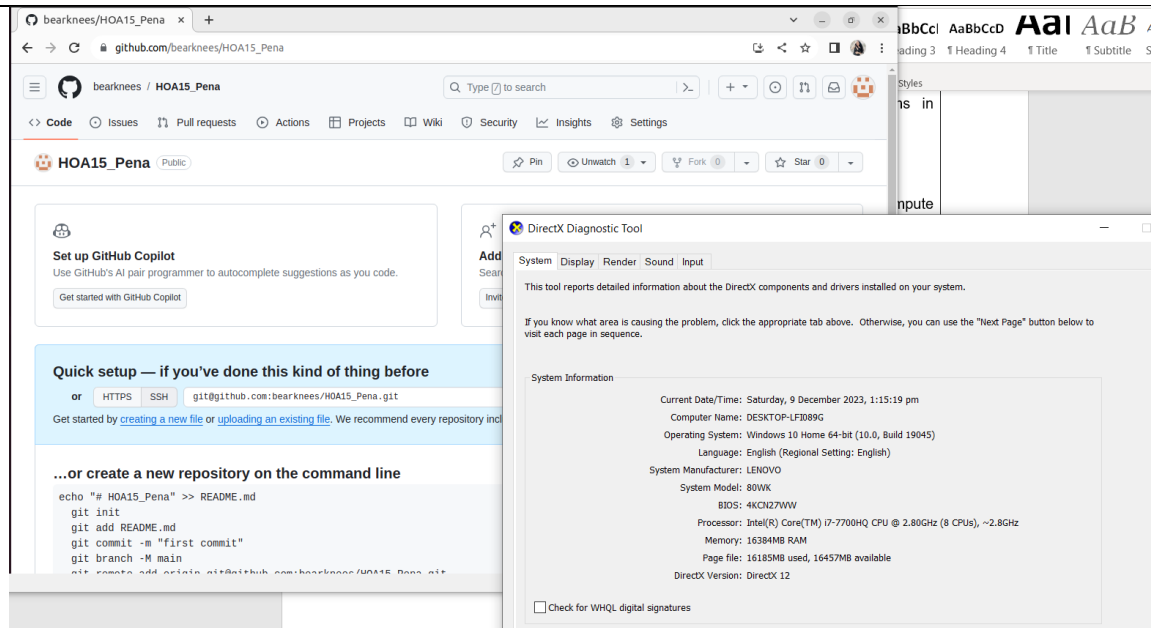
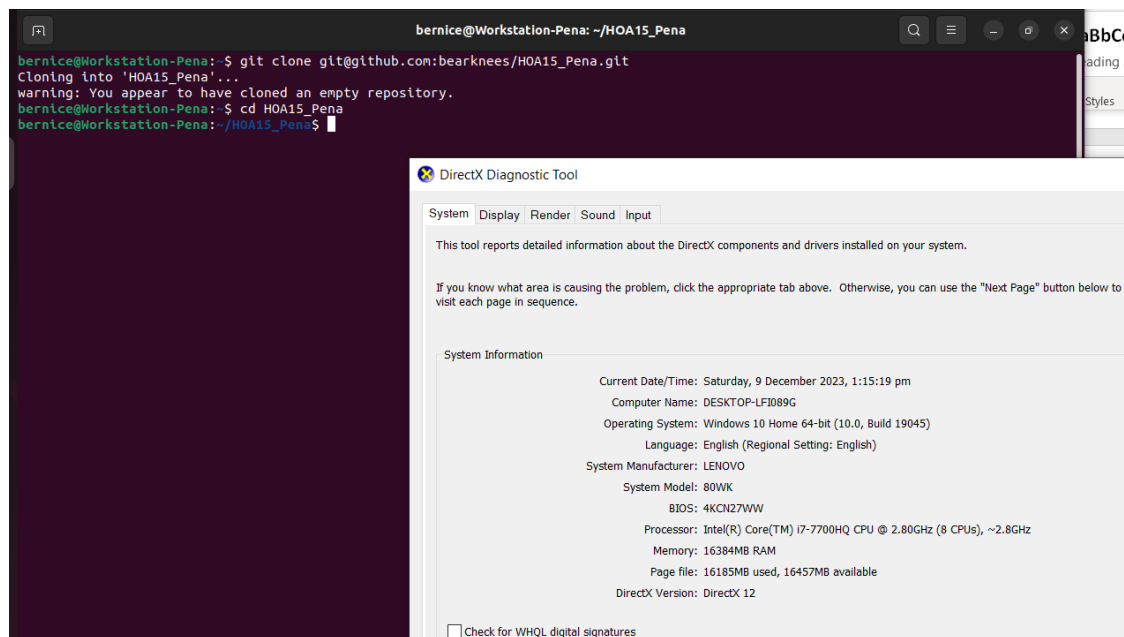


