Name: Agpaoa, Ma.Diane J. Course/Section: CPE232-CPE31S22	Date: 12/13/2022 Instructor: Dr. Jonathan V. Taylar

Tools Needed:

1. VM with Ubuntu, CentOS and Ansible installed
2. Web browser

Procedure:

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). Create a word document report for this final exam. For your final exam to be counted, please paste your repository link as an answer in your report. No point will be given if you forgot to paste your repo link.

Note: Extra points if you will implement the said services via containerization.

Output:

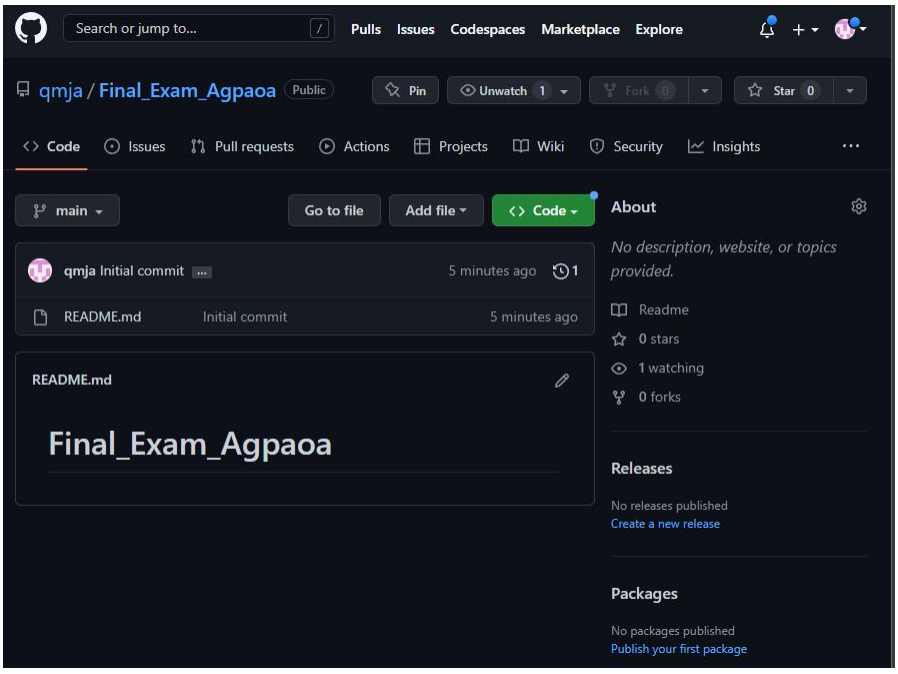


Figure 1 Creating new repository

I created a new repository in GitHub and named it as Final_Exam_Agpaoa.

Figure 2 Cloning the new repository

I cloned the Final_Exam_Agpaoa repository in my workstation by using the command "git clone".

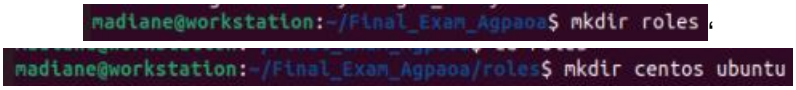


Figure 3.1 Creating new directories within the roles directory

First I created the roles directory and then I created the centos and ubuntu directory within the roles directory by first changing the directory to roles by using the command "cd" and then using the command "mkdir" I created the centos and ubuntu directory.

Figure 3.2 Creating tasks directory within the centos directory

First I changed the directory to centos by using the command "cd" and then I created the tasks directory by using the command "mkdir".

Figure 3.3 Creating main.yml within the tasks directory

I created the main.yml playbook within the tasks directory of centos directory by first changing the directory to tasks directory by using the command "cd" and then using the command "touch" I created the main.yml.

Figure 3.4 Creating tasks directory within the ubuntu directory

First I changed the directory to ubuntu by using the command "cd" and then I created the tasks directory by using the command "mkdir".

Figure 3.5 Creating main.yml within the tasks directory

I created the main.yml playbook within the tasks directory of ubuntu directory by first changing the directory to tasks directory by using the command "cd" and then

using the command “touch” I created the main.yml.

