Name: Karlo D. Santos	Date Performed: 10/17/2023
Course/Section: CPE232-CPE31S5	Date Submitted: 10/17/2023
Instructor: Engr. Roman RIchard	Semester and SY: 1st sem, SY 23-24

Activity 7: Managing Files and Creating Roles in Ansible

1. **Objectives:**

1.1 Manage files in remote servers

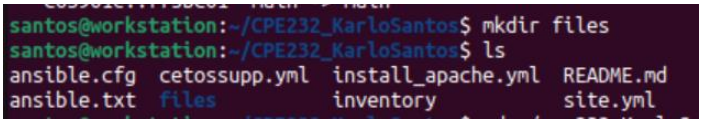
1.2 Implement roles in ansible

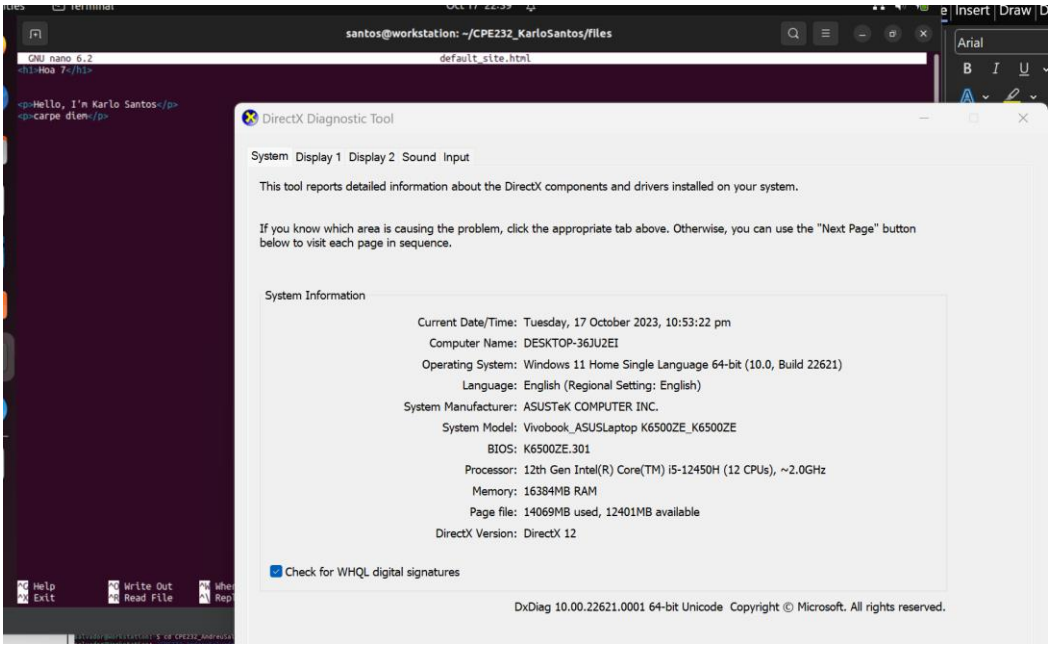
2. **Discussion**:

In this activity, we look at the concept of copying a file to a server. We are going to create a file into our git repository and use Ansible to grab that file and put it into a particular place so that we could do things like customize a default website, or maybe install a default configuration file. We will also implement roles to consolidate plays.

Task 1: Create a file and copy it to remote servers

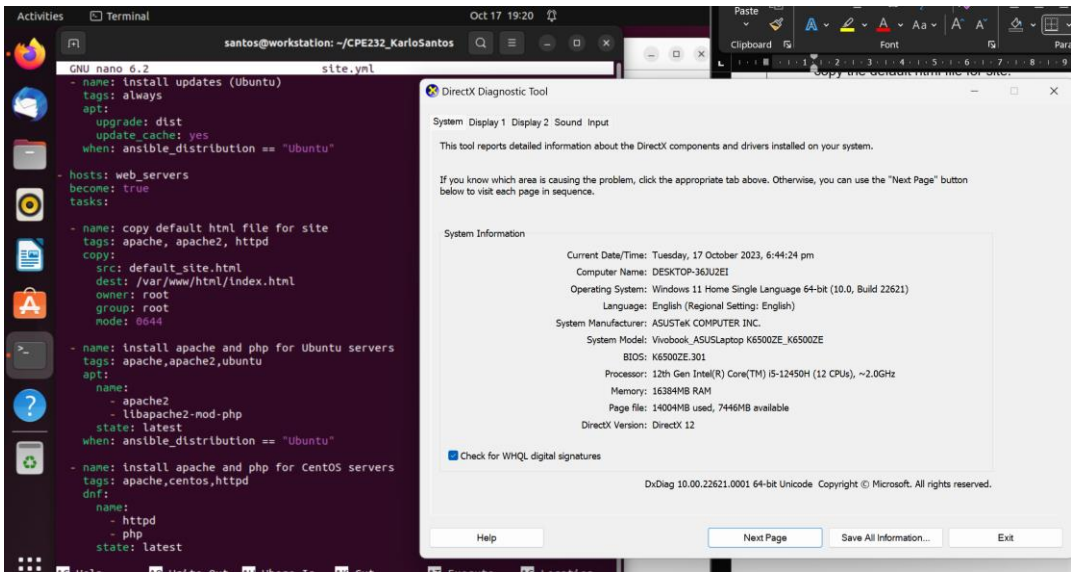
1. Using the previous directory we created, create a directory, and named it "*files*." Create a file inside that directory and name it "*default_site.html*." Edit the file and put basic HTML syntax. Any content will do, as long as it will display text later. Save the file and exit.



