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Course/Section: CPE232-CPE31S5	Date Submitted: 02/12/2023
Instructor: Prof. Roman Richard	Semester and SY: 1st sem 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

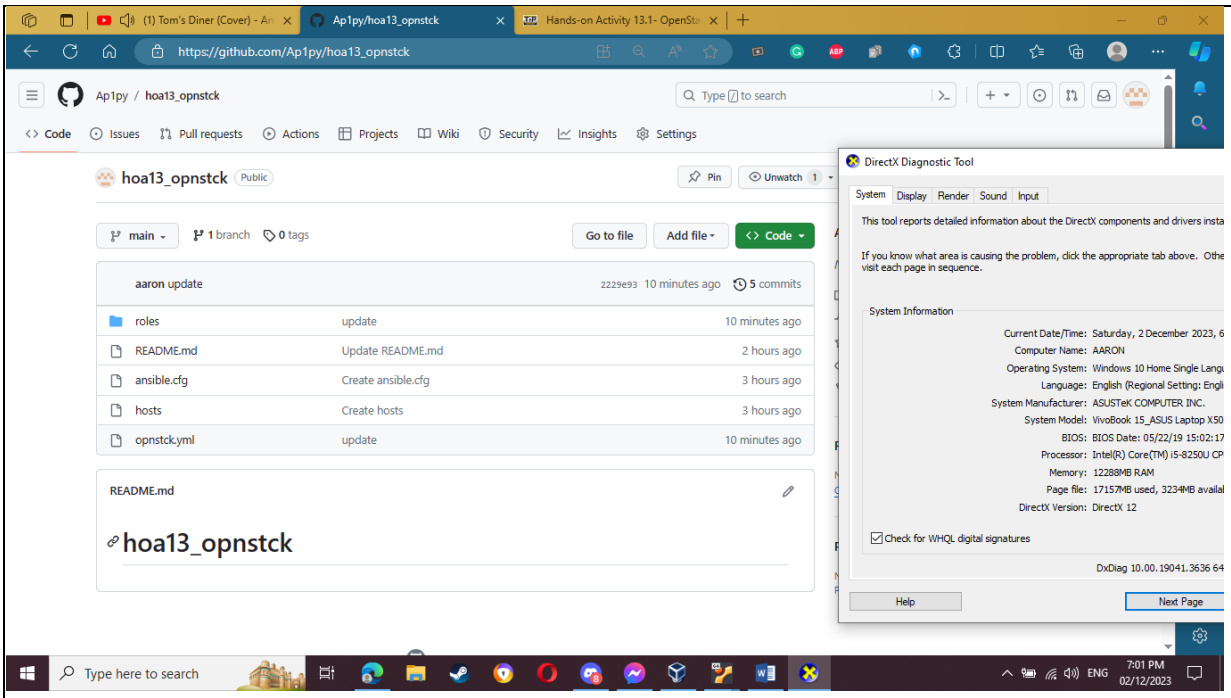
Oracle VirtualBox (Hypervisor)

1x Ubuntu VM or Centos VM

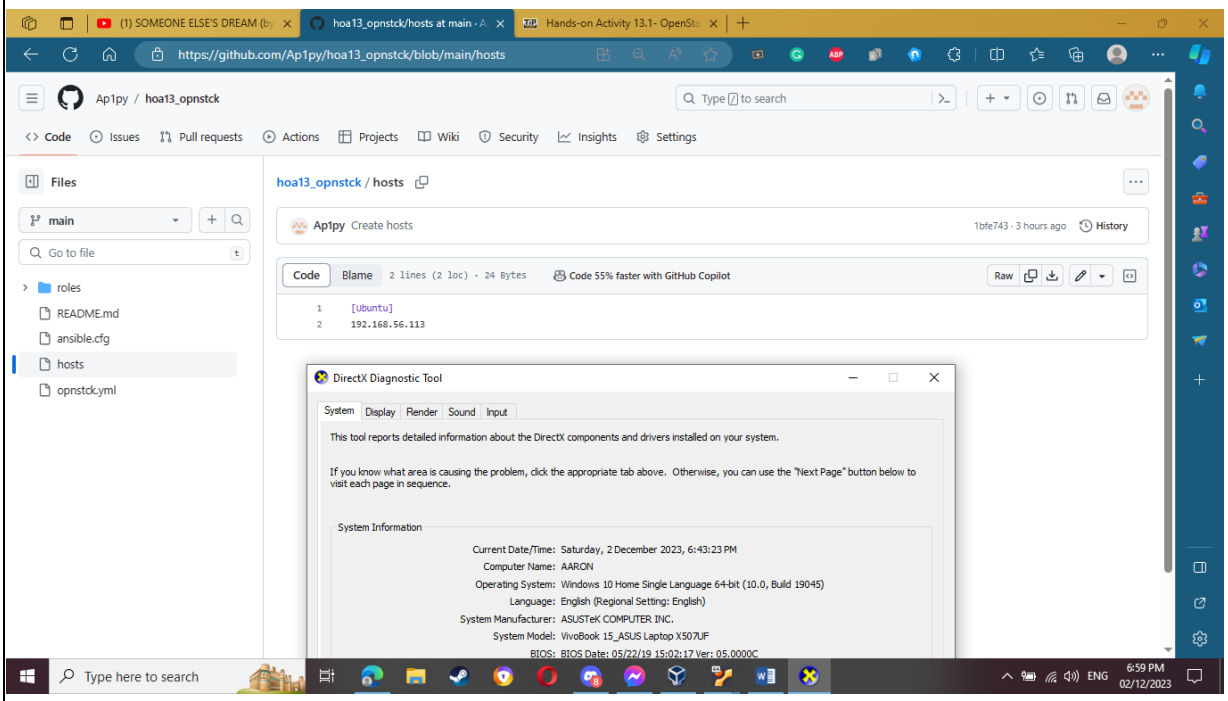
4. Tasks

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.

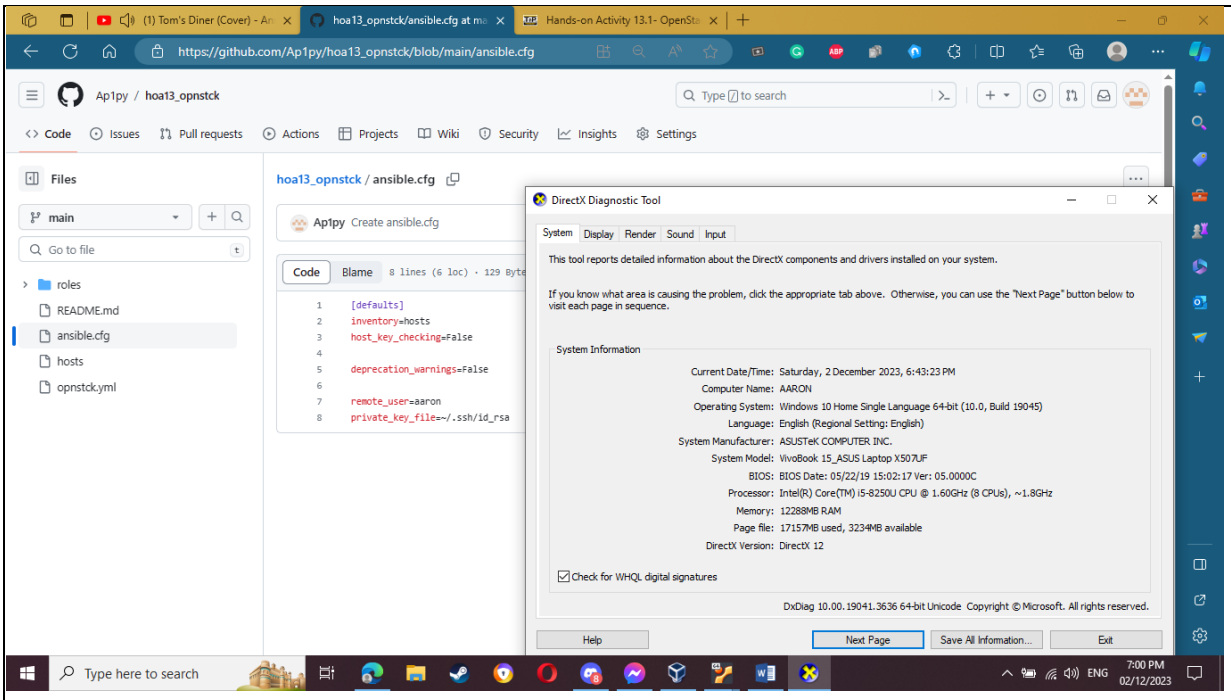
5. Output (screenshots and explanations)



