

Name: Reyes, Alexzander J.	Date Performed: 10/10/2025
Course/Section: CPE212/ CPE31S2	Date Submitted: 10/10/2025
Instructor: Engr. Robin Valenzuela	Semester and SY:
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	
<ol style="list-style-type: none"> 1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME. 2. Clone the repository and do the following: <ol style="list-style-type: none"> 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)	
<ol style="list-style-type: none"> 1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME. 	

Create a new repository

Repositories contain a project's files and version history. Have a project elsewhere? [Import a repository](#).

Required fields are marked with an asterisk (*).

1 General

Owner * AlexanderReyes / **Repository name *** CPE_MIDEXAM_REYES
 CPE_MIDEXAM_REYES is available.

Great repository names are short and memorable. How about [automatic-invention](#)?

Description

 0 / 350 characters

2 Configuration

Choose visibility * Public

Add README On
 READMEs can be used as longer descriptions. [About READMEs](#)

Add .gitignore No .gitignore
 .gitignore tells git which files not to track. [About ignoring files](#)

Add license Apache License 2.0
 Licenses explain how others can use your code. [About licenses](#)

Create repository

CPE_MIDEXAM_REYES Public

Pin Watch 0 Fork 0 Star 0

main 1 Branch 0 Tags Go to file Add file Code

AlexanderReyes Initial commit 180f221 · now 1 Commit

LICENSE Initial commit now

README.md Initial commit now

README Apache-2.0 license

CPE_MIDEXAM_REYES

About
 No description, website, or topics provided.

Readme Activity 0 stars 0 watching 0 forks

Releases
 No releases published Create a new release

Packages
 No packages published Publish your first package

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2. Clone the repository and do the following:

```
vboxuser@Workstation:~$ git clone git@github.com:AlexzanderReyes/CPE_MIDEXAM_REYES.git
Cloning into 'CPE_MIDEXAM_REYES'...
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (4/4), 4.76 KiB | 1.59 MiB/s, done.
vboxuser@Workstation:~$ ls
control-node          Documents  Pictures      Templates
CPE212_REYES_ALEXZANDER-LAPTOP- Downloads  Public       Videos
CPE_MIDEXAM_REYES      hosts.ini Reyes_PrelimExam
Desktop               Music     snap
```

```
GNU nano 7.2           ansible.cfg *

[default]
inventory=inventory.ini
private_key_file=~/ssh/ansible
```

```
GNU nano 7.2           inventory.ini

[web_servers]
192.168.26.11 ansible_user=vboxuser
192.168.26.13 ansible_user=vboxuser

[db_servers]
192.168.26.13 ansible_user=Reyes

[file_servers]
192.168.26.11
```

```
GNU nano 7.2           /etc/ansible/hosts

[web_servers]
192.168.26.11 ansible_user=vboxuser
192.168.26.13 ansible_user=vboxuser
[db_servers]
192.168.26.13 ansible_user=Reyes
[file_servers]
192.168.26.11 ansible_user=vboxuser
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ sudo nano /etc/ansible/hosts
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ansible all -m ping
192.168.26.11 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
192.168.26.13 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ls
ansible.cfg  inventory.ini  playbook.yaml  roles
config.yaml  LICENSE          README.md
```

- 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 seperate hosts (Influxdb,Grafana,Prometheus)
- 2.4 Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ cd roles
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir elasticsearch
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir kibana
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir logstash
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir nagios
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir influxdb
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir grafana
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir prometheus
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir httpd_php
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir mariadb
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ ls
elasticsearch  httpd_php  kibana  mariadb  prometheus
grafana        influxdb  logstash  nagios
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/elasticsearch/tasks$ rmdir main.y  
ml  
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/elasticsearch/tasks$ sudo nano ma  
in.yml  
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/elasticsearch/tasks$ ls  
main.yml
```

```
GNU nano 7.2                                     main.yml  
---  
- name: Install dependencies  
  package:  
    name: "{{ item }}"  
    state: present  
  loop:  
    - apt-transport-https  
    - curl  
  when: ansible_os_family == "Debian"  
  
- name: Install dependencies  
  package:  
    name: "{{ item }}"  
    state: present  
  loop:  
    - curl  
  when: ansible_os_family == "RedHat"  
  
- name: Add Elasticsearch GPG key  
  ansible.builtin.shell: |  
    [ Read 57 lines ]
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/kibana/tasks$ sudo nano main.y  
ml  
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/kibana/tasks$ ls  
main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/kibana/tasks
```

