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Course/Section: CPE31S5	Date Submitted: Dec 4, 2023
Instructor: Engr. Richard Roman	Semester and SY: 2023-2024

Activity 13: OpenStack Prerequisite Installation

1. Objectives

Create a workflow to install OpenStack using Ansible as your Infrastructure as Code (IaC).

2. Intended Learning Outcomes

1. Analyze the advantages and disadvantages of cloud services
2. Evaluate different Cloud deployment and service models
3. Create a workflow to install and configure OpenStack base services using Ansible as documentation and execution.

3. Resources

Oracle VirtualBox (Hypervisor)

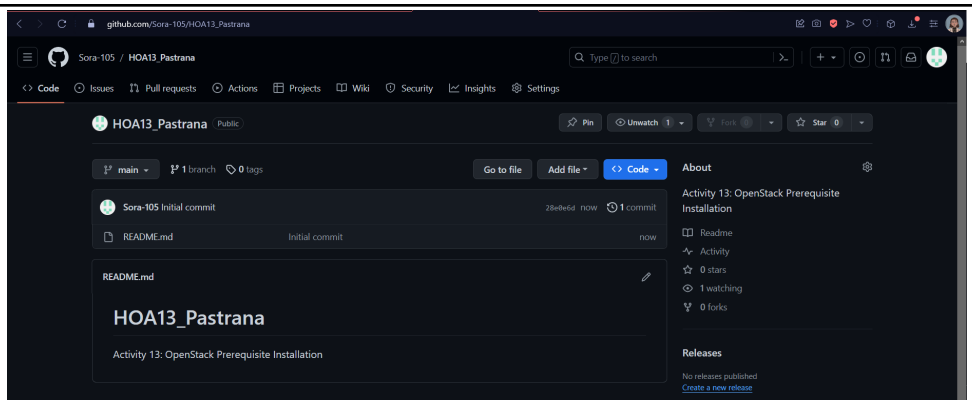
1x Ubuntu VM or Centos VM

4. Tasks

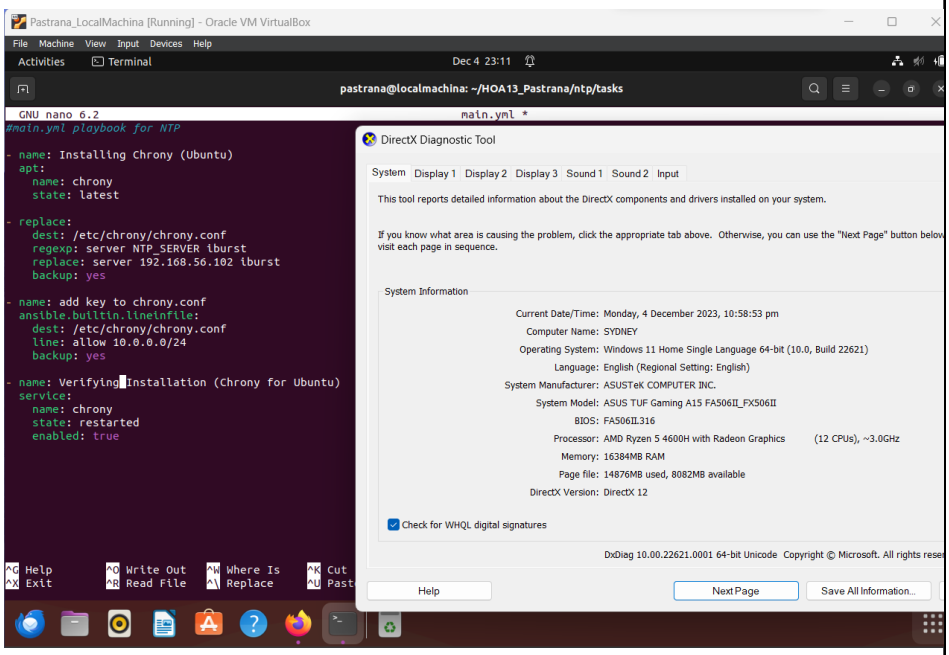
1. Create a new repository for this activity.
2. Create a playbook that converts the steps in the following items in https://docs.openstack.org/install-guide/
    a. NTP
    b. OpenStack packages
    c. SQL Database
    d. Message Queue
    e. Memcached
    f. Etcd
    g. Create different plays in installing per server type (controller, compute etc.) and identify it as a group in Inventory file.
    h. Add, commit and push it to your GitHub repo.

