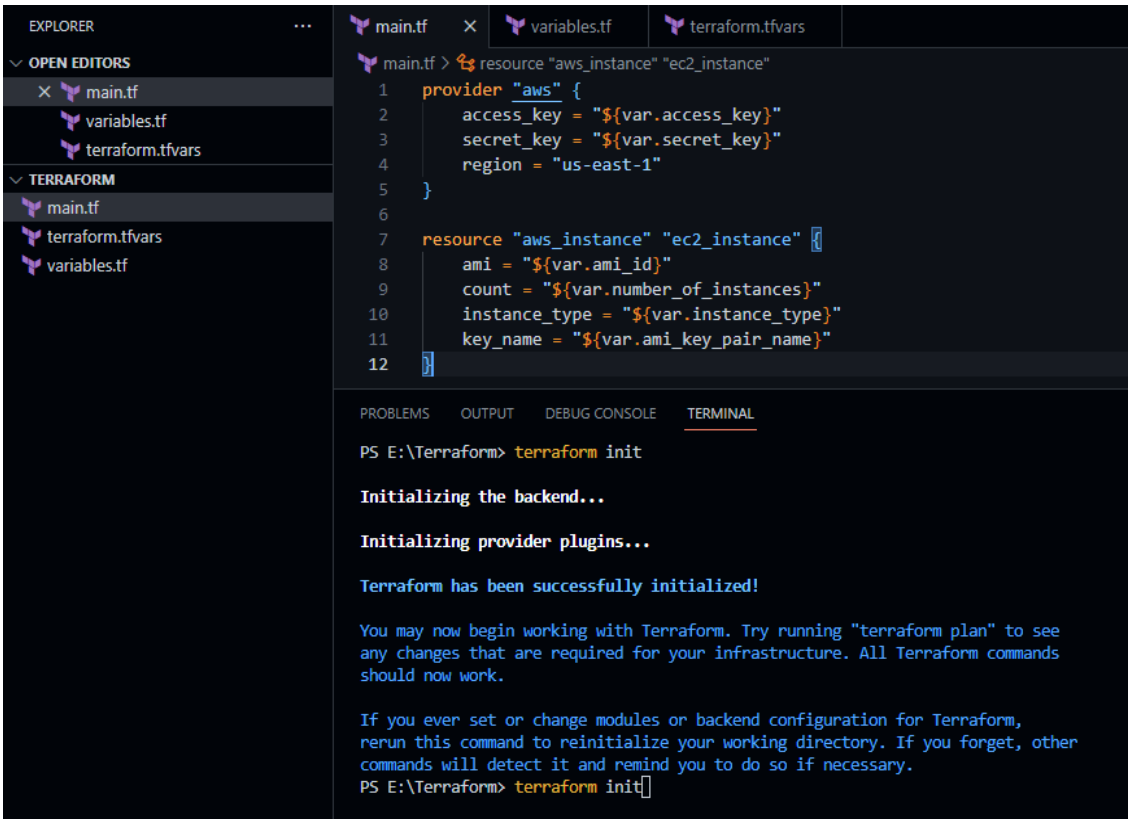
Assessment -1

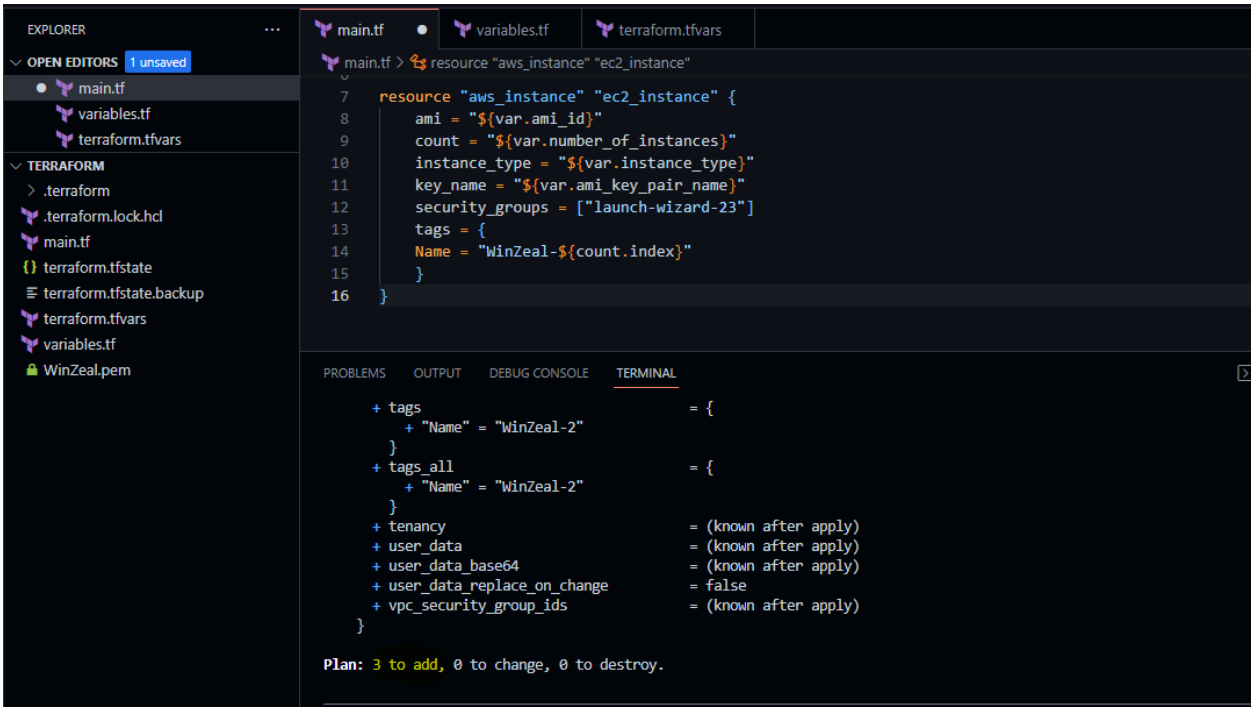
Setup a server with use of terraform and ansible and install and configure MySQL, tomcat on 80 port Memcached Redis and deploy a sample war file

<u>Code Snippets - WorkFlow</u>

1. Terraform - to create the Infrastructure for Ansible configuration
2. Ansible - Will configure the management machines here and Install Tomcat and deploy the sample.war generated from the Maven package manager.
3. Creating an IAM User with Ec2 Full access - This step is to create Management Machines and Configuration Machines for Ansible Configuration.
4. Code has been made available in the GITHUB.

