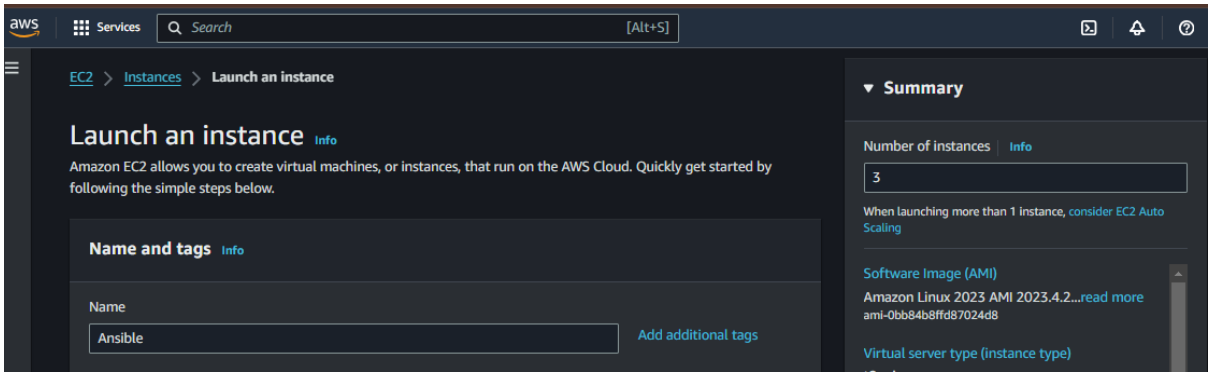
Module-6: Ansible Assignment - 1

You have been asked to:

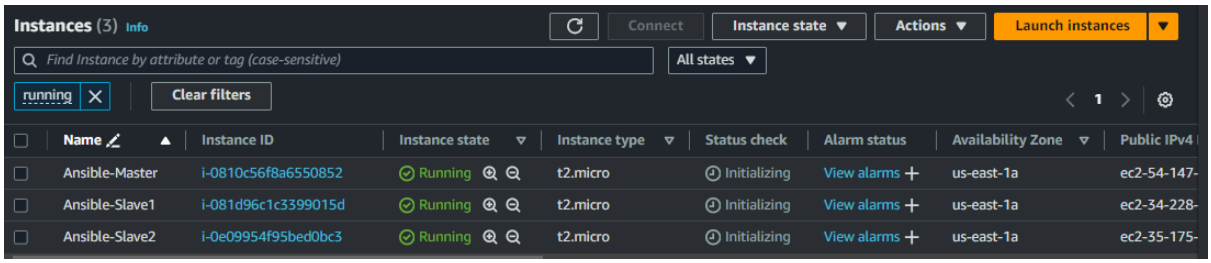
- Setup Ansible cluster with 3 nodes
- On slave1 install java
- On slave 2 install mysql-server

Do the above tasks using Ansible playbooks

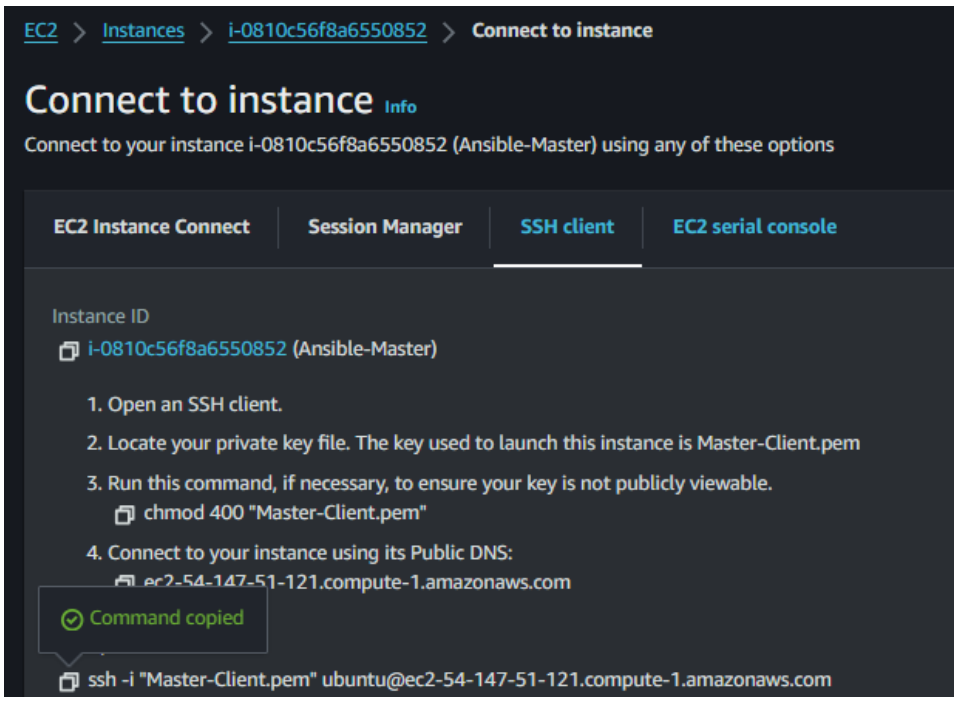
1. Launch 3 Ubuntu Instances for this Assignment



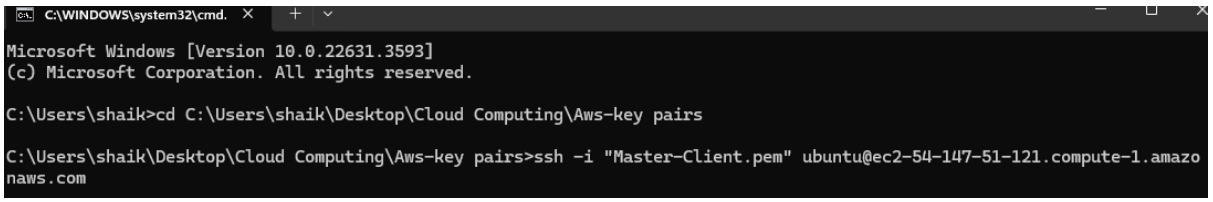
2. And Rename as your wish Now its Running Status



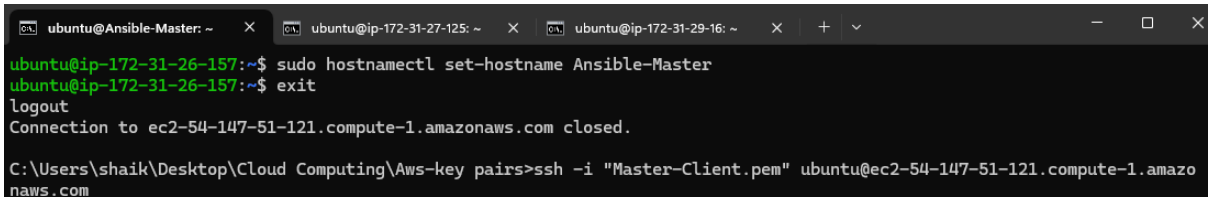
3. Click Connect Instances and Go to SSH Client and Copy it.



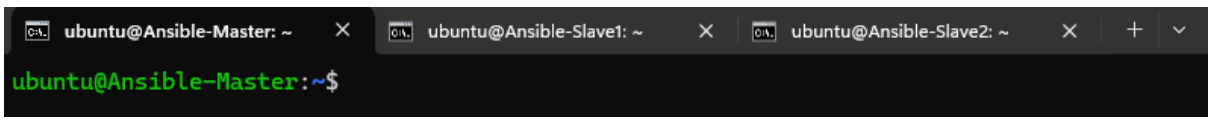
4. Go to Key-Pair Path and Paste SSH Client Path and Login it. And follow the same process to other 2 Instances.



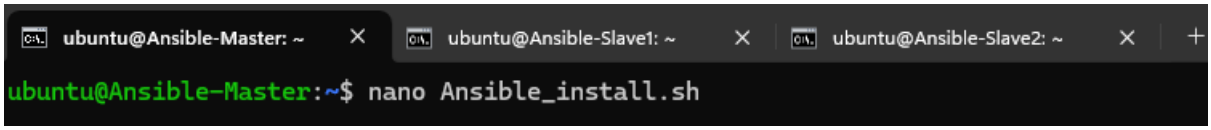
5. Successfully Logged In and I change the Host Name as Ansible-Master for Remind Purpose And follow the same process to other 2 Instances.



6. Successfully changed the Host Name for 3 Instances



7. First Thing Before starting the Assignment Task we need to Install Ansible in Ansible-Master.

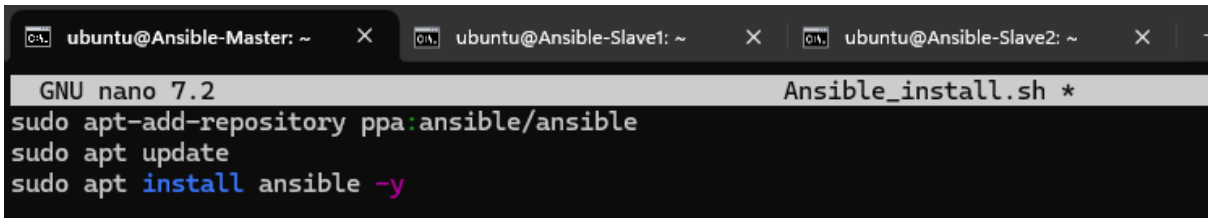


8. Copy the command from the drive.

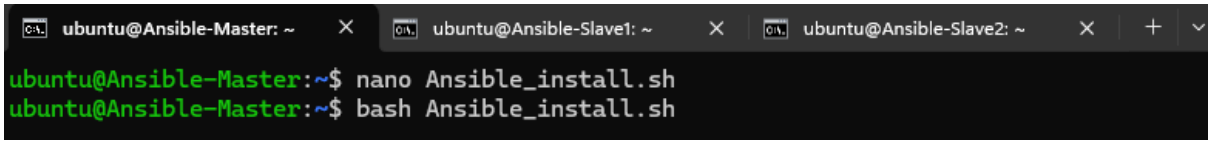
Ansible installation ubuntu

```
sudo apt-add-repository ppa:ansible/ansible
sudo apt update
sudo apt install ansible -y
```

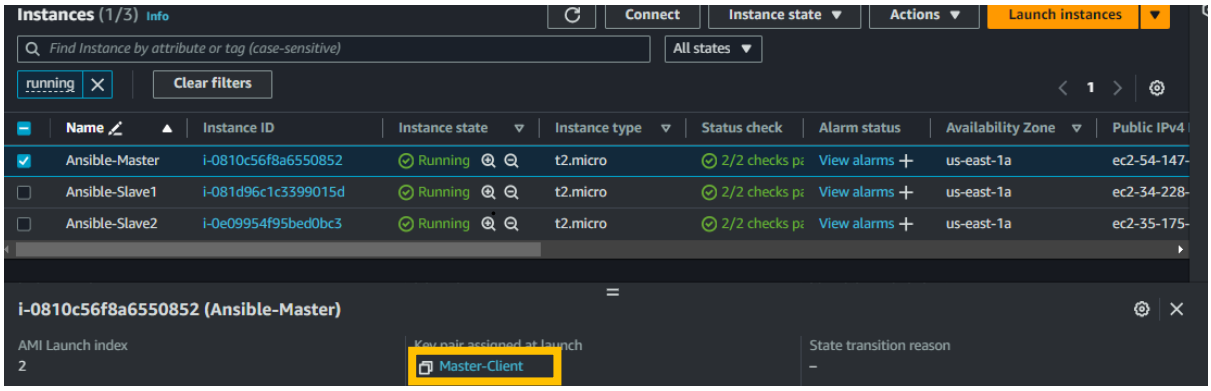
9. Create a Ansible_install.sh and Paste the Installation command and save it.



10. And and run the shell file.



11. Check the key-pair



.

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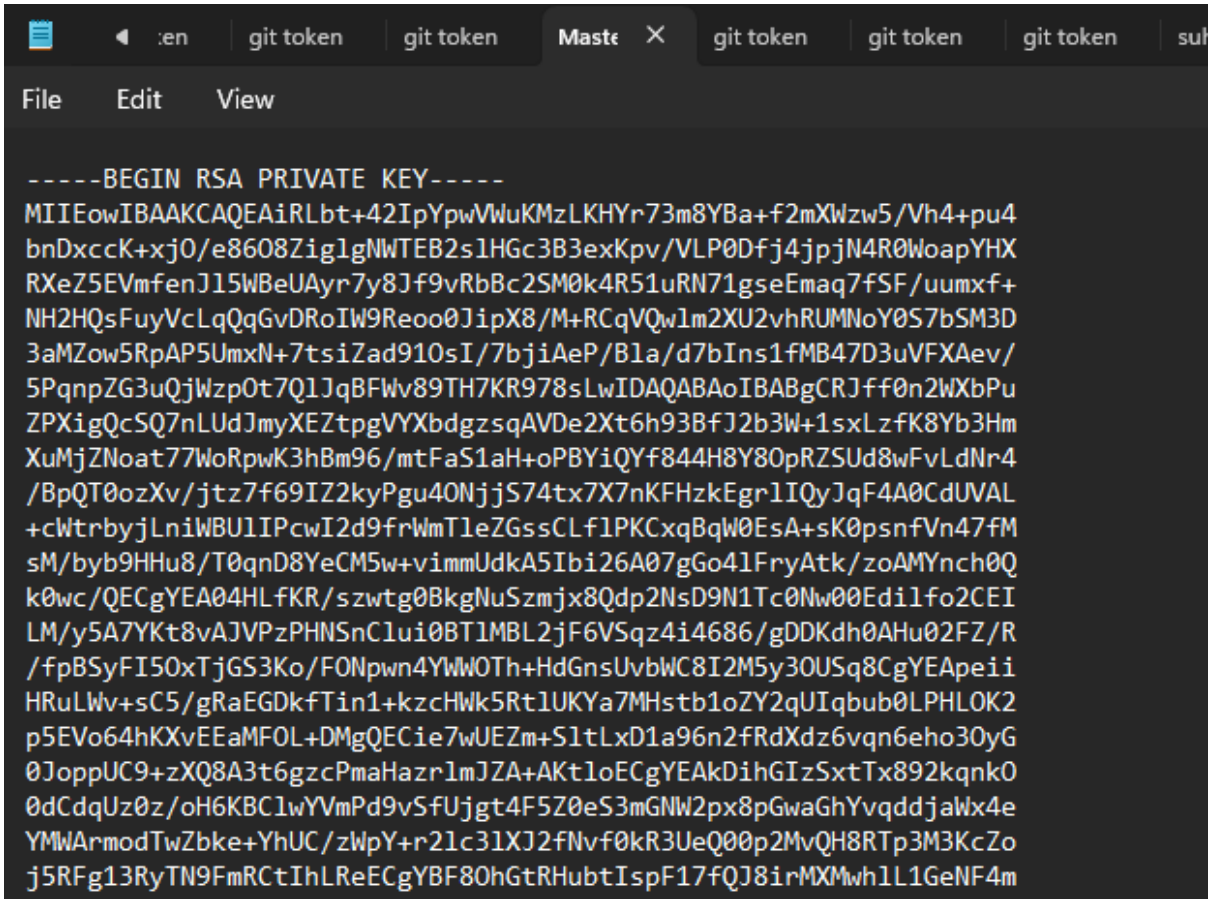
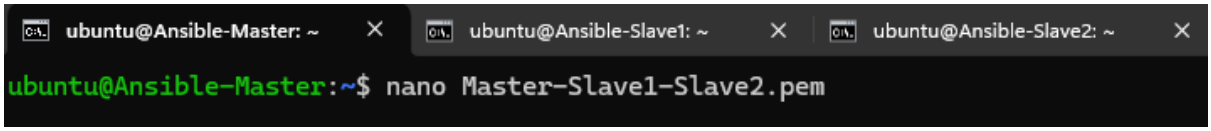
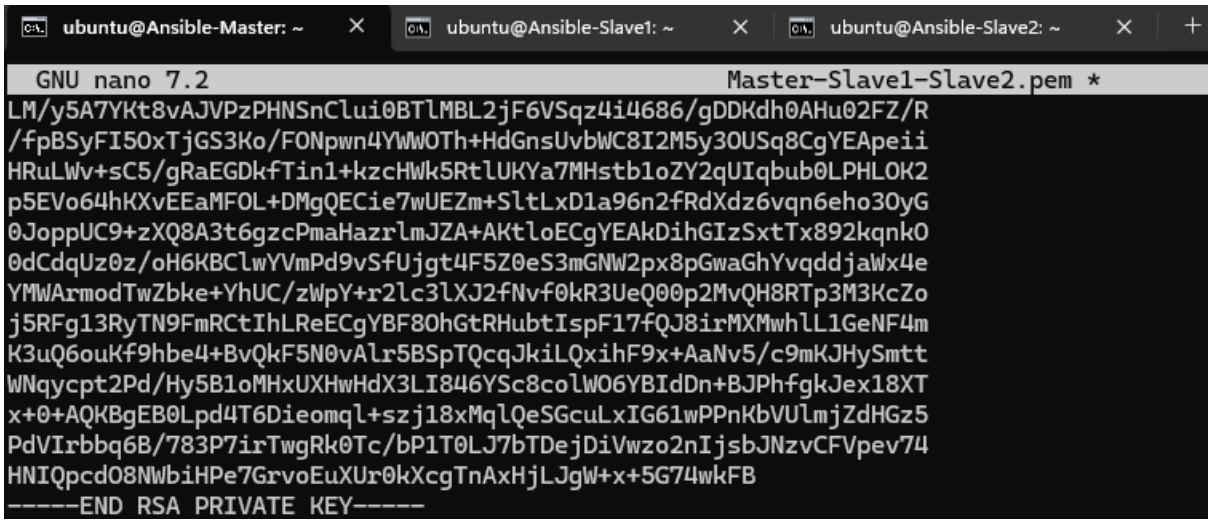
12. Go to Key-Pair Location and copy it.



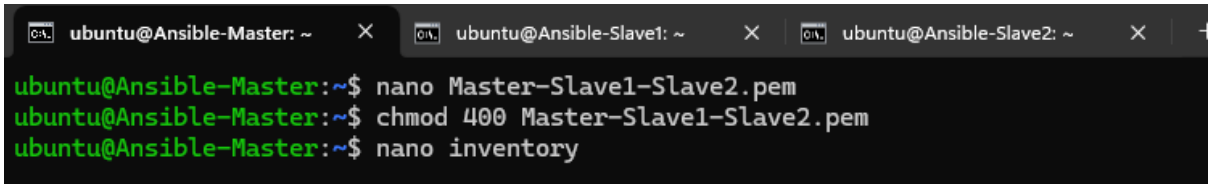
13.Create a Key-Pair name.pem in Ansible-Master



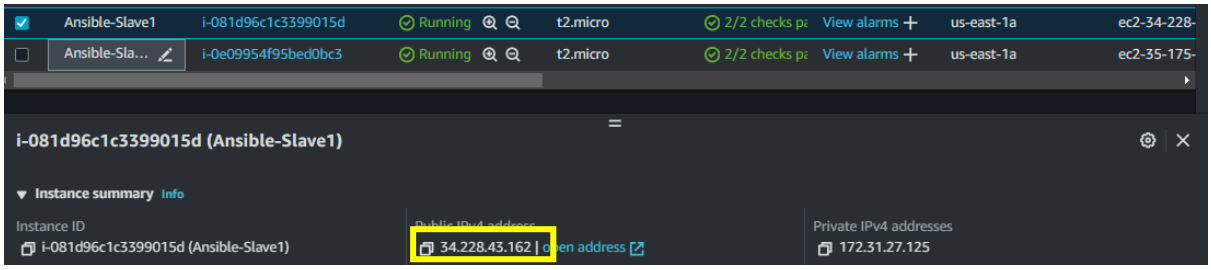
14.And paste and save it.



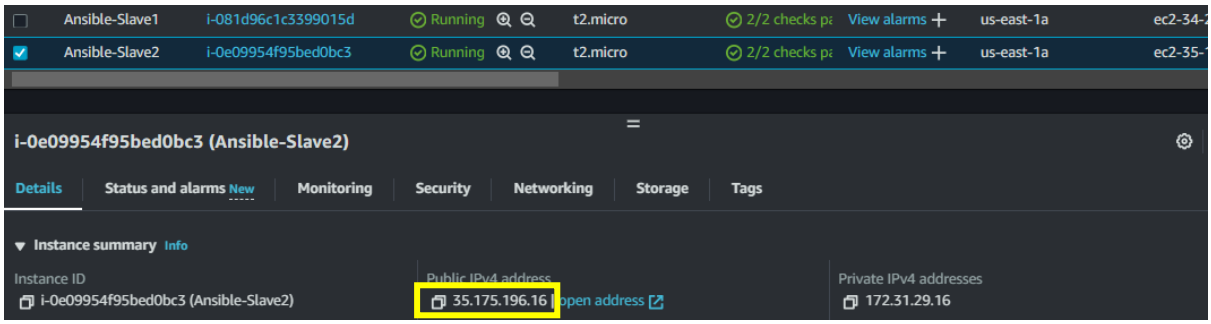
15. And Give read permission to owner and Create inventory file



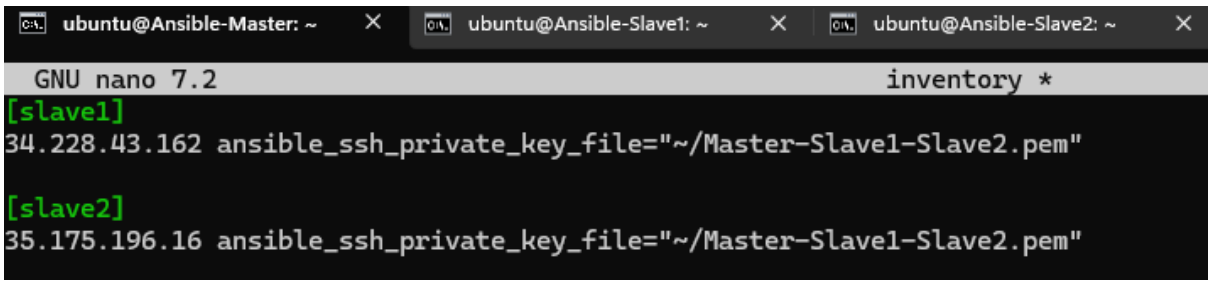
16. Copy Public Ip of Slave1 which means Target-Server



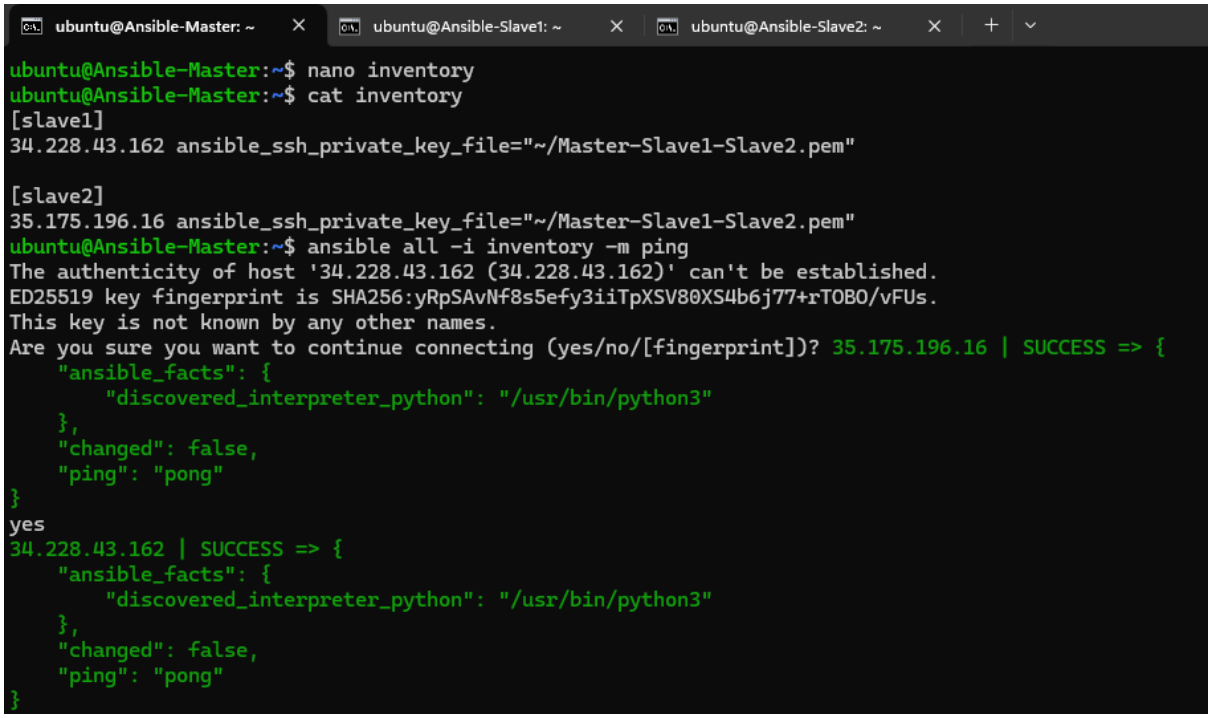
17. Copy Public Ip of Slave2 which means Target-Server



18. Like we need written the Inventory file and Key-Pair Must be Same Both Master and Slave Instances



19. After that ansible all -i inventory -m ping, if it will success then master and slave instances connected otherwise it will show an error.