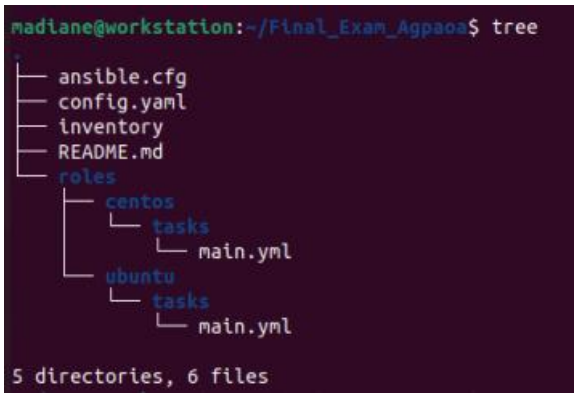


Figure 3.6 Contents and structure of files of Final_Exam_Agpaoa

Figure 3.7 Contents of inventory file

Figure 3.8 Contents of motd.j2

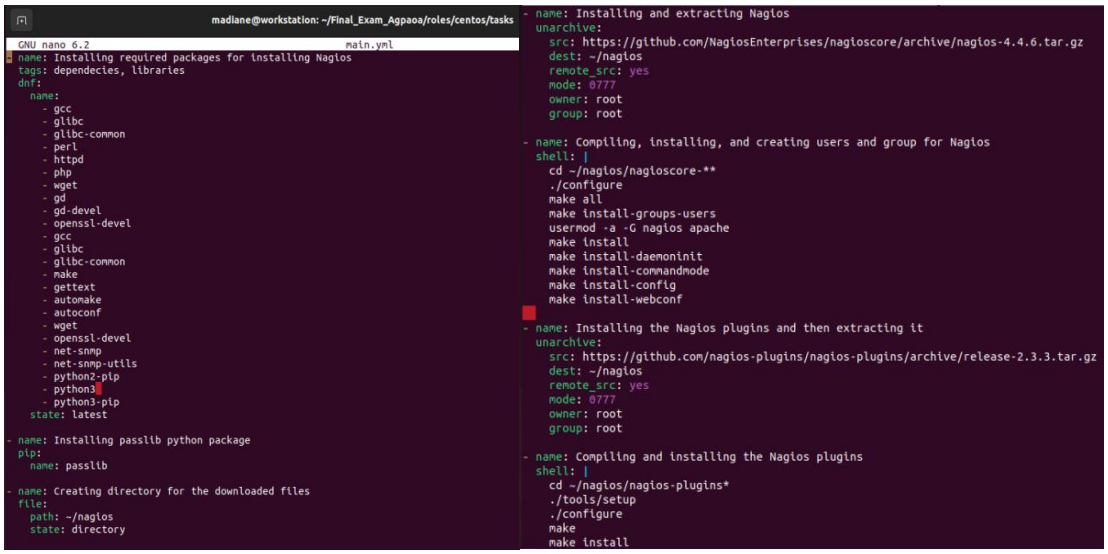
madiane@workstation: ~/Final_Exam_Agpaoa

GNU nano 6.2 config.yaml

```yaml
---
- hosts: all
  become: true

  pre_tasks:
  - name: update repository index (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"

  tasks:
  - name: MOTD
    template:
      src: motd.j2
      dest: /etc/motd
    tags:
      - motd_config

- hosts: ubuntu
  become: true
  roles:
    - ubuntu

- hosts: centos
  become: true
  roles:
    - centos
```

Figure 3.9 Contents of nagios_ins.yml playbook

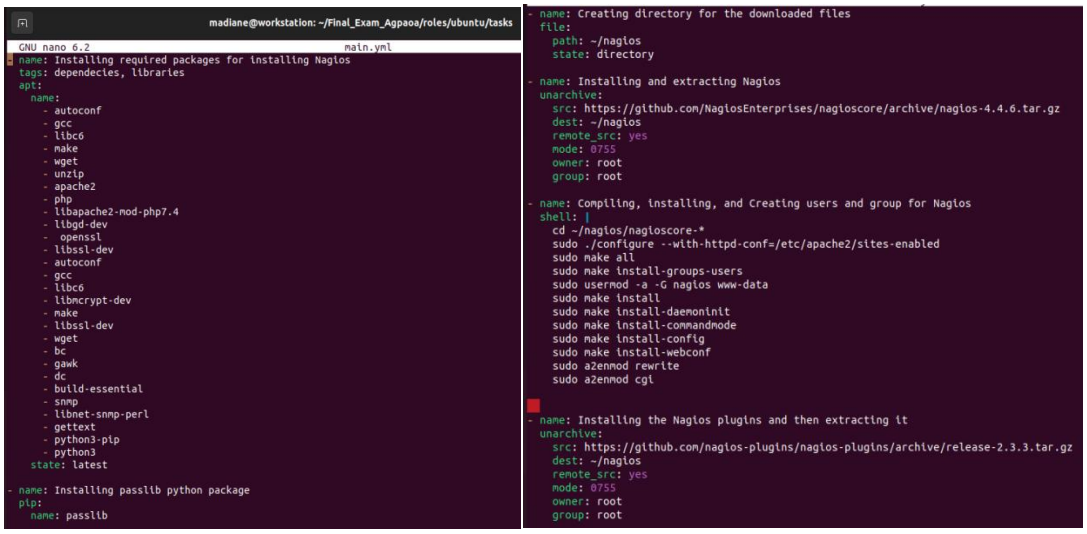
Inside the playbook, there is a pre-tasks for all the remote servers, tasks for changing the motd of servers, adding users and the plays for remote servers that have an operating system of CentOS and Ubuntu.



```
- name: Adding a user to a password file
  community.general.htpasswd:
    path: /usr/local/nagios/etc/htpasswd.users
    name: agpaoanagi
    password: mad12

- name: Starting/Restarting Nagios
  service:
    name: nagios
    state: restarted
    enabled: true

- name: Starting/Restarting httpd
  service:
    name: httpd
    state: restarted
    enabled: true
```

