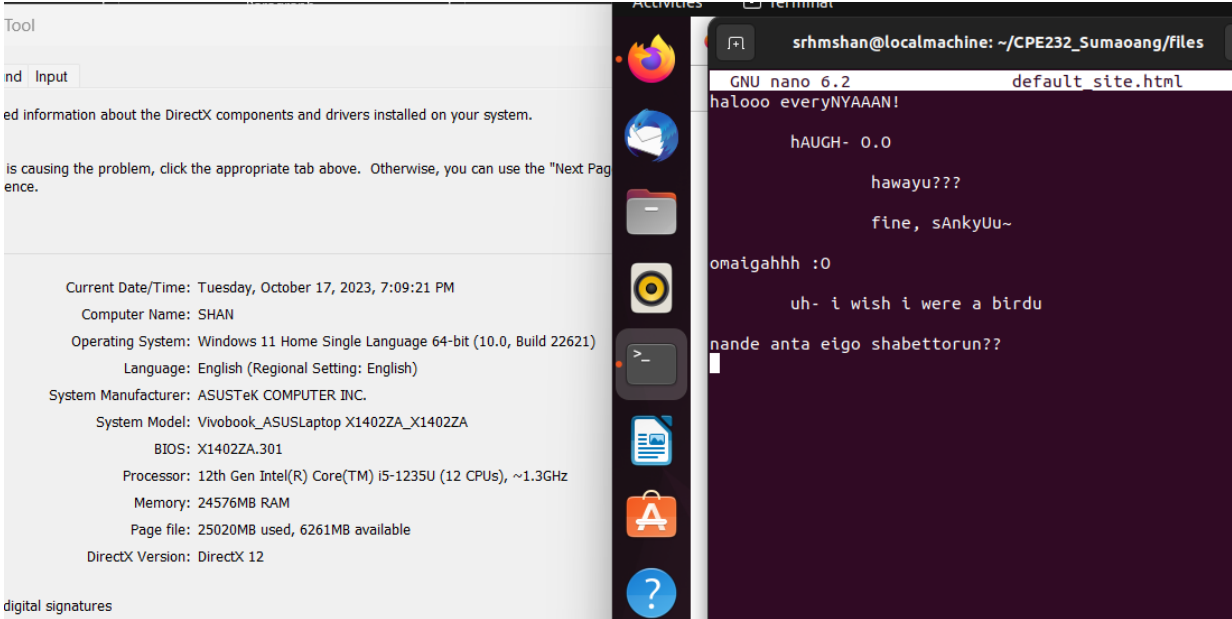
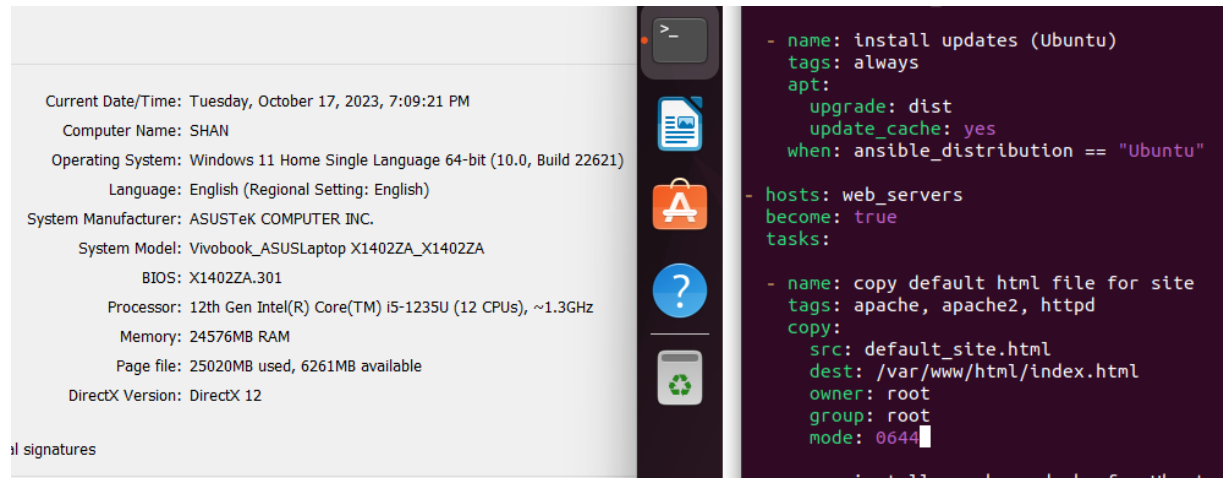