```
GNU nano 7.2 main.yml *
```

```
---
```

```
- name: Install Kibana
  package:
    name: kibana
    state: present

- name: Enable and start Kibana
  service:
    name: kibana
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/logstash/tasks$ sudo nano main.yml
l
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/logstash/tasks$ ls
main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/logstash/tasks
```

```
GNU nano 7.2 main.yml *
```

```
---
```

```
- name: Install Logstash
  package:
    name: logstash
    state: present

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

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/nagios/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/nagios/tasks$ ls
main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/nagios/tasks
GNU nano 7.2                               main.yml
---
- name: Install Nagios (basic)
  package:
    name: nagios
    state: present
  ignore_errors: yes

- name: Enable and start Nagios
  service:
    name: nagios
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/prometheus/tasks$ ls
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/prometheus/tasks$ sudo nano main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/prometheus/tasks
GNU nano 7.2                               main.yml
---
- name: Install Prometheus
  package:
    name: prometheus
    state: present

- name: Enable and start Prometheus
  service:
    name: prometheus
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/mariadb/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/mariadb/tasks$ ls
main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/mariadb/tasks$ nano main.yml
GNU nano 7.2
---
- name: Install MariaDB
  package:
    name: mariadb-server
    state: present

- name: Enable and start MariaDB
  service:
    name: mariadb
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/influxdb/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/influxdb/tasks$ ls
main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/influxdb/tasks$ nano main.yml
GNU nano 7.2
---
- name: Install InfluxDB
  package:
    name: influxdb
    state: present

- name: Enable and start InfluxDB
  service:
    name: influxdb
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/httpd_php/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/httpd_php/tasks$ ls
main.yml
```

```
GNU nano 7.2                               main.yml
---
- name: Install Apache
  package:
    name: "{{ 'httpd' if ansible_os_family == 'RedHat' else 'apache2' }}"
    state: present

- name: Install PHP
  package:
    name: php
    state: present

- name: Enable and start Apache
  service:
    name: "{{ 'httpd' if ansible_os_family == 'RedHat' else 'apache2' }}"
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/grafana/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/grafana/tasks$ ls
main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/grafana/tasks
GNU nano 7.2                               main.yml
---
- name: Install Prometheus
  package:
    name: prometheus
    state: present

- name: Enable and start Prometheus
  service:
    name: prometheus
    enabled: yes
    state: started
```

config.yaml

```
GNU nano 7.2 config.yaml
elasticsearch_version: "7.x"
kibana_version: "7.x"
logstash_version: "7.x"
nagios_version: "latest"
grafana_version: "latest"
prometheus_version: "latest"
influxdb_version: "latest"
httpd_version: "latest"
php_version: "latest"
mariadb_version: "latest"
```

inventory.ini

```
GNU nano 7.2 inventory.ini
[elasticsearch]
192.168.26.11 ansible_user=vboxuser

[kibana]
192.168.26.11 ansible_user=vboxuser

[logstash]
192.168.26.13 ansible_user=Reyes

[nagios]
192.168.26.11 ansible_user=vboxuser

[influxdb]
192.168.26.11 ansible_user=vboxuser

[grafana]
192.168.26.11 ansible_user=vboxuser

[prometheus]
192.168.26.11 ansible_user=vboxuser
```

```
[httpd_php]
192.168.26.11 ansible_user=vboxuser

[mariadb]
192.168.26.13 ansible_user=Reyes

[

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute   ^C Locat
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify   ^/ Go To
```

playbook.yaml

```
GNU nano 7.2                               playbook.yaml
---
- name: Install and Configure Elasticsearch
  hosts: elasticsearch
  become: yes
  vars_files:
    - config.yaml
  roles:
    - elasticsearch

- name: Install and Configure Kibana
  hosts: kibana
  become: yes
  vars_files:
    - config.yaml
  roles:
    - kibana

- name: Install and Configure Logstash
  hosts: logstash
  become: yes
[ Wrote 72 lines ]
^G Help      ^O Write Out ^W Where Is ^K Cut      ^T Execu
^X Exit      ^R Read File ^\ Replace   ^U Paste    ^J Justi
```

```
GNU nano 7.2                                     playbook.yaml

vars_files:
  - config.yaml
roles:
  - logstash

- name: Install and Configure Nagios
  hosts: nagios
  become: yes
  vars_files:
    - config.yaml
  roles:
    - nagios