Figure 3.10 Contents of main.yml within the centos directory

Inside the main.yml playbook, you could see tasks that will install, compile and configure the packages for installing the Nagios and the installation of the Nagios itself in a remote server with an operating system of CentOS. In addition, the playbook will also create or add a user to a password file for the Nagios. After the installation of Nagios and creating or adding a user to a password file there is a task that will start or restart the Nagios and httpd.



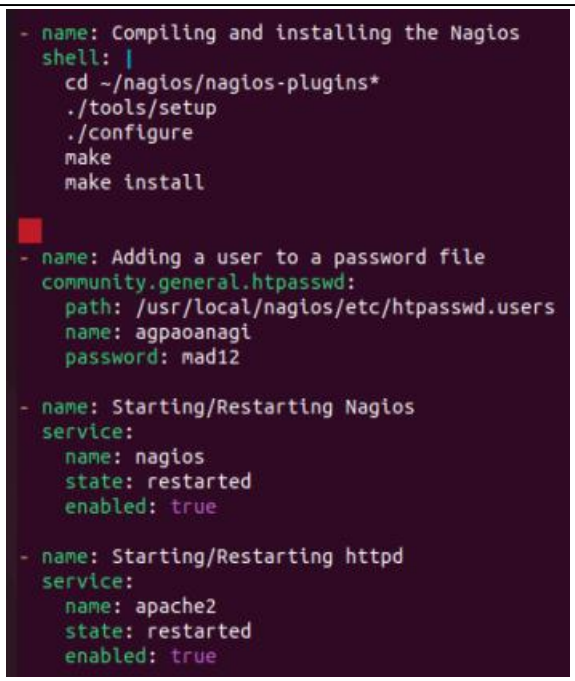


Figure 3.11 Contents of main.yml within the ubuntu directory

Inside the main.yml playbook, you could see tasks that will install, compile and configure the packages for installing the Nagios and the installation of the Nagios itself in a remote server with an operating system of Ubuntu. In addition, the playbook will also create or add a user to a password file for the Nagios. After the installation of Nagios and creating or adding a user to a password file there is a task that will start or restart the Nagios and apache2.

```
madlane@workstation:~/Final_Exam_Agpaoa$ ansible-playbook --ask-become-pass config.yaml
BECOME password:

PLAY [all] *********************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.107]
ok: [192.168.56.105]

TASK [update repository index (CentOS)] ****************************************************************************
skipping: [192.168.56.105]
ok: [192.168.56.107]

TASK [install updates (Ubuntu)] ************************************************************************************
skipping: [192.168.56.107]
ok: [192.168.56.105]

TASK [MOTD] ********************************************************************************************************
ok: [192.168.56.107]
ok: [192.168.56.105]

PLAY [ubuntu] ******************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.105]

TASK [ubuntu : Installing required packages for installing Nagios] *************************************************
ok: [192.168.56.105]

TASK [ubuntu : Installing passlib python package] ******************************************************************
ok: [192.168.56.105]

TASK [ubuntu : Creating directory for the downloaded files] ********************************************************
ok: [192.168.56.105]

TASK [ubuntu : Installing and extracting Nagios] *******************************************************************
ok: [192.168.56.105]

TASK [ubuntu : Compiling, installing, and Creating users and group for Nagios] *************************************
changed: [192.168.56.105]

TASK [ubuntu : Installing the Nagios plugins and then extracting it] ***********************************************
ok: [192.168.56.105]

TASK [ubuntu : Compiling and installing the Nagios] ****************************************************************
changed: [192.168.56.105]

TASK [ubuntu : Adding a user to a password file] *******************************************************************
ok: [192.168.56.105]

TASK [ubuntu : Starting/Restarting Nagios] *************************************************************************
changed: [192.168.56.105]

TASK [ubuntu : Starting/Restarting httpd] **************************************************************************
changed: [192.168.56.105]

PLAY [centos] ******************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.107]

TASK [centos : Installing required packages for installing Nagios] *************************************************
ok: [192.168.56.107]

TASK [centos : Installing passlib python package] ******************************************************************
ok: [192.168.56.107]

TASK [centos : Creating directory for the downloaded files] ********************************************************
ok: [192.168.56.107]

TASK [centos : Installing and extracting Nagios] *******************************************************************
ok: [192.168.56.107]

Help
centos : Compiling, installing, and creating users and group for Nagios] *************************************
changed: [192.168.56.107]

TASK [centos : Installing the Nagios plugins and then extracting it] ***********************************************
ok: [192.168.56.107]

TASK [centos : Compiling and installing the Nagios plugins] ********************************************************
changed: [192.168.56.107]

TASK [centos : Adding a user to a password file] *******************************************************************
ok: [192.168.56.107]

TASK [centos : Starting/Restarting Nagios] *************************************************************************
changed: [192.168.56.107]
```

