Hands-on Final Exam	
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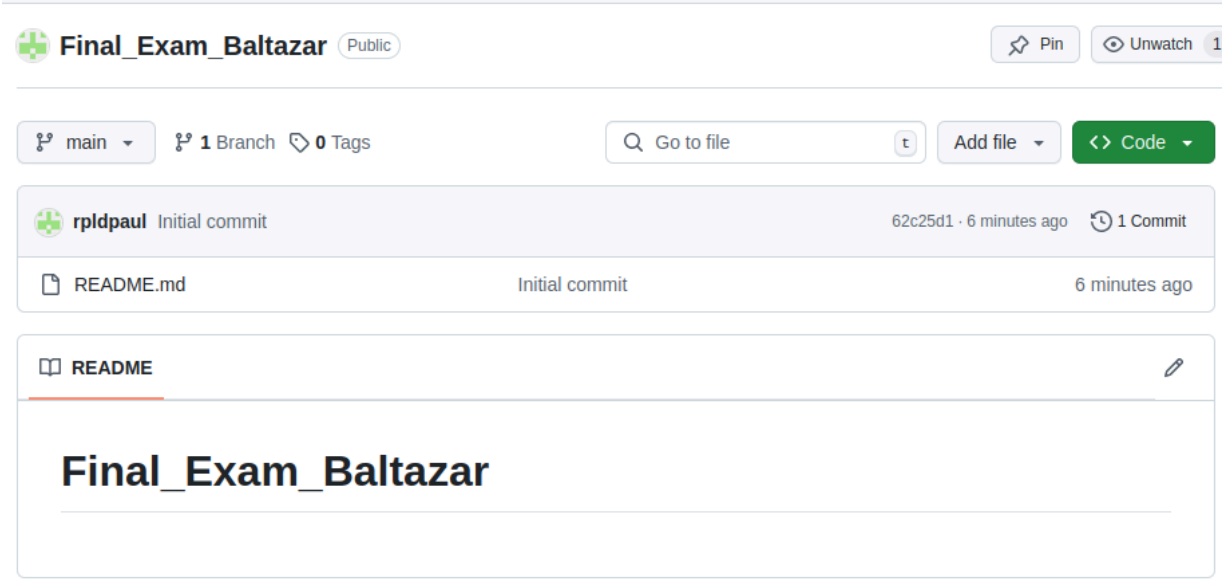
CPE 212 - CPE31S2	Engr. Robin Valenzuela

Tools Needed:

1. VM with Ubuntu, CentOS, and Ansible Installed
2. Web Browser

Procedure:

1. Create a repository and label it as "Final_Exam_Surname"



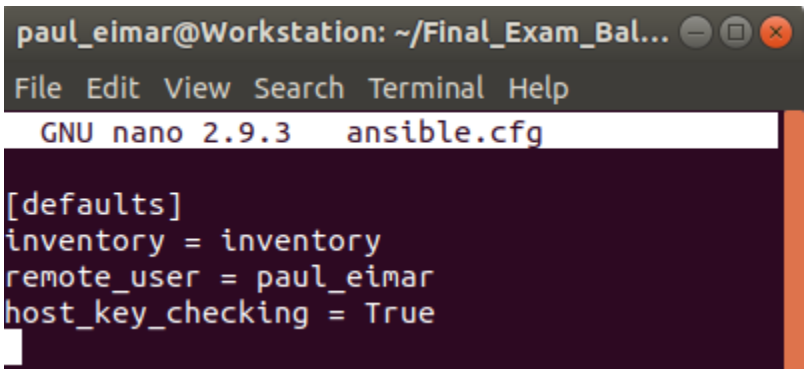
New repository is created in Github.

2. Clone your new repository in your VM

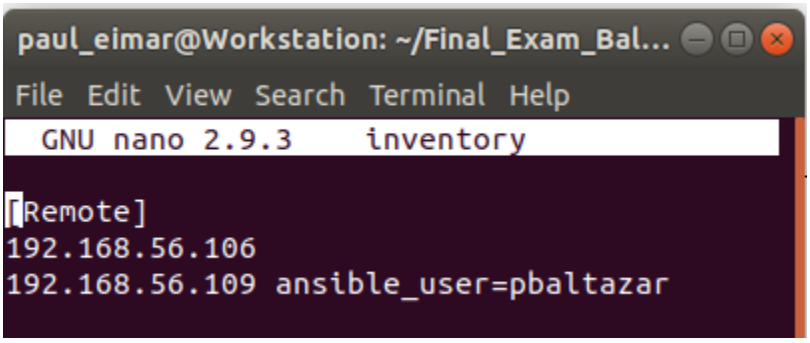
```
paul_eimar@Workstation:~$ git clone git@github.com:rpldpaul/Final_Exam_Baltazar.
git
Cloning into 'Final_Exam_Baltazar'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
paul_eimar@Workstation:~$
```

The repository is cloned into the local machine.

3. Create an Ansible playbook that does the following with an input of a config.yaml file and structure inventory file.



ansible.cfg file for locating the inventory file



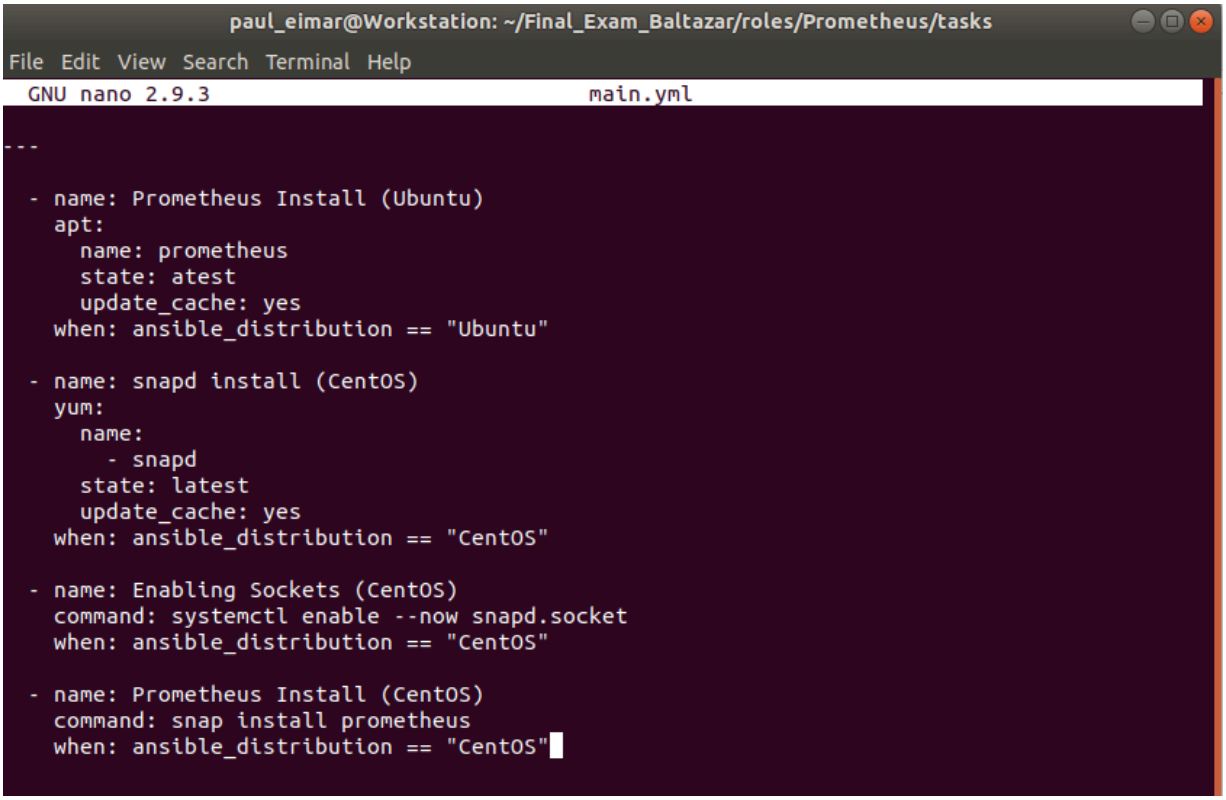
inventory file for the server address

```
paul_eimar@Workstation: ~/Final_Exam_Baltazar
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                          config.yml

- hosts: all
  become: true
  pre_tasks:

    - name: MOTD
      copy:
          content: "Ansible Managed by Baltazar"
          dest: /etc/motd

- hosts: all
  become: true
  roles:
    - Prometheus
    - apache2
```

This is the content of the config.yml file. This is the playbook that will be executed to install the services.

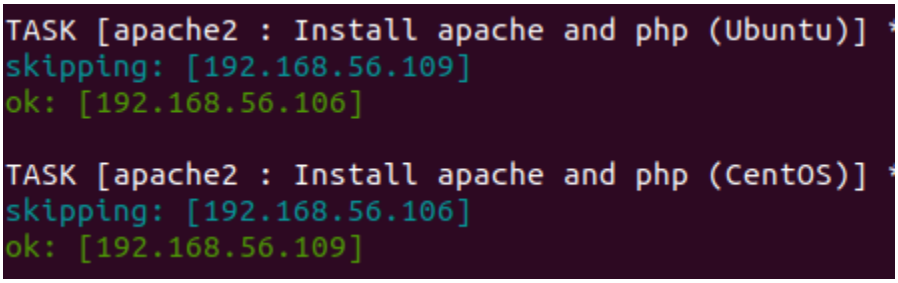
```
paul_eimar@Workstation: ~/Final_Exam_Baltazar/roles/apache2/tasks
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                  main.yml                  Modified

---

  - name: Install apache and php (Ubuntu)
    apt:
      name:
        - apache2
        - libapache2-mod-php
      state: latest
      update_cache: yes
    when: ansible_distribution == "Ubuntu"

  - name: Install apache and php (CentOS)
    yum:
      name:
        - httpd
        - php
      state: latest
    when: ansible_distribution == "CentOS"
```

This is the main.yml of the apache service. This is where the commands for apache installation is written.



This is the main.yml file for Prometheus. These are the commands for installing Prometheus.

3.1 Install and configure one enterprise service that can be installed in Debian and Centos servers



Successful installation of apache on both servers

3.2 Install and configure one monitoring tool that can be installed in Debian and Centos servers (if it is a stack there should be option of different host)

```
TASK [Prometheus : Prometheus Install (Ubuntu)]
skipping: [192.168.56.109]
ok: [192.168.56.106]
```

```
TASK [Prometheus : Prometheus Install (CentOS)]
skipping: [192.168.56.106]
changed: [192.168.56.109]
```

Successful installation of prometheus on both servers

4.4 Change Motd as "Ansible Managed by <username>"

```
TASK [MOTD] *********
ok: [192.168.56.106]
ok: [192.168.56.109]
```

Successful change of MOTD for both servers

```
Your Hardware Enablement Stack (HWE) is supported until April 2023.
Ansible Managed by Baltazar
Last login: Wed Dec  4 08:58:11 2024 from 192.168.56.108
```

Ubuntu SSH

```
paul_eimar@Workstation:~/Final_Exam_Baltazar$ ssh pbaltazar@192.168.56.109
Last login: Wed Dec  4 09:03:53 2024
Ansible Managed by Baltazar[pbaltazar@localhost ~]$
```

CentOS SSH

4. Push and commit your files in GitHub

```
paul_eimar@Workstation:~/Final_Exam_Baltazar$ git add .
paul_eimar@Workstation:~/Final_Exam_Baltazar$ git commit -m "FINAL EXAM DONE"
[main 3fc86f0] FINAL EXAM DONE
 6 files changed, 65 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.retry
 create mode 100644 config.yml
 create mode 100644 inventory
 create mode 100644 roles/Prometheus/tasks/main.yml
 create mode 100644 roles/apache2/tasks/main.yml
paul_eimar@Workstation:~/Final_Exam_Baltazar$ git push
Counting objects: 13, done.
Delta compression using up to 6 threads.
Compressing objects: 100% (8/8), done.
Writing objects: 100% (13/13), 1.34 KiB | 1.34 MiB/s, done.
Total 13 (delta 0), reused 0 (delta 0)
To github.com:rpldpaul/Final_Exam_Baltazar.git
   62c25d1..3fc86f0  main -> main
```