5. Output (screenshots and explanations)

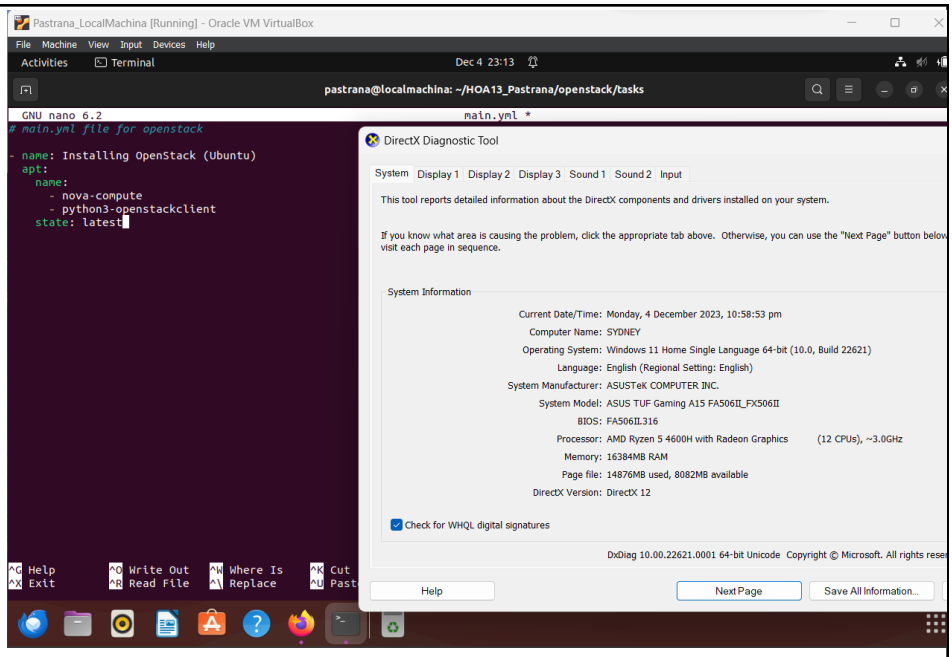
1. New repository



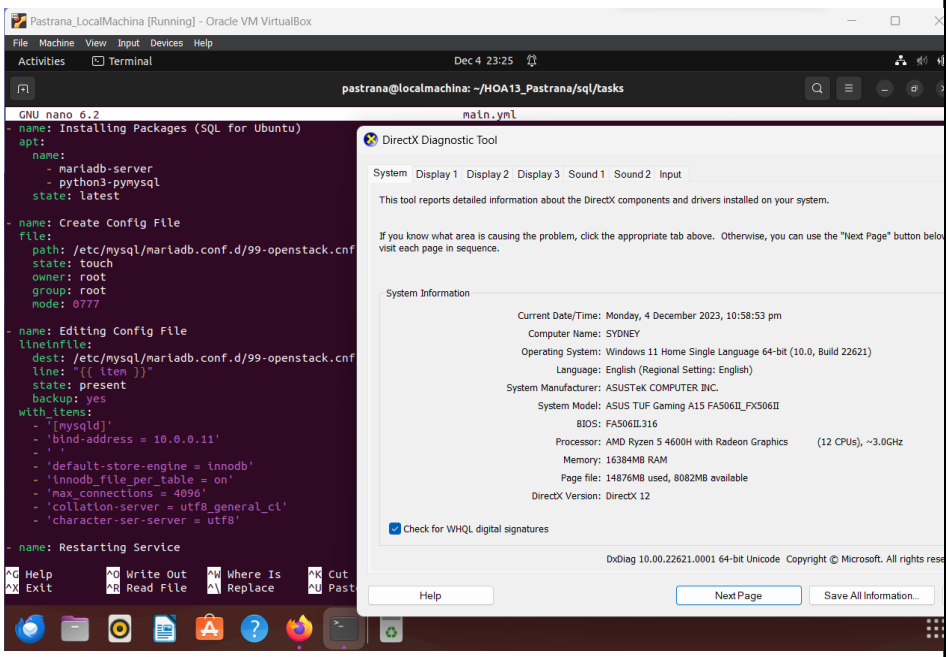
