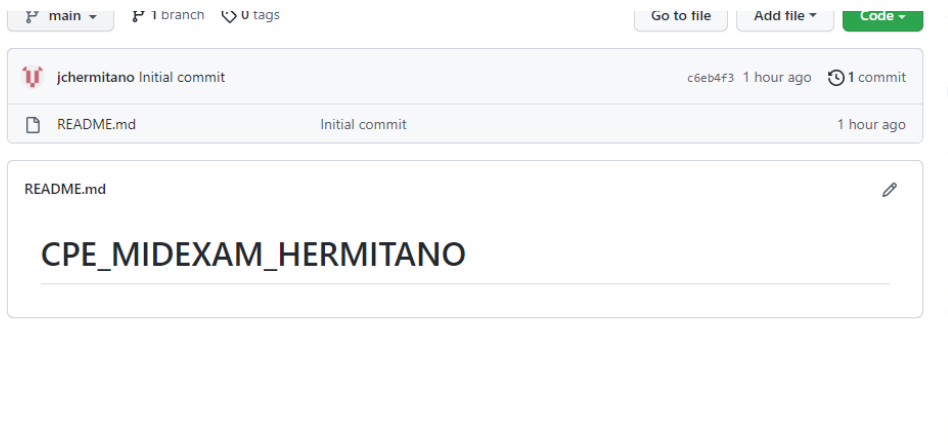


Name: Hermitano, Johnny C.	Date Performed: 10/27/2022
Course/Section: CPE31S23	Date Submitted: 10/27/2022
Instructor: Engr. Jonathan Taylar	Semester and SY: 1st sem sy 2022-2023
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools	
1. Objectives	
Create and design a workflow that 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 seperate 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)	
<p>Step 1. Create your github repository on your github account.</p> 	

Step 2. Clone your github repository.

```
jhermitano@Workstation: ~/CPE_MIDEXAM_HERMITANO
jhermitano@Workstation:~$ git clone git@github.com:jchermitano/CPE_MIDEXAM_HERM
TANO.git
Cloning into 'CPE_MIDEXAM_HERMITANO'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
jhermitano@Workstation:~$ cd CPE_MIDEXAM_HERMITANO
```

Step 3. Insert your inventory and ansible.cfg nano. And you may check if it is working or still have some errors.

```
jhermitano@Workstation:~/CPE_MIDEXAM_HERMITANO$ sudo nano ansible.cfg
[sudo] password for jhermitano:
jhermitano@Workstation:~/CPE_MIDEXAM_HERMITANO$ sudo nano inventory
jhermitano@Workstation:~/CPE_MIDEXAM_HERMITANO$ ansible all -m ping
192.168.56.106 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
192.168.56.112 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
```

nano inventory

```
jhermitano@Workstation: ~/CPE_MIDEXAM_H
GNU nano 6.2 inventory
[all]
192.168.56.106
192.168.56.112

[ubuntu]
192.168.56.106

[centos]
192.168.56.112
```

nano ansible.cfg

```
jhermitano@Workstation: ~/CPE_MIDEXAM_HERMITAN
GNU nano 6.2 ansible.cfg
[defaults]

inventory = inventory
Host_key_checking = False

depracation_warnings = False

remote_user = jhermitano
private_key_file = ~/.ssh/
```

Step 4. Create your config.yml playbook as your main playbook

```
GNU nano 6.2 config.yml *
---
- hosts: all
  become: true
  pre_tasks:

  - name: Install Updates (CentOS)
    tags: always
    dnf:
      update_cache: yes
      changed_when: False
      when: ansible_distribution == "CentOS"

  - name: Install Updates (Ubuntu)
    tags: always
    apt:
      update_cache: yes
      changed_when: False
      when: ansible_distribution == "Ubuntu"

- hosts: ubuntu
  become: true
  roles:
    - nagios

- hosts: all
  become: true
  roles:
    - prometheus

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line M-E Redo
```

```
- hosts: all
  become: true
  roles:
    - Lamp_stack

- hosts: all
  become: true
  roles:
    - elastic_stack

- hosts: all
  become: true
  roles:
    - Grafana

- hosts: all
  become: true
  roles:
    - InfluxDB

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line M-E Redo
```

Step 5. Start creating your installation playbook inside each of your roles.

