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| Course/Section: CPE31S23 | Date Submitted: 12/10/22 |
| Instructor: Engr. Jonathan Taylar | Semester and SY: 1st sem sy 2022 |

**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**

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)

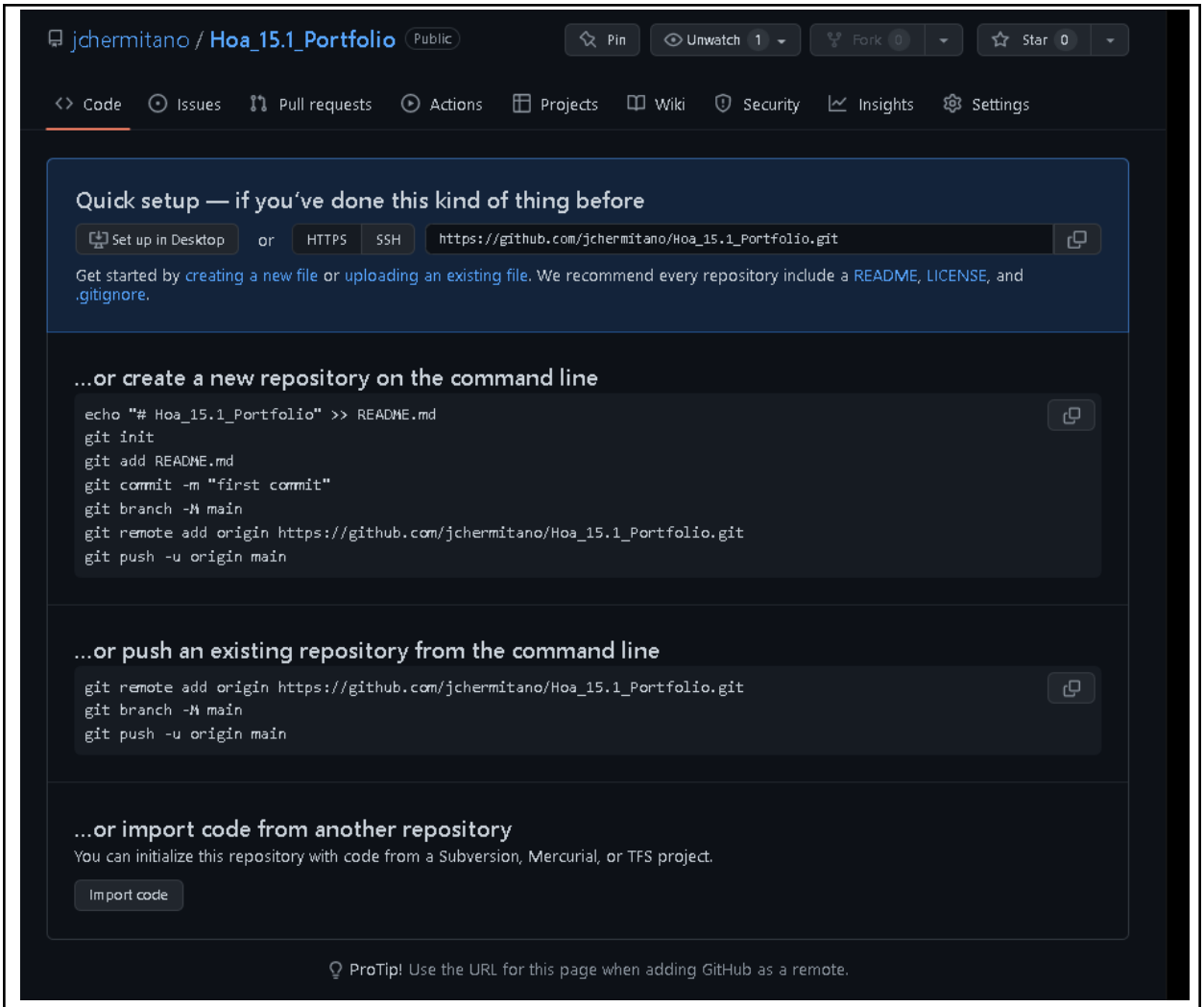