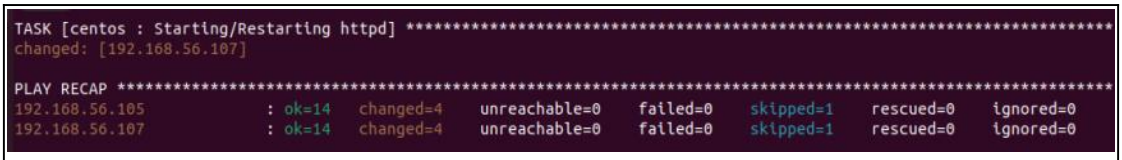


Figure 3.12 Running the config.yaml playbook

After completing all of the playbook (config.yaml, main.yml for CentOS and Ubuntu remote servers), I execute the playbook by entering the command “ansible-playbook –ask-become-pass config.yaml”. First, it plays the pre-tasks assigned to all of the remote servers. After that, it runs the play for the ubuntu group and centos group consecutively that consists of tasks that would change the motd and add users for Ubuntu and Centos server, install the packages for installing the Nagios, Nagios, Nagios plugins, creation or addition of a user to a password file and then the starting/restarting of the nagios, apache in Ubuntu and httpd in CentOS.

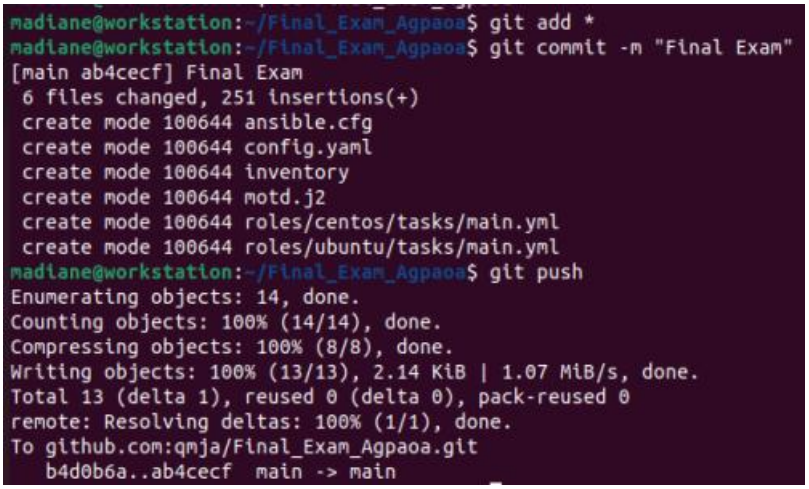


Figure 4 Saving the files to my Github repository

First I add the all files within the Final_Exam_Agpaoa directory by using the command “git add *”. Next, I commit the changes by using the command “git commit -m” and then I pushed the changes to my repository by using the command “git push”.

GitHub Link: https://github.com/qmja/Final_Exam_Agpaoa.git

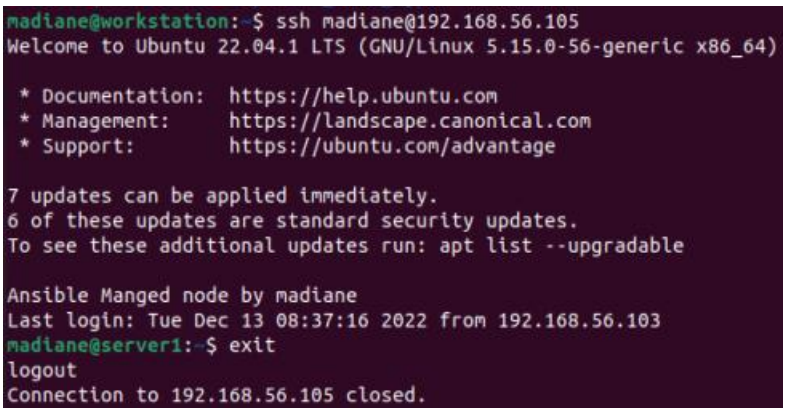


Figure 5.1 Changed Motd of Ubuntu server

I established an ssh connection to verify that the Motd was changed to “Ansible Managed by madiane”. Based on the image above it was confirmed that the motd was changed by “Ansible Managed node by madiane”.

