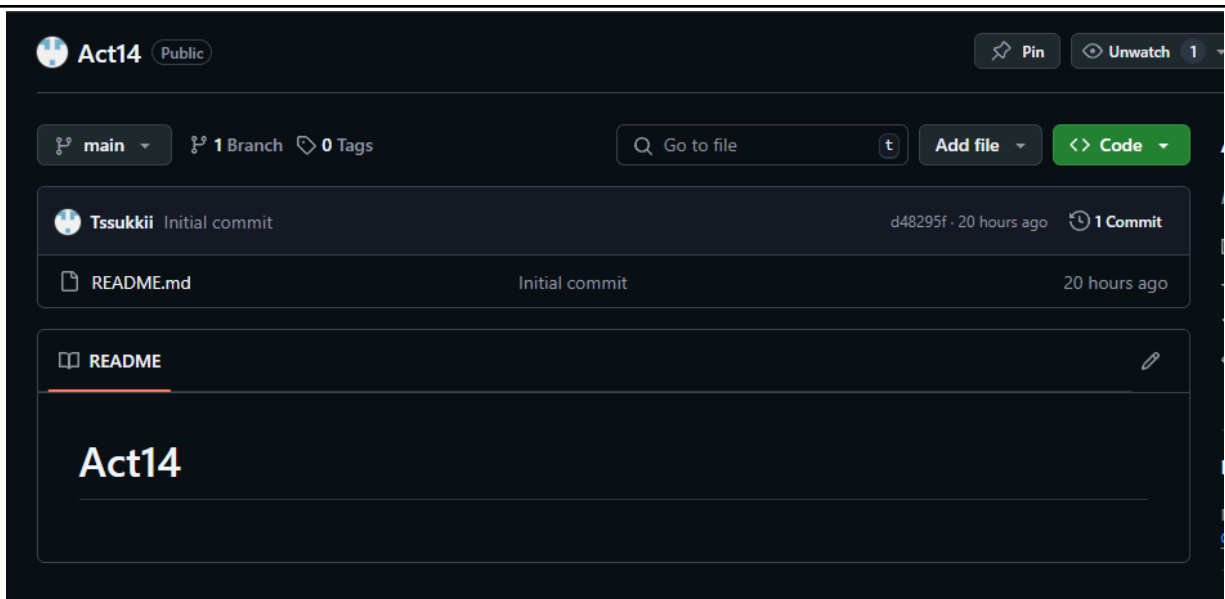
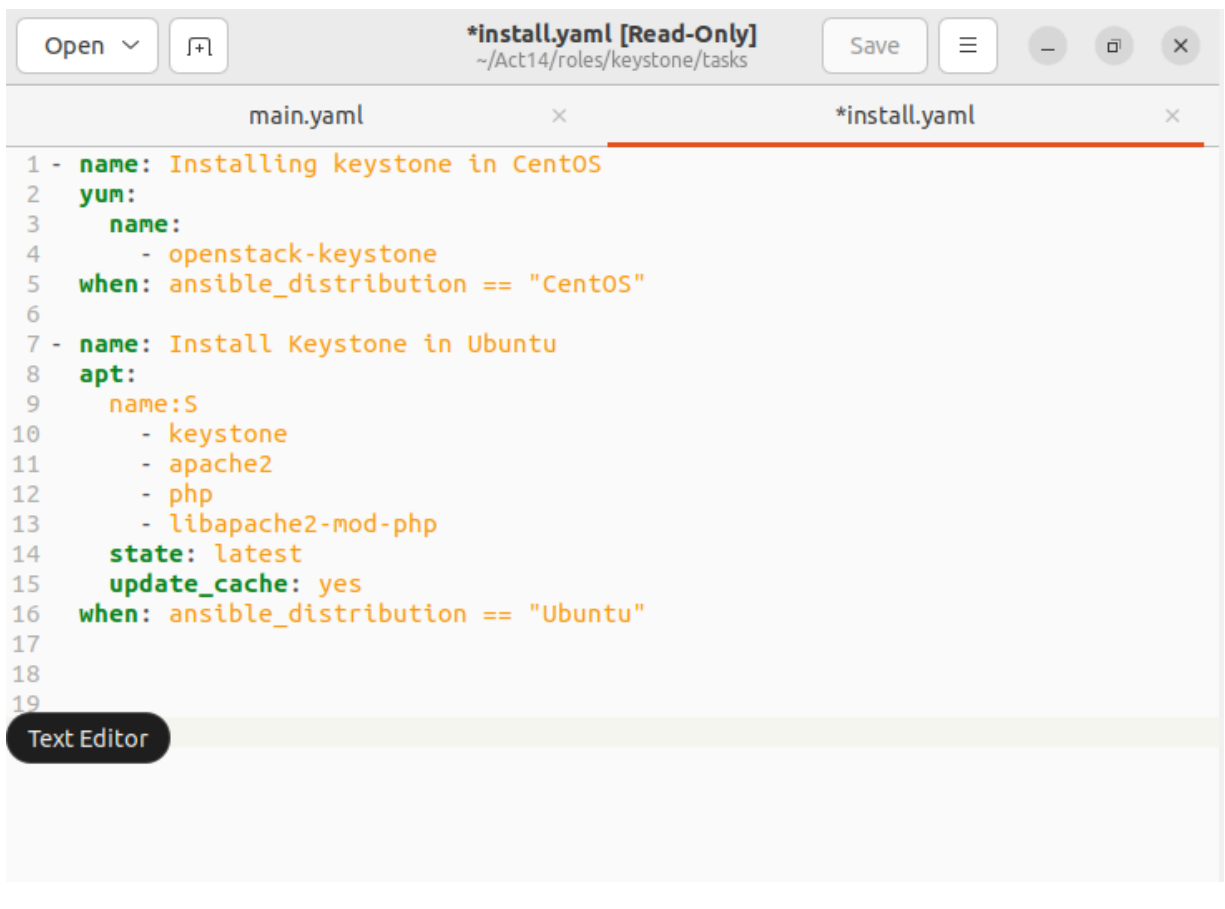