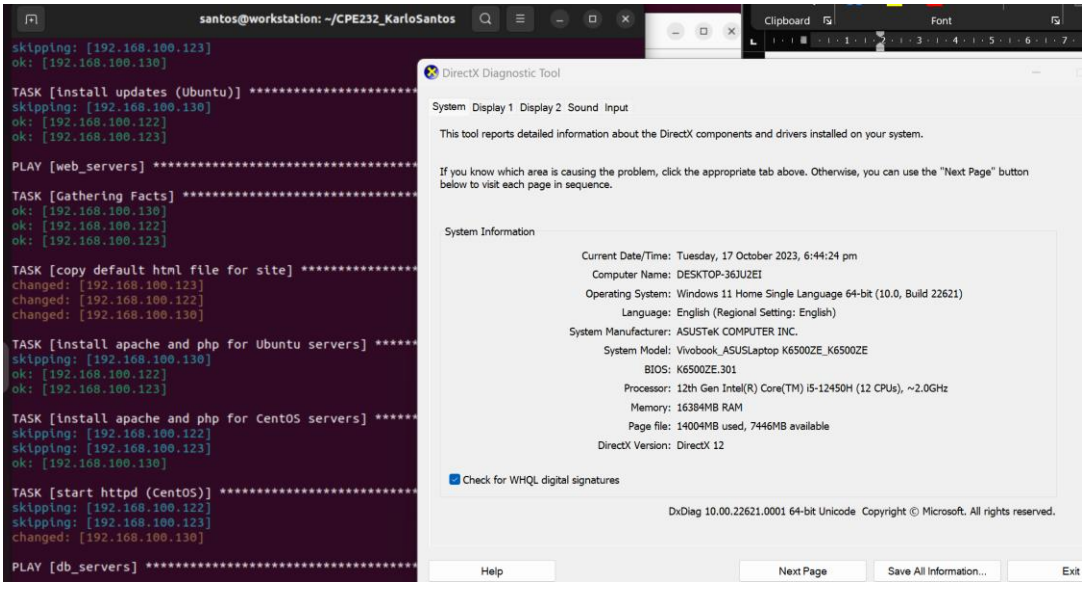


2. Edit the *site.yml* file and just below the *web_servers* play, create a new file to copy the default html file for site:

```
- name: copy default html file for site
  tags: apache, apache2, httpd
  copy:
    src: default_site.html
    dest: /var/www/html/index.html
    owner: root
    group: root
    mode: 0644
```