Figure 5.2 Changed Motd of CentOS server

I established an ssh connection to verify that the Motd was changed to “Ansible Managed by madiane”. Based on the image above it was confirmed that the motd was changed by “Ansible Managed node by madiane”

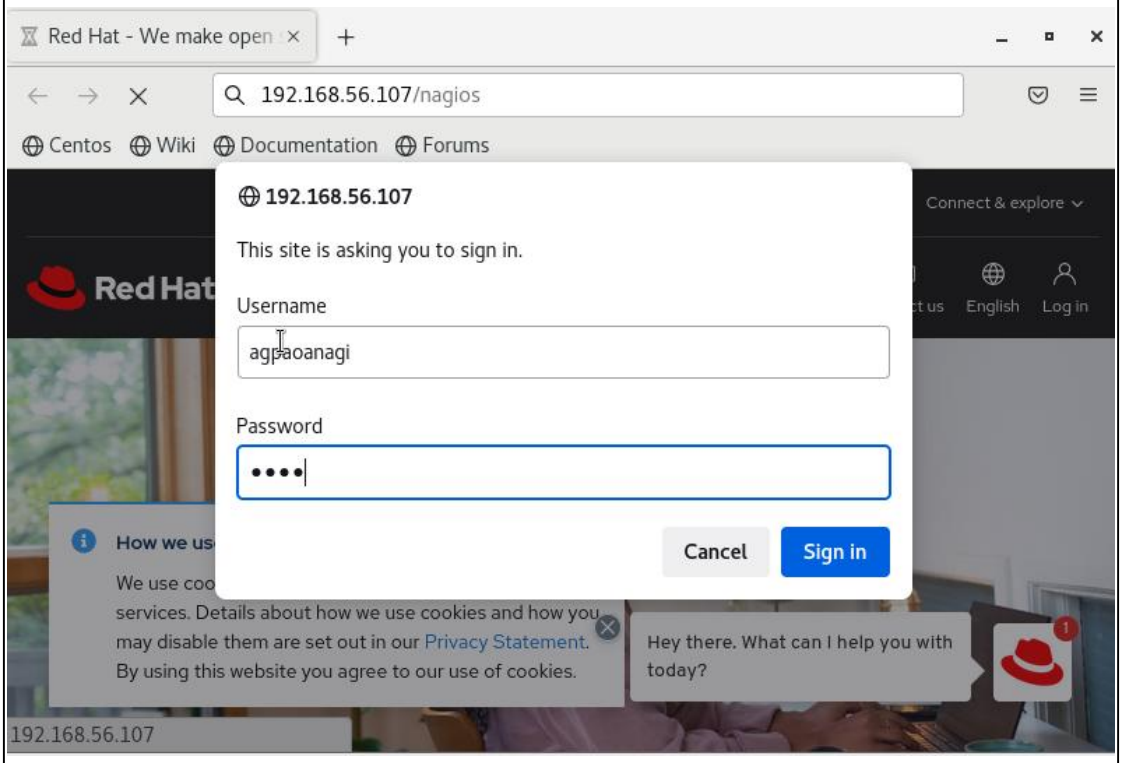


Figure 5.3 Accessing and Signing-in to the Nagios Core in the CentOS

In order to access the Nagios Core, I went to the web browser and typed “192.168.56.107/nagios” the syntax is http://IP address/nagios. I typed the username I added in the password file and entered the password.

