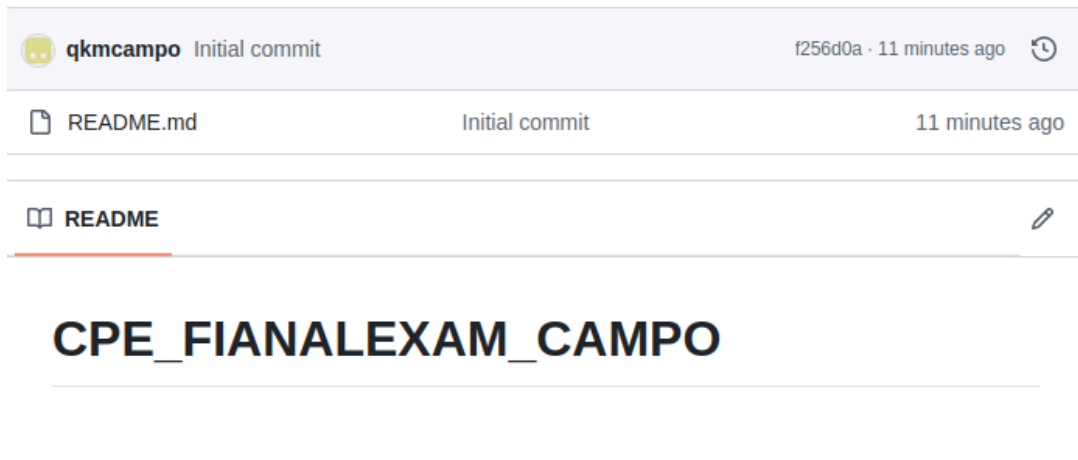


Name: Keneth Campo	Date Performed: December 13, 2024
Course/Section: CPE 212- CPE31S21	Date Submitted: December 13, 2024
Instructor: Engr. Robin Valenzuela	Semester and SY: 2024-2025
1. Objectives	
Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.	
2. Instructions	
<p>1. VM with Ubuntu, CentOS and Ansible installed</p> <p>2. Web browser</p> <p>Procedure:</p> <p>1. Create a repository and label it as "Final_Exam_Surname"</p> <p>2. Clone your new repository in your VM</p> <p>3. Create an Ansible playbook that does the following with an input of a config.yaml file and structure inventory file.</p> <p>3.1 Install and configure one enterprise service that can be installed in Debian and Centos servers</p> <p>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)</p> <p>4.4 Change Motd as "Ansible Managed by <username>"</p> <p>4. Push and commit your files in GitHub</p> <p>5. Make sure to show evidence of input (codes) process (codes successfully running) and output (evidence of installation)</p> <p>5. For your final exam to be counted, please paste your repository link as an answer in this exam.</p> <p><u>Note: Extra points if you will implement the said services via containerization.</u></p>	
3. Output (screenshots and explanations)	

1. I created a repository



2. I clone my new repository on VM

```
qkmcampo@Workstation:~$ git clone git@github.com:qkmcampo/CPE_FIANALEXAM_CAMPO.  
git  
Cloning into 'CPE_FIANALEXAM_CAMPO'...  
Warning: Permanently added the ECDSA host key for IP address '4.237.22.38' to t  
he list of known hosts.  
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.
```

3. I created inventory that locate my local host

```
File Edit View Search Terminal Help  
GNU nano 2.9.3 inventory  
server1 ansible_host=192.168.56.120 ansible_user=qkmcampo  
server3 ansible_host=192.168.56.124 ansible_user=Campo
```

```
GNU nano 2.9.3 inventory.ini  
[debian]  
debian_server ansible_host=192.168.56.120 ansible_user=qkmcampo  
  
[centos]  
centos_server ansible_host=192.168.56.124 ansible_user=kenethcampo
```

I Created a config.yaml

```
# config.yaml
enterprise_service: "nginx"
monitoring_tool: "prometheus"
username: "qkmcampo"
```