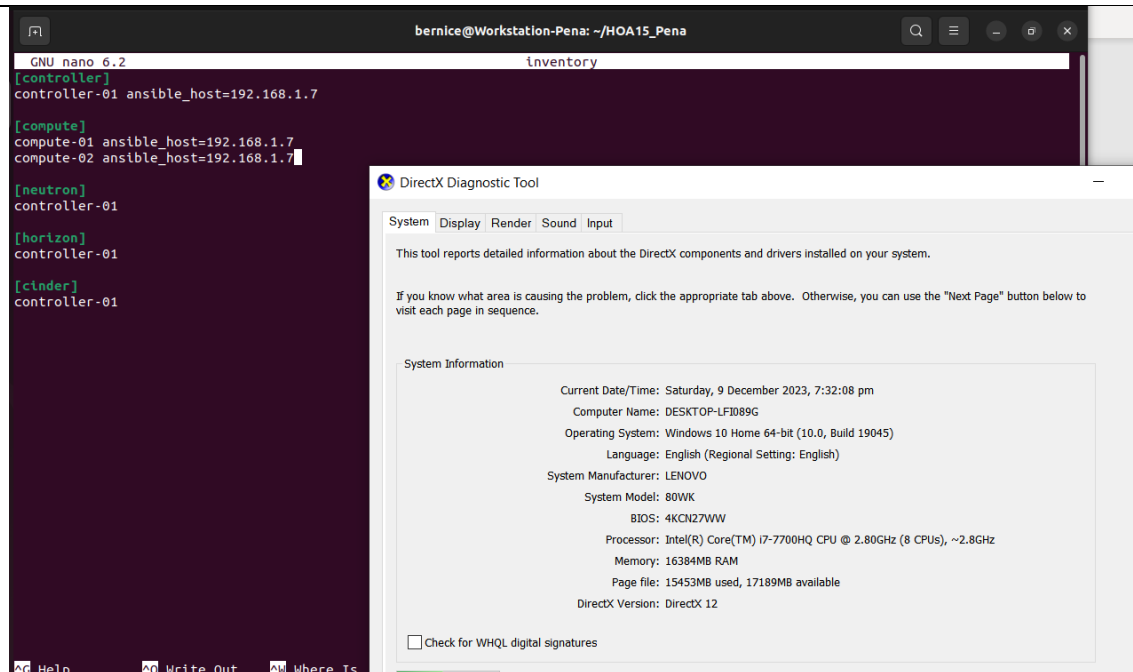
Name: Bernice M. Peña	Date Performed: 12/09/2023
Course/Section: Managing Enterprise Servers / CPE31S5	Date Submitted: 12/09/2023
Instructor: Engr. Roman Richard	Semester and SY: SY 2023-2024
Activity 15: OpenStack Installation (Neutron, Horizon, Cinder)	
1. Objectives	
Create a workflow to install OpenStack using Ansible as your Infrastructure as Code (IaC).	
2. Intended Learning Outcomes	
<ol style="list-style-type: none"> 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	
<p>Oracle VirtualBox (Hypervisor)</p> <p>1x Ubuntu VM or Centos VM</p>	
4. Tasks	
<ol style="list-style-type: none"> 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/ <ol style="list-style-type: none"> a. Neutron b. Horizon c. Cinder d. Create different plays in installing per server type (controller, compute etc.) and identify it as a group in the Inventory file. e. Add, commit and push it to your GitHub repo. 	
5. Output (screenshots and explanations)	