20. Now come to the Assignment Task According to Task we have to perform with Ansible Playbook so I am Creating Name as setup.yml

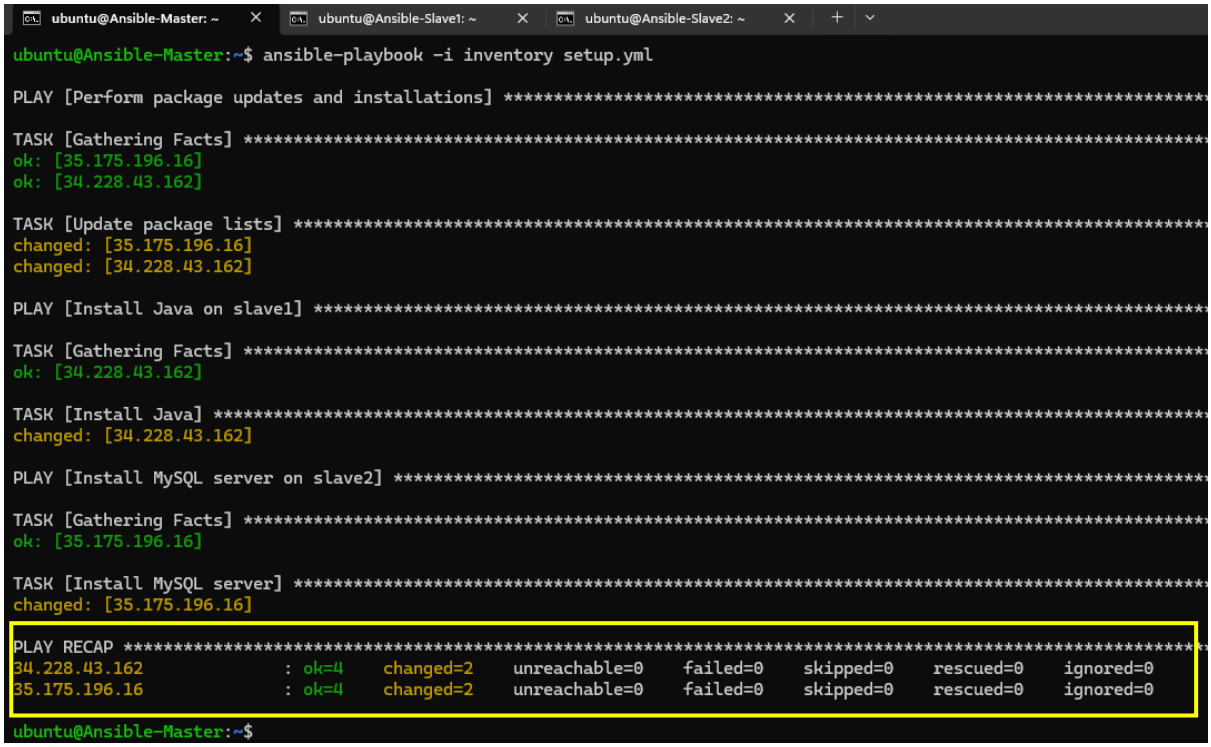
- **Hosts**: `slave1 and slave2` (This play will run only on the host or group named `slave1,slave2`)
- **Become**: `true` (Run the tasks with elevated privileges)
- **Task**:
    - **Name**: `Install Java on slave1` and `Install mysql on slave2`
    - **Module**: `apt` (Used for managing packages with the apt package manager)
    - **Option**:
        - `name: default-jdk, mysql` (Specifies the package to install)
        - `state: present` (Ensures that the package is installed)

```
  GNU nano 7.2                                                  setup.yml *
---
- name: Perform package updates and installations
  hosts: all
  become: true
  tasks:
    - name: Update package lists
      apt:
        update_cache: yes

- name: Install Java on slave1
  hosts: slave1
  become: true
  tasks:
    - name: Install Java
      apt:
        name: default-jdk
        state: present

- name: Install MySQL server on slave2
  hosts: slave2
  become: true
  tasks:
    - name: Install MySQL server
      apt:
        name: mysql-server
        state: present
```

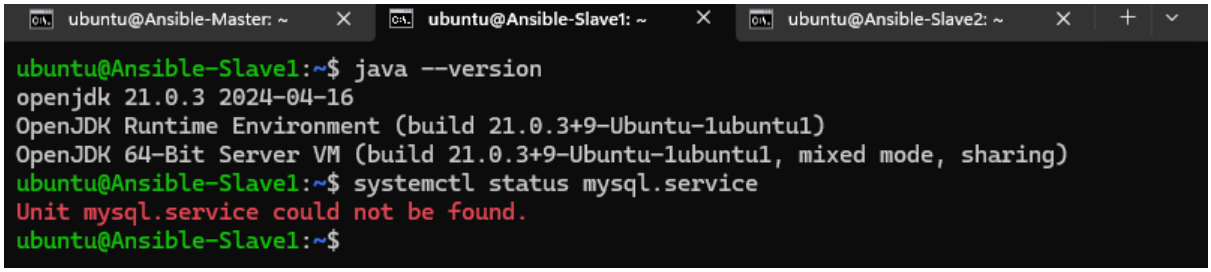
21. It will check Syntax of file it is correct or not, now its fine

```
ubuntu@Ansible-Master:~$ nano setup.yml
ubuntu@Ansible-Master:~$ ansible-playbook -i inventory setup.yml --syntax -check

playbook: setup.yml
ubuntu@Ansible-Master:~$
```

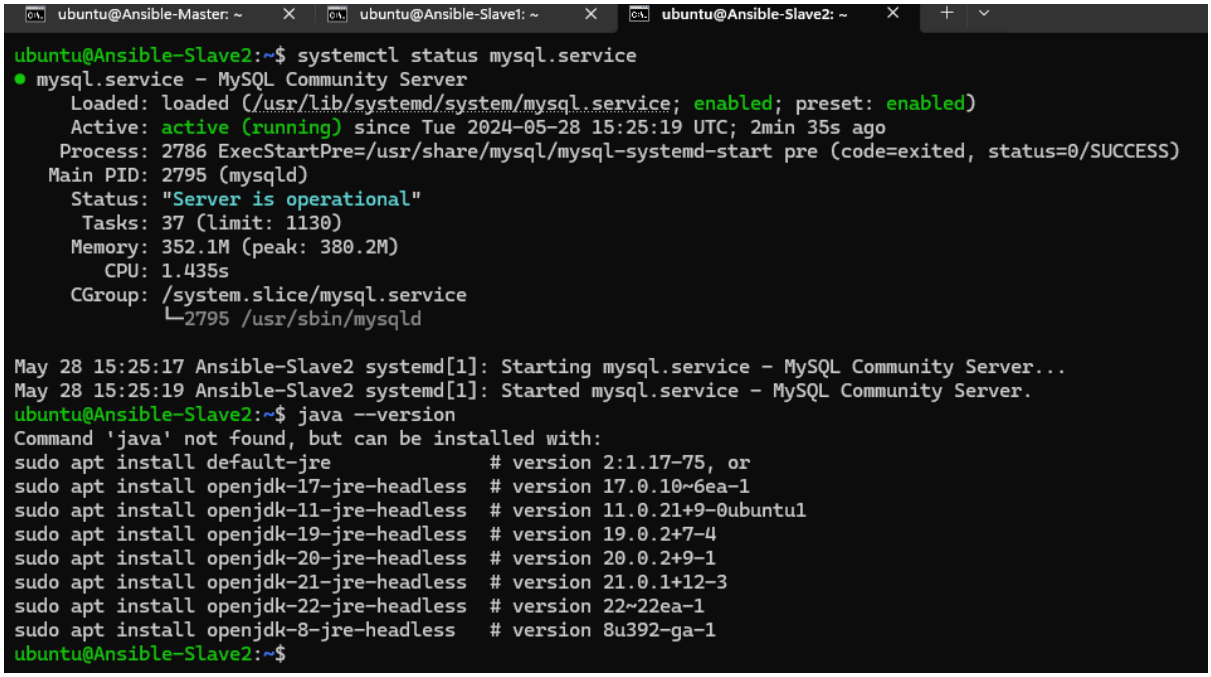
22. Now If we see it will Successfully Perform the Updated the Package Lists and Play Name Install Java on Slave1 and Task Install Java on Slave1 and Same as it Installed MySQL server on slave2



23. See on Slave1 Its Installed java

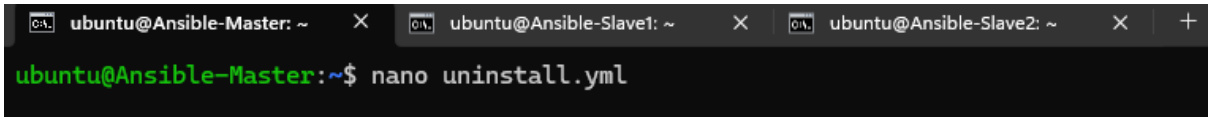


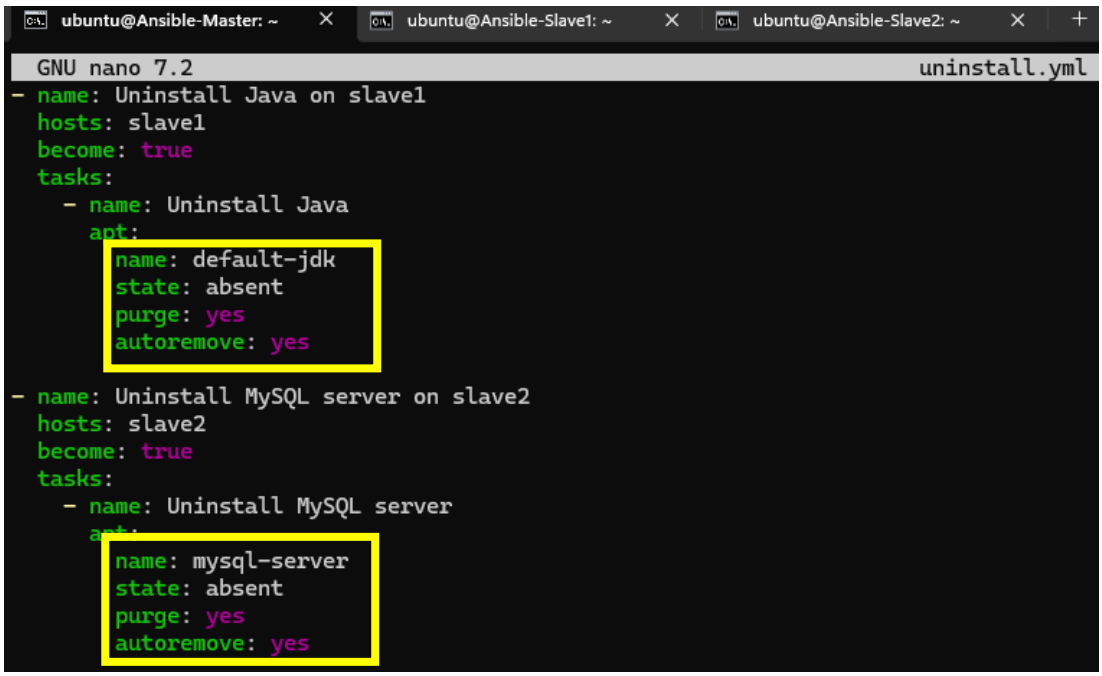
24.And we can see on Slave 2 Mysql was Installed Successfully



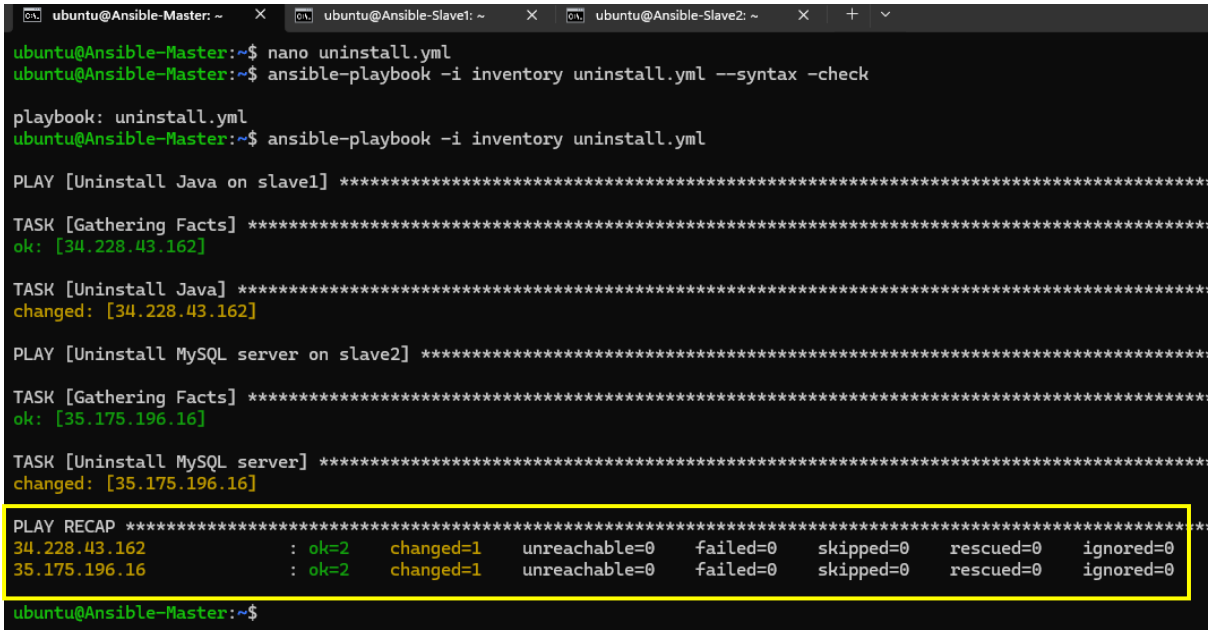
OPTIONAL TASK:

25.I am Uninstalling Both Java and My Sql on Slave1 and Slave2, Creating uninstall.yml File

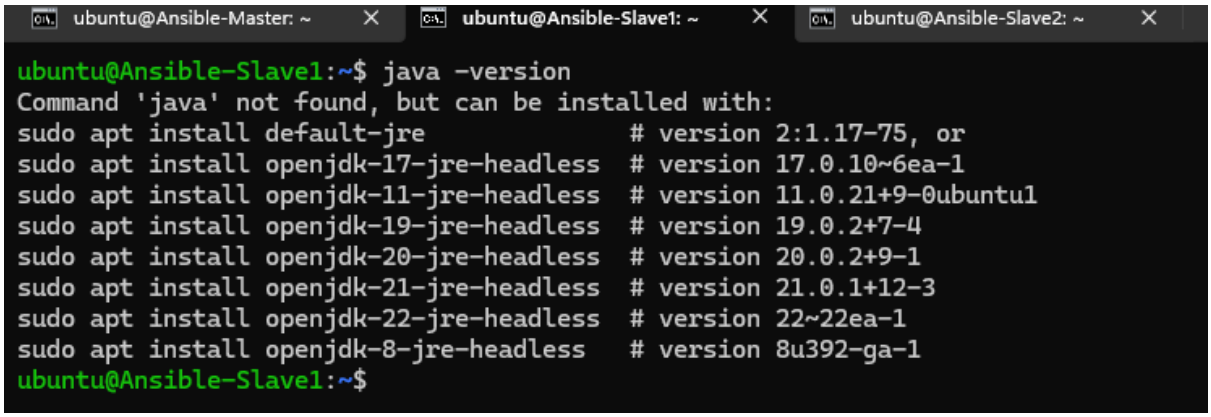




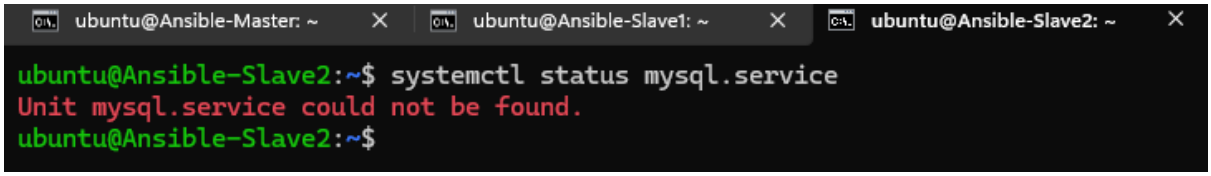
26.Now We Can See Its Successfully ran



27.Now Checking On Slave1 its shown not found



28.On Slave2 also, Assignment Task 1 Completed.

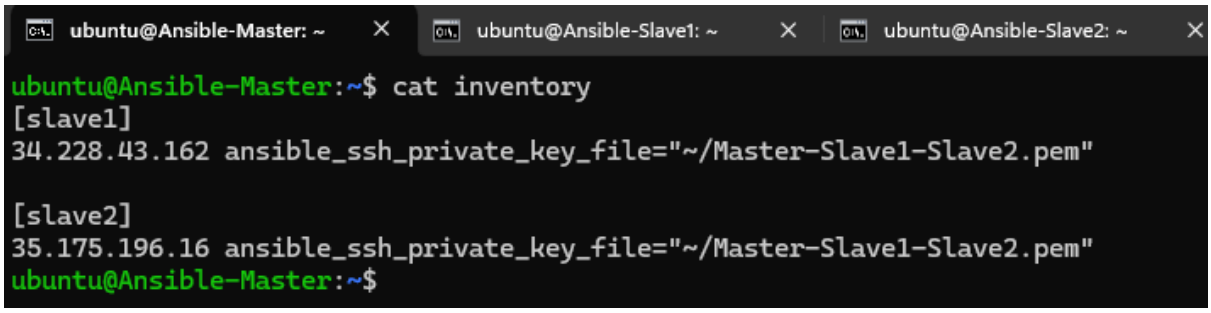


Module-6: Ansible Assignment - 2

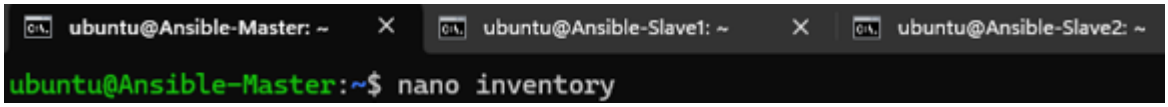
You have been asked to:

- Create a script which can add text “This text has been added by custom script” to /tmp.1.txt
- Run this script using Ansible on all the hosts

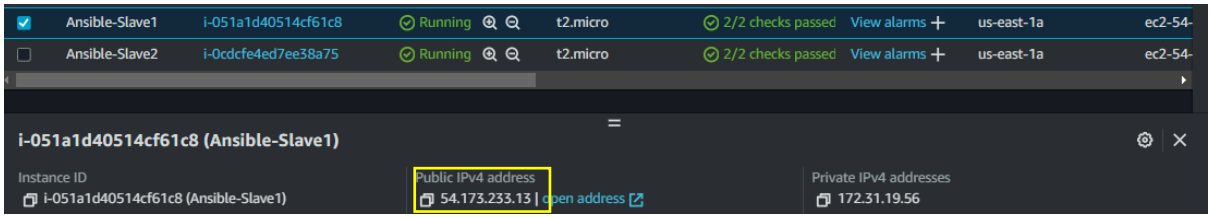
1. If You Stop Instances then Replace New Public IP Addresses



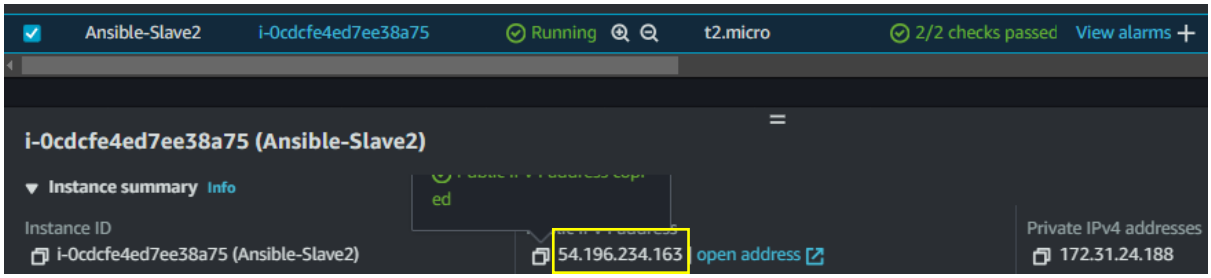
2. So I Stopped Instances and Now I need to Update New IP Address



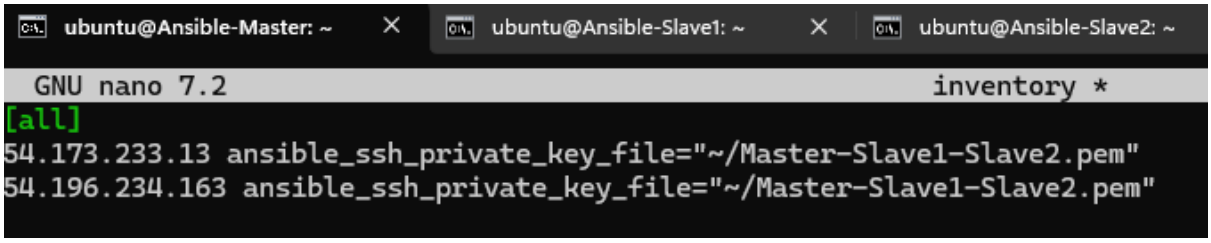
3. This is New IP of Slave1



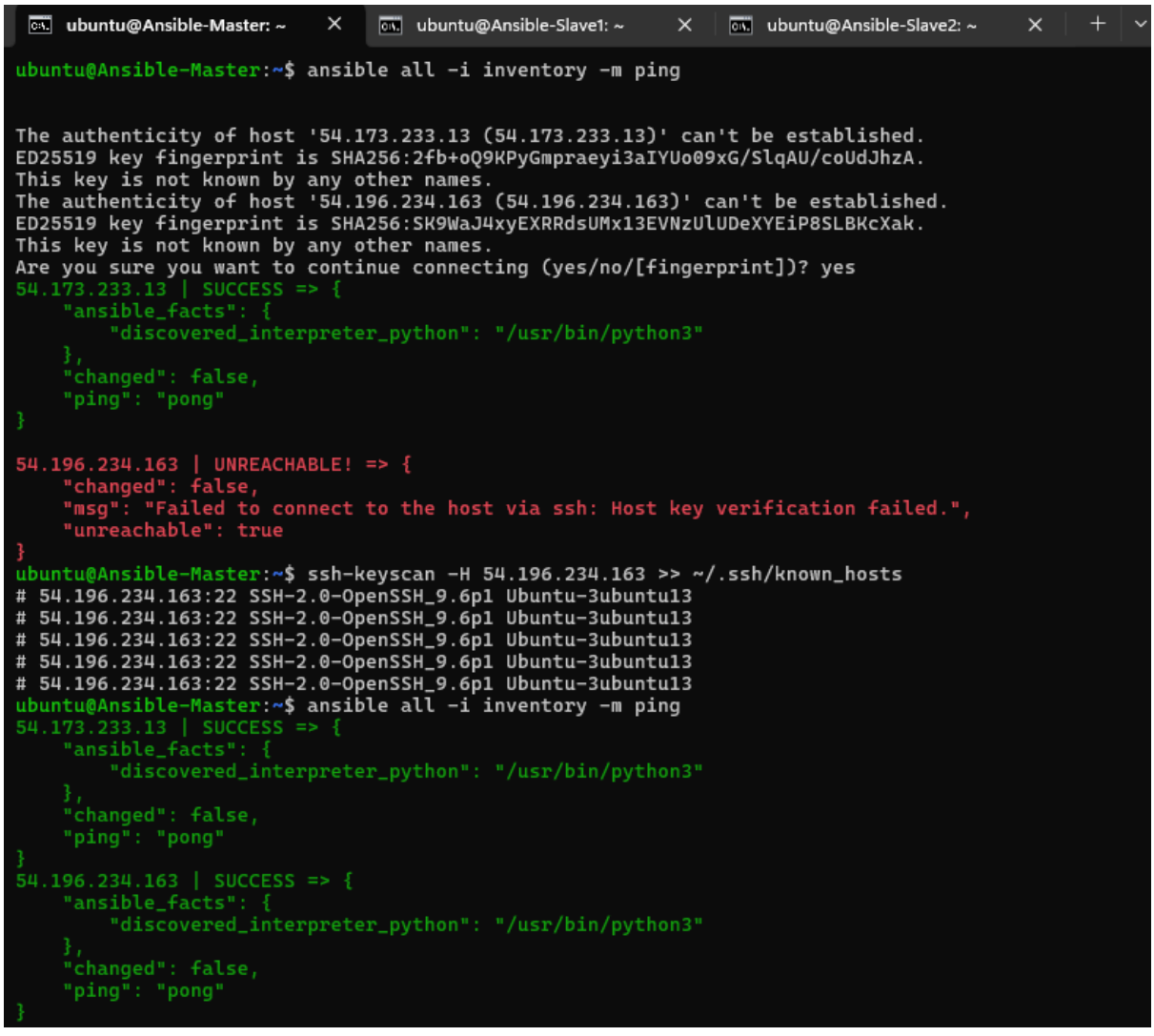
4. This is New IP of Slave2



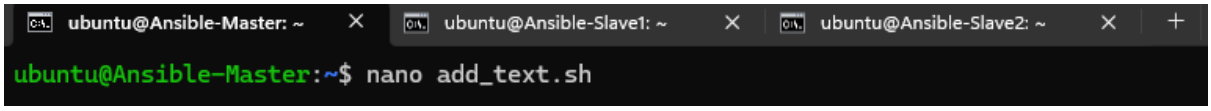
5. This is Updated IP’s



6. I got an Error so I Go with this command `ssh-keyscan -H ip_address >> ~/.ssh/known_hosts` manually adds the SSH host key of a server to your local known_hosts file.