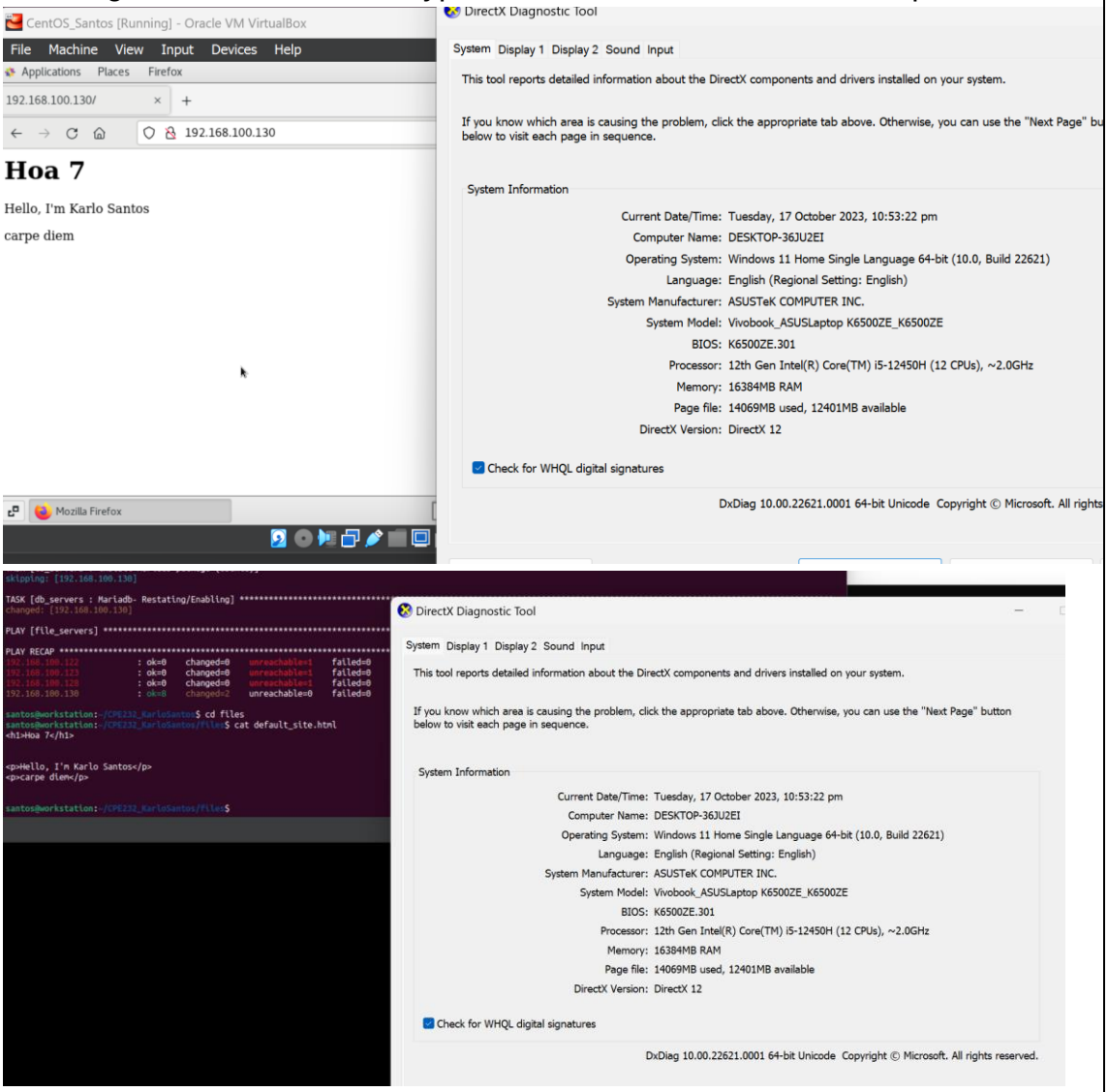


3. Run the playbook *site.yml*. Describe the changes.



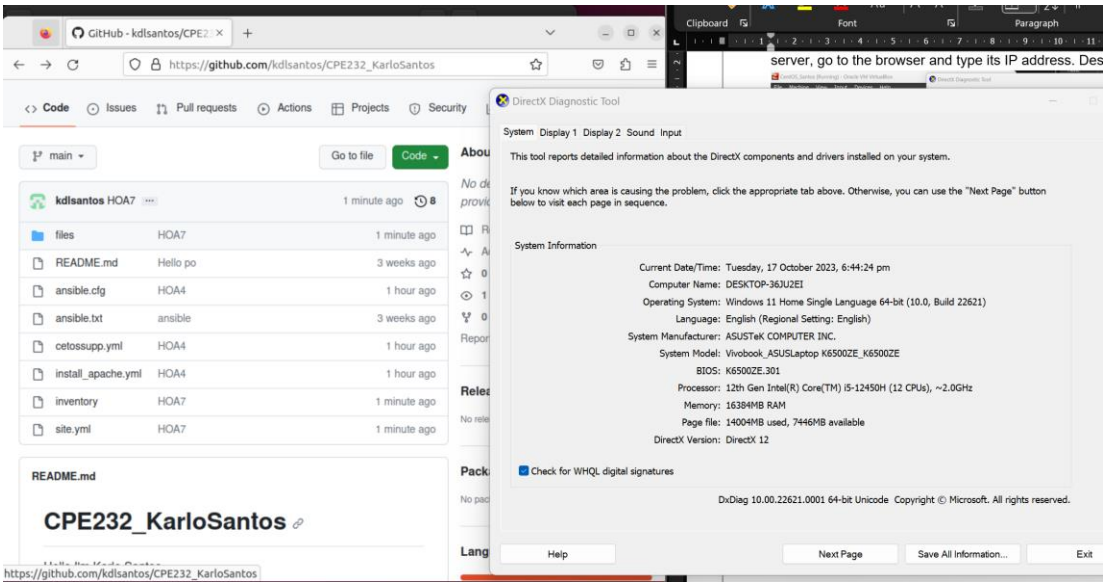
Based on the output, it shows that it has changes on the servers that is included to the web_servers.

4. Go to the remote servers (*web_servers*) listed in your inventory. Use cat command to check if the index.html is the same as the local repository file (*default_site.html*). Do both for Ubuntu and CentOS servers. On the CentOS server, go to the browser and type its IP address. Describe the output.



As you can see in the screenshot, the output of the cat command is similar to the output once I run the IP address of centos. This is the result of the previous task that I did when I run the playbook.

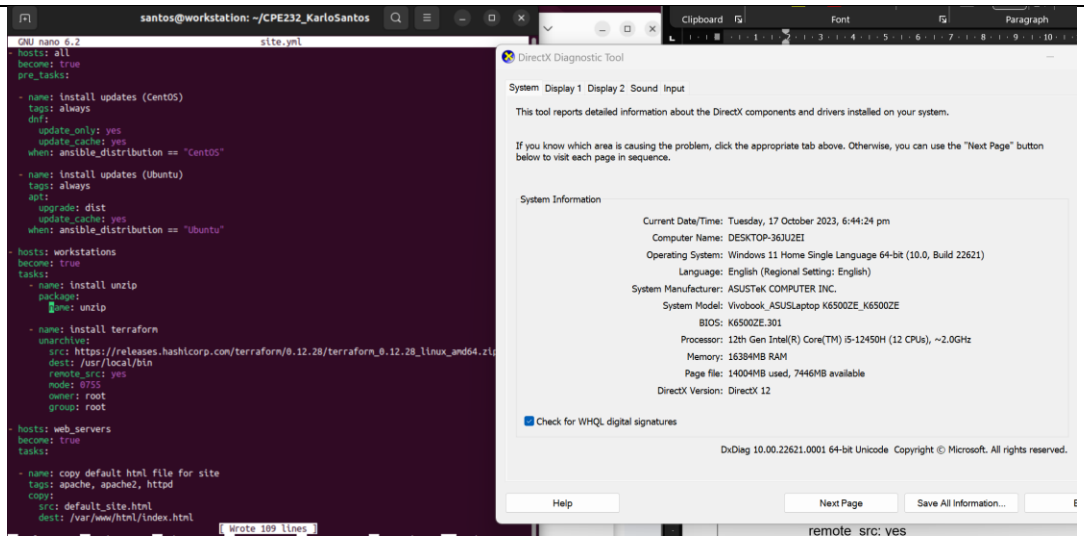
5. Sync your local repository with GitHub and describe the changes.



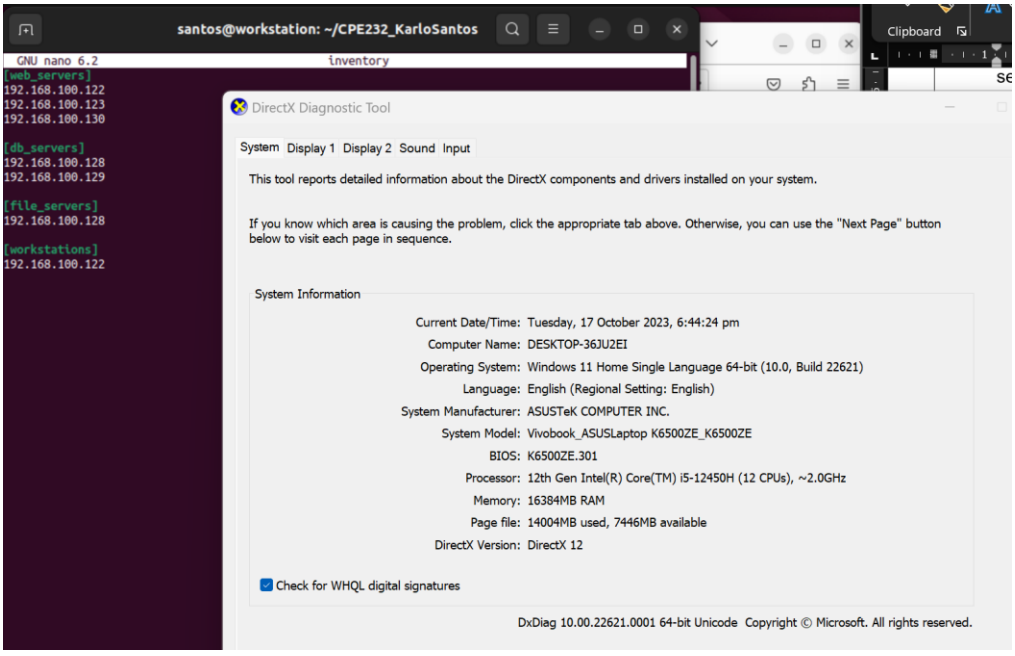
Task 2: Download a file and extract it to a remote server

