Name: Tamayo, Ray Lan A.	**Date Performed: 11/29/2024**
Course/Section: CPE 212-CPE31S21	**Date Submitted: 11/29/2024**
Instructor: Engr. Robin Valenzuela	**Semester and SY: First 2024-2025**

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

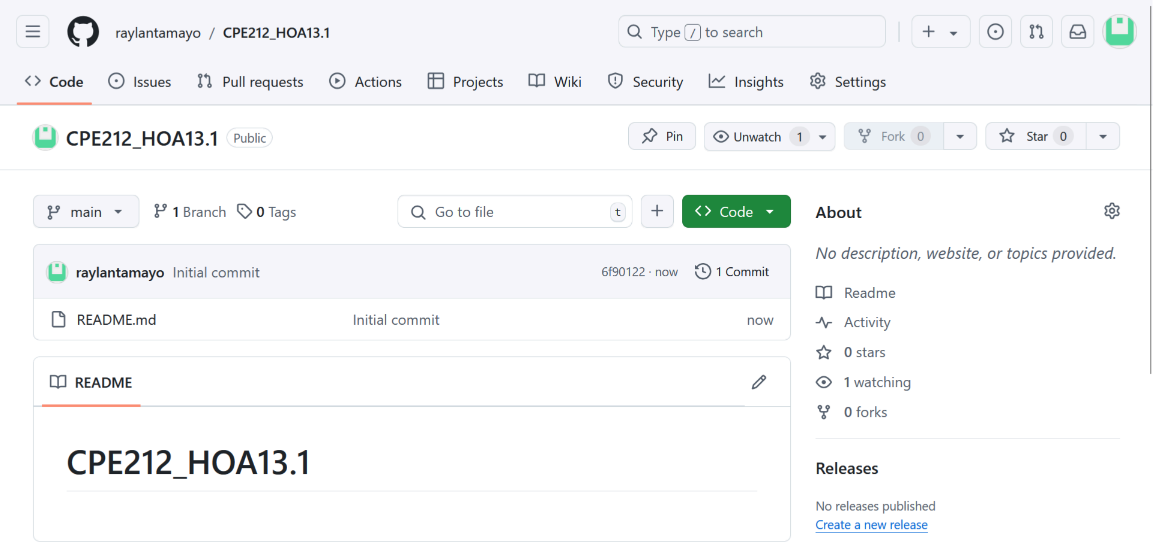
4. Tasks

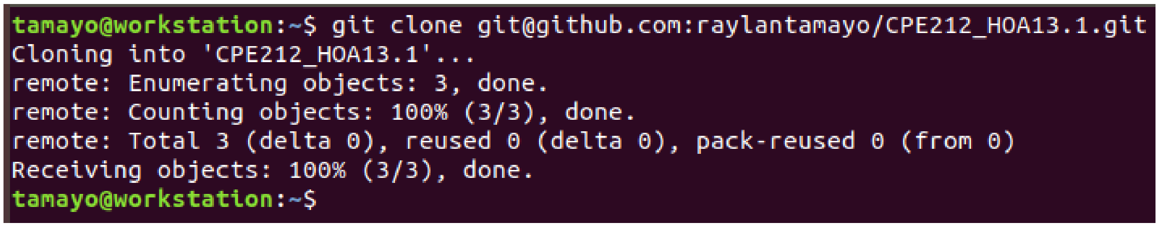
1. Create a new repository for this activity.
2. Create a playbook that converts the steps in the following items in https://docs.openstack.org/install-guide/
   a. NTP
   b. OpenStack packages
   c. SQL Database
   d. Message Queue
   e. Memcached
   f. Etcd
   g. Create different plays in installing 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)

Task 1: Create a File

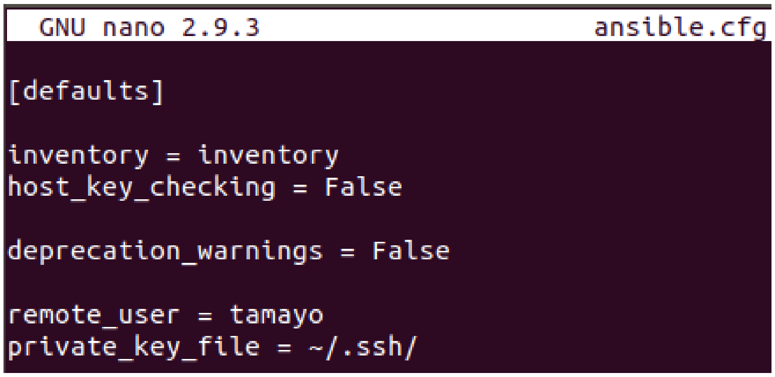
1. Create a new repository for this Hands-On Activity.



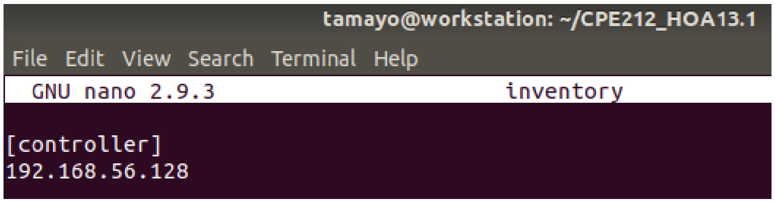


```
tamayo@workstation:~$ git clone git@github.com:raylantamayo/CPE212_HOA13.1.git
Cloning into 'CPE212_HOA13.1'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
tamayo@workstation:~$
```

2. Create the ansible.cfg and inventory file.



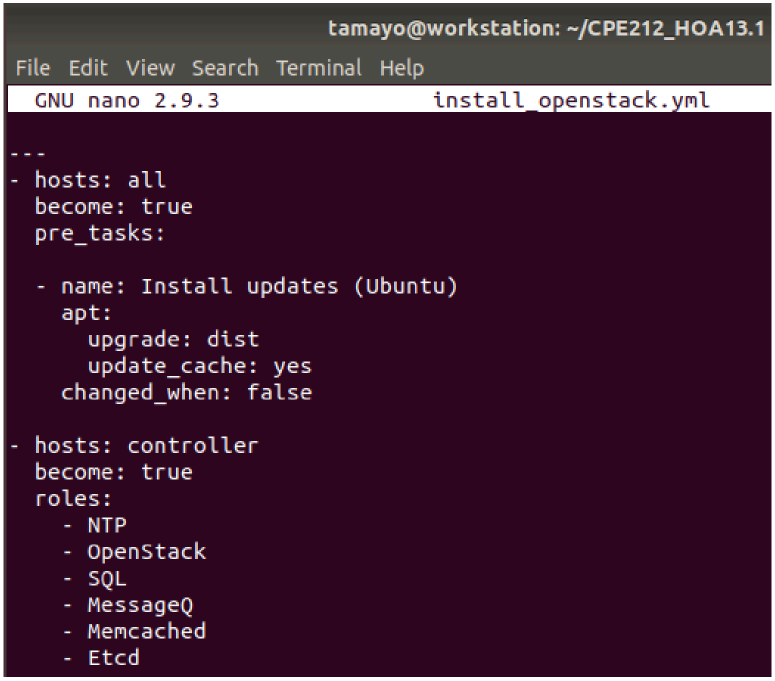
```
 GNU nano 2.9.3                    ansible.cfg

[defaults]

inventory = inventory
host_key_checking = False

deprecation_warnings = False

remote_user = tamayo
private_key_file = ~/.ssh/
```


tamayo@workstation: ~/CPE212_HOA13.1
File Edit View Search Terminal Help

```
 GNU nano 2.9.3                    inventory

[controller]
192.168.56.128
```