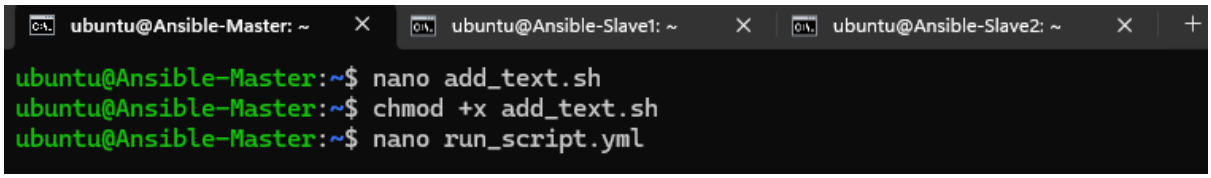


7. Create Script File

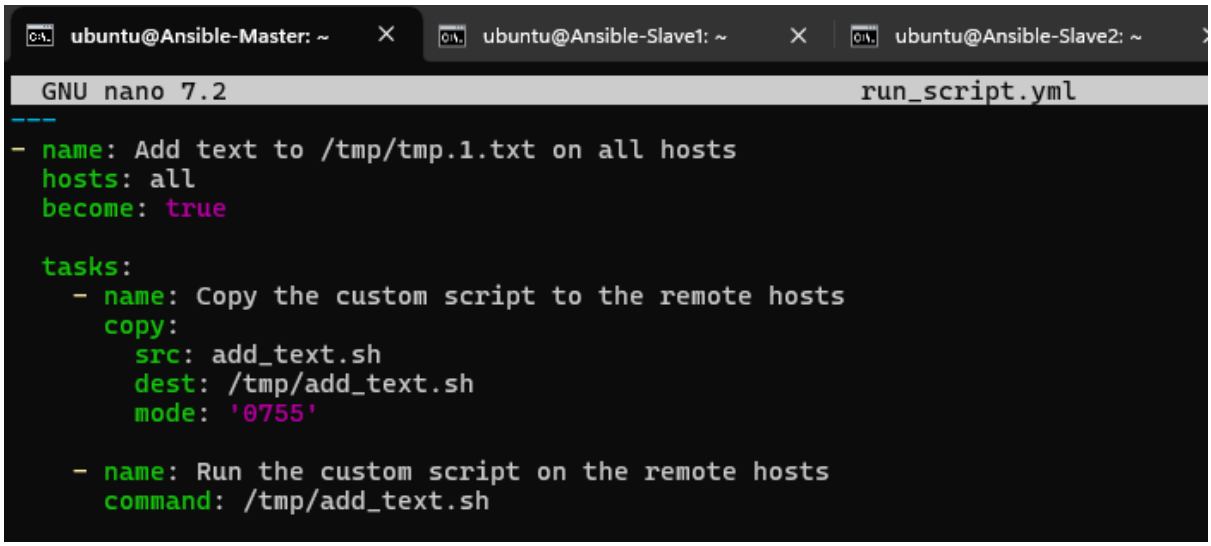


8. Write the Script as per the Assignment and save in tmp file/tmp.1.txt
9. What will do this script, #! /bin/bash Mandatory
10. Echo “text” it will Print the text and it will save >> /tmp/tmp.1.txt into this path

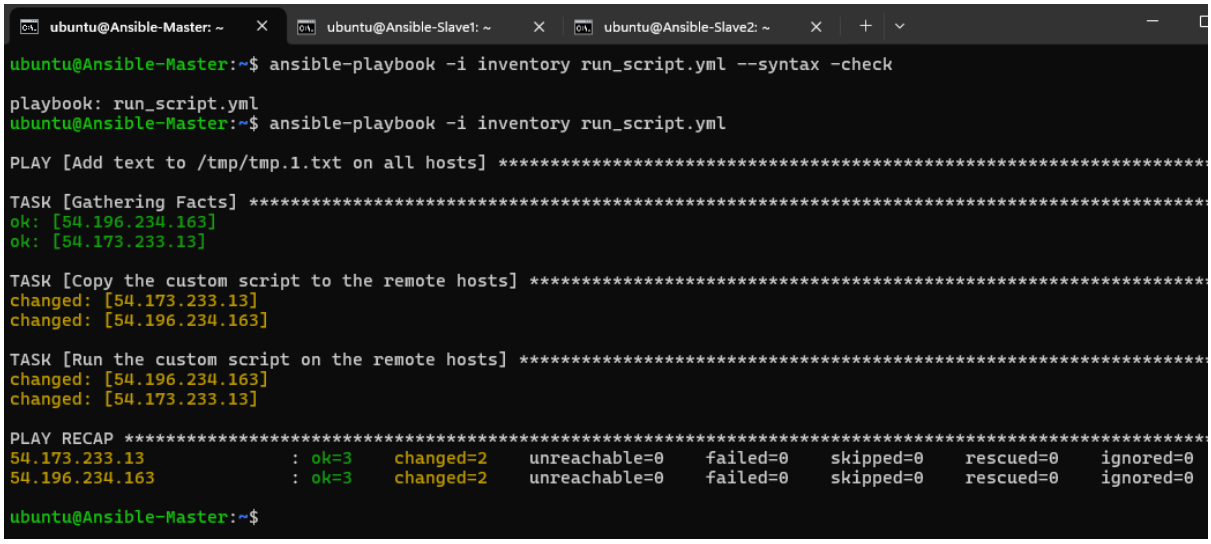
11. Give Executable permission and Create Playbook with name of run script.yml



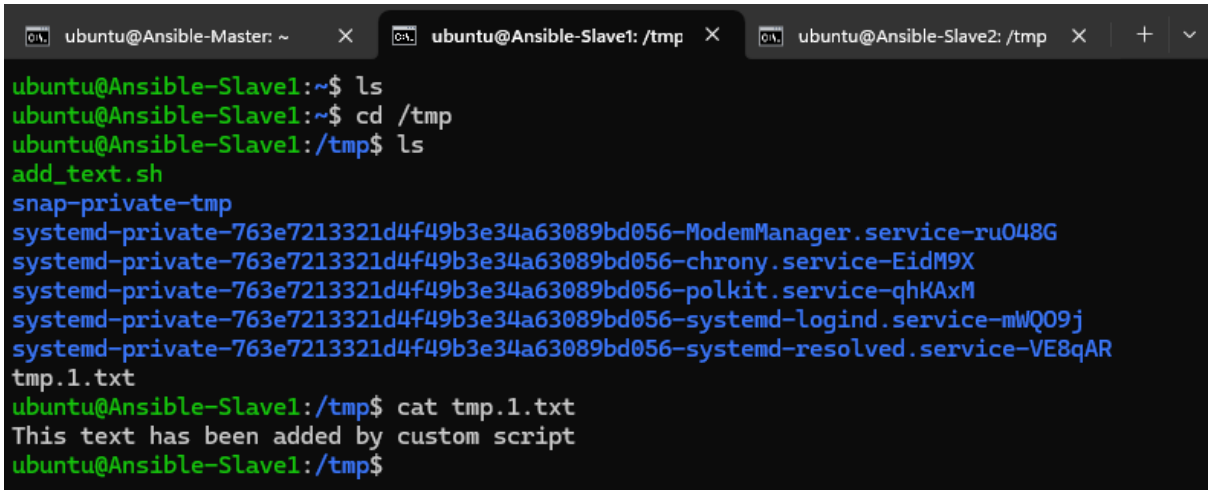
12. Copy the custom script file
13. Will take Src: add_text.sh
14. And Going to Copy this dest: /tmp/add_text.sh
15. Run the custom Script
16. It will ran



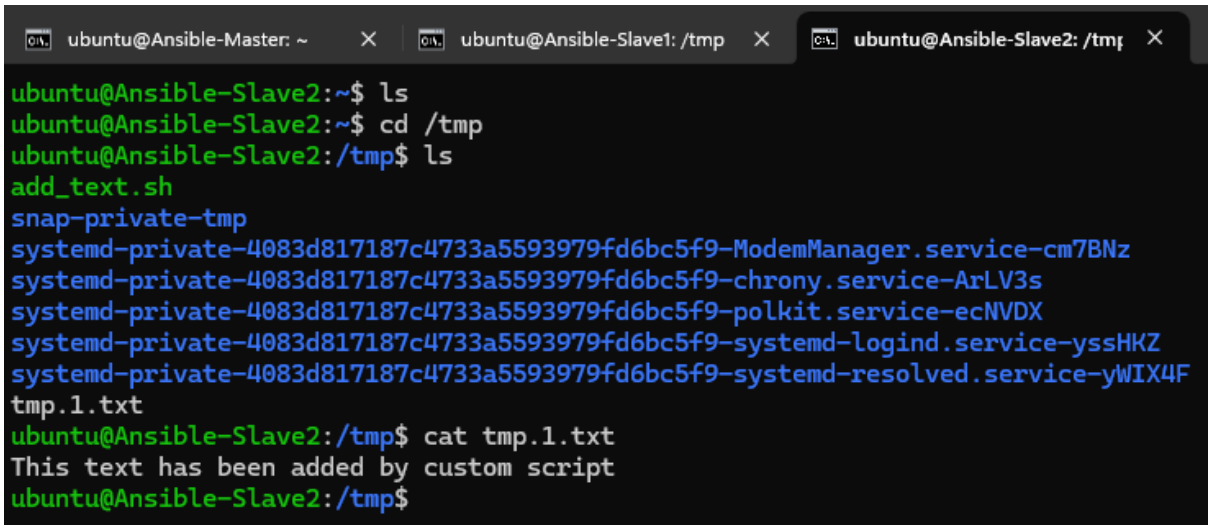
17. Syntax check executed successfully
18. And performed tasks successfully
19. We can see it gathering the facts and copying the script and running the script on remote hosts



20. Go to Ansible-Slave1 and ls(list of contains) there is no lists because it is hidden file so cd /tmp ls u can see the ran scripted and file



21. Go to Ansible-Slave2 and ls(list of contains) there is no lists because it is hidden file so cd /tmp ls u can see the ran scripted and file



22. Stop Instances, Don’t Terminate it will use for next Upcoming Tasks

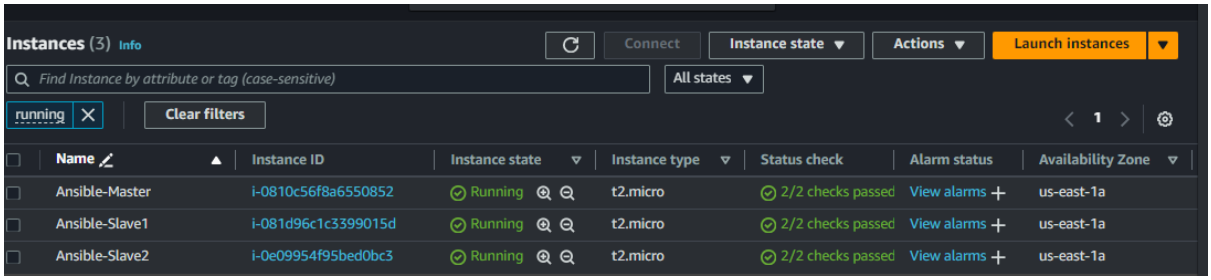
Module-6: Ansible Assignment - 3

You have been asked to:

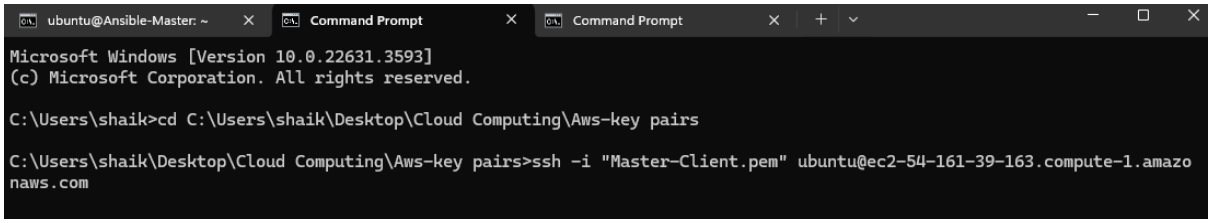
- Create 2 Ansible Roles
- Install apache2 on slave1 using one role and nginx on slave2 using the other role

Above should be implemented using different Ansible Roles

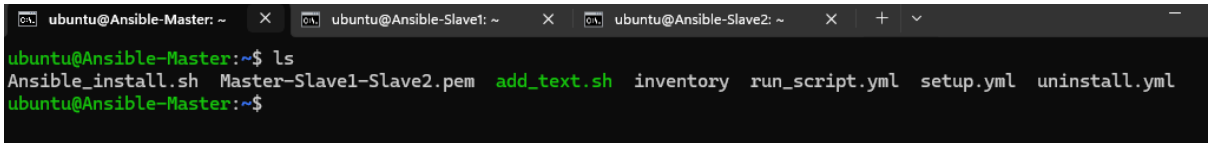
1. Enable 3 Running Instances



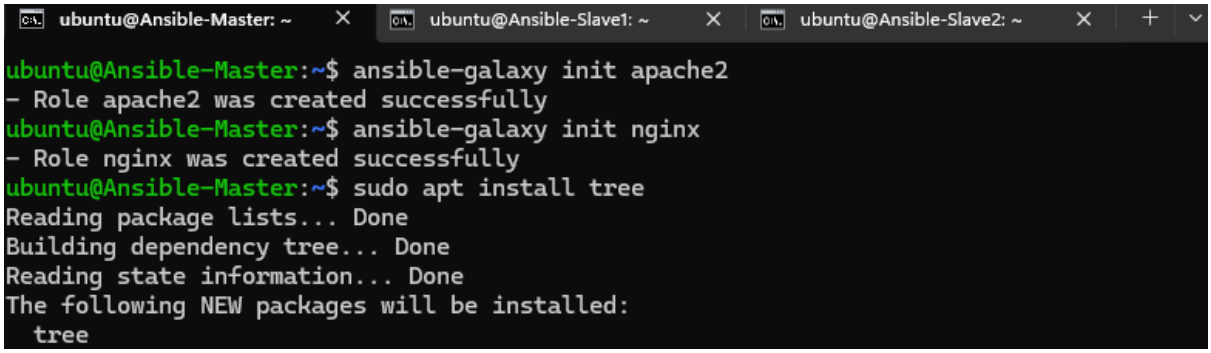
2. Go to Key-Pair Path and Paste SSH client Path to Connect Instance



3. ls

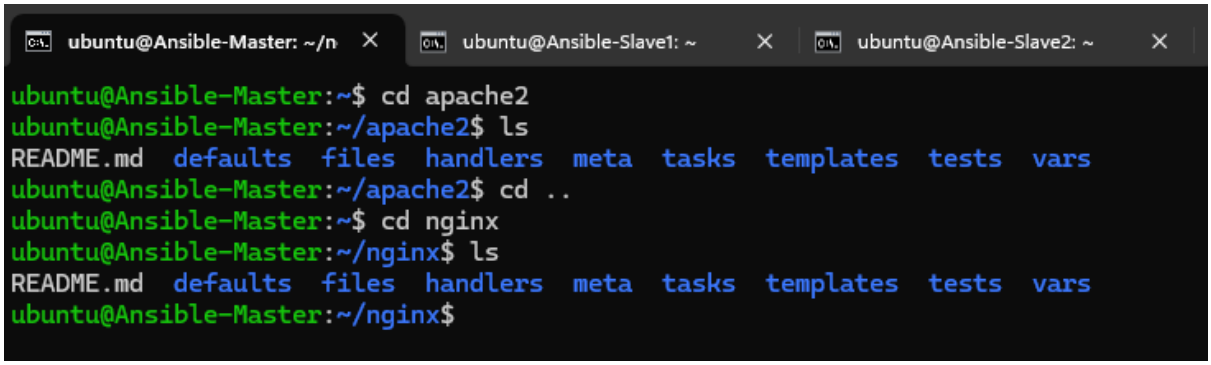


4. For this Assignment We Need 2 Ansible Role, Previously We Performed Task with Ansible Play-Book, So Creating apache2 and nginx, 2 different role

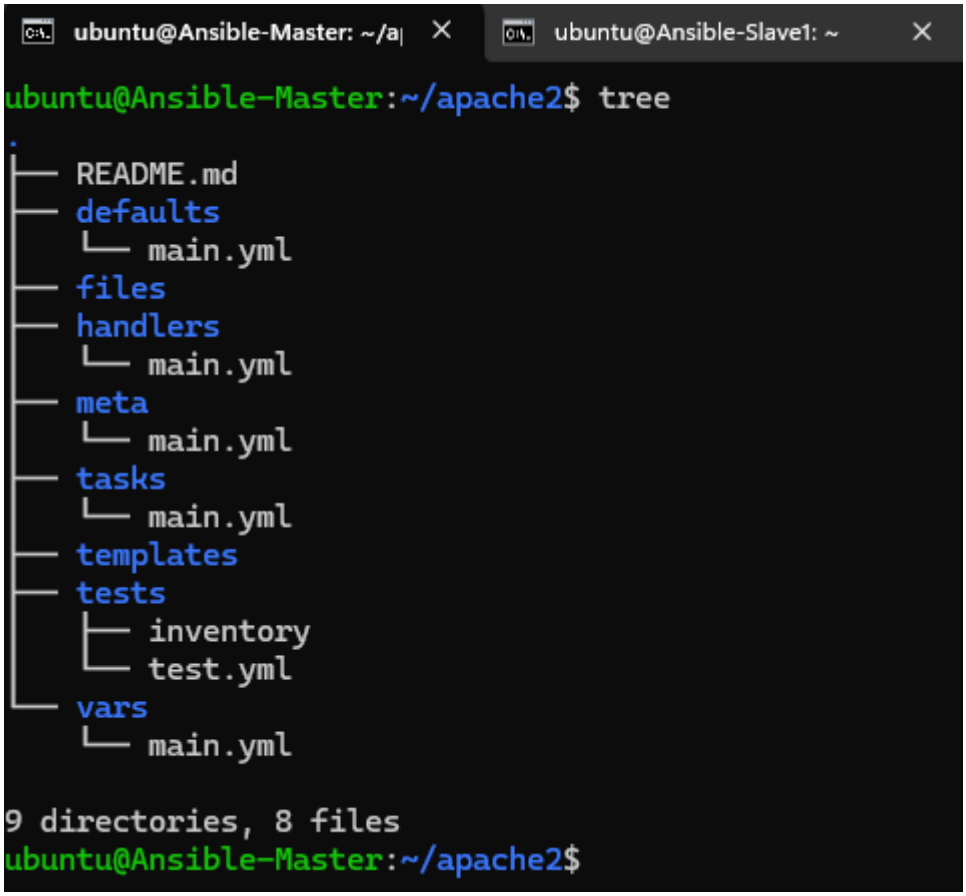


5. we able to see the apache2 and nginx role

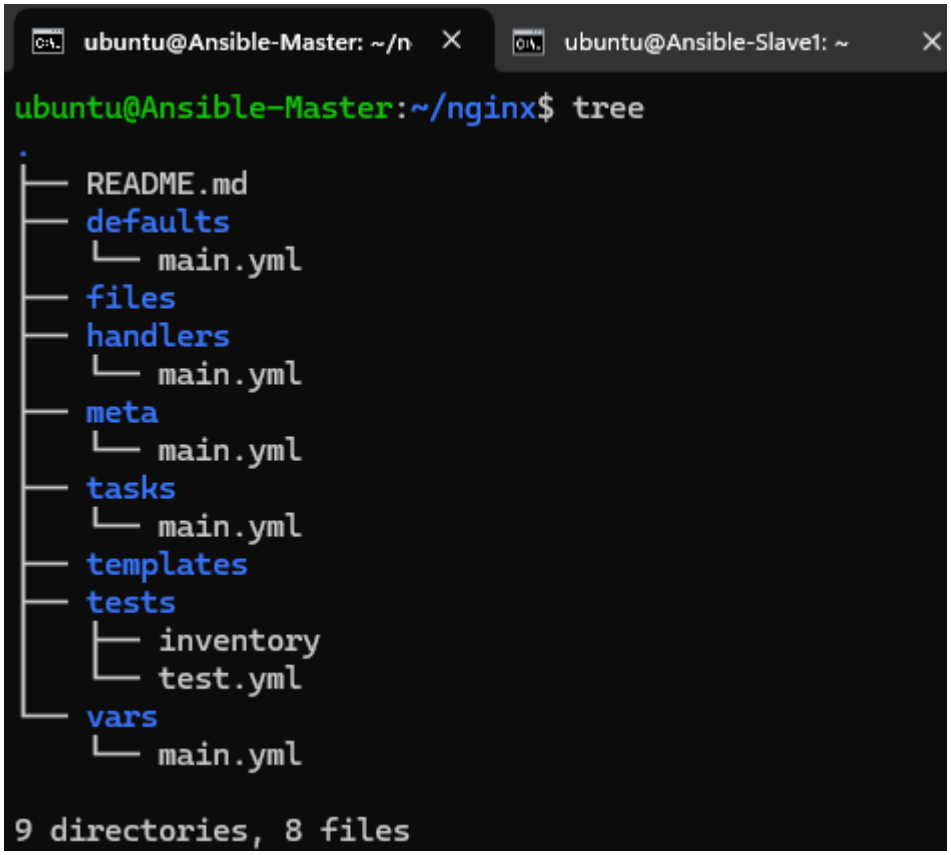
6. go to apache2 and nginx we can see the ansible role directories.



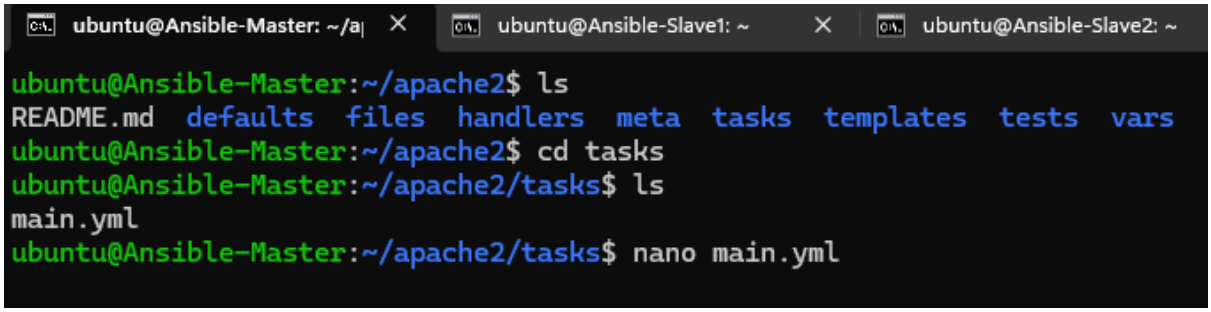
7. Optional: I Installed tree(sudo apt install tree) for Visual files of inside the directories total 9 directories and 8 files is there.



