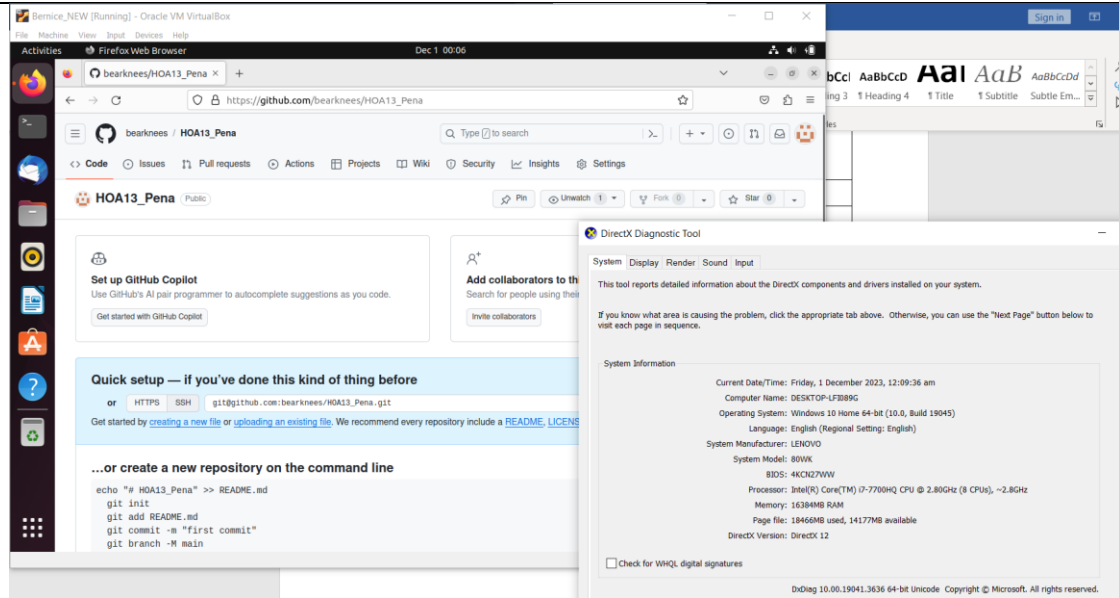
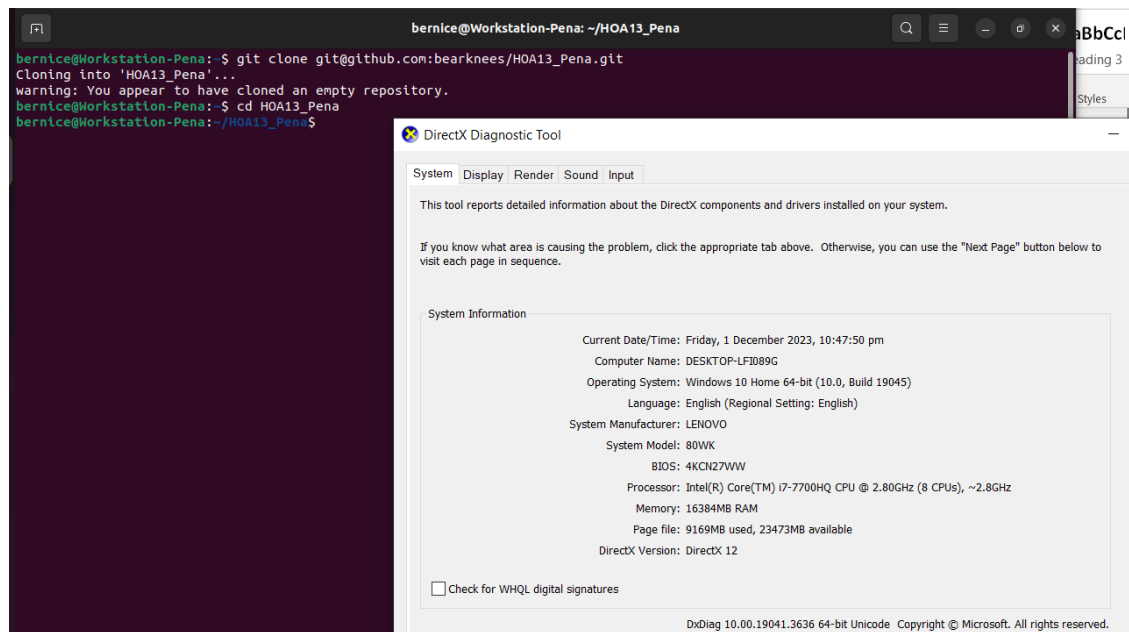