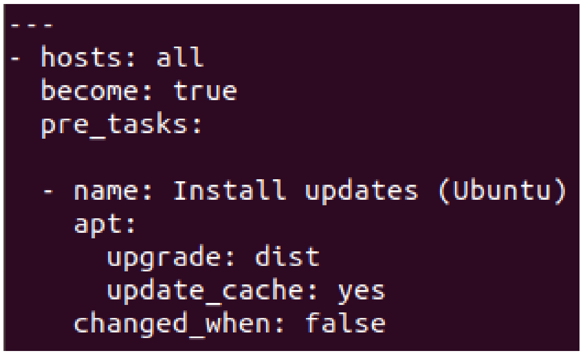
Task 2: Create Playbook for Installing OpenStack

1. Create a playbook and name it install_openstack.yml.


tamayo@workstation: ~/CPE212_HOA13.1
File Edit View Search Terminal Help
GNU nano 2.9.3 install_openstack.yml

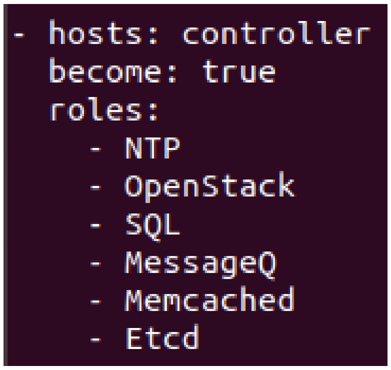
```
---
- hosts: all
  become: true
  pre_tasks:

  - name: Install updates (Ubuntu)
    apt:
      upgrade: dist
      update_cache: yes
    changed_when: false

- hosts: controller
  become: true
  roles:
    - NTP
    - OpenStack
    - SQL
    - MessageQ
    - Memcached
    - Etcd
```

CODE EXPLANATION

It instructs Ansible to run tasks on all hosts, become a privileged user, and execute a pre-task. The pre-task installs updates on Ubuntu using the 'apt' module, specifying a distribution upgrade while suppressing changes indication for brevity.	

```
---
- hosts: all
  become: true
  pre_tasks:

  - name: Install updates (Ubuntu)
    apt:
      upgrade: dist
      update_cache: yes
    changed_when: false
```

This Ansible playbook configures a server (controller) to take on various roles, including managing NTP, deploying OpenStack, handling SQL databases, dealing with message queues, utilizing Memcached, and using Etcd for distributed key-value storage. The 'become: true' grants elevated privileges for execution.

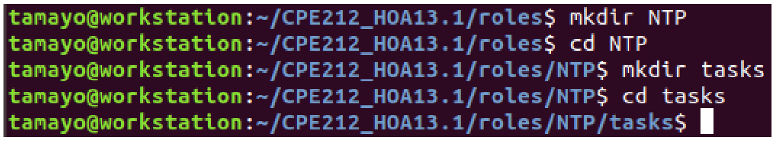


```
- hosts: controller
  become: true
  roles:
    - NTP
    - OpenStack
    - SQL
    - MessageQ
    - Memcached
    - Etcd
```

Task 3: Create Roles

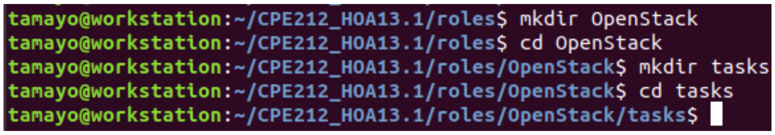
1. Create a new directory and name it “roles”. Enter the roles directory and create new directories: NTP, OpenStack, SQL, MessageQ, Memcached, Etcd For each directory, create a directory and name it tasks.

NTP



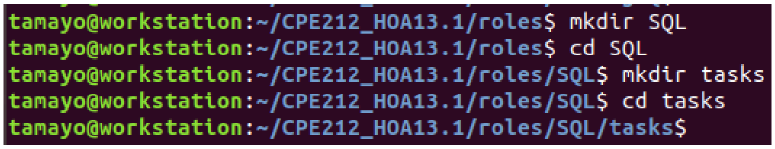
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ mkdir NTP
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd NTP
tamayo@workstation:~/CPE212_HOA13.1/roles/NTP$ mkdir tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/NTP$ cd tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/NTP/tasks$ 
```

OpenStack



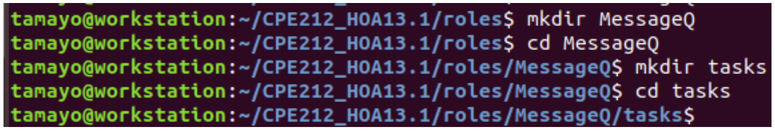
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ mkdir OpenStack
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd OpenStack
tamayo@workstation:~/CPE212_HOA13.1/roles/OpenStack$ mkdir tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/OpenStack$ cd tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/OpenStack/tasks$ 
```

SQL



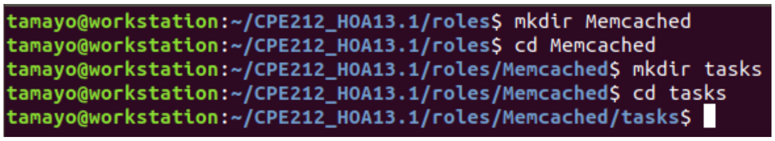
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ mkdir SQL
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd SQL
tamayo@workstation:~/CPE212_HOA13.1/roles/SQL$ mkdir tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/SQL$ cd tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/SQL/tasks$
```

MessageQ



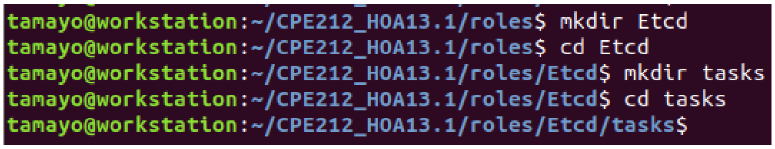
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ mkdir MessageQ
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd MessageQ
tamayo@workstation:~/CPE212_HOA13.1/roles/MessageQ$ mkdir tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/MessageQ$ cd tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/MessageQ/tasks$
```

