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Course/Section: CpE31S4	**Date Submitted: 11/06/2023**
Instructor: Engr. Jonathan Taylar	**Semester and SY: 1st Semester 2023 - 2024**

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

1. Objectives

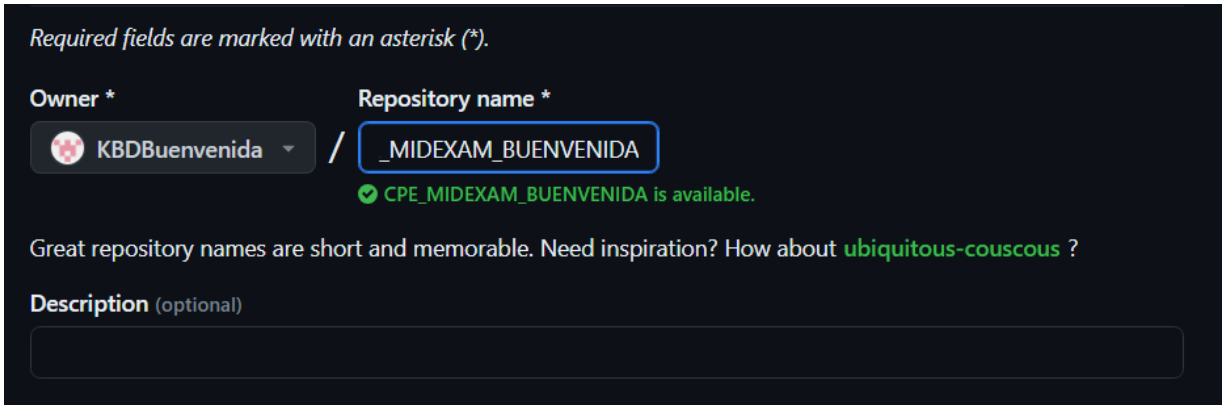
Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.

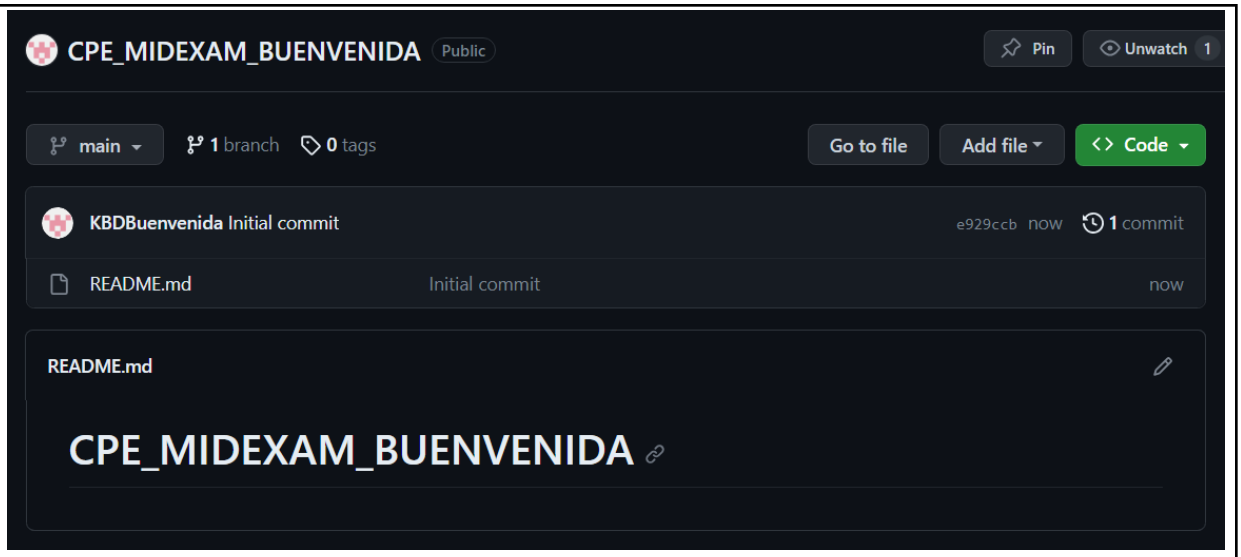
2. Instructions

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 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.