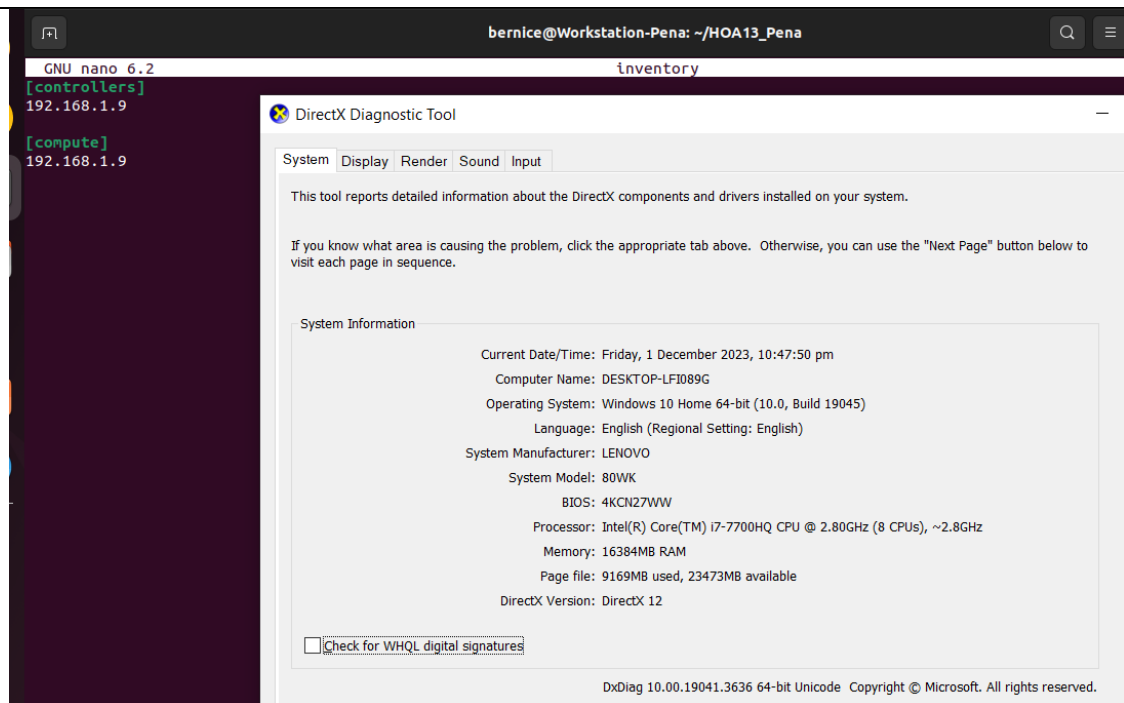
<b>Name:</b> Bernice M. Peña	<b>Date Performed:</b> 11/30/2023
<b>Course/Section:</b> Managing Enterprise Servers / CPE31S5	<b>Date Submitted:</b> 12/02/2023
<b>Instructor:</b> Engr. Roman Richard	<b>Semester and SY:</b> 1 <sup>st</sup> , SY 2023-2024
<b>Activity 13: OpenStack Prerequisite Installation</b>	
<b>1. Objectives</b>	
Create a workflow to install OpenStack using Ansible as your Infrastructure as Code (IaC).	
<b>2. Intended Learning Outcomes</b>	
<ol style="list-style-type: none"> <li>1. Analyze the advantages and disadvantages of cloud services</li> <li>2. Evaluate different Cloud deployment and service models</li> <li>3. Create a workflow to install and configure OpenStack base services using Ansible as documentation and execution.</li> </ol>	
<b>3. Resources</b>	
<p>Oracle VirtualBox (Hypervisor)</p> <p>1x Ubuntu VM or Centos VM</p>	
<b>4. Tasks</b>	
<ol style="list-style-type: none"> <li>1. Create a new repository for this activity.</li> <li>2. Create a playbook that converts the steps in the following items in <a href="https://docs.openstack.org/install-guide/">https://docs.openstack.org/install-guide/</a> <ol style="list-style-type: none"> <li>a. NTP</li> <li>b. OpenStack packages</li> <li>c. SQL Database</li> <li>d. Message Queue</li> <li>e. Memcached</li> <li>f. Etc</li> <li>g. Create different plays in installing per server type (controller, compute etc.) and identify it as a group in Inventory file.</li> <li>h. Add, commit and push it to your GitHub repo.</li> </ol> </li> </ol>	
<b>5. Output</b> (screenshots and explanations)	



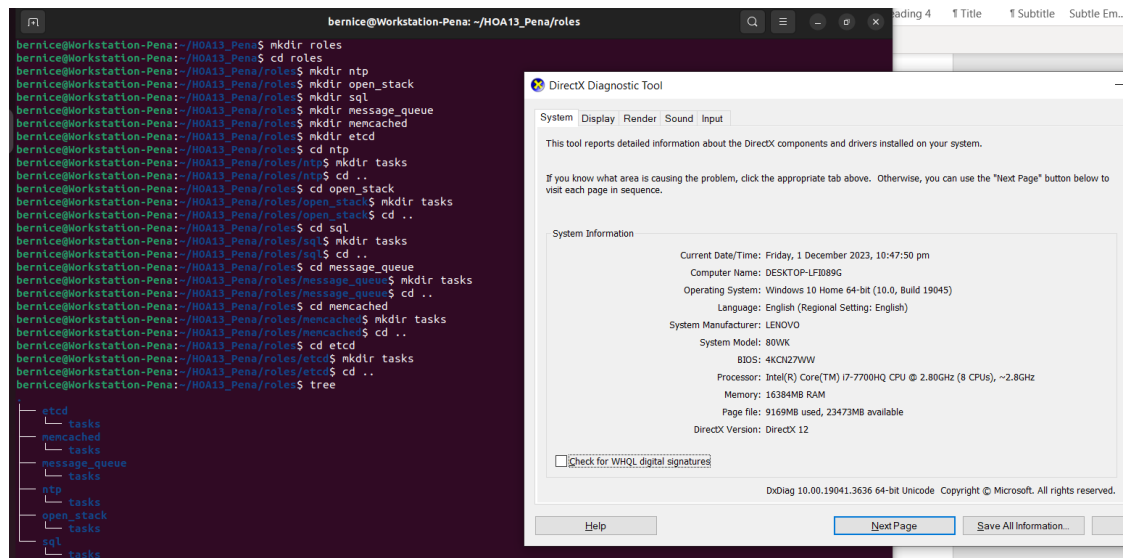
I created a GitHub repository named HOA13\_Pena