8. Same for nginx

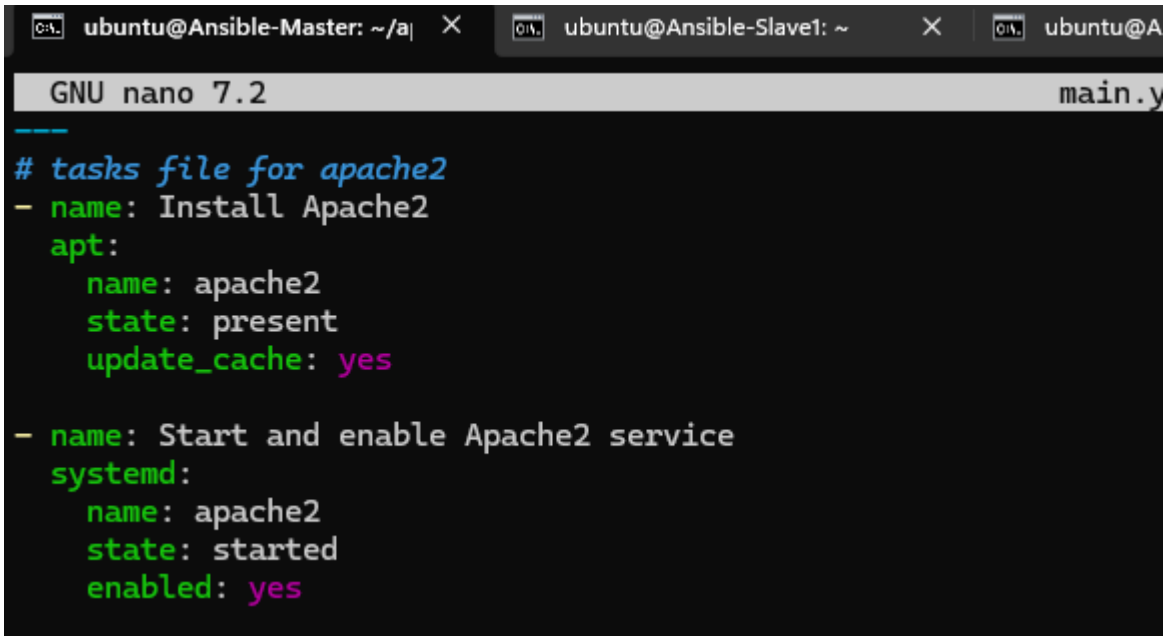


9. Now Start from Apache2 Role, Whatever we write regarding task we go inside the tasks in that main.yml file we are going the write the task

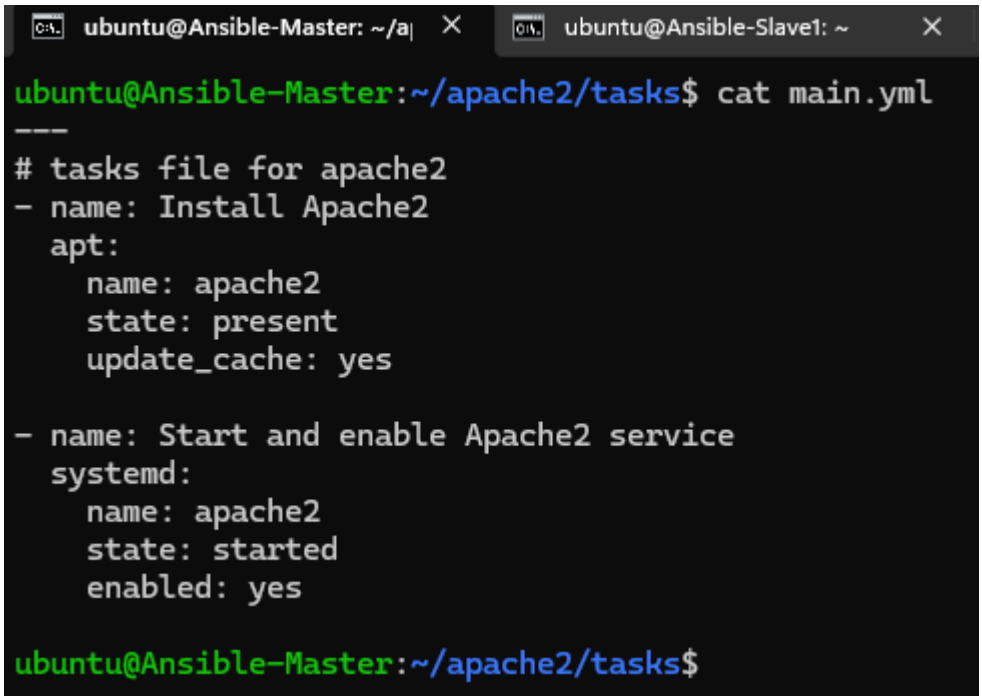


10. here we are written the script install apache and apt(Package) name apache2 and state present and updating the cache and start and enable apache service

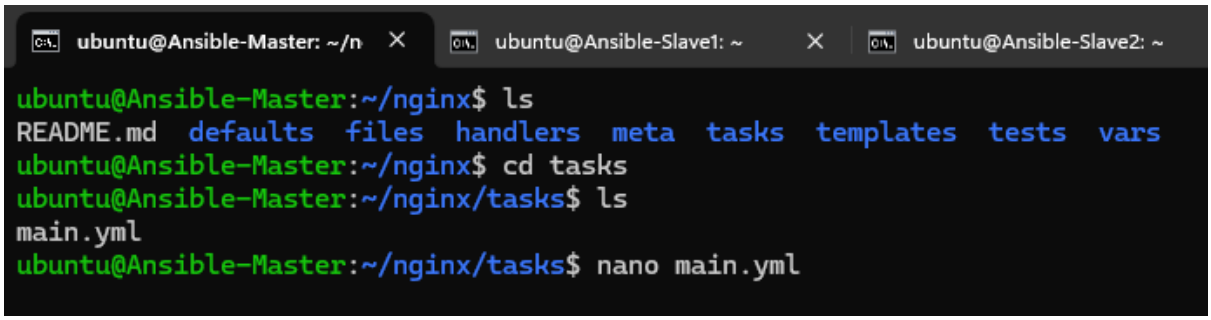
Note: Here we are not Mentioning the Host because Ansible Role not Playbook



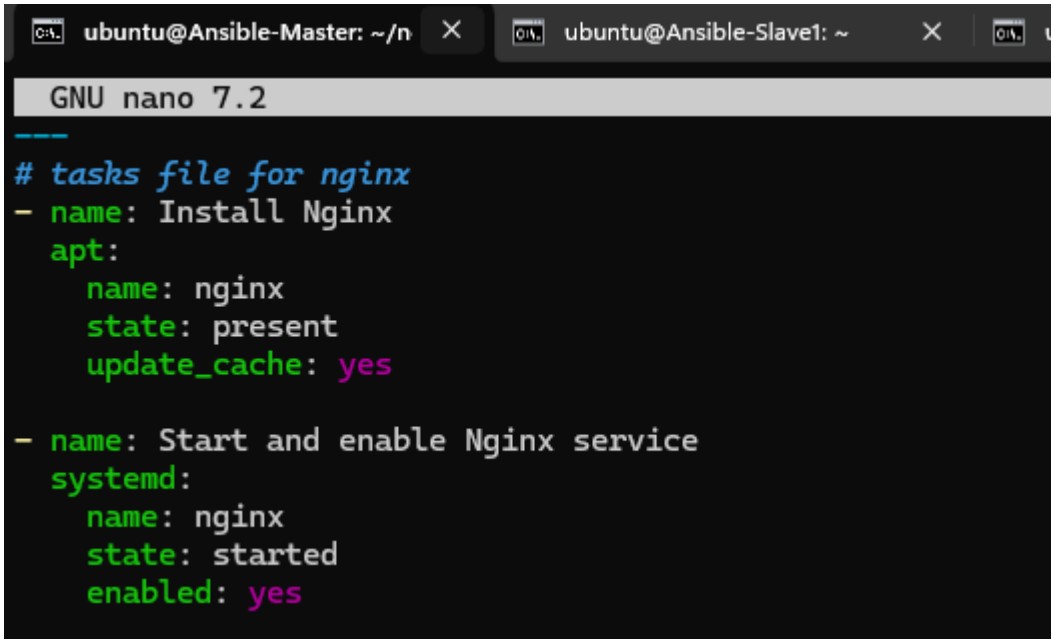
11. Cat view



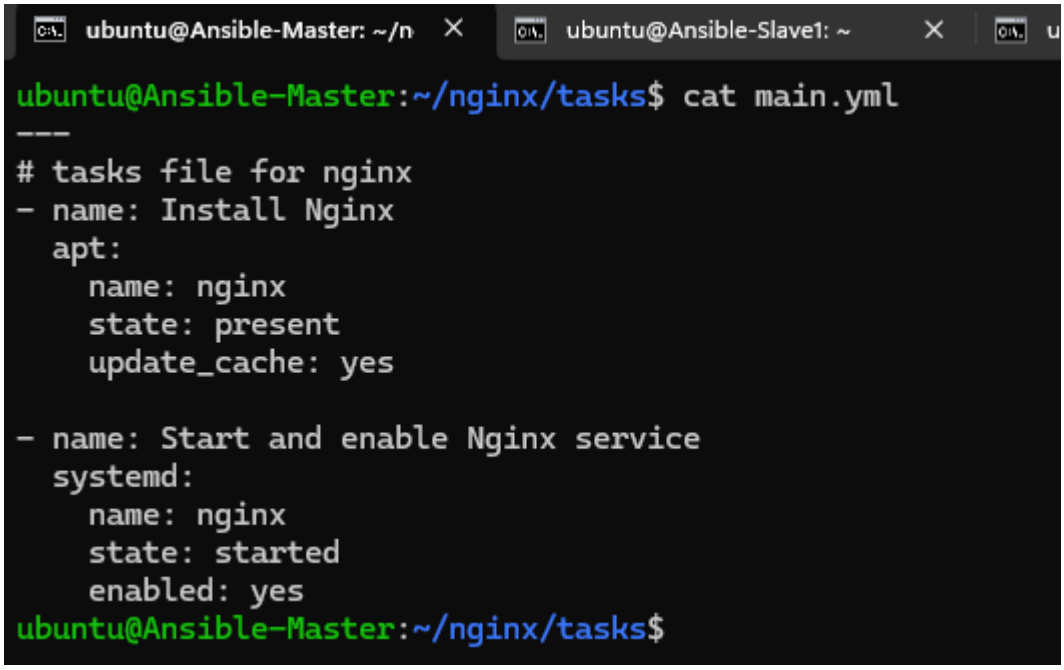
12. Now Start from nginx Role, Whatever we write regarding task we go inside the tasks in that main.yml file we are going the write the task



13. here we are written the script install nginx and apt(Package) name nginx and state present and updating the cache and start and enabled nginx service

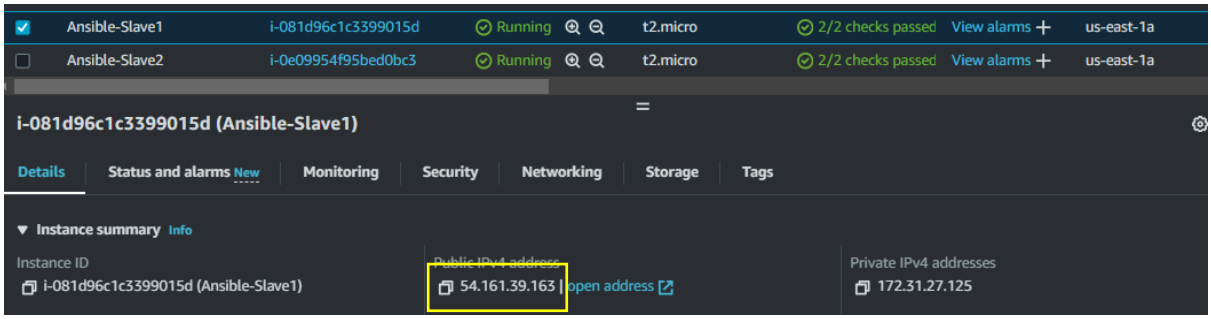


14. cat view

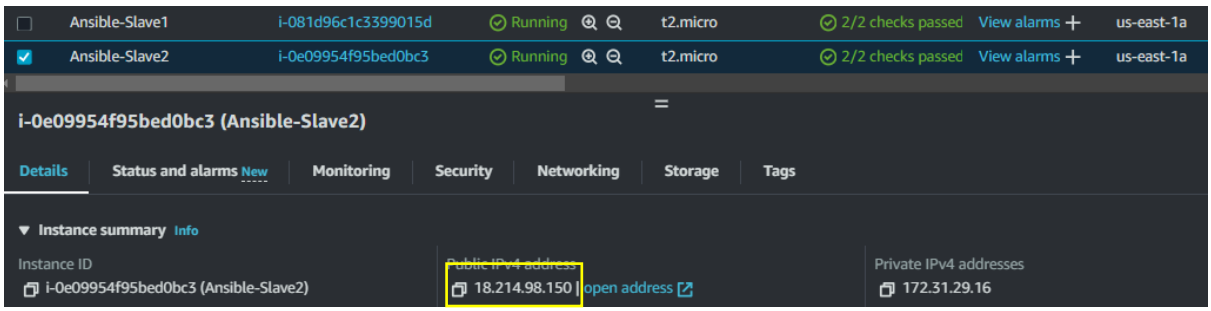


15. Go to home

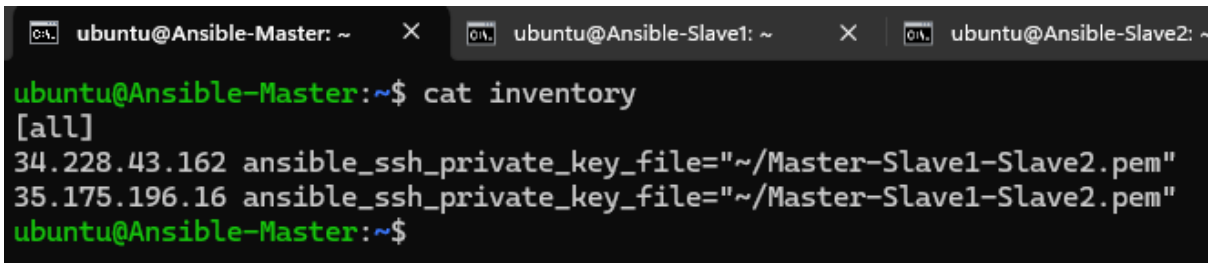
16. I am Copying Public IP of Slave 1



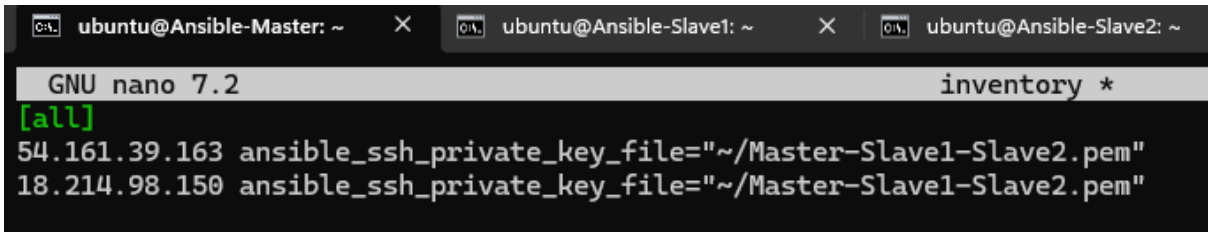
17. I am Copying Public IP of Slave 2



17. Cat Inventory, for what the IP's there in inventory file

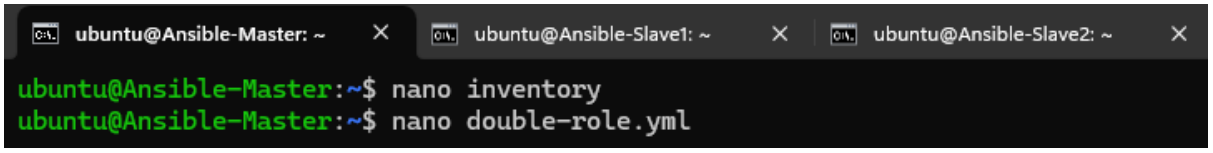


18. Replace new public IP and Remember key-pair have to same both Ansible-master and Ansible slaves



19. And Now we Need to change according to task Because we have to install different packages in both slaves

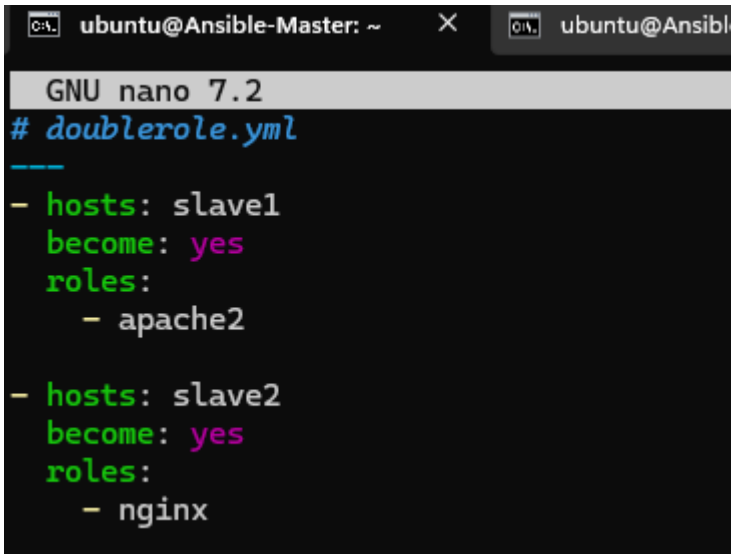
20. Now Create Play-Book



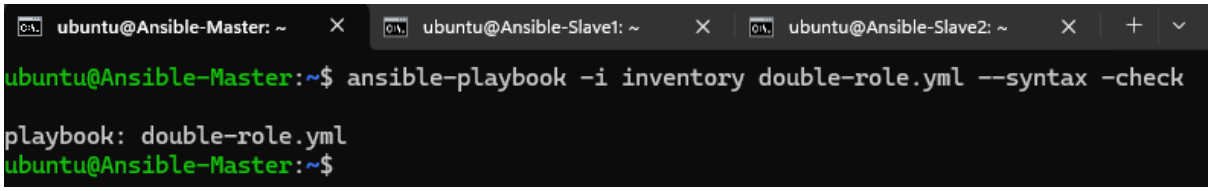
21. Write Hosts and add which role you have to Assign

22. Here I attached apache2 role for slave1 server

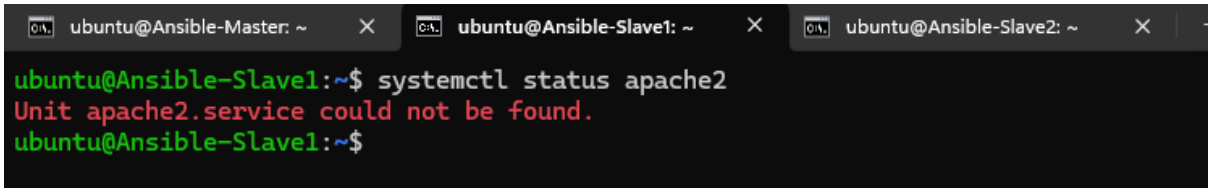
23. and I attach nginx role for slave 2 server

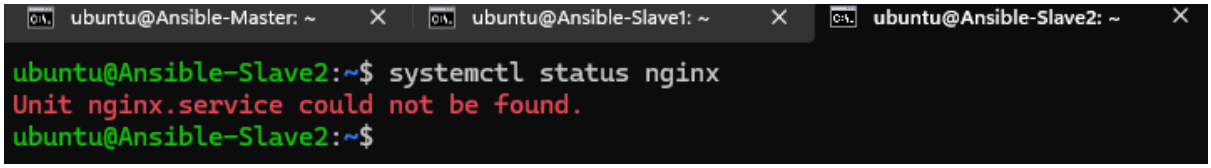


22. syntax check



23. Before executing the task, I am showing in the ansible slave 1 and slave 2 which is not installed





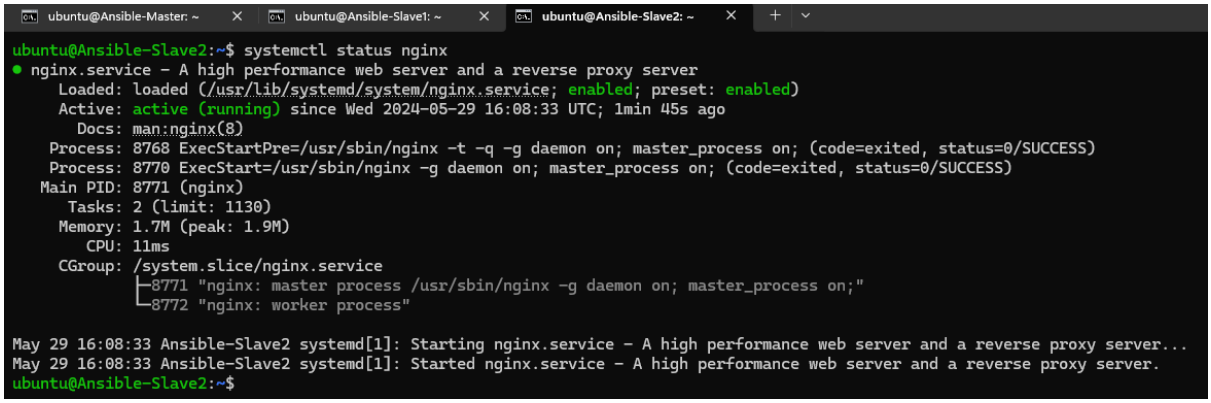
24. Now we able to see successfully completed

```
ubuntu@Ansible-Master: ~   ubuntu@Ansible-Slave1: ~   ubuntu@Ansible-Slave2: ~

ubuntu@Ansible-Master:~$ ansible-playbook -i inventory double-role.yml --syntax -check

playbook: double-role.yml
ubuntu@Ansible-Master:~$ ansible-playbook -i inventory double-role.yml

PLAY [slave1] ******************************************************************************************************
TASK [Gathering Facts] *********************************************************************************************
ok: [54.161.39.163]

TASK [apache2 : Install Apache2] ***********************************************************************************
changed: [54.161.39.163]

TASK [apache2 : Start and enable Apache2 service] ******************************************************************
ok: [54.161.39.163]

PLAY [slave2] ******************************************************************************************************
TASK [Gathering Facts] *********************************************************************************************
The authenticity of host '18.214.98.150 (18.214.98.150)' can't be established.
ED25519 key fingerprint is SHA256:lbiygpYdrhyWoPKKLIsqIFNW/GiZj+mu+OEAne9JuyI.
This host key is known by the following other names/addresses:
    ~/.ssh/known_hosts:1: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
ok: [18.214.98.150]

TASK [nginx : Install Nginx] ***************************************************************************************
changed: [18.214.98.150]

TASK [nginx : Start and enable Nginx service] **********************************************************************
ok: [18.214.98.150]

PLAY RECAP *********************************************************************************************************
18.214.98.150              : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
54.161.39.163              : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@Ansible-Master:~$
```

25. We can see apache2 server on slave1

```
ubuntu@Ansible-Master: ~   ubuntu@Ansible-Slave1: ~   ubuntu@Ansible-Slave2: ~

ubuntu@Ansible-Slave1:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Wed 2024-05-29 16:08:10 UTC; 1min 40s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 9618 (apache2)
      Tasks: 55 (limit: 1130)
     Memory: 5.5M (peak: 5.5M)
        CPU: 42ms
     CGroup: /system.slice/apache2.service
             ├─9618 /usr/sbin/apache2 -k start
             ├─9621 /usr/sbin/apache2 -k start
             └─9622 /usr/sbin/apache2 -k start

May 29 16:08:10 Ansible-Slave1 systemd[1]: Starting apache2.service - The Apache HTTP Server...
May 29 16:08:10 Ansible-Slave1 systemd[1]: Started apache2.service - The Apache HTTP Server.
ubuntu@Ansible-Slave1:~$
```

26. We can see nginx on slave2



DevOps Certification Training

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Module-6: Ansible Assignment - 4