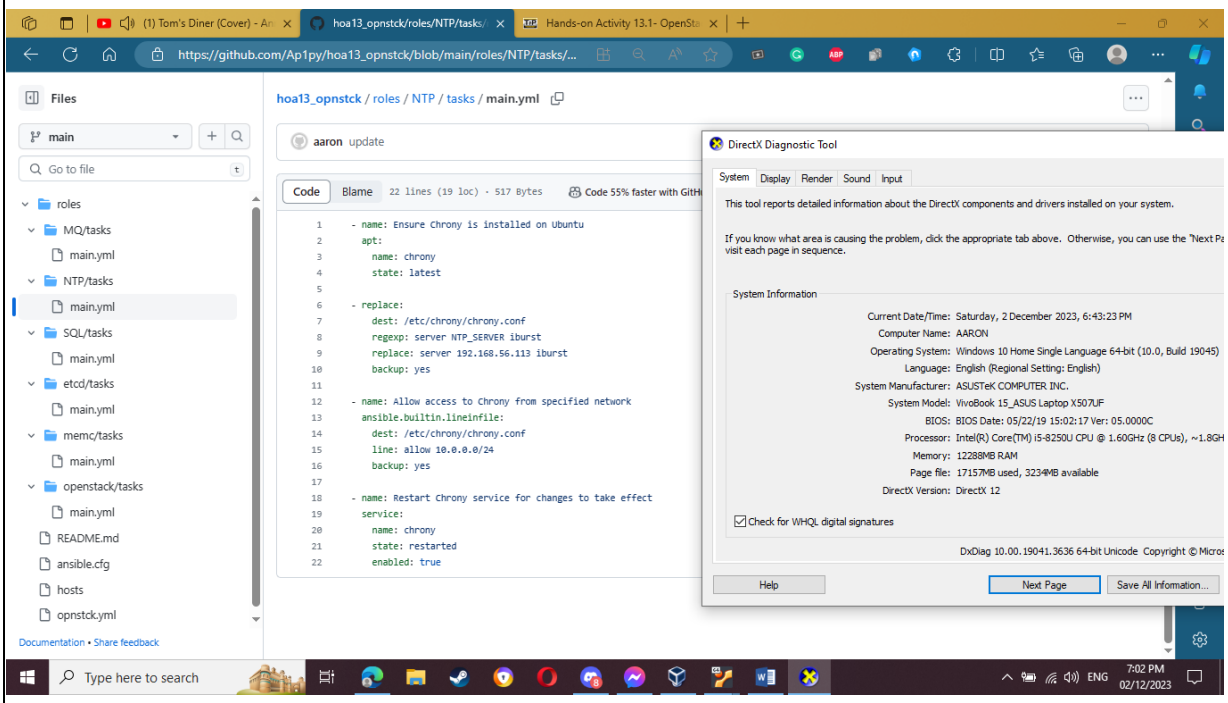
Created the repository the basic configurations for the host and ansible is copied from the previous activities.



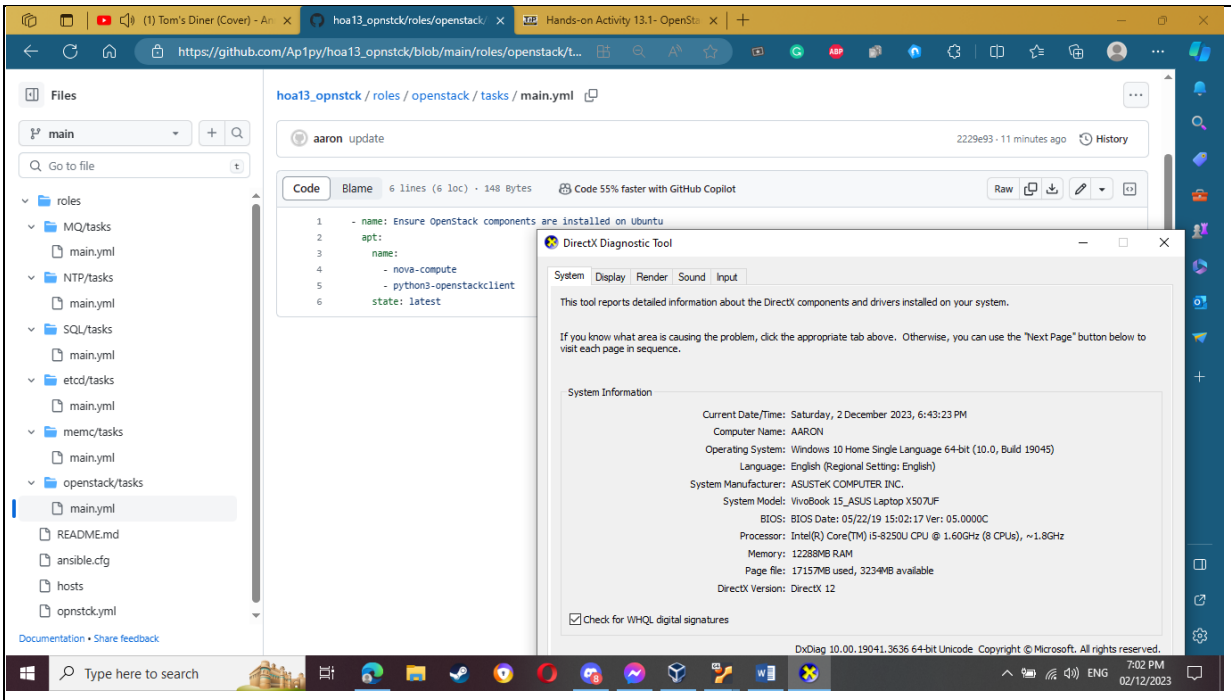
Hosts configuration copied from previous activity