Output (screenshots and explanations)

1. Create a repository in your github account and label it CPE_MIDEXAM_SURNAME.





2. Clone the repository and do the following:

```
ken@controlNode:~$ git clone git@github.com:KBDBuenvenida/CPE_MIDEXAM_BUENVENIDA
.git
Cloning into 'CPE_MIDEXAM_BUENVENIDA'...
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.
ken@controlNode:~$ ls
ansible            Buenvenida_PrelimExam   Downloads  Music       Templates
ansible-workspace  CPE232_Buenvenida       HOA10      Pictures    Videos
Buenvenida_HOA6    CPE_MIDEXAM_BUENVENIDA  HOA9       prometheus
Buenvenida_HOA7    Desktop                 inventory  Public
Buenvenida_HOA8    Documents               main.yml   snap
```

2.1 Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:

INPUT	`ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA$ sudo nano inventory`
PROCESS	GNU nano 6.2 inventory [Ubuntu] 192.168.56.102 [CentOS] 192.168.56.106

INPUT	`ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA$ sudo nano config.yml`

PROCESS	GNU nano 6.2 config.yml --- - hosts: all become: true pre_tasks: - name: Installing dnf and epel-release yum: name: - epel-release - dnf when: ansible_distribution == "CentOS" - name: Update and Upgrade (CentOS) dnf: update_cache: yes state: latest when: ansible_distribution == "CentOS" - name: Update and Upgrade (Ubuntu) apt: upgrade: dist update_cache: yes when: ansible_distribution == "Ubuntu" - hosts: Ubuntu become: true roles: - Ubuntu - hosts: CentOS become: true roles: - CentOS

2.2 Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host

Create a roles directory inside the repository.

INPUT	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA$ mkdir roles
PROCESS	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA$ ls ansible.cfg config.yml inventory README.md roles
OUTPUT	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA$ cd roles ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles$

Create a directory for each of your operating system.

INPUT	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles$ mkdir CentOS ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles$ mkdir Ubuntu
PROCESS	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles$ ls CentOS Ubuntu

OUTPUT	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles$ cd Ubuntu ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/Ubuntu$ ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles$ cd CentOS ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/CentOS$

Create a tasks directory inside each operating system.

	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/CentOS$ mkdir tasks ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/Ubuntu$ mkdir tasks
	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/CentOS$ ls tasks ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/Ubuntu$ ls tasks
	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/CentOS$ cd tasks ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/CentOS/tasks$ ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/Ubuntu$ cd tasks ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/Ubuntu/tasks$

Create a main.yml inside tasks for Ubuntu and CentOS

INPUT	ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/Ubuntu/tasks$ sudo nano main.yml

PROCESS

```
 GNU nano 6.2                                                main.yml *
---
 - name: Installation of dependencies
   apt:
     name:
       - apt-transport-https
       - openjdk-8-jdk
       - software-properties-common
       - wget
     state: latest

 - name: Download of elasticsearch
   tags: CentOS
   get_url:
     url: https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-8.4.3-amd64.deb
     dest: /tmp/elasticsearch-8.4.3-amd64.deb

 - name: Installing elasticsearch
   apt:
     name: /tmp/elasticsearch-8.4.3-amd64.deb

 - name: Enable and start ElasticSearch service
   service:
     name: elasticsearch
     enabled: yes
     state: started

 - name: Starting and Enabling the daemon
   shell: |
     sudo systemctl enable elasticsearch.service
     sleep 10
     sudo systemctl start elasticsearch.service
   ignore_errors: yes

 - name: Download of kibana
   get_url: https://artifacts.elastic.co/downloads/kibana/kibana-8.4.3-amd64.deb
   dest: /tmp/kibana-8.4.3-amd64.deb
```

```
 - name: Download of kibana
   get_url: https://artifacts.elastic.co/downloads/kibana/kibana-8.4.3-amd64.deb
   dest: /tmp/kibana-8.4.3-amd64.deb

 - name: Installing kibana
   apt:
     deb: /tmp/kibana-8.4.3-amd64.deb

 - name: Reloading of daemon
   command: /bin/systemctl daemon-reload

 - name: Enable and start Kibana Service
   service:
     name: kibana
     enabled: true
     state: restarted

 - name: Downloading of logstash
   get_url:
     url: https://artifacts.elastic.co/downloads/logstash/logstash-8.4.3-amd64.deb
     dest: /tmp/logstash-8.4.3-amd64.deb

 - name: Installing logstash
   apt:
     deb: /tmp/logstash-8.4.3-amd64.deb

 - name: Reloading of daemon
   command: /bin/systemctl daemon-reload

 - name: Enable and Start Logstash service
   service:
     name: logstash
```

