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Course/Section: CPE232 – CPE31S24	**Date Submitted:** 10 / 20 / 2022
Instructor: Engr. Jonathan V. Taylar	**Semester and SY:** 1st Sem SY '22-'23

Activity 8: Install, Configure, and Manage Availability Monitoring tools

1. Objectives

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

2. Discussion

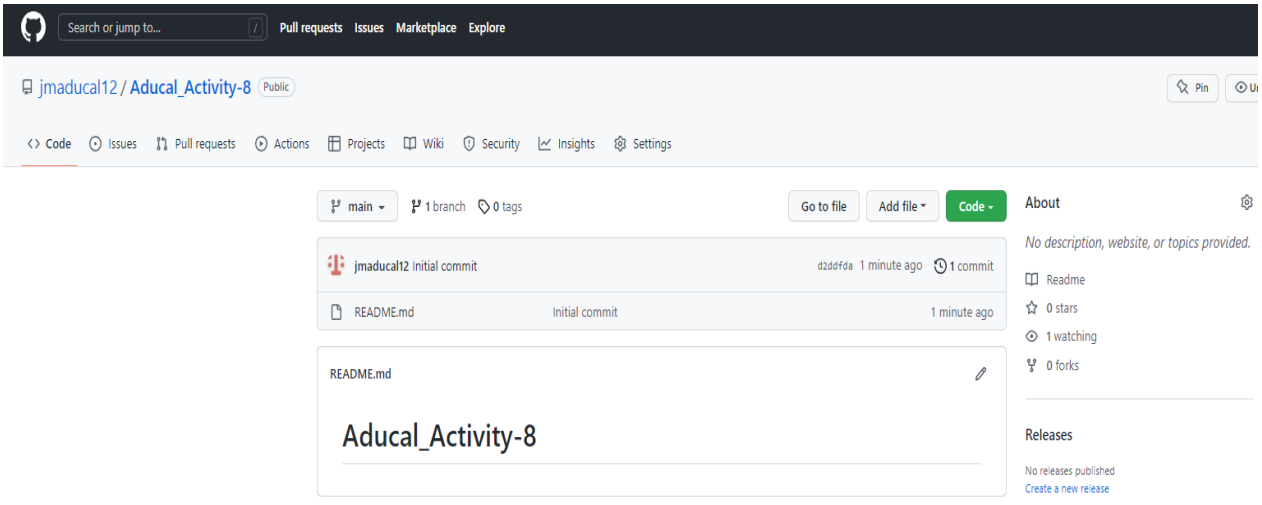
Availability monitoring is a type of monitoring tool that we use if the certain workload is up or reachable on our end. Site downtime can lead to loss of revenue, reputational damage and severe distress. Availability monitoring prevents adverse situations by checking the uptime of infrastructure components such as servers and apps and notifying the webmaster of problems before they impact on business.

3. Tasks

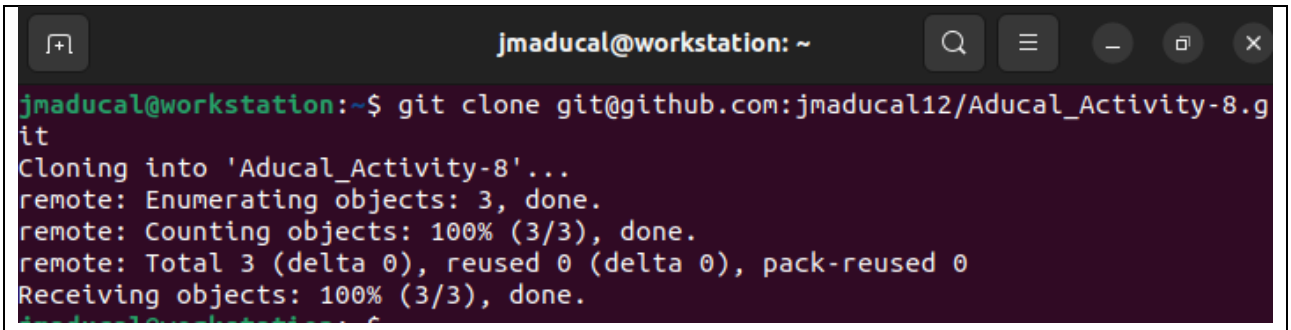
1. Create a playbook that installs Nagios in both Ubuntu and CentOS. Apply the concept of creating roles.
2. Describe how you did step 1. (Provide screenshots and explanations in your report. Make your report detailed such that it will look like a manual.)
3. Show an output of the installed Nagios for both Ubuntu and CentOS.
4. Make sure to create a new repository in GitHub for this activity.

