

<b>Name: Hazel Manuel</b>	<b>Date Performed: 10/10</b>
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<b>Instructor: Engr. Valenzuela</b>	<b>Semester and SY: 1st</b>

### **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**

**Creating New Repository**

In this picture, I have created a new repository in the Github

The screenshot shows a GitHub repository named 'CPE\_MIDEXAM\_MANUEL'. The repository is public and contains one commit by the user 'bluberi-obsessed' labeled 'Initial commit' made 2 minutes ago. The commit hash is 796f365. The repository has a main branch and a README.md file. The GitHub interface includes standard navigation links like Code, Issues, Pull requests, Actions, Projects, Wiki, and Security.

<h3>Cloning Repository</h3> <p>Github</p> <p>Successfully cloned the github repository by copying the ssh link in github and git cloning it in the local machine</p>	<pre>hazel@LocalMachine:~\$ git clone git@github.com:bluberi-obsessed/CPE_MIDEXAM_MANUEL.git Cloning into 'CPE_MIDEXAM_MANUEL'... 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. hazel@LocalMachine:~\$ ls CPE232_Manuel    Documents  Manuel_PrelimExam  Public      Videos CPE_MIDEXAM_MANUEL Downloads  Music           snap Desktop          .Machine   Pictures        Templates</pre>
<h3>Creating Roles Directory</h3> <p>creating a role directory where each signifies the 2 activities I need to do. Furthermore, I have also copied and pasted the config.yaml in each task directory of the roles.</p>	<pre>hazel@LocalMachine:~/CPE_MIDEXAM_MANUEL\$ ls roles/*/* roles/Act2.3/tasks: config.yaml  roles/Act2.4/tasks: config.yaml  roles/base/tasks: config.yaml</pre>
<h3>2.3</h3> <p>Running the playbook, however, is unable to install grafana.</p>	<pre>PLAY [all] **** TASK [Gathering Facts] **** ok: [192.168.56.105] ok: [192.168.56.113]  TASK [Install Updates (CentOS)] **** skipping: [192.168.56.105] ok: [192.168.56.113]  TASK [Install Updates (Ubuntu)] **** skipping: [192.168.56.113] ok: [192.168.56.105]  PLAY [ubuntu] **** TASK [Gathering Facts] **** ok: [192.168.56.105]  TASK [Installing Grafana, Prometheus, Influxdb in Ubuntu] **** fatal: [192.168.56.105]: FAILED! =&gt; {"changed": false, "msg": "No package matching 'grafana' is available"}</pre> <pre>PLAY RECAP **** 192.168.56.105 : ok=3    changed=0    unreachable=0    failed=1    skipped=1    resc ued=0    ignored=0 192.168.56.113 : ok=2    changed=0    unreachable=0    failed=0    skipped=1    resc ued=0    ignored=0  hazel@LocalMachine:~/CPE_MIDEXAM_MANUEL\$</pre>

## 2.4

In this picture, we have run the playbook which shows that it had the playbook have conducted changes to certain servers. In this part we are able to successfully installed the needed packages for Lamp Stack.

```
hazel@LocalMachine:~/CPE_MIDEXAM_MANUEL$ ansible-playbook ./roles/Act2.4/tasks/config.yaml -K  
BECOME password:  
  
PLAY [all] *****  
  
TASK [Gathering Facts] *****  
ok: [192.168.56.105]  
ok: [192.168.56.113]  
  
TASK [Install Updates (CentOS)] *****  
skipping: [192.168.56.105]  
ok: [192.168.56.113]  
  
TASK [Install Updates (Ubuntu)] *****  
skipping: [192.168.56.113]  
ok: [192.168.56.105]  
  
PLAY [ubuntu] *****  
  
TASK [Gathering Facts] *****  
ok: [192.168.56.105]  
  
TASK [Install unzip] *****  
ok: [192.168.56.105]  
  
TASK [Download Apache zip] *****  
changed: [192.168.56.105]  
  
TASK [Unarchive Apache zip] *****  
changed: [192.168.56.105]  
  
TASK [Download php zip] *****  
changed: [192.168.56.105]  
  
TASK [Unarchive php zip] *****  
changed: [192.168.56.105]  
  
TASK [Download mariadb zip] *****  
changed: [192.168.56.105]  
  
TASK [Unarchive mariadb zip] *****  
changed: [192.168.56.105]  
  
PLAY [centos] *****  
  
TASK [Gathering Facts] *****  
ok: [192.168.56.113]  
  
TASK [Install unzip] *****  
ok: [192.168.56.113]  
  
TASK [Download Apache zip] *****  
changed: [192.168.56.113]  
  
TASK [Unarchive Apache zip] *****  
changed: [192.168.56.113]  
  
TASK [Download php zip] *****  
changed: [192.168.56.113]  
  
TASK [Unarchive php zip] *****  
changed: [192.168.56.113]  
  
TASK [Download mariadb zip] *****  
changed: [192.168.56.113]  
  
TASK [Unarchive mariadb zip] *****  
changed: [192.168.56.113]  
  
PLAY RECAP *****  
192.168.56.105 : ok=10 changed=6 unreachable=0 failed=0 skipped=1 resc  
ued=0 ignored=0  
  
PLAY RECAP *****  
192.168.56.105 : ok=10 changed=6 unreachable=0 failed=0 skipped=1 resc  
ued=0 ignored=0  
192.168.56.113 : ok=10 changed=6 unreachable=0 failed=0 skipped=1 resc  
ued=0 ignored=0
```