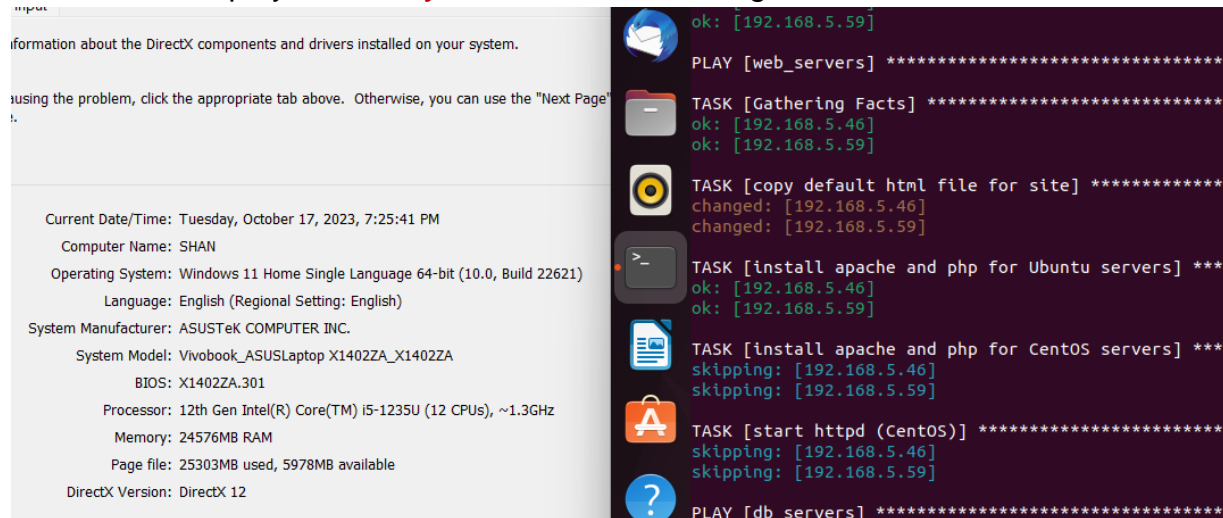
Name: Shaniah Rose Hope M. Sumaoang	Date Performed: October 17, 2023
Course/Section: CPE 232-CPE31S5	Date Submitted: October 17, 2023
Instructor: Engr. Roman Richard	Semester and SY: 1st Sem SY 23-24
Activity 7: Managing Files and Creating Roles in Ansible	
1. Objectives: 1.1 Manage files in remote servers 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 " <i>files</i> ." Create a file inside that directory and name it " <i>default_site.html</i> ." 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 <i>site.yml</i> file and just below the <i>web_servers</i> play, create a new file to copy the default html file for site: <ul style="list-style-type: none"> - 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
```



The screenshot shows a Windows 11 system information window on the left and an Ansible playbook snippet on the right. The system information window displays details such as the current date/time (Tuesday, October 17, 2023, 7:09:21 PM), computer name (SHAN), operating system (Windows 11 Home Single Language 64-bit (10.0, Build 22H2)), language (English), system manufacturer (ASUSTek COMPUTER INC.), system model (Vivobook_ASUSLaptop