- name: Install and Configure InfluxDB
  hosts: influxdb
  become: yes
  vars_files:
    - config.yaml
  roles:
    - influxdb
```

```
- name: Install and Configure Prometheus
  hosts: prometheus
  become: yes
  vars_files:
    - config.yaml
  roles:
    - prometheus

- name: Install and Configure Apache + PHP
  hosts: httpd_php
  become: yes
  vars_files:
    - config.yaml
  roles:
    - httpd_php

- name: Install and Configure MariaDB
  hosts: mariadb
```

```
  become: yes
  vars_files:
    - config.yaml
  roles:
    - mariadb
```

Elasticsearch

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ansible-playbook -i inventory.ini play
book.yaml -K
BECOME password:

PLAY [Install and Configure Elasticsearch] ****
TASK [Gathering Facts] ****
ok: [192.168.26.11]

TASK [elasticsearch : Install dependencies on Debian/Ubuntu] ****
ok: [192.168.26.11]

TASK [elasticsearch : Install dependencies on RedHat/CentOS] ****
skipping: [192.168.26.11]

TASK [elasticsearch : Add Elasticsearch GPG key (Ubuntu)] ****
changed: [192.168.26.11]

TASK [elasticsearch : Add Elasticsearch GPG key (CentOS)] ****
skipping: [192.168.26.11]

TASK [elasticsearch : Add Elasticsearch APT repo (Ubuntu)] ****
[changed: [192.168.26.11]

TASK [elasticsearch : Add Elasticsearch YUM repo (CentOS)] ****
skipping: [192.168.26.11]

TASK [elasticsearch : Update APT package cache (Ubuntu)] ****
changed: [192.168.26.11]

TASK [elasticsearch : Install Elasticsearch] ****
ok: [192.168.26.11]

TASK [elasticsearch : Enable and start Elasticsearch service] ****
ok: [192.168.26.11]
```

```
vboxuser@Server1:~$ sudo systemctl status elasticsearch
[sudo] password for vboxuser:
● elasticsearch.service - Elasticsearch
    Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service; enabled; pr>
      Active: active (running) since Fri 2025-10-10 10:18:58 UTC; 26s ago
        Docs: https://www.elastic.co
       Main PID: 1174 (java)
          Tasks: 71 (limit: 12072)
         Memory: 5.5G (peak: 5.5G)
            CPU: 56.151s
           CGroupl: /system.slice/elasticsearch.service
             └─1174 /usr/share/elasticsearch/jdk/bin/java -Xshare:auto -Des.net>
                 2388 /usr/share/elasticsearch/modules/x-pack-ml/platform/linux-x>

Oct 10 10:18:12 Server1 systemd[1]: Starting elasticsearch.service - Elasticsearch
Oct 10 10:18:31 Server1 systemd-entrypoint[1174]: Oct 10, 2025 10:18:31 AM sun.>
Oct 10 10:18:31 Server1 systemd-entrypoint[1174]: WARNING: COMPAT locale provider>
Oct 10 10:18:58 Server1 systemd[1]: Started elasticsearch.service - Elasticsearch
lines 1-16/16 (END)
[1]+  Stopped                  sudo systemctl status elasticsearch
```

Kibana

```
PLAY [Install and Configure Kibana] ****
TASK [Gathering Facts] ****
ok: [192.168.26.11]

TASK [kibana : Install Kibana] ****
ok: [192.168.26.11]

TASK [kibana : Enable and start Kibana] ****
ok: [192.168.26.11]

PLAY [Install and Configure Logstash] ****
TASK [Gathering Facts] ****
ok: [192.168.26.13]

TASK [logstash : Install curl] ****
ok: [192.168.26.13]

TASK [logstash : Import Elastic GPG key (RedHat)] ****
changed: [192.168.26.13]
```

```
TASK [logstash : Add Logstash YUM repo (RedHat)] *****
changed: [192.168.26.13]

TASK [logstash : Add Elastic APT repo (Debian)] *****
skipping: [192.168.26.13]

TASK [logstash : Add Elastic APT key (Debian)] *****
skipping: [192.168.26.13]

TASK [logstash : Update APT package cache] *****
skipping: [192.168.26.13]
```

```
[1]+ Stopped sudo systemctl status elasticsearch
vboxuser@Server1:~$ sudo systemctl status kibana
● kibana.service - Kibana
   Loaded: loaded (/etc/systemd/system/kibana.service; enabled; preset: enabled)
   Active: active (running) since Fri 2025-10-10 10:18:12 UTC; 1min 22s ago
     Docs: https://www.elastic.co/guide/en/kibana/_index.html
   Main PID: 1191 (node)
      Tasks: 11 (limit: 12072)
     Memory: 836.0M (peak: 836.2M)
        CPU: 20.698s
      CGroup: /system.slice/kibana.service
              └─1191 /usr/share/kibana/bin/../node/bin/node /usr/share/kibana/bin/kibana

Oct 10 10:18:12 Server1 systemd[1]: Started kibana.service - Kibana.
Oct 10 10:18:14 Server1 kibana[1191]: Kibana is currently running with legacy O>
lines 1-13/13 (END)
[2]+ Stopped sudo systemctl status kibana
```

