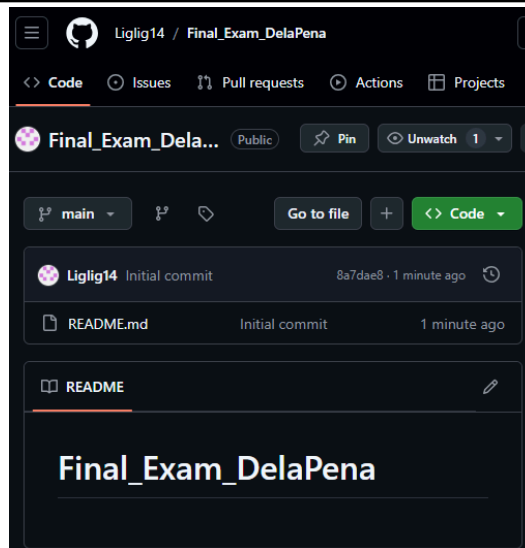| Name: Jose Mari Tan Dela Peña	Date Performed: 12/04/2024
Course/Section: CPE31S2	Date Submitted: 12/04/2024
Instructor: Engr. Robin Valenzuela	Semester and SY: 1st Sem, 2024 - 2025

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 and label it as "Final_Exam_Surname"

2. Clone your new repository in your VM.

3. Create an Ansible playbook that does the following with an input of a config.yaml file and structure inventory file.

3.1 Install and configure one enterprise service that can be installed in Debian and Centos servers

3.2 Install and configure one monitoring tool that can be installed in Debian and Centos servers (if it is a stack there should be option of different host)

4.4 Change Motd as "Ansible Managed by <username>"

4. Push and commit your files in GitHub

5. Make sure to show evidence of input (codes) process (codes successfully running) and output (evidence of installation)

6. For your final exam to be counted, please paste your repository link as an answer in this exam.

3. Output (screenshots and explanations)

Create a repository and label it as "Final_Exam_Surname"

Clone your new repository in your VM.

```
jose@workstation:~$ git clone git@github.com:Liglig14/Final_Exam_De
laPena.git
Cloning into 'Final_Exam_DelaPena'...
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.
jose@workstation:~$ 
```

Create an Ansible playbook that does the following with an input of a config.yaml file and structure inventory file.

```
jose@workstation:~/Final_Exam_DelaPena$ ls
ansible.cfg  install.yml  inventory  README.md  roles
```

Change Motd as "Ansible Managed by jose"

```
jose@workstation:~/Final_Exam_DelaPena$ cat /etc/motd
###################################################################
            Ansible Managed by jose
###################################################################
```

Main tasks:

Install and configure one enterprise service that can be installed in Debian and Centos servers

Install and configure one monitoring tool that can be installed in Debian and Centos servers (if it is a stack there should be option of different host)

Workstation

Samba (Enterprise Service):

```
jose@workstation:~/Final_Exam_DelaPena$ systemctl status smb
● smbd.service - Samba SMB Daemon
     Loaded: loaded (/usr/lib/systemd/system/smbd.service; enabled; preset: enabled)
     Active: active (running) since Wed 2024-12-04 09:51:47 PST; 11min ago
       Docs: man:smbd(8)
             man:samba(7)
             man:smb.conf(5)
    Process: 47439 ExecCondition=/usr/share/samba/is-configured smb (code=exited, status=0/SUCCESS)
   Main PID: 47442 (smbd)
     Status: "smbd: ready to serve connections..."
      Tasks: 3 (limit: 4610)
     Memory: 7.5M (peak: 8.0M)
        CPU: 68ms
     CGroup: /system.slice/smbd.service
             ├─47442 /usr/sbin/smbd --foreground --no-process-group
             ├─47445 "smbd: notifyd" .
             └─47446 "smbd: cleanupd "

Dec 04 09:51:47 workstation systemd[1]: Starting smbd.service - Samba SMB Daemon...
Dec 04 09:51:47 workstation (smbd)[47442]: smbd.service: Referenced but unset environment variable evalu
Dec 04 09:51:47 workstation smbd[47442]: [2024/12/04 09:51:47.100804,  0] source3/smbd/server.c:1746(mai
Dec 04 09:51:47 workstation smbd[47442]:   smbd version 4.19.5-Ubuntu started.
Dec 04 09:51:47 workstation smbd[47442]:   Copyright Andrew Tridgell and the Samba Team 1992-2023
Dec 04 09:51:47 workstation systemd[1]: Started smbd.service - Samba SMB Daemon.
lines 1-23/23 (END)
```