X1402ZA_X1402ZA), BIOS (X1402ZA.301), processor (12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz), memory (24576MB RAM), page file (25020MB used, 6261MB available), and DirectX version (DirectX 12). The Ansible playbook snippet on the right shows a task to install updates for Ubuntu, followed by a task to copy the default HTML file for the site. The task to copy the file is configured with the source file 'default_site.html', the destination '/var/www/html/index.html', and permissions 'owner: root, group: root, mode: 0644'.

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



The screenshot shows a Windows 11 system information window on the left and an Ansible terminal output on the right. The system information window displays details such as the current date/time (Tuesday, October 17, 2023, 7:25:41 PM), computer name (SHAN), operating system (Windows 11 Home Single Language 64-bit (10.0, Build 22H2)), language (English), system manufacturer (ASUSTek COMPUTER INC.), system model (Vivobook_ASUSLaptop X1402ZA_X1402ZA), BIOS (X1402ZA.301), processor (12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz), memory (24576MB RAM), page file (25303MB used, 5978MB available), and DirectX version (DirectX 12). The Ansible terminal output on the right shows the execution of the 'site.yml' playbook. The output indicates that the playbook was successful for the 'web_servers' group, with tasks for gathering facts, copying the default HTML file, and installing Apache and PHP for Ubuntu servers. The tasks for installing Apache and PHP for CentOS servers were skipped.

The contents of "default_site.html" were copied to the specified destination, which is "/var/www/html/index.html." for the 2 Ubuntu servers that were assigned in the inventory for web_servers.

- 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.

Input

formation about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next Pa

Current Date/Time: Tuesday, October 17, 2023, 7:28:43 PM
Computer Name: SHAN
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 X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 25326MB used, 5955MB available
DirectX Version: DirectX 12

il signatures

Sumaoang_CentOS [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Applications Places Firefox

Sun 05:41

Mozilla Firefox

192.168.5.46/

192.168.5.46