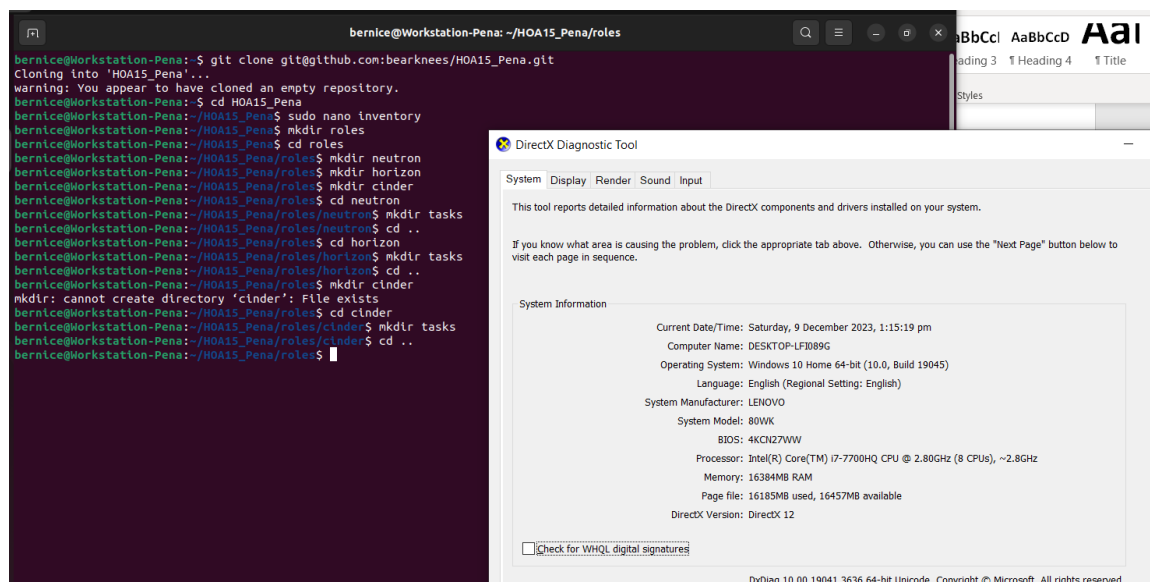
I created a repository named HOA15_Pena in my GitHub repository



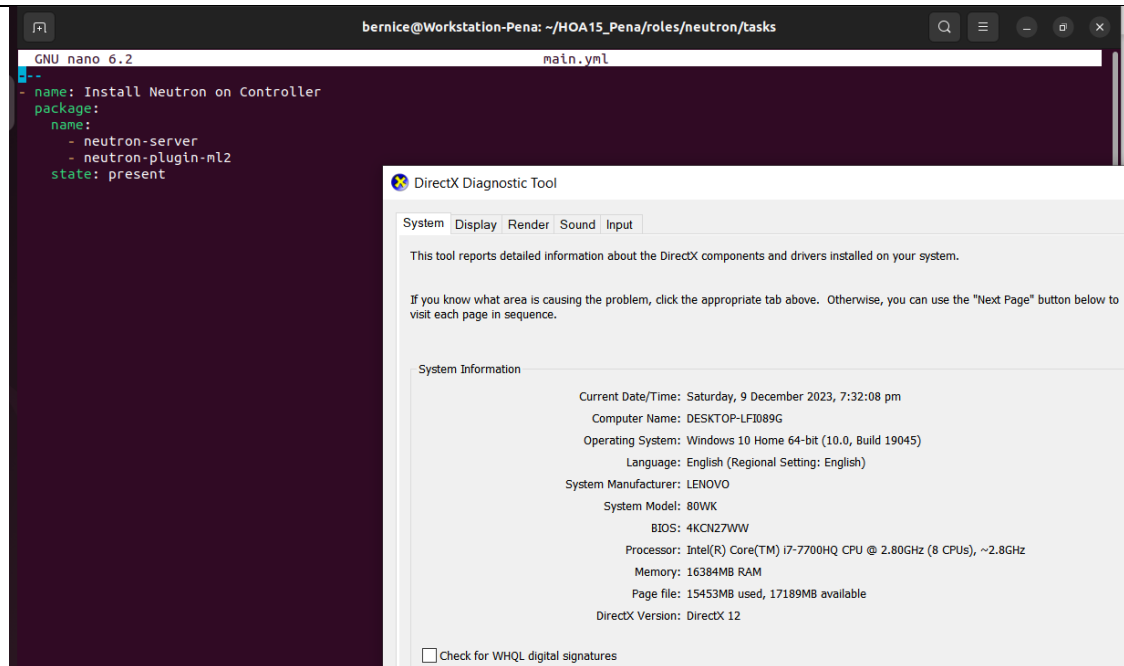
After creating the repository, I cloned it to have it in my Ubuntu virtual machine