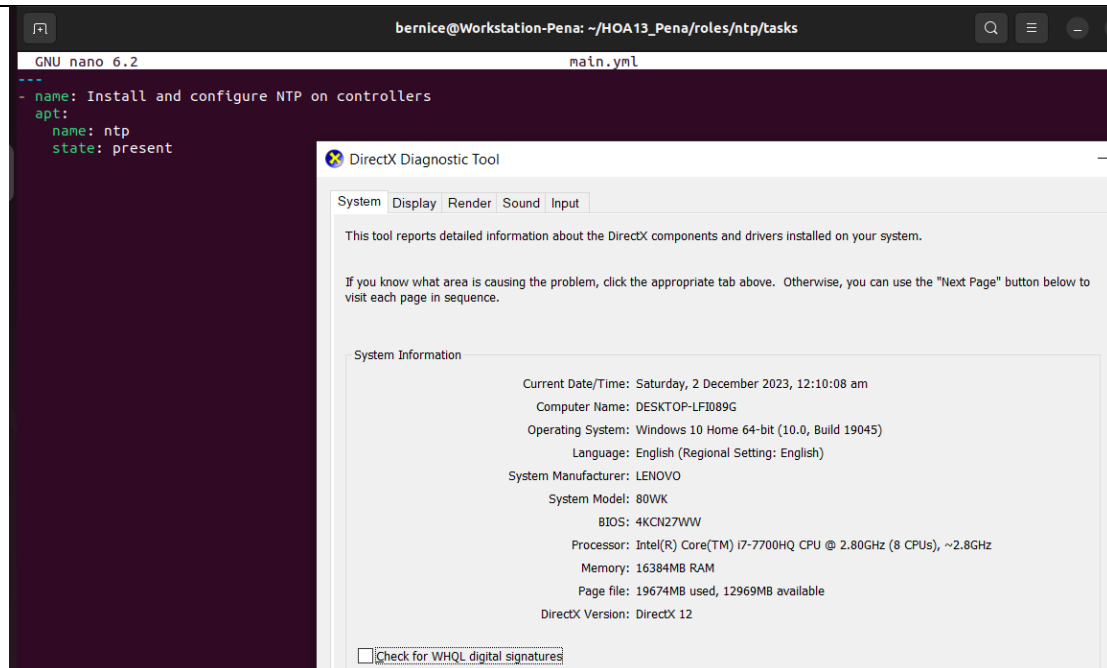
Then I cloned it in my ubuntu machine



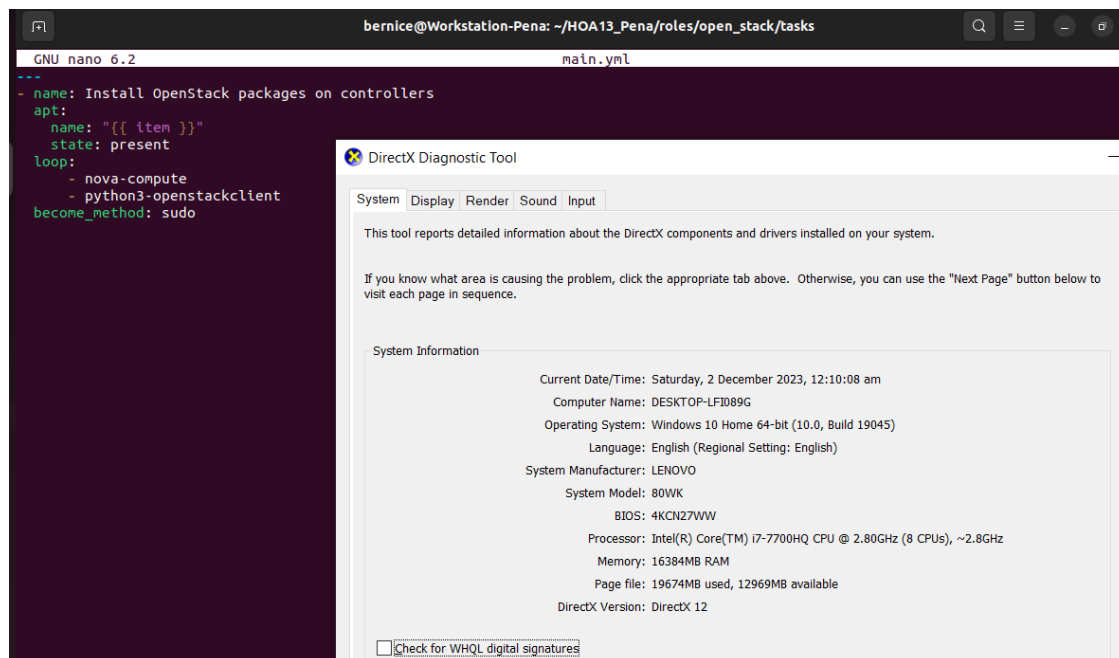
I created an inventory for the servers that I'll be using for the installation process. I used my ubuntu server 3 for controller and compute