1x Ubuntu VM or Centos VM

**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. 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.

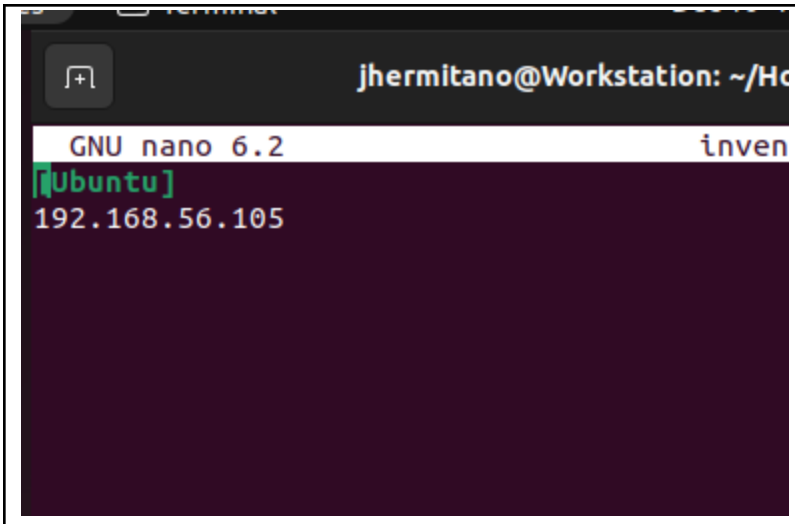
**5. Output** (screenshots and explanations)

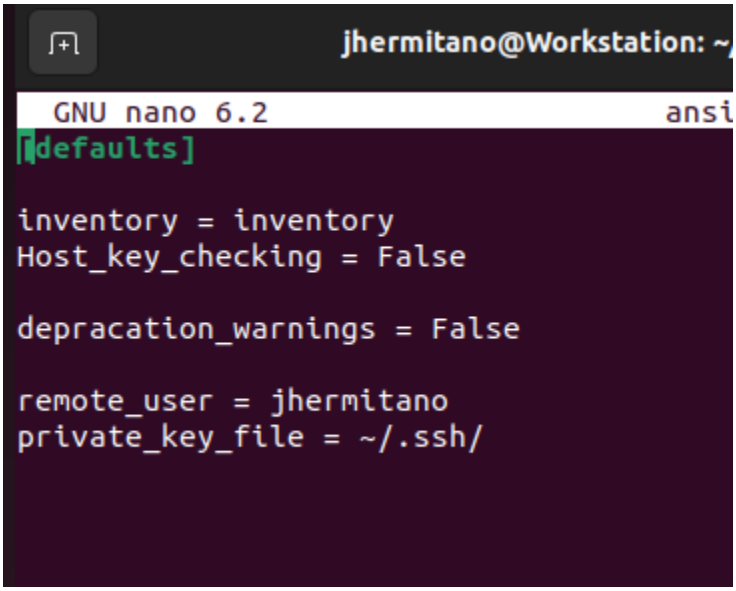
Step 1. Create your own github repository to clone.