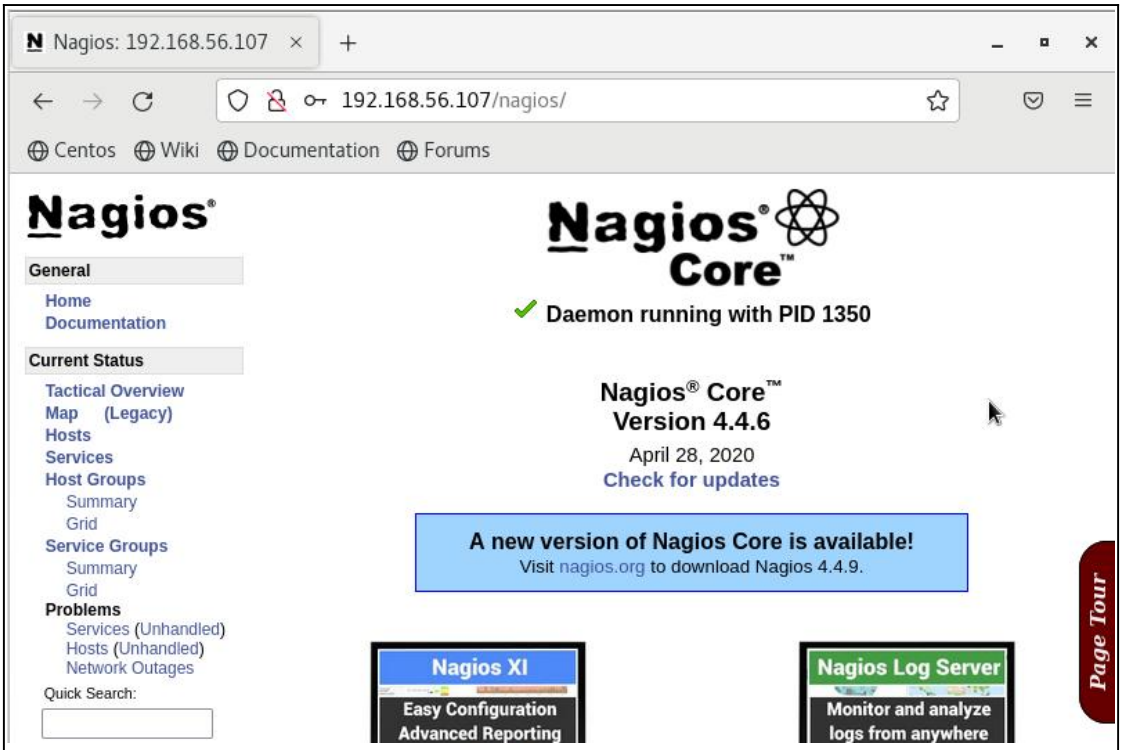


Figure 5.4 Successfully Signing-in Nagios Core

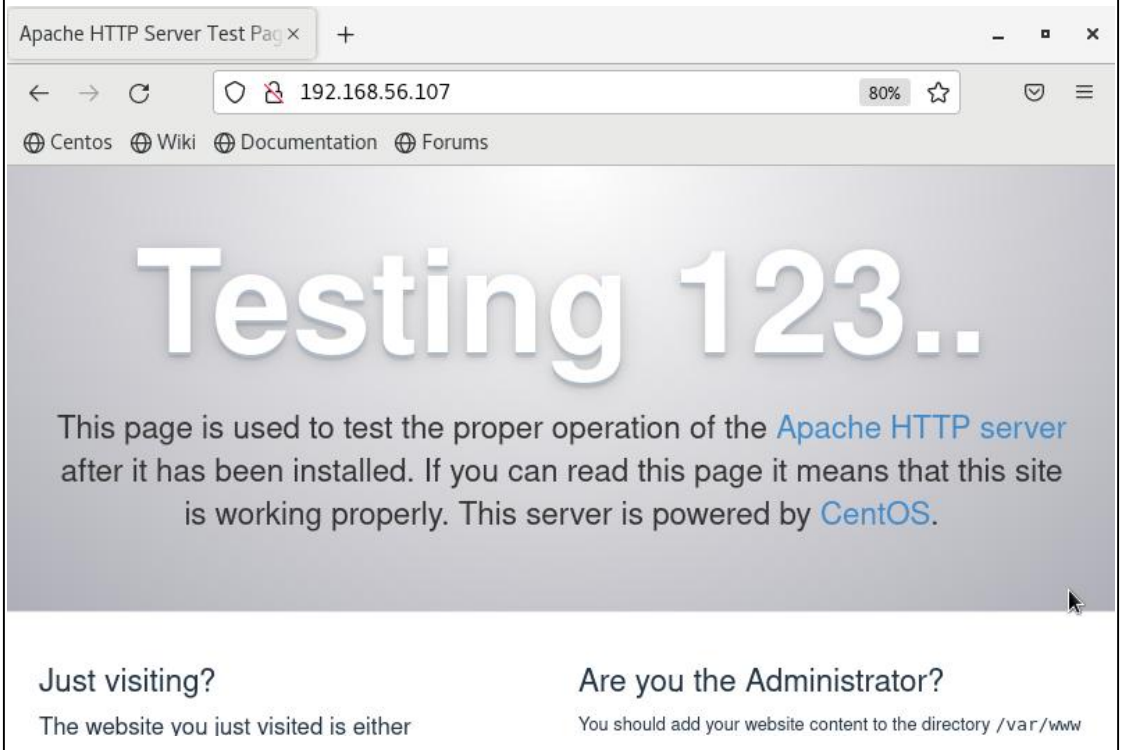


Figure 5.5 Successful verification of the httpd service running

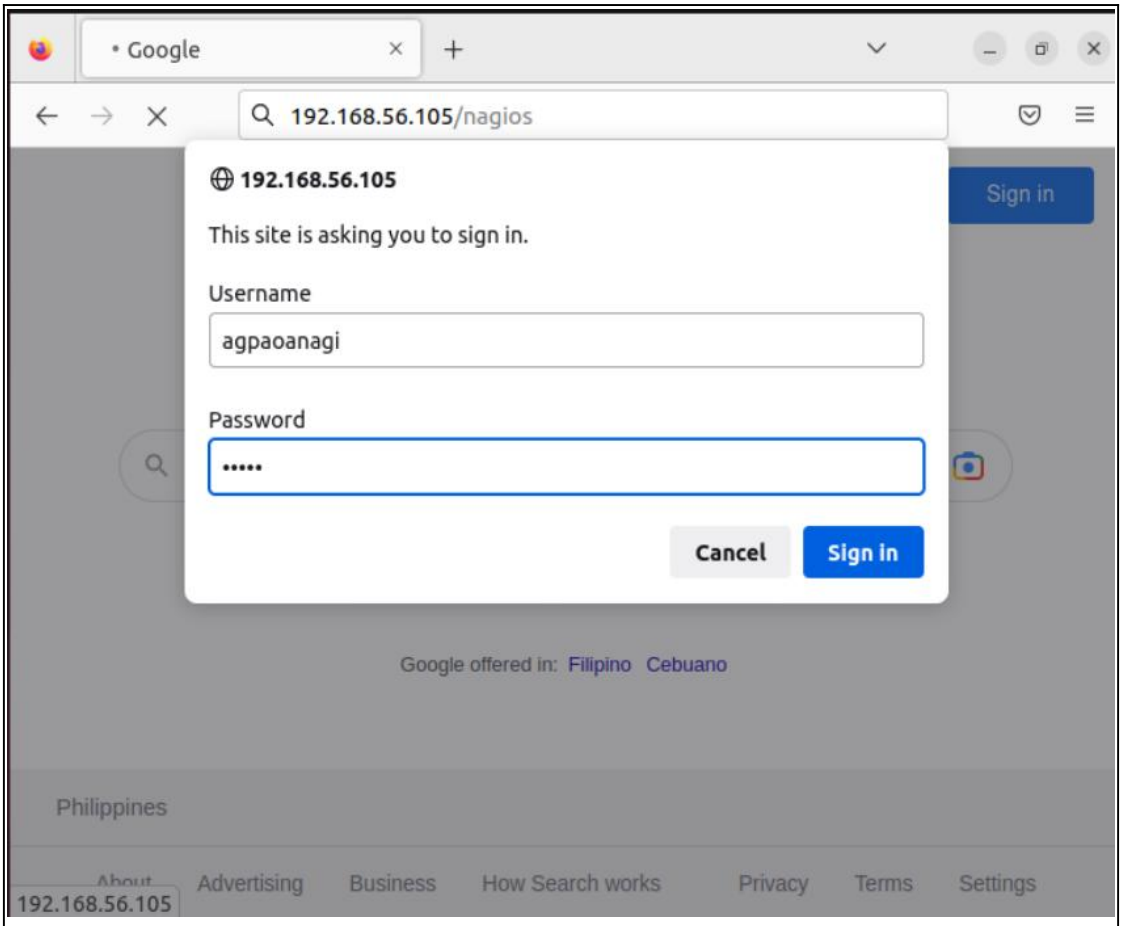


Figure 5.6 Accessing and Signing-in to the Nagios Core in Ubuntu

In order to access the Nagios Core, I went to the web browser and typed “192.168.56.105/nagios” the syntax is http://IP address/nagios. I typed the username I added in the password file and entered the password.

