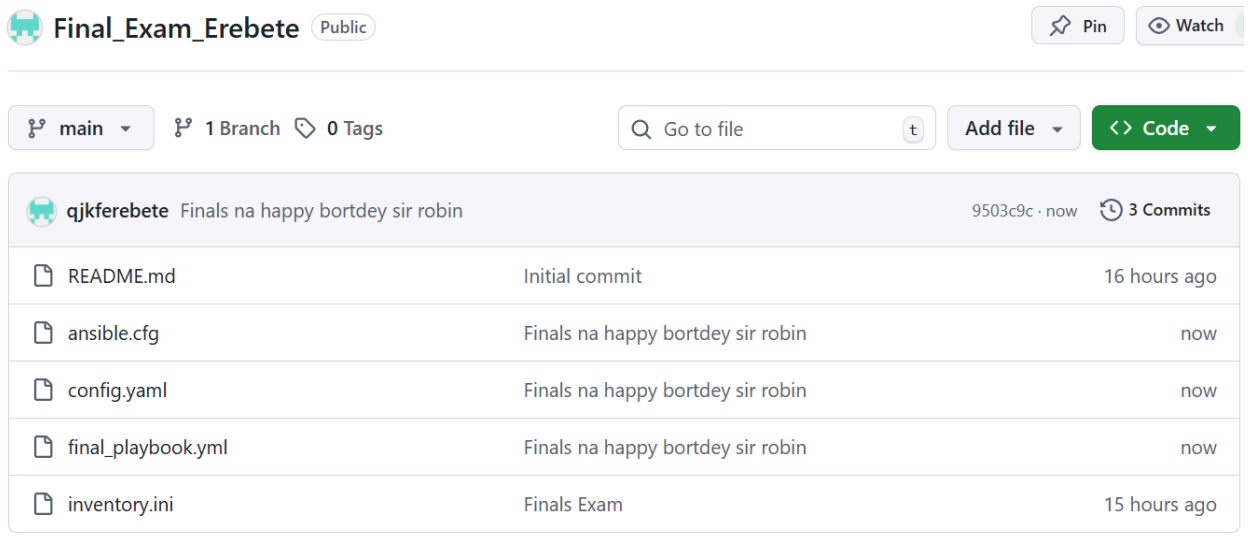
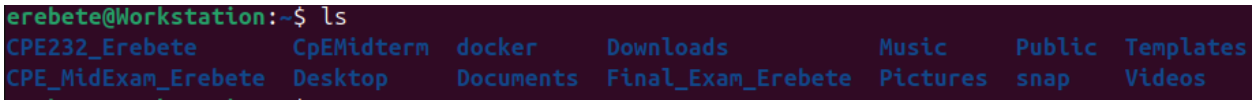
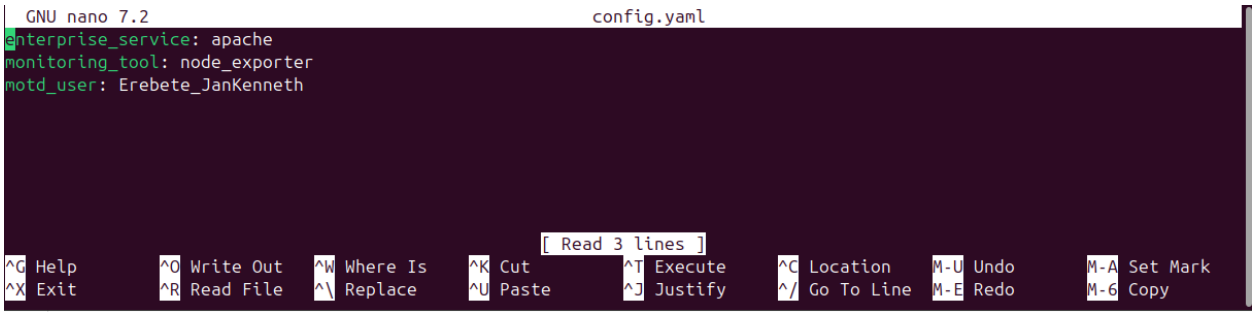
1. Create a repository and label it as "Final_Exam_Surname"