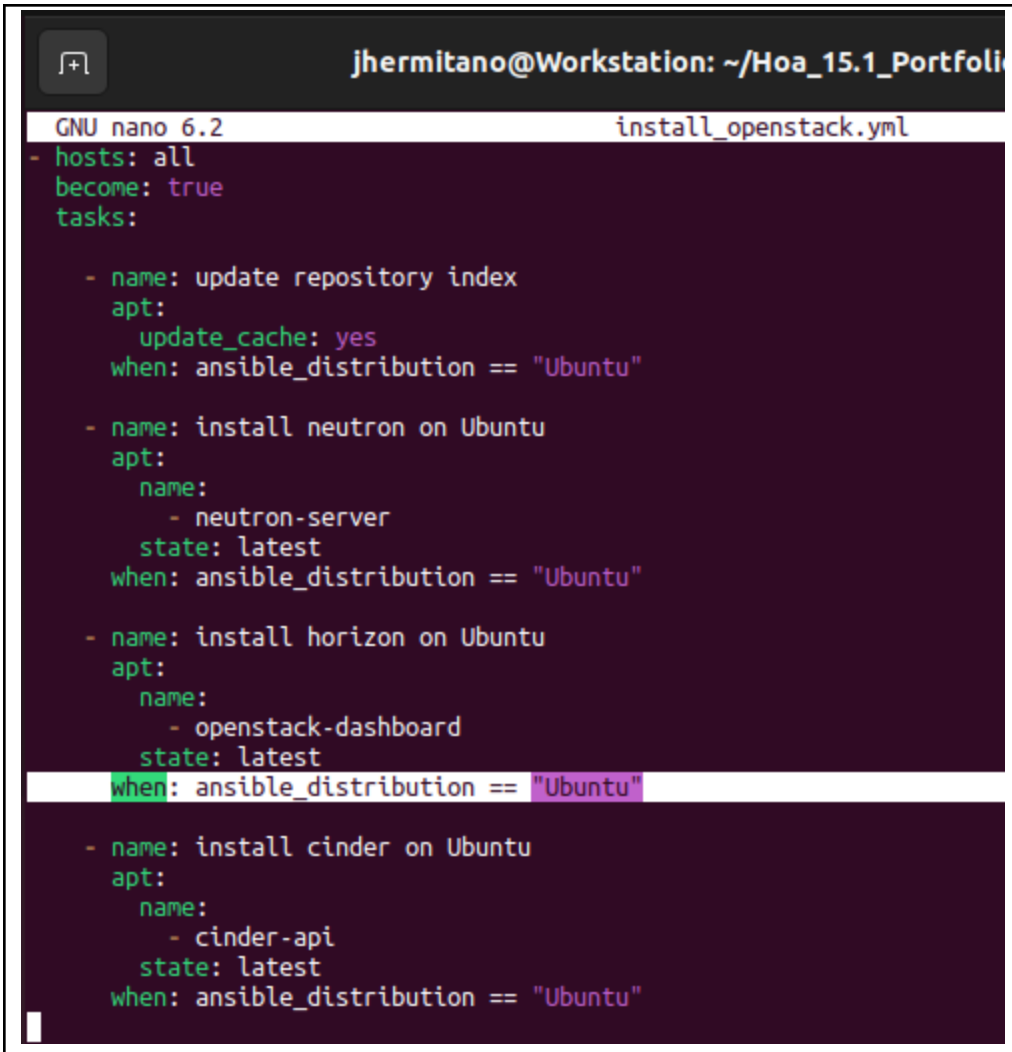

Step 2. Clone your repository and start creating your inventory and ansible.cfg

```
jhermitano@Workstation:~/Hoa_15.1_Portfolio$ sudo nano ansible.cfg
jhermitano@Workstation:~/Hoa_15.1_Portfolio$ sudo nano inventory
jhermitano@Workstation:~/Hoa_15.1_Portfolio$ sudo nano install_openstack.yml
```




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




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

```
jhermitano@Workstation:~/Hoa_15.1_Portfolio$ ansible-playbook --ask-become-pass install_openstack.yml
BECOME password:

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

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

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

TASK [install neutron on Ubuntu] ***********************************************
changed: [192.168.56.105]

TASK [install horizon on Ubuntu] ***********************************************
changed: [192.168.56.105]

TASK [install cinder on Ubuntu] ************************************************
changed: [192.168.56.105]

PLAY RECAP *********************************************************************
192.168.56.105             : ok=5    changed=4    unreachable=0    failed=0    skipped=0    rescued=0
    ignored=0
```

Step 5. Verify the installation.

```
jhermitano@Server1: ~
jhermitano@Server1:~$ service neutron-server status
● neutron-server.service - OpenStack Neutron Server
     Loaded: loaded (/lib/systemd/system/neutron-server.service; enabled; vend>
     Active: active (running) since Sat 2022-12-10 19:54:17 PST; 2s ago
       Docs: man:neutron-server(1)
   Main PID: 8972 (neutron-server)
      Tasks: 1 (limit: 1075)
     Memory: 84.0M
        CPU: 1.648s
     CGroup: /system.slice/neutron-server.service
             └─8972 /usr/bin/python3 /usr/bin/neutron-server --config-file=/et>

Dec 10 19:54:17 Server1 systemd[1]: Stopped OpenStack Neutron Server.
Dec 10 19:54:17 Server1 systemd[1]: neutron-server.service: Consumed 3.846s CP>
Dec 10 19:54:17 Server1 systemd[1]: Started OpenStack Neutron Server.
lines 1-14/14 (END)

jhermitano@Server1:~$ cinder-api --version
/usr/lib/python3/dist-packages/cinder/db/sqlalchemy/models.py:152: SAWarning: implicitly coercing SEL
ECT object to scalar subquery; please use the .scalar_subquery() method to produce a scalar subquery.
  last_heartbeat = column_property(
/usr/lib/python3/dist-packages/cinder/db/sqlalchemy/models.py:160: SAWarning: implicitly coercing SEL
ECT object to scalar subquery; please use the .scalar_subquery() method to produce a scalar subquery.
  num_hosts = column_property(
/usr/lib/python3/dist-packages/cinder/db/sqlalchemy/models.py:169: SAWarning: implicitly coercing SEL
ECT object to scalar subquery; please use the .scalar_subquery() method to produce a scalar subquery.
  num_down_hosts = column_property(
20.0.1
```

