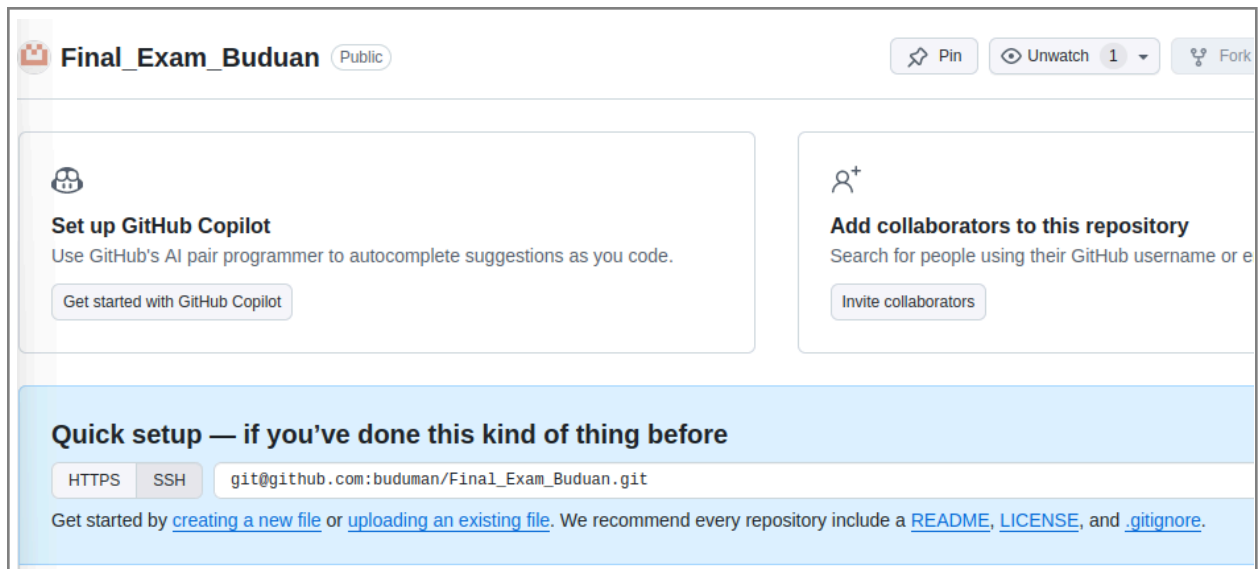


Name: Buduan, Christian Aaron C.	Date Performed: 04/12/2024
Instructor: Engr. Robin Valenzuela	Date Submitted: 04/12/2024
Section: CPE31S2	Semester and SY: 1st sem (2024-2025)
Final Exam: Hands-on Final Exam	
Tools Needed: <ol style="list-style-type: none"> 1. VM with Ubuntu, CentOS and Ansible installed 2. Web browser Procedure: <ol style="list-style-type: none"> 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. <ol style="list-style-type: none"> 3.1 Install and configure one enterprise service that can be installed in Debian and Centos servers 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) 4.4 Change Motd as "Ansible Managed by <username>" 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) 5. For your final exam to be counted, please paste your repository link as an answer in this exam. <p><u>Note: Extra points if you will implement the said services via containerization.</u></p>	
Output Screenshots: <ol style="list-style-type: none"> 1. Create a repository and label it as "Final_Exam_Surname" 	



2. Clone your new repository in your VM

```
qcacbuduan@Workstation:~$ git clone git@github.com:buduman/Final_Exam_Buduan.git
Cloning into 'Final_Exam_Buduan'...
Warning: Permanently added the ECDSA host key for IP address '4.237.22.38' to the
list of known hosts.
warning: You appear to have cloned an empty repository.
```

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

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

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) **nagios service**

```

qcacbuduan@Workstation:~/Final_Exam_Buduan$ cat ansible.cfg
[defaults]
inventory = inventory
remote_user = qcacbuduan
host_key_checking = True
private_key_file = ~/.ssh/ansible
deprecation_warnings=False
qcacbuduan@Workstation:~/Final_Exam_Buduan$ cat inventory
[ubuntu]
server1

[centos]
centosbuduan