1. Edit the site.yml. Just before the web_servers play, create a new play:

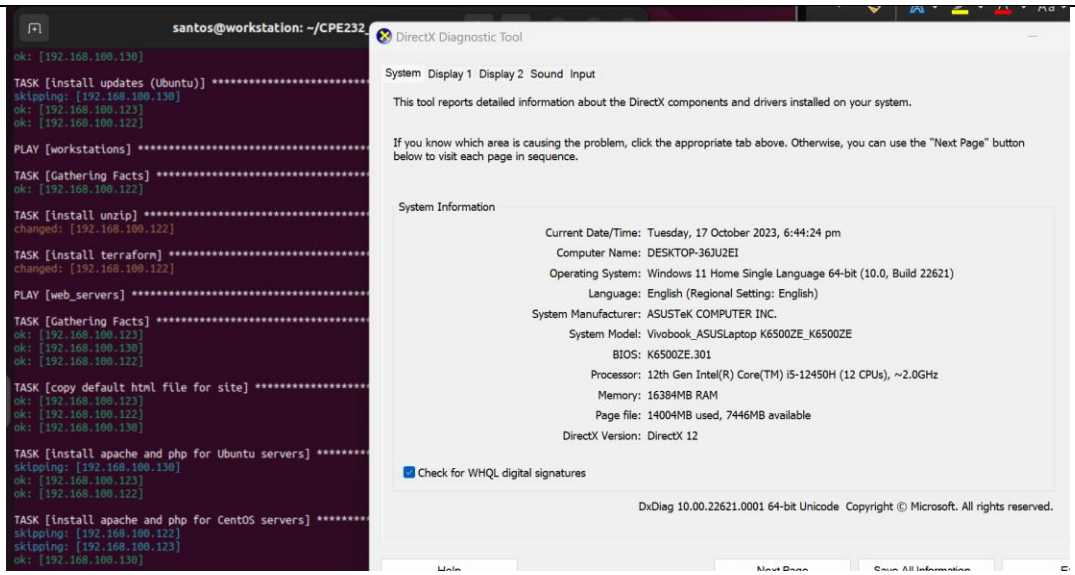
```
- hosts: workstations
  become: true
  tasks:

  - name: install unzip
    package:
      name: unzip

  - name: install terraform
    unarchive:
      src: https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
      dest: /usr/local/bin
      remote_src: yes
      mode: 0755
      owner: root
      group: root
```



2. Edit the inventory file and add workstations group. Add any Ubuntu remote server. Make sure to remember the IP address.

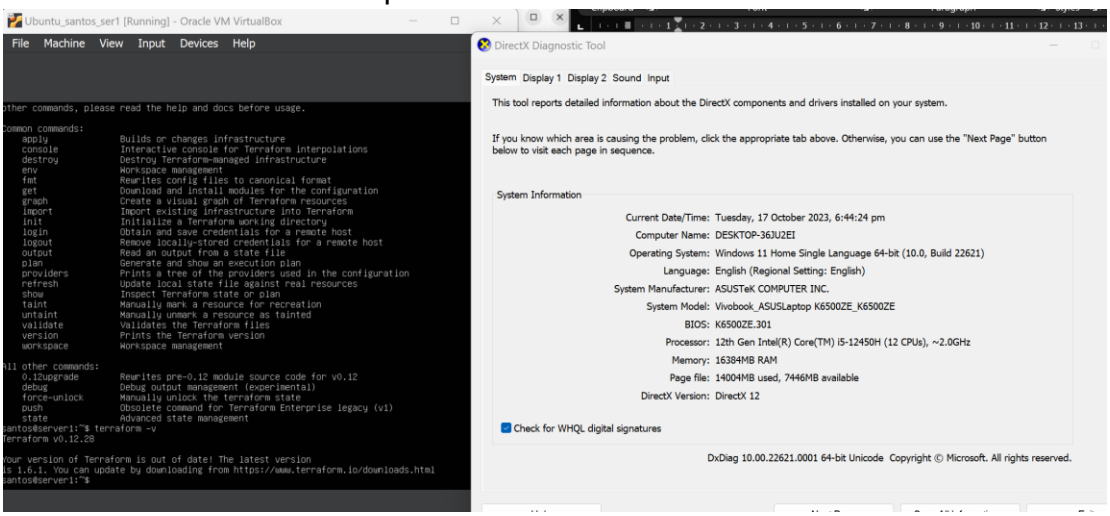


3. Run the playbook. Describe the output.



It shows that the installation of unzip and terraform is successful. Also, it shows changes as you can see in the screenshot.

4. On the Ubuntu remote workstation, type terraform to verify installation of terraform. Describe the output.



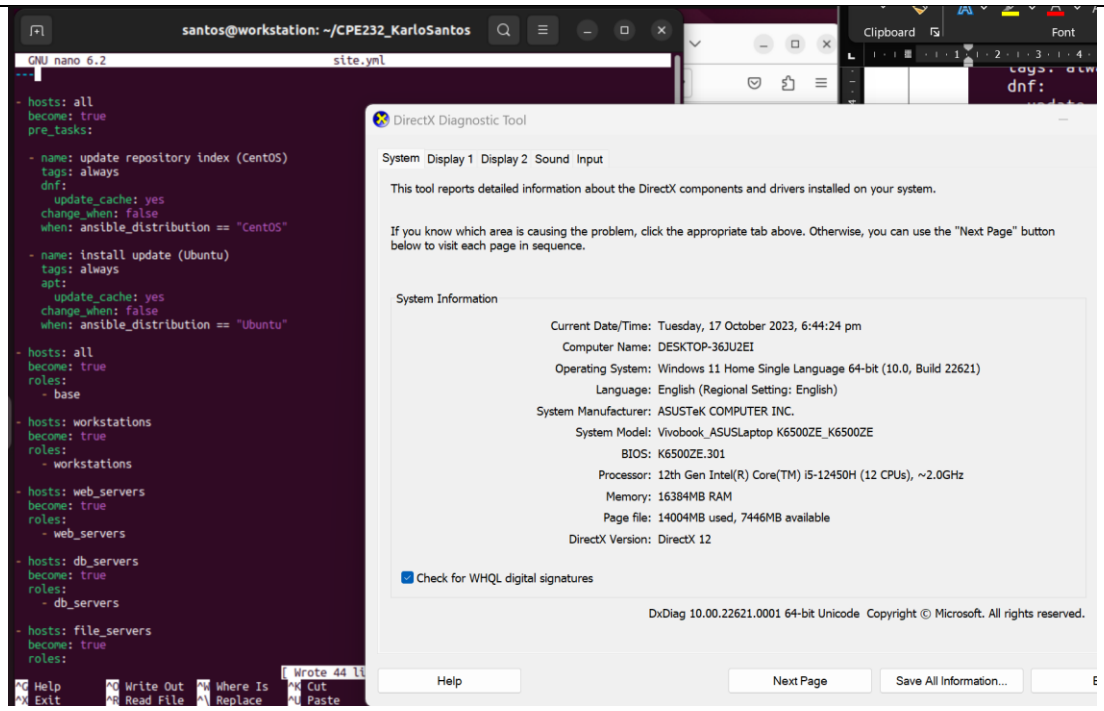
The output shows that it successfully install the terraform, but as it shows it need an update since the installed version is out of date.