Memcached



```
tamayo@workstation:~/CPE212_HOA13.1/roles$ mkdir Memcached
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd Memcached
tamayo@workstation:~/CPE212_HOA13.1/roles/Memcached$ mkdir tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/Memcached$ cd tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/Memcached/tasks$
```

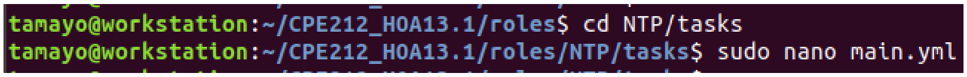
Etcd



```
tamayo@workstation:~/CPE212_HOA13.1/roles$ mkdir Etcd
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd Etcd
tamayo@workstation:~/CPE212_HOA13.1/roles/Etcd$ mkdir tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/Etcd$ cd tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/Etcd/tasks$
```

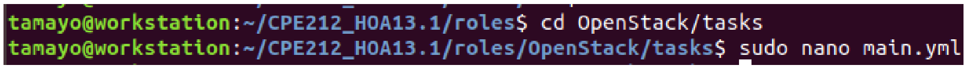
2. In each of the tasks for the two directory (centos_elk and ubuntu_elk), create another file and name it main.yml.

NTP



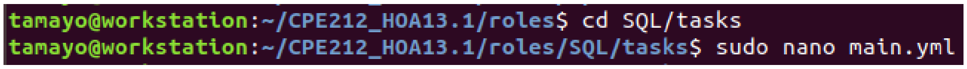
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd NTP/tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/NTP/tasks$ sudo nano main.yml
```

OpenStack



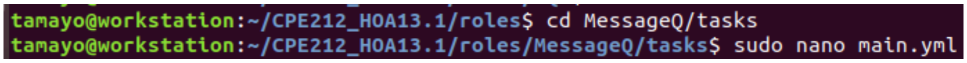
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd OpenStack/tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/OpenStack/tasks$ sudo nano main.yml
```

SQL



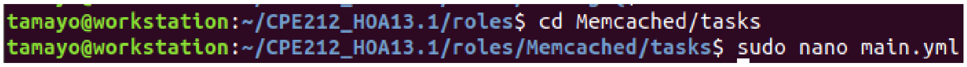
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd SQL/tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/SQL/tasks$ sudo nano main.yml
```

MessageQ



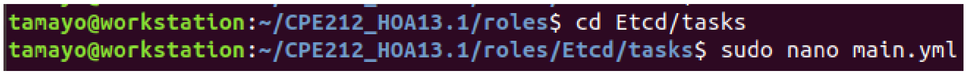
```
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd MessageQ/tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/MessageQ/tasks$ sudo nano main.yml
```

Memcached



```
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd Memcached/tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/Memcached/tasks$ sudo nano main.yml
```

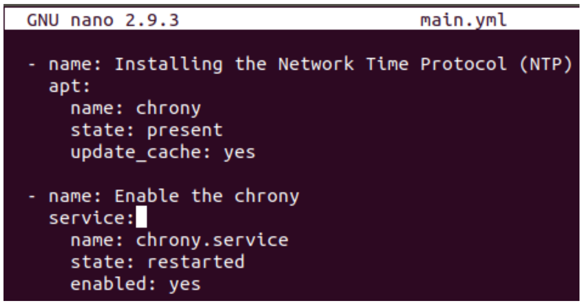
Etcd



```
tamayo@workstation:~/CPE212_HOA13.1/roles$ cd Etcd/tasks
tamayo@workstation:~/CPE212_HOA13.1/roles/Etcd/tasks$ sudo nano main.yml
```

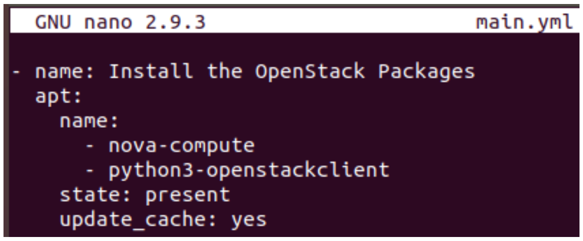
3. Copy the code to the main.yml of the each subdirectory.

NTP



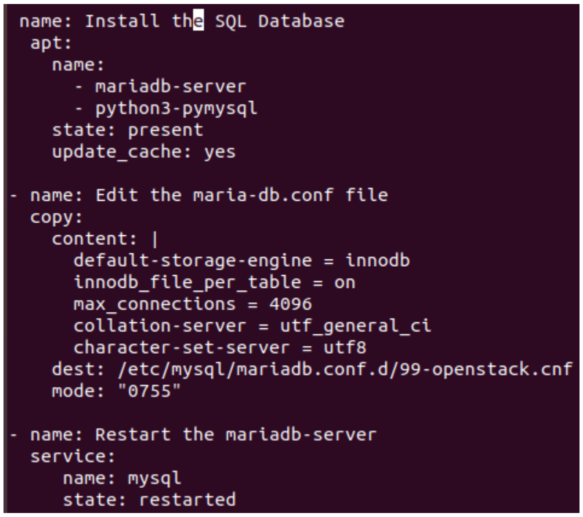
```
 - name: Installing the Network Time Protocol (NTP)
   apt:
     name: chrony
     state: present
     update_cache: yes

 - name: Enable the chrony
   service:
     name: chrony.service
     state: restarted
     enabled: yes
```

OpenStack



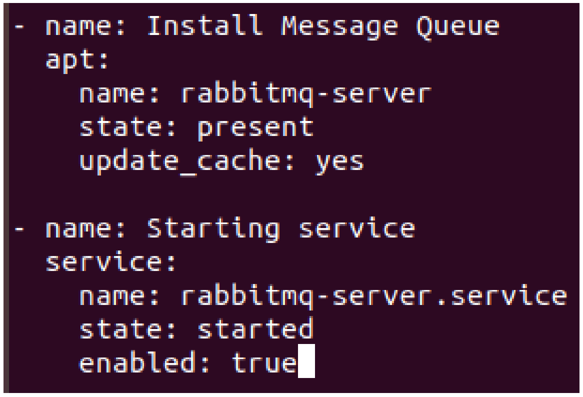
```
- name: Install the OpenStack Packages
  apt:
    name:
      - nova-compute
      - python3-openstackclient
    state: present
    update_cache: yes
```

SQL



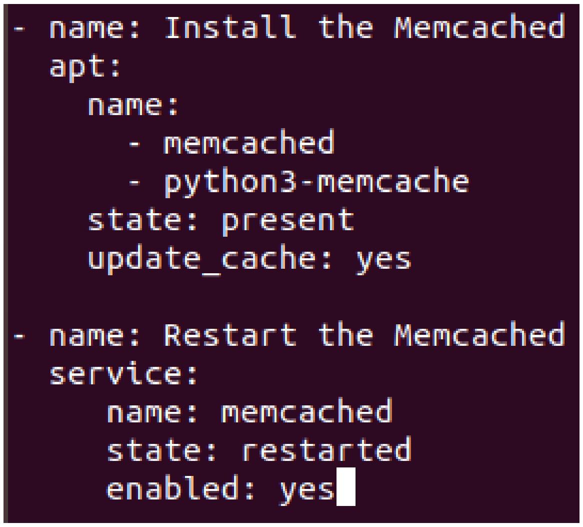
```
name: Install the SQL Database
  apt:
    name:
      - mariadb-server
      - python3-pymysql
    state: present
    update_cache: yes