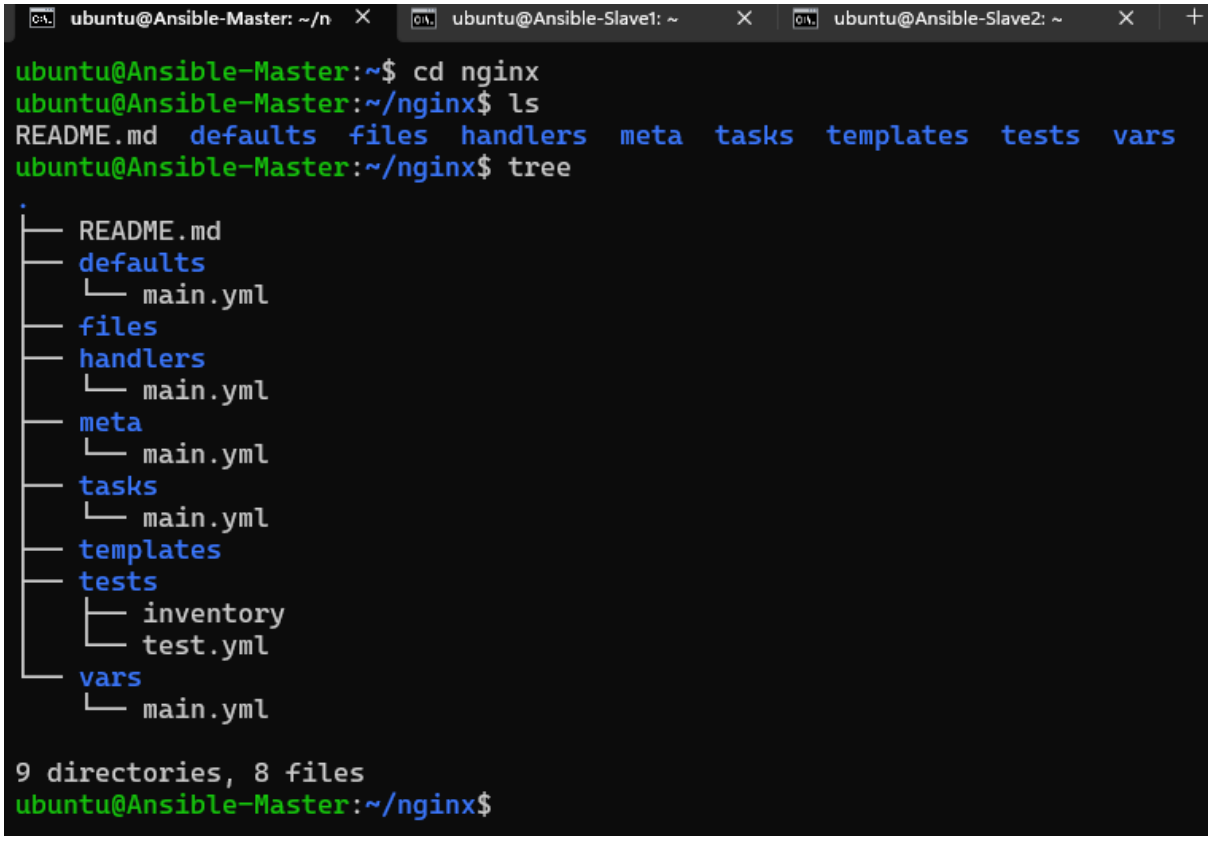
You have been asked to:

- Use the previous deployment of ansible cluster
- Configure the files folder in the role with index.html which should be replaced with the original index.html

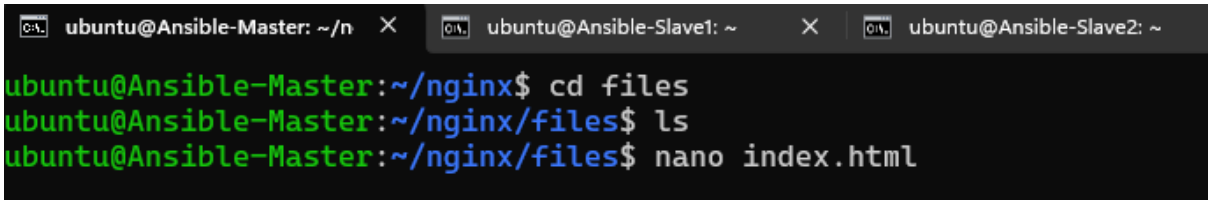
All of the above should only happen on the slave which has nginx installed using the role

---

1. I am continuing the Assignment 4, Using previous deployment so its related to nginx server so I am going inside the nginx role

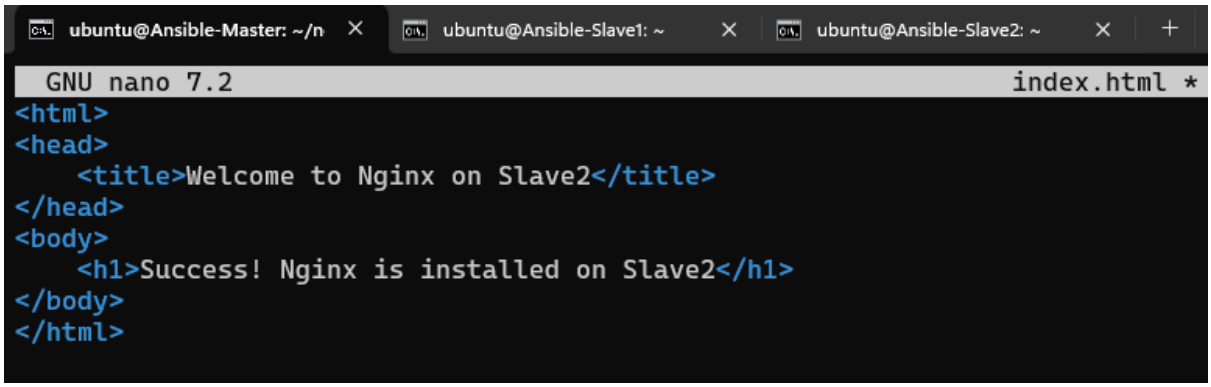


2. Go to Files folder here we creating a index.html file

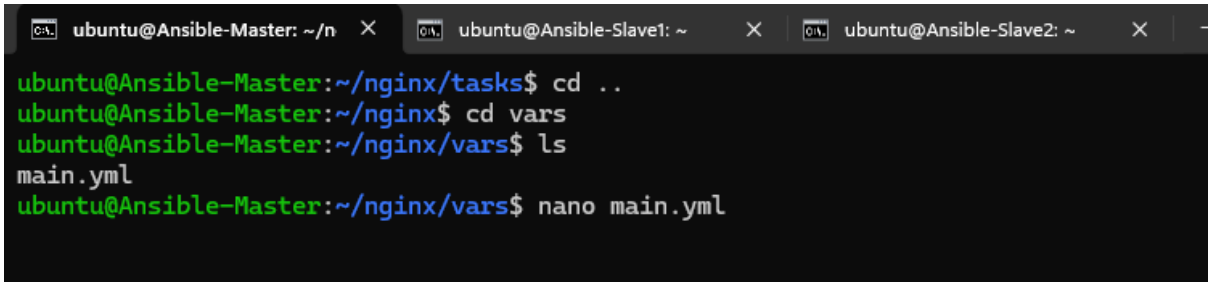


3. Write a Html Script, Here I Written Title “Welcome to Nginx on Slave2”

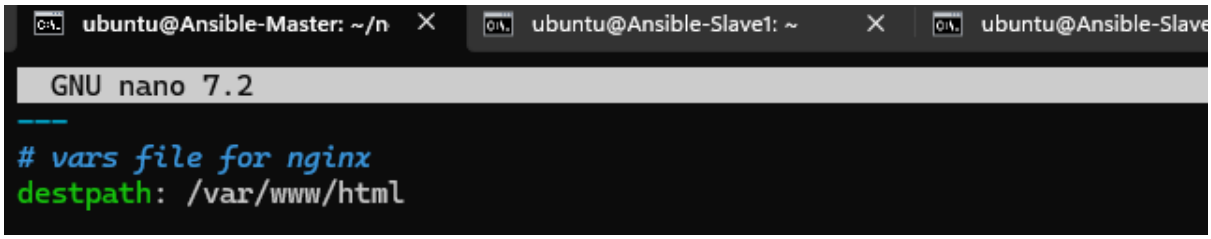
Body “Success! Nginx is installed on Slave2”



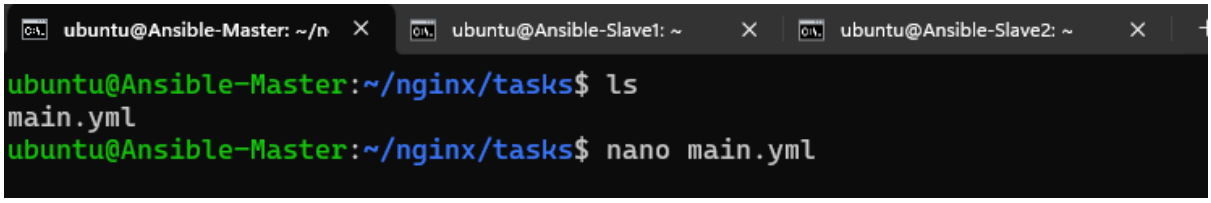
4. Optional Or Otherwise we can give destination location on task, Or we go Vars folder and edit main.yml



5. Giving destination path was /var/www/html



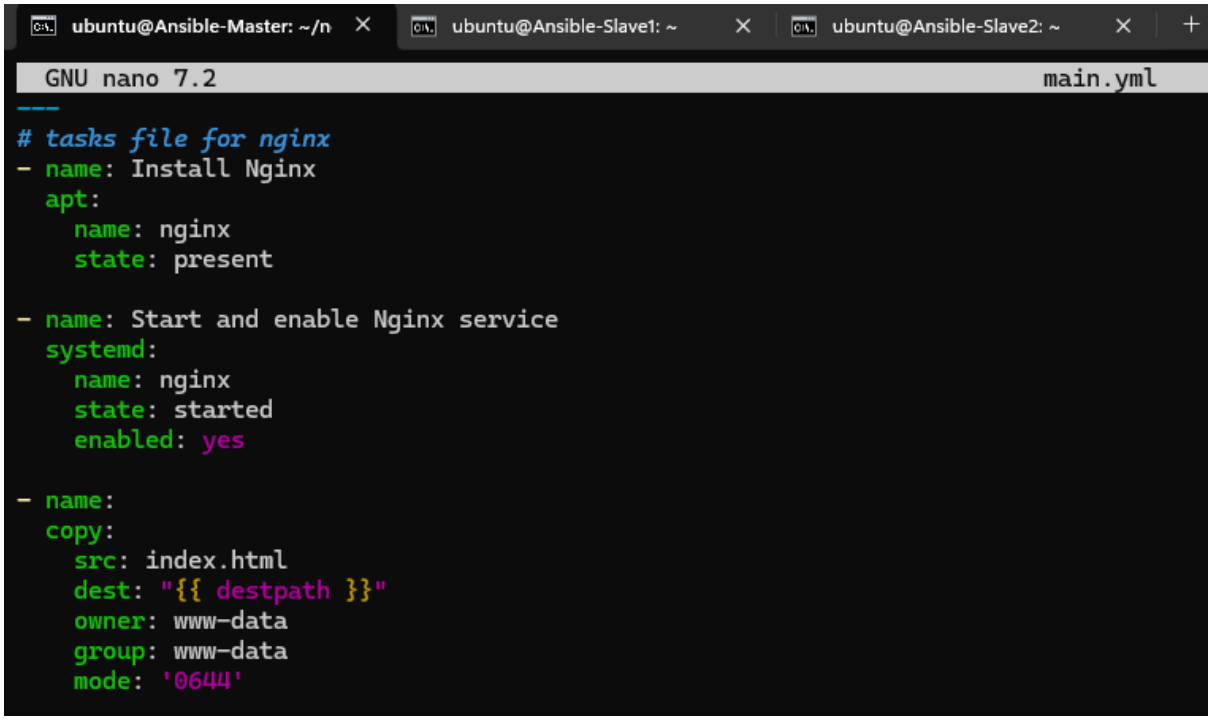
6. go to tasks file and edit main file



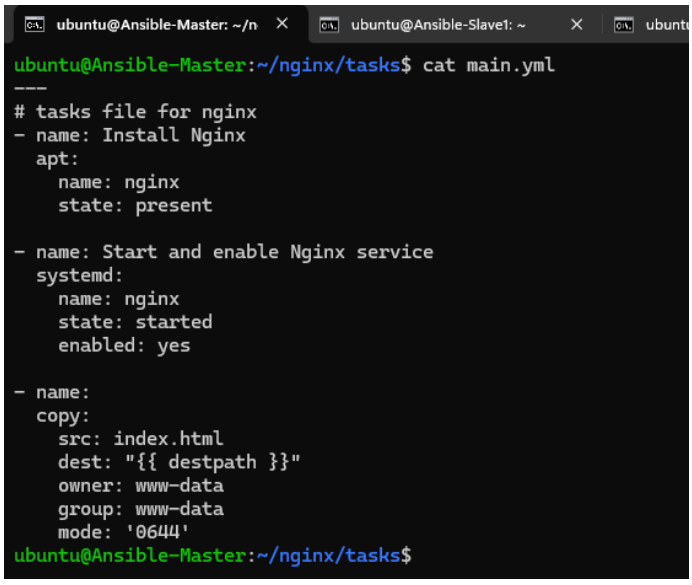
7. `systemd`: Uses the Ansible `systemd` module to start the Nginx service and enable it to start at boot.

`copy`: Uses the Ansible `copy` module to transfer `index.html` to the destination path specified by `destpath`.

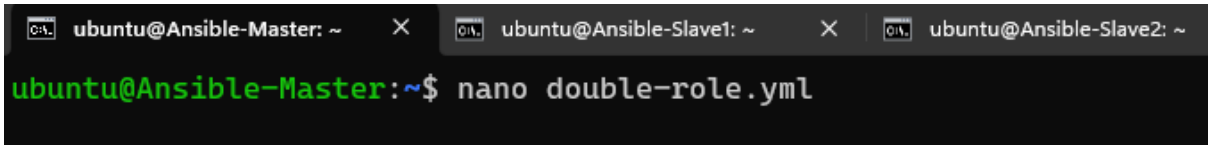
`owner`, `group`, `mode`: Set the file's owner, group, and permissions.



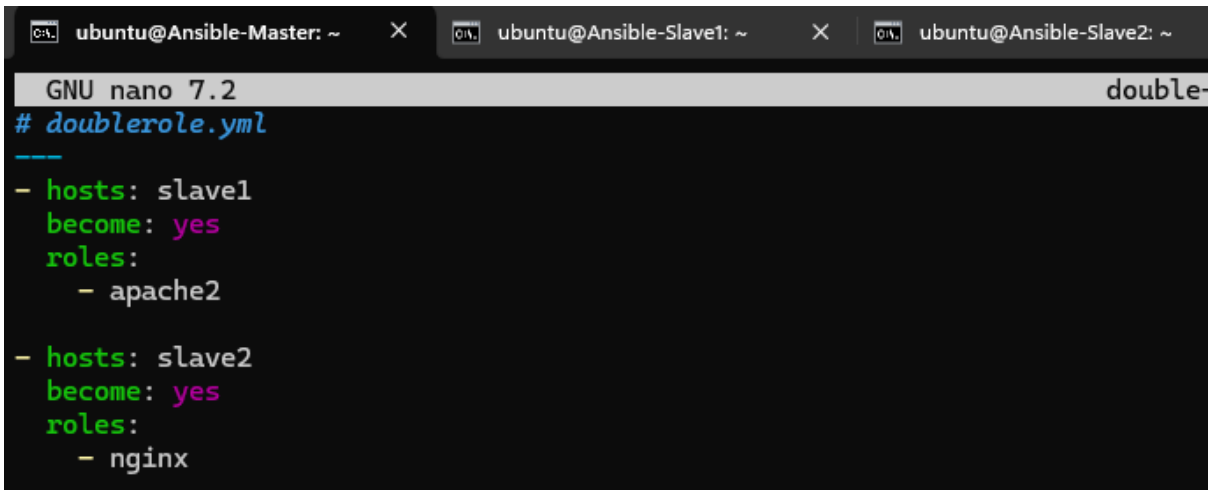
8. Cat View



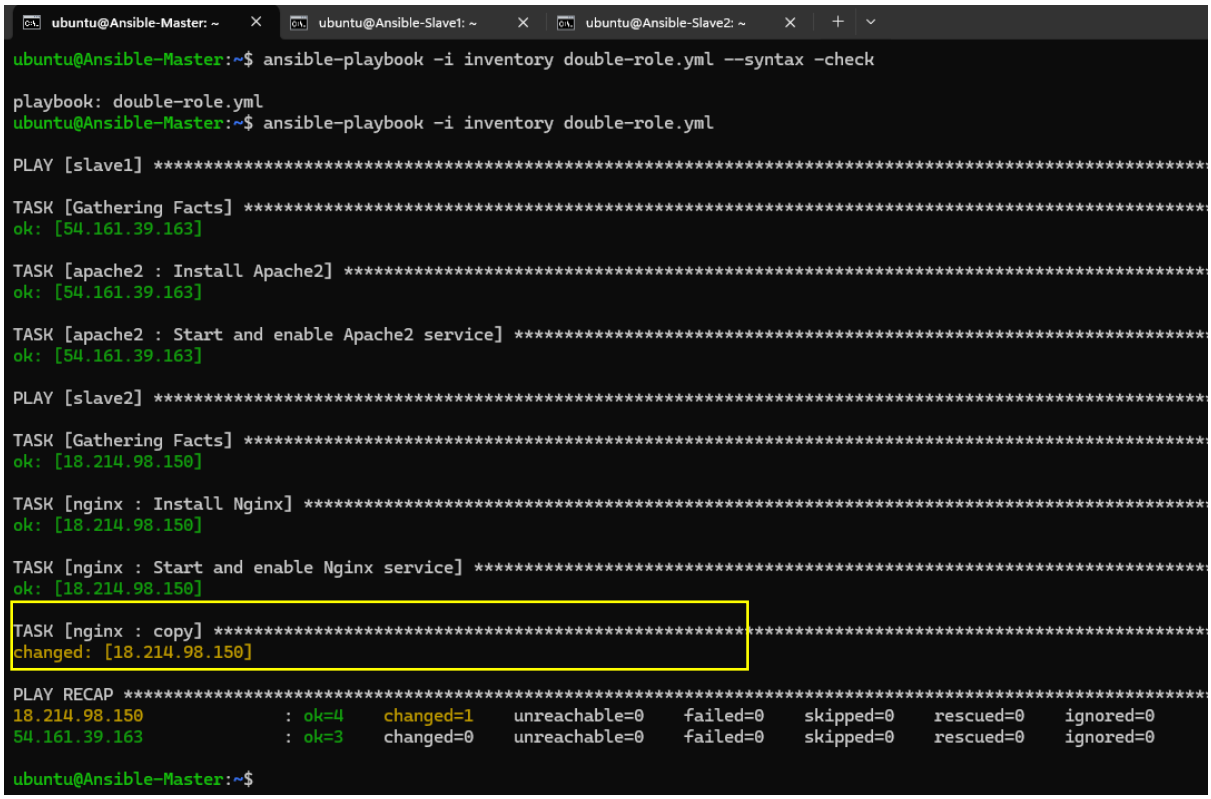
9. Now Configure the playbook



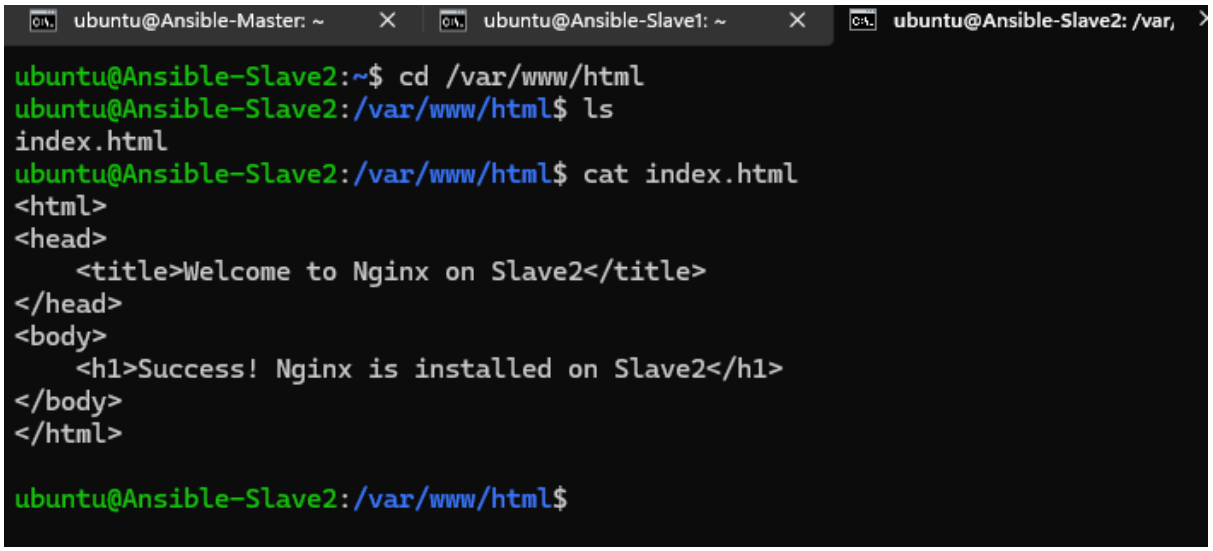
10. I left has it is.



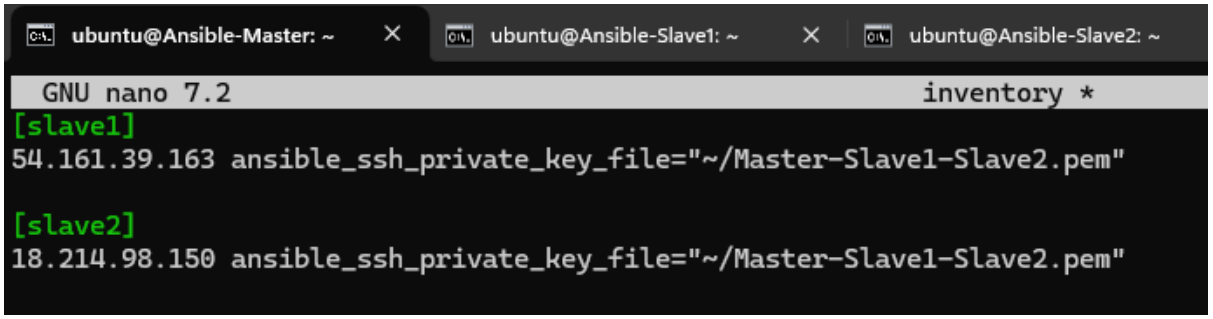
11. All Ok one thing. it performed that is nginx copying to slave2



12. we can see the index.html and I deleted Default html file(No Need to Delete)



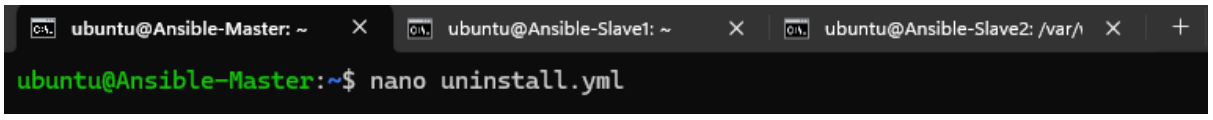
13. Notice the slave 2 IP and copy it



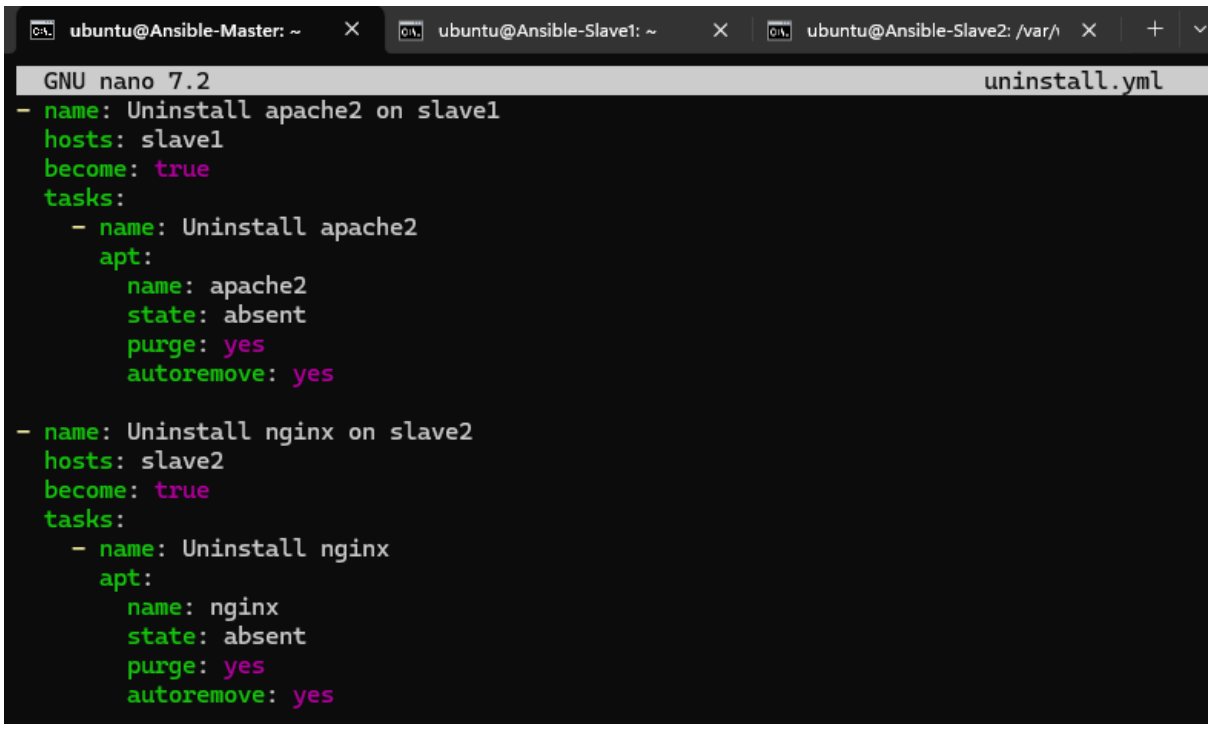
14. Paste it in Browser, see the title and Body