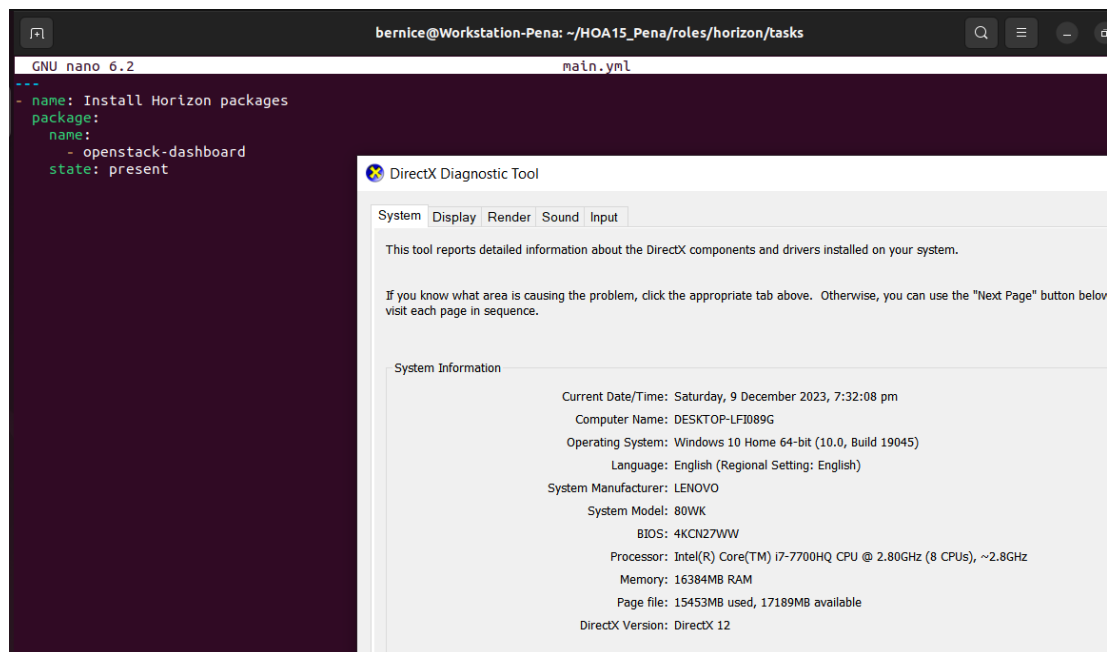
Inside my HOA15_Pena directory, I created an inventory file and I listed the ip address of the server I'm going to use for the installation. I grouped the controller and compute



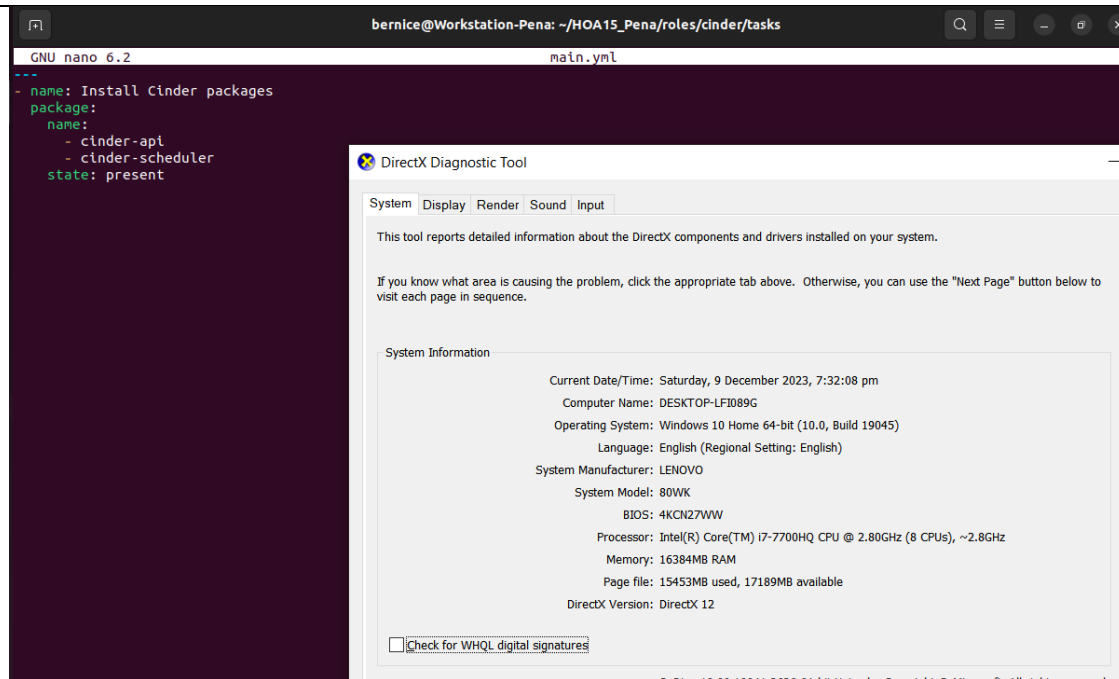
I created the necessary files and directories under my HOA15_Pena/roles, inside my roles are the files for neutron, horizon, and cinder