Verifying that the packages have been installed in the servers

**GitHub link:**

[https://github.com/bluberi-obsessed/CPE\\_MIDEXAM\\_MANUEL.git](https://github.com/bluberi-obsessed/CPE_MIDEXAM_MANUEL.git)

**Conclusions:** (link your conclusion from the objective)

In this midterm exam, I have implemented an installation and started this service in the Control Node. To achieve all of this in one run, I implemented Ansible roles so that it can load the tasks of the playbook depending on the file structure. This has allowed us to manage the files much more clearly and only made some changes depending on the tasks that each role have. It was quite difficult and I had to do a lot of debugging to make sure all of it works. Overall, I have hopefully made a playbook where ansible roles is implemented.

## CONFIG PLAYBOOK

```
None

---

- hosts: all
  become: true
  pre_tasks:

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

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

- hosts: all
  become: true
  roles:
    - ~/CPE_MIDEXAM_MANUEL/roles/base

- hosts: all
  become: true
  roles:
    - ~/CPE_MIDEXAM_MANUEL/roles/Act2.4

- hosts: all
  become: true
  roles:
    - ~/CPE_MIDEXAM_MANUEL/roles/Act2.4
```

## CONFIG PLAYBOOK: BASE

```
None
```

```
---
```

```
- hosts: all
  become: true
  pre_tasks:

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

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

- hosts: ubuntu
  become: true
  tasks:

    - name: Installing Grafana, Prometheus, Influxdb in Ubuntu
      apt:
        name:
          - grafana
          - prometheus
          - influxdb
        state: latest

- hosts: centos
  become: true
  tasks:
    - name: Installing Grafana, Prometheus, Influxdb in CentOS
      apt:
        name:
          - grafana
          - prometheus
          - influxdb
```

```
state: latest

- hosts: ubuntu
become: true
tasks:

- name: Install unzip
  package:
    name: unzip
    state: present

- name: Download Apache zip
  get_url:
    url: https://dlcdn.apache.org/httpd/httpd-2.4.65.tar.bz2
    dest: /tmp/httpd-2.4.65.tar.bz2
    mode: 0644

- name: Unarchive Apache zip
  unarchive:
    src: /tmp/httpd-2.4.65.tar.bz2
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

- name: Download php zip
  get_url:
    url: https://www.php.net/distributions/php-8.4.13.tar.gz
    dest: /tmp/php-8.4.13.tar.gz
    mode: 0644

- name: Unarchive php zip
  unarchive:
    src: /tmp/php-8.4.13.tar.gz
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

- name: Download mariadb zip
  get_url:
    url:
https://ftp/ubuntu-tw.org/mirror/mariadb//mariadb-12.0.2/bintar-linux-systemd-x86_64/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
```

```
dest: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
mode: 0644

- name: Unarchive mariadb zip
  unarchive:
    src: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

- hosts: centos
  become: true
  tasks:
    - name: Install unzip
      package:
        name: unzip
        state: present

    - name: Download Apache zip
      get_url:
        url: https://dlcdn.apache.org/httpd/httpd-2.4.65.tar.bz2
        dest: /tmp/httpd-2.4.65.tar.bz2
        mode: 0644

    - name: Unarchive Apache zip
      unarchive:
        src: /tmp/httpd-2.4.65.tar.bz2
        dest: /usr/local/bin
        remote_src: yes
        mode: 0755
        owner: root
        group: root

    - name: Download php zip
      get_url:
        url: https://www.php.net/distributions/php-8.4.13.tar.gz
        dest: /tmp/php-8.4.13.tar.gz
        mode: 0644

    - name: Unarchive php zip
      unarchive:
        src: /tmp/php-8.4.13.tar.gz
        dest: /usr/local/bin
        remote_src: yes
        mode: 0755
```

```
    owner: root
    group: root

- name: Download mariadb zip
  get_url:
    url:
      https://ftp.ubuntu-tw.org/mirror/mariadb//mariadb-12.0.2/bintar-linux-systemd-x
      86_64/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    dest: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    mode: 0644

- name: Unarchive mariadb zip
  unarchive:
    src: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root
```