4. Output (screenshots and explanations)

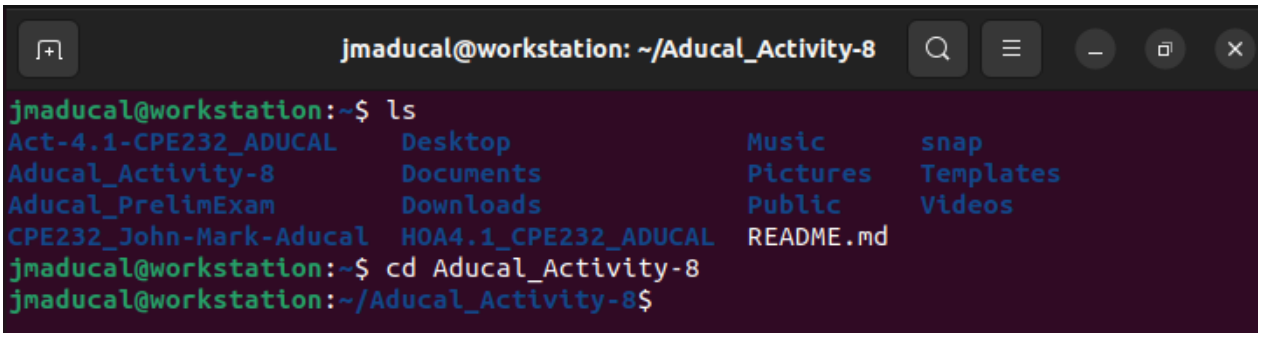
Task 1: Create a New Repository in GitHub



I created a new repository named Aducal_Activity-8

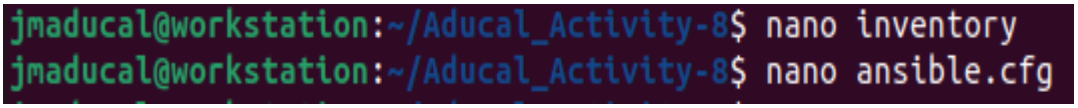


I used git clone command to copy the new repository I have created into my workstation.

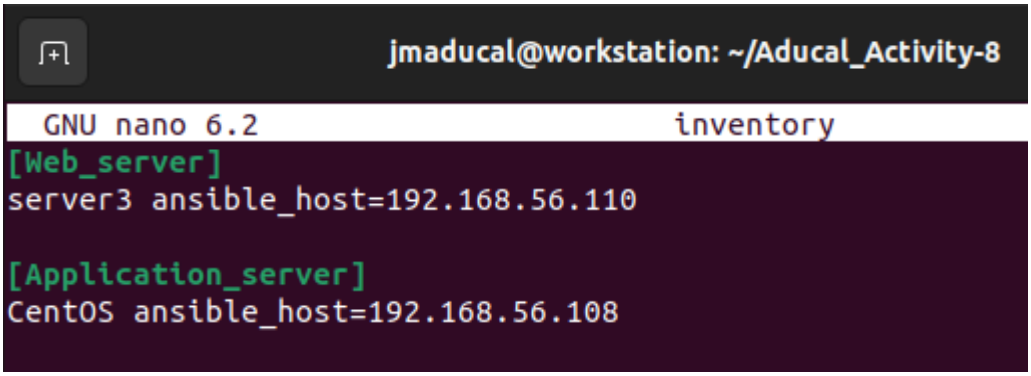


Now we can use the new repository we created earlier, using cd command to change directory into Aducal_Activity-8.