```

Create config for ansible and inventory file

```

- hosts: all
  become: true
  pre_tasks:
    - name: add a MOTD
      tags: always
      lineinfile:
        path: /etc/motd
        line: "Ansible Managed by qcacbuduan"
    - 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: ubuntu
  become: true
  roles:
    - ubuntu

- hosts: centos
  become: true
  roles:
    - centos

```

Create config.yml file that does tasks and calls other roles to do their tasks

```
qcacbuduan@Workstation:~/Final_Exam_Buduan$ tree
.
├── ansible.cfg
├── config.yml
├── inventory
└── roles
    ├── centos
    │   └── tasks
    │       └── main.yml
    └── ubuntu
        └── tasks
            └── main.yml
```

Under “ubuntu” role create a playbook which installs and configures nagios and nginx in Ubuntu

```
qcacbuduan@Workstation:~/Final_Exam_Buduan$ cat roles/ubuntu/tasks/main.yml
---
# Install Monitoring Tool in Ubuntu
- name: Install Nagios (Ubuntu)
  apt:
    name: nagios3-core
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: start nagios (Ubuntu)
  service:
    name: nagios3
    state: restarted
    enabled: true
  when: ansible_distribution == "Ubuntu"

- name: install nagios reqs (Ubuntu)
  apt:
    name:
      - libpng-dev
      - libfreetype6-dev
      - gcc
      - libc6-dev
      - apache2
      - php
      - libgd-dev
    state: latest
  when: ansible_distribution == "Ubuntu"
```

```

- name: start nagios service
  service:
    name: nagios3
    state: started
    enabled: true
  when: ansible_distribution == "Ubuntu"
# Install Enterprise service in Ubuntu
- name: install nginx
  apt:
    name: nginx
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: start nginx
  service:
    name: nginx
    state: started
    enabled: true
  when: ansible_distribution == "Ubuntu"

```

Under “centos” role create a playbook which installs and configures nagios and nginx in CentOS

```

qcacbuduan@Workstation:~/Final_Exam_Buduan$ cat roles/centos/tasks/main.yml
---
# Install Monitoring tool in CentOS
- name: Install epel repo (prereq)
  yum:
    name: epel-release
    state: latest
  when: ansible_distribution == "CentOS"

- name: install nagios (centOS)
  yum:
    name: nagios
    state: latest
  when: ansible_distribution == "CentOS"

- name: start nagios (CentOS)
  service:
    name: nagios
    state: restarted
    enabled: true
  when: ansible_distribution == "CentOS"

```

```
- name: install nagios reqs (CentOS)
yum:
  name:
    - gcc
    - glibc
    - gd-devel
    - httpd
    - php
    - freetype-devel
    - libpng-devel
  state: latest
  become: true
  when: ansible_distribution == "CentOS"

- name: start nagios service
service:
  name: nagios
  state: started
  enabled: true
  when: ansible_distribution == "CentOS"
# Install Enterprise service in CentOS
- name: install nginx
yum:
  name: nginx
  state: latest
  when: ansible_distribution == "CentOS"

- name: start nginx
service:
  name: nginx
  state: started
  enabled: true
  when: ansible_distribution == "CentOS"
```

Run the config.yml playbook

```
qcacbuduan@Workstation:~/Final_Exam_Buduan$ ansible-playbook --ask-become-pass config.yml
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [server1]
ok: [centosbuduan]

TASK [add a MOTD] *****
changed: [server1]
ok: [centosbuduan]

TASK [update repository index (CentOS)] *****
skipping: [server1]
ok: [centosbuduan]

TASK [install updates (Ubuntu)] *****
skipping: [centosbuduan]
ok: [server1]
```