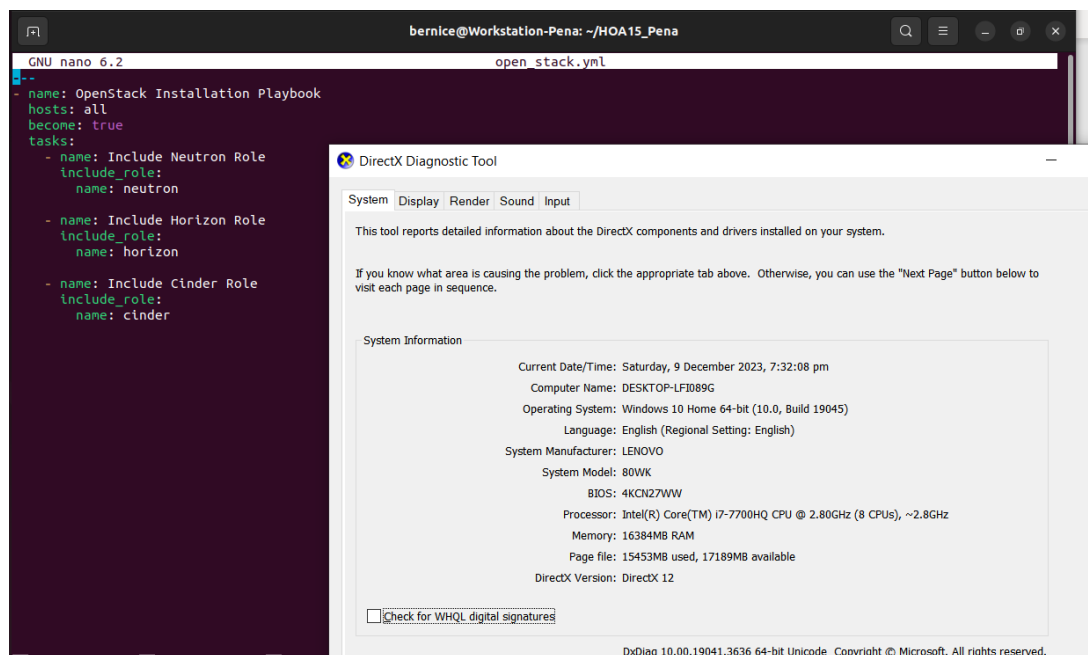
In my roles/neutron/tasks, I created a main.yml file that contains the installation and configuration of Neutron



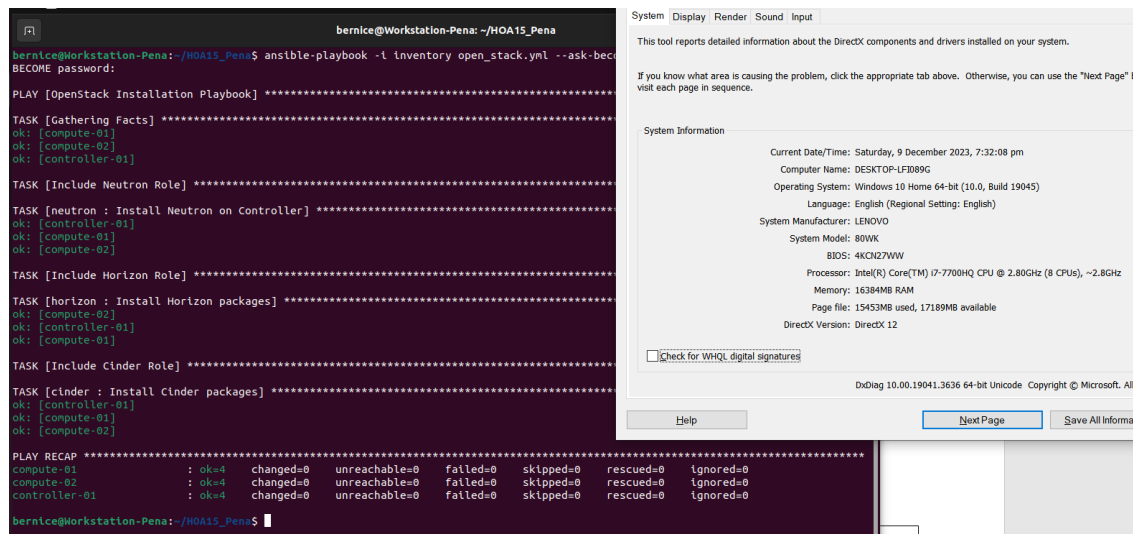
I also created main.yml file for the installation of Horizon, this contains the requirements and configurations of it