Nagios (main.yml)

```
GNU nano 6.2 main.yml
- name: Nagios Installaton (Ubuntu)
  apt:
    name:
      - nagios4
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: Nagios Installation (CentOS)
  dnf:
    name:
      - nagios
    state: latest
    update_cache: yes
  when: ansible_distribution == "CentOS"
```

Prometheus(main.yml)

```
ties Terminal Oct 27
jhermitano@Workstation: ~/CPE_MIDEXAM

GNU nano 6.2 mai
- name: Prometheus Installation (Ubuntu)
  tags: ubuntu, prometheus
  apt:
    name: prometheus
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: Pre-requisite of Installation for CentOS
  tags: centos, snapd, epel-release
  yum:
    name:
      - epel-release
      - snapd
    state: latest
  when: ansible_distribution == "CentOS"

- name: Enabling Snapd Sockets for CentOS
  tags: snapd, centos
  command: systemctl enable --now snapd.socket
  when: ansible_distribution == "CentOS"

- name: Prometheus Installation (CentOS)
  tags: centos, prometheus
  command: snap install prometheus --classic
  when: ansible_distribution == "CentOS"
```

Lamp_stack(main.yml)

```
jhermitano@Workstation: ~/CPE_MIDEXAM_HERMITANO/r...
GNU nano 6.2 main.yml
- name: Install apache, php and mariadb for Ubuntu
  tags: apache, mariadb, php, ubuntu
  apt:
    name:
      - apache2
      - libapache2-mod-php
      - mariadb-server
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: Install apache, php and mariadb for CentOS
  tags: apache, mariadb, php, centos
  dnf:
    name:
      - httpd
      - php
      - mariadb-server
    state: latest
    update_cache: yes
  when: ansible_distribution == "CentOS"

- name: Mariadb - Restarting/ Enabling
  service:
    name: mariadb
    state: restarted
    enabled: true
```

elastic_stack(main.yml)

```
GNU nano 6.2 main.y
- name: Install Elastic Stack CentOS
  dnf:
    name:
      - elasticsearch
      - kibana
      - logstash
    state: latest
    update_cache: yes
  when: ansible_distribution == "CentOs"

- name: Install Elastic Stack Ubuntu
  apt:
    name:
      - elasticsearch
      - kibana
      - logstash
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"
```

Grafana(main.yml)

GNU nano 6.2

```
--  
- name: install required packages  
  apt:  
    name:  
      - gnupg2  
      - curl  
      - software-properties  
    state: present  
  when: ansible_distribution == "Ubuntu"  
- name: Install grafana package  
  apt:  
    name: grafana-server  
    state: present  
    update_cache: yes  
  notify:  
    - Start grafana  
    - Enable grafana  
  when: ansible_distribution == "Ubuntu"  
- name: Ensure Nginx is installed  
  apt:  
    name: nginx  
    state: present  
  notify: Start and Enable Nginx  
  when: ansible_distribution == "Ubuntu"  
- name: Create grafana nginx config file  
  copy:  
    dest: /etc/nginx/conf.d/grafana/conf  
    mode: 0755  
    content: |  
      server: {  
        listen 80;  
        server_tokens off;
```



```

}

location\{
    send_timeout 600;
    proxy_send_timeout 600;
    proxy_read_timeout 600;
    proxy_connect_timeout 600;
    proxy_redirect off;
    proxy_set_header Host $host;
    proxy_set_header X-Real-IP $remote_addr;
    proxy_set_header X-Forwarded-For-$proxy_add_x_forwarded_for;
    proxy_set_header X-Forwarded-Host $server_name;
    proxy_set_header X-Forwarded+Forwarded_proto $Scheme;
}
}

when: ansible_distribution == "Ubuntu"

- name: start grafana
  systemd:
    name: grafana-server
    stated: started
  when: ansible_distribution == "Ubuntu"

- name: Enable grafana
  systemd:
    name: grafana-server
    enabled: yes
  when: ansible_distribution == "Ubuntu"

- name: Start and Enable Nginx
  systemd:
    name: nginx
    state: started
    enable: yes
  when: ansible_distribution == "Ubuntu"