halooo everyNYAAAN! hAUGH- O.O hawayu??? fine, sAnkyUu~ omaigahhh :O uh- i wish i were a birdu nande anta eigo shabettorun??

put

mation about the DirectX components and drivers installed on your system.

ing the problem, click the appropriate tab above. Otherwise, you can use the "Next Pa

Current Date/Time: Tuesday, October 17, 2023, 7:33:24 PM
Computer Name: SHAN
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 X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 25417MB used, 5864MB available
DirectX Version: DirectX 12

signatures

Ubuntu Desktop_Sumaoang [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Firefox Web Browser

Oct 17 19:44

srhmshan@localmachine: ~/CPE232_Sumaoang/files

192.168.5.2171

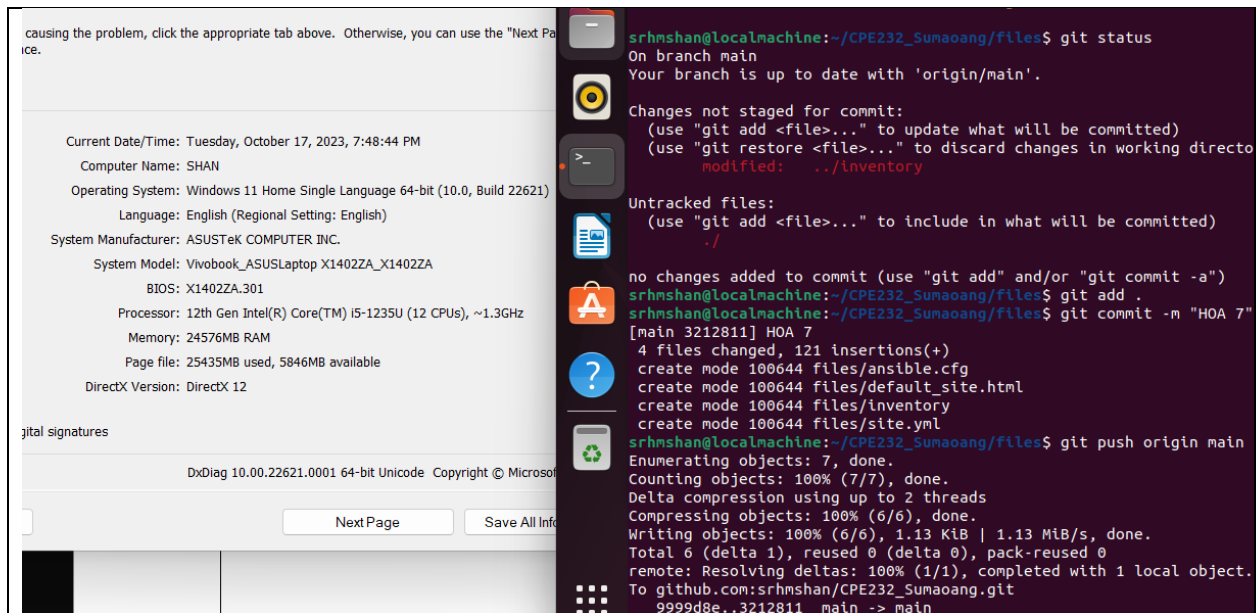
srhmshan/CPE232_Sumaoang 192.168.5.59/

192.168.5.59

halooo everyNYAAAN! hAUGH- O.O hawayu??? fine, sAnkyUu~ omaigahhh :O uh- i wish i were a birdu nande anta eigo shabettorun??

This is to verify that the contents of “default_site.html” were copied successfully to the index.html.

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

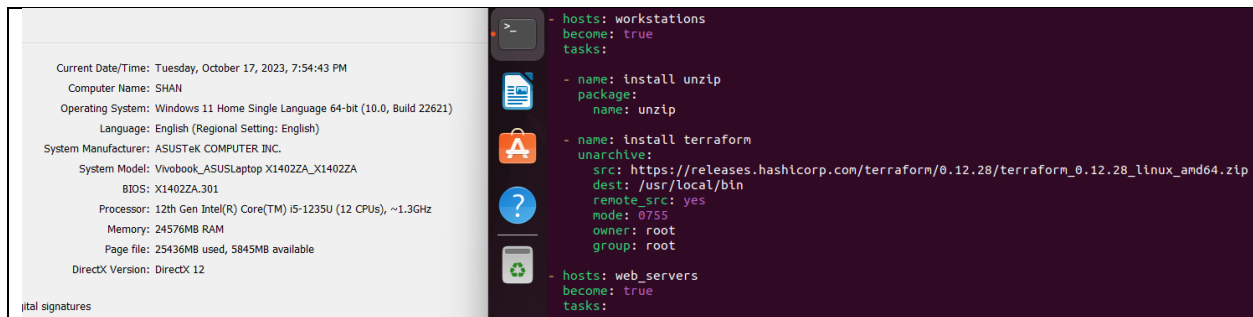


I used the git commands to add, commit and push what I've done so far in the files repository.