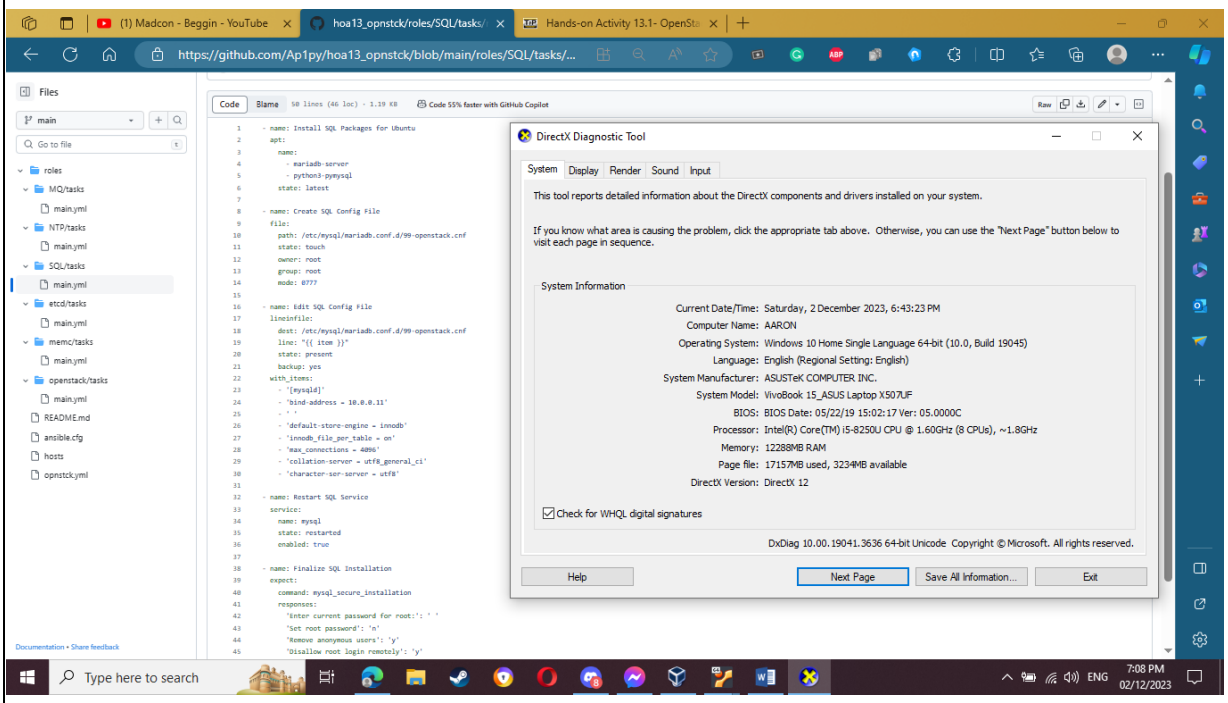
Ansible.cfg configuration copied from previous activity