Logstash

```
PLAY [Install and Configure Logstash] *****  
  
TASK [Gathering Facts] *****  
ok: [192.168.26.13]  
  
TASK [logstash : Install curl] *****  
ok: [192.168.26.13]  
  
TASK [logstash : Import Elastic GPG key (RedHat)] *****  
changed: [192.168.26.13]  
  
TASK [logstash : Add Logstash YUM repo (RedHat)] *****  
changed: [192.168.26.13]  
  
TASK [logstash : Add Elastic APT repo (Debian)] *****  
skipping: [192.168.26.13]  
  
TASK [logstash : Add Elastic APT key (Debian)] *****  
skipping: [192.168.26.13]  
  
TASK [logstash : Update APT package cache] *****  
skipping: [192.168.26.13]
```

```
TASK [logstash : Install Logstash] *****  
changed: [192.168.26.13]  
  
TASK [logstash : Start and enable Logstash] *****  
changed: [192.168.26.13]  
  
PLAY [Install and Configure Nagios] *****  
  
TASK [Gathering Facts] *****  
ok: [192.168.26.13]
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ssh CentOS@Reyes
ssh: Could not resolve hostname reyes: Temporary failure in name resolution
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ssh Reyes@CentOS
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Fri Oct 10 18:22:18 2025
[Reyes@CentOS ~]$ sudo systemctl status logstash
[sudo] password for Reyes:
● logstash.service - logstash
    Loaded: loaded (/etc/systemd/system/logstash.service; enabled; preset: disabled)
    Active: active (running) since Fri 2025-10-10 18:22:44 PST; 10s ago
      Main PID: 7339 (java)
        Tasks: 15 (limit: 123502)
       Memory: 404.8M (peak: 416.8M)
          CPU: 15.879s
        CGroup: /system.slice/logstash.service
                  └─7339 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseConc>

Oct 10 18:22:44 CentOS systemd[1]: Started logstash.
Oct 10 18:22:45 CentOS logstash[7339]: Using bundled JDK: /usr/share/logstash/jdk/bin/java
Oct 10 18:22:45 CentOS logstash[7339]: OpenJDK 64-Bit Server VM warning: Option lines 1-13/13 (END)
```

Nagios

```
PLAY [Install and Configure Nagios] ****
:
TASK [Gathering Facts] ****
ok: [192.168.26.11]

TASK [nagios : Install Nagios on Ubuntu] ****
changed: [192.168.26.11]

TASK [nagios : Ensure Nagios is running] ****
changed: [192.168.26.11]

PLAY [Install and Configure InfluxDB] ****
:
TASK [Gathering Facts] ****
ok: [192.168.26.11]
```

The screenshot shows the Nagios Core 4.4.6 web interface. The top navigation bar includes a back button, forward button, refresh button, and a link to the Nagios documentation at <http://192.168.26.11/nagios4/>. The main content area features the Nagios Core logo and version information (Nagios® Core™ Version 4.4.6, April 28, 2020). On the left, a navigation menu is displayed under 'General' with sections for Home, Documentation, Current Status, Reports, and System. Under 'Current Status', there are links for Tactical Overview, Map (Legacy), Hosts, Services, Host Groups, Service Groups, and Problems. Under 'Reports', there are links for Availability, Trends (Legacy), Alerts, History, Summary, Histogram (Legacy), Notifications, and Event Log. Under 'System', there are links for Comments, Downtime, Process Info, and Performance Info. A 'Quick Search' input field is also present.