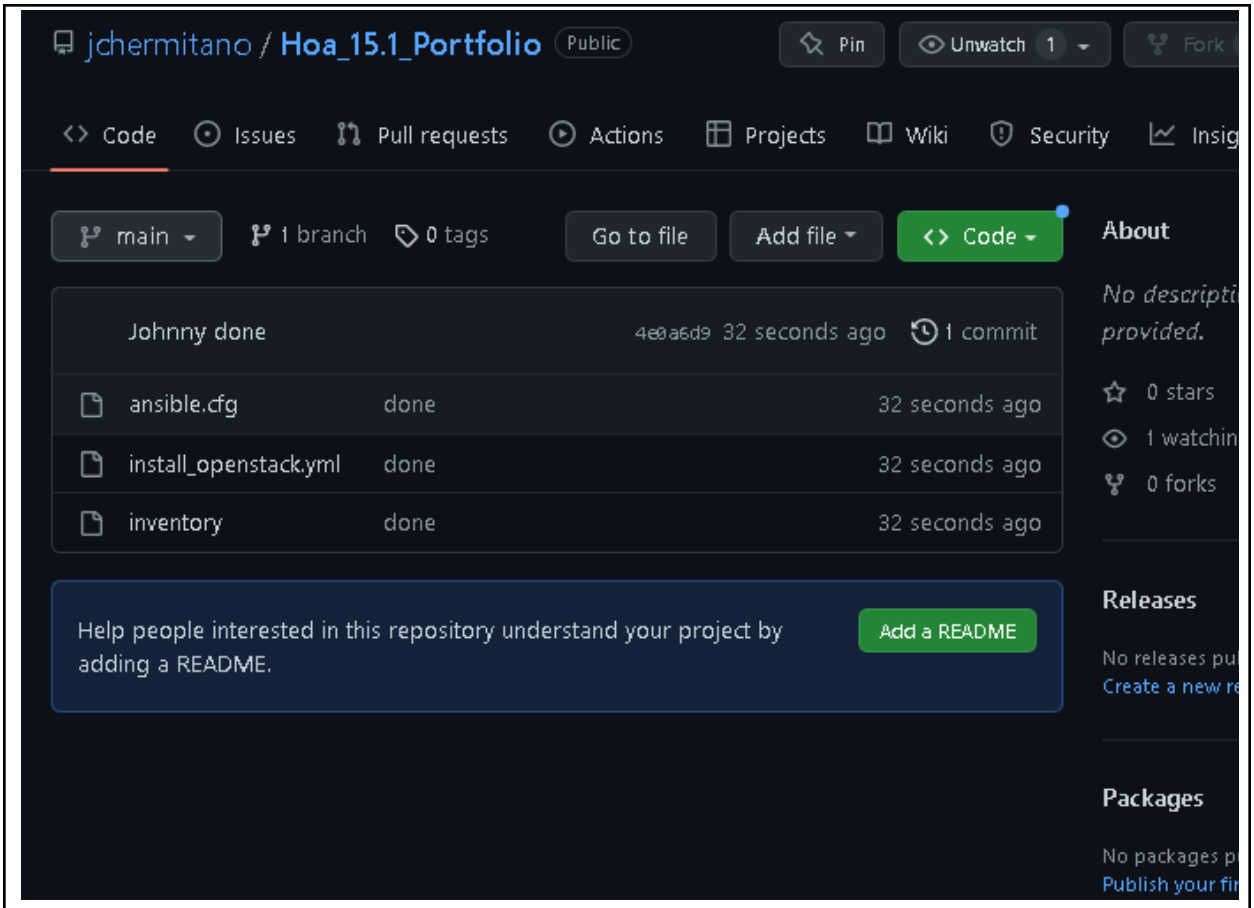
Step 6. Git add your files. You can use git status to check the status of your file.

```
jhermitano@Workstation:~/Hoa_15.1_Portfolio$ ls
ansible.cfg  install_openstack.yml  inventory
jhermitano@Workstation:~/Hoa_15.1_Portfolio$ git add ansible.cfg install_openstack.yml inventory
jhermitano@Workstation:~/Hoa_15.1_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_15.1_Portfolio$ git commit -m done
[main (root-commit) 4e0a6d9] done
 3 files changed, 43 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 install_openstack.yml
 create mode 100644 inventory
jhermitano@Workstation:~/Hoa_15.1_Portfolio$ git push -u origin mian
error: src refspec mian does not match any
error: failed to push some refs to 'github.com:jchermitano/Hoa_15.1_Portfolio.git'
jhermitano@Workstation:~/Hoa_15.1_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), 634 bytes | 634.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:jchermitano/Hoa_15.1_Portfolio.git
 * [new branch]      main -> main
Branch 'main' set up to track remote branch 'main' from 'origin'.
```

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




Github Repository: [https://github.com/jchermitano/Hoa_15.1_Portfolio.git](https://github.com/jchermitano/Hoa_15.1_Portfolio.git)

**Reflections:**

Answer the following:

1. Describe Neutron, Horizon and Cinder services

   In order to connect interface devices (such as vNICs) controlled by other OpenStack services, Neutron is an OpenStack project. Cloud administrators and users can control OpenStack compute, storage, and networking services using OpenStack Horizon, a web-based graphical interface. For OpenStack, Cinder is a Block Storage service. It virtualizes the management of block storage devices and gives end users access to a self-service API that allows them to request and use those resources without having to know where or what kind of device their storage is actually deployed on.

**Conclusions:**