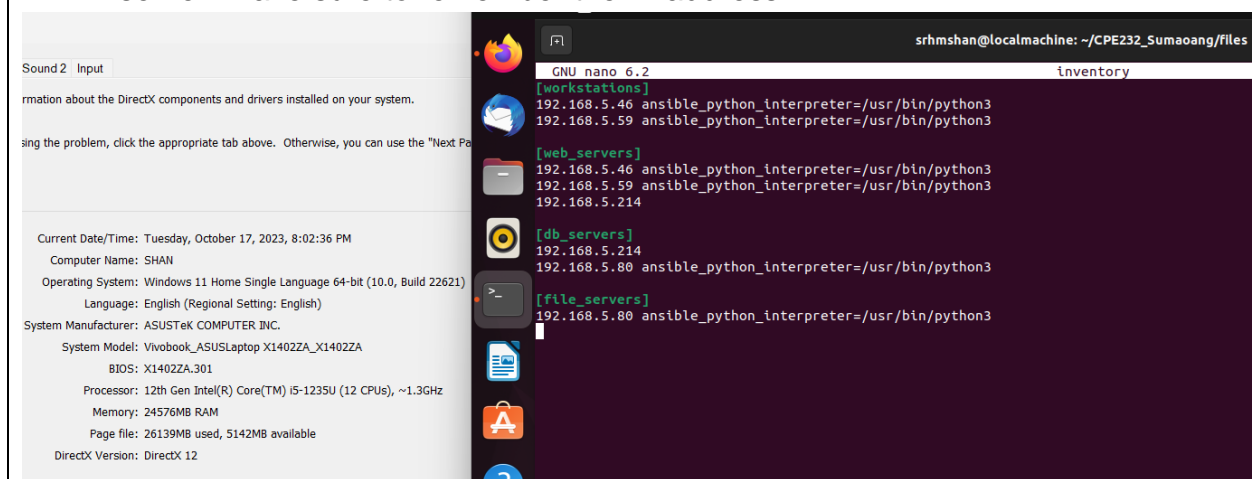
Task 2: Download a file and extract it to a remote server

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

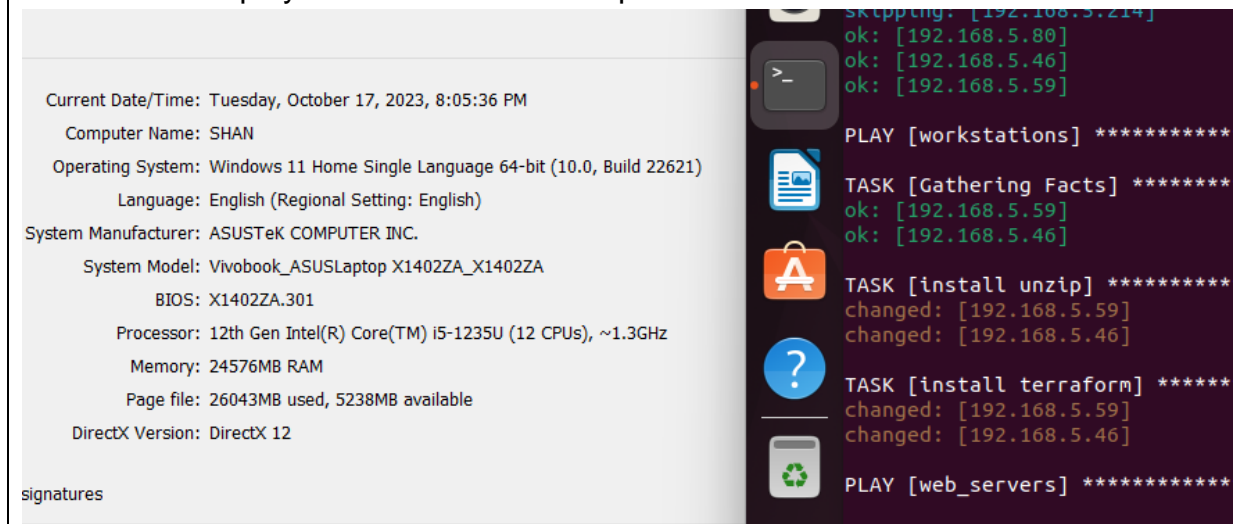
- hosts: workstations
become: true
tasks:
 - name: install unzip
package:
name: unzip
 - name: install terraform
unarchive:
src:
https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
dest: /usr/local/bin
remote_src: yes
mode: 0755
owner: root
group: root



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

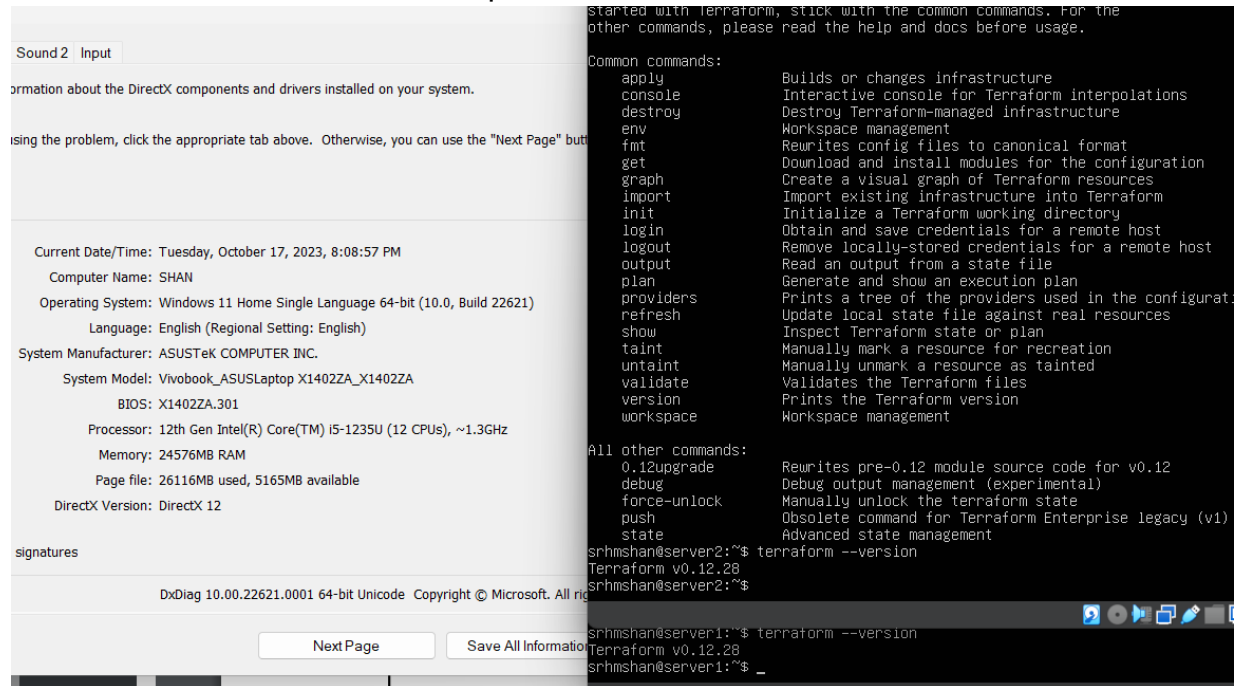


3. Run the playbook. Describe the output.



The installation of unzip and terraform to each Ubuntu server in the workstations group was successful.

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



Since the task was successful, I typed “terraform –version” to confirm that the installations were done.

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

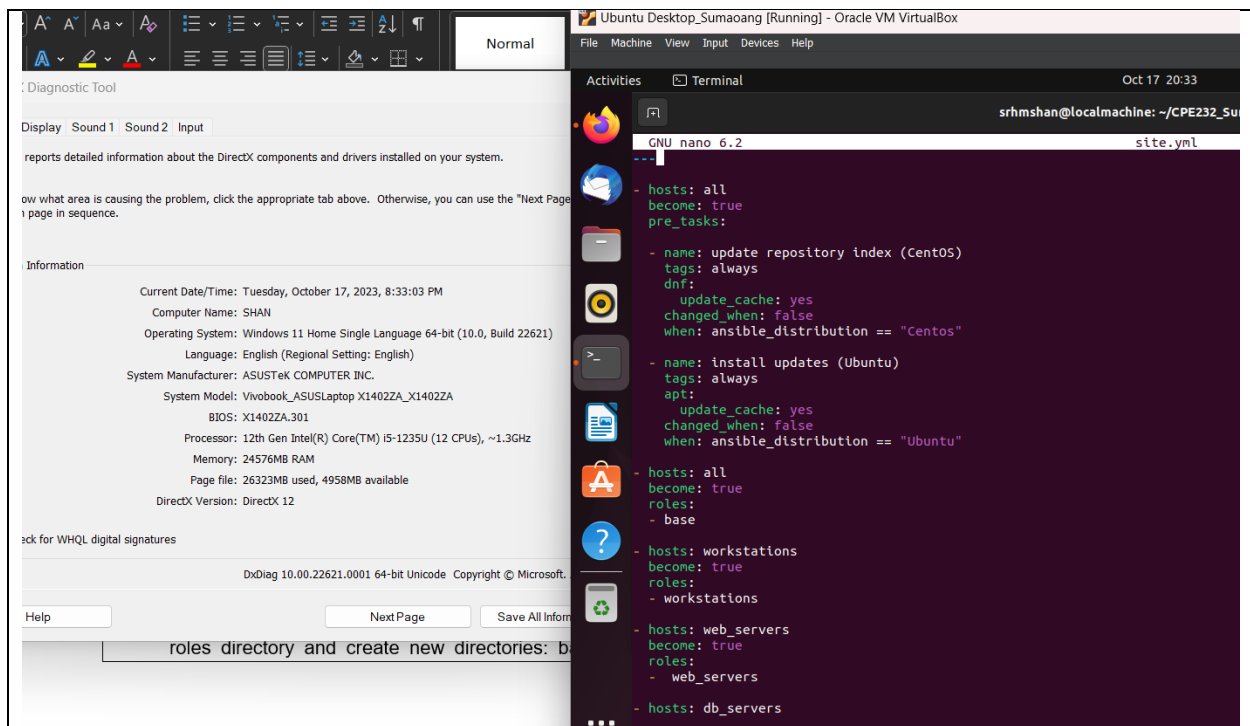
- hosts: web_servers
  become: true
  roles:
    - web_servers

- hosts: db_servers
  become: true
  roles:
    - db_servers

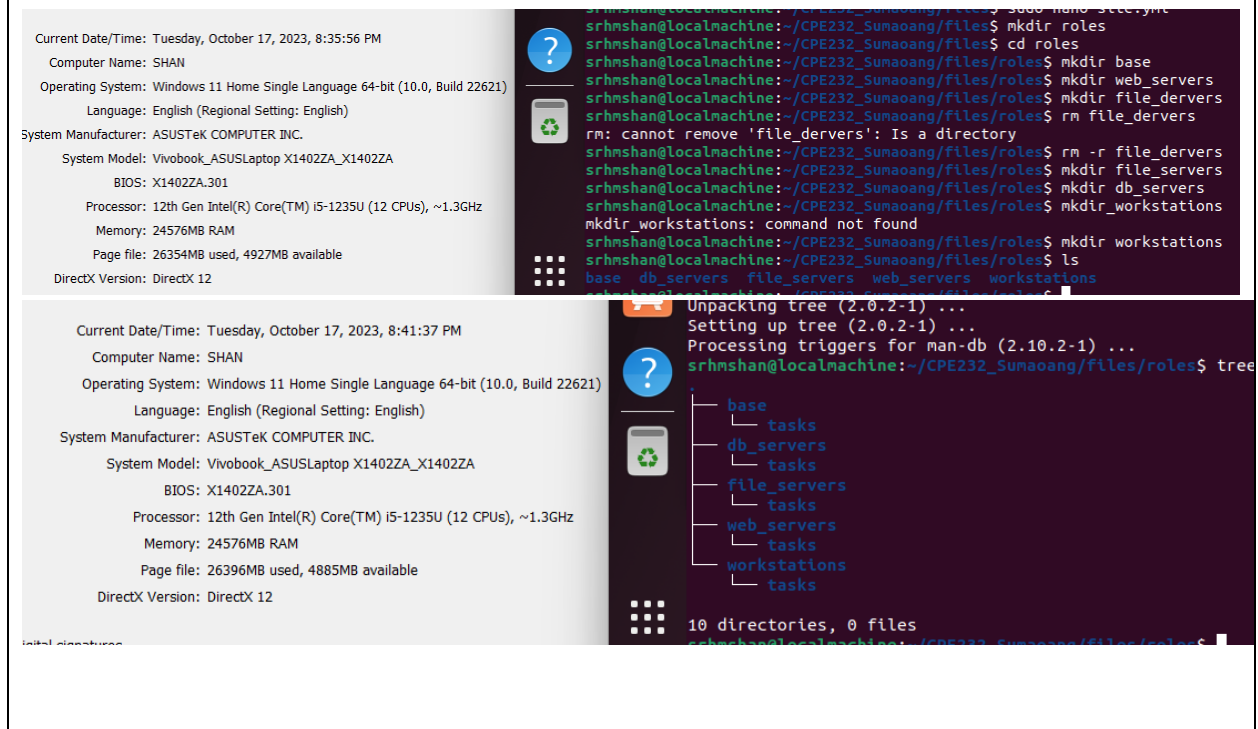
- hosts: file_servers
  become: true
  roles:
    - file_servers