OPTIONAL TASK:

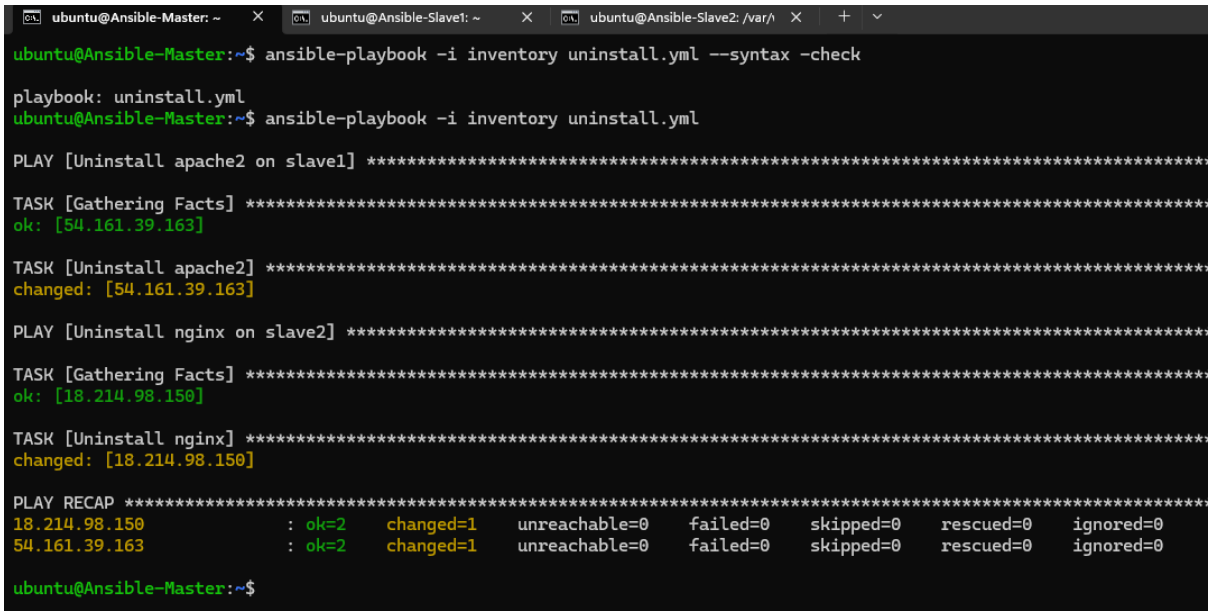
15. I am Uninstalling Both Servers



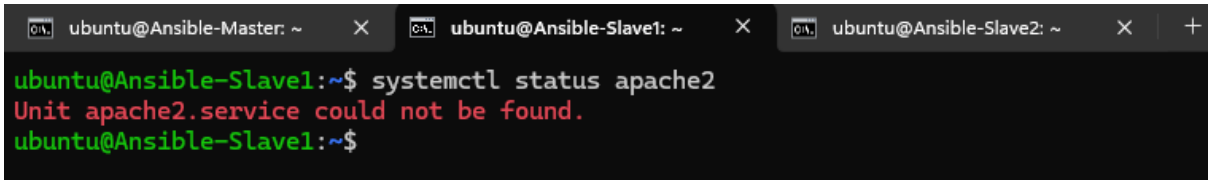
16. State: absent and Purge: yes and autoremove:yes



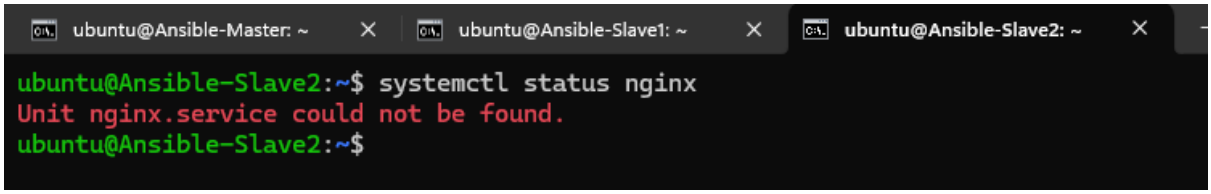
17. Perform the task and its changed on both IPS and its performed successfully.



18. Check on Slave1, apache2 not found



19. Check on Slave2, nginx not found



DevOps Certification Training

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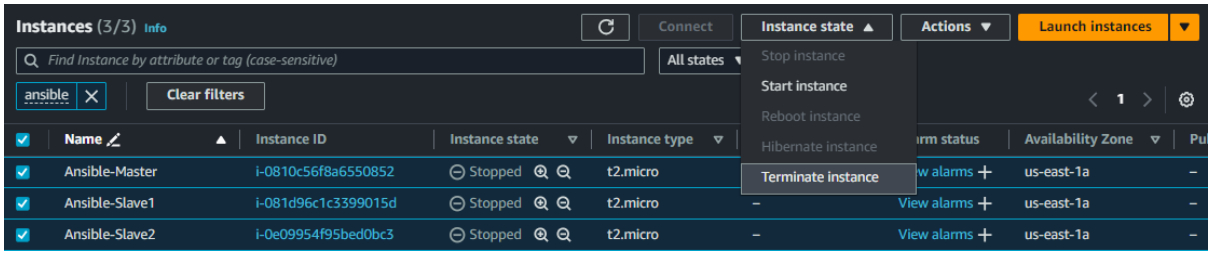
Module-6: Ansible Assignment - 5

You have been asked to:

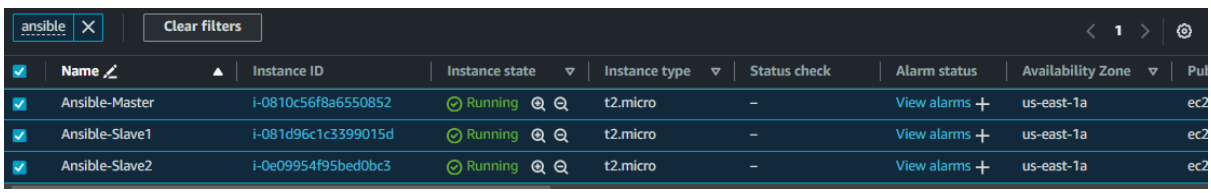
- Create a new deployment of ansible cluster of 5 nodes
- Label 2 nodes as test and other 2 as prod
- Install java on test nodes
- Install mysql-server on prod nodes

Use Anisble roles for the above, group the hosts under test and prod

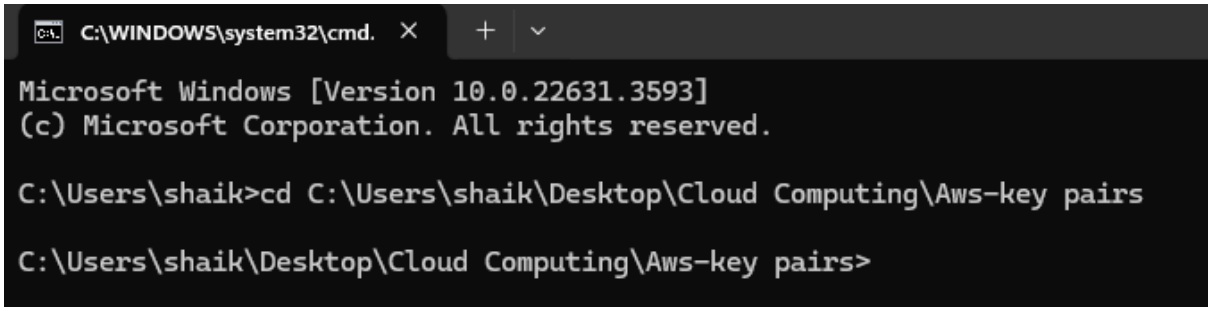
1. Enable the Instances



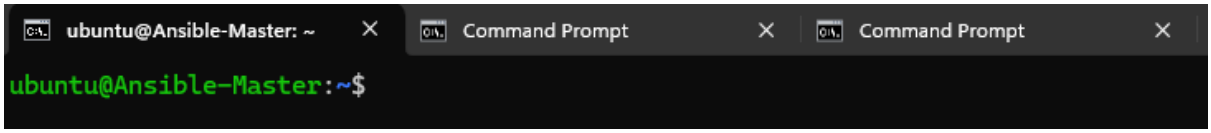
2. Now its Running



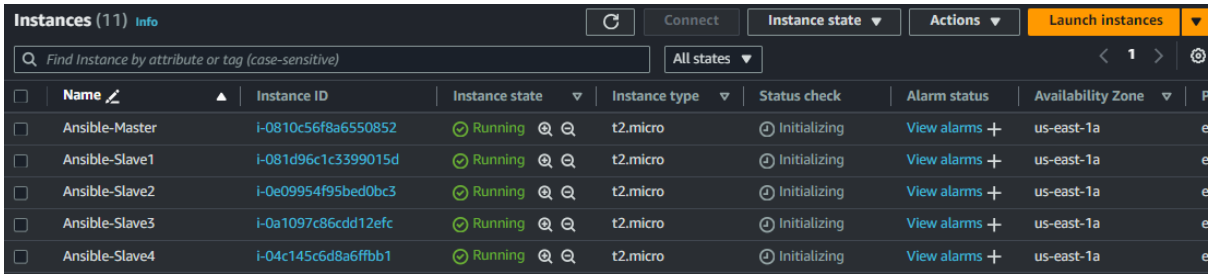
3. Go to Key-Pair Path



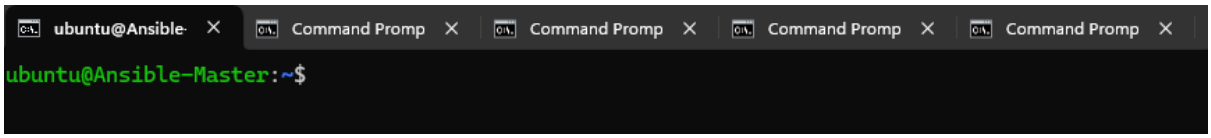
4. Connected to Ansible-Master and Slave1 and Slave2, But According to Assignment Task we Need 5 Instances



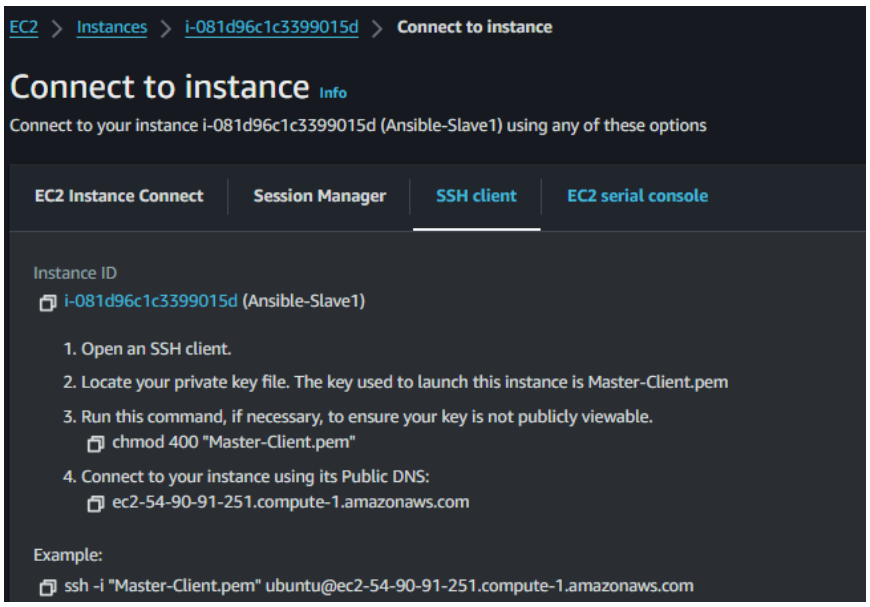
5. I am Launching Another 2 Instances and Named as Ansible-Slave3 and Slave4



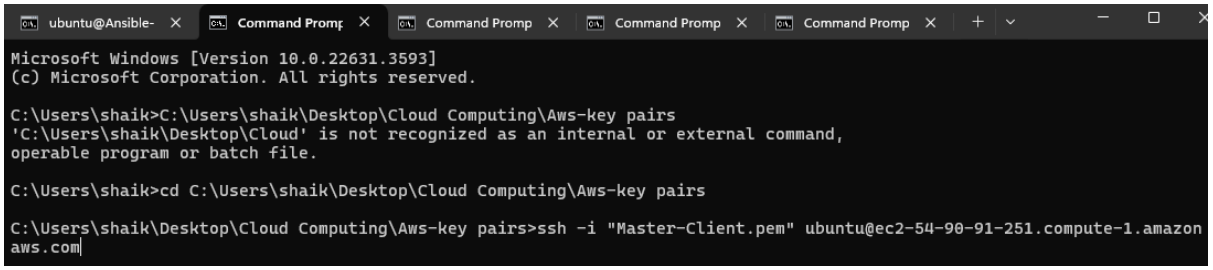
6. See the 5 Instances logged successfully and change host name as per ur need



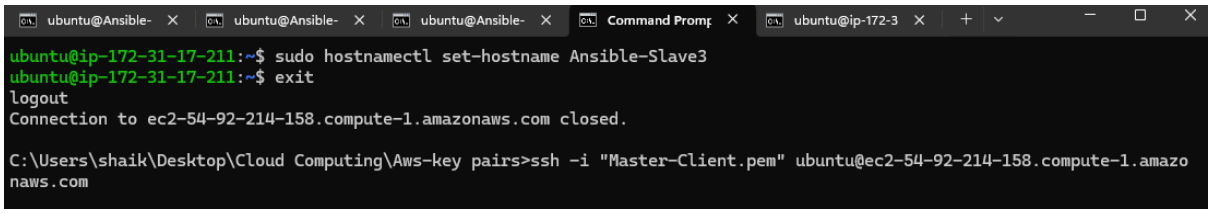
7. Go Instances > connect > SSH Client copy the path



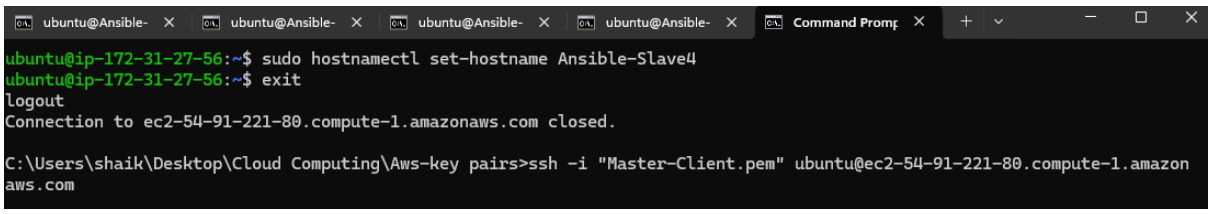
8. paste in key-pair location and connect this is slave1



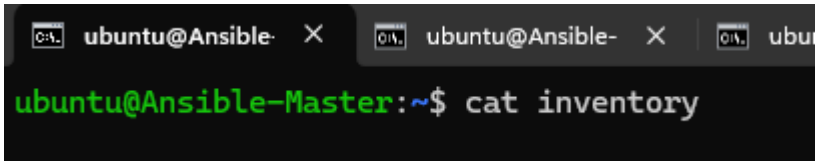
9. Connect like all instances, Now connecting slave3, Change the Hostname as your wish



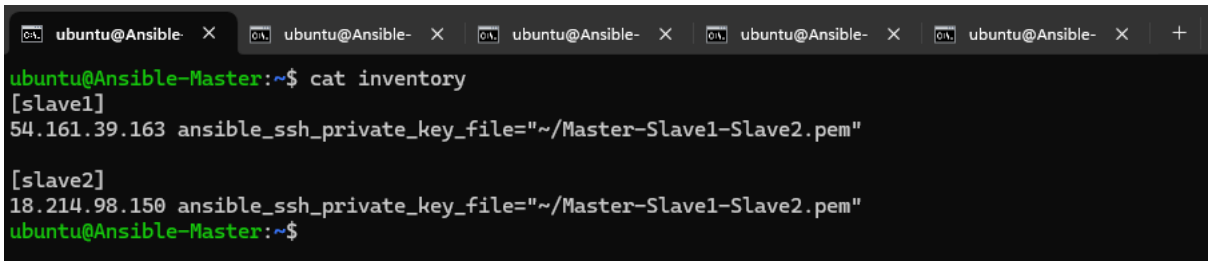
10. same as slave4



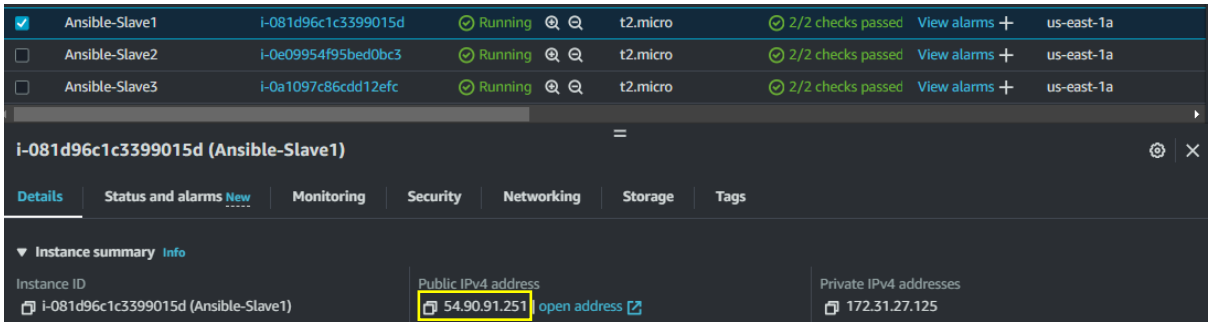
11. Go Ansible-Master and Check the IP's and Change it



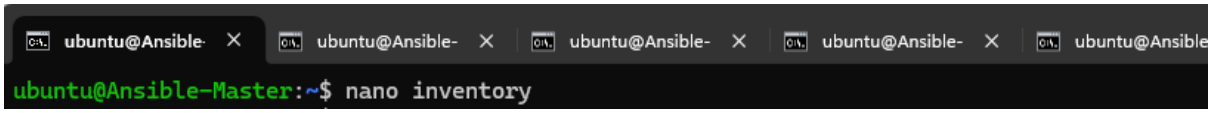
12. This is Past Ip's and Now we need to Modify it



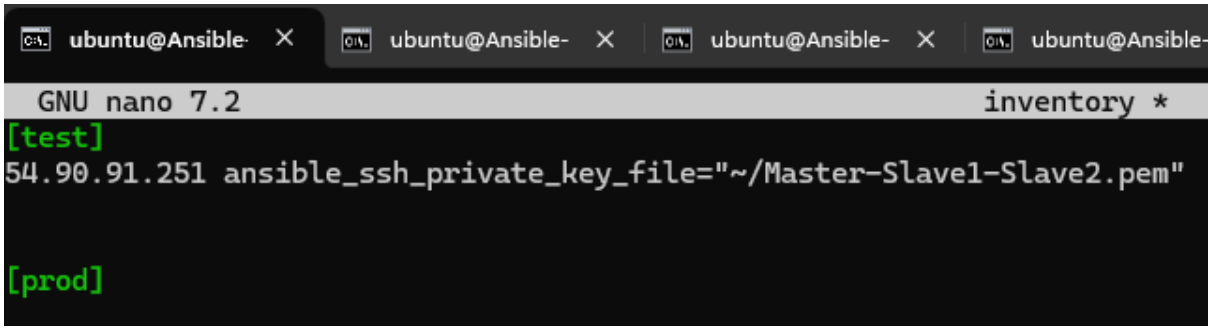
13. Copying slave1 Public IP



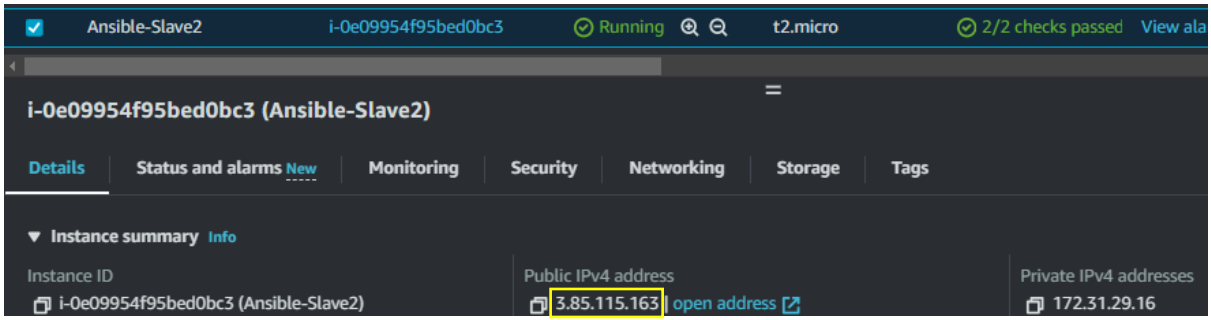
14. Open file in editor



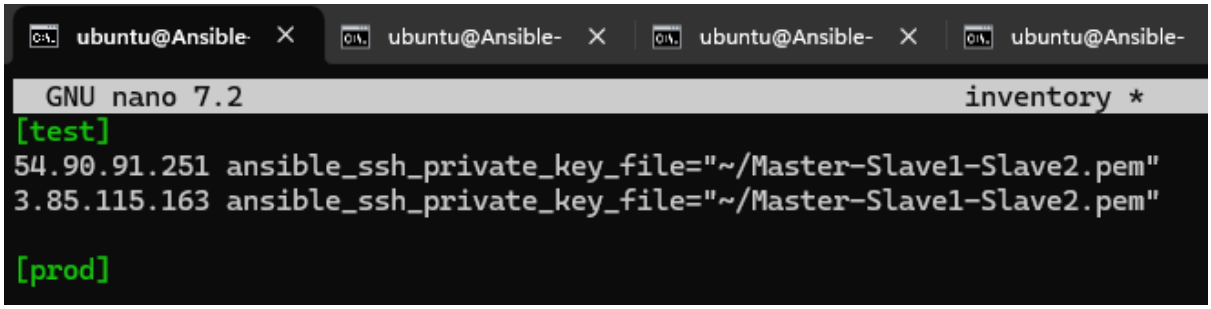
15. Paste Copied IP of Slave1



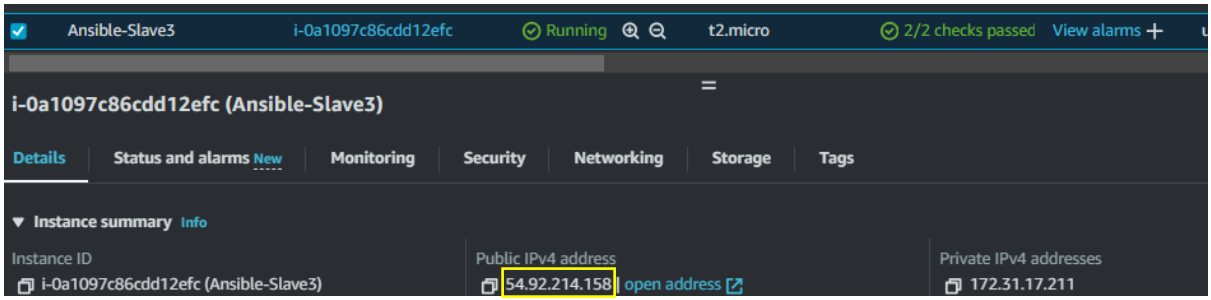
16. Copying slave2 Public IP



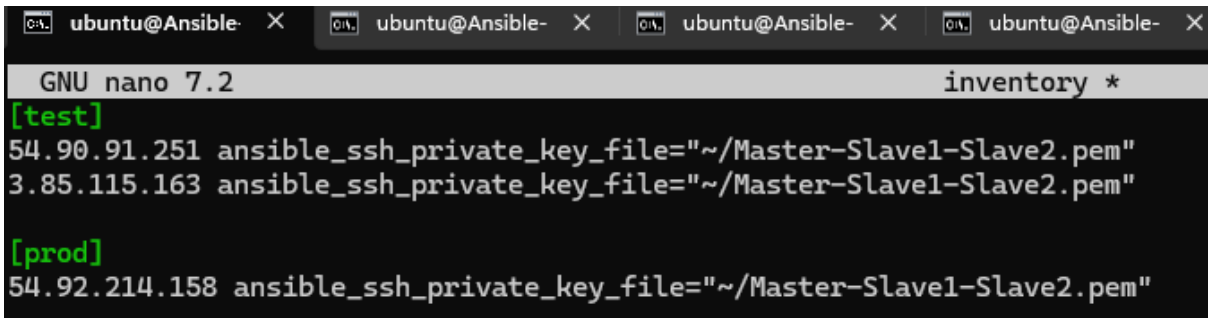
17. Paste Copied IP of Slave2



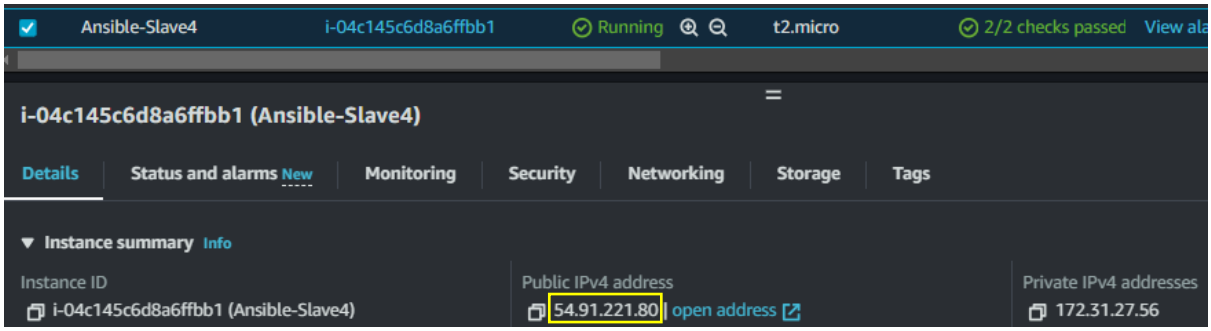
18. Copying slave3 Public IP



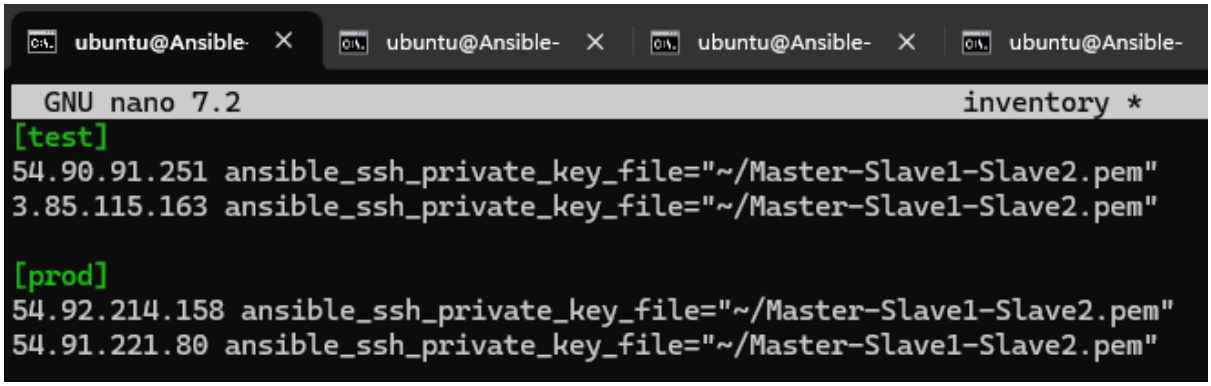
19. Paste Copied IP of Slave3



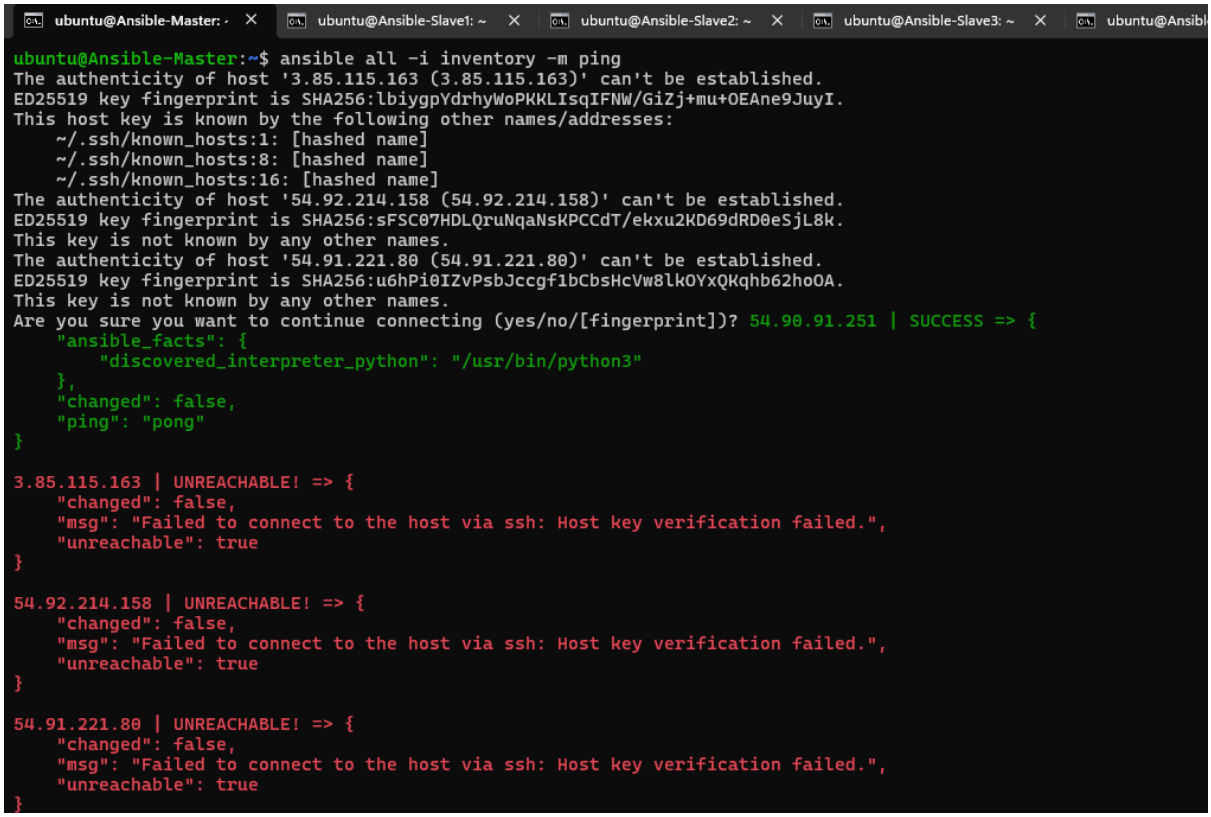
20. Copying slave 4 Public IP



21. Paste Copied IP of Slave4



22. I am pinging but sometimes, it showing error only first IP going to be success and other will be failed.

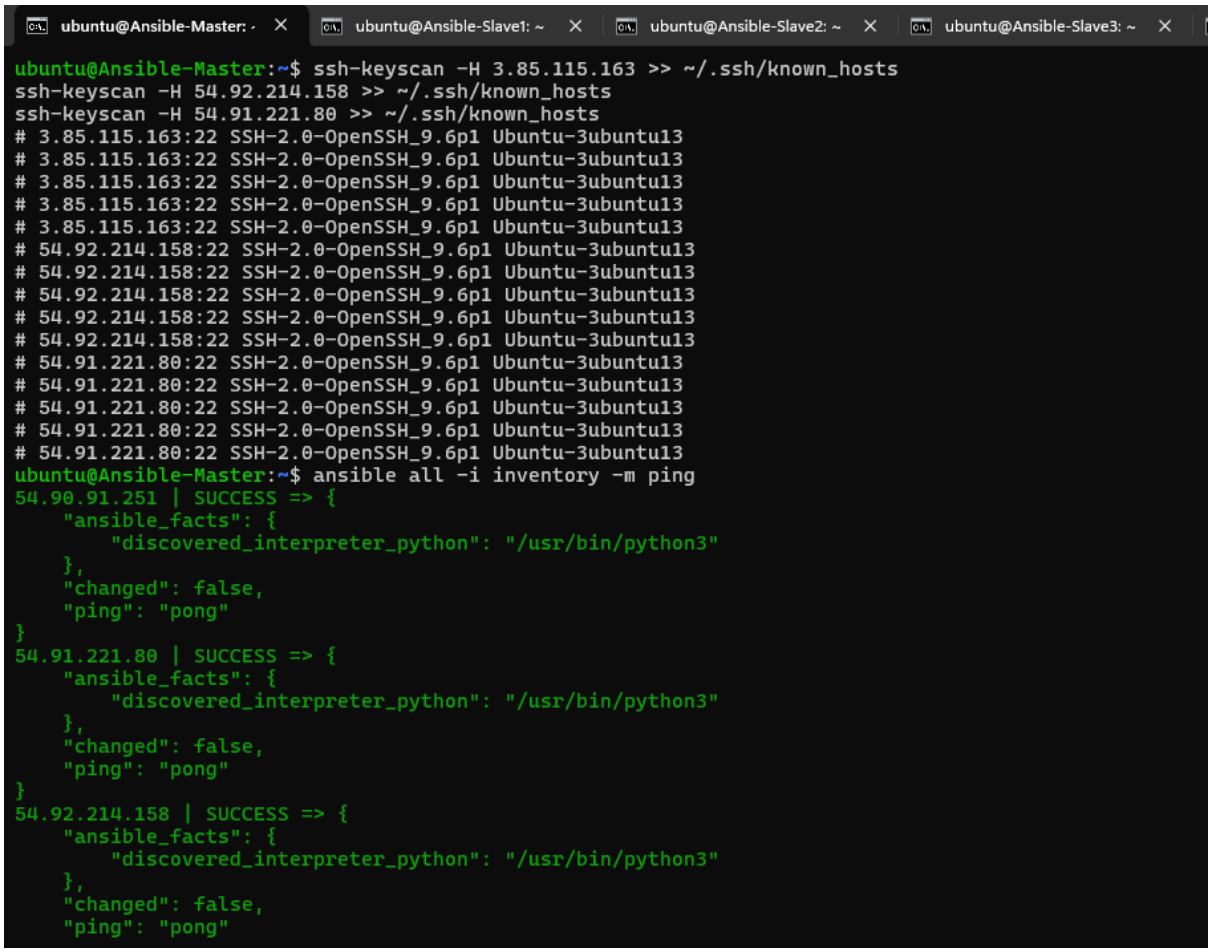


Manually Update Known Hosts

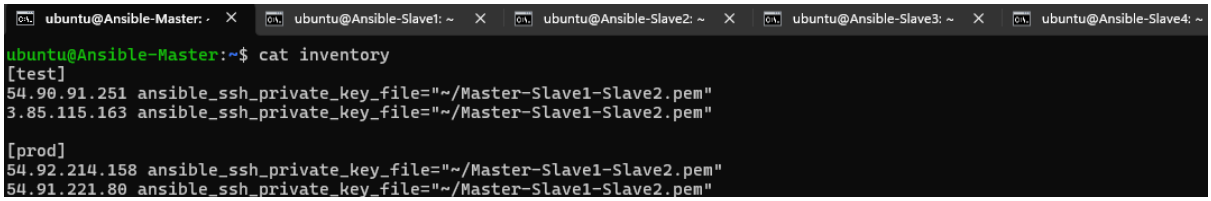
1. **Remove the offending host entries:** You can manually remove the old or offending entries from your `~/.ssh/known_hosts` file. This can be done by opening the file and deleting the lines corresponding to the problematic hosts.
2. **Automatically accept the new host keys:** You can use the `ssh-keyscan` command to fetch and add the host keys to your known_hosts file. For example:

```
ssh-keyscan -H 3.85.115.163 >> ~/.ssh/known_hosts
ssh-keyscan -H 54.92.214.158 >> ~/.ssh/known_hosts
ssh-keyscan -H 54.91.221.80 >> ~/.ssh/known_hosts
```

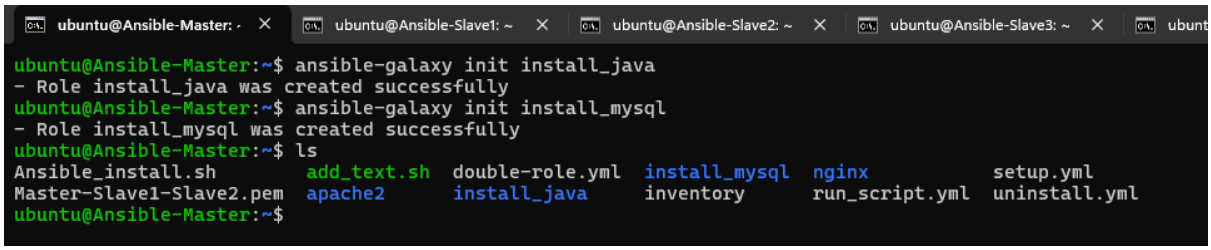
22. So I am Manually Scanning the keys and its ran successfully



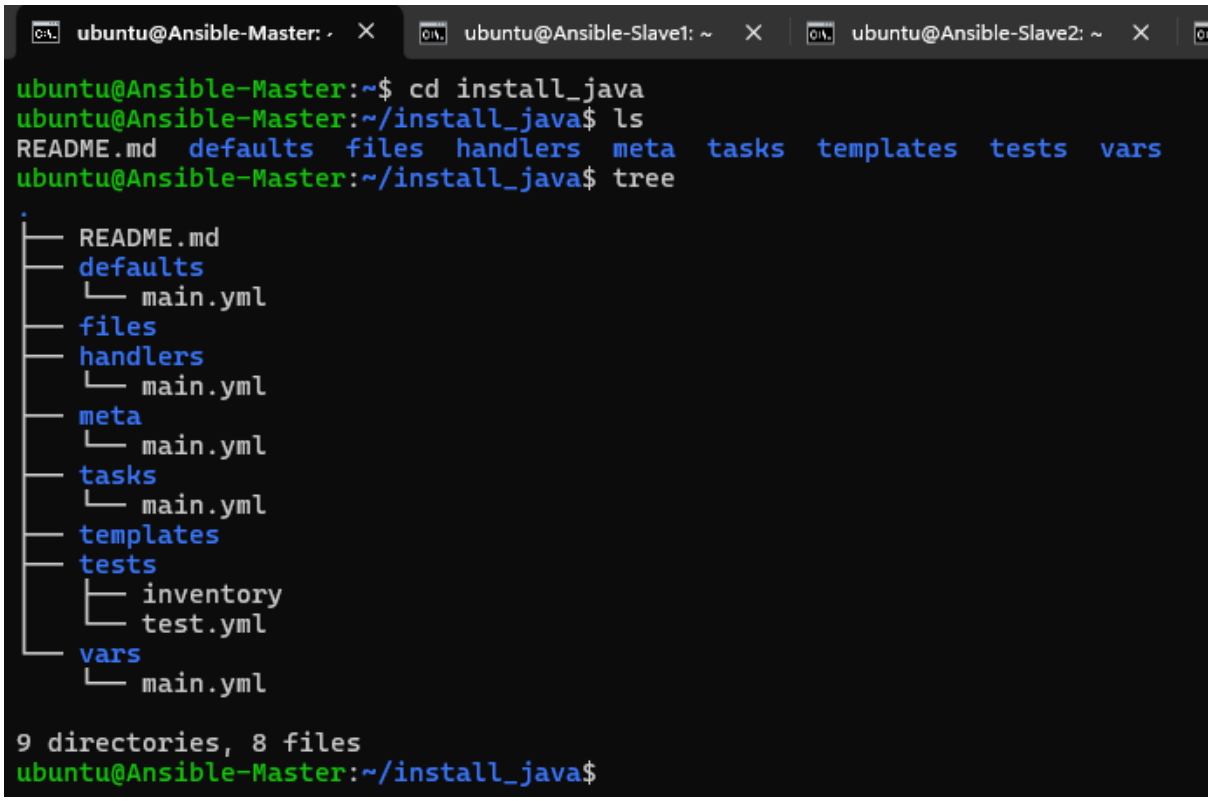
23. cat view



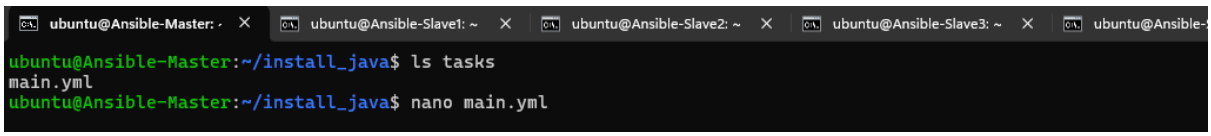
24. Now for 2 Nodes we have to install java and 2 nodes we have install mysql



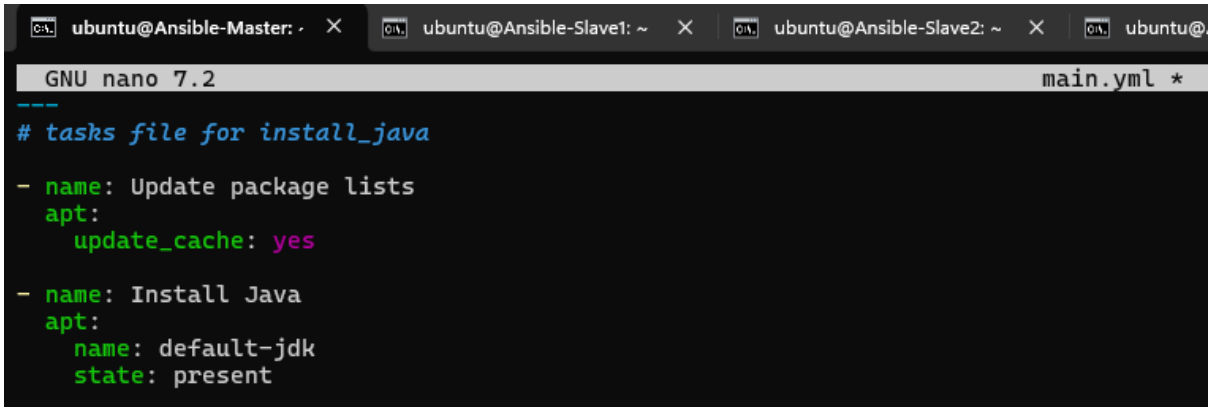
25. tree view



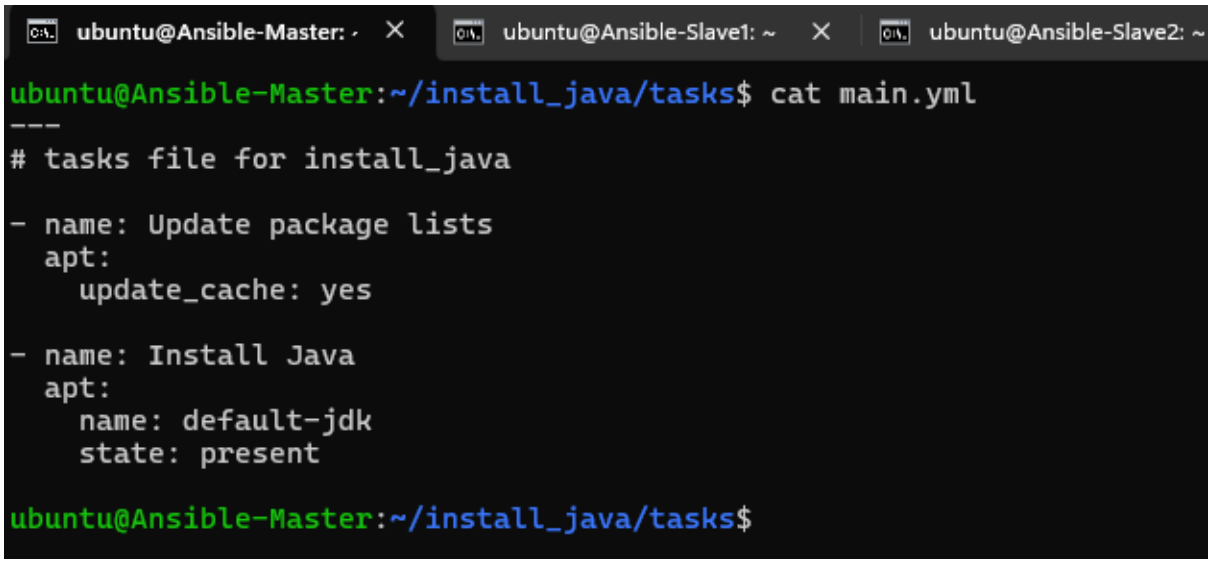
26. Go to Tasks Edit main file



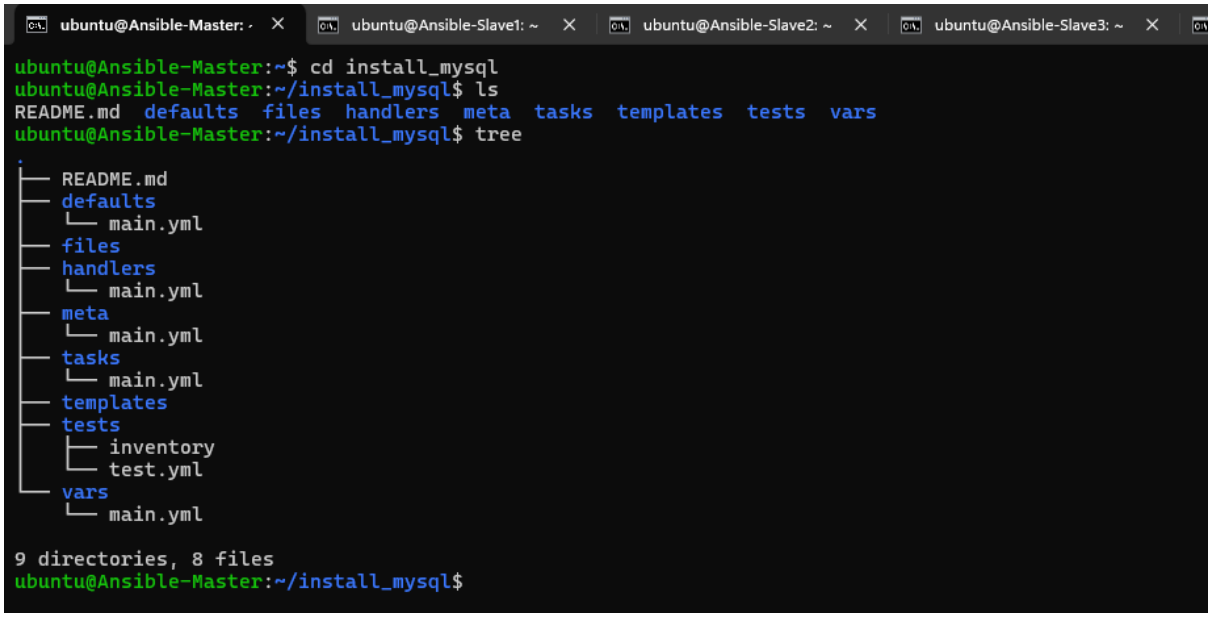
27. So Updating the Package lists and Name: Install java and state: present