Task 3: Create roles

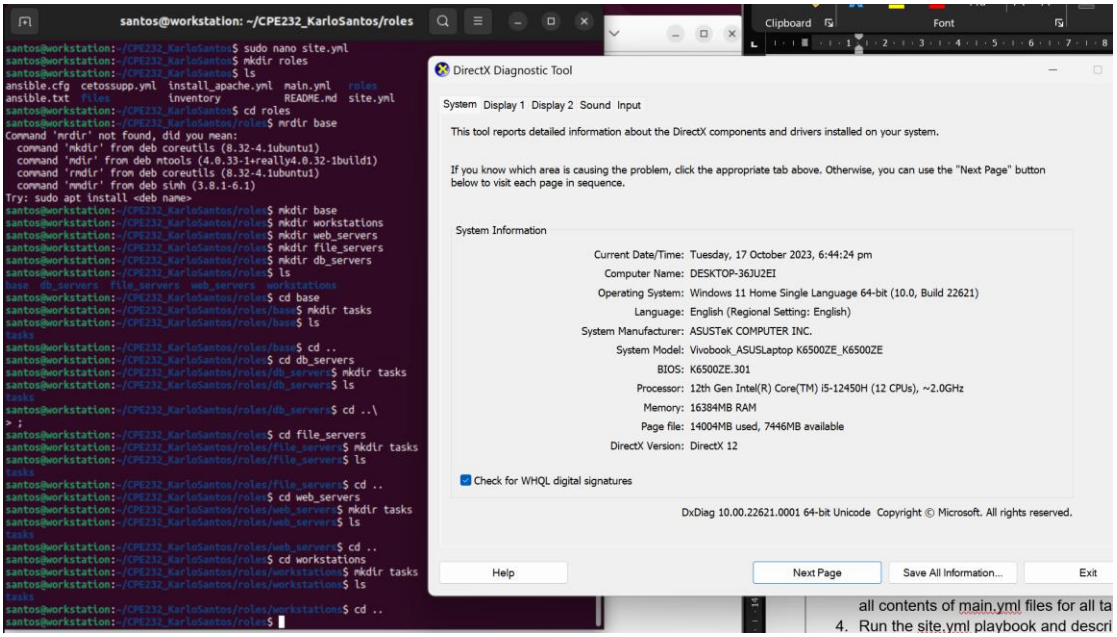
1. Edit the site.yml. Configure roles as follows: (make sure to create a copy of the old site.yml file because you will be copying the specific plays for all groups)

```
---
- 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"

- hosts: all
  become: true
  roles:
    -  base

- hosts: workstations
  become: true
  roles:
    - workstations

- hosts: web_servers
  become: true
  roles:
    - web_servers

- hosts: db_servers
  become: true
  roles:
    - db_servers

- hosts: file_servers
  become: true
  roles:
    - file_servers
```

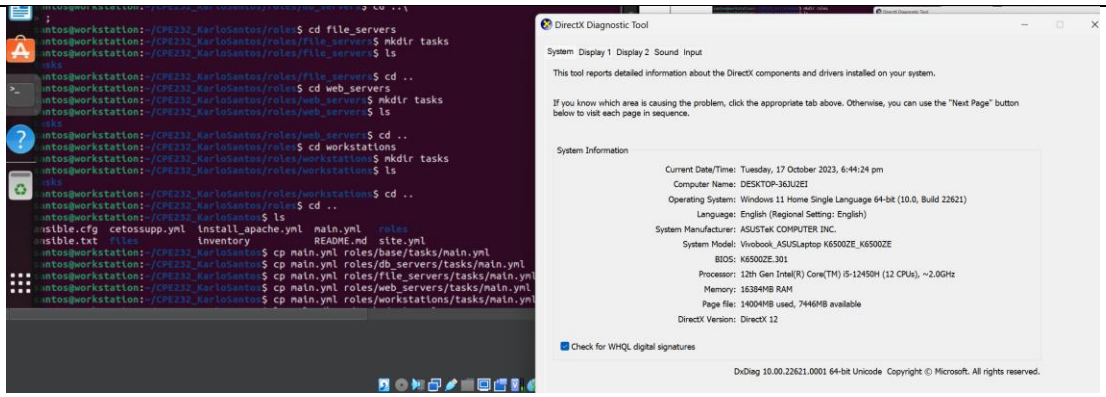
Save the file and exit.

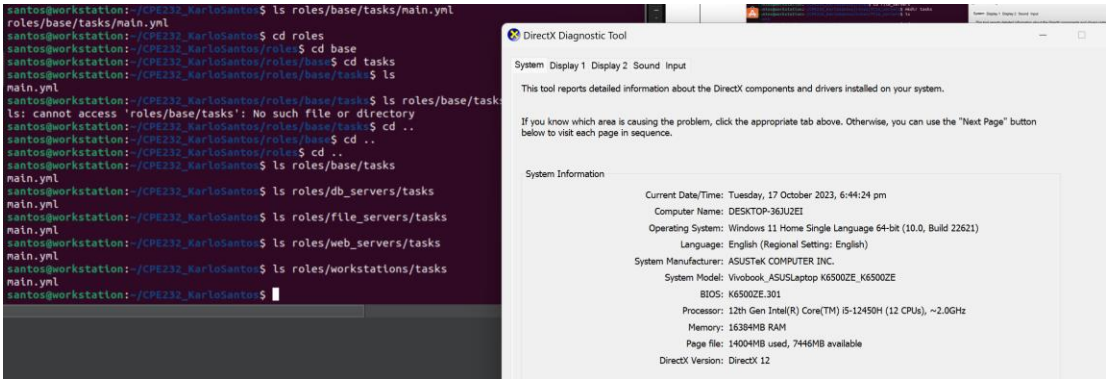


2. Under the same directory, create a new directory and name it roles. Enter the roles directory and create new directories: base, web_servers, file_servers, db_servers and workstations. For each directory, create a directory and name it tasks.