- name: Edit the maria-db.conf file
  copy:
    content: |
      default-storage-engine = innodb
      innodb_file_per_table = on
      max_connections = 4096
      collation-server = utf_general_ci
      character-set-server = utf8
    dest: /etc/mysql/mariadb.conf.d/99-openstack.cnf
    mode: "0755"

- name: Restart the mariadb-server
  service:
     name: mysql
     state: restarted
```

MessageQ



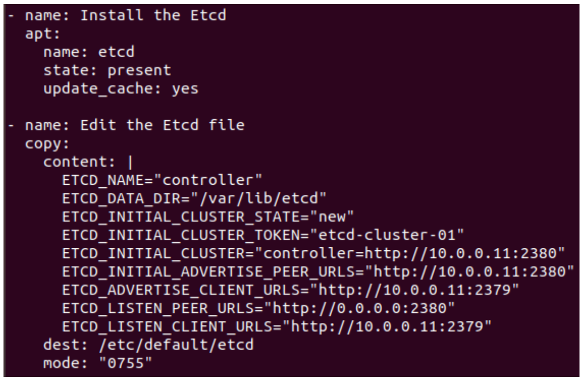
```
- name: Install Message Queue
  apt:
    name: rabbitmq-server
    state: present
    update_cache: yes

- name: Starting service
  service:
    name: rabbitmq-server.service
    state: started
    enabled: true
```

Memcached

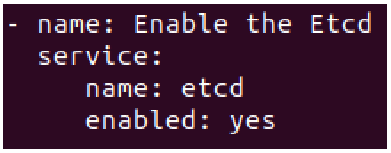


```
- name: Install the Memcached
  apt:
    name:
      - memcached
      - python3-memcache
    state: present
    update_cache: yes

- name: Restart the Memcached
  service:
     name: memcached
     state: restarted
     enabled: yes
```

Etcd



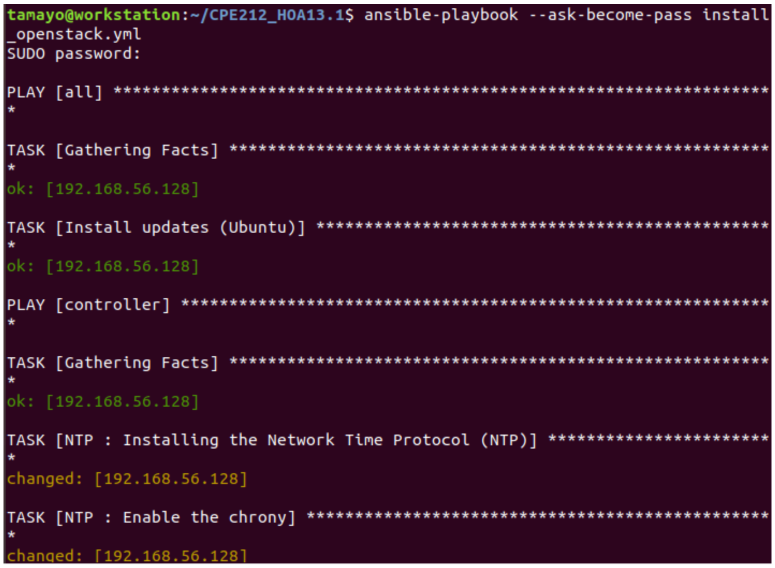
```
- name: Install the Etcd
  apt:
    name: etcd
    state: present
    update_cache: yes

- name: Edit the Etcd file
  copy:
    content: |
      ETCD_NAME="controller"
      ETCD_DATA_DIR="/var/lib/etcd"
      ETCD_INITIAL_CLUSTER_STATE="new"
      ETCD_INITIAL_CLUSTER_TOKEN="etcd-cluster-01"
      ETCD_INITIAL_CLUSTER="controller=http://10.0.0.11:2380"
      ETCD_INITIAL_ADVERTISE_PEER_URLS="http://10.0.0.11:2380"
      ETCD_ADVERTISE_CLIENT_URLS="http://10.0.0.11:2379"
      ETCD_LISTEN_PEER_URLS="http://0.0.0.0:2380"
      ETCD_LISTEN_CLIENT_URLS="http://10.0.0.11:2379"
    dest: /etc/default/etcd
    mode: "0755"
```



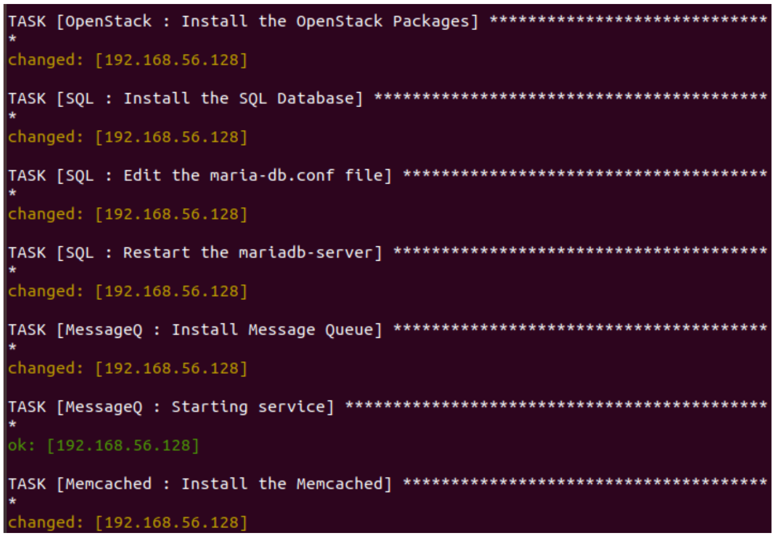
```
- name: Enable the Etcd
  service:
     name: etcd
     enabled: yes
```

Task 4: Run and Verify

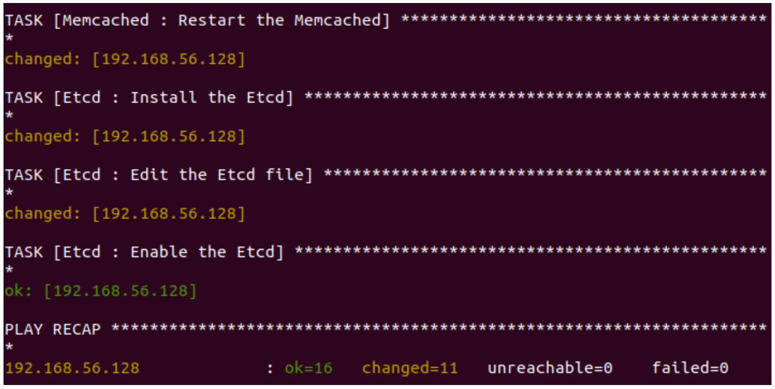
1. Run the command ansible-playbook - - ask-become-pass install_openstack.yml to completely install the OpenStack in the controller node.