2. Playbook
    a. NYP



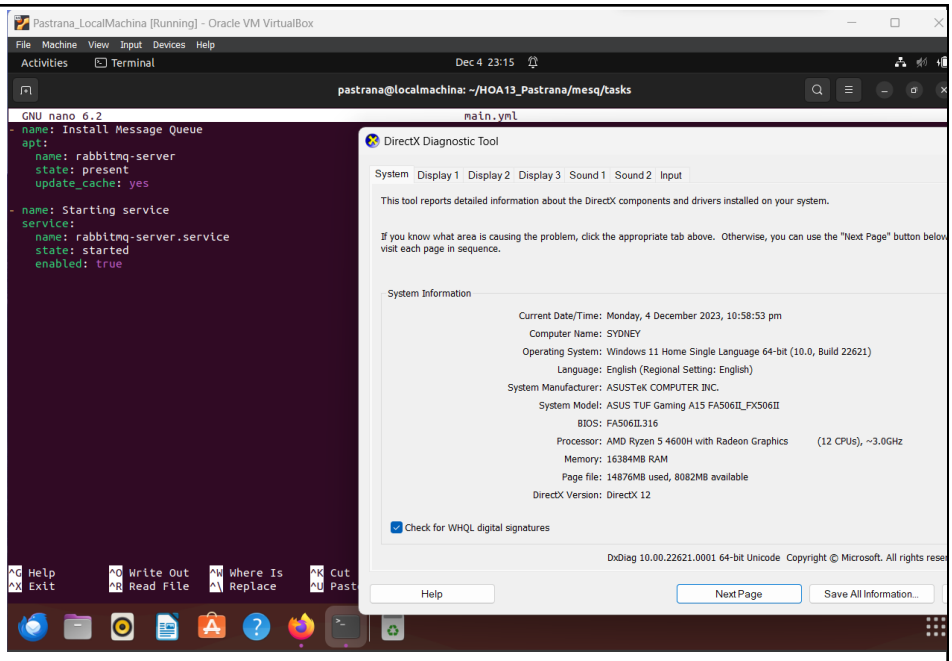
    b. OpenStack Packages