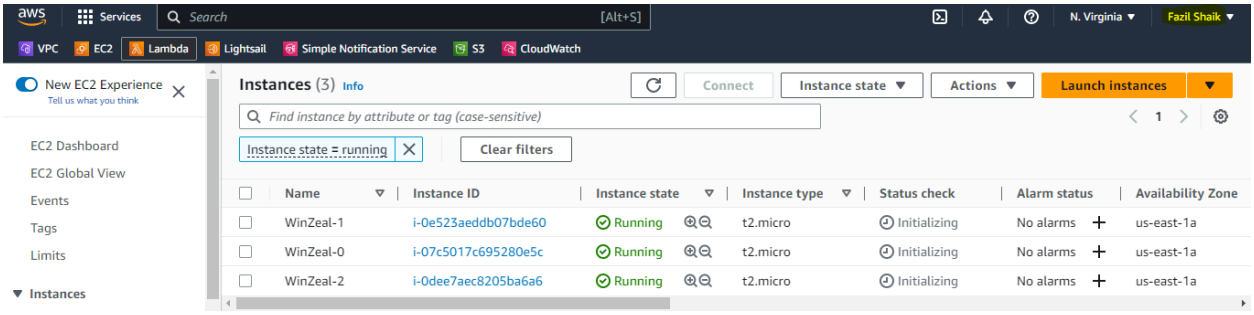
STEPS:
Created Main.tf, Variables.tf, Terraform.tfvars file to provision the infrastructure.





Now Considering the WinZeal-1 as the Configuration machine —-- and remaining 2 are Management machines

Manually installing the Ansible in the Configuration machine and therefore by installing the Tomcat in both MM and deploying the .war generated from Maven package manager



Steps for Ansible Installation

apt install python3 ---- Python is the prerequisite for ansible
apt update
sudo apt update software-properties-common
sudo apt-add-repository --yes --update ppa:ansible/ansible
sudo apt install ansible

We can achieve this step by using provisioners as well.