Nagios (Monitoring Tool):

```
jose@workstation:~/Final_Exam_DelaPena$ systemctl status nagios4
● nagios4.service - nagios4
     Loaded: loaded (/usr/lib/systemd/system/nagios4.service; enabled; preset: enabled)
     Active: active (running) since Wed 2024-12-04 07:47:08 PST; 1h 6min ago
       Docs: man:nagios4
   Main PID: 976 (nagios4)
      Tasks: 6 (limit: 4610)
     Memory: 4.1M (peak: 6.0M swap: 880.0K swap peak: 1.0M)
        CPU: 1.524s
     CGroup: /system.slice/nagios4.service
             ├─ 976 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg
             ├─ 995 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─ 996 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─ 998 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─1000 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             └─1032 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg

Dec 04 08:05:03 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;WARNING;
Dec 04 08:06:03 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;WARNING;
Dec 04 08:11:03 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;CRITICAL
Dec 04 08:16:03 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;WARNING;
Dec 04 08:41:03 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;OK;HARD;
Dec 04 08:46:23 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;WARNING;
Dec 04 08:47:26 workstation nagios4[976]: Auto-save of retention data completed successf
Dec 04 08:47:26 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;WARNING;
Dec 04 08:48:26 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;WARNING;
Dec 04 08:49:26 workstation nagios4[976]: SERVICE ALERT: localhost;Current Load;WARNING;
lines 1-26/26 (END)
```

Ubuntu Manage Node

Samba (Enterprise Service):

```
jose@server1:~$ systemctl status smb
● smbd.service - Samba SMB Daemon
     Loaded: loaded (/usr/lib/systemd/system/smbd.service; enabled; preset: enabled)
     Active: active (running) since Wed 2024-12-04 09:51:47 PST; 13min ago
       Docs: man:smbd(8)
             man:samba(7)
             man:smb.conf(5)
    Process: 24095 ExecCondition=/usr/share/samba/is-configured smb (code=exited, status=0/SUCCESS)
   Main PID: 24098 (smbd)
     Status: "smbd: ready to serve connections..."
      Tasks: 3 (limit: 4615)
     Memory: 7.5M (peak: 7.8M)
        CPU: 96ms
     CGroup: /system.slice/smbd.service
             ├─24098 /usr/sbin/smbd --foreground --no-process-group
             ├─24101 "smbd: notifyd" .
             └─24102 "smbd: cleanupd "

Dec 04 09:51:46 server1 systemd[1]: Starting smbd.service - Samba SMB Daemon...
Dec 04 09:51:46 server1 (smbd)[24098]: smbd.service: Referenced but unset environment variable eval
Dec 04 09:51:46 server1 smbd[24098]: [2024/12/04 09:51:46.973633,  0] source3/smbd/server.c:1746(ma
Dec 04 09:51:46 server1 smbd[24098]:   smbd version 4.19.5-Ubuntu started.
Dec 04 09:51:46 server1 smbd[24098]:   Copyright Andrew Tridgell and the Samba Team 1992-2023
Dec 04 09:51:47 server1 systemd[1]: Started smbd.service - Samba SMB Daemon.
lines 1-23/23 (END)
```