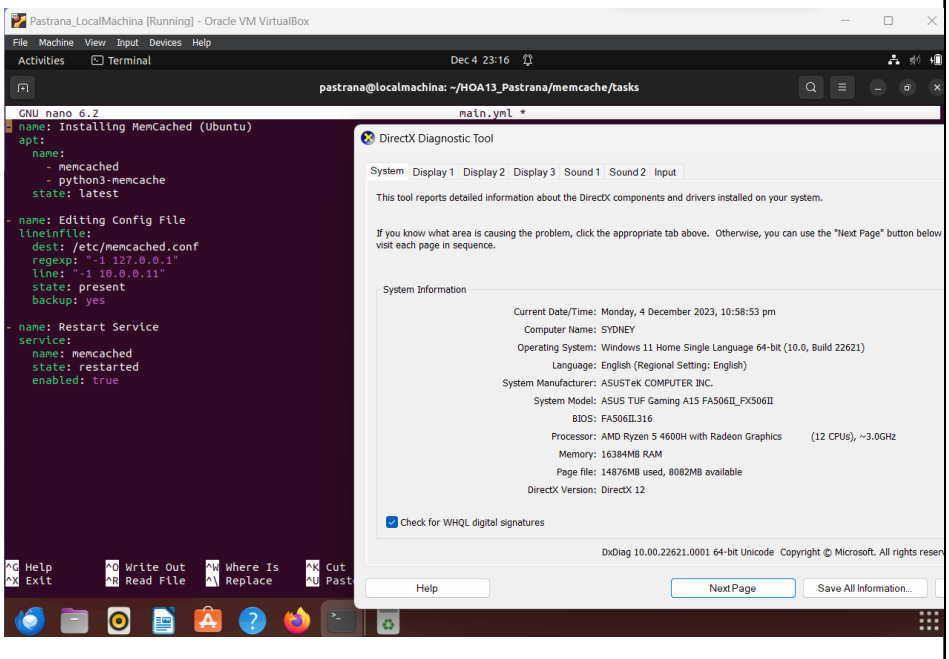
c. SQL Database



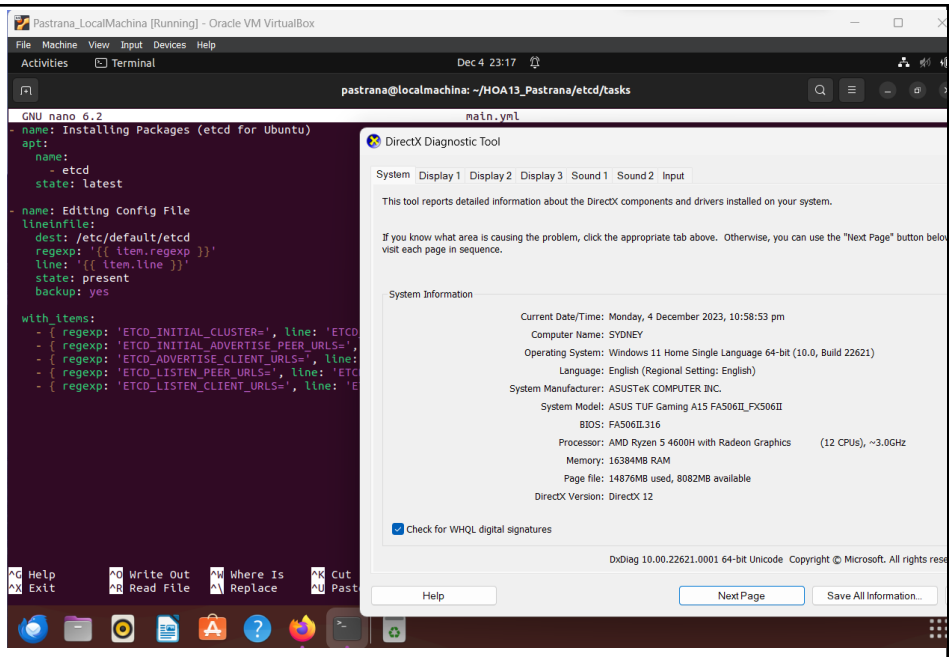
d. Message Queue



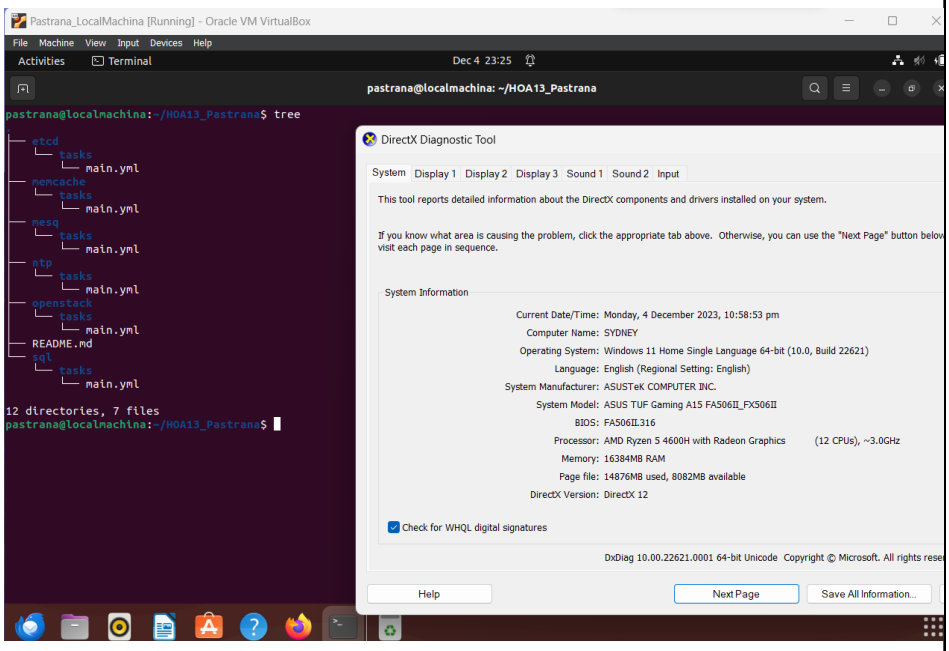