After installation established the SSH Connection between the Configuration machine and Management machines

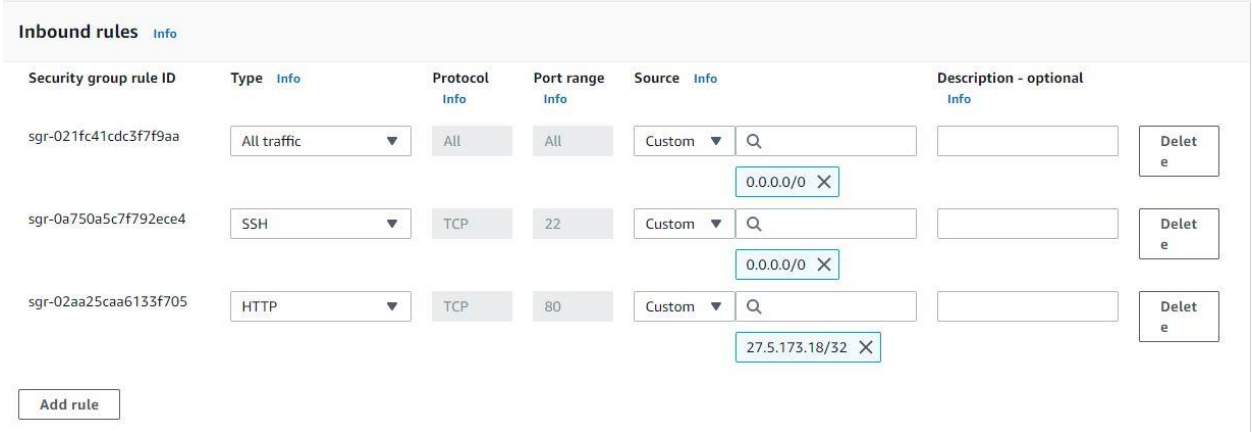
Checked the connection using **ping** module

```
root@ip-172-31-95-93:/etc/ansible# ansible all -m ping -i hosts
172.31.88.98 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
172.31.86.137 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
```

