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Course/Section: CPE31S4	**Date Submitted:** October 10, 2025
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Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

1. Objectives

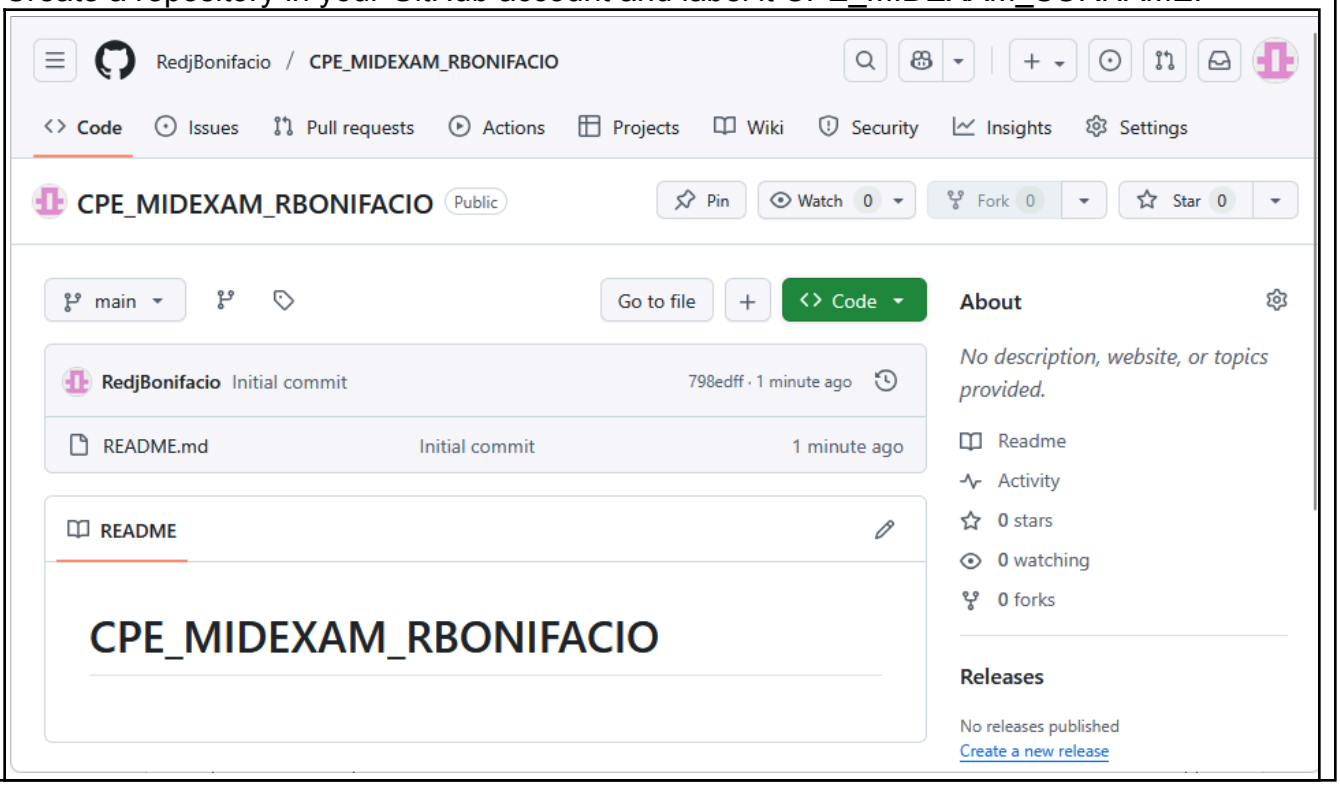
Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.

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.

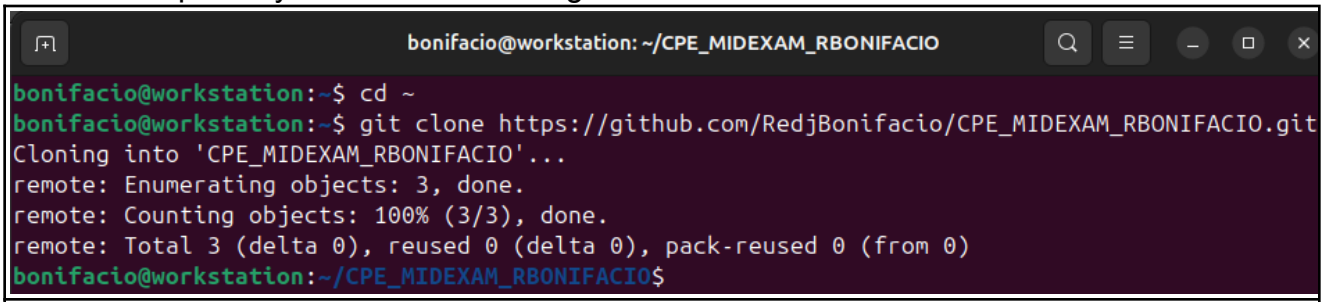
3. Output (screenshots and explanations)

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



The figure above shows the creation of a new repository ‘CPE_MIDEXAM_RBONIFACIO’ in github, with the initialization of README.md

2. Clone the repository and do the following:



The figure above shows the cloning of CPE_MIDEXAM_RBONIFACIO repository in the Local Machine/