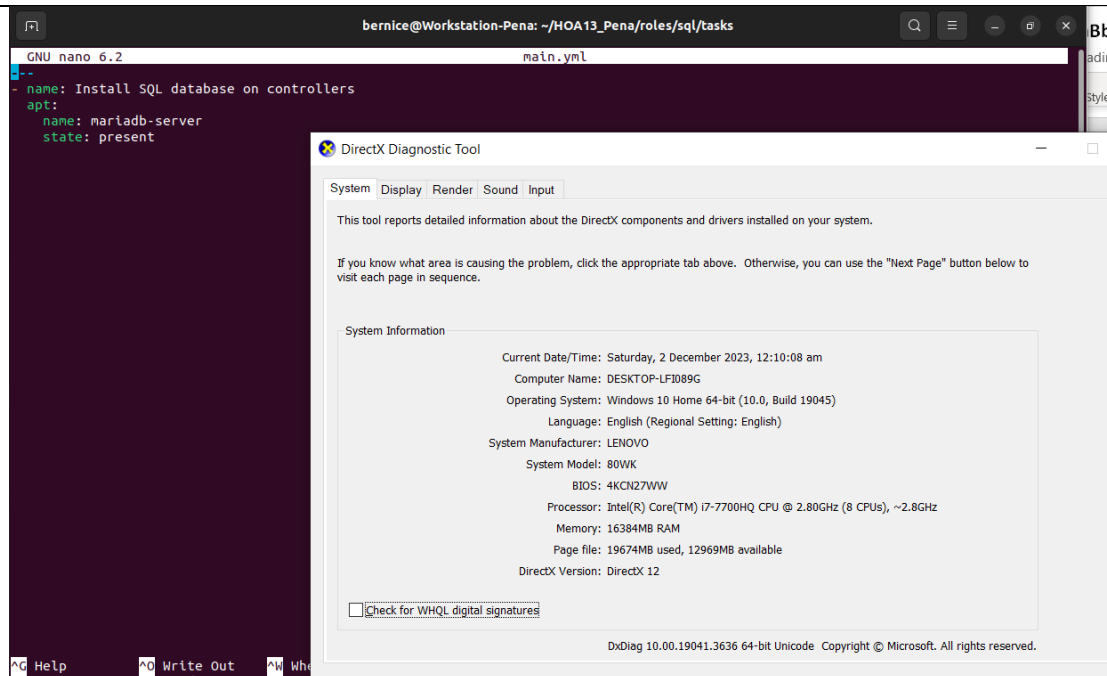
After creating the roles directory, I created more directories for specific tasks to install inside the roles directory



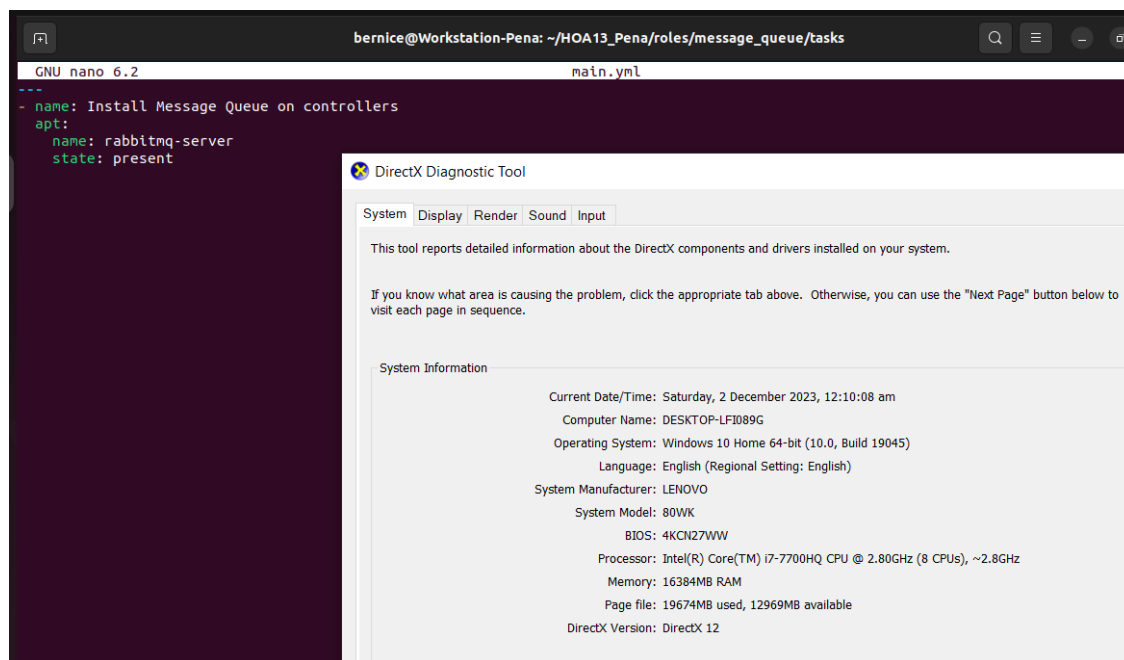
**Inside my ntp/tasks directory, I created main.yml for the installation of NTP**