```

InfluxDB(main.yml)

```
jhermitano@workstation: ~/CPE_MIDEXAM
GNU nano 6.2
--
name: Install kibana (Ubuntu)
apt:
  name: kibana
  state: latest
  update_cache: yes
when: ansible_distribution == "Ubuntu"
name: Install kibana (Cents)
dnf:
  name: kibana
  state: latest
  update_cache: yes
when: ansible_distribution == "CentOS"
```

Step 6. Run the playbook.

```
jhermitano@workstation: ~/CPE_MIDEXAM
jhermitano@Workstation:~/CPE_MIDEXAM_HERMITANO$ ansible-playbook --ask-become-pass config.yml
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.106]
ok: [192.168.56.112]

TASK [Install Updates (CentOS)] *****
skipping: [192.168.56.106]
ok: [192.168.56.112]

TASK [Install Updates (Ubuntu)] *****
skipping: [192.168.56.112]
ok: [192.168.56.106]

PLAY [ubuntu] *****

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

TASK [nagios : Nagios Installaton (Ubuntu)] *****
ok: [192.168.56.106]

TASK [nagios : Nagios Installation (CentOS)] *****
skipping: [192.168.56.106]

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.112]
ok: [192.168.56.106]
```

```

TASK [prometheus : Prometheus Installation (Ubuntu)] *****
skipping: [192.168.56.112]
ok: [192.168.56.106]

TASK [prometheus : Pre-requisite of Installation for CentOS] *****
skipping: [192.168.56.106]
ok: [192.168.56.112]

TASK [prometheus : Enabling Snapd Sockets for CentOS] *****
skipping: [192.168.56.106]
changed: [192.168.56.112]

TASK [prometheus : Prometheus Installation (CentOS)] *****
skipping: [192.168.56.106]
changed: [192.168.56.112]

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.112]
ok: [192.168.56.106]

TASK [Lamp_stack : Install apache, php and mariadb for Ubuntu] *****
skipping: [192.168.56.112]
ok: [192.168.56.106]

TASK [Lamp_stack : Install apache, php and mariadb for CentOS] *****
skipping: [192.168.56.106]
ok: [192.168.56.112]

TASK [Lamp_stack : Mariadb - Restarting/ Enabling] *****
changed: [192.168.56.106]
changed: [192.168.56.112]

```

```

PLAY [centos] *****

TASK [Gathering Facts] *****
ok: [192.168.56.112]

TASK [elastic_stack : Install Elastic Stack CentOS] *****
skipping: [192.168.56.112]

TASK [elastic_stack : Install Elastic Stack Ubuntu] *****
skipping: [192.168.56.112]

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.112]
ok: [192.168.56.106]

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.106]
ok: [192.168.56.112]

PLAY RECAP *****
192.168.56.106      : ok=11  changed=1  unreachable=0    failed=0    skipped=6    rescued=0
   ignored=0
192.168.56.112    : ok=12  changed=3  unreachable=0    failed=0    skipped=5    rescued=0
   ignored=0

```

Step 7. Check if the installed packages are accessible/running.

Ubuntu 192.168.56.106(nagios)

Nagios: 192.168.56.106

192.168.56.106/nagios4/

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Version 4.4.6

April 28, 2020

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NAGIOS CORE

SOURCEFORGE.NET

Ubuntu 192.168.56.106(prometheus)

Prometheus Time Series (x) +

← → ↻

192.168.56.106:9090/classic/graph

☆

🔒

☰

Prometheus Alerts Graph Status ▾ Help

☐ Enable query history

Expression (press Shift+Enter for newlines)