3. 1

```
GNU nano 2.9.3                playbook.yml                Modified
# playbook.yml
- hosts: all
  become: yes
  vars:
    username: "{{ lookup('file', 'config.yaml') | from_yaml | json_query('user$
    enterprise_service: "{{ lookup('file', 'config.yaml') | from_yaml | json_q$
    monitoring_tool: "{{ lookup('file', 'config.yaml') | from_yaml | json_quer$

  tasks:
    - name: Install enterprise service (Nginx)
      package:
        name: "{{ enterprise_service }}"
        state: present
        when: ansible_os_family in ['Debian', 'RedHat']

    - name: Start and enable Nginx
      service:
        name: nginx
        state: started
        enabled: yes
        when: ansible_os_family in ['Debian', 'RedHat']

    - name: Install dependencies for Prometheus
```

```
      name:
        - wget
        - tar
      when: ansible_os_family in ['Debian', 'RedHat']

    - name: Download Prometheus
      get_url:
        url: "https://github.com/prometheus/prometheus/releases/latest/downloa$
        dest: /tmp/prometheus.tar.gz

    - name: Extract Prometheus
      unarchive:
        src: /tmp/prometheus.tar.gz
        dest: /usr/local/bin/
        remote_src: yes

    - name: Create Prometheus configuration file
      copy:
        dest: /etc/prometheus/prometheus.yml
        content: |
          global:
            scrape_interval: 15s
            scrape_configs:
```

```
    static_configs:
      - targets: ['localhost:80']

- name: Start Prometheus
  command: /usr/local/bin/prometheus --config.file=/etc/prometheus/prometh$
  async: 1
  poll: 0

- name: Change MOTD
  lineinfile:
    path: /etc/motd
    line: "Ansible Managed by {{ username }}"
    state: present
```

```
qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ ansible-playbook -i inventory.ini
playbook.yml --ask-become-pass
SUDO password:
```

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

```
TASK [Gathering Facts] *****
*
```

```
[WARNING]: Module invocation had junk after the JSON data:
AttributeError("module 'platform' has no attribute 'dist'")
```

```
ok: [centos_server]
```

```
ok: [debian_server]
```







```
TASK [Install enterprise service (Nginx)] *****
*
```

```
fatal: [centos_server]: FAILED! => {"msg": "The conditional check 'ansible_os_f
amily in ['Debian', 'RedHat']}' failed. The error was: error while evaluating co
nditional (ansible_os_family in ['Debian', 'RedHat']): 'ansible_os_family' is u
ndefined\n\nThe error appears to have been in '/home/qkmcampo/CPE_FIANALEXAM_CA
MPO/playbook.yml': line 6, column 7, but may\nbe elsewhere in the file dependin
g on the exact syntax problem.\n\nThe offending line appears to be:\n\n  tasks:
\n    - name: Install enterprise service (Nginx)\n      ^ here\n"}
fatal: [debian_server]: FAILED! => {"msg": "The task includes an option with an
undefined variable. The error was: 'enterprise_service' is undefined\n\nThe er
ror appears to have been in '/home/qkmcampo/CPE_FIANALEXAM_CAMPO/playbook.yml':
line 6, column 7, but may\nbe elsewhere in the file depending on the exact syn
```

```

qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ git add
Nothing specified, nothing added.
Maybe you wanted to say 'git add .'
qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ git add inventory.ini
qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ git add ansible.cfg
qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ git add config.yaml
qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ git add playbook.yml
qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ git commit -m "Final Exam"
[main 5fb7c2f] Final Exam
 4 files changed, 275 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yaml
 create mode 100644 inventory.ini
 create mode 100644 playbook.yml
qkmcampo@Workstation:~/CPE_FIANALEXAM_CAMPO$ git push
Counting objects: 6, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 2.40 KiB | 2.40 MiB/s, done.
Total 6 (delta 0), reused 0 (delta 0)
To github.com:qkmcampo/CPE_FIANALEXAM_CAMPO.git
 f256d0a..5fb7c2f  main -> main

```

 qkmcampo Final Exam		5fb7c2f · 2 minutes ago	
 README.md	Initial commit	1 hour ago	
 ansible.cfg	Final Exam	2 minutes ago	
 config.yaml	Final Exam	2 minutes ago	
 inventory.ini	Final Exam	2 minutes ago	
 playbook.yml	Final Exam	2 minutes ago	

GitHub link: https://github.com/qkmcampo/CPE_FIANALEXAM_CAMPO

Conclusions: In this final exam, we successfully demonstrated the ability to automate the installation and configuration of services on both Debian and CentOS servers using Ansible. By creating a structured repository on GitHub, we organized our playbook and configuration files, ensuring clarity and maintainability. The playbook we developed not only installed an enterprise service (nginx) and a monitoring tool (prometheus) but also modified the Message of the Day (MOTD) to reflect that the system is managed by Ansible. This showcases the power of automation in system administration, allowing for consistent and repeatable configurations across multiple servers. at the end my CentOS didn't work.