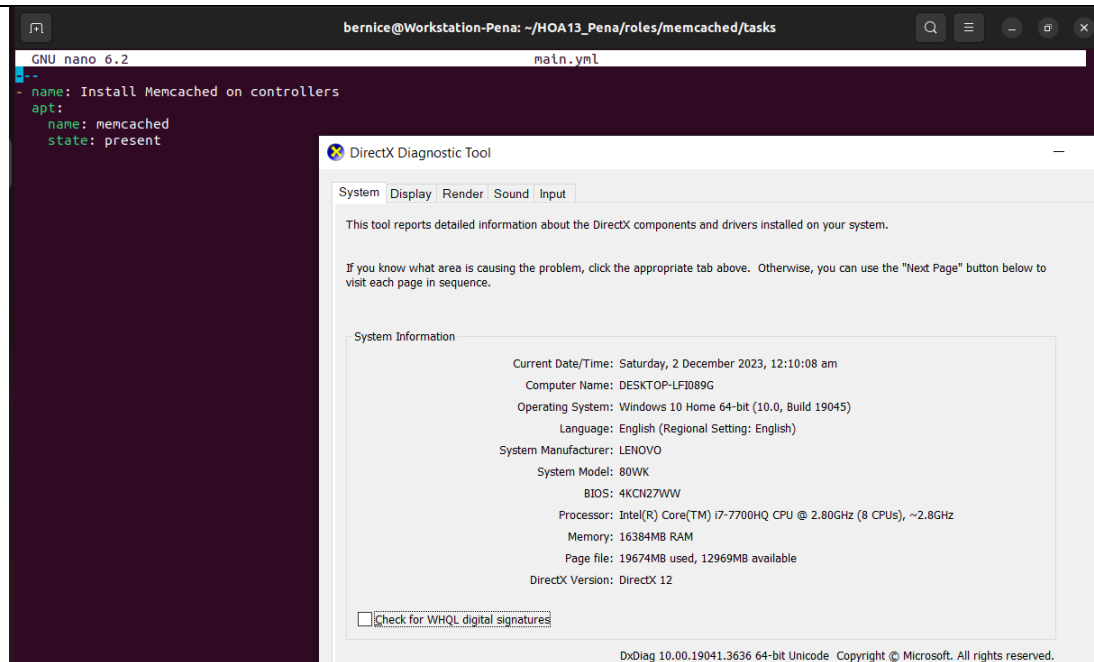
**I did the same thing for open\_stack directory, I created main.yml and its content is the installation of OpenStack packages**



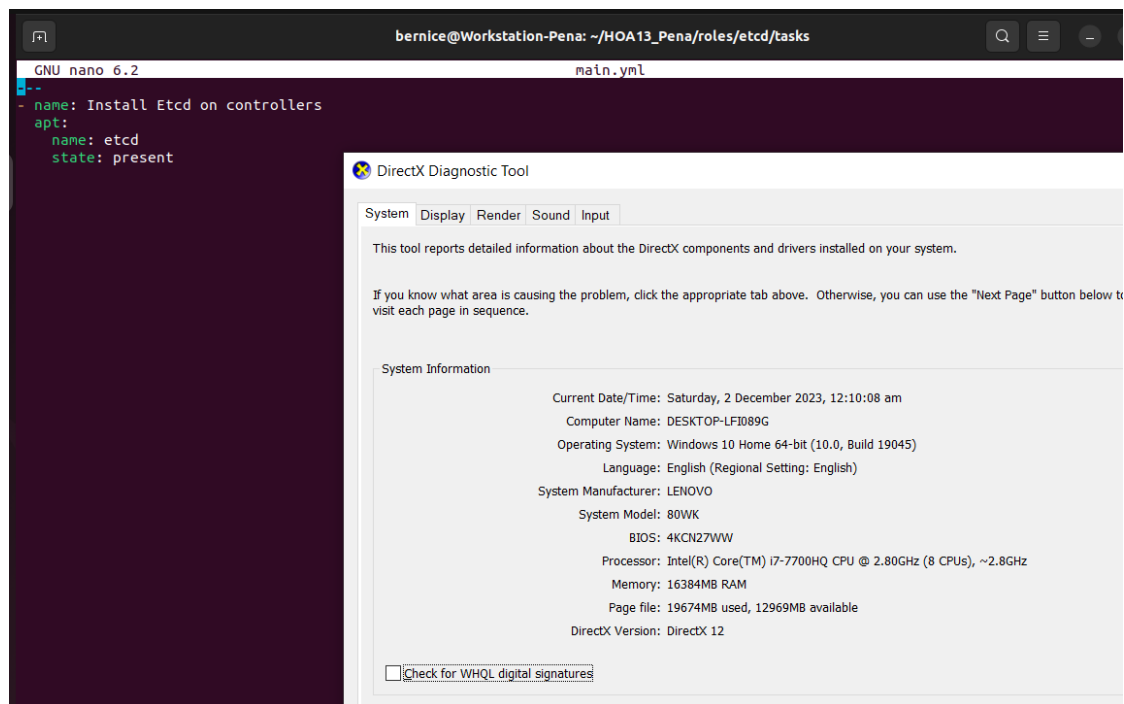
And this is what's inside my main.yml for sql installation