```
tamayo@workstation:~/CPE212_HOA13.1$ ansible-playbook --ask-become-pass install
_openstack.yml
SUDO password:

PLAY [all] ********************************************************************
*

TASK [Gathering Facts] ********************************************************
*
ok: [192.168.56.128]

TASK [Install updates (Ubuntu)] ***********************************************
*
ok: [192.168.56.128]

PLAY [controller] *************************************************************
*

TASK [Gathering Facts] ********************************************************
*
ok: [192.168.56.128]

TASK [NTP : Installing the Network Time Protocol (NTP)] ***********************
*
changed: [192.168.56.128]

TASK [NTP : Enable the chrony] ************************************************
*
changed: [192.168.56.128]
```



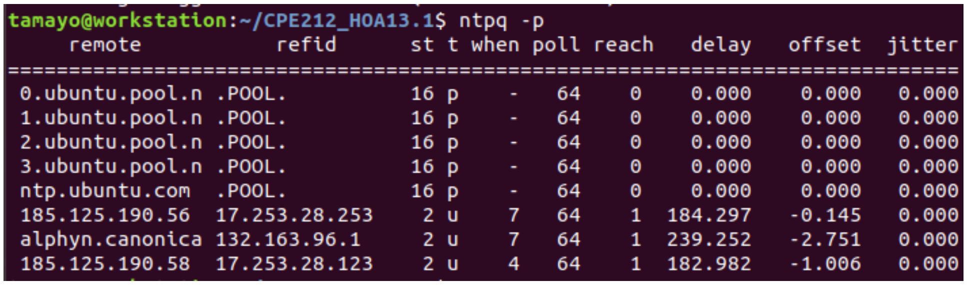
```
TASK [OpenStack : Install the OpenStack Packages] *****************************
*
changed: [192.168.56.128]

TASK [SQL : Install the SQL Database] *****************************************
*
changed: [192.168.56.128]

TASK [SQL : Edit the maria-db.conf file] **************************************
*
changed: [192.168.56.128]

TASK [SQL : Restart the mariadb-server] ***************************************
*
changed: [192.168.56.128]

TASK [MessageQ : Install Message Queue] ***************************************
*
changed: [192.168.56.128]

TASK [MessageQ : Starting service] ********************************************
*
ok: [192.168.56.128]

TASK [Memcached : Install the Memcached] **************************************
*
changed: [192.168.56.128]
```



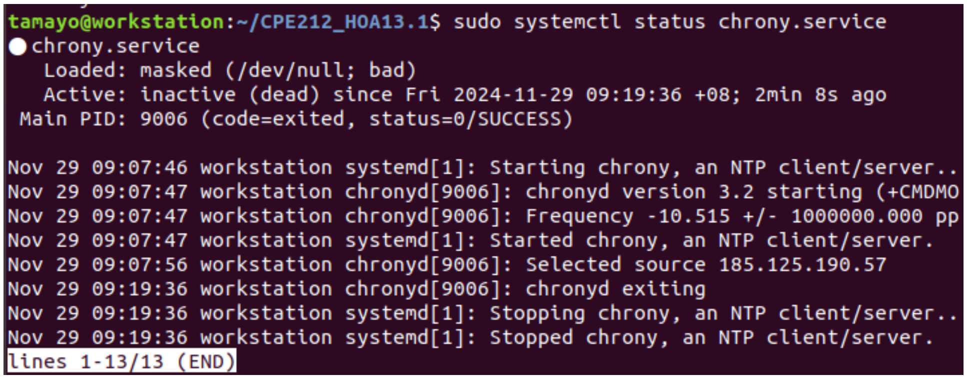
```
TASK [Memcached : Restart the Memcached] **************************************
*
changed: [192.168.56.128]

TASK [Etcd : Install the Etcd] ************************************************
*
changed: [192.168.56.128]

TASK [Etcd : Edit the Etcd file] **********************************************
*
changed: [192.168.56.128]

TASK [Etcd : Enable the Etcd] *************************************************
*
ok: [192.168.56.128]

PLAY RECAP ********************************************************************
*
192.168.56.128             : ok=16   changed=11   unreachable=0    failed=0
```

2. Show the screenshot of the NTP, OpenStack, SQL, MessageQ, Memcached, and Etcd that are working.

NTP

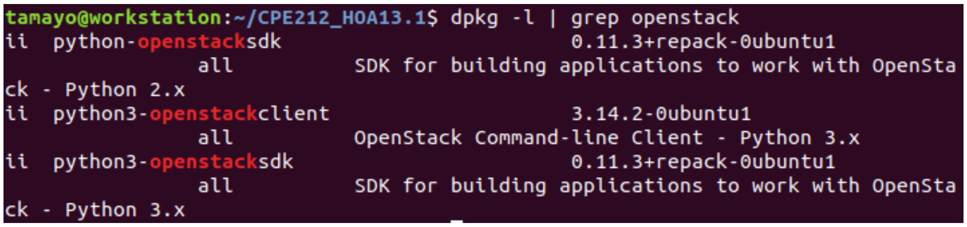


```
tamayo@workstation:~/CPE212_HOA13.1$ ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 0.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 1.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 2.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 3.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 ntp.ubuntu.com  .POOL.          16 p    -   64    0    0.000    0.000   0.000
 185.125.190.56  17.253.28.253    2 u    7   64    1  184.297   -0.145   0.000
 alphyn.canonica 132.163.96.1     2 u    7   64    1  239.252   -2.751   0.000
 185.125.190.58  17.253.28.123    2 u    4   64    1  182.982   -1.006   0.000
```



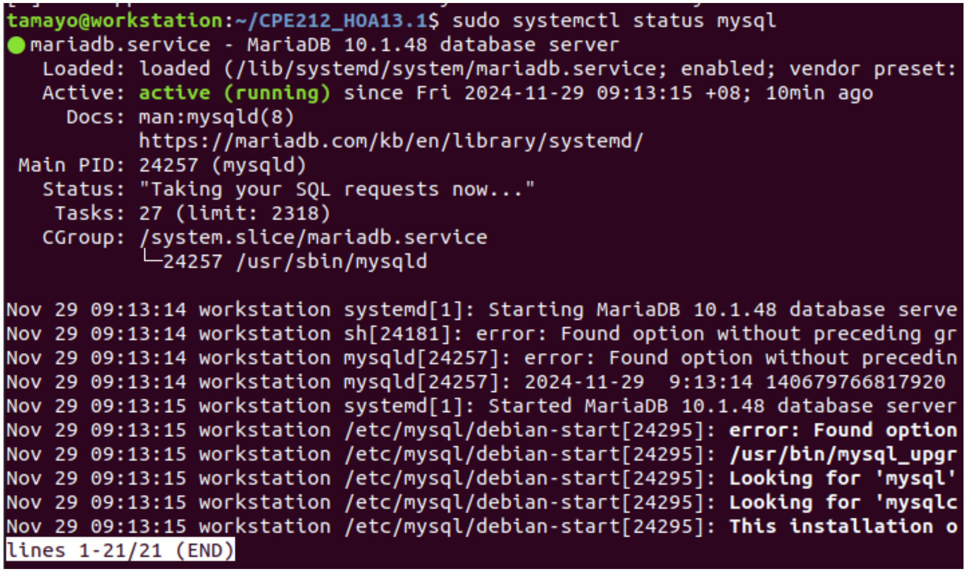
```
tamayo@workstation:~/CPE212_HOA13.1$ sudo systemctl status chrony.service
○ chrony.service
   Loaded: masked (/dev/null; bad)
   Active: inactive (dead) since Fri 2024-11-29 09:19:36 +08; 2min 8s ago
 Main PID: 9006 (code=exited, status=0/SUCCESS)