Name: tracey Dee Bringuela	Date Performed:
Course/Section: CPE31S2	Date Submitted:
Instructor: Robin Valenzuela	Semester and SY:
Activity 14: OpenStack Installation (Keystone, Glance, Nova)	
1. Objectives	
Create a workflow to install OpenStack using Ansible as your Infrastructure as Code (IaC).	
2. Intended Learning Outcomes	
<ol style="list-style-type: none"> 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	
<p>Oracle VirtualBox (Hypervisor)</p> <p>1x Ubuntu VM or Centos VM</p>	
4. Tasks	
<ol style="list-style-type: none"> 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/ <ol style="list-style-type: none"> 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)	




created a repo for activity 14

this is the inside of the install.yaml in the keystone



Open ▾




config.yaml [Read-Only]
~/Act14/roles/keystone/tasks

Save

≡

—



✕

*install.yaml ✕

config.yaml ✕

```
1|- name: Configuring the connection variable
2  replace:
3    path: /etc/keystone/keystone.conf
4    regexp: '#connection = <None>'
5    replace: 'connection = mysql+pymysql://keystone:keystonepass@controller/
6    keystone'
7
8  - name: Configuring memcached variable
9    path: /etc/keystone/keystone.conf
10   regexp: '#memcache_servers = localhost:11211'
11   replace: 'memcache_servers = controller:11211'
12
13 - name: Configuring the fernet variable
14   replace:
15     path: /etc/keystone/keystone.conf
16     regexp: '#provider = fernet'
17     replace: 'provider = fernet'
18
19 - name: Initialize fernet repositories
20   shell: |
21     keystone-manage fernet_setup --keystone-user keystone --keystone-group
22     keystone
23     keystone-manage credential_setup --keystone-user keystone --keystone-
24     group keystone
```

Ubuntu Software

inside of the config.yaml

```
*install.yaml  x  config.yaml  x  preq.yaml  x
1|- name: Creating keystone database
2  mysql_query:
3    login_user: root
4    login_password: mysqlpass
5    login_unix_socket: /var/lib/mysql/mysql.sock
6    query:
7      - CREATE DATABASE keystone;
8      - GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'localhost'
9        IDENTIFIED BY
10      - GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'%' IDENTIFIED BY
11        'ke'
12    single_transaction: yes
13    failed_when: false
14    no_log: true
15    when: ansible_distribution == "CentOS"
16
```

and inside for the preq.yaml

```
Dec 09 15:46:35 server1 systemd[1]: Started OpenStack Image Service API.
vboxuser@server1:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2024-12-09 15:46:36 CST; 1h 44min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 1035 (apache2)
    Tasks: 26 (limit: 2270)
   Memory: 31.1M
   CGroup: /system.slice/apache2.service
           └─1035 /usr/sbin/apache2 -k start
             └─1070 "(wsgi:keystone-pu" -k start
               └─1076 "(wsgi:keystone-pu" -k start
                 └─1077 "(wsgi:keystone-pu" -k start
                   └─1091 "(wsgi:keystone-pu" -k start
                     └─1095 "(wsgi:keystone-pu" -k start
                       └─1097 /usr/sbin/apache2 -k start
                         └─1111 /usr/sbin/apache2 -k start
                           └─1117 /usr/sbin/apache2 -k start
                             └─1144 /usr/sbin/apache2 -k start
                               └─1183 /usr/sbin/apache2 -k start

Dec 09 15:46:35 server1 systemd[1]: Starting The Apache HTTP Server...
Dec 09 15:46:36 server1 apachectl[963]: AH00558: apache2: Could not reliably d>
Dec 09 15:46:36 server1 systemd[1]: Started The Apache HTTP Server.
lines 1-24/24 (END)
```

