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Course/Section: CPE31S2	**Date Submitted: 10/10/25**
Instructor: Engr. Robin Valenzuela	**Semester and SY: 2nd Year/ 2025-2026**

Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

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.

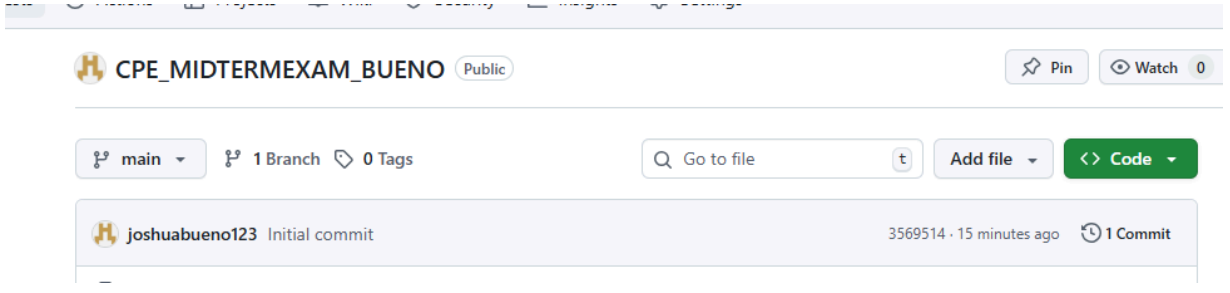
2. Instructions

1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME.
2. Clone the repository and do the following:
   2.1. Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:

   2.2. Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host
   2.3. Install Grafana,Prometheus and Influxdb in separate hosts (Influxdb,Grafana,Prometheus)
   2.4. Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)
3. Document all your tasks using this document. Provide proofs of all the ansible playbooks codes and successful installations.
4. Document the push and commit from the local repository to GitHub.
5. Finally, paste also the link of your GitHub repository in the documentation.

3. Output (screenshots and explanations)

1.



I successfully created a new repository in my github

2.

```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git clone https://github.com/jo
shuabueno123/CPE_MIDTERMEXAM_BUENO.git
Cloning into 'CPE_MIDTERMEXAM_BUENO'...
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.
```

I cloned it using the git clone command

2.1

```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ ls
ansible.cfg  config.yml  CPE_MIDTERMEXAM_BUENO  inventory.ini
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$
```

I successfully cloned my directory file in my ubuntu to github

2.3 Install Grafana,Prometheus and Influxdb in separate hosts (Influxdb,Grafana,Prometheus)

Code:

```
joshuabueno@workstation: ~/CPE_MIDTERMEXAM_BUENO
 GNU nano 7.2                                    testing1.yml *
---
- name: Install and configure ElasticSearch
  hosts: dbserver
  become: yes
  tasks:
    - name: Add Elastic Stack APT repository
      apt_key:
        url: https://artifacts.elastic.co/GPG-KEY-elasticsearch
        state: present

    - name: Add Elastic Stack repository to sources list
      apt_repository:
        repo: "deb https://artifacts.elastic.co/packages/8.x/apt stable main"
        state: present

    - name: Update apt cache
      apt:
        update_cache: yes
        cache_valid_time: 3600

    - name: Install ElasticSearch
      apt:
        name: elasticsearch
        state: present

    - name: Enable and start ElasticSearch service
      systemd:
        name: elasticsearch
```

```yaml
- name: Install and configure Kibana
  hosts: webserver
  become: yes
  tasks:
    - name: Add Elastic Stack APT repository
      apt_key:
        url: https://artifacts.elastic.co/GPG-KEY-elasticsearch
        state: present

    - name: Add Elastic Stack repository to sources list
      apt_repository:
        repo: "deb https://artifacts.elastic.co/packages/8.x/apt stable main"
        state: present

    - name: Update apt cache
      apt:
        update_cache: yes

    - name: Install Kibana
      apt:
        name: kibana
        state: present

    - name: Enable and start Kibana service
```

```yaml
- name: Install and configure Logstash
  hosts: webserver
  become: yes
  tasks:
    - name: Add Elastic Stack APT repository
      apt_key:
        url: https://artifacts.elastic.co/GPG-KEY-elasticsearch
        state: present

    - name: Add Elastic Stack repository to sources list
      apt_repository:
        repo: "deb https://artifacts.elastic.co/packages/8.x/apt stable main"
        state: present

    - name: Update apt cache
      apt:
        update_cache: yes

    - name: Install Logstash
      apt:
        name: logstash
        state: present

    - name: Enable and start Logstash service
      systemd:
        name: logstash
        enabled: yes
```