Nov 29 09:07:46 workstation systemd[1]: Starting chrony, an NTP client/server..
Nov 29 09:07:47 workstation chronyd[9006]: chronyd version 3.2 starting (+CMDMO
Nov 29 09:07:47 workstation chronyd[9006]: Frequency -10.515 +/- 1000000.000 pp
Nov 29 09:07:47 workstation systemd[1]: Started chrony, an NTP client/server.
Nov 29 09:07:56 workstation chronyd[9006]: Selected source 185.125.190.57
Nov 29 09:19:36 workstation chronyd[9006]: chronyd exiting
Nov 29 09:19:36 workstation systemd[1]: Stopping chrony, an NTP client/server..
Nov 29 09:19:36 workstation systemd[1]: Stopped chrony, an NTP client/server.
lines 1-13/13 (END)
```

OpenStack



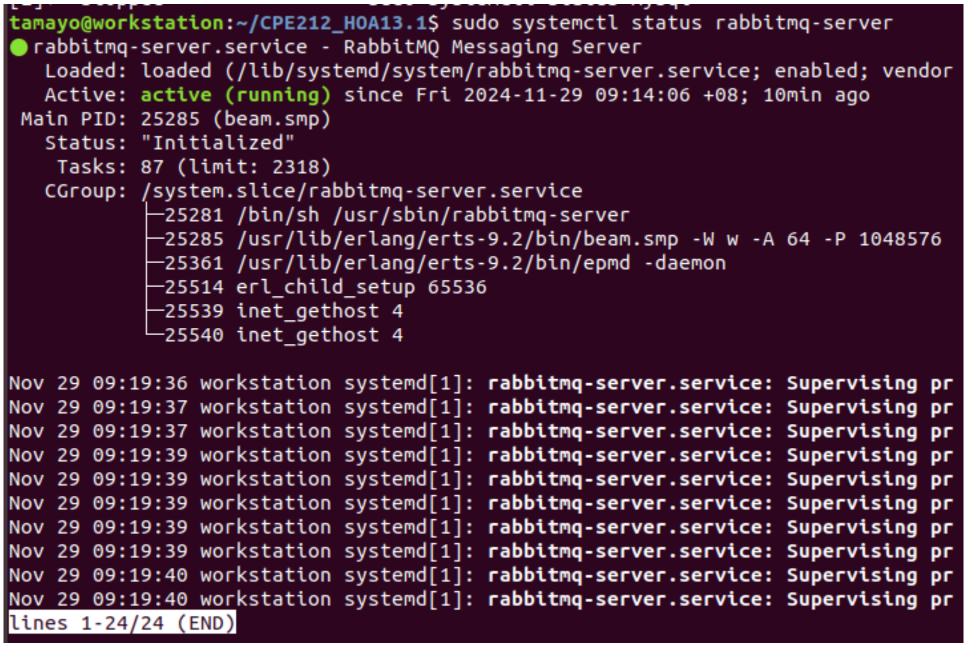
```
tamayo@workstation:~/CPE212_HOA13.1$ dpkg -l | grep openstack
ii  python-openstacksdk                    0.11.3+repack-0ubuntu1
            all          SDK for building applications to work with OpenSta
ck - Python 2.x
ii  python3-openstackclient                3.14.2-0ubuntu1
            all          OpenStack Command-line Client - Python 3.x
ii  python3-openstacksdk                   0.11.3+repack-0ubuntu1
            all          SDK for building applications to work with OpenSta
ck - Python 3.x
```

SQL



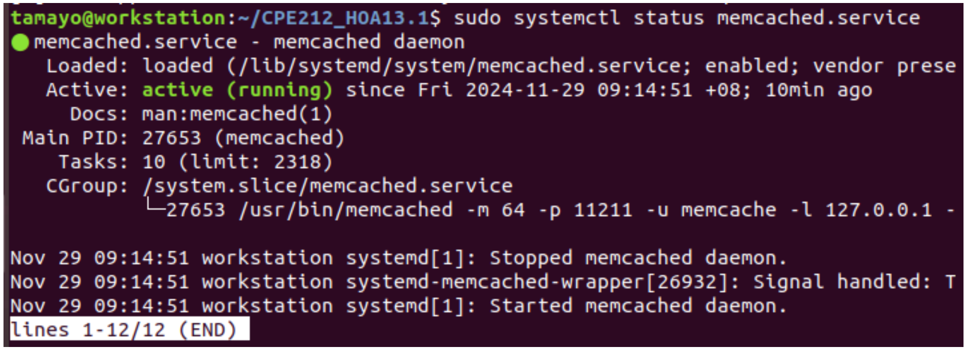
```
tamayo@workstation:~/CPE212_HOA13.1$ sudo systemctl status mysql
● mariadb.service - MariaDB 10.1.48 database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset:
   Active: active (running) since Fri 2024-11-29 09:13:15 +08; 10min ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
 Main PID: 24257 (mysqld)
   Status: "Taking your SQL requests now..."
    Tasks: 27 (limit: 2318)
   CGroup: /system.slice/mariadb.service
           └─24257 /usr/sbin/mysqld

