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Course/Section: CPE31S23	**Date Submitted: December 07, 2022**
Instructor: Engr. Taylar	**Semester and SY: 1st sem - SY 2022-2023**

Activity 14: OpenStack Installation (Keystone, Glance, Nova)

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

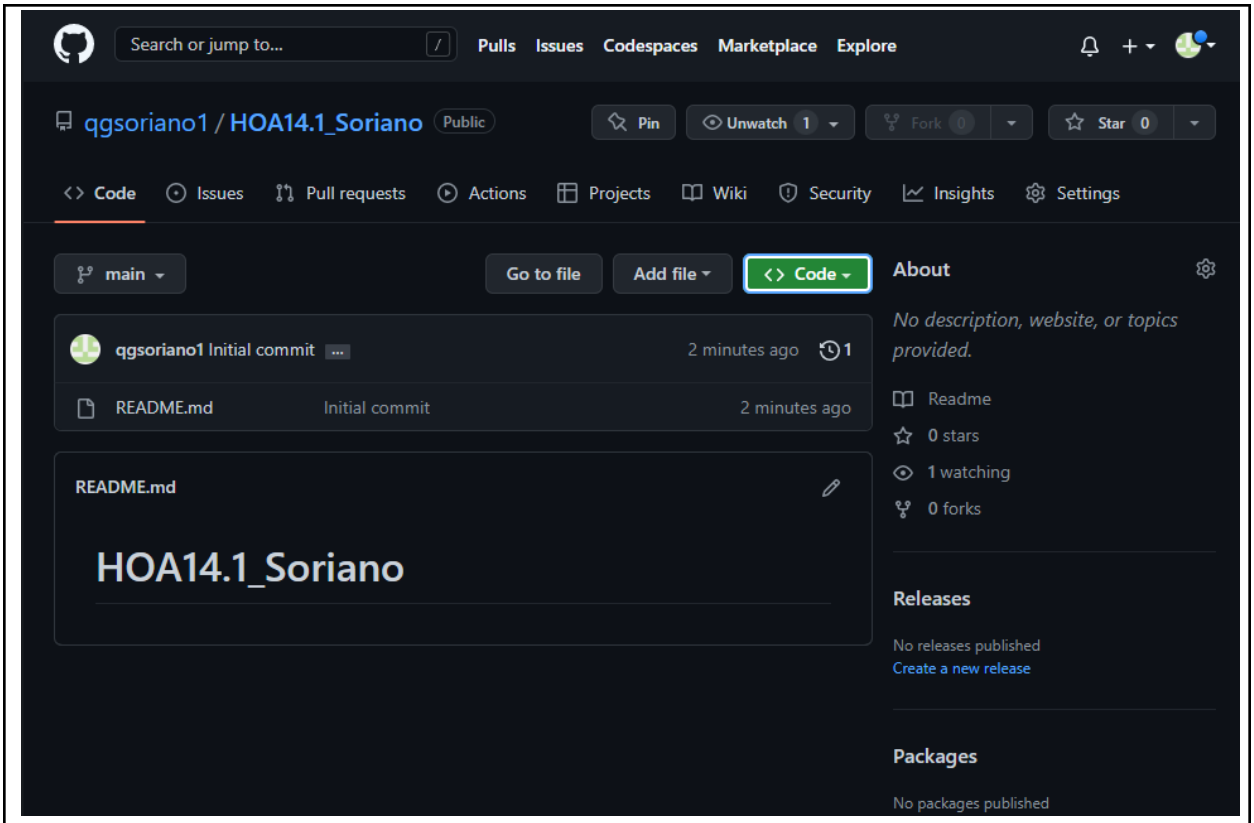
Oracle VirtualBox (Hypervisor)

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. Keystone (Identity Service)
    b. Glance (Imaging Service)
    c. Nova (Compute Service)
    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)



- **This is the creation of the new github repository for this specific activity.**