Task 2: Targeting Specific Nodes



I created new inventory and ansible.cfg file



The new Inventory file contains the groups Web_server and Application_server together with the IP Addresses of Ubuntu server3 and CentOS.

```
jmaducal@workstation: ~/Aducal_Activity-8
  GNU nano 6.2                                ansible.cfg
[defaults]

inventory = inventory
host_key_checking = False

deprecation_warnings = False

remote_user = jmaducal
private_key_file = ~/.ssh/
```

The ansible.cfg file contains the ansible configurations need to administer the behavior of the task performed by control node used to manage the remote hosts or managed nodes.

Task 3: Create roles

```
jmaducal@workstation: ~/Aducal_Activity-8
jmaducal@workstation:~/Aducal_Activity-8$ nano nagios.yml
```

I create a new file name nagios.yml

```
jmaducal@workstation: ~/Aducal_Activity-8
  GNU nano 6.2                                nagios.yml
---

- 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: Web_server
  become: true
  roles:
    - Web_server

- hosts: Application_server
  become: true
  roles:
    - Application_server
```

Inside of nagios file, there are pre_tasks for installing updates for CentOS and Ubuntu and particular roles for Web_server and Application_server.

```
jmaducal@workstation: ~/Aducal_Activity-8/roles
jmaducal@workstation:~/Aducal_Activity-8$ mkdir roles
jmaducal@workstation:~/Aducal_Activity-8$ cd roles
jmaducal@workstation:~/Aducal_Activity-8/roles$ mkdir Web_server
jmaducal@workstation:~/Aducal_Activity-8/roles$ mkdir Application_server
jmaducal@workstation:~/Aducal_Activity-8/roles$ ls
Application_server  Web_server
jmaducal@workstation:~/Aducal_Activity-8/roles$ cd Web_server
jmaducal@workstation:~/Aducal_Activity-8/roles/Web_server$ mkdir tasks
jmaducal@workstation:~/Aducal_Activity-8/roles/Web_server$ cd tasks
jmaducal@workstation:~/Aducal_Activity-8/roles/Web_server/tasks$ nano main.yml
```

```
jmaducal@workstation:~/Aducal_Activity-8/roles$ cd Application_server
jmaducal@workstation:~/Aducal_Activity-8/roles/Application_server$ mkdir tasks
jmaducal@workstation:~/Aducal_Activity-8/roles/Application_server$ cd tasks
jmaducal@workstation:~/Aducal_Activity-8/roles/Application_server/tasks$ nano m
ain.yml
```

```
jmaducal@workstation: ~/Aducal_Activity-8/roles
jmaducal@workstation:~/Aducal_Activity-8/roles$ tree
.
├── Application_server
│   └── tasks
│       └── main.yml
└── Web_server
    └── tasks
        └── main.yml

4 directories, 2 files
jmaducal@workstation:~/Aducal_Activity-8/roles$
```

I create a new directory roles inside Aducal_Activity-8 directory. And then, Inside the roles directory, I created Web_server and Application_Server directory. Inside of both directories I create again new directory named tasks. Inside the directory tasks for both directories I created a file named main.yml.

jmaducal@workstation: ~/Aducal_Activity-8/roles/Web_ser...

```
 GNU nano 6.2                                  main.yml
- name: install nagios in Ubuntu
  apt:
    name:
      - nagios4
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: install nagios in CentOS
  dnf:
    name:
      - nagios
    state: latest
    update_cache: yes
  when: ansible_distribution == "CentOS"
```