Nov 29 09:13:14 workstation systemd[1]: Starting MariaDB 10.1.48 database serve
Nov 29 09:13:14 workstation sh[24181]: error: Found option without preceding gr
Nov 29 09:13:14 workstation mysqld[24257]: error: Found option without precedin
Nov 29 09:13:14 workstation mysqld[24257]: 2024-11-29  9:13:14 140679766817920
Nov 29 09:13:15 workstation systemd[1]: Started MariaDB 10.1.48 database server
Nov 29 09:13:15 workstation /etc/mysql/debian-start[24295]: error: Found option
Nov 29 09:13:15 workstation /etc/mysql/debian-start[24295]: /usr/bin/mysql_upgr
Nov 29 09:13:15 workstation /etc/mysql/debian-start[24295]: Looking for 'mysql'
Nov 29 09:13:15 workstation /etc/mysql/debian-start[24295]: Looking for 'mysqlc
Nov 29 09:13:15 workstation /etc/mysql/debian-start[24295]: This installation o
lines 1-21/21 (END)
```

MessageQ



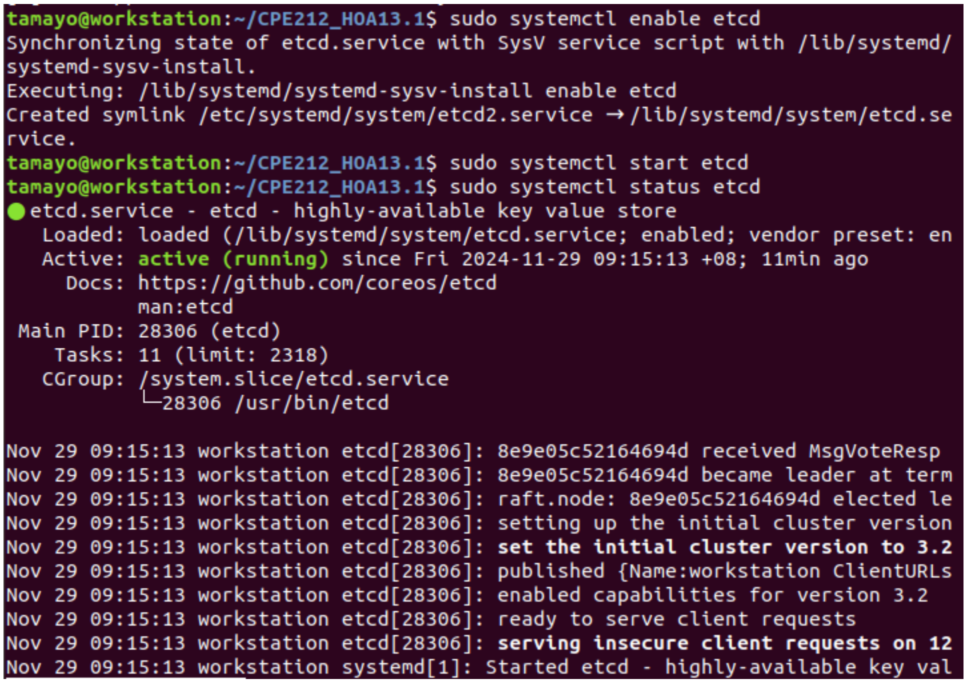
```
tamayo@workstation:~/CPE212_HOA13.1$ sudo systemctl status rabbitmq-server
● rabbitmq-server.service - RabbitMQ Messaging Server
   Loaded: loaded (/lib/systemd/system/rabbitmq-server.service; enabled; vendor
   Active: active (running) since Fri 2024-11-29 09:14:06 +08; 10min ago
 Main PID: 25285 (beam.smp)
   Status: "Initialized"
    Tasks: 87 (limit: 2318)
   CGroup: /system.slice/rabbitmq-server.service
           ├─25281 /bin/sh /usr/sbin/rabbitmq-server
           ├─25285 /usr/lib/erlang/erts-9.2/bin/beam.smp -W w -A 64 -P 1048576
           ├─25361 /usr/lib/erlang/erts-9.2/bin/epmd -daemon
           ├─25514 erl_child_setup 65536
           ├─25539 inet_gethost 4
           └─25540 inet_gethost 4

Nov 29 09:19:36 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:37 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:37 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:39 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:39 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:39 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:39 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:39 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:40 workstation systemd[1]: rabbitmq-server.service: Supervising pr
Nov 29 09:19:40 workstation systemd[1]: rabbitmq-server.service: Supervising pr
lines 1-24/24 (END)
```

Memcached



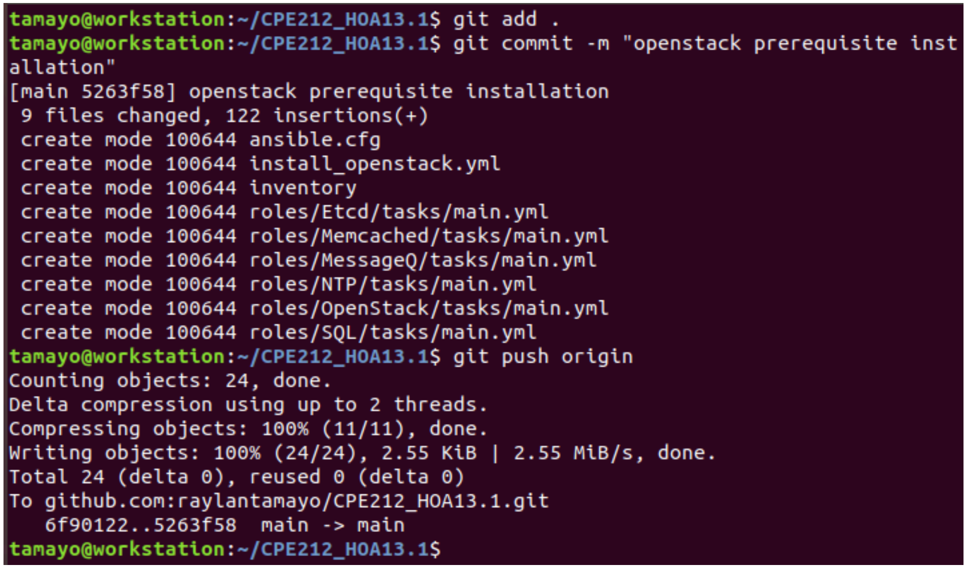
```
tamayo@workstation:~/CPE212_HOA13.1$ sudo systemctl status memcached.service
● memcached.service - memcached daemon
   Loaded: loaded (/lib/systemd/system/memcached.service; enabled; vendor prese
   Active: active (running) since Fri 2024-11-29 09:14:51 +08; 10min ago
     Docs: man:memcached(1)
 Main PID: 27653 (memcached)
    Tasks: 10 (limit: 2318)
   CGroup: /system.slice/memcached.service
           └─27653 /usr/bin/memcached -m 64 -p 11211 -u memcache -l 127.0.0.1 -