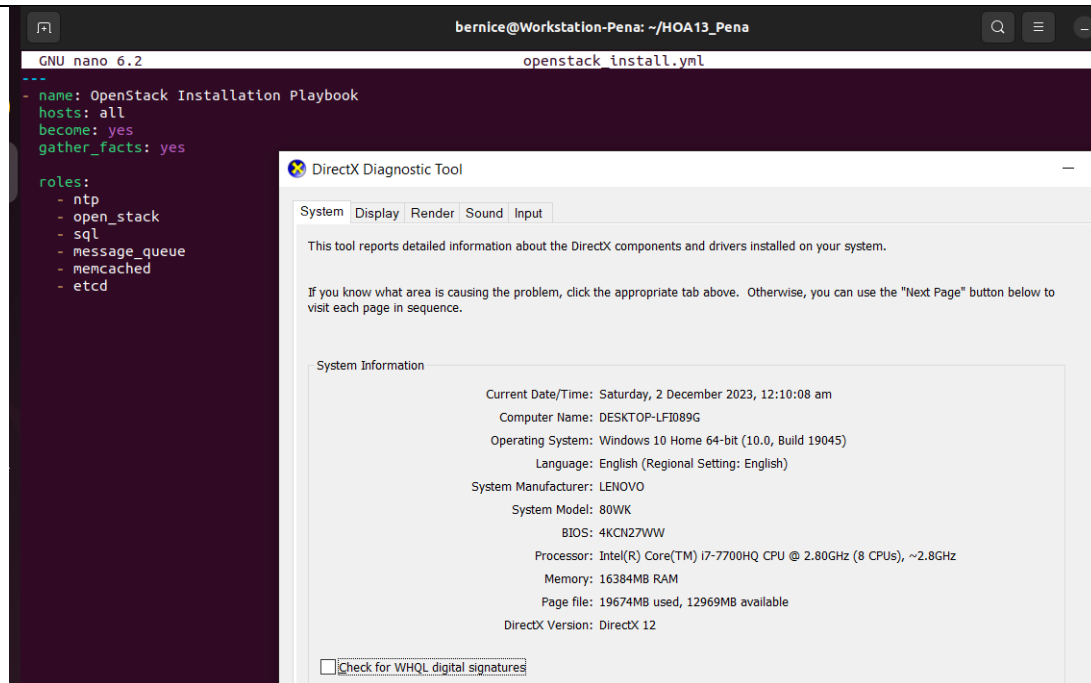
This is my main.yml in my message\_queue tasks



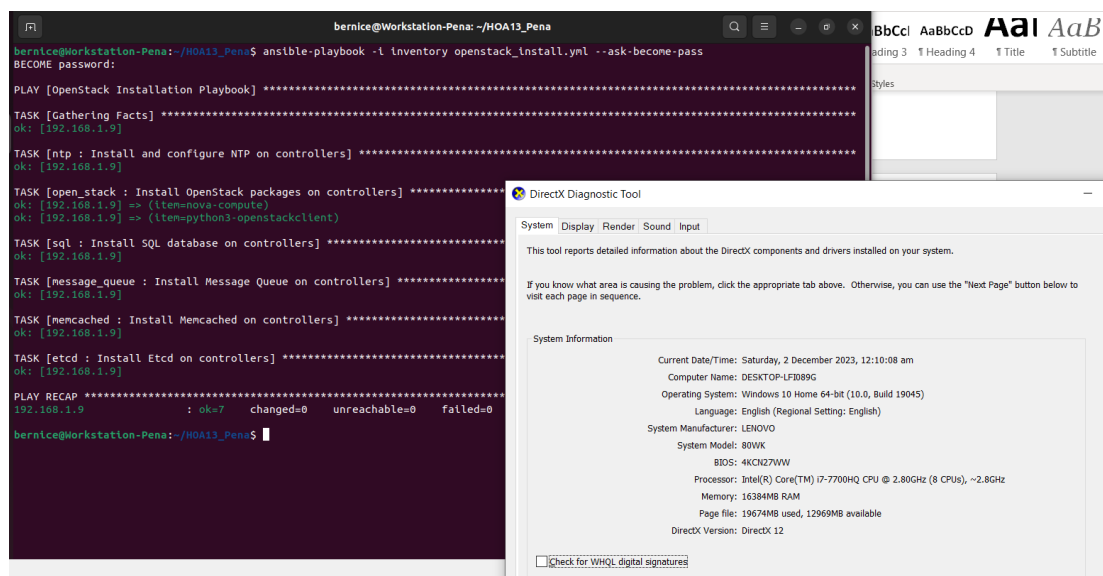
**And these are the tasks for the installation of Memcached**



**This is what I have inside my main.yml for the installation of etcd on controllers**



Then I created a new yml for the installation of OpenStack packages



After running the playbook, the status for each tasks is indicated by “ok”, meaning that the OpenStack packages are successfully installed.

bernice@server3-pena: ~  
bernice@server3-pena:~\$ sudo systemctl status ntp  
● ntp.service - Network Time Service  
Loaded: loaded (/lib/systemd/system/ntp.service; enabled; vendor preset: enabled)  
Active: active (running) since Fri 2023-12-01 16:10:57 UTC; 16min ago  
Docs: man:ntpd(8)  
Main PID: 4169 (ntpd)  
Tasks: 2 (limit: 2221)  
Memory: 1.4M  
CPU: 169ms  
CGroup: /system.slice/ntp.service  
└─4169 /usr/sbin/ntpd -p /var/run/ntpd.pid -g -u 118:125  
  
Dec 01 16:11:02 server3-pena ntpd[4169]: Soliciting pool server 17.253.116.25  
Dec 01 16:11:02 server3-pena ntpd[4169]: Soliciting pool server 103.147.22.14  
Dec 01 16:11:02 server3-pena ntpd[4169]: Soliciting pool server 2620:2d:4000:  
Dec 01 16:11:03 server3-pena ntpd[4169]: Soliciting pool server 2620:2d:4000:  
Dec 01 16:11:03 server3-pena ntpd[4169]: Soliciting pool server 209.59.105.10  
Dec 01 16:11:03 server3-pena ntpd[4169]: Soliciting pool server 203.113.174.4  
Dec 01 16:16:39 server3-pena ntpd[4169]: kernel reports TIME\_ERROR: 0x2041: d  
Dec 01 16:20:48 server3-pena ntpd[4169]: 52.148.114.188 local addr 192.168.1.1  
Dec 01 16:21:09 server3-pena ntpd[4169]: 203.113.174.44 local addr 192.168.1.1  
Dec 01 16:21:15 server3-pena ntpd[4169]: 36.91.114.83 local addr 192.168.1.9  
bernice@server3-pena:~\$