Execute - insert metric at cursor - ▾

Remove Graph

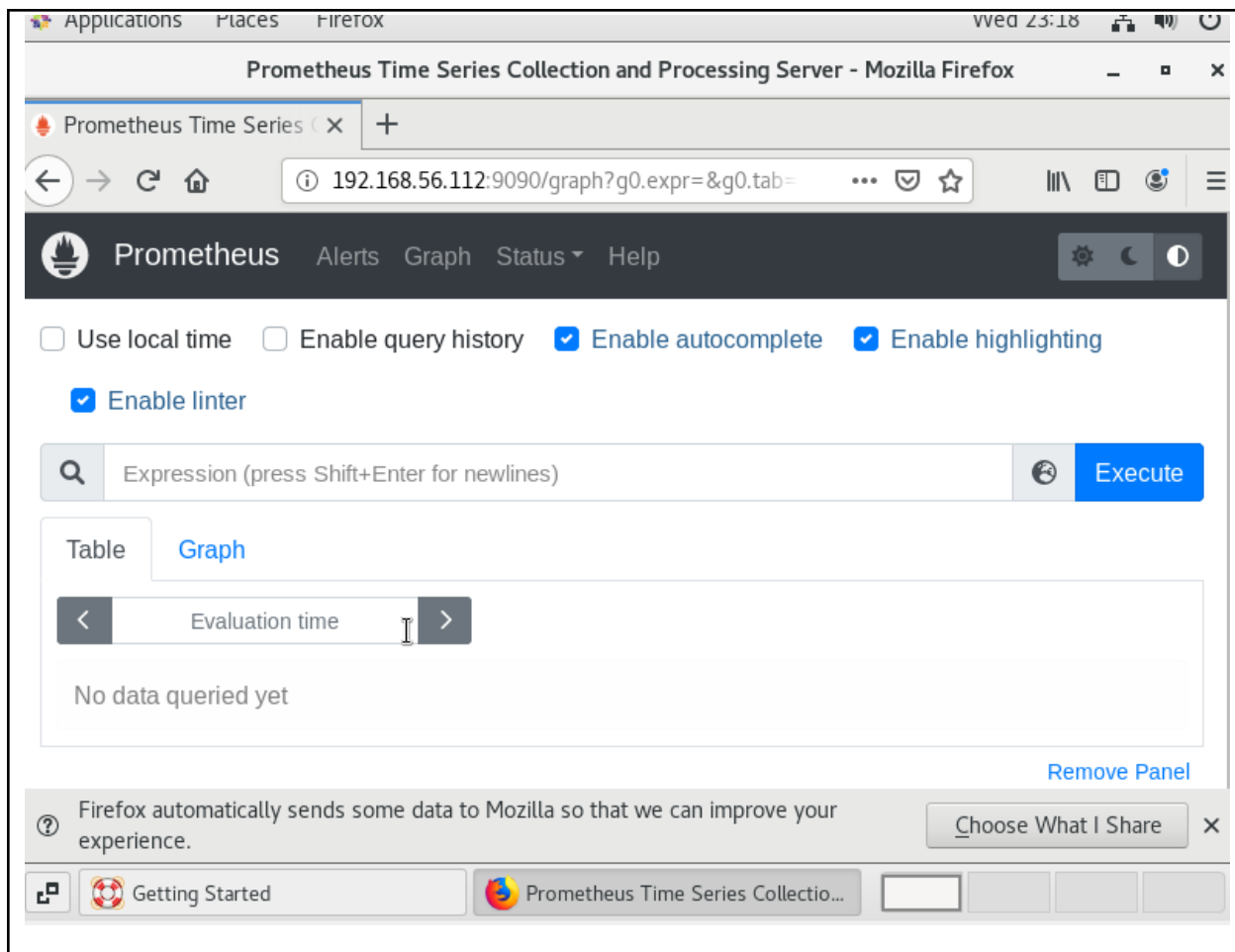
Graph Console

◀ Moment ▶

Element	Value
no data	

Add Graph

centos 192.168.56.112(prometheus)



GitHub link:

https://github.com/jchermitano/CPE_MIDEXAM_HERMITANO.git

Conclusions: (link your conclusion from the objective)

In this exam, I was able to create and design a play with the help of research that installs, configures and manages monitoring tools. At first it was really hard, but as I was moving forward, it became easier. As I passed this exam, I accomplished the objective and learned about create and designing a play that installs, configures and manages monitoring tools at the same time.

Faculty Evaluation:

