Name: Hermitano, Johnny C	Date Performed: 12/07/2022
Course/Section: CPE31S23	Date Submitted: 12/07/2022
Instructor: Engr. Jonathan Taylar	Semester and SY: 1st yr sy 2022

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)

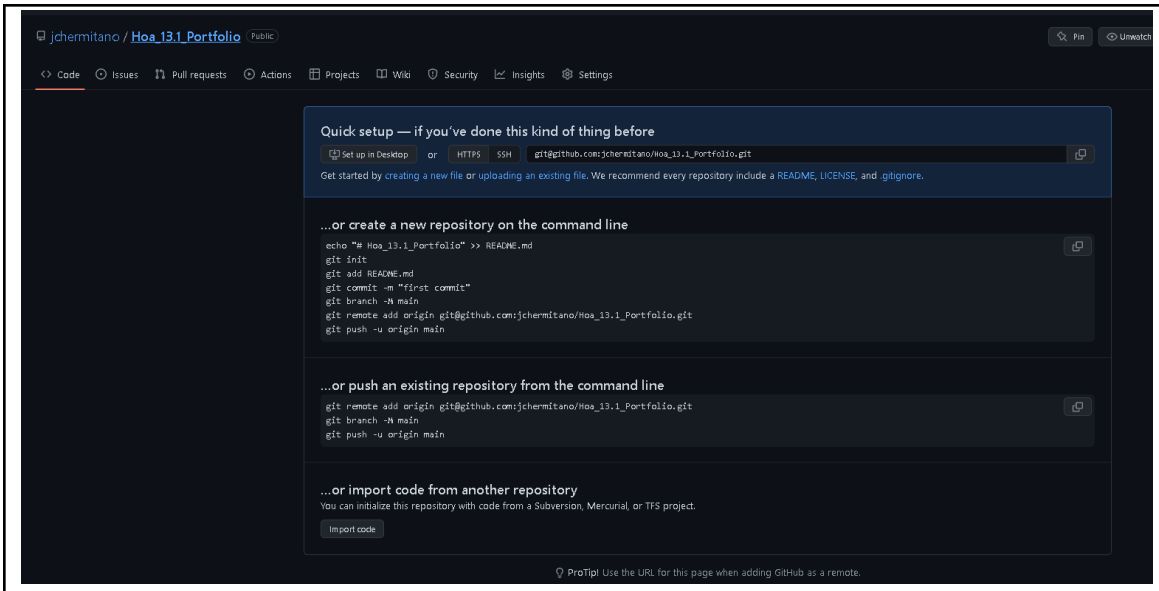
1x Ubuntu VM or Centos VM

4. Tasks

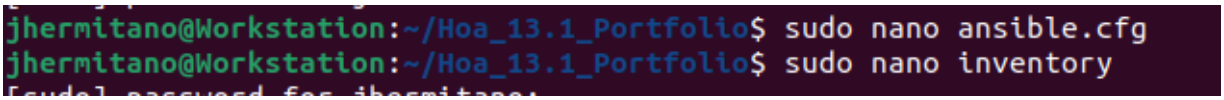
1. Create a new repository for this activity.
2. Create a playbook that converts the steps in the following items in https://docs.openstack.org/install-guide/
    a. NTP
    b. OpenStack packages
    c. SQL Database
    d. Message Queue
    e. Memcached
    f. Etcd
    g. Create different plays in installing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

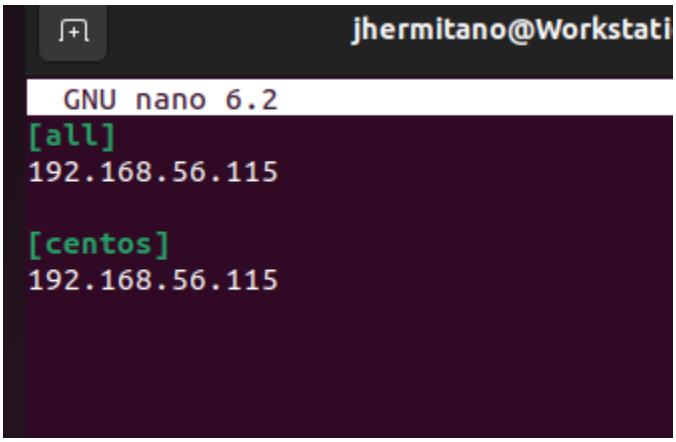
5. Output (screenshots and explanations)

Step 1. Create your own github repository to clone.



Step 2. Clone your repository and start creating your inventory and ansible.cfg





```
jhermitano@Workstation: ~
  GNU nano 6.2                                    ansi
[defaults]

inventory = inventory
Host_key_checking = False

depracation_warnings = False

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

Step 3. Create your playbook with this code to install the activities requirements.

```
  GNU nano 6.2                                    install_openstac
---
- hosts: all
  become: true
  pre_tasks:

  - name: install ntp, mssql
    apt:
      name:
        - ntp
        - mysql-server

- hosts: all
  become: true
  tasks:

  - name: update repository index
    apt:
      update_cache: yes
    when: ansible_distribution == "Ubuntu"

  - name: editting the chrony.conf file
    copy:
      dest: /etc/chrony/chrony.conf
      content:
        server 192.168.56.105
        allow 10.0.0.0/24
      mode: 0755

  - name: install openstack package
    command: snap install --edge microstack --classic

  - name: install etcd
    apt:
      name:
        - etcd
      state: latest

  - name: install message queue and memcached
    apt:
      name:
        - rabbitmq-server
        - memcached
      state: latest
```

Step 4. Run your playbook with this command: ansible-playbook –ask-become-pass yourPlaybook

```
jhermitano@Workstation:~/Hoa_13.1_Portfolio$ ansible-playbook --ask-become-pass install_openstack.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.105]

TASK [install ntp, mssql] ******************************************************
changed: [192.168.56.105]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.105]

TASK [update repository index] *************************************************
changed: [192.168.56.105]

TASK [editting the chrony.conf file] *******************************************
changed: [192.168.56.105]

TASK [install openstack package] ***********************************************
changed: [192.168.56.105]

TASK [install etcd] ************************************************************
changed: [192.168.56.105]

TASK [install message queue and memcached] *************************************
changed: [192.168.56.105]

PLAY RECAP *********************************************************************
192.168.56.105             : ok=8    changed=6    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

jhermitano@Workstation:~/Hoa_13.1_Portfolio$
```

Step 5. Verify the installation.

```
jhermitano@Server1:~$ memcached --version
memcached 1.6.14
jhermitano@Server1:~$ sudo systemctl status ntp
[sudo] password for jhermitano:
Sorry, try again.
[sudo] password for jhermitano:
● ntp.service - Network Time Service
     Loaded: loaded (/lib/systemd/system/ntp.service; enabled; vendor preset: >
     Active: active (running) since Wed 2022-12-07 10:01:45 PST; 23min ago
       Docs: man:ntpd(8)
   Main PID: 48933 (ntpd)
      Tasks: 2 (limit: 1080)
     Memory: 1.1M
        CPU: 155ms
     CGroup: /system.slice/ntp.service
             └─48933 /usr/sbin/ntpd -p /var/run/ntpd.pid -g -u 136:143