3. Go to tasks for all directory and create a file. Name it main.yml. In each of the tasks for all directories, copy and paste the code from the old site.yml file. Show all contents of main.yml files for all tasks.


cd file_servers
mkdir tasks
ls
cd ..
cd web_servers
mkdir tasks
ls
cd ..
cd workstations
mkdir tasks
ls
cd ..
cd ..
ls
ansible.cfg cetossupp.yml install_apache.yml main.yml roles
ansible.txt files inventory README.md site.yml
cp main.yml roles/base/tasks/main.yml
cp main.yml roles/db_servers/tasks/main.yml
cp main.yml roles/file_servers/tasks/main.yml
cp main.yml roles/web_servers/tasks/main.yml
cp main.yml roles/workstations/tasks/main.yml
DirectX Diagnostic Tool
System Display 1 Display 2 Sound Input
This tool reports detailed information about the DirectX components and drivers installed on your system.
If you know which area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.
System Information
Current Date/Time: Tuesday, 17 October 2023, 6:44:24 pm
Computer Name: DESKTOP-36JU2EI
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 14004MB used, 7446MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
DxDiag 10.00.22621.0001 64-bit Unicode Copyright © Microsoft. All rights reserved.


ls roles/base/tasks/main.yml
roles/base/tasks/main.yml
cd roles
cd base
cd tasks
ls
main.yml
ls roles/base/tasks
ls: cannot access 'roles/base/tasks': No such file or directory
cd ..
cd ..
cd ..
ls roles/base/tasks
main.yml
ls roles/db_servers/tasks
main.yml
ls roles/file_servers/tasks
main.yml
ls roles/web_servers/tasks
main.yml
ls roles/workstations/tasks
main.yml
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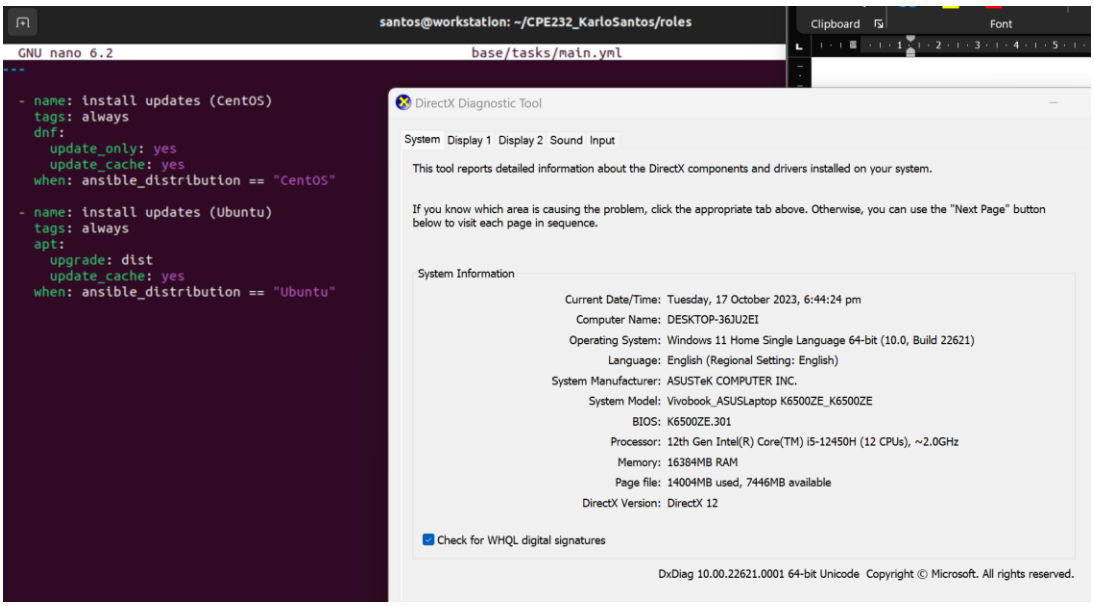
Base tasks


