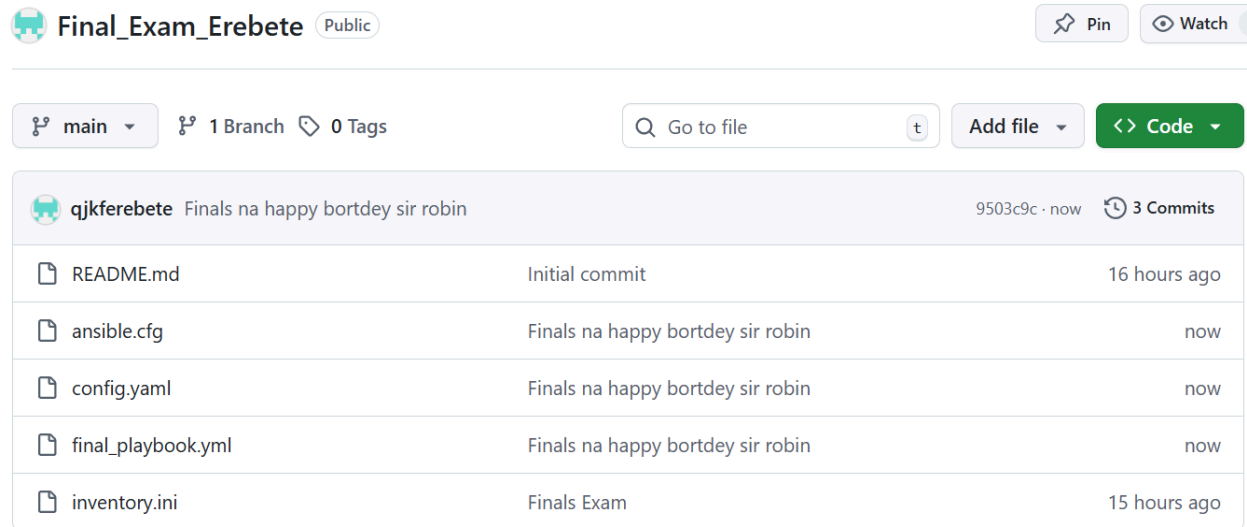


1. Create a repository and label it as "Final_Exam_Surname"



The screenshot shows a GitHub repository named "Final_Exam_Erebete" which is public. It has 1 branch (main) and 0 tags. The repository contains 5 files: README.md, ansible.cfg, config.yaml, final_playbook.yml, and inventory.ini. The commit history shows 3 commits by user qjfkerebete. The most recent commit is titled "Finals na happy bortdey sir robin" and was made 15 hours ago. The files were committed at various times, with some being "now" and others "16 hours ago" or "15 hours ago".

File	Commit Message	Time
README.md	Initial commit	16 hours ago
ansible.cfg	Finals na happy bortdey sir robin	now
config.yaml	Finals na happy bortdey sir robin	now
final_playbook.yml	Finals na happy bortdey sir robin	now
inventory.ini	Finals Exam	15 hours ago

2. Clone your new repository in your VM

```
erebete@Workstation:~$ ls
CPE232_Erebete  CpEMidterm  docker      Downloads    Music       Public  Templates
CPE_MidExam_Erebete  Desktop    Documents   Final_Exam_Erebete  Pictures    snap    Videos
```

3. Create an Ansible playbook that does the following with an input of a config.yaml file and structure inventory file.



The first screenshot shows the 'ansible.cfg' file in a nano editor. The content is: [defaults] inventory = ./inventory.ini. The second screenshot shows the 'config.yaml' file in a nano editor. The content is: enterprise_service: apache, monitoring_tool: node_exporter, motd_user: Erebete_JanKenneth.

```
GNU nano 7.2 ansible.cfg *
[defaults]
inventory = ./inventory.ini

GNU nano 7.2 config.yaml
enterprise_service: apache
monitoring_tool: node_exporter
motd_user: Erebete_JanKenneth
```

```
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.tar.gz"
    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/qjkgerebete/Final_Exam_Erebete