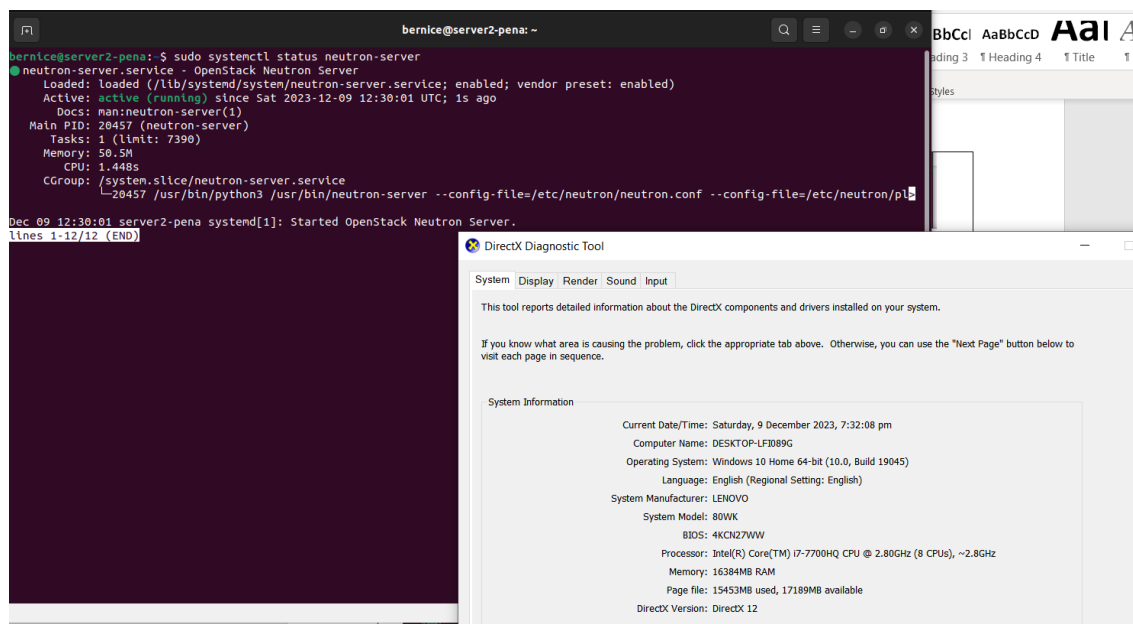
I also did the same thing for Cinder on the controller, this contains the packages and the installation requirements of Cinder



After creating the yml files for each (Neutron, Horizon, Cinder) and its tasks, I created a main playbook named `open_stack.yml` that contains the roles in my `HOA15_Pena` directory



Then I executed the open_stack.yml to process all the installations. The status for Neutron, Horizon, and Cinder are all “ok”, this indicates that the installation of the packages was successful



Neutron status

```
bernice@server2-pena: ~  
bernice@server2-pena:~$ sudo systemctl status apache2  
● apache2.service - The Apache HTTP Server  
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)  
   Active: active (running) since Sat 2023-12-09 12:18:35 UTC; 15min ago  
     Docs: https://httpd.apache.org/docs/2.4/  
   Main PID: 15378 (apache2)  
     Tasks: 65 (limit: 7390)  
    Memory: 67.1M  
       CPU: 1.675s  
    CGroup: /system.slice/apache2.service  
            └─15378 /usr/sbin/apache2 -k start  
            └─18304 "(wsgl:cinder-wsgi" -k start  
            └─18305 "(wsgl:cinder-wsgi" -k start  
            └─18306 "(wsgl:cinder-wsgi" -k start  
            └─18307 "(wsgl:cinder-wsgi" -k start  
            └─18308 "(wsgl:cinder-wsgi" -k start  
            └─18309 "(wsgl:horizon" -k start  
            └─18310 "(wsgl:horizon" -k start  
            └─18311 "(wsgl:horizon" -k start  
            └─18312 /usr/sbin/apache2 -k start  
            └─18313 /usr/sbin/apache2 -k start  
            └─18314 /usr/sbin/apache2 -k start  
            └─18315 /usr/sbin/apache2 -k start  
            └─18316 /usr/sbin/apache2 -k start  
  
Dec 09 12:18:35 server2-pena systemd[1]: Starting The Apache HTTP Server...  
Dec 09 12:18:35 server2-pena apachectl[15377]: AH00558: apache2: Could not reliably det  
Dec 09 12:18:35 server2-pena systemd[1]: Started The Apache HTTP Server...  
Dec 09 12:19:11 server2-pena systemd[1]: Reloading The Apache HTTP Server...  
Dec 09 12:19:11 server2-pena apachectl[15925]: AH00558: apache2: Could not reliably det  
Dec 09 12:19:11 server2-pena systemd[1]: Reloaded The Apache HTTP Server...  
Dec 09 12:23:52 server2-pena systemd[1]: Reloading The Apache HTTP Server...  
Dec 09 12:23:52 server2-pena apachectl[18266]: AH00558: apache2: Could not reliably det  
Dec 09 12:23:52 server2-pena systemd[1]: Reloaded The Apache HTTP Server...  
  
bernice@server2-pena:~$ dpkg -l | grep openstack-dashboard  
ii openstack-dashboard      4:22.1.1-0ubuntu1      all      Django web interface for OpenStack  
ii openstack-dashboard-common 4:22.1.1-0ubuntu1      all      Django web interface for OpenStack -  
common files
```