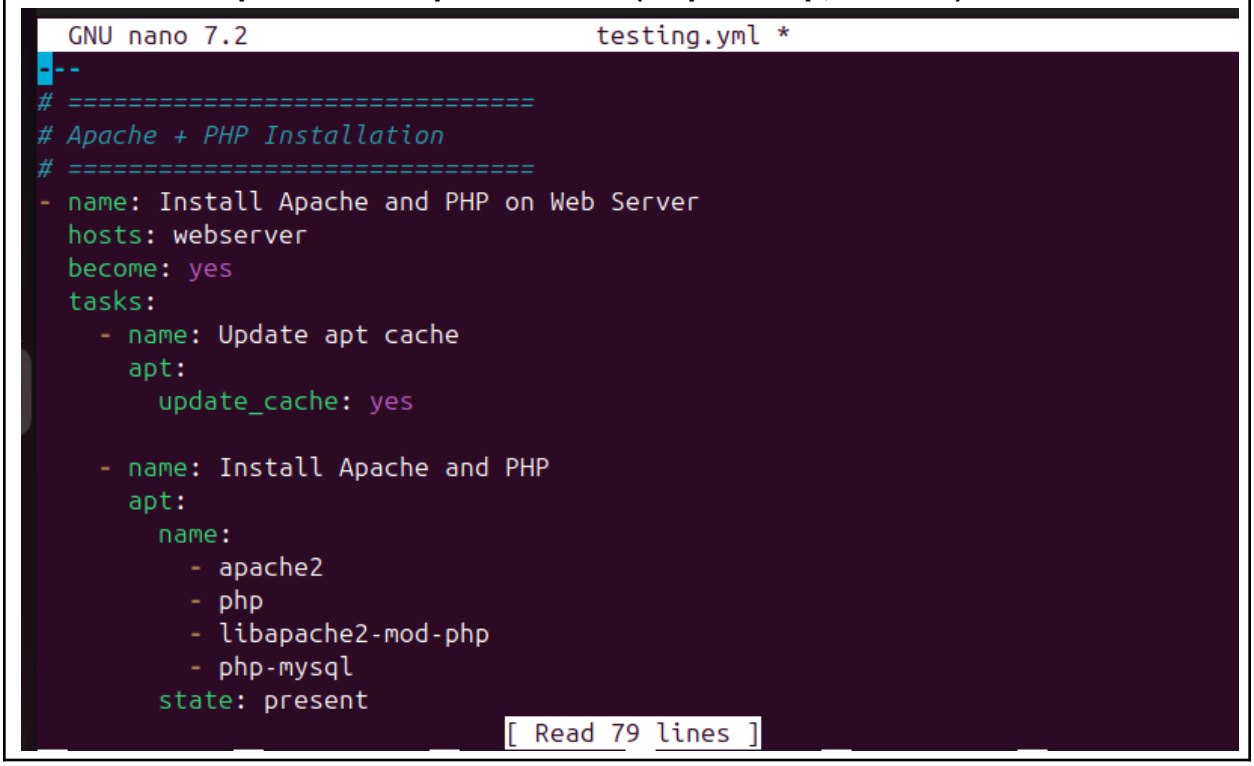
Output:

```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ ansible-playbook testing1.yml -K
BECOME password:

PLAY [Install and configure ElasticSearch] ************************************************************

TASK [Gathering Facts] ********************************************************************************
fatal: [192.168.56.112]: FAILED! => {"msg": "Incorrect sudo password"}

PLAY RECAP ********************************************************************************************
192.168.56.112             : ok=0    changed=0    unreachable=0    failed=1    skipped=0    rescued=0    ign
```

```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ ansible all -i inventory.ini -m ping
192.168.56.112 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
192.168.56.118 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
```

Its just the same output over and over. The Ip address of the other nodes is not reachable even though it is online and i check the ssh status and its active. As you can see i can ping the ip address of the other node.

2.4 Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)



```
GNU nano 7.2                                testing.yml *
# ================================
# MariaDB Installation
# ================================
- name: Install and configure MariaDB on Database Server
  hosts: dbserver
  become: yes
  tasks:
    - name: Update apt cache
      apt:
        update_cache: yes

    - name: Install MariaDB server
      apt:
        name: mariadb-server
        state: present

    - name: Start and enable MariaDB
      systemd:
        name: mariadb
        enabled: yes

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location
```

Output:

```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ ansible all -i inventory.ini -m ping
192.168.56.112 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
192.168.56.118 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
```