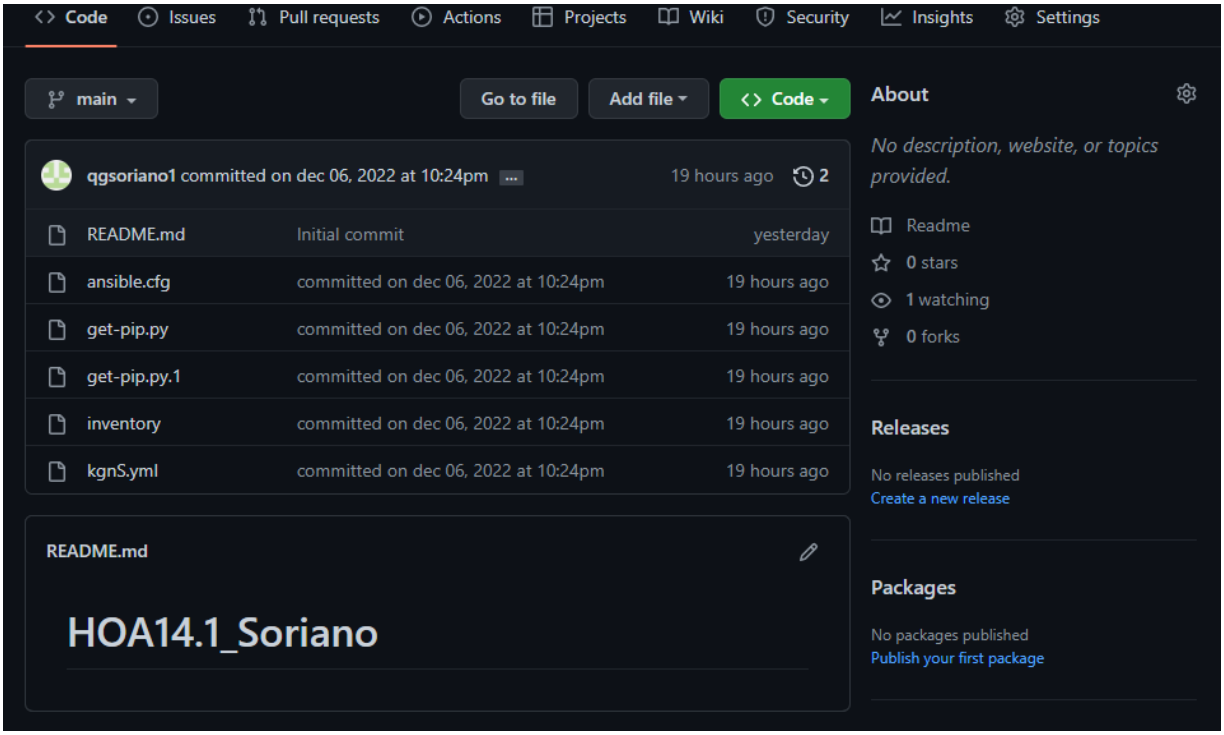
- **This is the content of the inventory file for this activity.**

```
nssl) (1.15.1)
Requirement already satisfied: pycparser in /usr/local/lib/python3.9/dist-packages (from cffi>=1.12->cryptography<39,>=38
.0.0->pyopenssl) (2.21)
Installing collected packages: pyopenssl
  Attempting uninstall: pyopenssl
    Found existing installation: pyOpenSSL 20.0.1
    Uninstalling pyOpenSSL-20.0.1:
      Successfully uninstalled pyOpenSSL-20.0.1
Successfully installed pyopenssl-22.1.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system packag
e manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
qgsoriano1@cloudshell:~/HOA14.1_Soriano$ ansible-playbook --ask-become-pass kgnS.yml
/home/qgsoriano1/.local/lib/python2.7/site-packages/ansible/parsing/vault/__init__.py:44: CryptographyDeprecationWarning:
 Python 2 is no longer supported by the Python core team. Support for it is now deprecated in cryptography, and will be r
emoved in the next release.
  from cryptography.exceptions import InvalidSignature
BECOME password:

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

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

TASK [Update repository index (CentOS)] ****************************************************************************
skipping: [localhost]

TASK [Install updates (Ubuntu)] ************************************************************************************
skipping: [localhost]

TASK [Install keystone (identity service)] *************************************************************************
changed: [localhost]

PLAY RECAP *********************************************************************************************************
localhost                  : ok=2    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

qgsoriano1@cloudshell:~/HOA14.1_Soriano$
```

- **This is the first trial of running the ansible file for the installation of the keystone identity service. It was successful and there were no errors encountered.**

```
PLAY RECAP *********************************************************************************************************
localhost                  : ok=3    changed=0    unreachable=0    failed=1    skipped=2    rescued=0    ignored=0

qgsoriano1@cloudshell:~/HOA14.1_Soriano$ nano kgnS.yml
qgsoriano1@cloudshell:~/HOA14.1_Soriano$ ansible-playbook --ask-become-pass kgnS.yml
/home/qgsoriano1/.local/lib/python2.7/site-packages/ansible/parsing/vault/__init__.py:44: CryptographyDeprecationWarning:
Python 2 is no longer supported by the Python core team. Support for it is now deprecated in cryptography, and will be rem
oved in the next release.
  from cryptography.exceptions import InvalidSignature
BECOME password:

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

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

TASK [Update repository index (CentOS)] ****************************************************************************
skipping: [localhost]

TASK [Install updates (Ubuntu)] ************************************************************************************
skipping: [localhost]

TASK [Install keystone (identity service)] *************************************************************************
ok: [localhost]

TASK [Install glance (imaging service)] ****************************************************************************
ok: [localhost]

TASK [Install nova (compute service)] ******************************************************************************
ok: [localhost]

PLAY RECAP *********************************************************************************************************
localhost                  : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

qgsoriano1@cloudshell:~/HOA14.1_Soriano$
```

- **This is a trial of running the ansible file for the installation of both the glance and nova packages, there were errors encountered but there are also some solutions that have been done throughout this activity.**



- **This is the proof that the files created in this activity are being submitted in the github repository created specifically made for this activity.**

Reflections:

Answer the following:

1. Describe Keystone, Glance and Nova services
   - An OpenStack identity service called Keystone offers distributed multi-tenant authorization, service discovery, and API client authentication. Along with OpenStack service catalogs and their API endpoints, the service also administers user databases. A service called Glance, which uses Swift or Ceph

as its actual storage backend, lets users find, retrieve, and register VM (virtual machine) and container images. An IaaS system's core component, the OpenStack Compute Service (Nova), is a cloud computing instance controller. The OpenStack project called Nova offers a method for creating compute instances, also referred to as virtual servers, which are used to host and control cloud computing systems.

Conclusions:

- **While performing this activity, there were minimal counts of errors that were encountered. Because of the last activity done, I've known the do's and don'ts before running the trial installation of the playbook. The playbook is a successful file and runs for the installation of the nova, keystone, and glance services. The errors that have been encountered during this activity have been managed well, and have been resolved. Requirements are successfully done that was posted above.**