DirectX Diagnostic Tool

System | Display | Render | Sound | Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below visit each page in sequence.

System Information

Current Date/Time: Saturday, 9 December 2023, 7:32:08 pm
Computer Name: DESKTOP-LFID89G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 15453MB used, 17189MB available
DirectX Version: DirectX 12

☐ Check for WHQL digital signatures

DxDiag 10.00.19041.3636 64-bit Unicode Copyright © Microsoft. All rights reserved

Help | Next Page | Save All Information...

Horizon status and installation verification

```
bernice@server2-pena: ~  
bernice@server2-pena:~$ sudo systemctl status cinder-scheduler  
● cinder-scheduler.service - OpenStack Cinder Scheduler  
   Loaded: loaded (/lib/systemd/system/cinder-scheduler.service; enabled; vendor preset: enabled)  
   Active: active (running) since Sat 2023-12-09 12:36:37 UTC; 1s ago  
     Docs: man:cinder-scheduler(1)  
   Main PID: 21759 (cinder-scheduler)  
     Tasks: 1 (limit: 7390)  
    Memory: 70.3M  
       CPU: 1.655s  
    CGroup: /system.slice/cinder-scheduler.service  
            └─21759 /usr/bin/python3 /usr/bin/cinder-scheduler --config-file=/etc/cinder/cinder.conf --log-file=/var/log/cinder/cl  
  
Dec 09 12:36:37 server2-pena systemd[1]: Started OpenStack Cinder Scheduler  
lines 1-12/12 (END)
```

DirectX Diagnostic Tool

System | Display | Render | Sound | Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

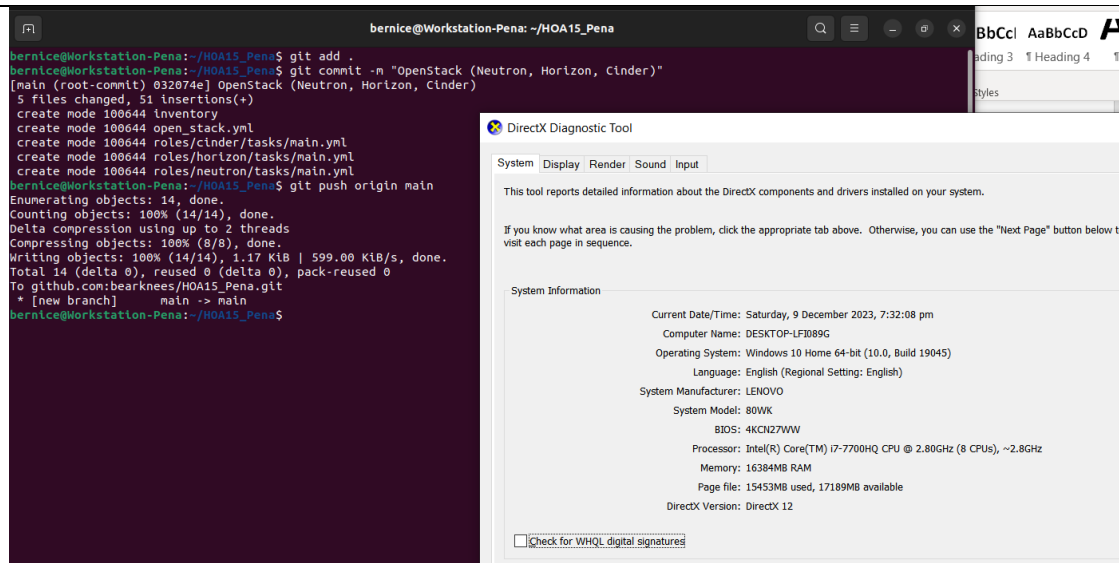
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below visit each page in sequence.