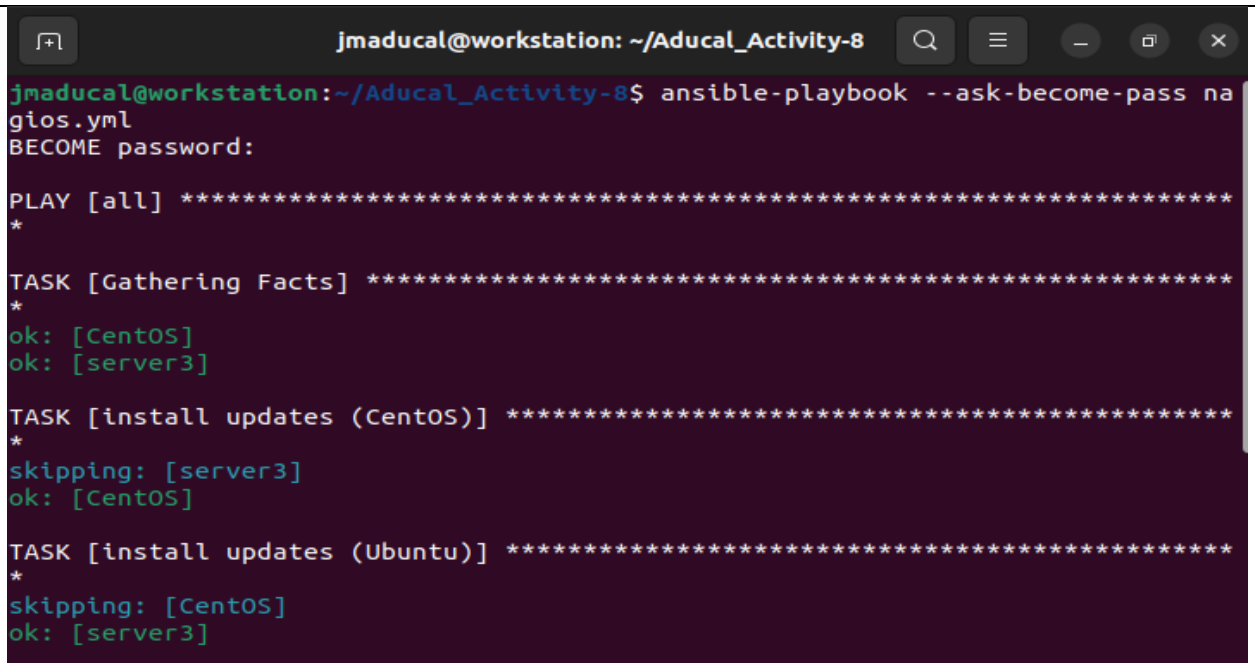
The contents of main.yml file inside of tasks of Web_server directory.

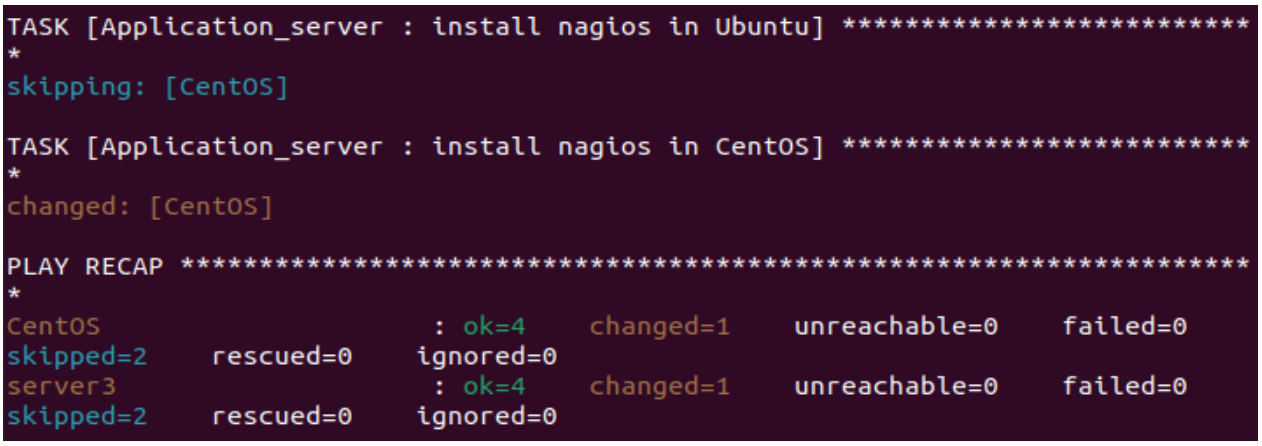
jmaducal@workstation: ~/Aducal_Activity-8/roles/Applicati...

```
 GNU nano 6.2                                  main.yml
- name: install nagios in Ubuntu
  apt:
    name:
      - nagios4
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: install nagios in CentOS
  dnf:
    name:
      - nagios
    state: latest
    update_cache: yes
  when: ansible_distribution == "CentOS"
```

The contents of main.yml file inside of tasks of Application_server directory.





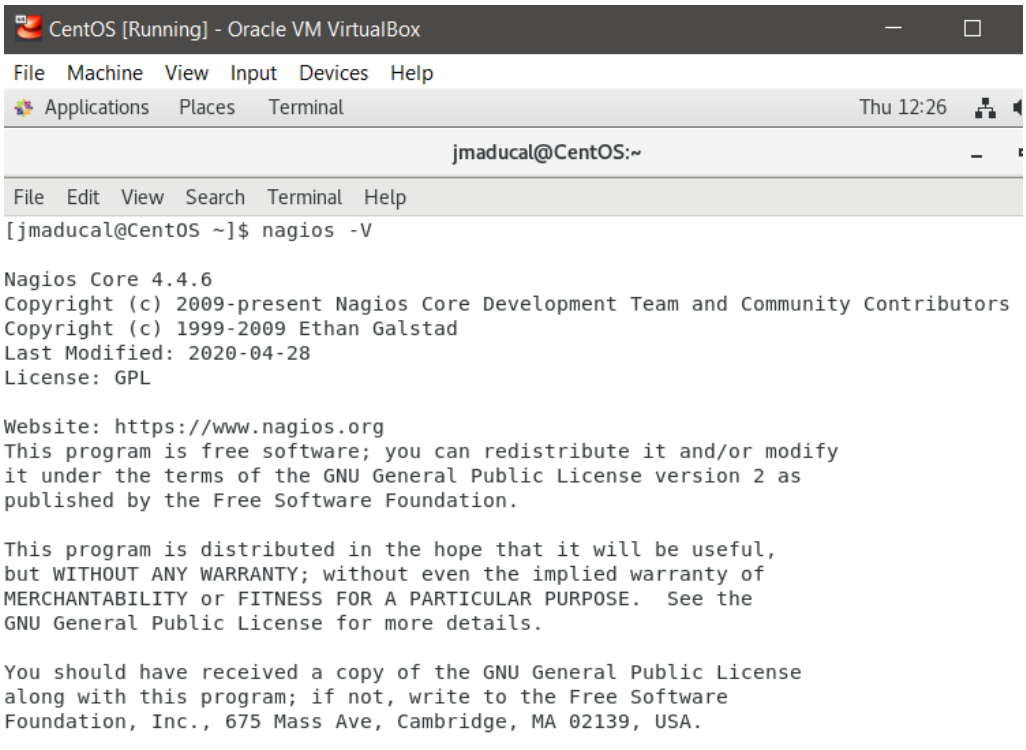
After executing nagios.yml, I have notice that roles (Web_server and Application_server) plays the tasks in the main.yml file of Installing nagios to remote servers.