```

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.

Current Date/Time: Tuesday, October 17, 2023, 8:48:56 PM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22H2)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 25803MB used, 5478MB available
DirectX Version: DirectX 12

signatures

```
srhmshan@localmachine: ~/CPE232_Sumaoang/files$ cd roles
srhmshan@localmachine: ~/CPE232_Sumaoang/files/roles$ tree
.
├── base
│   └── tasks
│       └── main.yml
├── db_servers
│   └── tasks
│       └── main.yml
├── file_servers
│   └── tasks
│       └── main.yml
├── web_servers
│   └── tasks
│       └── main.yml
└── workstations
    └── tasks
        └── main.yml

10 directories, 5 files
```

base directory:

Input

formation about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page"

Current Date/Time: Tuesday, October 17, 2023, 9:31:17 PM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22H2)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 25909MB used, 5372MB available
DirectX Version: DirectX 12

al signatures

```
srhmshan@localmachine: ~/CPE232_Sumaoang/files/roles/base/tasks
GNU nano 6.2 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"
```

web_servers directory:

Input

formation about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page"

Current Date/Time: Tuesday, October 17, 2023, 9:17:01 PM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22H2)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 26096MB used, 5185MB available
DirectX Version: DirectX 12

l signatures

DxDiag 10.00.22621.0001 64-bit Unicode Copyright © Microsoft. A

Next Page Save All Inform

```
srhmshan@localmachine: ~/CPE232_Sumaoang/files/roles/web_servers/tasks
GNU nano 6.2 main.yml
---
- 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

- name: install apache and php for Ubuntu servers
  tags: apache, apache2, ubuntu
  apt:
    name:
      - apache2
      - libapache2-mod-php
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: install apache and php for CentOS servers
  tags: apache, apache2, httpd
  dnf:
    name:
      - httpd
      - php
    state: latest
  when: ansible_distribution == "CentOS"

- name: start httpd (CentOS)
  tags: apache, centos, httpd
  service:
    name: httpd
    state: started
    enabled: true
  when: ansible_distribution == "CentOS"
```

Wrote 36 lines

Help Write Out Where Is Cut Execute Location H-U
Exit Read File Replace Paste Execute Paste Go To Line H-R

db_servers directory:

ter

ool

id Input

d information about the DirectX components and drivers installed on your system.

s causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" nce.