Nov 29 09:14:51 workstation systemd[1]: Stopped memcached daemon.
Nov 29 09:14:51 workstation systemd-memcached-wrapper[26932]: Signal handled: T
Nov 29 09:14:51 workstation systemd[1]: Started memcached daemon.
lines 1-12/12 (END)
```

Etcd

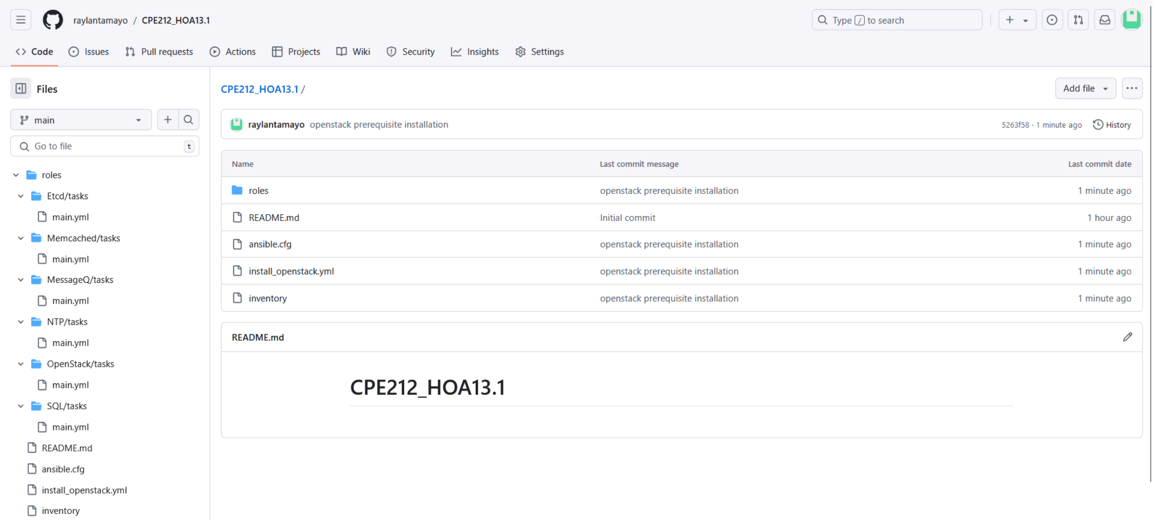


```
tamayo@workstation:~/CPE212_HOA13.1$ sudo systemctl enable etcd
Synchronizing state of etcd.service with SysV service script with /lib/systemd/
systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable etcd
Created symlink /etc/systemd/system/etcd2.service → /lib/systemd/system/etcd.se
rvice.
tamayo@workstation:~/CPE212_HOA13.1$ sudo systemctl start etcd
tamayo@workstation:~/CPE212_HOA13.1$ sudo systemctl status etcd
● etcd.service - etcd - highly-available key value store
   Loaded: loaded (/lib/systemd/system/etcd.service; enabled; vendor preset: en
   Active: active (running) since Fri 2024-11-29 09:15:13 +08; 11min ago
     Docs: https://github.com/coreos/etcd
           man:etcd
 Main PID: 28306 (etcd)
    Tasks: 11 (limit: 2318)
   CGroup: /system.slice/etcd.service
           └─28306 /usr/bin/etcd

Nov 29 09:15:13 workstation etcd[28306]: 8e9e05c52164694d received MsgVoteResp
Nov 29 09:15:13 workstation etcd[28306]: 8e9e05c52164694d became leader at term
Nov 29 09:15:13 workstation etcd[28306]: raft.node: 8e9e05c52164694d elected le
Nov 29 09:15:13 workstation etcd[28306]: setting up the initial cluster version
Nov 29 09:15:13 workstation etcd[28306]: set the initial cluster version to 3.2
Nov 29 09:15:13 workstation etcd[28306]: published {Name:workstation ClientURLs
Nov 29 09:15:13 workstation etcd[28306]: enabled capabilities for version 3.2
Nov 29 09:15:13 workstation etcd[28306]: ready to serve client requests
Nov 29 09:15:13 workstation etcd[28306]: serving insecure client requests on 12
Nov 29 09:15:13 workstation systemd[1]: Started etcd - highly-available key val
```

3. Upload it in the github.



```
tamayo@workstation:~/CPE212_HOA13.1$ git add .
tamayo@workstation:~/CPE212_HOA13.1$ git commit -m "openstack prerequisite inst
allation"
[main 5263f58] openstack prerequisite installation
 9 files changed, 122 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 install_openstack.yml
 create mode 100644 inventory
 create mode 100644 roles/Etcd/tasks/main.yml
 create mode 100644 roles/Memcached/tasks/main.yml
 create mode 100644 roles/MessageQ/tasks/main.yml
 create mode 100644 roles/NTP/tasks/main.yml
 create mode 100644 roles/OpenStack/tasks/main.yml
 create mode 100644 roles/SQL/tasks/main.yml
tamayo@workstation:~/CPE212_HOA13.1$ git push origin
Counting objects: 24, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (11/11), done.
Writing objects: 100% (24/24), 2.55 KiB | 2.55 MiB/s, done.
Total 24 (delta 0), reused 0 (delta 0)
To github.com:raylantamayo/CPE212_HOA13.1.git
   6f90122..5263f58  main -> main
tamayo@workstation:~/CPE212_HOA13.1$
```



roles
- Etcd/tasks
  - main.yml
- Memcached/tasks
  - main.yml
- MessageQ/tasks
  - main.yml
- NTP/tasks
  - main.yml
- OpenStack/tasks
  - main.yml
- SQL/tasks
  - main.yml

README.md
ansible.cfg
install_openstack.yml
inventory

CPE212_HOA13.1 /

raylantamayo openstack prerequisite installation 5263f58 · 1 minute ago

Name	Last commit message	Last commit date
roles	openstack prerequisite installation	1 minute ago
README.md	Initial commit	1 hour ago
ansible.cfg	openstack prerequisite installation	1 minute ago
install_openstack.yml	openstack prerequisite installation	1 minute ago
inventory	openstack prerequisite installation	1 minute ago

README.md

CPE212_HOA13.1

GITHUB LINK: *https://github.com/raylantamayo/CPE212_HOA13.1.git*

Reflections:

Answer the following:

1. What are the benefits of implementing OpenStack?

Implementing OpenStack on Linux offers businesses a powerful way to create their own private or hybrid cloud environments. It allows them to manage resources like storage, computing power, and networking, just like big cloud providers (e.g., AWS), but on their own terms. Using OpenStack is cost-effective because it's open-source and avoids licensing fees. Linux's stability, security, and wide support make it an ideal foundation for OpenStack.

Together, they give companies flexibility to scale resources as needed, improve performance, and maintain full control over their infrastructure without being locked into a specific vendor.

Conclusions:

In this activity, I learned about installing OpenStack and the importance of following organized steps for setting up components like NTP, OpenStack packages, SQL Database, Message Queue, Memcached, and Etcd. Grouping these in an inventory file made the process clearer and easier to manage, especially when dealing with different server roles. Exploring cloud services gave me a better understanding of their benefits and challenges, helping me evaluate different deployment options. Using Ansible to automate the installation not only made the process smoother but also served as a helpful guide. This experience highlighted how flexible and ever-changing cloud technology is and the need to stay adaptable and make smart choices to use it effectively.