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

config.yml

inventory.ini

```
  GNU nano 7.2                  inventory.ini
# ------------------------------------------------------------
# 2.2
[elasticsearch]
elastic1 ansible_host=192.168.56.107 ansible_user=bonifacio
[kibana]
kibana1 ansible_host=192.168.56.107 ansible_user=bonifacio
[logstash]
logstash1 ansible_host=192.168.56.133 ansible_user=redj3bonifacio
# -------
[nagios]
nagios1 ansible_host=192.168.56.111 ansible_user=bonifacio



# ------------------------------------------------------------
# 2.4

[httpd_php]
lamp1 ansible_host=192.168.56.107 ansible_user=bonifacio

[mariadb]
lamp2 ansible_host=192.168.56.133 ansible_user=redj3bonifacio
```

common.yml

```
  GNU nano 7.2                    common.yml

- hosts: all
  become: yes
  tasks:
    - name: Update apt
      apt:
        update_cache: yes

    - name: Install common packages
      apt:
        name: "{{ common_packages }}"
        state: present
```

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

```
  GNU nano 7.2                  elastic_stack.yml

- hosts: elasticsearch
  become: yes
  tasks:
    - name: Install Elasticsearch
      apt:
        name: elasticsearch
        state: present

- hosts: kibana
  become: yes
  tasks:
    - name: Install Kibana
      apt:
        name: kibana
        state: present

- hosts: logstash
  become: yes
  tasks:
    - name: Install Logstash
      apt:
        name: logstash
        state: present
```

```
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ ansible-playbook -i inventory.ini elastic_stack
.yml -K
BECOME password:

PLAY [elasticsearch] ***********************************************************************
******************

TASK [Gathering Facts] *********************************************************************
******************
ok: [elastic1]

TASK [Install Elasticsearch] ***************************************************************
******************
fatal: [elastic1]: FAILED! => {"changed": false, "msg": "No package matching 'elasticsearch' is
 available"}

PLAY RECAP *********************************************************************************
******************
elastic1                   : ok=1    changed=0    unreachable=0    failed=1    skipped=0    res
cued=0    ignored=0
```

```
  GNU nano 7.2                  nagios.yml
- hosts: nagios
  become: yes
  tasks:
    - name: Install Nagios
      apt:
        name: nagios4
        state: present
```

```
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ ansible-playbook -i inventory.ini nagios.yml -K
BECOME password:

PLAY [nagios] ******************************************************************************
****************************************************

TASK [Gathering Facts] *********************************************************************
****************************************************
ok: [nagios1]

TASK [Install Nagios] **********************************************************************
****************************************************

changed: [nagios1]

PLAY RECAP *********************************************************************************
****************************************************
nagios1                    : ok=2    changed=1    unreachable=0    failed=0    skipped=0    res
cued=0    ignored=0
```

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

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

```
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ nano elastic_stack.yml
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ ansible-playbook -i inventory.ini lamp.yml -K
BECOME password:

PLAY [httpd_php] ***************************************************************************************************
************

TASK [Gathering Facts] *********************************************************************************************
************
ok: [lamp1]

TASK [Install Apache and PHP] **************************************************************************************
************
ok: [lamp1]

PLAY [mariadb] *****************************************************************************************************
************

TASK [Gathering Facts] *********************************************************************************************
************
ok: [lamp2]

TASK [Install MariaDB] *********************************************************************************************
************
ok: [lamp2]

PLAY RECAP *********************************************************************************************************
************
lamp1                      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

lamp2                      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
  GNU nano 7.2                    lamp.yml
- hosts: httpd_php
  become: yes
  tasks:
    - name: Install Apache and PHP
      apt:
        name:
          - apache2
          - php
        state: present

- hosts: mariadb
  become: yes
  tasks:
    - name: Install MariaDB
      apt:
        name: mariadb-server
        state: present
```

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.

```
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ git commit -m "Midterm Exam - Complete Ansible
Setup"
[main d86d2d6] Midterm Exam - Complete Ansible Setup
 6 files changed, 97 insertions(+)
 create mode 100644 common.yml
 create mode 100644 config.yml
 create mode 100644 elastic_stack.yml
 create mode 100644 inventory.ini
 create mode 100644 lamp.yml
 create mode 100644 nagios.yml
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ git push origin main
Username for 'https://github.com': RedjBonifacio
Password for 'https://RedjBonifacio@github.com':
remote: Invalid username or token. Password authentication is not supported for Git operations.
fatal: Authentication failed for 'https://github.com/RedjBonifacio/CPE_MIDEXAM_RBONIFACIO.git/'
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ git push origin main
Username for 'https://github.com': RedjBonifacio
Password for 'https://RedjBonifacio@github.com':
remote: Invalid username or token. Password authentication is not supported for Git operations.
fatal: Authentication failed for 'https://github.com/RedjBonifacio/CPE_MIDEXAM_RBONIFACIO.git/'
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ git add .
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ git commit -m "Midterm Exam - Complete Ansible
Setup"
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
bonifacio@workstation:~/CPE_MIDEXAM_RBONIFACIO$ git push origin main
Username for 'https://github.com': RedjBonifacio
Password for 'https://RedjBonifacio@github.com':
remote: Invalid username or token. Password authentication is not supported for Git operations.
fatal: Authentication failed for 'https://github.com/RedjBonifacio/CPE_MIDEXAM_RBONIFACIO.git/'
```

5. Finally, paste also the link of your GitHub repository in the documentation.

https://github.com/RedjBonifacio/CPE_MIDEXAM_RBONIFACIO.git

GitHub link:

https://github.com/RedjBonifacio/CPE_MIDEXAM_RBONIFACIO.git

Conclusions: (link your conclusion from the objective)

Instead of manually configuring each server, I used structured inventory files and reusable playbooks to ensure consistency, speed, and reliability in the installation of Elastic Stack, Nagios, and LAMP stack.