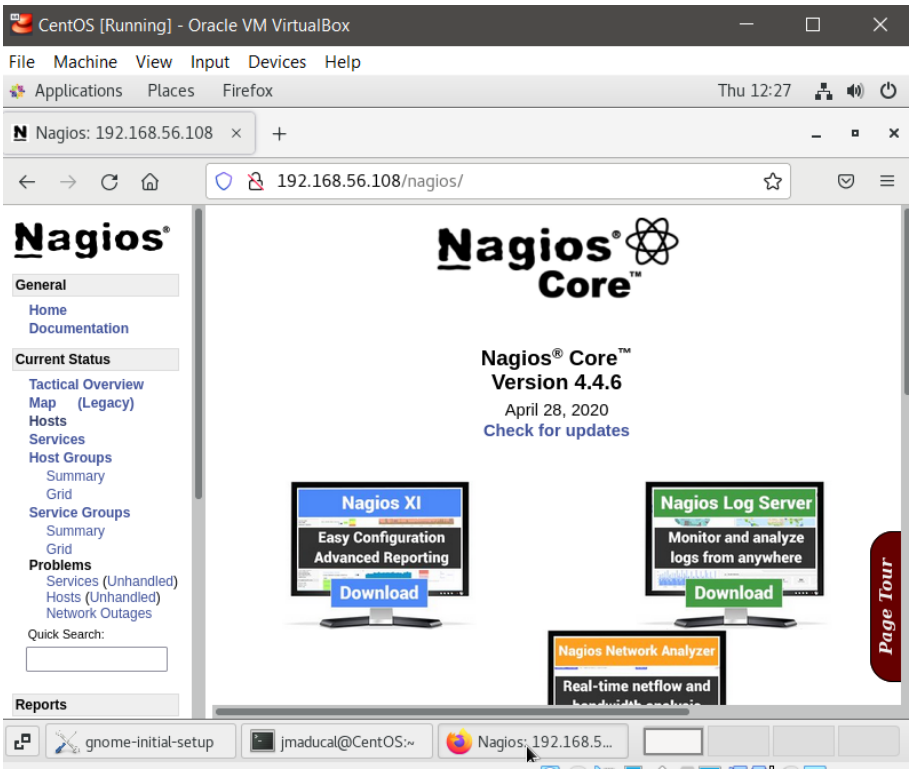
After installing nagios, next step is to check the remote servers (Ubuntu server3 and CentOS) if nagios monitoring tool is successfully installed.

Server3

I have successfully Installed Nagios Monitoring tools to Server3.

CentOS





I have successfully Installed Nagios Monitoring tools to CentOS.