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 to visit each page in sequence.  
System Information  
Current Date/Time: Saturday, 2 December 2023, 12:10:08 am  
Computer Name: DESKTOP-LFJ089G  
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: 19674MB used, 12969MB available  
DirectX Version: DirectX 12

NTP status

bernice@server3-pena: ~  
bernice@server3-pena:~\$ sudo systemctl status mysql  
● mariadb.service - MariaDB 10.6.15 database server  
Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)  
Drop-In: /etc/systemd/system/mariadb.service.d  
└─migrated-from-my.cnf-settings.conf  
Active: active (running) since Tue 2023-11-14 13:21:15 UTC; 2 weeks 3 days ago  
Docs: man:mariadb(8)  
https://mariadb.com/kb/en/library/systemd/  
Main PID: 817 (mariadbd)  
Status: "Taking your SQL requests now..."  
Tasks: 7 (limit: 2221)  
Memory: 51.3M  
CPU: 3.799s  
CGroup: /system.slice/mariadb.service  
└─817 /usr/sbin/mariadbd  
  
Nov 14 13:21:15 server3-pena mariadbd[817]: 2023-11-14 13:21:15  
Nov 14 13:21:15 server3-pena mariadbd[817]: 2023-11-14 13:21:15  
Nov 14 13:21:15 server3-pena mariadbd[817]: 2023-11-14 13:21:15  
Nov 14 13:21:15 server3-pena mariadbd[817]: 2023-11-14 13:21:15  
Nov 14 13:21:15 server3-pena mariadbd[817]: 2023-11-14 13:21:15  
Nov 14 13:21:15 server3-pena mariadbd[817]: Version: '10.6.15-MariaDB'  
Nov 14 13:21:15 server3-pena systemd[1]: Started MariaDB 10.6.15  
Nov 14 13:21:15 server3-pena /etc/mysql/debian-start[875]: Upgrad  
Nov 14 13:21:16 server3-pena /etc/mysql/debian-start[888]: Check  
Nov 14 13:21:16 server3-pena /etc/mysql/debian-start[892]: Trigg  
lines 1-25/25 (END)

DirectX Diagnostic Tool  
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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: 19674MB used, 12969MB available  
DirectX Version: DirectX 12

SQL status



```
bernice@server3-pena: ~  
bernice@server3-pena:~$ sudo systemctl status rabbitmq-server  
● rabbitmq-server.service - RabbitMQ Messaging Server  
   Loaded: loaded (/lib/systemd/system/rabbitmq-server.service; enabled; vendor preset: enabled)  
   Active: active (running) since Fri 2023-12-01 16:18:56 UTC; 9min ago  
     Main PID: 13147 (beam.smp)  
       Tasks: 21 (limit: 2221)  
     Memory: 82.5M  
        CPU: 13.266s  
     CGroup: /system.slice/rabbitmq-server.service  
             └─13147 /usr/lib/erlang/erts-12.2.1/bin/beam.smp -W w -MBas ageffcbf -MHas ageffcbf -MBlmbs 512 -Mhlmbs 512 -MMmcs 3  
             └─13158 erl_child_setup 65536  
             └─13205 inet_gethost 4  
             └─13206 inet_gethost 4  
  
Dec 01 16:18:51 server3-pena systemd[1]: Starting RabbitMQ Messaging Server: rabbitmq-server.service.  
Dec 01 16:18:56 server3-pena systemd[1]: Started RabbitMQ Messaging Server: rabbitmq-server.service.  
lines 1-15/15 (END)
```

DirectX Diagnostic Tool

System | Display | Render | Sound | Input

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

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Operating System: Windows 10 Home 64-bit (10.0, Build 19045)  
Language: English (Regional Setting: English)  
System Manufacturer: LENOVO  
System Model: 80WK  
BIOS: 4KCN27WW  
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz  
Memory: 16384MB RAM  
Page file: 19674MB used, 12969MB available  
DirectX Version: DirectX 12

Message queue status

```
bernice@server3-pena: ~  
bernice@server3-pena:~$ sudo systemctl status memcached  
● memcached.service - memcached daemon  
   Loaded: loaded (/lib/systemd/system/memcached.service; enabled; vendor preset: enabled)  
   Active: active (running) since Fri 2023-12-01 16:19:08 UTC; 10min ago  
     Docs: man:memcached(1)  
     Main PID: 13560 (memcached)  
       Tasks: 10 (limit: 2221)  
     Memory: 1.8M  
        CPU: 215ms  
     CGroup: /system.slice/memcached.service  
             └─13560 /usr/bin/memcached -n 64 -p 11211 -u memcache -l 127.0.0.1  
  
Dec 01 16:19:08 server3-pena systemd[1]: Started memcached daemon.  
bernice@server3-pena:~$
```