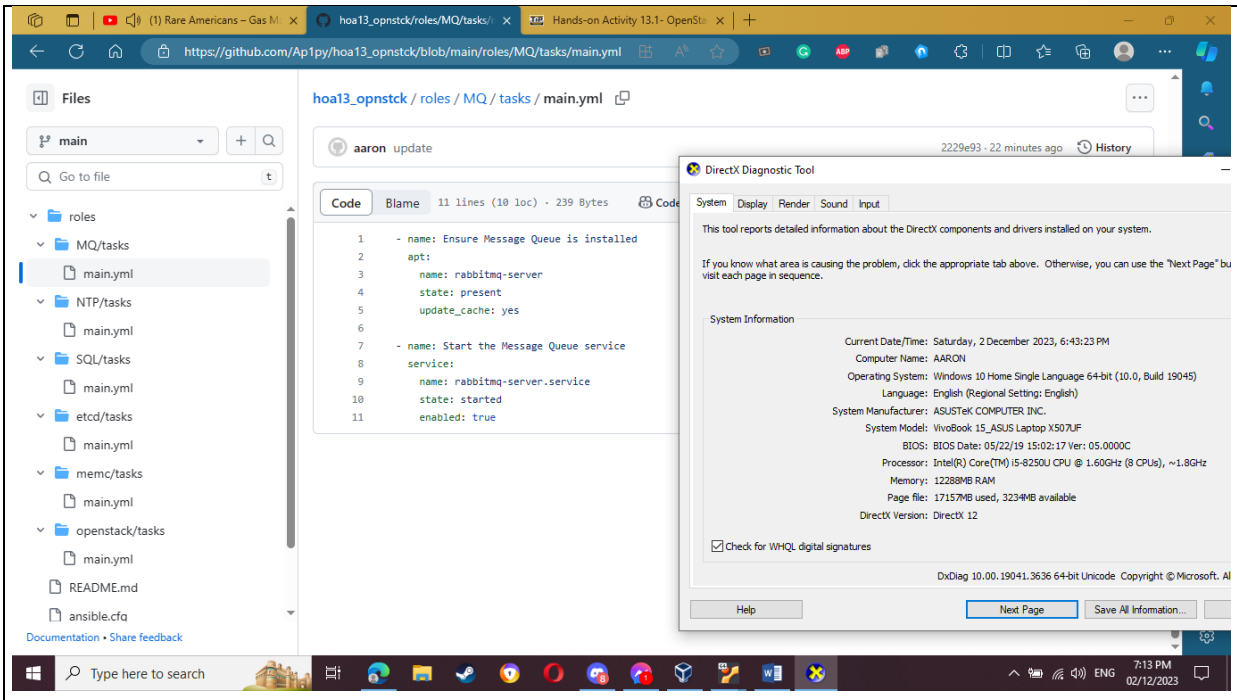
NTP configuration



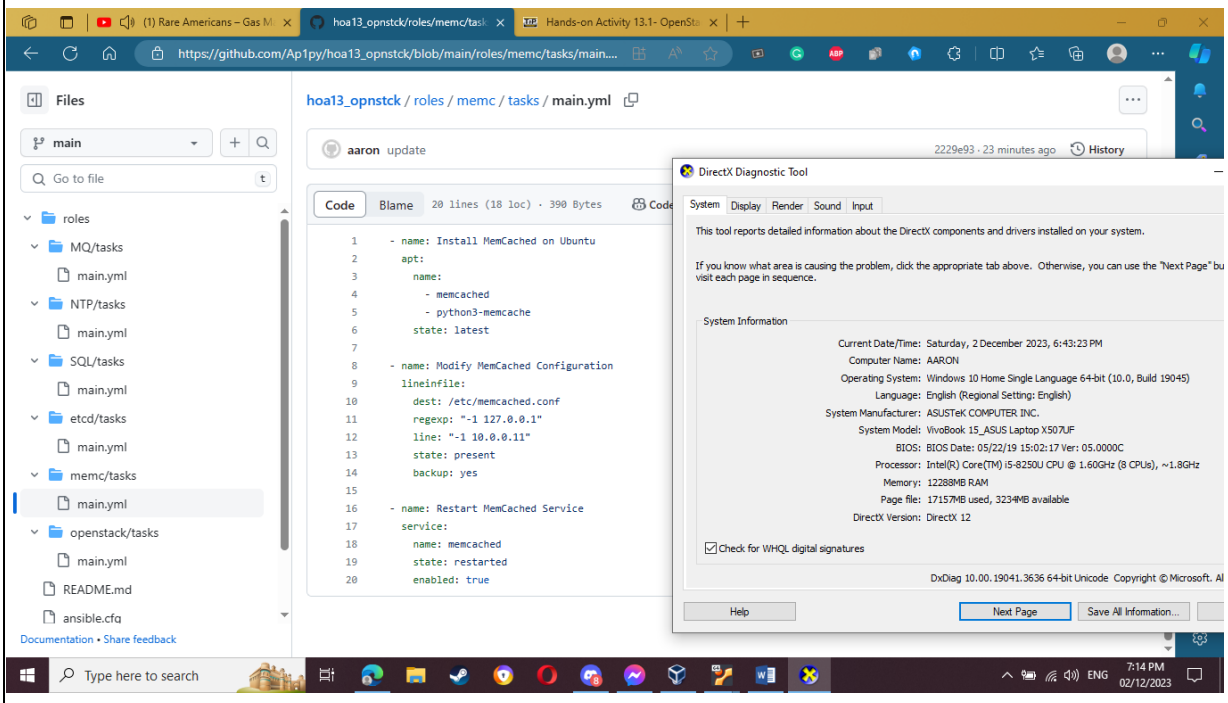
Openstack configuration



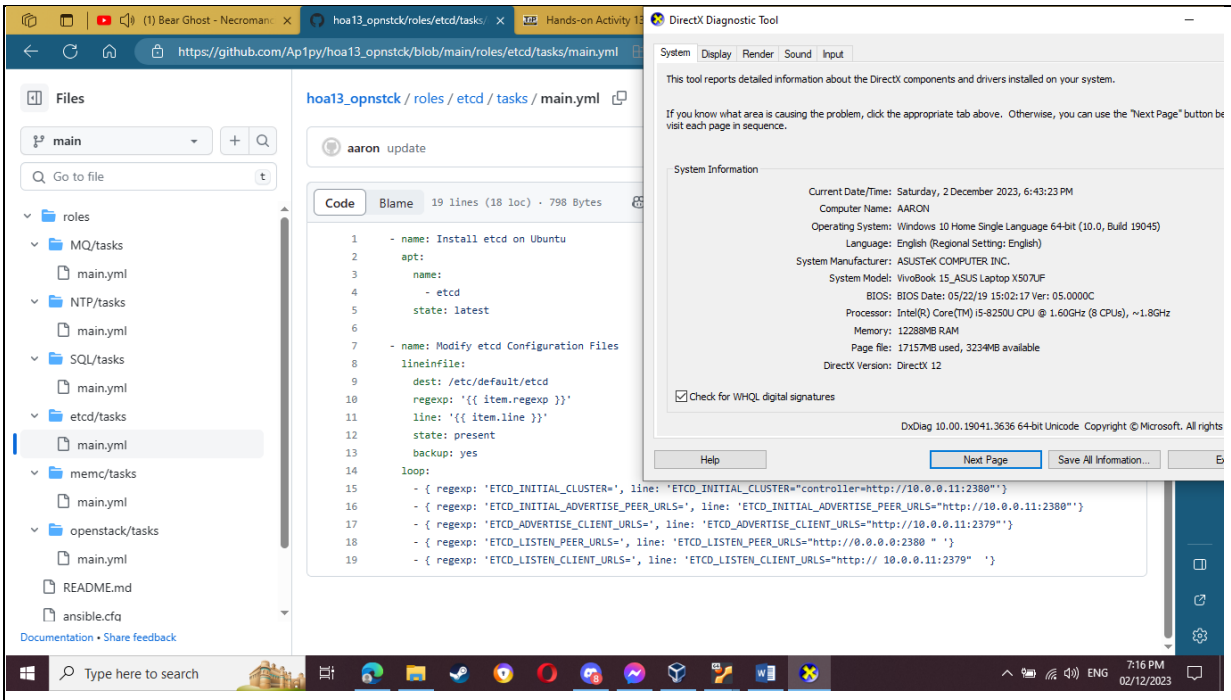
SQL configuration



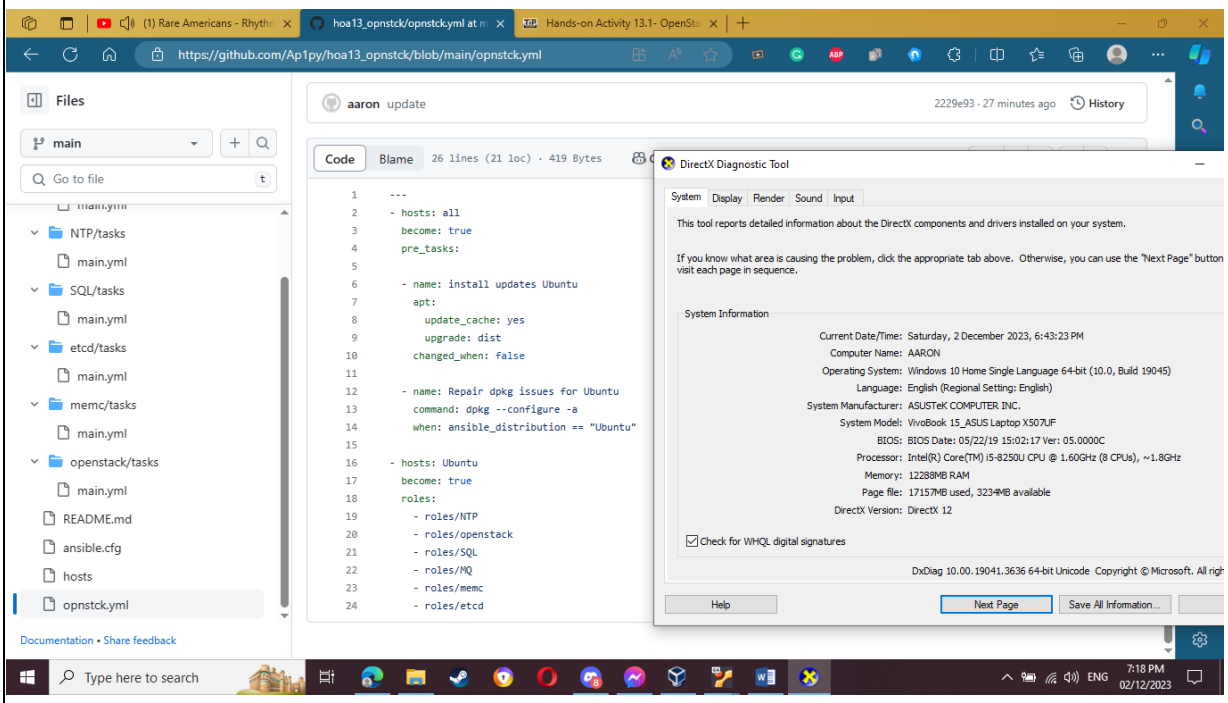
Message que configuration