Nagios (Monitoring Tool):

```
jose@server1:~$ systemctl status nagios4
● nagios4.service - nagios4
     Loaded: loaded (/usr/lib/systemd/system/nagios4.service; enabled; preset: enabled)
     Active: active (running) since Wed 2024-12-04 08:04:13 PST; 51min ago
       Docs: man:nagios4
   Main PID: 5122 (nagios4)
      Tasks: 6 (limit: 4615)
     Memory: 5.5M (peak: 10.4M)
        CPU: 796ms
     CGroup: /system.slice/nagios4.service
             ├─5122 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg
             ├─5127 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─5128 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─5129 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─5130 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             └─5134 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg

Dec 04 08:22:19 server1 nagios4[5122]: SERVICE ALERT: localhost;Current Load;OK;HARD;4;L
Dec 04 08:40:46 server1 nagios4[5122]: Warning: The check of host 'localhost' looks like
Dec 04 08:40:46 server1 nagios4[5122]: Warning: The check of service 'Current Users' on
Dec 04 08:40:46 server1 nagios4[5122]: Warning: The check of service 'HTTP' on host 'lo
Dec 04 08:40:45 server1 nagios4[5122]: Warning: The check of host 'localhost' looks like
Dec 04 08:40:45 server1 nagios4[5122]: Warning: The check of service 'Current Users' on
Dec 04 08:40:45 server1 nagios4[5122]: Warning: The check of service 'HTTP' on host 'lo
Dec 04 08:40:45 server1 nagios4[5122]: SERVICE ALERT: localhost;Current Load;CRITICAL;SO
Dec 04 08:41:45 server1 nagios4[5122]: SERVICE ALERT: localhost;Current Load;WARNING;SOF
Dec 04 08:43:10 server1 nagios4[5122]: SERVICE ALERT: localhost;Current Load;OK;SOFT;3;L
lines 1-26/26 (END)
```

CentOS

Samba (Enterprise Service):

```
[Jose@localhost ~]$ systemctl status smb
● smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; ver
   Active: active (running) since Tue 2024-12-03 20:53:39 EST; 14mir
     Docs: man:smbd(8)
           man:samba(7)
           man:smb.conf(5)
 Main PID: 19815 (smbd)
   Status: "smbd: ready to serve connections..."
    Tasks: 4
   CGroup: /system.slice/smb.service
           ├─19815 /usr/sbin/smbd --foreground --no-process-group
           ├─19821 /usr/sbin/smbd --foreground --no-process-group
           ├─19822 /usr/sbin/smbd --foreground --no-process-group
           └─19823 /usr/sbin/smbd --foreground --no-process-group
```

Nagios (Monitoring Tool):

```
[Jose@localhost ~]$ systemctl status nagios
● nagios.service - Nagios Core 4.4.14
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled;
   Active: active (running) since Tue 2024-12-03 19:50:30 EST; 8min
     Docs: https://www.nagios.org/documentation
  Process: 1276 ExecStart=/usr/sbin/nagios -d /etc/nagios/nagios.cfg
  Process: 1226 ExecStartPre=/usr/sbin/nagios -v /etc/nagios/nagios
 Main PID: 1277 (nagios)
    Tasks: 6
   CGroup: /system.slice/nagios.service
           ├─1277 /usr/sbin/nagios -d /etc/nagios/nagios.cfg
           ├─1318 /usr/sbin/nagios --worker /var/spool/nagios/cmd/na
           ├─1319 /usr/sbin/nagios --worker /var/spool/nagios/cmd/na
           ├─1320 /usr/sbin/nagios --worker /var/spool/nagios/cmd/na
           ├─1321 /usr/sbin/nagios --worker /var/spool/nagios/cmd/na
           └─1571 /usr/sbin/nagios -d /etc/nagios/nagios.cfg

Dec 03 19:50:30 localhost.localdomain nagios[1277]: qh: Socket '/va
Dec 03 19:50:30 localhost.localdomain nagios[1277]: qh: core query
Dec 03 19:50:30 localhost.localdomain nagios[1277]: qh: echo service
Dec 03 19:50:30 localhost.localdomain nagios[1277]: qh: help for the
Dec 03 19:50:30 localhost.localdomain nagios[1277]: wproc: Successf
Dec 03 19:50:30 localhost.localdomain nagios[1277]: wproc: Registry
Dec 03 19:50:30 localhost.localdomain nagios[1277]: wproc: Registry
Dec 03 19:50:30 localhost.localdomain nagios[1277]: wproc: Registry
Dec 03 19:50:30 localhost.localdomain nagios[1277]: wproc: Registry
Dec 03 19:50:32 localhost.localdomain nagios[1277]: Successfully la
[Jose@localhost ~]$
```