System Information

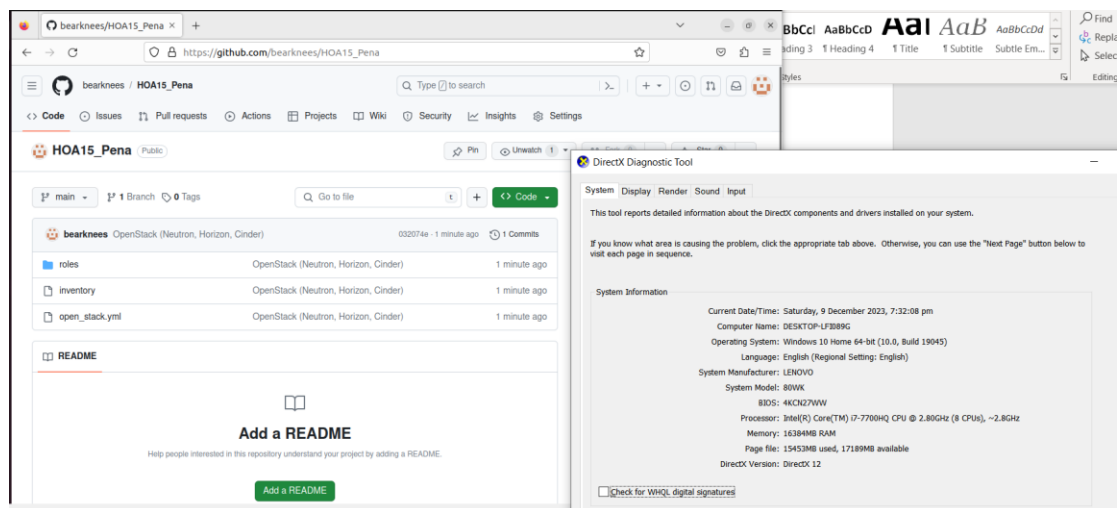
Current Date/Time: Saturday, 9 December 2023, 7:32:08 pm
Computer Name: DESKTOP-LFID89G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 15453MB used, 17189MB available
DirectX Version: DirectX 12

☐ Check for WHQL digital signatures

Cinder status



After verifying the installation, I used the add command and commit all the changes and then pushed all the files and directories in my GitHub repository



GitHub repository

GitHub repository link: https://github.com/bearknees/HOA15_Pena

Reflections:

Answer the following:

1. Describe Neutron, Horizon and Cinder services

Neutron is an OpenStack's networking service, this kind of service is critical in establishing efficient connectivity and communication within the cloud environment. This serves as a full solution when it comes to handling virtual networks including IP address allocation, routing setup, and security group enforcement. With the use of Neutron, it will simplify the development and management of the networks, subnets, routers, and all other necessary components of networking, this allows the VM to communicate with effectively both within the OpenStack cloud and external works.

Horizon is a user-friendly OpenStack service, this delivers a web-based dashboard that simplifies the cloud resource operation and management. This kind of graphical interface helps users and administrators in providing a self-service portal in order to launch and manage virtual resources. With this, it will enable the user to efficiently manage volumes, networks, and other OpenStack services since Horizon also provides secure and regulated access in diverse functionalities based on the user's tasks.

Regarding with the Cinder, this is an OpenStack's block storage service. this concentrates on creating scalable and reliable block storage solutions for VM. With the use of Cinder, it will enable the development, attachment, detachment, and removing or deleting of volumes which is crucial for long-term data preservation. Cinder also supports a wide number of storages backends and drivers allowing it to be adjusted to a certain or specific storage systems and infrastructures.

Conclusions:

This activity helped me with the installation and configuration of Neutron, Horizon, and Cinder services. The connection between the Neutron's network organization, Horizon's user-friendly service, and Cinder's wide-ranging block storage manager demonstrates the OpenStack's advanced environment when it comes to cloud computing. This activity also includes the process of creating ansible playbooks and roles in order to automate the setup of these services, this helped me with improving technical skills and understand the importance of careful configuration in cloud architecture.

The tasks the I did from this activity involves the application and deployment of OpenStack's services) Neutron, Horizon, Cinder). With the help of Ansible playbooks, it helped me automate the installation process and create a scalable approach, learning this helps in contributing to a better grasp of OpenStack's architecture and complexities of networking and storage management.