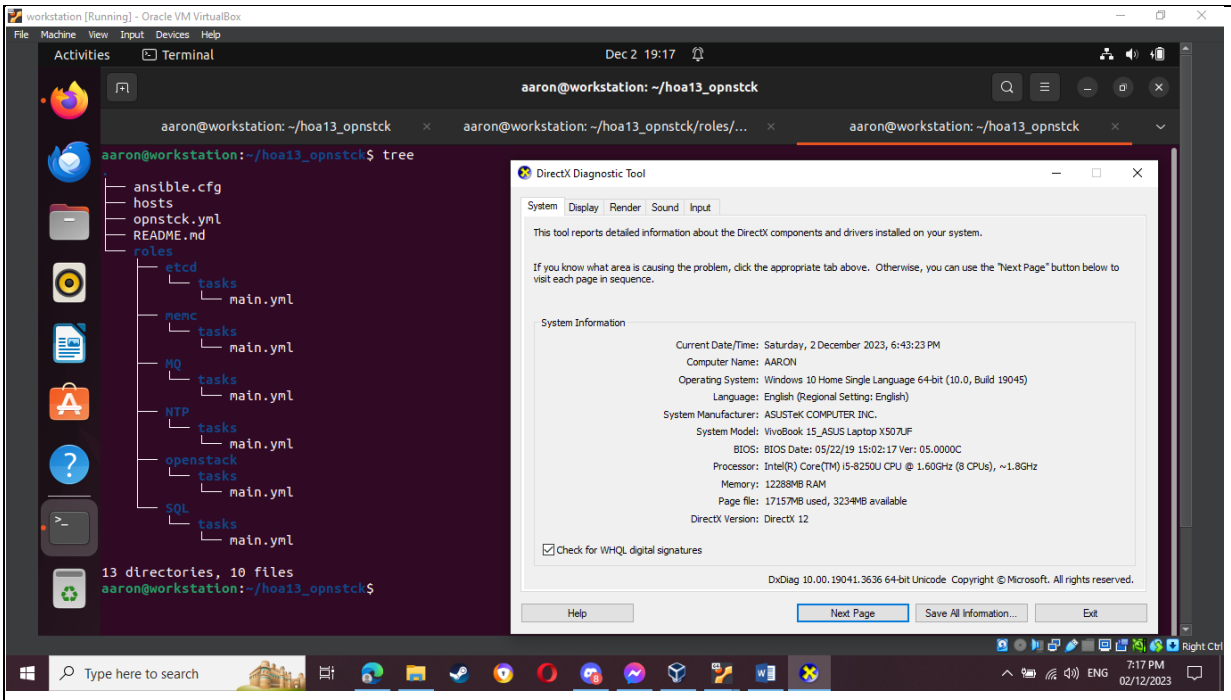
Memcached installation configuration



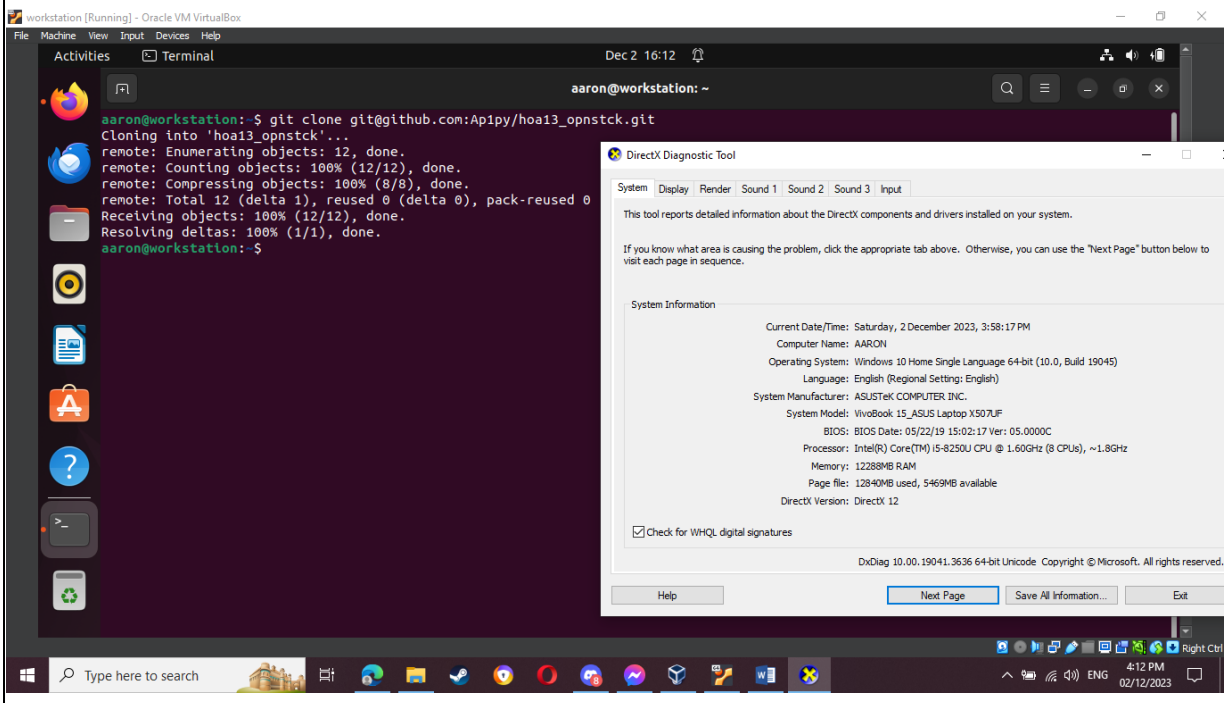
Etcd installation configuration



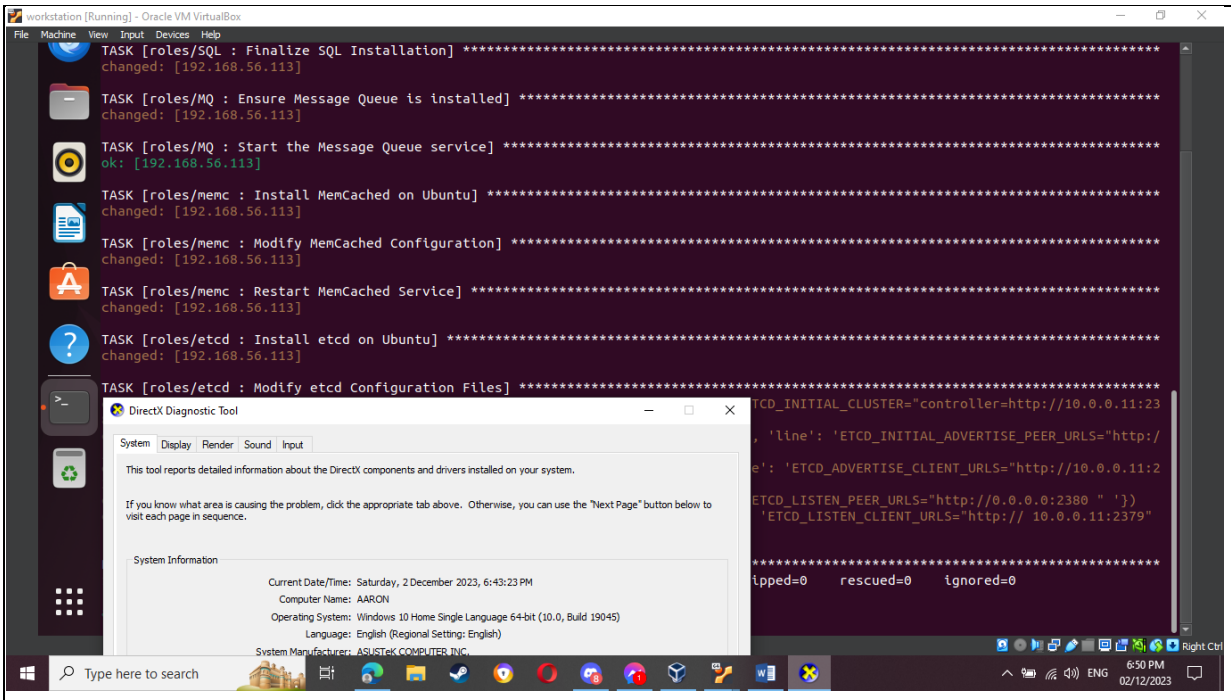
The configuration for the playbook that will call the roles.



