Name: Magnait, Marv Alfonso G.	**Date Performed:** 12/04/ 2024
Course/Section: CPE31S2	**Date Submitted:** 12/04/ 2024
Instructor: Engr. Robin Valenzuela	**Semester and SY:** 1st Sem 2024 - 2025

Final Exam

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

2. Clone your new repository in your VM

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>"

4. Push and commit your files in GitHub

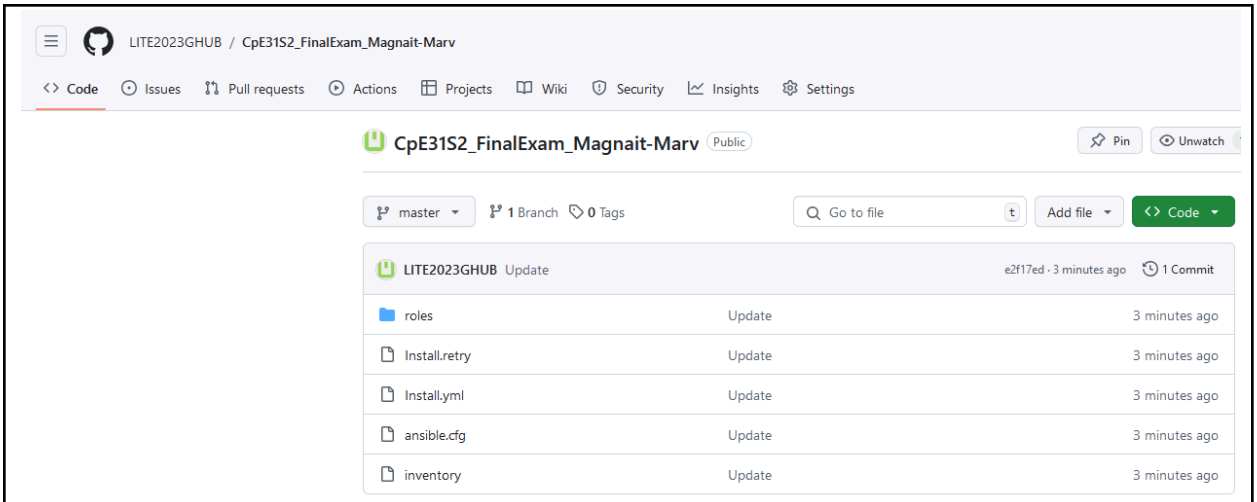
5. Make sure to show evidence of input (codes) process (codes successfully running) and output (evidence of installation)

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

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

1. Screenshots

Step 1: Create your github repository



Step 2: Create the files necessary

ansible.cfg

```
adminmagnait@workstation:~/CpE31S2_FinalExam_Magnait-Marv$ cat ansible.cfg
[defaults]
inventory = inventory
remote_user = adminmagnait
host_key_checking = True
```

inventory

```
adminmagnait@workstation:~/CpE31S2_FinalExam_Magnait-Marv$ cat inventory
[Ubuntus]
192.168.56.106
[CentOSs]
192.168.56.110
```

install.yml

```
adminmagnait@workstation:~/CpE31S2_FinalExam_Magnait-Marv$ cat Install.yml
---
- hosts: all
  become: true
  pre_tasks:

  - name: Update repository Index (CentOS)
    tags: always
    yum:
      name: "*"
      update_cache: yes
    changed_when: false
    when: ansible_distribution == "CentOS"

  - name: Update repo index (Ubuntu)
    tags: always
    apt:
      update_cache: yes
    changed_when: false
    when: ansible_distribution == "Ubuntu"

  - name: MOTD
    copy:
      content: "Ansible managed by Magnait \n"
      dest: /etc/motd

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

main.yml of prometheus

```
adminmagnait@workstation:~/CpE31S2_FinalExam_Magnait-Marv$ cat roles/promentheus/tasks/main.yml
---

- name: Install Prometheus (Ubuntu)
  apt:
      name: prometheus
      state: latest
  when: ansible_distribution == "Ubuntu"

- name: Install Prometheus (CentOS)
  unarchive:
      src: https://github.com/prometheus/prometheus/releases/download/v2.30.0/prometheus-2.30.0.linux-amd64.tar.gz
      dest: /usr/local/bin
      remote_src: yes
      mode: 0755
      owner: root
      group: root
  when: ansible_distribution == "CentOS"

- name: Copy Prometheus binaries
  copy:
      src: /usr/local/bin/prometheus-2.30.0.linux-amd64/prometheus
      dest: /usr/local/bin/prometheus
      mode: 0755
      remote_src: yes
  when: ansible_distribution == "CentOS"

- name: Copy Promtool binaries
  copy:
       src: /usr/local/bin/prometheus-2.30.0.linux-amd64/prometheus
       dest: /usr/local/bin/promtool
       mode: 0755
       remote_src: yes
  when: ansible_distribution == "CentOS"

- name: Create Prometheus directories
  file:
       path: "{{ item }}"
       state: directory
  loop:
       - /etc/prometheus
       - /var/lib/prometheus
  when: ansible_distribution == "CentOS"

- name: Copy prometheus.yml to /etc/prometheus
  command: cp /usr/local/bin/prometheus-2.30.0.linux-amd64/prometheus.yml /etc/prometheus
  when: ansible_distribution == "CentOS"

- name: Copy consoles directory to /etc/prometheus
  command: cp -r /usr/local/bin/prometheus-2.30.0.linux-amd64/consoles /etc/prometheus
  when: ansible_distribution == "CentOS"
```

```
- name: Copy console_libraries directory to /etc/prometheus
  command: cp -r /usr/local/bin/prometheus-2.30.0.linux-amd64/console_libraries /etc/prometheus
  when: ansible_distribution == "CentOS"

- name: Create prometheus.service file
  copy:
    dest: /etc/systemd/system/prometheus.service
    content: |
      [Unit]
      Description=Prometheus
      Wants=network-online.target
      After=network-online.target

      [Service]
      User=root
      Group=root
      Type=simple
      ExecStart=/usr/local/bin/prometheus \
          --config.file /etc/prometheus/prometheus.yml \
          --storage.tsdb.path /var/lib/prometheus \
          --web.console.templates=/etc/prometheus/consoles \
          --web.console.libraries=/etc/prometheus/console_libraries \

      [Install]
      WantedBy=multi-user.target
  when: ansible_distribution == "CentOS"

- name: Reload systemd
  command: systemctl daemon-reload
  when: ansible_distribution == "CentOS"

- name: Start Prometheus Service
  systemd:
       name: prometheus
       enabled: yes
       state: started
  when: ansible_distribution == "CentOS"

- name: Start Prometheus Service (Ubuntu)
  systemd:
       name: prometheus
       enabled: yes
       state: started
  when: ansible_distribution == "Ubuntu"
```

main.yml of apache

```
adminmagnait@workstation:~/CpE31S2_FinalExam_Magnait-Marv$ cat roles/apache2/tasks/main.yml
---
  - name: Install apache for Ubuntu
    apt:
      name: apache2
      state: latest
    when: ansible_distribution == "Ubuntu"

  - name: Install PHP for Ubuntu
    apt:
      name: libapache2-mod-php
      state: latest
    when: ansible_distribution == "Ubuntu"

  - name: Install apache for CentOS
    yum:
      name: httpd
      state: latest
    when: ansible_distribution == "CentOS"

  - name: Install PHP packages for CentOS
    yum:
      name: php
      state: latest
    when: ansible_distribution == "CentOS"
```

Step 3: Run install.yml

```
adminmagnait@workstation:~/CpE31S2_FinalExam_Magnait-Marv$ ansible-playbook --ask-become-pass Install.yml
SUDO password:

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

TASK [Gathering Facts] *********************************************************************************
ok: [192.168.56.106]
ok: [192.168.56.110]

TASK [Update repository Index (CentOS)] ****************************************************************
skipping: [192.168.56.106]
ok: [192.168.56.110]

TASK [Update repo index (Ubuntu)] **********************************************************************
skipping: [192.168.56.110]
ok: [192.168.56.106]

TASK [MOTD] ********************************************************************************************
ok: [192.168.56.106]
ok: [192.168.56.110]

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

TASK [Gathering Facts] *********************************************************************************
ok: [192.168.56.106]
ok: [192.168.56.110]

TASK [promentheus : Install Prometheus (Ubuntu)] *******************************************************
skipping: [192.168.56.110]
ok: [192.168.56.106]

TASK [promentheus : Install Prometheus (CentOS)] *******************************************************
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Copy Prometheus binaries] **********************************************************
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Copy Promtool binaries] ************************************************************
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Create Prometheus directories] *****************************************************
skipping: [192.168.56.106] => (item=/etc/prometheus)
skipping: [192.168.56.106] => (item=/var/lib/prometheus)
changed: [192.168.56.110] => (item=/etc/prometheus)
changed: [192.168.56.110] => (item=/var/lib/prometheus)

TASK [promentheus : Copy prometheus.yml to /etc/prometheus] ********************************************
skipping: [192.168.56.106]
changed: [192.168.56.110]
```

```
TASK [promentheus : Copy consoles directory to /etc/prometheus] *****************
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Copy console_libraries directory to /etc/prometheus] ********
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Create prometheus.service file] *****************************
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Reload systemd] *********************************************
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Start Prometheus Service] ***********************************
skipping: [192.168.56.106]
changed: [192.168.56.110]

TASK [promentheus : Start Prometheus Service (Ubuntu)] **************************
skipping: [192.168.56.110]
ok: [192.168.56.106]

TASK [apache2 : Install apache for Ubuntu] **************************************
skipping: [192.168.56.110]
ok: [192.168.56.106]

TASK [apache2 : Install PHP for Ubuntu] *****************************************
skipping: [192.168.56.110]
ok: [192.168.56.106]

TASK [apache2 : Install apache for CentOS] **************************************
skipping: [192.168.56.106]
ok: [192.168.56.110]

TASK [apache2 : Install PHP packages for CentOS] ********************************
skipping: [192.168.56.106]
ok: [192.168.56.110]