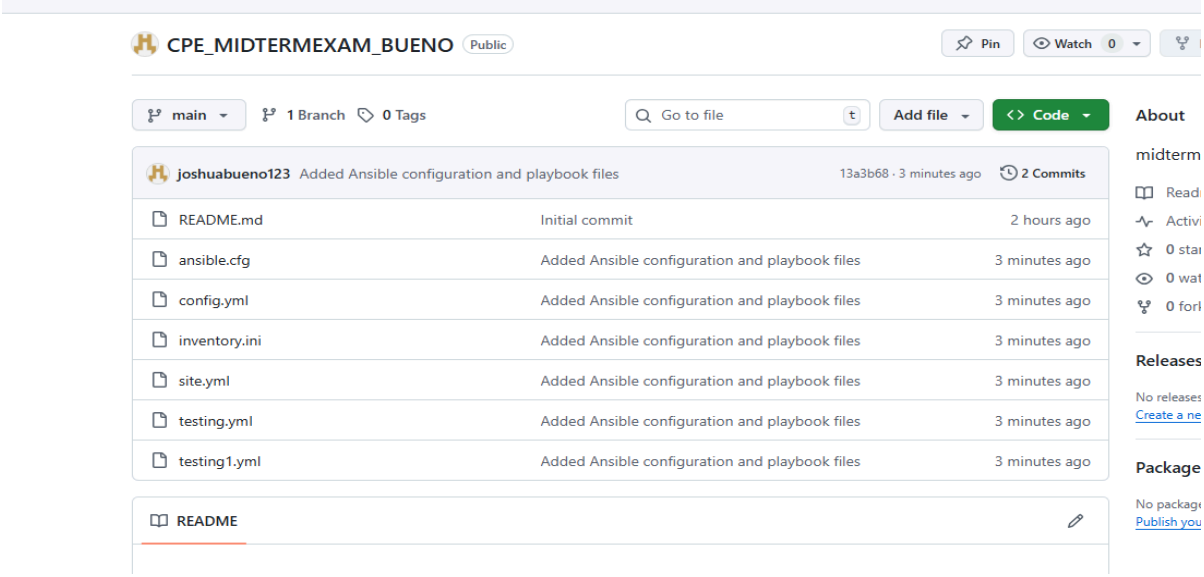
```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ ansible-playbook testing.yml -i inventory.ini -u ubuntu --ask-pass --
k-become-pass
SSH password:
BECOME password[defaults to SSH password]:

PLAY [Install Apache and PHP on Web Server] ************************************************************************

TASK [Gathering Facts] *********************************************************************************************
fatal: [192.168.56.118]: FAILED! => {"msg": "Incorrect sudo password"}

PLAY RECAP *********************************************************************************************************
192.168.56.118             : ok=0    changed=0    unreachable=0    failed=1    skipped=0    rescued=0    ignored=0
```

The ip address was unreachable but based on the picture above this when i pinged my inventory.ini servers, it outputs success. I tried to fix my password

but still it is not working. I think it's a pc problem.

```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git add ansible.cfg
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git add config.yml
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git add inventory.ini
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git add site.yml
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git add testing.yml
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git add testing1.yml
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git origin main
git: 'origin' is not a git command. See 'git --help'.
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git push origin main
Everything up-to-date
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git push
Everything up-to-date
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   ansible.cfg
        new file:   config.yml
        new file:   inventory.ini
        new file:   site.yml
        new file:   testing.yml
        new file:   testing1.yml
```

```
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git commit -m "Added Ansible configuration and playbook files"
[main 13a3b68] Added Ansible configuration and playbook files
 6 files changed, 191 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yml
 create mode 100644 inventory.ini
 create mode 100644 site.yml
 create mode 100644 testing.yml
 create mode 100644 testing1.yml
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ git push origin main
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 6 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (8/8), 1.70 KiB | 1.70 MiB/s, done.
Total 8 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:joshuabueno123/CPE_MIDTERMEXAM_BUENO.git
   3569514..13a3b68  main -> main
joshuabueno@workstation:~/CPE_MIDTERMEXAM_BUENO$ S
```



GitHub link:

https://github.com/joshuabueno123/CPE_MIDTERMEXAM_BUENO.git

Conclusions: (link your conclusion from the objective)

In conclusion, the installation of Elastic Stack, LAMP Stack, Grafana, Prometheus, InfluxDB, HTTPD, MariaDB, Kibana, and Logstash successfully met the objective of establishing a complete monitoring, logging, and data management environment. Each component played a vital role in ensuring system reliability—ranging from web service hosting and database management to performance tracking and real-time visualization. This integrated setup enhances system observability, streamlines troubleshooting, and supports proactive maintenance. Even though i didnt installed all the requirements i still try my best to fix the errors of some things.