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

OUTPUT

CentOS main.yml

INPUT

```
ken@controlNode:~/CPE_MIDEXAM_BUENVENIDA/roles/CentOS/tasks$ sudo nano main.yml
```

PROCESS

```
 GNU nano 6.2                                                  main.yml
---
  - name: Download of elasticsearch
    tags: CentOS
    get_url:
      url: https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-8.4.3-x86_64.rpm
      dest: /tmp/elasticsearch-8.4.3-x86_64.rpm

  - name: Installing elasticsearch
    tags: CentOS
    yum:
      name: /tmp/elasticsearch-8.4.3-x86_64.rpm
      state: present

  - name: Enable and start ElasticSearch service
    service:
      name: elasticsearch
      enabled: yes
      state: started

  - name: Download of kibana
    rpm_key:
      state: present
      key: https://artifacts.elastic.co/GPG-KEY-elasticsearch

  - name: Adding kibana to rpm repository
    copy:
      src: kibana.repo
      dest: /etc/yum.repos.d/kibana.repo
      owner: root
      group: root
      mode: 777

  - name: Update repository for kibana
    yum:
      name:
        - kibana
```

```
 GNU nano 6.2                                                  main.yml
  - name: Update repository for kibana
    yum:
      name:
        - kibana
      state: latest

  - name: Opening port for Kibana
    firewalld:
      port: 5601/tcp
      zone: public
      permanent: yes
      state: enabled

  - name: Enable and start Kibana Service
    service:
      name: kibana
      enabled: true
      state: restarted

  - name: Download and Installing public signing key
    tags: CentOS
    rpm_key:
      state: present
      key: https://artifacts.elastic.co/GPG-KEY-elasticsearch

  - name: Creating a repo file for Logstash
    tags: CentOS
    copy:
      src: logstash.repo
      dest: /etc/yum.repos.d/logstash.repo
      owner: root
      group: root
      mode: 0777

  - name: Update repo
    dnf:
```

```
GNU nano 6.2                                                    main.yml
  tags: CentOS
  rpm_key:
    state: present
    key: https://artifacts.elastic.co/GPG-KEY-elasticsearch

- name: Creating a repo file for Logstash
  tags: CentOS
  copy:
    src: logstash.repo
    dest: /etc/yum.repos.d/logstash.repo
    owner: root
    group: root
    mode: 0777

- name: Update repo
  dnf:
    update_cache: yes

- name: Installing logstash
  dnf:
    name:
      - logstash
    state: latest

- name: Opening port for Logstash
  shell: |
    sudo firewall-cmd --permanent --zone=public --add-port=9600/tcp
    sleep 10
    sudo firewall-cmd --reload

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

OUTPUT	

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

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

GitHub link:

https://github.com/KBDBuenvenida/CPE_MIDEXAM_BUENVENIDA

Conclusions: (link your conclusion from the objective)

I couldn't finish the skills exam due to some errors that I have encountered, and I wasn't able to fix it in time. I know how to do it but I ran out of time trying to fix my virtual machine.