PLAY RECAP **********************************************************************
192.168.56.106             : ok=8    changed=0    unreachable=0    failed=0
192.168.56.110             : ok=16   changed=10   unreachable=0    failed=0
```

Step 4: Validate if install went successfully

CentOS:

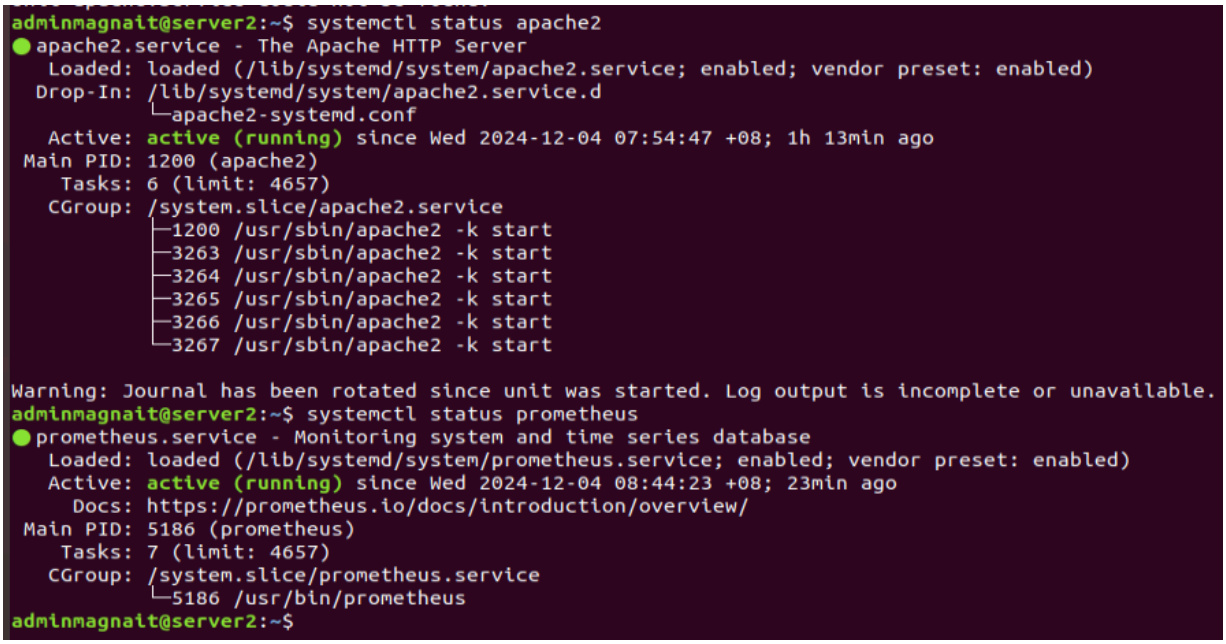
```
[adminmagnait@CentOS ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2024-12-04 08:08:21 PST; 58min ago
     Docs: man:httpd(8)
           man:apachectl(8)
 Main PID: 1128 (httpd)
   Status: "Total requests: 12; Current requests/sec: 0; Current traffic:   0 B/sec"
    Tasks: 6
   CGroup: /system.slice/httpd.service
           ├─1128 /usr/sbin/httpd -DFOREGROUND
           ├─1912 /usr/sbin/httpd -DFOREGROUND
           ├─1913 /usr/sbin/httpd -DFOREGROUND
           ├─1914 /usr/sbin/httpd -DFOREGROUND
           ├─1915 /usr/sbin/httpd -DFOREGROUND
           └─1916 /usr/sbin/httpd -DFOREGROUND

Dec 04 08:08:16 CentOS.localdomain systemd[1]: Starting The Apache HTTP Server...
Dec 04 08:08:20 CentOS.localdomain httpd[1128]: AH00558: httpd: Could not reliably determine
Dec 04 08:08:21 CentOS.localdomain systemd[1]: Started The Apache HTTP Server.
Hint: Some lines were ellipsized, use -l to show in full.
[adminmagnait@CentOS ~]$
```

```
[adminmagnait@CentOS ~]$ systemctl status prometheus
● prometheus.service - Prometheus
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2024-12-04 08:54:34 PST; 11min ago
 Main PID: 9101 (prometheus)
    Tasks: 9
   CGroup: /system.slice/prometheus.service
           └─9101 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --sto

Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.909Z ca
Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.909Z ca
Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.909Z ca
Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.911Z ca
Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.911Z ca
Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.912Z ca
Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.912Z ca
Dec 04 08:54:34 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:34.913Z ca
Dec 04 08:54:35 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:35.607Z ca
Dec 04 08:54:35 CentOS.localdomain prometheus[9101]: level=info ts=2024-12-04T00:54:35.607Z ca
Hint: Some lines were ellipsized, use -l to show in full.
```

Ubuntu:



2. Conclusions

The installation of an enterprise service and a monitoring tool will help future deployments and server handling be more time and work efficient. With an enterprise service, deploying a certain application or web app will help the creator deploy this by allowing http requests from other users to send them the desired information while maintaining security and in the form of files and web pages while the monitoring tool will help troubleshooters and server administrators be in touch with the workflow of the server to ensure no loopholes in security and a well ran and efficient server.

Github Link:

https://github.com/LITE2023GHUB/CpE31S2_FinalExam_Magnait-Marv

Honor Pledge for Exams:

"I affirm that I will not give or receive any unauthorized help on this exam, and that all work will be my own."