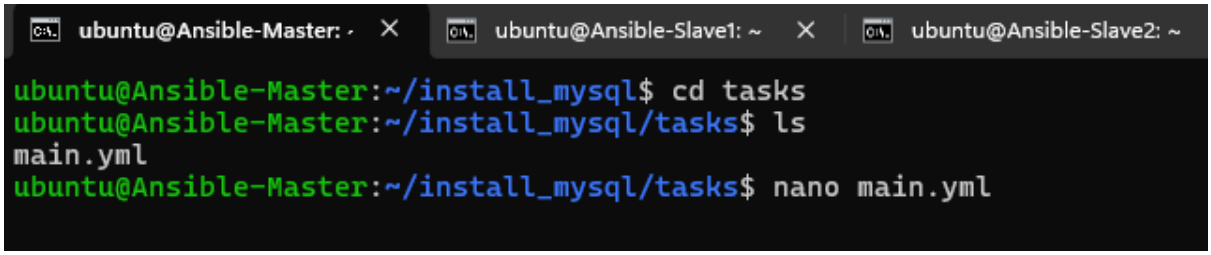
28. Cat View



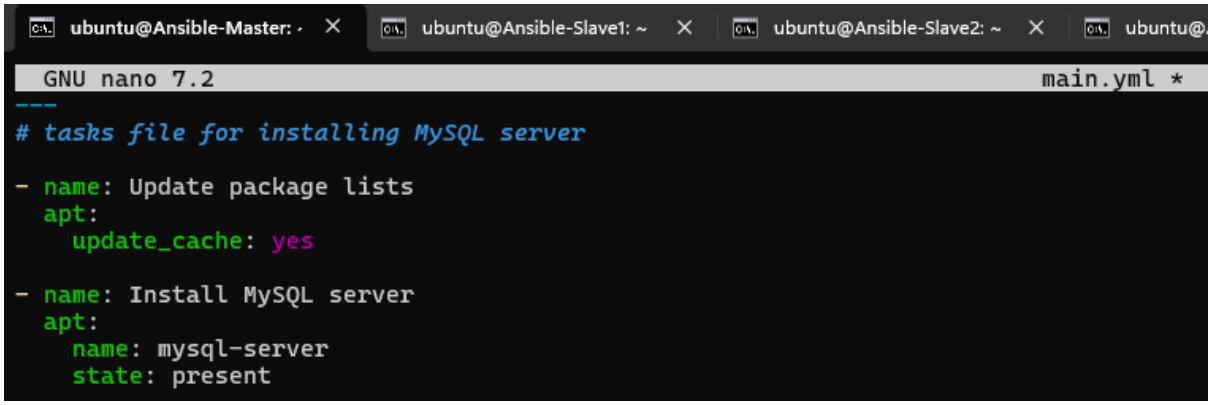
29. Now Go Mysql Role and tree view



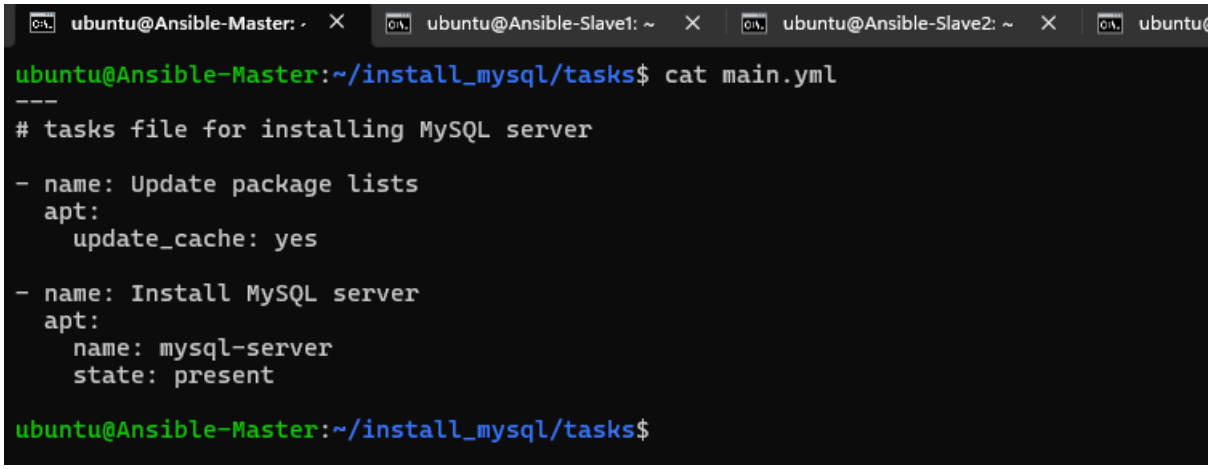
30. go to tasks edit main.yml file



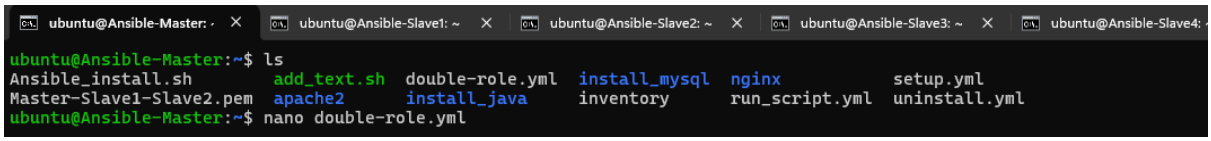
31. So Updating the Package lists and Name: Install mysql-server and state: present



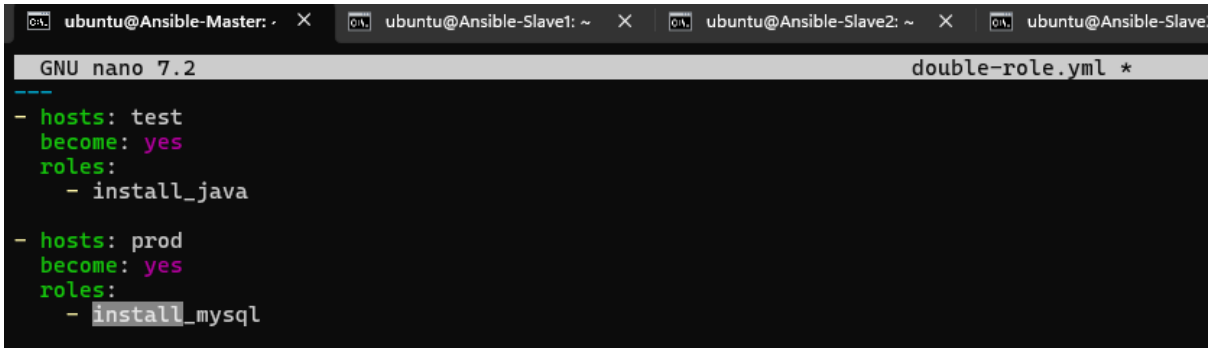
32. Cat View



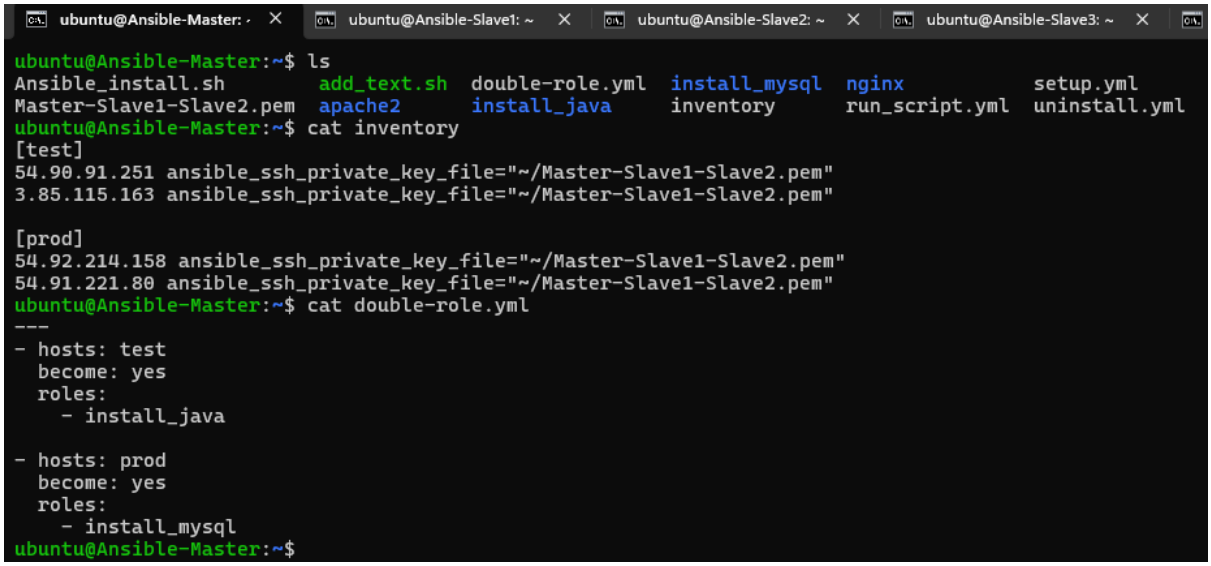
33. Modify the double-role.yml file it is a play book we are replacing the roles



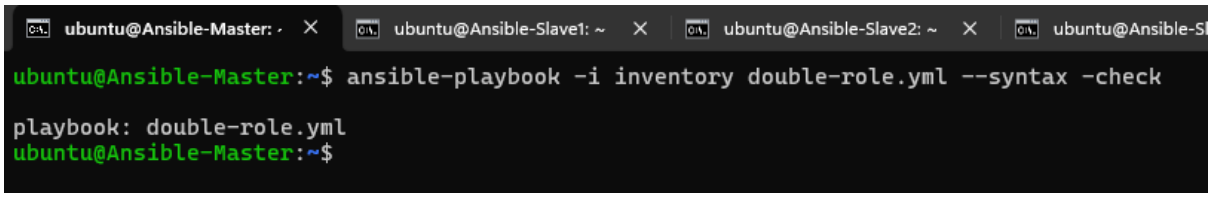
34. According to task Install java on test host and install_mysql on prod host



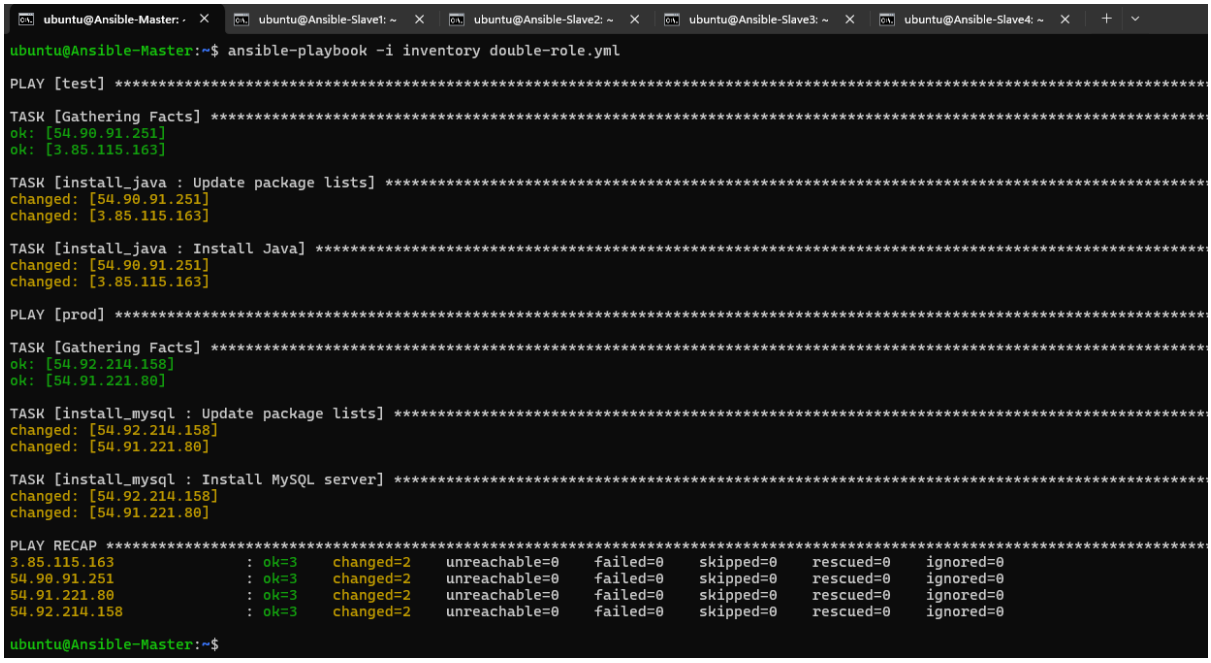
35. Check the inventory and playbook



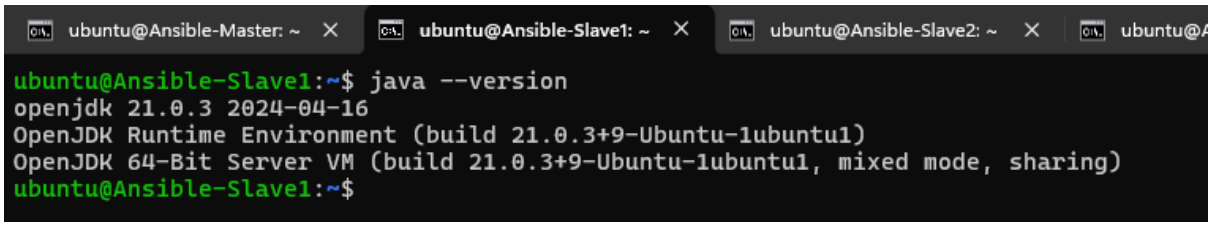
36. syntax check



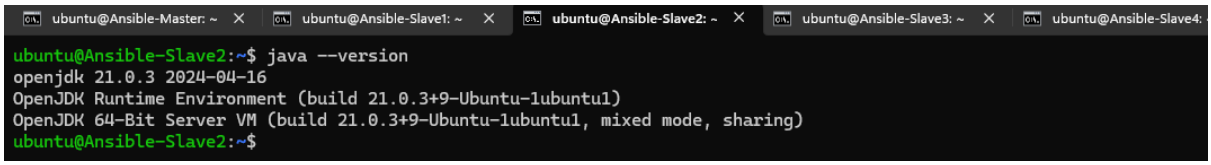
37. Performed the tasks and its executed successfully



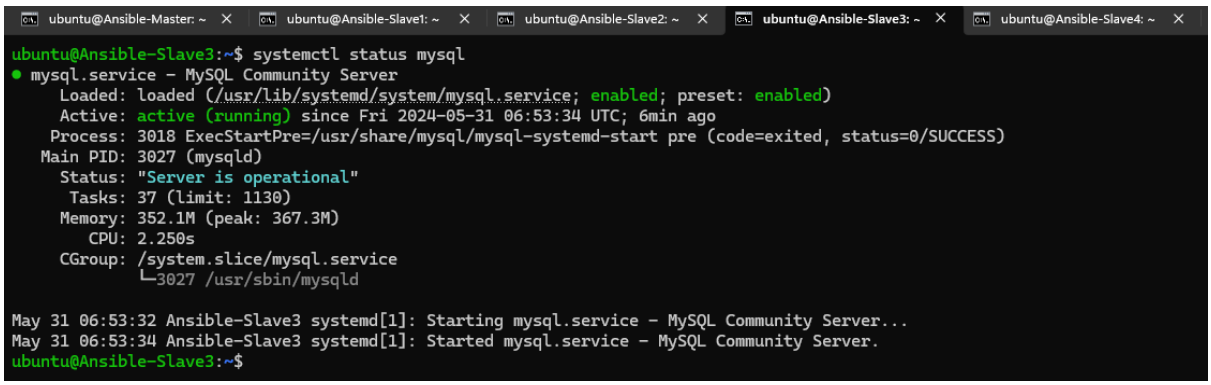
38. check in slave1, its installed java successfully



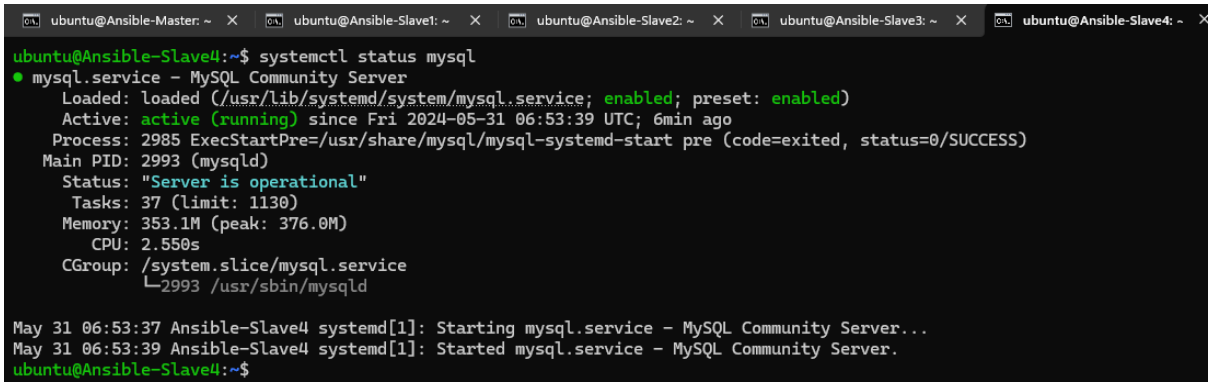
39. Check in slave2, its installed java successfully



40. Check in slave3, its installed mysql successfully

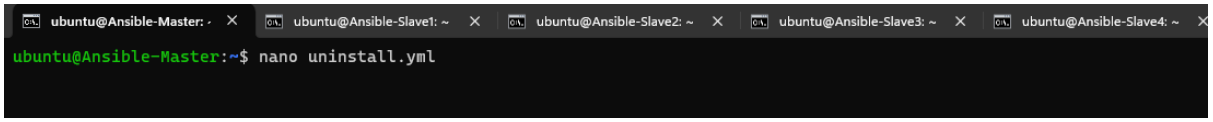


41. check in slave4, its installed mysql successfully

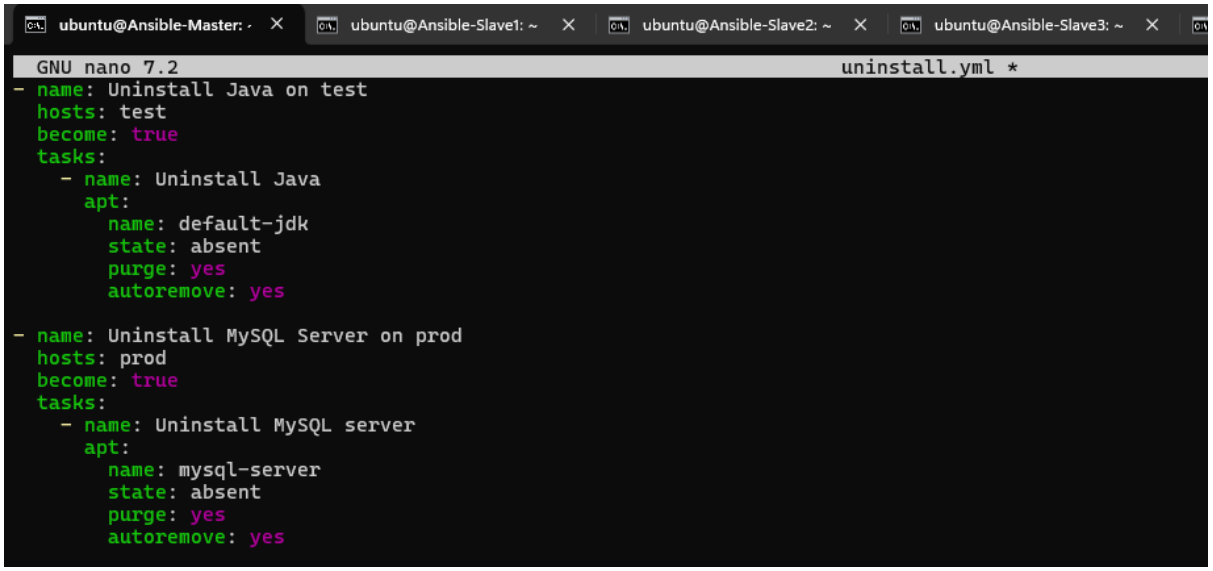


Optional Task:

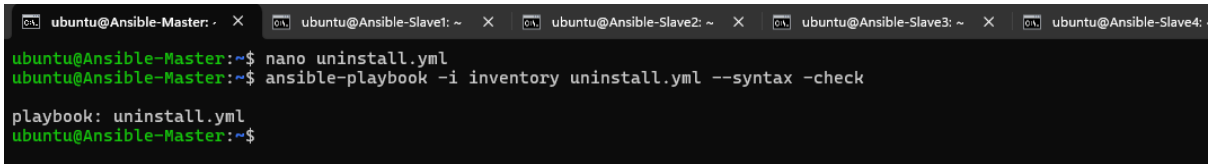
42. Uninstalling the servers



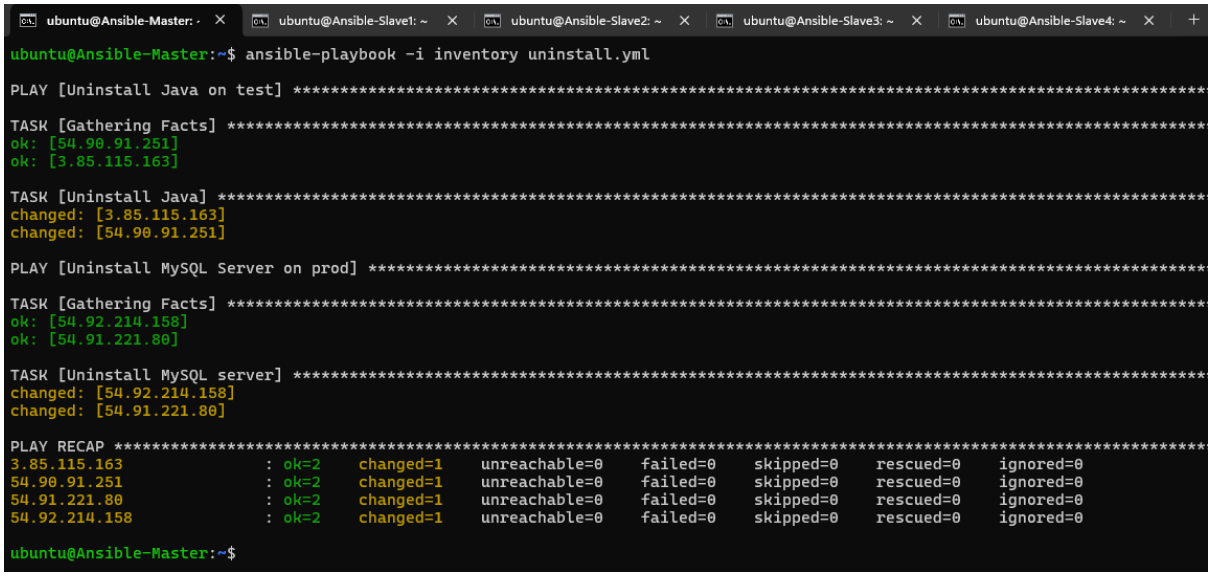
43. Using Ansible Playbook uninstalling the java and mysql server



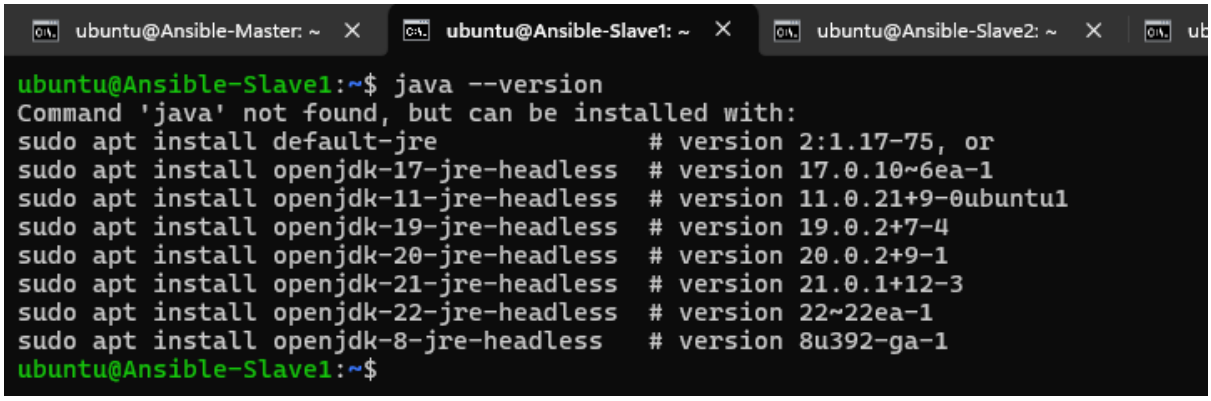
44. syntax check



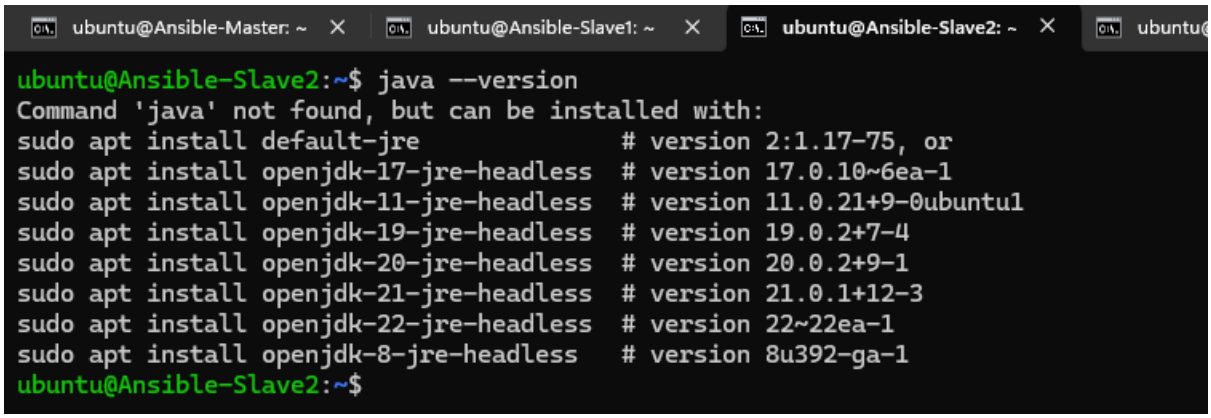
45. successfully executed



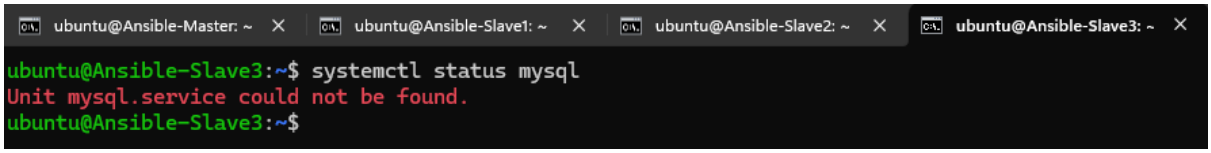
46. Now, There is No Java on Slave1



47. Now, There is No Java on Slave2



48. Now, There is No MySQL on Slave3



49. Now, There is No MySQL on Slave4