Dec 07 10:01:54 Server1 ntpd[48933]: Soliciting pool server 185.125.190.57
Dec 07 10:01:55 Server1 ntpd[48933]: Soliciting pool server 2620:2d:4000:1::41
Dec 07 10:02:54 Server1 ntpd[48933]: Soliciting pool server 2606:4700:f1::123
Dec 07 10:03:03 Server1 ntpd[48933]: Soliciting pool server 2620:2d:4000:1::3f
Dec 07 10:03:58 Server1 ntpd[48933]: Soliciting pool server 2606:4700:f1::1
Dec 07 10:04:10 Server1 ntpd[48933]: Soliciting pool server 2620:2d:4000:1::40
Dec 07 10:05:02 Server1 ntpd[48933]: Soliciting pool server 2606:4700:f1::123
Dec 07 10:07:25 Server1 ntpd[48933]: kernel reports TIME_ERROR: 0x41: Clock Un>
Dec 07 10:11:45 Server1 ntpd[48933]: 185.125.190.58 local addr 10.0.2.15 -> <n>
Dec 07 10:11:45 Server1 ntpd[48933]: 185.125.190.56 local addr 10.0.2.15 -> <n>
lines 1-21/21 (END)
jhermitano@Server1:~$
```

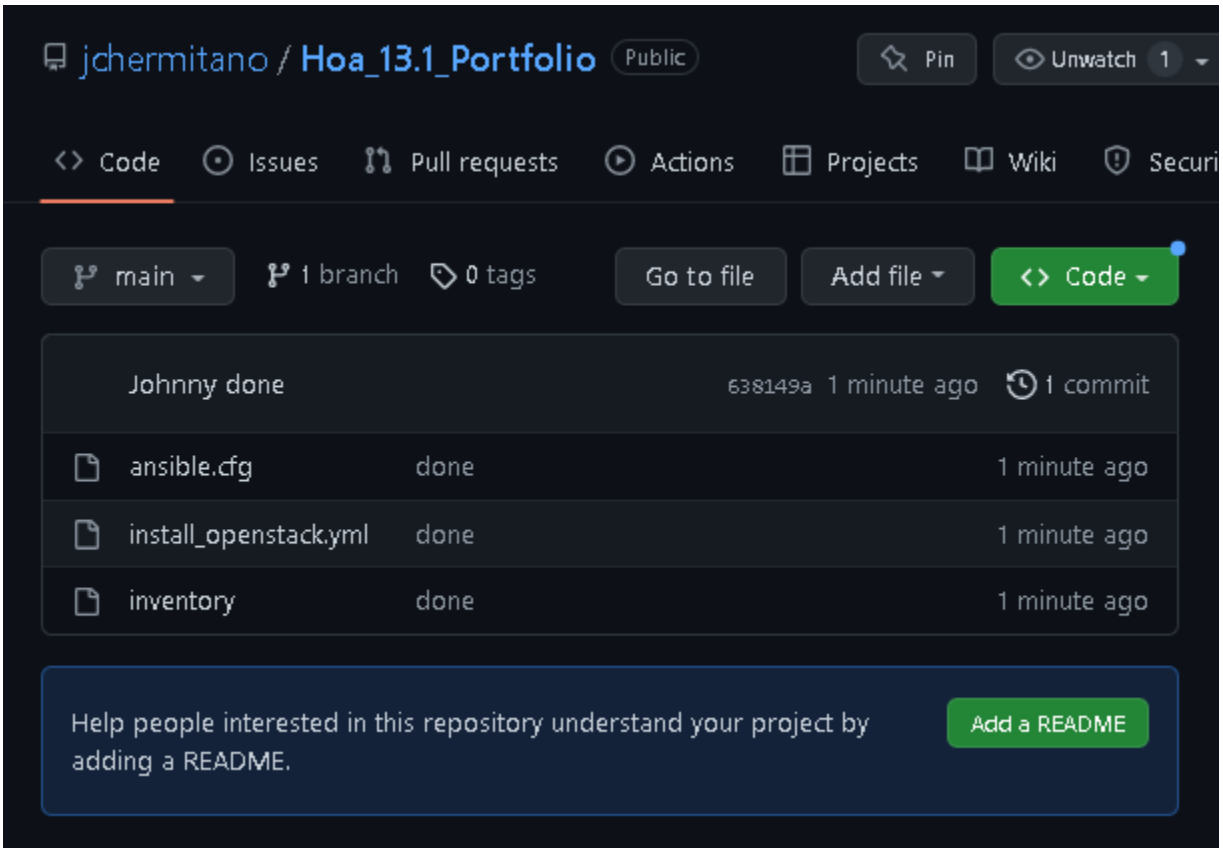
Step 6. Git add your files. You can use git status to check the status of your file.

```
jhermitano@Workstation:~/Hoa_13.1_Portfolio$ ls
ansible.cfg  install_openstack.yml  inventory
jhermitano@Workstation:~/Hoa_13.1_Portfolio$ git add ansible.cfg inventory install_openstack.yml
jhermitano@Workstation:~/Hoa_13.1_Portfolio$ git status
On branch main

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   ansible.cfg
        new file:   install_openstack.yml
        new file:   inventory
```

Step 7. Git commit and then git push.

```
jhermitano@Workstation:~/Hoa_13.1_Portfolio$ git commit -m done
[main (root-commit) 638149a] done
 3 files changed, 58 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 install_openstack.yml
 create mode 100644 inventory
jhermitano@Workstation:~/Hoa_13.1_Portfolio$ git push -u origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 783 bytes | 783.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:jchermitano/Hoa_13.1_Portfolio.git
 * [new branch]      main -> main
Branch 'main' set up to track remote branch 'main' from 'origin'.
jhermitano@Workstation:~/Hoa_13.1_Portfolio$
```

Step 8. You verify your files if successfully pushed through your github repository.



Reflections:

Answer the following:

1. What are the benefits of implementing OpenStack?

   Cloud services can be utilized on any device with internet connectivity, thus there aren't many requirements for using them. high reliability and security

for data. scalable storage performance and volume. Cloud-based services promote cooperation. Location is not a barrier to access.
Conclusions: **In this activity, I successfully achieved the tasks of creating a playbook that installs Openstack using ansible as my IaC. I may have encountered a lot of problems like, the system of my Manage node requires me to fix problems regarding installing through playbook. But then, I successfully fixed it to accomplish this activity.**