santos@workstation: ~/CPE232_KarloSantos/roles
GNU nano 6.2
base/tasks/main.yml

- 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"
Clipboard
Font
DirectX Diagnostic Tool
System Display 1 Display 2 Sound Input
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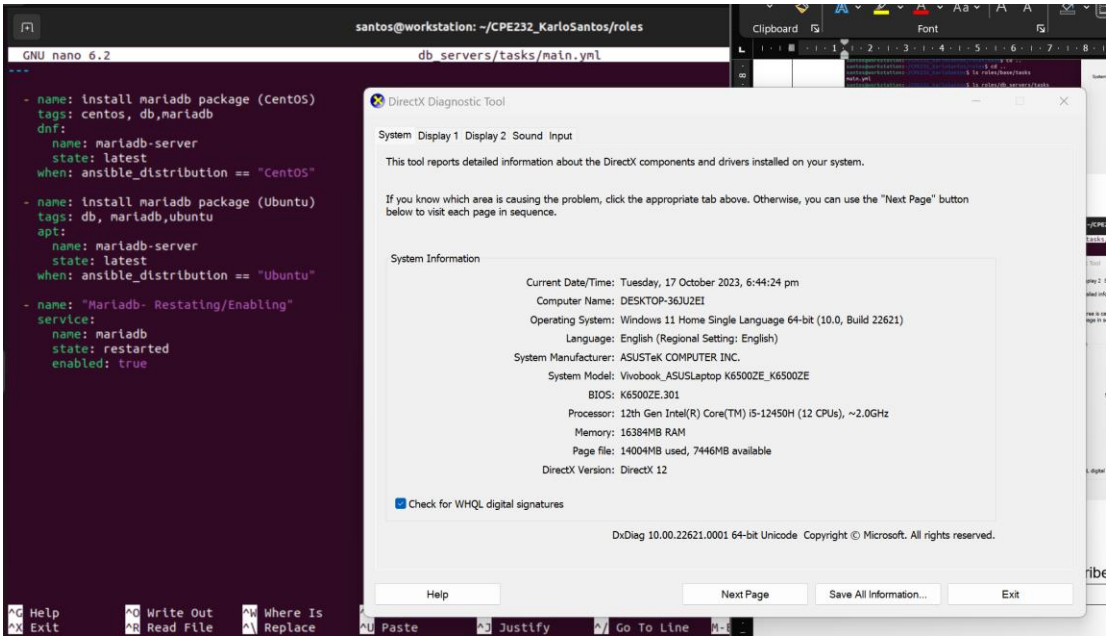
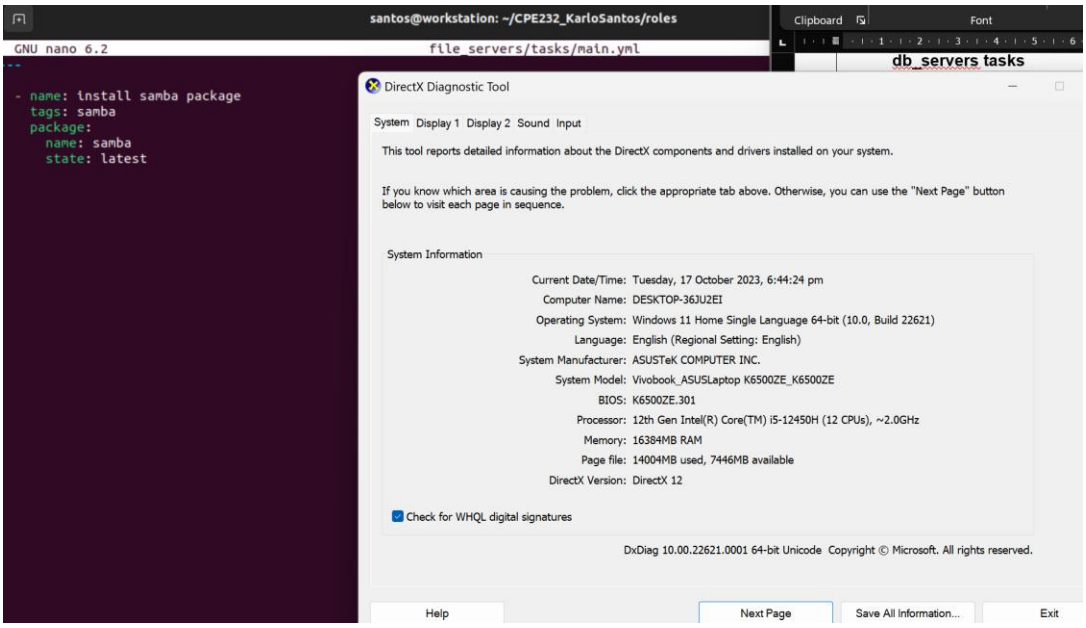
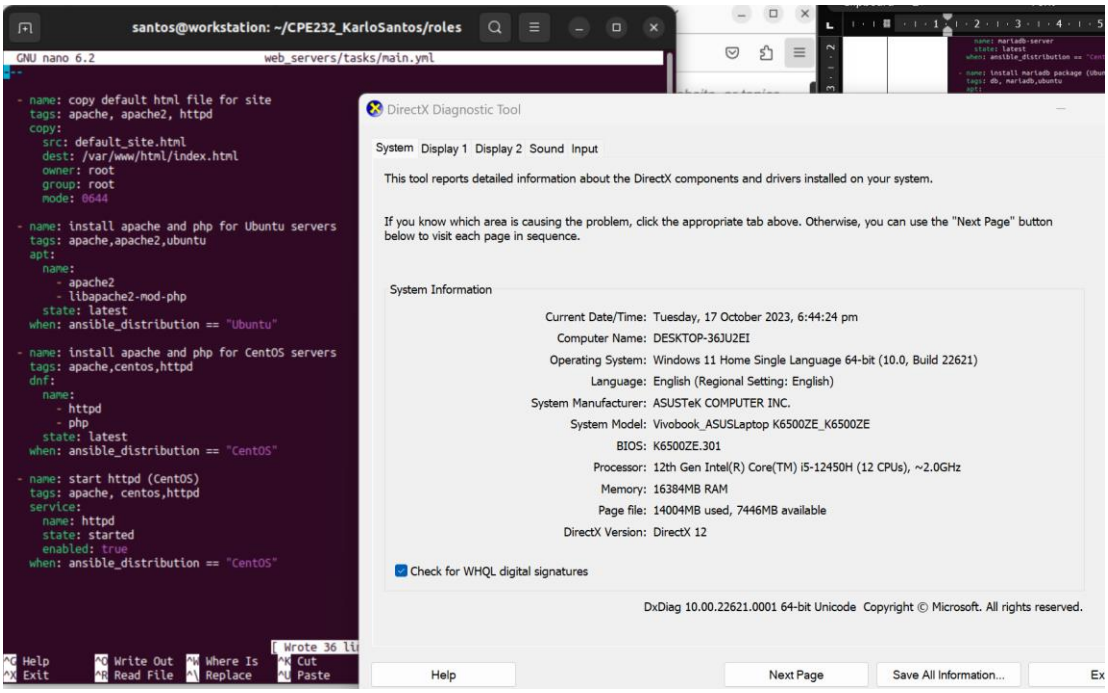
db_servers tasks