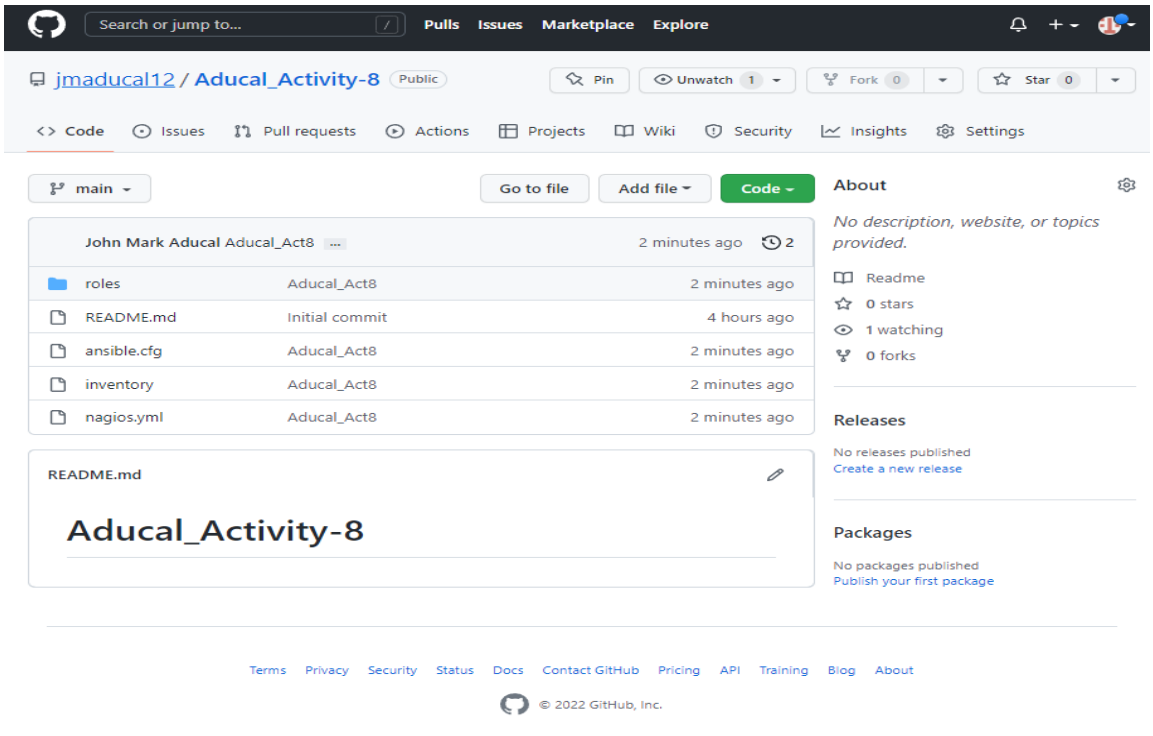
Task 4: Upload and save changes from local repository into GitHub repository

```
jmaducal@workstation: ~/Aducal_Activity-8
jmaducal@workstation:~/Aducal_Activity-8$ git status
On branch main
Your branch is up to date with 'origin/main'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        ansible.cfg
        inventory
        nagios.yml
        roles/

nothing added to commit but untracked files present (use "git add" to track)
jmaducal@workstation:~/Aducal_Activity-8$ git add ansible.cfg
jmaducal@workstation:~/Aducal_Activity-8$ git add inventory
jmaducal@workstation:~/Aducal_Activity-8$ git add nagios.yml
jmaducal@workstation:~/Aducal_Activity-8$ git add roles/
jmaducal@workstation:~/Aducal_Activity-8$ git commit -m "Aducal_Act8"
[main 0773a91] Aducal_Act8
 5 files changed, 73 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 inventory
 create mode 100644 nagios.yml
 create mode 100644 roles/Application_server/tasks/main.yml
 create mode 100644 roles/Web_server/tasks/main.yml
```

```
jmaducal@workstation:~/Aducal_Activity-8$ git push origin main
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Compressing objects: 100% (7/7), done.
Writing objects: 100% (9/9), 1.05 KiB | 1.05 MiB/s, done.
Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:jmaducal12/Aducal_Activity-8.git
   d2ddfda..0773a91  main -> main
```



GitHub Repository Link:

https://github.com/jmaducal12/Aducal_Activity-8.git

Reflections:

Answer the following:

1. **What are the benefits of having an availability monitoring tool?** The advantages of having a monitoring tool like Nagios include that it is implemented in a DevSecOps environment to monitor servers, systems, applications, services, and business processes. Nagios can alert technical personnel of problems, allowing them to begin troubleshooting before outages have an impact on the company's operations, end users, or clients.

Conclusions:

From this Activity, I learned how to Install, Configure and Manage Availability Monitoring tools using ansible. I able to Install Nagios in both Ubuntu and CentOS servers using the localhost or workstation with ansible and by applying my knowledge in past activities such as creating roles and targeting specific nodes. creating a new repository in GitHub and lastly to upload and save the changes from the local repository to GitHub repository. I conclude that this activity expand my knowledge and made me realize the importance of having a monitoring tool such nagios in managing an enterprise servers it can alert if there is a problems in servers and apps by notifying the webmaster of problems before it can impact on company’s operation, business and clients or customers.

HONOR PLEDGE: “I affirm that I will not give or receive any unauthorized help on this activity, and that all work will be my own.”

John Mark Aducal