Files are pushed onto github repository

5. Make sure to show evidence of input (codes) process (codes successfully running) and output (evidence of installation)

Prometheus is installed and running on CentOS

```
[pbaltazar@localhost ~]$ systemctl status prometheus
● prometheus.service - Prometheus
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor prese
t: disabled)
   Active: active (running) since Wed 2024-12-04 09:03:16 PST; 8min ago
 Main PID: 1209 (prometheus)
    Tasks: 9
   CGroup: /system.slice/prometheus.service
           └─1209 /usr/local/bin/prometheus --config.file /etc/prometheus/pro...

Dec 04 09:03:31 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Dec 04 09:03:31 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Dec 04 09:03:31 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Dec 04 09:03:31 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Dec 04 09:03:31 localhost.localdomain prometheus[1209]: level=info ts=2024-12…µs
Dec 04 09:03:31 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Dec 04 09:03:49 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Dec 04 09:03:49 localhost.localdomain prometheus[1209]: level=info ts=2024-12…µs
Dec 04 09:03:49 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Dec 04 09:03:49 localhost.localdomain prometheus[1209]: level=info ts=2024-12...
Hint: Some lines were ellipsized, use -l to show in full.
```

Apache is installed and running on CentOS

```
[pbaltazar@localhost ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset
: disabled)
   Active: active (running) since Wed 2024-12-04 09:03:22 PST; 10min ago
     Docs: man:httpd(8)
           man:apachectl(8)
 Main PID: 1223 (httpd)
   Status: "Total requests: 2; Current requests/sec: 0; Current traffic:   0 B/s
ec"
    Tasks: 6
   CGroup: /system.slice/httpd.service
           ├─1223 /usr/sbin/httpd -DFOREGROUND
           ├─1897 /usr/sbin/httpd -DFOREGROUND
           ├─1898 /usr/sbin/httpd -DFOREGROUND
           ├─1899 /usr/sbin/httpd -DFOREGROUND
           ├─1901 /usr/sbin/httpd -DFOREGROUND
           └─1902 /usr/sbin/httpd -DFOREGROUND

Dec 04 09:03:16 localhost.localdomain systemd[1]: Starting The Apache HTTP Se...
Dec 04 09:03:20 localhost.localdomain httpd[1223]: AH00558: httpd: Could not ...
Dec 04 09:03:22 localhost.localdomain systemd[1]: Started The Apache HTTP Ser...
Hint: Some lines were ellipsized, use -l to show in full.
```

Apache is Installed and Running on ubuntu server

```
paul_eimar@Server1:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset:
  Drop-In: /lib/systemd/system/apache2.service.d
           └─apache2-systemd.conf
   Active: active (running) since Wed 2024-12-04 08:41:18 +08; 34min ago
  Process: 5625 ExecReload=/usr/sbin/apachectl graceful (code=exited, status=0/S
 Main PID: 2195 (apache2)
    Tasks: 6 (limit: 4915)
   CGroup: /system.slice/apache2.service
           ├─2195 /usr/sbin/apache2 -k start
           ├─5651 /usr/sbin/apache2 -k start
           ├─5652 /usr/sbin/apache2 -k start
           ├─5653 /usr/sbin/apache2 -k start
           ├─5654 /usr/sbin/apache2 -k start
           └─5655 /usr/sbin/apache2 -k start
```

Prometheus is Installed and Running on ubuntu server

```
paul_eimar@Server1:~$ systemctl status prometheus
● prometheus.service - Monitoring system and time series database
   Loaded: loaded (/lib/systemd/system/prometheus.service; enabled; vendor prese
   Active: active (running) since Wed 2024-12-04 08:41:05 +08; 43min ago
     Docs: https://prometheus.io/docs/introduction/overview/
 Main PID: 1189 (prometheus)
    Tasks: 16 (limit: 4915)
   CGroup: /system.slice/prometheus.service
           └─1189 /usr/bin/prometheus
```

5. For your final exam to be counted, please paste your repository link as an answer in this exam.

Repository Link: https://github.com/rpldpaul/Final_Exam_Baltazar