Current Date/Time: Tuesday, October 17, 2023, 9:17:01 PM
Computer Name: SHAN
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 X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 26096MB used, 5185MB available
DirectX Version: DirectX 12

srhmshan@localmachine: ~/CPE232_Sumaoang/files/roles/db_servers/task

GNU nano 6.2 main.yml

```
---
- name: install mariadb package (CentOS)
  tags: centos, db, mariadb
  dnf:
    name: mariadb-server
    state: latest
    when: ansible_distribution == "CentOS"

- name: "Mariadb- Restarting/Enabling"
  service:
    name: mariadb
    state: restarted
    enabled: true

- name: install mariadb package (Ubuntu)
  tags: db, mariadb, ubuntu
  apt:
    name: mariadb-server
    state: latest
    when: ansible_distribution == "Ubuntu"
```

file_servers directory:

input

ormation about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page"

Current Date/Time: Tuesday, October 17, 2023, 9:17:01 PM
Computer Name: SHAN
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 X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 26096MB used, 5185MB available
DirectX Version: DirectX 12

srhmshan@localmachine: ~/CPE232_Sumaoang/files/roles/file_servers/tasks

GNU nano 6.2 main.yml

```
---
- name: install samba package
  tags: samba
  package:
    name: samba
    state: latest
```

workstations directory:

Input

ormation about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page"

Current Date/Time: Tuesday, October 17, 2023, 9:17:01 PM
Computer Name: SHAN
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 X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 26096MB used, 5185MB available
DirectX Version: DirectX 12

srhmshan@localmachine: ~/CPE232_Sumaoang/files/roles/workstations/tasks

GNU nano 6.2 main.yml

```
---
- 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
```

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

```
PLAY [all] *****
TASK [Gathering Facts] *****
ok: [192.168.5.46]
ok: [192.168.5.80]
ok: [192.168.5.59]
ok: [192.168.5.217]

TASK [update repository index (CentOS)] *****
skipping: [192.168.5.46]
skipping: [192.168.5.80]
skipping: [192.168.5.59]
skipping: [192.168.5.217]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.5.217]
ok: [192.168.5.46]
ok: [192.168.5.59]
ok: [192.168.5.80]

PLAY [workstations] *****
TASK [Gathering Facts] *****
ok: [192.168.5.46]
ok: [192.168.5.59]

TASK [workstations : install unzip] *****
ok: [192.168.5.46]
ok: [192.168.5.59]

TASK [workstations : install terraform] *****
ok: [192.168.5.59]
ok: [192.168.5.46]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.5.46]
ok: [192.168.5.59]
ok: [192.168.5.217]

TASK [web_servers : copy default html file for site] *****
ok: [192.168.5.46]
ok: [192.168.5.59]
ok: [192.168.5.217]

TASK [web_servers : install apache and php for Ubuntu servers] *****
skipping: [192.168.5.217]
ok: [192.168.5.46]
ok: [192.168.5.59]

TASK [web_servers : install apache and php for CentOS servers] *****
skipping: [192.168.5.46]
skipping: [192.168.5.59]
ok: [192.168.5.217]

TASK [web_servers : start httpd (CentOS)] *****
skipping: [192.168.5.46]
skipping: [192.168.5.59]
ok: [192.168.5.217]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.5.80]
ok: [192.168.5.217]

TASK [db_servers : install mariadb package (CentOS)] *****
skipping: [192.168.5.80]
ok: [192.168.5.217]

TASK [db_servers : Mariadb- Restarting/Enabling] *****
changed: [192.168.5.80]
changed: [192.168.5.217]

TASK [db_servers : install mariadb package (Ubuntu)] *****
skipping: [192.168.5.217]
ok: [192.168.5.80]

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.5.80]

TASK [file_servers : install samba package] *****
ok: [192.168.5.80]

PLAY RECAP *****
192.168.5.217 : ok=8 changed=1 unreachable=0 failed=0 skipped=4 rescued=0 ignored=0
192.168.5.46 : ok=8 changed=0 unreachable=0 failed=0 skipped=3 rescued=0 ignored=0
192.168.5.59 : ok=8 changed=0 unreachable=0 failed=0 skipped=3 rescued=0 ignored=0
192.168.5.80 : ok=7 changed=1 unreachable=0 failed=0 skipped=2 rescued=0 ignored=0
```

After successfully running the playbook, I noticed that creating roles is a way to break down tasks into their respective components. This will help greatly when debugging. It also looks cleaner and more manageable for future configurations.

After the tasks, I added the changes in my GitHub repository:

https://github.com/srhmschan/CPE232_Sumaoang/tree/main/files

Reflections:

Answer the following:

1. What is the importance of creating roles?

Creating roles in Ansible simplify playbook management by breaking tasks into reusable components. They ensure consistent server configurations and can be shared for collaboration, saving time.

2. What is the importance of managing files?

File management is vital for accurate configurations and data backups. It gives security against unauthorized access, applies compliance, and optimizes system efficiency.