InfluxDB

```
PLAY [Install and Configure InfluxDB] ****
TASK [Gathering Facts] ****
ok: [192.168.26.11]

TASK [influxdb : Install InfluxDB] ****
changed: [192.168.26.11]

TASK [influxdb : Enable and start InfluxDB] ****
ok: [192.168.26.11]

PLAY [Install and Configure Grafana] ****
TASK [Gathering Facts] ****
ok: [192.168.26.13]
```

```
Expanded Security Maintenance for Applications is not enabled.

35 updates can be applied immediately.
12 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Fri Oct 10 10:31:06 2025 from 192.168.26.10
vboxuser@Server1:~$ systemctl status influxdb
● influxdb.service - InfluxDB is an open-source, distributed, time series database
  Loaded: loaded (/usr/lib/systemd/system/influxdb.service; enabled; preset:>)
  Active: active (running) since Fri 2025-10-10 10:29:13 UTC; 5min ago
    Docs: man:influxd(1)
   Main PID: 13459 (influxd)
     Tasks: 8 (limit: 12072)
    Memory: 6.9M (peak: 7.4M)
       CPU: 328ms
      CGroupl: /system.slice/influxdb.service
              └─13459 /usr/bin/influxd -config /etc/influxdb/influxdb.conf
lines 1-10/10 (END)
```

Grafana

```
PLAY [Install and Configure Grafana] ****
TASK [Gathering Facts] ****
ok: [192.168.26.11]

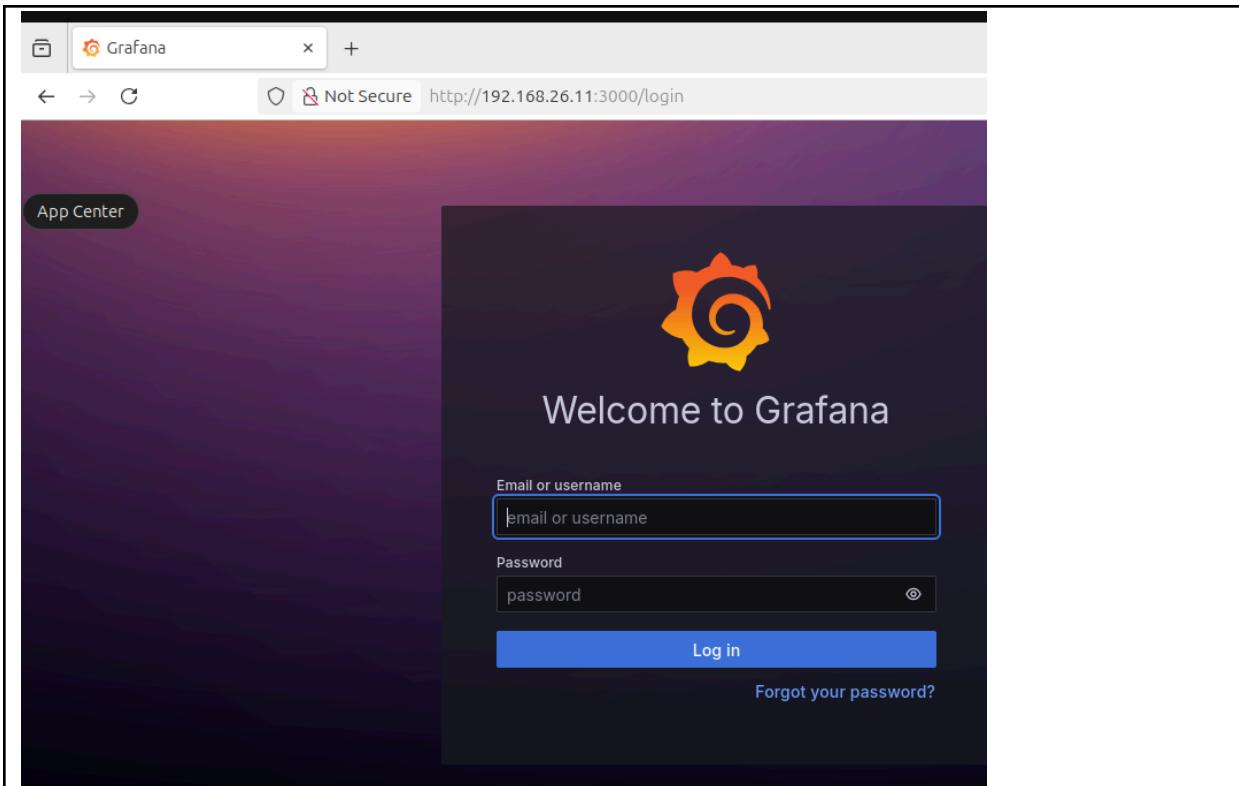
TASK [grafana : Add Grafana APT key] ****
ok: [192.168.26.11]

TASK [grafana : Add Grafana APT repo] ****
ok: [192.168.26.11]

TASK [grafana : Update apt cache] ****
changed: [192.168.26.11]

TASK [grafana : Install Grafana] ****
ok: [192.168.26.11]

TASK [grafana : Enable and start Grafana service] ****
ok: [192.168.26.11]
```



