Final Skills Exam	
Name: Charles Adrian D. Balingit	Date: Dec. 13, 2024
Section: CPE31S21	Instructor: 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"

2. Clone your new repository in your VM

```
charles@workstation:~$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDfXiPrOsZXP1neeNDWmhmylm72xMxukgF3RVK6OHQ
Uu7e0bWqrRGltIN5KMeiQadcerAvxhV4lQbMoDYP0Pk6sv9ZkFcaeeqHSQxMOKW/tCUddjvbXLFnbGe
tLdzzBpo6S2zh8fgzLO13OiSGP8KgLRZK/WhjM6WAkYTYIyUyypXZTo9HCKWJggEUQ0lv3G4Kv/ABfq
z2ClNkjUWGH6kuQ/c2i7XbTW1Q6deIVTZ6TCp5qWlDnh0k9gdhGckAtJpGVIbxLMfaSICG3vs5riXpE
Yx3fJxrNtVXTuKnu5TuZHS8gOMbB0oVsYXHvei2CnonFGE2gubMbI02KHEBQrLFp/Cu+06wnk9OecJq
p8ifpa9P6f4ep4KKo7D+/UXUWOVSeqXHv9e07hyu2Zs+fIF/t5Id0TS9TstEvgYAIO7VUCSz2x20wQw
TwlV3DztHejcXWbjHBYOtQkuSosVpSiM6gKsJaLHMt5AkdVCjozSPpoE7tKzZ75gpLr2D5W8/2J7d1K
u29Hk7PrO2knmvcKZe7/gt92FgkAa6tCKuj9zQlcBR2WSs2nm32tUrFz6WPl8hC7GgROmuCrrRRJZo5
G0oHCtK/f1RnNjaUwaaZ0JRhSGjKDsYGcJOv/g4k+j0R6aEjIQEW/OC/l2rYIehB7q7PjueyS/JlJmo
0qsvAhM3UEw== charles@workstation
charles@workstation:~$ git clone git@github.com:CPE212-balingit/Final_exam.git
Cloning into 'Final_exam'...
Warning: Permanently added the ECDSA host key for IP address '4.237.22.38' to t
he list of known hosts.
warning: You appear to have cloned an empty repository.
```

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

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

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

```
  GNU nano 2.9.3                          inventory

[ubuntu_server]
Server1 ansible_host=192.168.56.140 ansible_user=charles
[centos_server]
centOS ansible_host=192.168.56.144 ansible_user=cbalingit
```

```
  GNU nano 2.9.3                         ansible.cfg

[Default]
inventory = inventory
remote_user = charles
host_key_checking = True
```

```
  GNU nano 2.9.3                         config.yaml

- name: Enterprise Service and Monitoring Setup
  hosts: all
  become: true
  vars:
    username: "charles"
    apache_port: 80
    prometheus_version: "2.46.0"
  tasks:

    - name: Install Apache on Ubuntu
      apt:
        name: apache2
        state: present
      when: ansible_os_family == "Debian"

    - name: Install Apache on Centos
      yum:
        name: httpd
        state: present
      when: ansible_os_family == "RedHat"
```

```
- name: Start and Enable Apache Service
  service:
    name: "{{ 'apache2' if ansible_os_family == 'Debian' else 'httpd' }}"
    state: started
    enabled: true

- name: Configure Apache Port
  lineinfile:
    path: "{{ '/etc/apache2/ports.conf' if ansible_os_family == 'Debian' e$
    regexp: "^Listen"
    line: "Listen {{ apache_port }}"
  notify: Restart Apache
```

```
- name: Download Prometheus
  get_url:
    url: "https://github.com/prometheus/prometheus/releases/download/v{{ p$
    dest: /tmp/prometheus.tar.gz

- name: Extract Prometheus
  unarchive:
    src: /tmp/prometheus.tar.gz
    dest: /opt
    remote_src: true
```

```
- name: Move Prometheus Files
  command:
    cmd: mv /opt/prometheus-{{ prometheus_version }}.linux-amd64 /opt/prom$
  args:
    creates: /opt/prometheus

- name: Create Prometheus User
  user:
    name: prometheus
    shell: /sbin/nologin

- name: Set Prometheus Ownership
  file:
    path: /opt/prometheus
```

```
    group: prometheus
    state: directory
    recurse: yes

- name: Configure Prometheus as a Service
  copy:
    dest: /etc/systemd/system/prometheus.service
    content: |
      [Unit]
      Description=Prometheus Monitoring
      After=network.target

      [Service]
      User=prometheus
      ExecStart=/opt/prometheus/prometheus \
        --config.file=/opt/prometheus/prometheus.yml \
        --storage.tsdb.path=/opt/prometheus/data
      Restart=always

      [Install]
      WantedBy=multi-user.target
```

```
- name: Reload systemd and Enable Prometheus
  systemd:
    daemon_reload: true
    name: prometheus
    state: started
    enabled: true

- name: Update MOTD
  copy:
    dest: /etc/motd
    content: "Ansible Managed by {{ username }}"
```

```
charles@workstation:~/Final_exam$ ansible-playbook --ask-become-pass config.yam
l -i inventory
SUDO password:

PLAY [Enterprise Service and Monitoring Setup] ********************************
*

TASK [Gathering Facts] ********************************************************
*
ok: [centOS]
ok: [Server1]

TASK [Install Apache on Ubuntu] ***********************************************
*
skipping: [centOS]
ok: [Server1]

TASK [Install Apache on Centos] ***********************************************
*
skipping: [Server1]
fatal: [centOS]: FAILED! => {"changed": false, "msg": "Failure talking to yum:
failure: repodata/repomd.xml from base: [Errno 256] No more mirrors to try.\nht
tp://vault.centos.org/centos/7/os/x86_64/repodata/repomd.xml: [Errno 14] curl#6
 - \"Could not resolve host: vault.centos.org; Unknown error\""}
```

```
TASK [Start and Enable Apache Service] ****************************************
*
ok: [Server1]

TASK [Configure Apache Port] **************************************************
*
ok: [Server1]

TASK [Download Prometheus] ****************************************************
*
ok: [Server1]

TASK [Extract Prometheus] *****************************************************
*
changed: [Server1]

TASK [Move Prometheus Files] **************************************************
*
ok: [Server1]

TASK [Create Prometheus User] *************************************************
*
ok: [Server1]
```

```
TASK [Set Prometheus Ownership] ***********************************************
*
ok: [Server1]

TASK [Configure Prometheus as a Service] **************************************
*
ok: [Server1]

TASK [Reload systemd and Enable Prometheus] ***********************************
*
ok: [Server1]

TASK [Update MOTD] ************************************************************
*
changed: [Server1]
        to retry, use: --limit @/home/charles/Final_exam/config.retry

PLAY RECAP ********************************************************************
*
Server1                    : ok=12   changed=2    unreachable=0    failed=0
centOS                     : ok=1    changed=0    unreachable=0    failed=1
```

4. Push and commit your files in GitHub

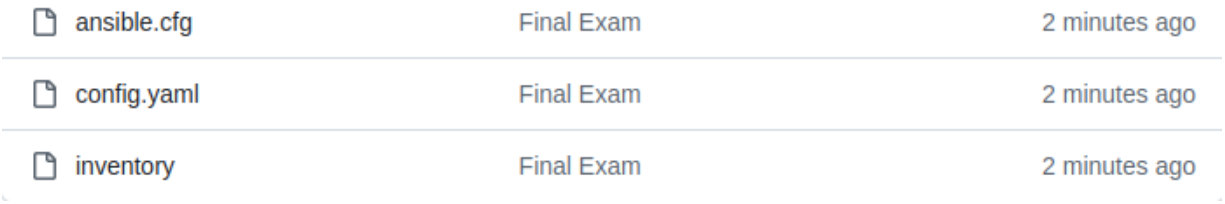
```
charles@workstation:~/Final_exam$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

        new file:   ansible.cfg
        new file:   config.yaml
        new file:   inventory
```

```
charles@workstation:~/Final_exam$ git commit -m "Final Exam"
[master (root-commit) e57e1a8] Final Exam
 3 files changed, 105 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yaml
 create mode 100644 inventory
charles@workstation:~/Final_exam$ git push
Counting objects: 5, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 1.32 KiB | 1.32 MiB/s, done.
Total 5 (delta 0), reused 0 (delta 0)
To github.com:CPE212-balingit/Final_exam.git
 * [new branch]      master -> master
```



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

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

Github link: https://github.com/CPE212-balingit/Final_exam.git

Note: Extra points if you will implement the said services via containerization.