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.



```
 GNU nano 7.2                                  inventory.ini
[file_servers]
192.168.56.101

[db_servers]
192.168.56.102
192.168.56.103

[web_servers]
192.168.56.104  ansible_ssh_private_key_file=~/.ssh/id_rsa
                                [ Read 9 lines ]
^G Help       ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo      M-A Set Mark
^X Exit       ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^/ Go To Line M-E Redo      M-6 Copy
```

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

```
 GNU nano 7.2                                 final_playbook.yml
---
  - name: Setup enterprise and monitoring
    hosts: all
    become: yes
    vars_files:
      - ./config.yaml

    tasks:
      - name: Update package manager
        package:
          update_cache: yes

      - name: Install Apache
        package:
          name: "{{ 'apache2' if ansible_os_family == 'Debian' else 'httpd' }}"
          state: present
```

```
      - name: Start and enable Apache
        service:
          name: "{{ 'apache2' if ansible_os_family == 'Debian' else 'httpd' }}"
          state: started
          enabled: yes
```

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)

```
- name: Download Node Exporter
  get_url:
    url: "https://github.com/prometheus/node_exporter/releases/download/v1.10.2/node_exporter-1.10.2.linux-amd64.>
    dest: /tmp/node_exporter.tar.gz
    mode: '0644'
  when: monitoring_tool is defined and monitoring_tool == "node_exporter"

- name: Extract Node Exporter
  unarchive:
    src: /tmp/node_exporter.tar.gz
    dest: /usr/local/bin/
    remote_src: yes
    extra_opts: [--strip-components=1]
  when: monitoring_tool is defined and monitoring_tool == "node_exporter"

- name: Systemd service
  copy:
    dest: /etc/systemd/system/node_exporter.service
    content: |
        [Unit]
        Description=Prometheus Node Exporter
        After=network.target
```

```
        [Service]
        ExecStart=/usr/local/bin/node_exporter
        User=nobody
        Group={{ 'nogroup' if ansible_os_family == 'Debian' else 'nobody' }}

        [Install]
        WantedBy=multi-user.target
    when: monitoring_tool is defined and monitoring_tool == "node_exporter"

  - name: Reload systemd daemon to recognize new service file
    systemd:
      daemon_reload: yes
    when: monitoring_tool is defined and monitoring_tool == "node_exporter"
```

```
- name: Start Node Exporter
  systemd:
    name: node_exporter
    state: started
    enabled: yes
  when: monitoring_tool is defined and monitoring_tool == "node_exporter"
```

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

```
- name: Update MOTD
  copy:
    dest: /etc/motd
    content: "Ansible Managed by {{ motd_user | default('Erebete_JanKenneth') }}\n"
    owner: root
    group: root
    mode: '0644'
```

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)

Enterprise service codes

```
GNU nano 7.2                                  final_playbook.yml
---
- name: Setup enterprise and monitoring
  hosts: all
  become: yes
  vars_files:
    - ./config.yaml

  tasks:
    - name: Update package manager
      package:
        update_cache: yes

    - name: Install Apache
      package:
        name: "{{ 'apache2' if ansible_os_family == 'Debian' else 'httpd' }}"
        state: present
```

```
    - name: Start and enable Apache
      service:
        name: "{{ 'apache2' if ansible_os_family == 'Debian' else 'httpd' }}"
        state: started
        enabled: yes
```