Codes

Samba - Ubuntu (Enterprise Service):

```yaml
---
- name: Install Samba on Ubuntu
  apt:
    name: samba
    state: present
    update_cache: yes

- name: Ensure Samba service is enabled and started
  systemd:
    name: smbd
    enabled: yes
    state: started

- name: Configure Samba
  copy:
    src: samba.conf
    dest: /etc/samba/smb.conf
    owner: root
    group: root
    mode: '0644'
```

Samba - CentOS (Enterprise Service):

```yaml
---
- name: Install Samba on CentOS
  yum:
    name: samba
    state: present

- name: Ensure Samba service is enabled and started
  systemd:
    name: smb
    enabled: yes
    state: started

- name: Configure Samba
  copy:
    src: samba.conf
    dest: /etc/samba/smb.conf
    owner: root
    group: root
    mode: '0644'
```

Nagios - Ubuntu (Monitoring Tool):

```yaml
---
    - name: Install requirements for Ubuntu
      apt:
        name:
          - build-essential
          - apache2
          - php
          - libapache2-mod-php
          - php-gd
          - unzip
          - postfix
        update_cache: yes
      when: ansible_distribution == "Ubuntu"

    - name: Download Nagios 4
      get_url:
        url: https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.6.tar.gz
        dest: /tmp/nagios-4.4.6.tar.gz

    - name: Extract Nagios 4
      unarchive:
        src: /tmp/nagios-4.4.6.tar.gz
        dest: /tmp/
        remote_src: yes

    - name: Install Nagios on Ubuntu
      apt:
        name: nagios4
        state: present
      when: ansible_distribution == "Ubuntu"
```

Nagios - CentOS (Monitoring Tool):

```yaml
---
  - name: Install requirements for CentOS
    yum:
      name:
        - gcc
        - make
        - glibc-devel
        - glibc
        - wget
        - unzip
        - httpd
        - php
        - gd
        - gd-devel
        - perl
        - postfix
      state: present
    when: ansible_distribution == "CentOS"
  - name: Download Nagios 4
    get_url:
      url: https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.6.tar.gz
      dest: /tmp/nagios-4.4.6.tar.gz

  - name: Extract Nagios 4
    unarchive:
      src: /tmp/nagios-4.4.6.tar.gz
      dest: /tmp/
      remote_src: yes
  - name: Install EPEL repository on CentOS
    yum:
      name: epel-release
      state: present

  - name: Start and Enable Nagios 4 Service
    service:
      name: "{{ 'httpd' if ansible_distribution == 'CentOS' else 'apache2' }}"
      state: started
      enabled: true
```

GitHub link:

Conclusions: (link your conclusion from the objective)

- In this course CPE212 Automating Server Management, I've had a completely different perspective of System Administration. Just like in this Examination we have installed an Enterprise service and a Monitoring tool to Ubuntu and CentOS servers at once using one playbook. This developed my fundamentals, especially with utilizing Ansible as an IaC tool, because I know later on job opportunities will come to me and inspect my skills if I am qualified. Installing and understanding these monitoring tools enhances my knowledge as well as my capabilities on what to use to monitor my servers and how I can make every process as efficient as I can.