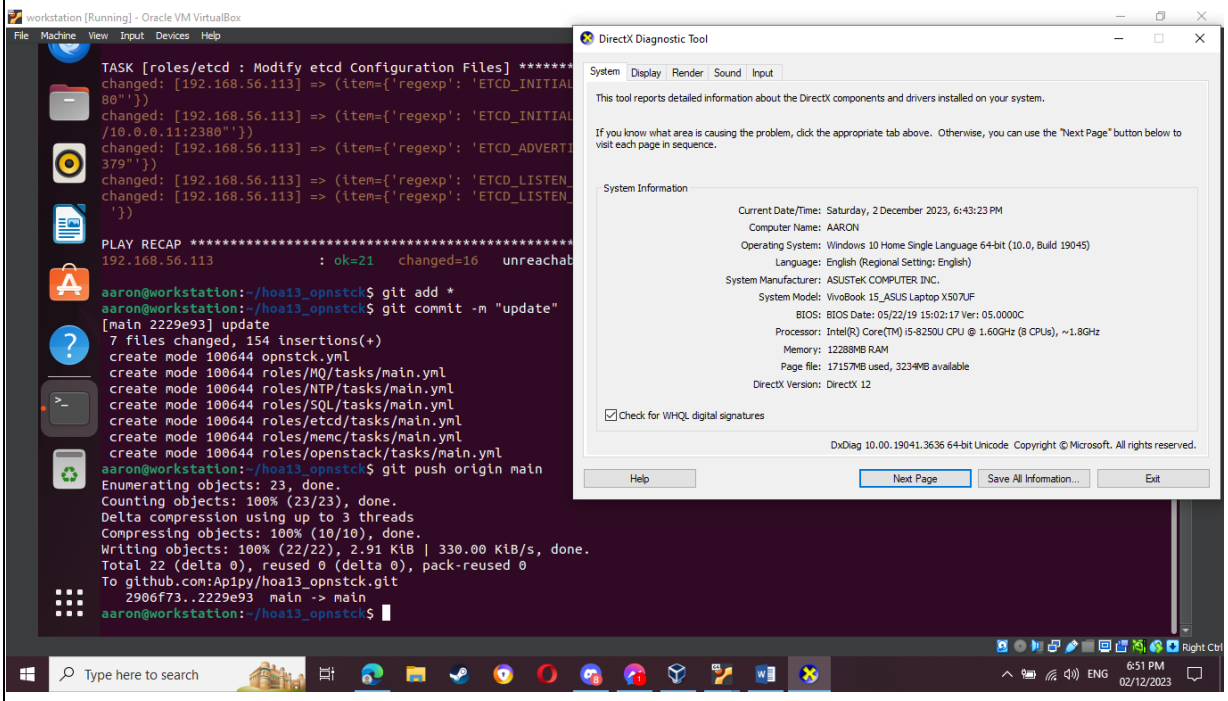
Repository structure



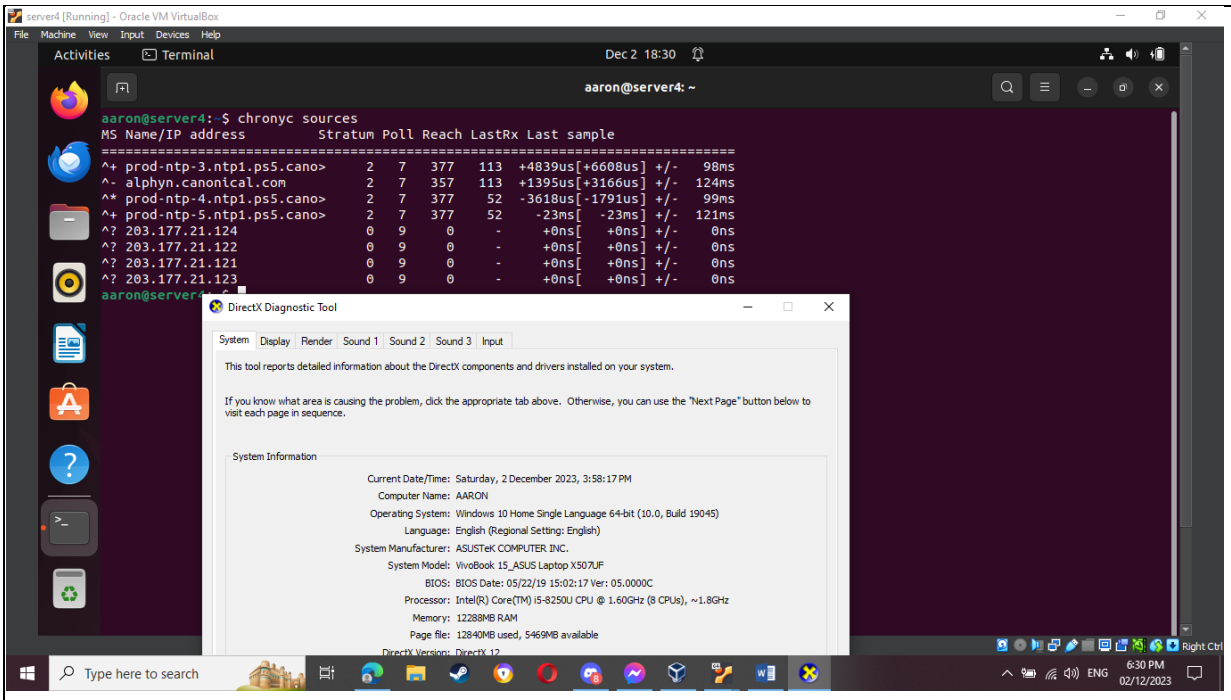
Cloning the repository.