Prometheus

```
PLAY [Install and Configure Prometheus] ****
TASK [Gathering Facts] ****
ok: [192.168.26.11]

TASK [prometheus : Install Prometheus] ****
changed: [192.168.26.11]

TASK [prometheus : Enable and start Prometheus] ****
ok: [192.168.26.11]

PLAY [Install and Configure Apache + PHP] ****
```

```
vboxuser@Server1:~$ systemctl status prometheus
● prometheus.service - Monitoring system and time series database
  Loaded: loaded (/usr/lib/systemd/system/prometheus.service; enabled; preset: enabled)
  Active: active (running) since Fri 2025-10-10 11:08:16 UTC; 2min 34s ago
    Docs: https://prometheus.io/docs/introduction/overview/
          man:prometheus(1)
   Main PID: 31094 (prometheus)
      Tasks: 7 (limit: 12072)
     Memory: 28.2M (peak: 28.6M)
        CPU: 341ms
      CGroup: /system.slice/prometheus.service
              └─31094 /usr/bin/prometheus
lines 1-11/11 (END)
```

Apache + PHP

```
PLAY [Install and Configure Apache + PHP] ****
TASK [Gathering Facts] ****
ok: [192.168.26.11]

TASK [httpd_php : Install Apache] ****
ok: [192.168.26.11]

TASK [httpd_php : Install PHP] ****
changed: [192.168.26.11]

TASK [httpd_php : Enable and start Apache] ****
ok: [192.168.26.11]
```

```
vboxuser@Server1:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
  Active: active (running) since Fri 2025-10-10 10:28:56 UTC; 44min ago
    Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 12408 (apache2)
      Tasks: 9 (limit: 12072)
     Memory: 14.7M (peak: 17.3M)
        CPU: 316ms
      CGroup: /system.slice/apache2.service
              ├─12408 /usr/sbin/apache2 -k start
              ├─12449 /usr/sbin/apache2 -k start
              ├─12450 /usr/sbin/apache2 -k start
              ├─12451 /usr/sbin/apache2 -k start
              ├─12452 /usr/sbin/apache2 -k start
              ├─12453 /usr/sbin/apache2 -k start
              ├─14746 /usr/sbin/apache2 -k start
              ├─14769 /usr/sbin/apache2 -k start
              └─14770 /usr/sbin/apache2 -k start
lines 1-18/18 (END)
```

```
vboxuser@Server1:~$ php -v
PHP 8.3.6 (cli) (built: Jul 14 2025 18:30:55) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.3.6, Copyright (c) Zend Technologies
    with Zend OPcache v8.3.6, Copyright (c), by Zend Technologies
```