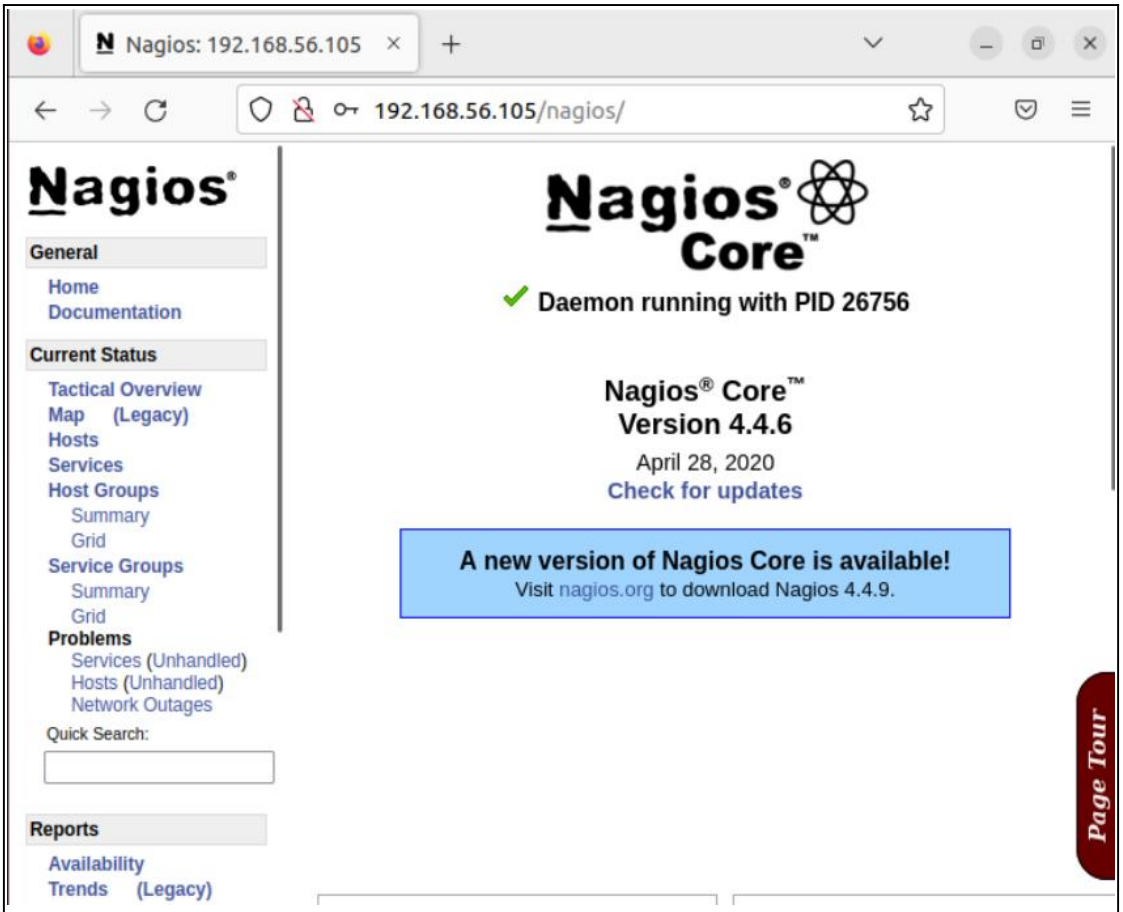


Figure 5.7 Successfully Signing-in Nagios Core

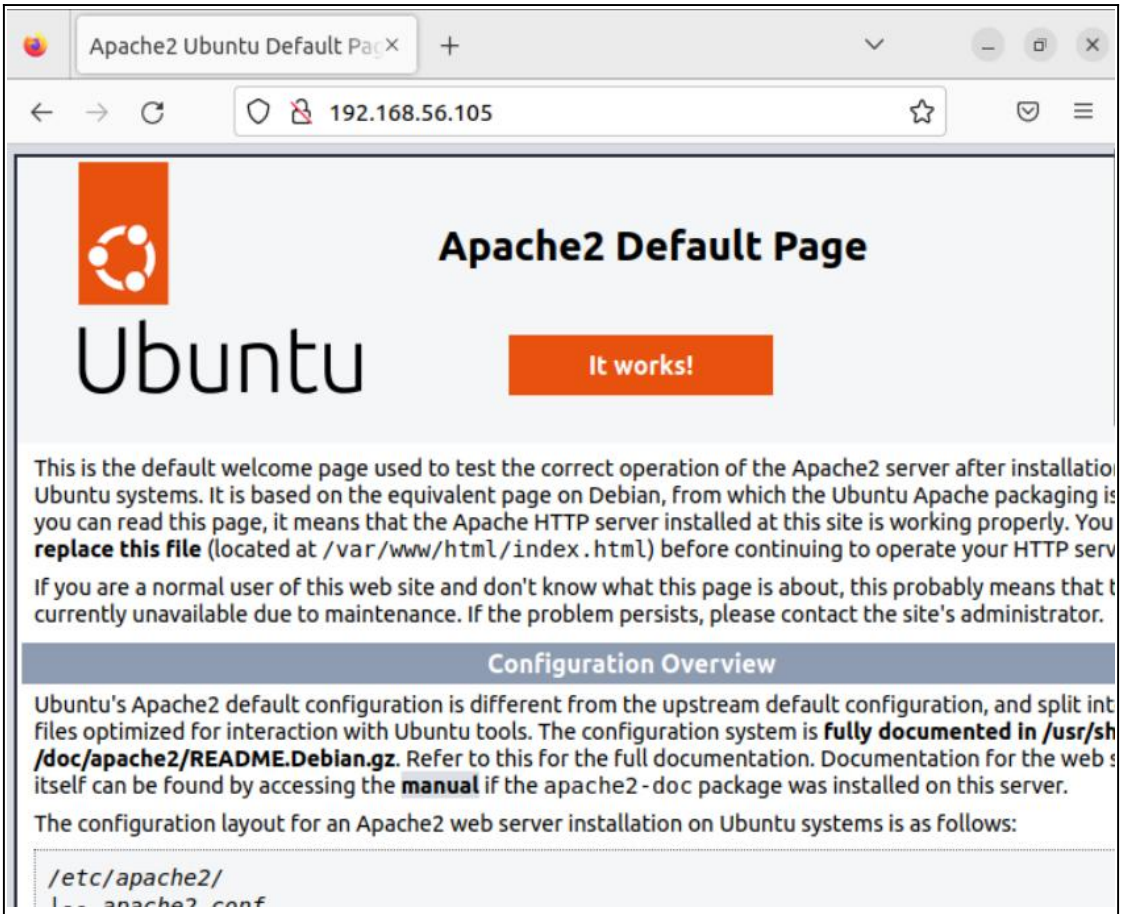


Figure 5.8 Successful verification of the apache2 service running

GitHub Link: https://github.com/qmja/Final_Exam_Agpaoa.git