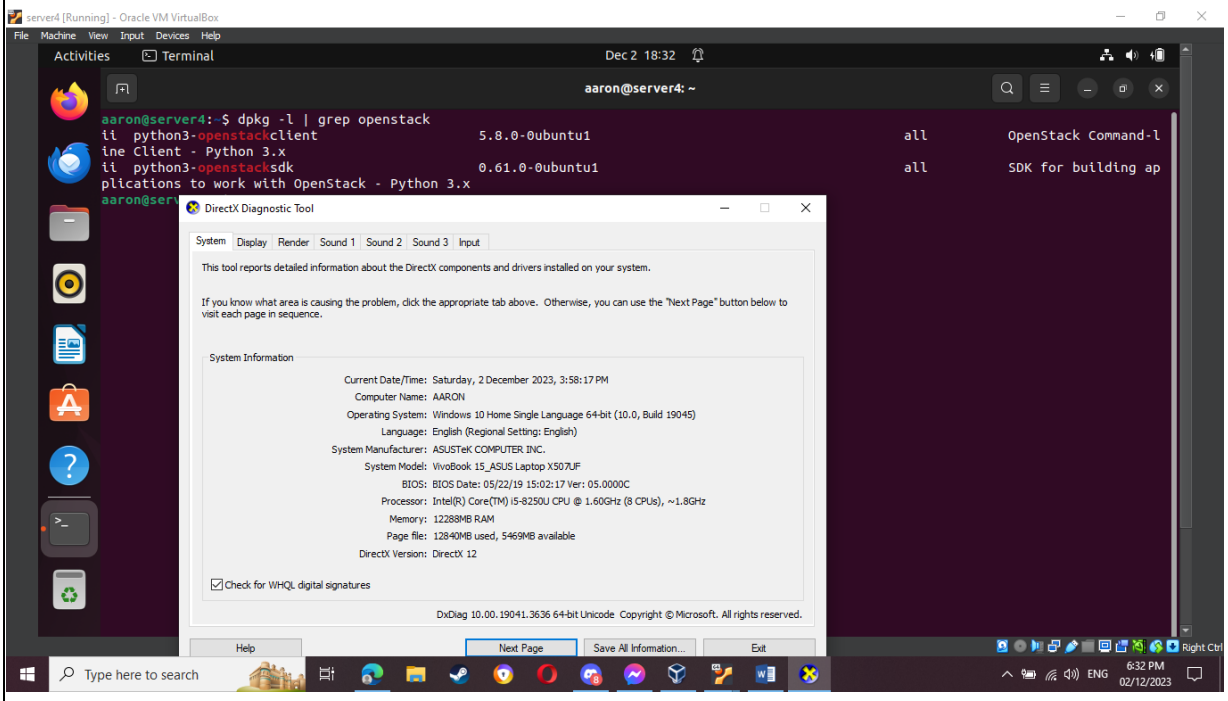
running the playbook



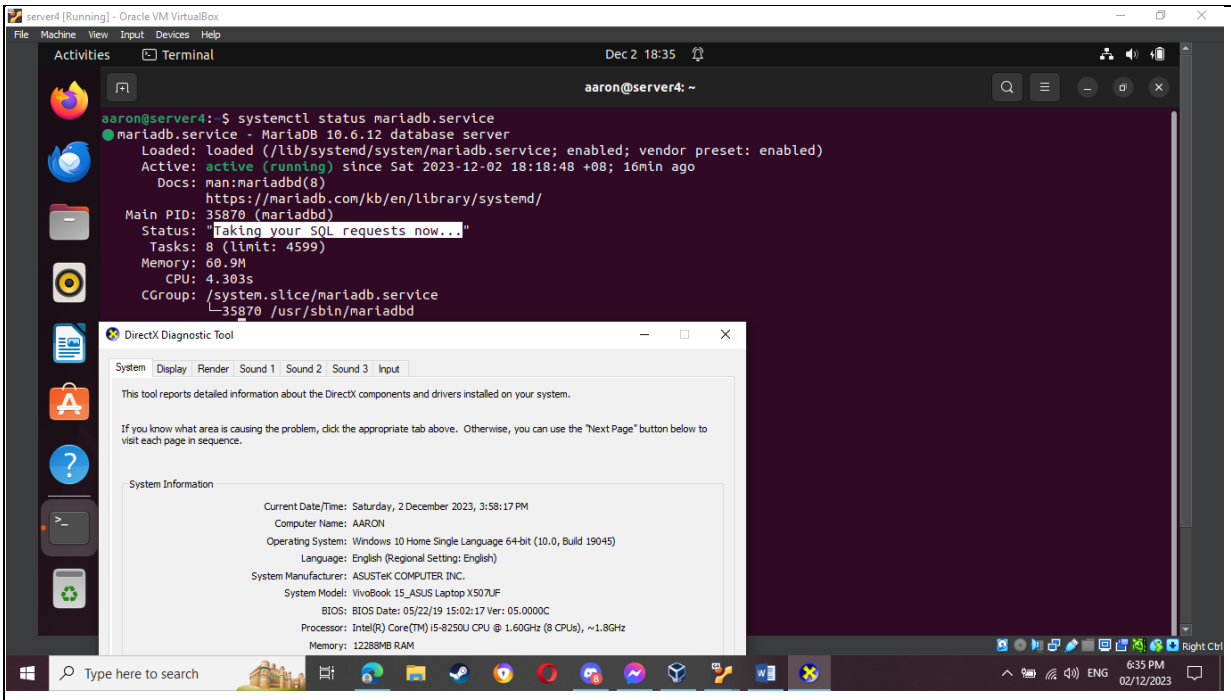
updating the repository



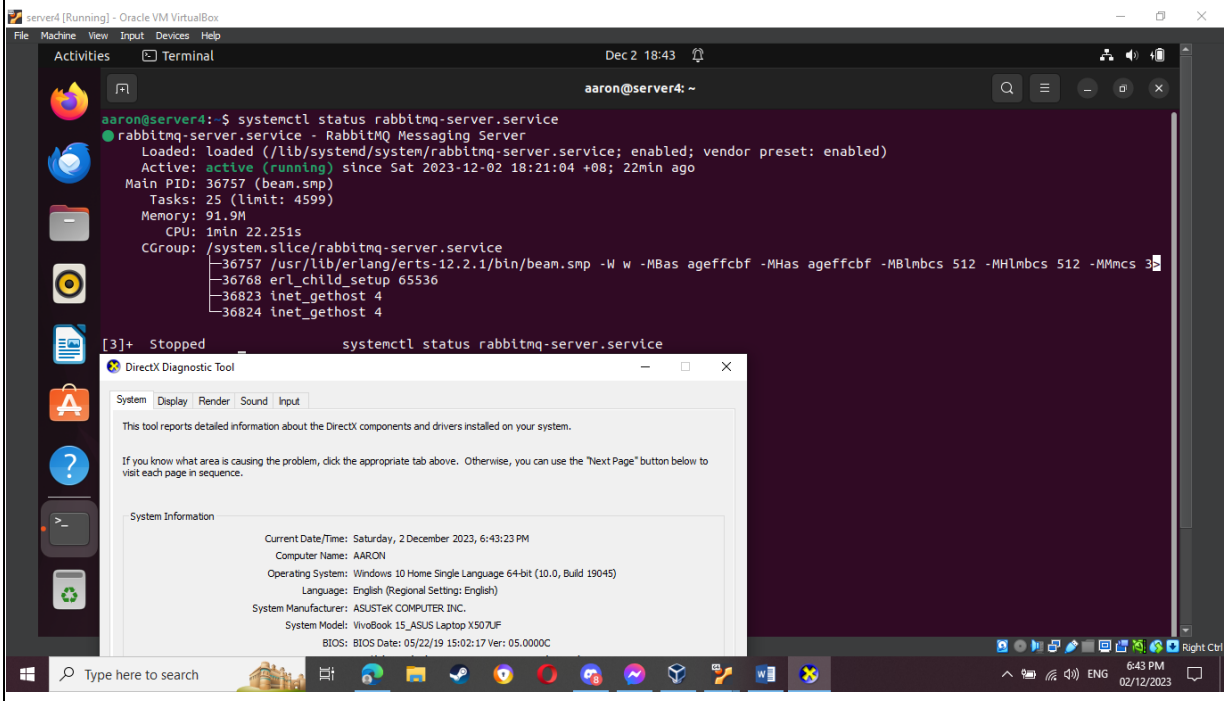
NTP installation confirmation



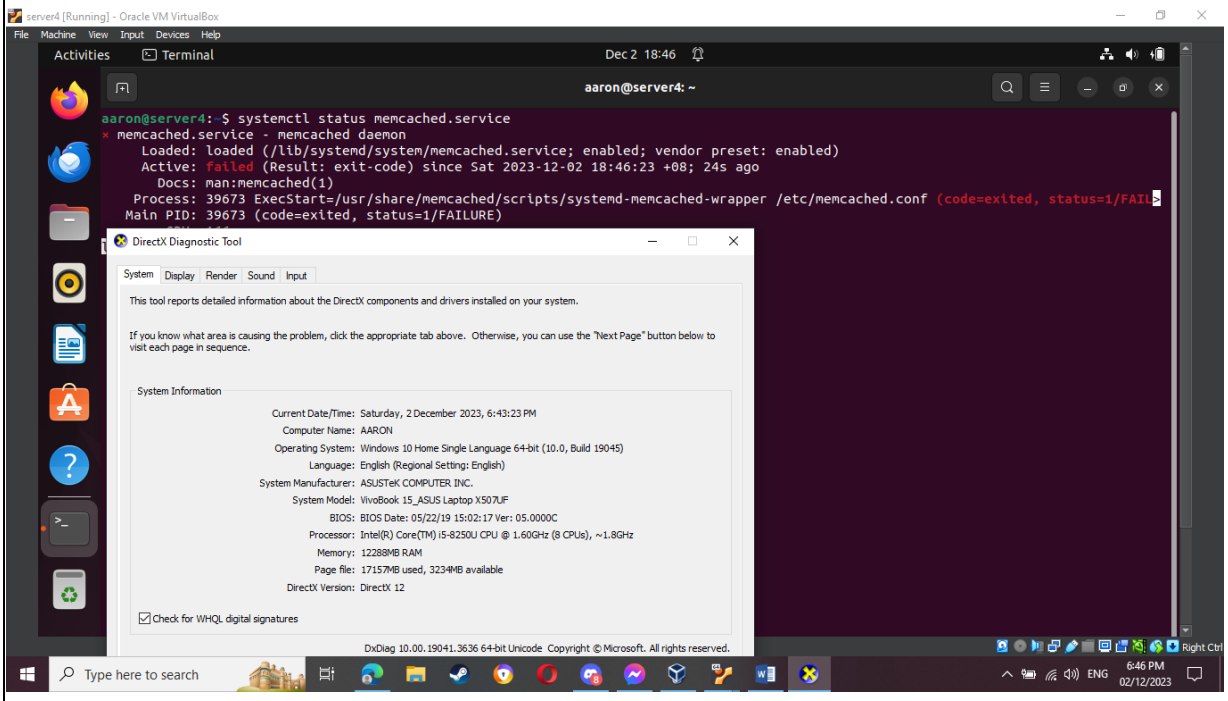
openstack installation confirmation



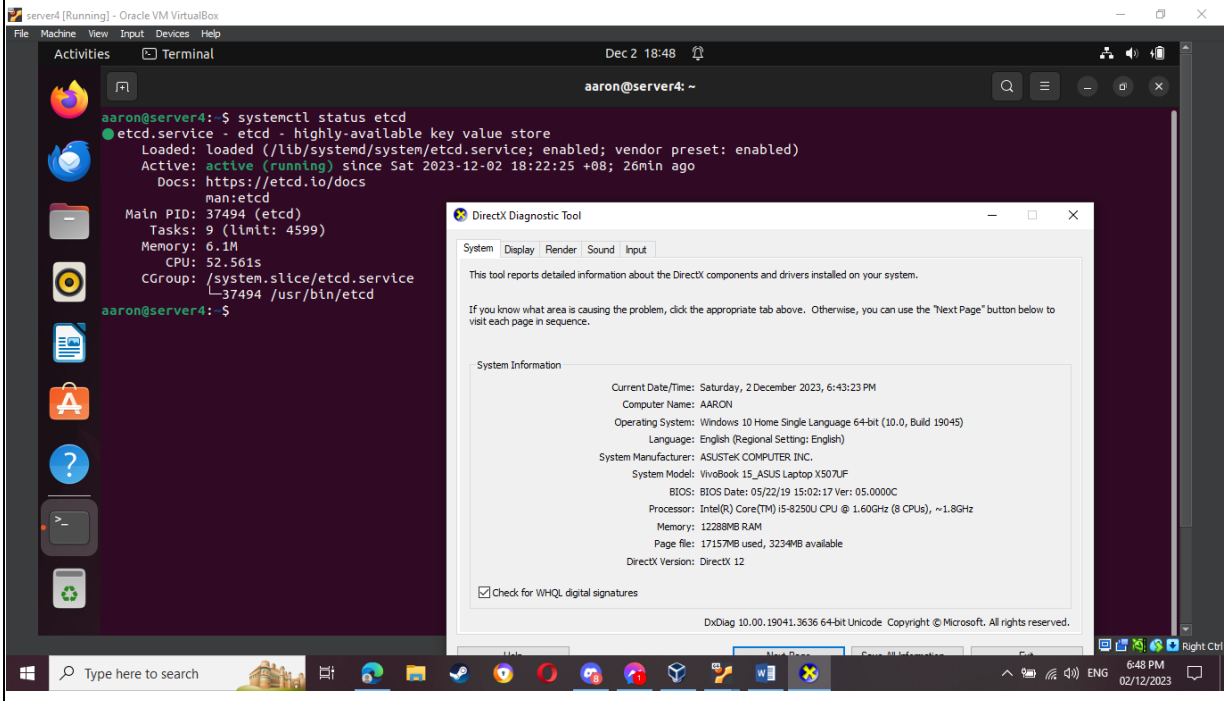
SQL installation confirmation



Message Que installation confirmation



memcached installation confirmation



ETCd installation confirmation

Reflections:

Answer the following:

1. What are the benefits of implementing OpenStack?
   Executing OpenStack gives associations a versatile, adaptable, and cost-productive distributed computing stage. It prevents vendor lock-in by providing freedom of choice for hardware and software. OpenStack upholds private cloud organizations, empowering upgraded command over information security and consistency. With crossover cloud support, associations can incorporate assets flawlessly across open and confidential mists. Autonomy and coordination abilities smooth out activities, diminishing manual mediation and helping effectiveness. Regular updates and enhancements are made possible by the active open-source community, and API compatibility makes it easier to integrate with other cloud services. The open standards, customization options, and security features of OpenStack make it appealing to businesses looking for a robust cloud infrastructure solution. Effective execution requires cautious preparation and progressing the board.

Conclusions:

In conclusion, businesses looking for a flexible and effective cloud computing platform will find that OpenStack is an effective option. Scalability, adaptability, cost-effectiveness, vendor neutrality, and support for private and hybrid cloud deployments are among its advantages. Organizations can use the platform's automation capabilities, security features, and the active open-source community to build and manage cloud infrastructure tailored to their specific requirements. Nonetheless, effective execution requires cautious preparation and continuous administration to understand the upsides of this open-source arrangement completely. As the distributed computing scene develops, OpenStack remains a convincing decision for those focusing on customization, control, and similarity in their cloud surroundings.