this shows the keystone works

and for the glance this is the inside for the install.yaml and config

```
config.yaml [Read-Only]
~/Act14/roles/glance/tasks

1 - name: Copying the config file
2   copy:
3     src: glance-api.conf
4     dest: /etc/glance/glance-api.conf
5     owner: root
6     group: glance
7     mode: 0640
8   when: ansible_distribution == "CentOS"
9
10 - name: Populating the database
11   command: su -s /bin/sh -c "glance-manage db_sync" glance
12   when: ansible_distribution == "CentOS"
13   when: ansible_distribution == "Ubuntu"
14   when: ansible_distribution == "CentOS"
15
16 - name: Restarting glance-api
17   service:
18     name: openstack-glance-api.service
19     state: started
20     enabled: true
21   when: ansible_distribution == "CentOS"
```

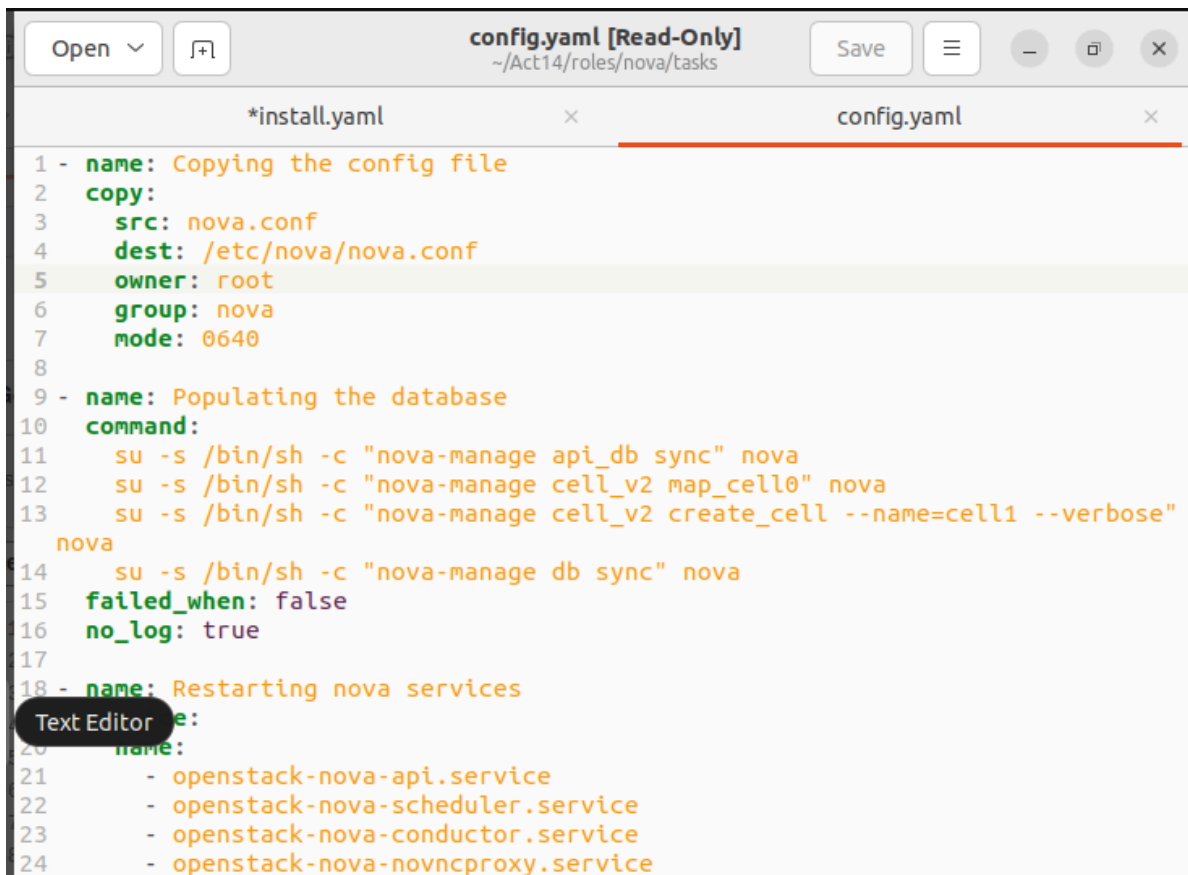
```
*install.yaml [Read-Only]
~/Act14/roles/glance/tasks

1 - name: Installing Glance in CentOS
2   yum:
3     name: openstack-glance
4     when: ansible_distribution == "CentOS"
5
6 - name: Installation Glance in Ubuntu
7   apt:
8     name:
9       - glance
10     state: latest
11     update_cache: yes
12     when: ansible_distribution == "Ubuntu"
13
14
15
16
```