Developed a winzeal.yml , which include the cloning the GIT repository, Maven Installation, Build the project , and Installing the Tomcat, and copying the .war to the webapps folder to expose the project.

```
root@ip-172-31-95-93:/etc/ansible# ansible-playbook winzeal.yml -i hosts

PLAY [CICD deployment Script] ***********************************************************************************************

TASK [Gathering Facts] ******************************************************************************************************
ok: [172.31.86.137]
ok: [172.31.88.98]

TASK [Cloning the code from git] ********************************************************************************************
ok: [172.31.86.137]
ok: [172.31.88.98]

TASK [Installing the maven] *************************************************************************************************
changed: [172.31.88.98]
changed: [172.31.86.137]

TASK [check the version] ****************************************************************************************************
changed: [172.31.86.137]
changed: [172.31.88.98]

TASK [Build the Project] ****************************************************************************************************
changed: [172.31.86.137]
changed: [172.31.88.98]

TASK [installing the tomcat] ************************************************************************************************
ok: [172.31.86.137]
ok: [172.31.88.98]

TASK [renaming the tomcat folder] *******************************************************************************************
changed: [172.31.86.137]
changed: [172.31.88.98]

PLAY RECAP ******************************************************************************************************************
172.31.86.137              : ok=7    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.88.98               : ok=7    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Edited inbound rules for the port value, We can configure the port value by modifying the port value service.xml in the conf folder of tomcat.



As per given I have modified the port value in the /conf/server.xml as the value 80

O/P

This is Testing assessment by winzeal

I haven’t got an opportunity to work on the MongoDB and SQL ----- Will learn that configurations as well

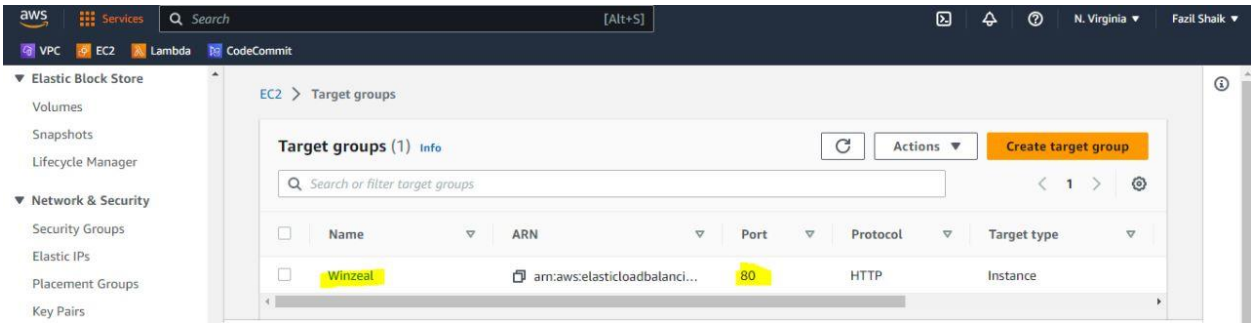
2. **Create ALB and add machine and configure health check on 80 port.**

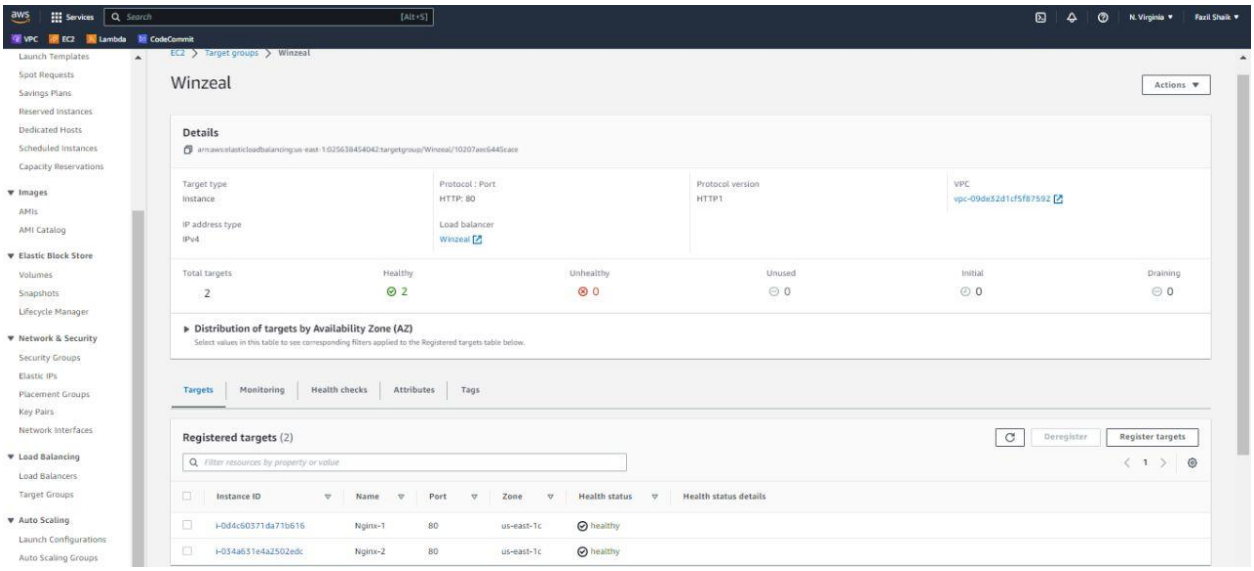
Created 2 instances and installed nginx on those machines- which are configured at the port value of 80

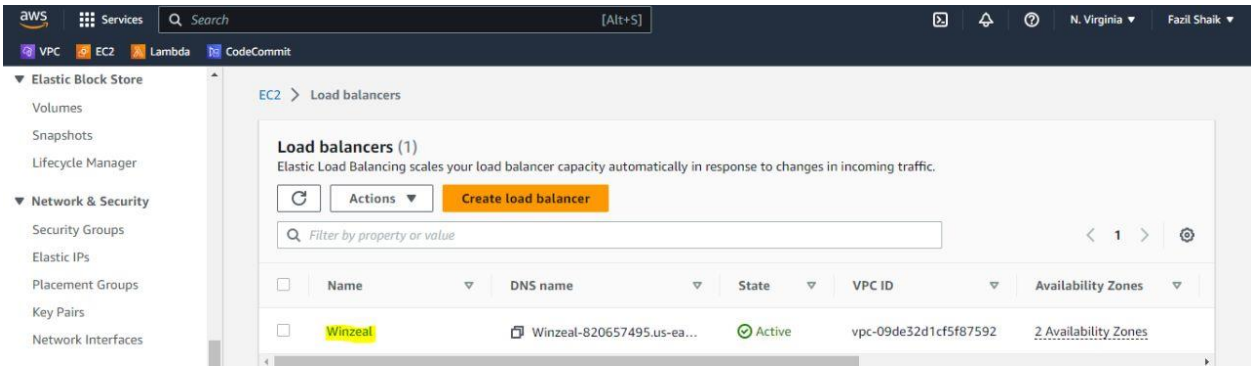
Created a Target group with name “Winzeal” and added these instances in that target group.

Configured the load balancer with name WinZeal and attached that target group and the Security group configurations to the load balancer.

Checked the status of the machines by health parameter

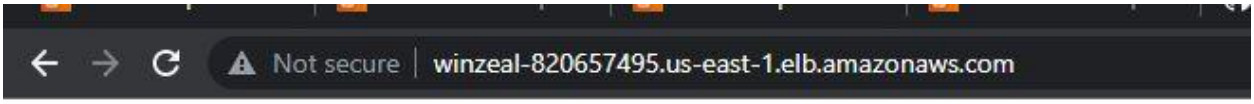






Now tried by connecting the servers by using the DNS name of the ALB – Connected Successfully for the both machines

New Server 1



New Server 2

If same port values is assigned to the different machines or services, We can achieve by this using the listeners and the modification of rules in the Load balancer options.

3**. How to check process up and running using ansible.**

We can achieve this by creating a playbook with **Service** module, **Shell** module and the O/P can be register through the **Register** and **Debug** modules

Using Service Module – File Name : Winzeal-Service.yml(file has been placed in the GITHUB)
Using Shell Module – File Module : Winzeal-Shell.yml

By Service module, I have installed Nginx server and checked the status of the service

O/P:

```
ok: [172.31.91.251] => {
    "data": {
        "changed": false,
        "failed": false,
        "name": "nginx",
        "state": "started",
        "status": {
            "ActiveEnterTimestamp": "Wed 2023-04-19 11:25:49 UTC",
            "ActiveEnterTimestampMonotonic": "5935768558",
            "ActiveExitTimestamp": "n/a",
            "ActiveExitTimestampMonotonic": "0",
            "ActiveState": "active",
```

Using the Shell Module – If the service is up and running, we get the process details like this

```
<172.31.91.251> (0, b'', b'')
ok: [172.31.91.251] => {
    "changed": false,
    "cmd": "ps -ef |  grep nginx | grep -v grep",
    "delta": "0:00:00.011387",
    "end": "2023-04-19 11:32:07.610837",
    "invocation": {
        "module_args": {
            "_raw_params": "ps -ef |  grep nginx | grep -v grep",
            "_uses_shell": true,
            "argv": null,
            "chdir": null,
            "creates": null,
            "executable": null,
            "removes": null,
            "stdin": null,
            "stdin_add_newline": true,
            "strip_empty_ends": true
        }
    },
    "msg": "",
    "rc": 0,
    "start": "2023-04-19 11:32:07.599450",
    "stderr": "",
    "stderr_lines": [],
    "stdout": "root        6153       1  0 11:25 ?        00:00:00 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;\nwww-data    6154
6153  0 11:25 ?        00:00:00 nginx: worker process",
    "stdout_lines": [
        "root        6153       1  0 11:25 ?        00:00:00 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;",
        "www-data    6154    6153  0 11:25 ?        00:00:00 nginx: worker process"
    ]
}
<172.31.94.17> (0, b'', b'')
ok: [172.31.94.17] => {
    "changed": false,
    "cmd": "ps -ef |  grep nginx | grep -v grep",
    "delta": "0:00:00.011706",
    "end": "2023-04-19 11:32:07.619063",
    "invocation": {
        "module_args": {
            "_raw_params": "ps -ef |  grep nginx | grep -v grep",
            "_uses_shell": true,
            "argv": null,
            "chdir": null,
```

If the process is stopped then the module couldn’t find the process and gets error and then we have to start the process by either service or shell module again

```
fatal: [172.31.91.251]: FAILED! => {
    "changed": false,
    "cmd": "ps -ef |  grep nginx | grep -v grep",
    "delta": "0:00:00.011064",
    "end": "2023-04-19 11:33:24.456817",
    "invocation": {
        "module_args": {
            "_raw_params": "ps -ef |  grep nginx | grep -v grep",
            "_uses_shell": true,
            "argv": null,
            "chdir": null,
            "creates": null,
            "executable": null,
            "removes": null,
            "stdin": null,
            "stdin_add_newline": true,
            "strip_empty_ends": true
        }
    },
    "msg": "non-zero return code",
    "rc": 1,
    "start": "2023-04-19 11:33:24.445753",
    "stderr": "",
    "stderr_lines": [],
    "stdout": "",
    "stdout_lines": []
}
<172.31.94.17> (0, b'', b'')
fatal: [172.31.94.17]: FAILED! => {
    "changed": false,
    "cmd": "ps -ef |  grep nginx | grep -v grep",
    "delta": "0:00:00.011850",
    "end": "2023-04-19 11:33:24.463540",
    "invocation": {
        "module_args": {
            "_raw_params": "ps -ef |  grep nginx | grep -v grep",
            "_uses_shell": true,
            "argv": null,
            "chdir": null,
            "creates": null,
```

References:

GITHUB: https://github.com/FazilShaik1707/WinZeal---Assesment