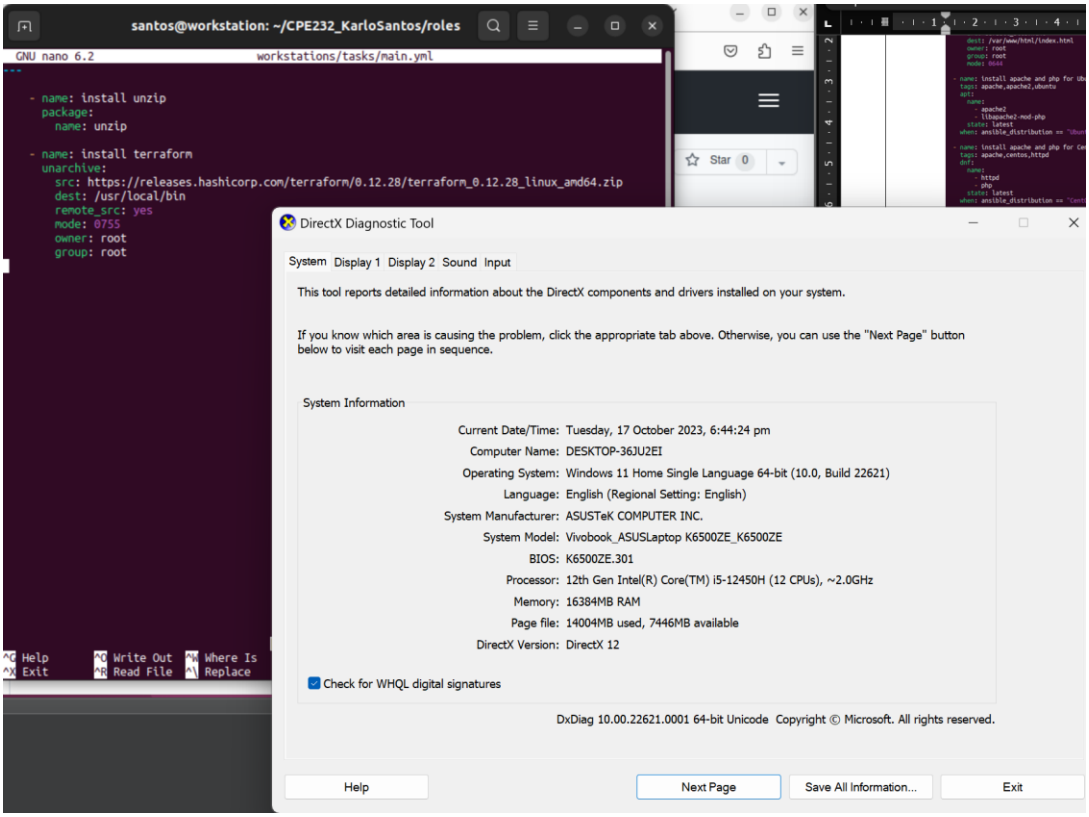
file_servers tasks



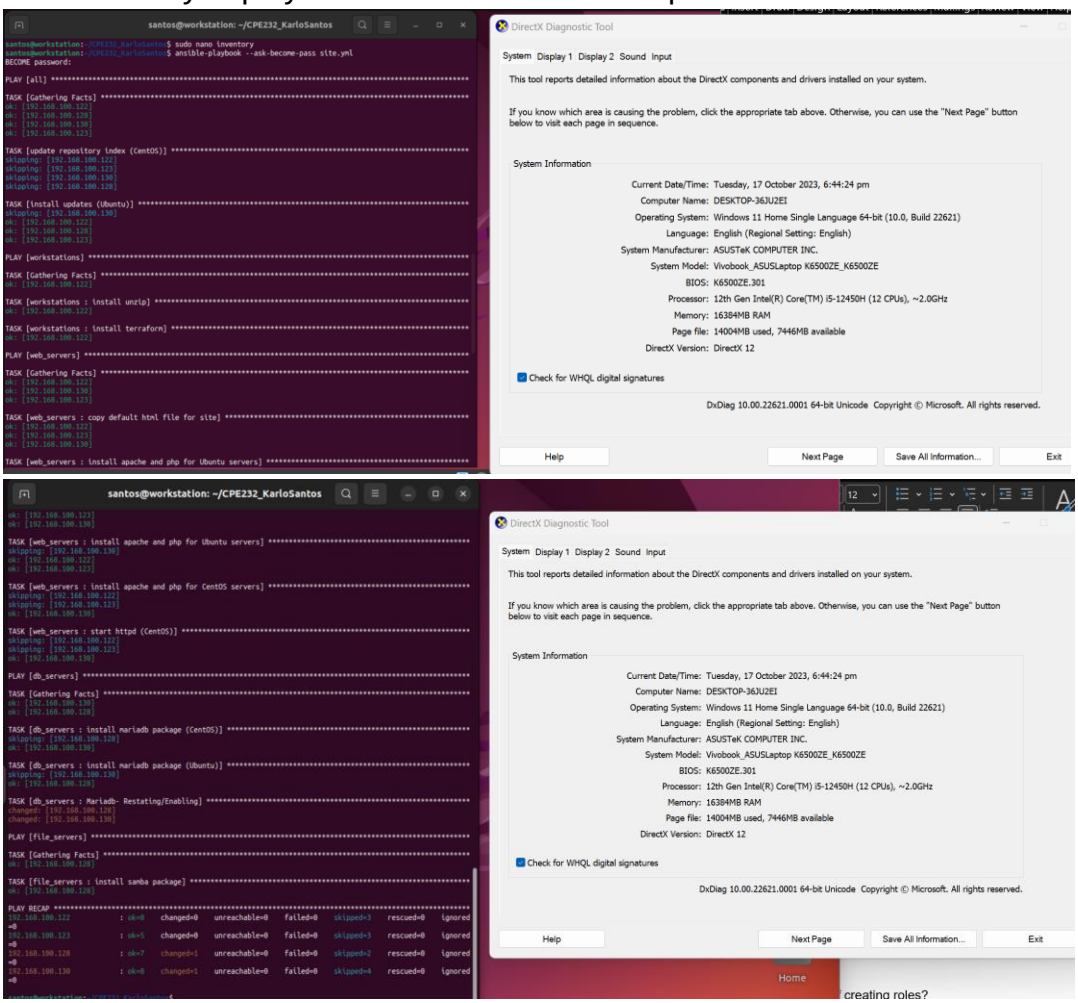
web_servers tasks



Workstations tasks



4. Run the site.yml playbook and describe the output.



As we can see in the output recap, it shows that it run all the task successfully without any error. The different changes are been done according to the need of playbook.

Reflections:

Answer the following:

1. What is the importance of creating roles?
    - **Creating roles gives are important in many ways. One of them is it helps in making playbook easier to understand since it is more organize. It is important specially in a huge system or complicated playbook to manage. Also, since it is organized it easier also to debug and troubleshoot if some error occurs in the executing the playbook. Creating roles also help in improving the scalability of your playbook since it can be use in the different roles once you already done testing it to the other role.**

2. What is the importance of managing files?
    - **Managing files help us in making our life easier. Since we don't want our file to be scattered, it will result for us to encounter some difficulty in terms of debugging and troubleshoot even accessing the file quickly. Managing the files help in making our work more efficient in error handing and be able to solve the problem quickly.**