and this is the proof that the glance works

```
vboxuser@server1:~$ sudo systemctl status glance-api
● glance-api.service - OpenStack Image Service API
   Loaded: loaded (/lib/systemd/system/glance-api.service; enabled; vendor p
   Active: active (running) since Mon 2024-12-09 15:46:39 CST; 1h 44min ago
     Docs: man:glance-api(1)
   Main PID: 1299 (glance-api)
      Tasks: 3 (limit: 2270)
    Memory: 26.6M
       CPU: 2min 4.629s
    CGroup: /system.slice/glance-api.service
            └─1299 /usr/bin/python3 /usr/bin/glance-api --config-file=/etc/gl>
              2050 /usr/bin/python3 /usr/bin/glance-api --config-file=/etc/gl>
              2051 /usr/bin/python3 /usr/bin/glance-api --config-file=/etc/gl>
```

this is the inside of the config.yaml and install.yaml for nova



The screenshot shows a code editor with two tabs: `*install.yaml` and `config.yaml`. The `config.yaml` tab is active, displaying the following content:

```
1 - name: Copying the config file
2   copy:
3     src: nova.conf
4     dest: /etc/nova/nova.conf
5     owner: root
6     group: nova
7     mode: 0640
8
9 - name: Populating the database
10  command:
11    su -s /bin/sh -c "nova-manage api_db sync" nova
12    su -s /bin/sh -c "nova-manage cell_v2 map_cell0" nova
13    su -s /bin/sh -c "nova-manage cell_v2 create_cell --name=cell1 --verbose"
14    nova
15    su -s /bin/sh -c "nova-manage db sync" nova
16  failed_when: false
17  no_log: true
18 - name: Restarting nova services
19   restart:
20     name:
21     - openstack-nova-api.service
22     - openstack-nova-scheduler.service
23     - openstack-nova-conductor.service
24     - openstack-nova-novncproxy.service
```

A tooltip labeled "Text Editor" is visible over the `restart:` key in the `Restarting nova services` task.

```

1 - name: Install nova and its dependencies in CentOS
2   yum:
3     name:
4       - openstack-nova-api
5       - openstack-nova-conductor
6       - openstack-nova-scheduler
7   when: ansible_distribution == "CentOS"
8
9 - name: Installation Nova in Ubuntu
10  apt:
11    name:
12      - nova-compute
13      - python3-openstackclient
14    state: latest
15    update_cache: yes
16  when: ansible_distribution == "Ubuntu"

```

this shows the nova works

```

● nova-compute.service - OpenStack Compute
   Loaded: loaded (/lib/systemd/system/nova-compute.service; enabled; vendor
   Active: active (running) since Mon 2024-12-09 16:41:03 CST; 48min ago
   Main PID: 8676 (nova-compute)
     Tasks: 1 (limit: 2270)
    Memory: 142.4M
       CPU: 4.239s
    CGroup: /system.slice/nova-compute.service
            └─8676 /usr/bin/python3 /usr/bin/nova-compute --config-file=/etc/

Dec 09 16:41:03 server1 systemd[1]: Started OpenStack Compute.
Dec 09 16:41:05 server1 nova-compute[8676]: Modules with known eventlet monkey

```

and this shows that the playbook works

```
vboxuser@workstation: ~/Act14
TASK [nova : Install nova and its dependencies in CentOS] *****
*
skipping: [compute1]

TASK [nova : Installation Nova in Ubuntu] *****
*
changed: [compute1]

TASK [nova : Copying the config file] *****
*
changed: [compute1]

TASK [nova : Populating the database] *****
*
changed: [compute1]

TASK [nova : Restarting nova services] *****
*
ok: [compute1]

PLAY RECAP *****
*
compute1      : ok=7    changed=4    unreachable=0    failed=0
skipped=5     rescued=0    ignored=0

vboxuser@workstation:~/Act14$ cat
```

Reflections:

Answer the following:

1. Describe Keystone, Glance and Nova services

Keystone is the identity service in OpenStack responsible for authentication and authorization, managing users, projects, and roles to ensure secure access to other OpenStack services. Glance is the image service that provides discovery, registration, and storage of virtual machine disk images, allowing users to upload, manage, and retrieve images for use in instances. Nova is the compute service

that manages and provisions virtual machines, handling the lifecycle of instances, scheduling, and interacting with hypervisors to allocate resources.

Conclusions:

Keystone, Glance, and Nova form the core services of OpenStack, enabling secure authentication, image management, and compute resource provisioning, respectively. Together, they provide a scalable cloud infrastructure that supports building, deploying, and managing virtualized workloads efficiently. Proper configuration and integration of these services ensure a robust cloud environment tailored to various enterprise needs.