## CONFIG PLAYBOOK: 2.3

```
None

---

- hosts: all
  become: true
  pre_tasks:

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

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

- hosts: ubuntu
  become: true
  tasks:

    - name: Installing Grafana, Prometheus, Influxdb in Ubuntu
      apt:
        name:
          - grafana
          - prometheus
          - influxdb
        state: latest

- hosts: centos
  become: true
  tasks:
    - name: Installing Grafana, Prometheus, Influxdb in CentOS
      apt:
        name:
          - grafana
          - prometheus
          - influxdb
        state: latest
```



## CONFIG PLAYBOOK: 2.4

```
None

---

- hosts: all
  become: true
  pre_tasks:

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

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

- hosts: ubuntu
  become: true
  tasks:

    - name: Install unzip
      package:
        name: unzip
        state: present

    - name: Download Apache zip
      get_url:
        url: https://dlcdn.apache.org/httpd/httpd-2.4.65.tar.bz2
        dest: /tmp/httpd-2.4.65.tar.bz2
        mode: 0644

    - name: Unarchive Apache zip
      unarchive:
        src: /tmp/httpd-2.4.65.tar.bz2
        dest: /usr/local/bin
        remote_src: yes
        mode: 0755
        owner: root
        group: root
```

```

- name: Download php zip
  get_url:
    url: https://www.php.net/distributions/php-8.4.13.tar.gz
    dest: /tmp/php-8.4.13.tar.gz
    mode: 0644

- name: Unarchive php zip
  unarchive:
    src: /tmp/php-8.4.13.tar.gz
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

- name: Download mariadb zip
  get_url:
    url:
      https://ftp.ubuntu-tw.org/mirror/mariadb//mariadb-12.0.2/bintar-linux-systemd-x86_64/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    dest: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    mode: 0644

- name: Unarchive mariadb zip
  unarchive:
    src: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

- hosts: centos
  become: true
  tasks:
    - name: Install unzip
      package:
        name: unzip
        state: present

    - name: Download Apache zip
      get_url:
        url: https://dlcdn.apache.org/httpd/httpd-2.4.65.tar.bz2
        dest: /tmp/httpd-2.4.65.tar.bz2
        mode: 0644

```

```

- name: Unarchive Apache zip
  unarchive:
    src: /tmp/httpd-2.4.65.tar.bz2
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

- name: Download php zip
  get_url:
    url: https://www.php.net/distributions/php-8.4.13.tar.gz
    dest: /tmp/php-8.4.13.tar.gz
    mode: 0644

- name: Unarchive php zip
  unarchive:
    src: /tmp/php-8.4.13.tar.gz
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

- name: Download mariadb zip
  get_url:
    url:
      https://ftp.ubuntu-tw.org/mirror/mariadb//mariadb-12.0.2/bintar-linux-systemd-x86_64/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
      dest: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
      mode: 0644

- name: Unarchive mariadb zip
  unarchive:
    src: /tmp/mariadb-12.0.2-linux-systemd-x86_64.tar.gz
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root

```

## MAIN CONFIG

None