DirectX Diagnostic Tool

System | Display | Render | Sound | Input

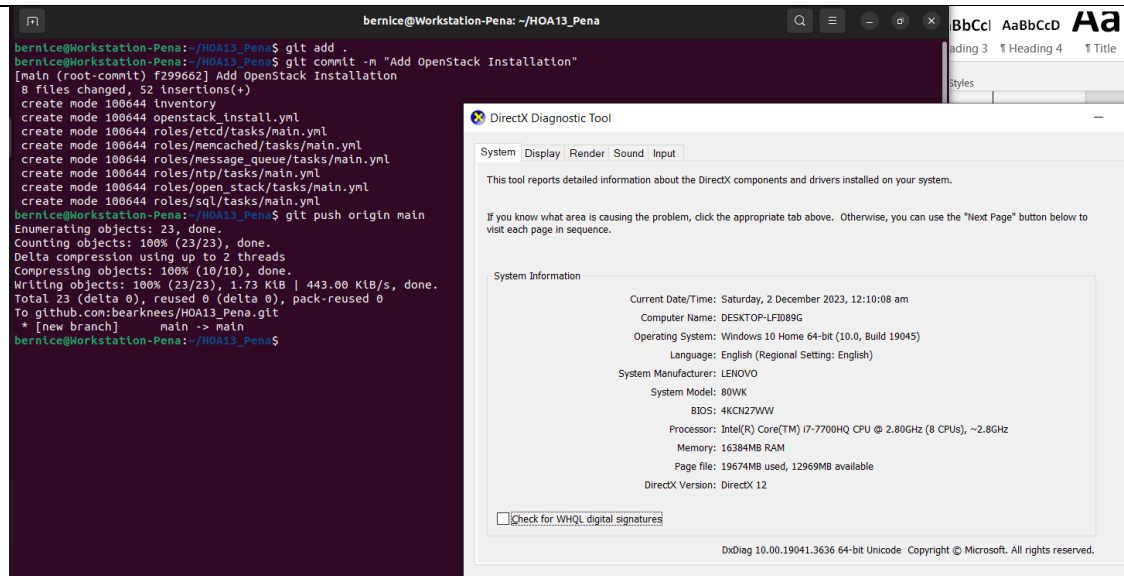
This tool reports detailed information about the DirectX components and drivers installed on your system.  
  
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

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Memory: 16384MB RAM  
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DirectX Version: DirectX 12

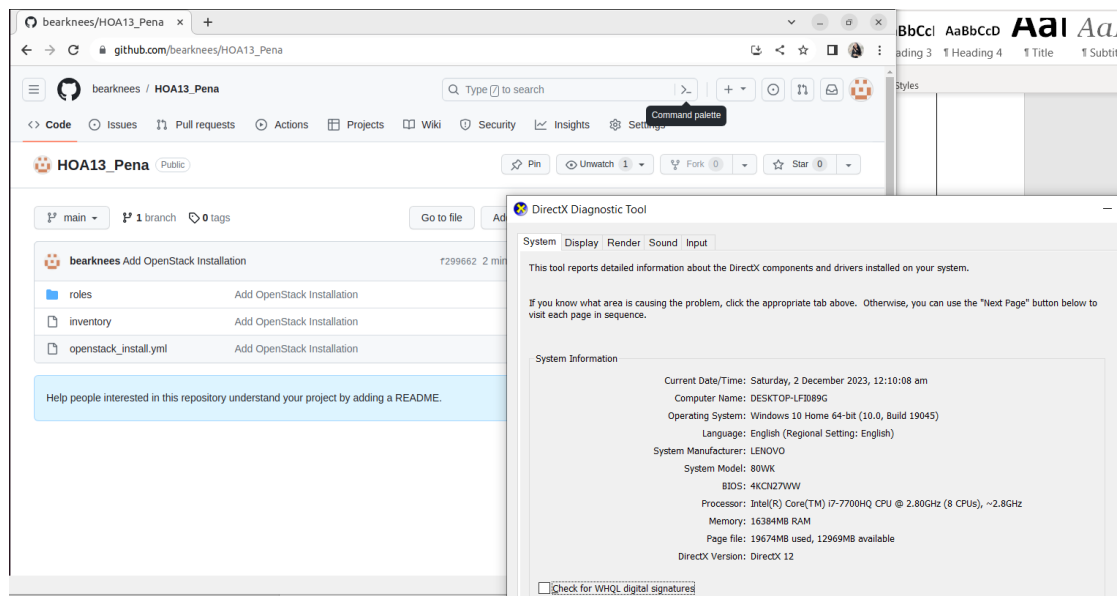
☐ Check for WHQL digital signatures

Memcached status





After verifying the status for each, I added and commit all the changes and pushed it in my GitHub



HOA13 GitHub repository

GitHub repository link: [https://github.com/bearknees/HOA13\\_Pena](https://github.com/bearknees/HOA13_Pena)

**Reflections:**

Answer the following:

1. What are the benefits of implementing OpenStack?

**Implementing OpenStack provides several benefits such as the scalability in order to adapt with various workloads, having this is also cost efficiency since it is optimized through resource utilization. OpenStack provides having the freedom of an open-source platform, the support for multi-tenancy makes the development of isolated environments which offers diverse user needs.**

**Conclusions:**

**Implementation of OpenStack using Ansible helped me to analyze the advantages of having it, I was able to evaluate various aspects of cloud deployment models of it as I configure OpenStack which opened a deep understanding of architecture choices. Ansible helped in demonstrating the workflow for the installation of OpenStack packages and its services. Learning about the OpenStack can help with the preparation of developing crucial skills in infrastructure as code as well as configuration management especially in scalable and automated cloud solutions. OpenStack can simplify cloud management which makes it a great tool for organizations and industry for having efficient and innovative solutions in cloud computing.**