e. Memcached



f. Etcd

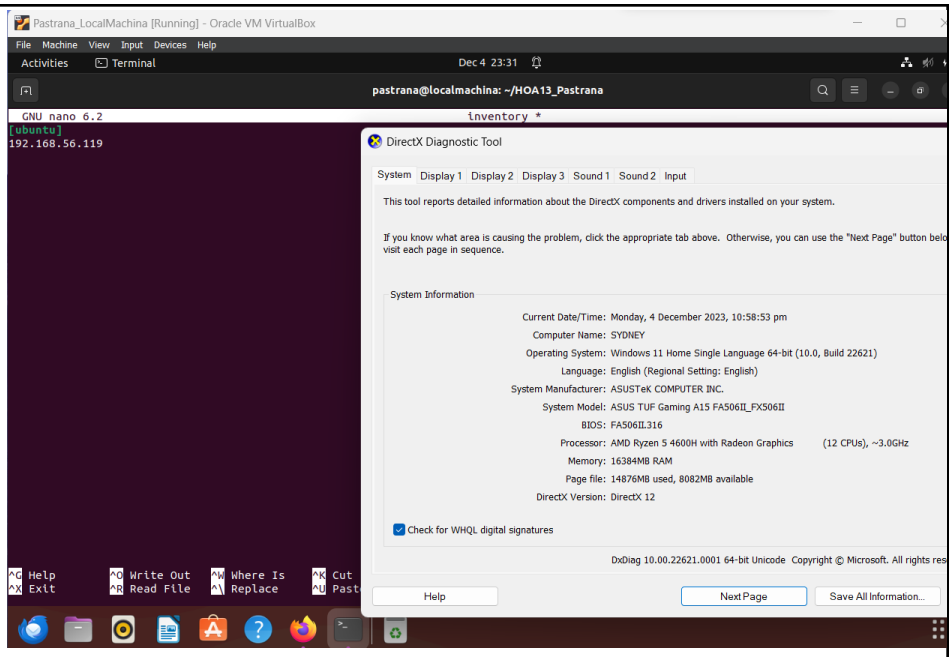


Tree structure of the following tasks above.