Monitoring tool (codes)

```
  - name: Download Node Exporter
    get_url:
      url: "https://github.com/prometheus/node_exporter/releases/download/v1.10.2/node_exporter-1.10.2.linux-amd64.>
      dest: /tmp/node_exporter.tar.gz
      mode: '0644'
    when: monitoring_tool is defined and monitoring_tool == "node_exporter"

  - name: Extract Node Exporter
    unarchive:
      src: /tmp/node_exporter.tar.gz
      dest: /usr/local/bin/
      remote_src: yes
      extra_opts: [--strip-components=1]
    when: monitoring_tool is defined and monitoring_tool == "node_exporter"

  - name: Systemd service
    copy:
      dest: /etc/systemd/system/node_exporter.service
      content: |
          [Unit]
          Description=Prometheus Node Exporter
          After=network.target
```

```
            [Service]
            ExecStart=/usr/local/bin/node_exporter
            User=nobody
            Group={{ 'nogroup' if ansible_os_family == 'Debian' else 'nobody' }}

            [Install]
            WantedBy=multi-user.target
      when: monitoring_tool is defined and monitoring_tool == "node_exporter"

    - name: Reload systemd daemon to recognize new service file
      systemd:
        daemon_reload: yes
      when: monitoring_tool is defined and monitoring_tool == "node_exporter"
```

```
  - name: Start Node Exporter
    systemd:
      name: node_exporter
      state: started
      enabled: yes
    when: monitoring_tool is defined and monitoring_tool == "node_exporter"
```

Process codes

```
PLAY [Setup enterprise and monitoring] *************************************

TASK [Gathering Facts] *****************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [192.168.56.102]

TASK [Update package manager] **********************************************
changed: [192.168.56.102]
changed: [192.168.56.103]
ok: [192.168.56.104]
changed: [192.168.56.101]

TASK [Install Apache] ******************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]
```

```
TASK [Download Node Exporter] ************************************************
ok: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]
changed: [192.168.56.101]

TASK [Extract Node Exporter] *************************************************
changed: [192.168.56.101]
ok: [192.168.56.102]
ok: [192.168.56.104]
ok: [192.168.56.103]

TASK [Systemd service] *******************************************************
ok: [192.168.56.101]
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [192.168.56.102]
```

```
TASK [Reload systemd daemon to recognize new service file] *********************
ok: [192.168.56.101]
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [192.168.56.102]

TASK [Start and enable Apache] ***********************************************
ok: [192.168.56.101]
ok: [192.168.56.102]
ok: [192.168.56.104]
ok: [192.168.56.103]

TASK [Start Node Exporter] ***************************************************
ok: [192.168.56.101]
ok: [192.168.56.102]
ok: [192.168.56.103]
ok: [192.168.56.104]
```

```
TASK [Update MOTD] ***********************************************************
ok: [192.168.56.102]
ok: [192.168.56.103]
changed: [192.168.56.101]
ok: [192.168.56.104]
```

Output (evidence)

```
erebete@Workstation:~/Final_Exam_Erebete$ systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Fri 2025-11-14 06:55:03 UTC; 14min ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 1263 (apache2)
      Tasks: 6 (limit: 12004)
     Memory: 23.1M (peak: 23.5M)
        CPU: 113ms
     CGroup: /system.slice/apache2.service
             ├─1263 /usr/sbin/apache2 -k start
             ├─1279 /usr/sbin/apache2 -k start
             ├─1280 /usr/sbin/apache2 -k start
             ├─1282 /usr/sbin/apache2 -k start
             ├─1283 /usr/sbin/apache2 -k start
             └─1284 /usr/sbin/apache2 -k start
```

```
erebete@Workstation:~/Final_Exam_Erebete$ systemctl status node_exporter
● node_exporter.service - Prometheus Node Exporter
     Loaded: loaded (/etc/systemd/system/node_exporter.service; enabled; preset: enabled)
     Active: active (running) since Fri 2025-11-14 06:55:03 UTC; 14min ago
   Main PID: 1196 (node_exporter)
      Tasks: 7 (limit: 12004)
     Memory: 14.6M (peak: 14.9M)
        CPU: 25ms
     CGroup: /system.slice/node_exporter.service
             └─1196 /usr/local/bin/node_exporter

Warning: some journal files were not opened due to insufficient permissions.
```

```
PLAY RECAP *********************************************************************
192.168.56.101             : ok=10   changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
192.168.56.102             : ok=10   changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
192.168.56.103             : ok=10   changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
192.168.56.104             : ok=10   changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

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

https://github.com/qjkferebete/Final_Exam_Erebete