Play progress on ubuntu "role"

```
PLAY [ubuntu] *****

TASK [Gathering Facts] *****
ok: [server1]

TASK [ubuntu : Install Nagios (Ubuntu)] *****
ok: [server1]

TASK [ubuntu : start nagios (Ubuntu)] *****
changed: [server1]

TASK [ubuntu : install nagios reqs (Ubuntu)] *****
ok: [server1]

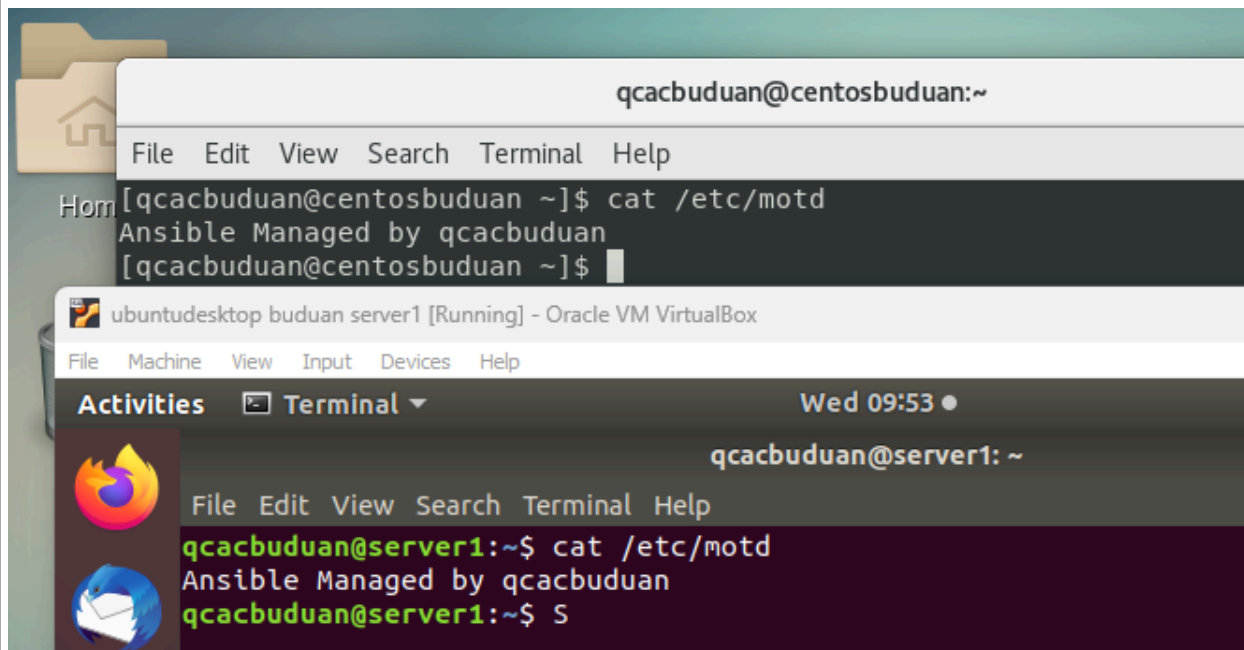
TASK [ubuntu : start nagios service] *****
ok: [server1]

TASK [ubuntu : install nginx] *****
ok: [server1]

TASK [ubuntu : start nginx] *****
ok: [server1]
```

Play progress on “centos” role

```
PLAY [centos] *****
TASK [Gathering Facts] *****
ok: [centosbuduan]
TASK [centos : Install epel repo (prereq)] *****
ok: [centosbuduan]
TASK [centos : install nagios (centOS)] *****
ok: [centosbuduan]
TASK [centos : start nagios (CentOS)] *****
changed: [centosbuduan]
TASK [centos : install nagios reqs (CentOS)] *****
ok: [centosbuduan]
TASK [centos : start nagios service] *****
ok: [centosbuduan]
TASK [centos : install nginx] *****
ok: [centosbuduan]
TASK [centos : start nginx] *****
ok: [centosbuduan]
PLAY RECAP *****
centosbuduan      : ok=11  changed=1  unreachable=0  failed=0  skipped=1
  rescued=0  ignored=0
server1           : ok=10  changed=2  unreachable=0  failed=0  skipped=1
  rescued=0  ignored=0
```