mariadb

```
PLAY [Install and Configure MariaDB] ****
TASK [Gathering Facts] ****
ok: [192.168.26.13]

TASK [mariadb : Install MariaDB] ****
ok: [192.168.26.13]

TASK [mariadb : Enable and start MariaDB] ****
ok: [192.168.26.13]

PLAY RECAP ****
192.168.26.11      : ok=29    changed=4      unreachable=0      failed=0      s
kipped=3    rescued=0    ignored=0
192.168.26.13      : ok=9     changed=0      unreachable=0      failed=0      s
kipped=3    rescued=0    ignored=0
```

```
● mariadb.service - MariaDB 10.11.13 database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset: >
   Active: active (running) since Fri 2025-10-10 10:18:14 UTC; 56min ago
     Docs: man:mariadb(8)
           https://mariadb.com/kb/en/library/systemd/
   Main PID: 1273 (mariadb)
     Status: "Taking your SQL requests now..."
       Tasks: 9 (limit: 79678)
      Memory: 107.9M (peak: 112.2M)
        CPU: 1.589s
      CGroup: /system.slice/mariadb.service
              └─1273 /usr/sbin/mariadb

Oct 10 10:18:14 Server1 mariadb[1273]: 2025-10-10 10:18:14 0 [Note] InnoDB: Lo>
Oct 10 10:18:14 Server1 mariadb[1273]: 2025-10-10 10:18:14 0 [Note] Plugin 'FE>
Oct 10 10:18:14 Server1 mariadb[1273]: 2025-10-10 10:18:14 0 [Warning] You nee>
Oct 10 10:18:14 Server1 mariadb[1273]: 2025-10-10 10:18:14 0 [Note] InnoDB: Bu>
Oct 10 10:18:14 Server1 mariadb[1273]: 2025-10-10 10:18:14 0 [Note] Server soc>
Oct 10 10:18:14 Server1 mariadb[1273]: 2025-10-10 10:18:14 0 [Note] /usr/sbin/>
Oct 10 10:18:14 Server1 mariadb[1273]: Version: '10.11.13-MariaDB-0ubuntu0.24.>
Oct 10 10:18:14 Server1 systemd[1]: Started mariadb.service - MariaDB 10.11.13 >
Oct 10 10:18:14 Server1 /etc/mysql/debian-start[1447]: Upgrading MariaDB tables>
Oct 10 10:18:15 Server1 /etc/mysql/debian-start[1503]: Triggering myisam-recover>
lines 1-23
```

4. Document the push and commit from the local repository to GitHub.

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ git add .
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ git commit -m "MIDTERM EXAM"
[main 0268b5b] MIDTERM EXAM
 13 files changed, 334 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yaml
 create mode 100644 inventory.ini
 create mode 100644 playbook.yaml
 create mode 100644 roles/elasticsearch/tasks/main.yml
 create mode 100644 roles/grafana/tasks/main.yml
 create mode 100644 roles/httpd_php/tasks/main.yml
 create mode 100644 roles/influxdb/tasks/main.yml
 create mode 100644 roles/kibana/tasks/main.yml
 create mode 100644 roles/logstash/tasks/main.yml
 create mode 100644 roles/mariadb/tasks/main.yml
 create mode 100644 roles/nagios/tasks/main.yml
 create mode 100644 roles/prometheus/tasks/main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ git push origin main
Enumerating objects: 35, done.
Counting objects: 100% (35/35), done.
Delta compression using up to 2 threads
Compressing objects: 100% (16/16), done.
Writing objects: 100% (34/34), 3.85 KiB | 1.28 MiB/s, done.
Total 34 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To github.com:AlexzanderReyes/CPE_MIDEXAM_REYES.git
 180f221..0268b5b  main -> main
```

The screenshot shows a GitHub repository page for 'CPE_MIDEXAM_REYES'. At the top, there's a navigation bar with 'Pin', 'Watch 0', 'Fork 0', and 'Star 0'. Below the bar, it says 'main' (branch), '1 Branch', '0 Tags', and has a search bar 'Go to file' and a 'Code' dropdown. The repository name 'CPE_MIDEXAM_REYES' is followed by 'Public'. On the right, there's an 'About' section with 'No description, website, or topics provided.' It lists files: 'roles' (MIDTERM EXAM, 4 minutes ago), 'LICENSE' (Initial commit, 2 hours ago), 'README.md' (Initial commit, 2 hours ago), 'ansible.cfg' (MIDTERM EXAM, 4 minutes ago), 'config.yaml' (MIDTERM EXAM, 4 minutes ago), 'inventory.ini' (MIDTERM EXAM, 4 minutes ago), and 'playbook.yaml' (MIDTERM EXAM, 4 minutes ago). Below the files, there's a 'Readme' section with 'README' and 'Apache-2.0 license' links. The 'About' section also includes 'Activity', '0 stars', '0 watching', and '0 forks'. The 'Releases' section says 'No releases published' and has a link to 'Create a new release'. The 'Packages' section says 'No packages published' and has a link to 'Publish your first package'. The repository name 'CPE_MIDEXAM_REYES' is prominently displayed at the bottom.

GitHub link: https://github.com/AlexzanderReyes/CPE_MIDEXAM_REYES#

Conclusions: (link your conclusion from the objective)

- I was able to install, configure, and manage different monitoring tools and LAMP stack using Ansible. The setup was done in separate hosts using a playbook, config file, and inventory. This activity helped me understand how to automate tasks using Infrastructure as Code. All outputs were tested and uploaded to GitHub.