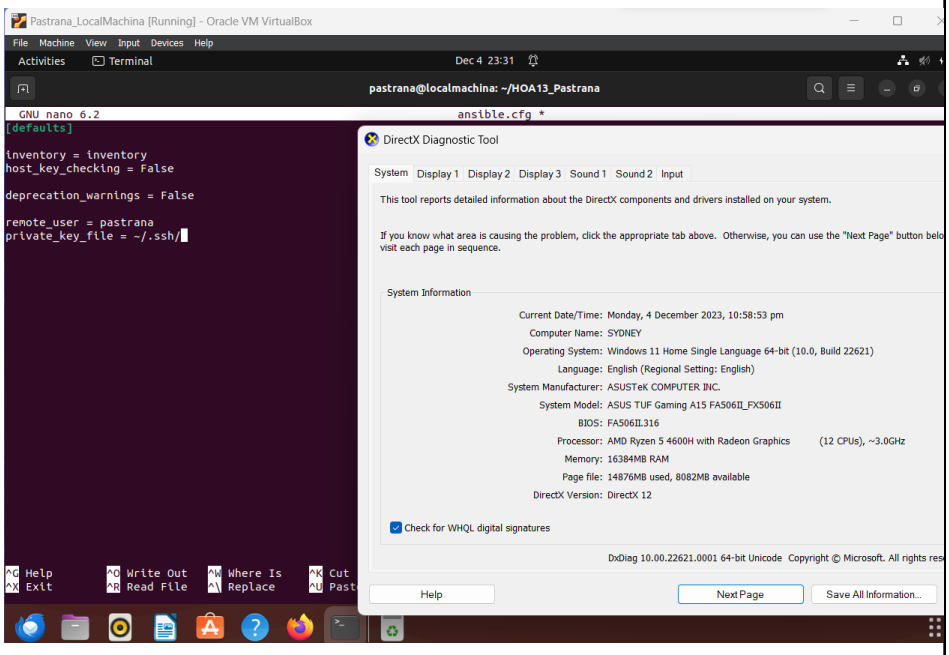


g. Create different plays in installing per server type (controller, computeetc.) and identify it as a group in the Inventory file.

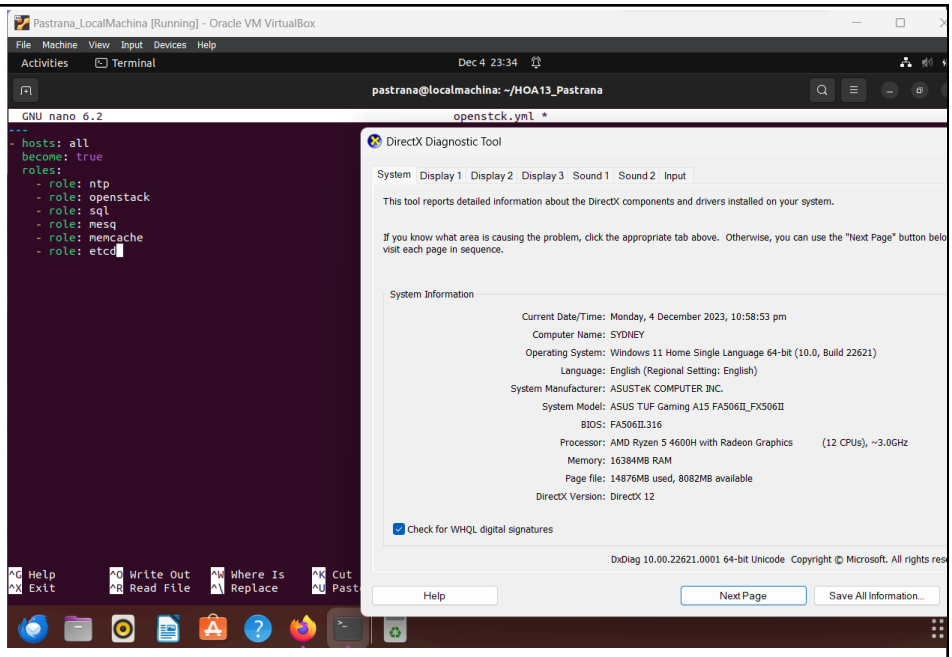
Inventory file:



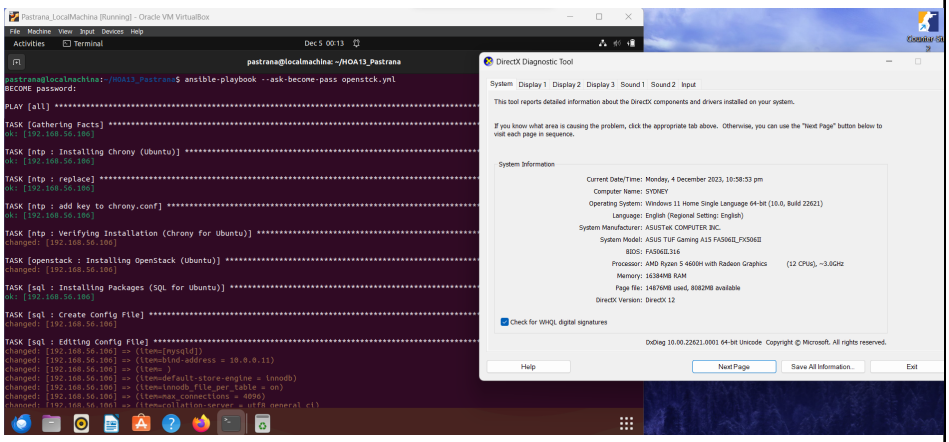
ansible.cgf file:

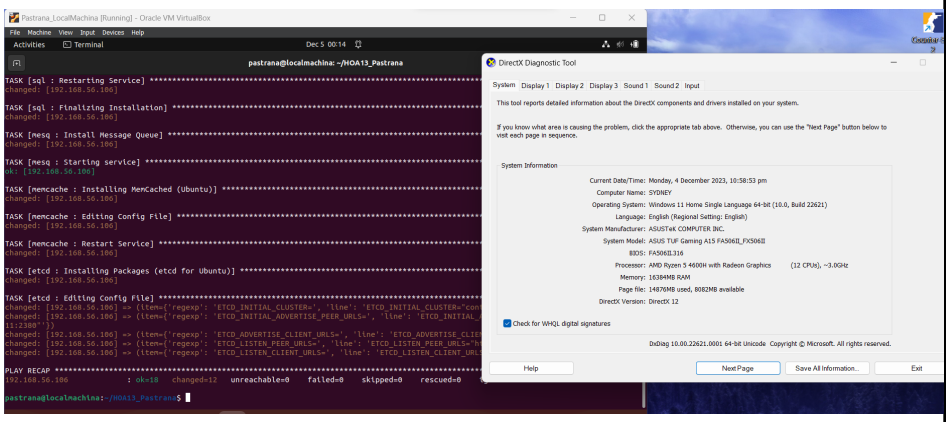


main playbook:



Installed playbook:





h. Add, commit, and push it to Github.

https://github.com/Sora-105/HOA13_Pastrana

Reflections:

Answer the following:

1. What are the benefits of implementing OpenStack?
   - By utilizing OpenStack, we can turn our IT infrastructure into an agile, dynamic powerhouse that will lead our future activities or projects to new heights in security, scalability, and efficiency. Because OpenStack is open-source, we have total control over our cloud destiny and can liberate ourselves from the limitations of proprietary software. Take advantage of OpenStack's transformational potential and set out on a journey to the CPE232 course.
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Conclusions:

- Understanding the benefits and drawbacks of cloud services, assessing deployment options, and setting up OpenStack with Ansible were the objectives of the exercise. Developing a script to automate the OpenStack Install Guide's installation instructions for components like message queues, databases, and NTP was the assignment for this activity. For effective management, plays were arranged in the Ansible inventory according to the type of server. After the playbook completed the assigned duties successfully, I committed and uploaded it to a GitHub repository to show how Ansible automation can be used practically and with version control. There were mistakes made, but I was able to identify them and debug the system to fix them. All things considered, the exercise was insightful and beneficial in providing fresh knowledge to further improve my abilities with