Checking of motd status


```
[qcacbuduan@centosbuduan ~]$ systemctl status nagios
● nagios.service - Nagios Core 4.4.14
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor prese
t: disabled)
   Active: active (running) since Wed 2024-12-04 09:50:53 PST; 3min 45s ago
     Docs: https://www.nagios.org/documentation
   Process: 28616 ExecStopPost=/usr/bin/rm -f /var/spool/nagios/cmd/nagios.cmd (c
ode=exited, status=0/SUCCESS)
   Process: 28611 ExecStop=/usr/bin/kill -s TERM ${MAINPID} (code=exited, status=
0/SUCCESS)
```

ubuntu desktop buduan server1 [Running] - Oracle VM VirtualBox

Machine View Input Devices Help

activities **Terminal** Wed 09:55 ●
qcacbuduan@server1: ~

```
File Edit View Search Terminal Help
qcacbuduan@server1:~$ systemctl status nagios3
● nagios3.service - LSB: nagios host/service/network monitoring and management
   Loaded: loaded (/etc/init.d/nagios3; generated)
   Active: active (running) since Wed 2024-12-04 09:50:35 +08; 3min 52s ago
     Docs: man:systemd-sysv-generator(8)
   Process: 5477 ExecStop=/etc/init.d/nagios3 stop (code=exited, status=0/SUCCESS)
   Process: 5499 ExecStart=/etc/init.d/nagios3 start (code=exited, status=0/SUCCESS)
   Tasks: 1 (limit: 4656)
   CGroup: /system.slice/nagios3.service
           └─5543 /usr/sbin/nagios3 -d /etc/nagios3/nagios.cfg

lines 1-9/9 (END)
```

Verifying nagios.service status on both ubuntu and CentOS servers

```
[qcacbuduan@centosbuduan ~]$ systemctl status nginx
● nginx.service - The nginx HTTP and reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2024-12-04 09:16:21 PST; 40min ago
     Process: 14883 ExecStart=/usr/sbin/nginx (code=exited, status=0/SUCCESS)
     Process: 14874 ExecStartPre=/usr/sbin/nginx -t (code=exited, status=0/SUCCESS)
     Process: 14872 ExecStartPre=/usr/bin/rm -f /run/nginx.pid (code=exited, status=0/SUCCESS)
    Main PID: 14885 (nginx)
```

ubuntudesktop buduan server1 [Running] - Oracle VM VirtualBox

Machine View Input Devices Help

activities Terminal

Wed 09:57

qcacbuduan@server1: ~

File Edit View Search Terminal Help

```
qcacbuduan@server1:~$ systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: e
   Active: active (running) since Wed 2024-12-04 09:15:52 +08; 41min ago
     Docs: man:nginx(8)
   Process: 26088 ExecStop=/sbin/start-stop-daemon --quiet --stop --retry QUIT/5
   Process: 27547 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (co
   Process: 27529 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_proces
   Main PID: 27552 (nginx)
     Tasks: 3 (limit: 4656)
    CGroup: /system.slice/nginx.service
            └─27552 nginx: master process /usr/sbin/nginx -g daemon on; master_p
               └─27554 nginx: worker process
                  └─27555 nginx: worker process
```

lines 1-13/13 (END)

Verifying nginx service status on both ubuntu and CentOS servers

```
qcacbuduan@Workstation:~/Final_Exam_Buduan$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        ansible.cfg
        config.yml
        inventory
        roles/

nothing added to commit but untracked files present (use "git add" to track)
qcacbuduan@Workstation:~/Final_Exam_Buduan$ git add -all
error: did you mean '--all' (with two dashes ?)
qcacbuduan@Workstation:~/Final_Exam_Buduan$ git add --all
qcacbuduan@Workstation:~/Final_Exam_Buduan$ git commit -m "Final_Exam_Buduan"
[master (root-commit) 1468e11] Final_Exam_Buduan
 5 files changed, 146 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yml
 create mode 100644 inventory
 create mode 100644 roles/centos/tasks/main.yml
 create mode 100644 roles/ubuntu/tasks/main.yml
qcacbuduan@Workstation:~/Final_Exam_Buduan$ git push origin master
Counting objects: 12, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (7/7), done.
Writing objects: 100% (12/12), 1.47 KiB | 754.00 KiB/s, done.
Total 12 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), done.
To github.com:buduman/Final_Exam_Buduan.git
 * [new branch]      master -> master
```

Push all files into my Github repository

Github repo: https://github.com/buduman/Final_Exam_Buduan.git