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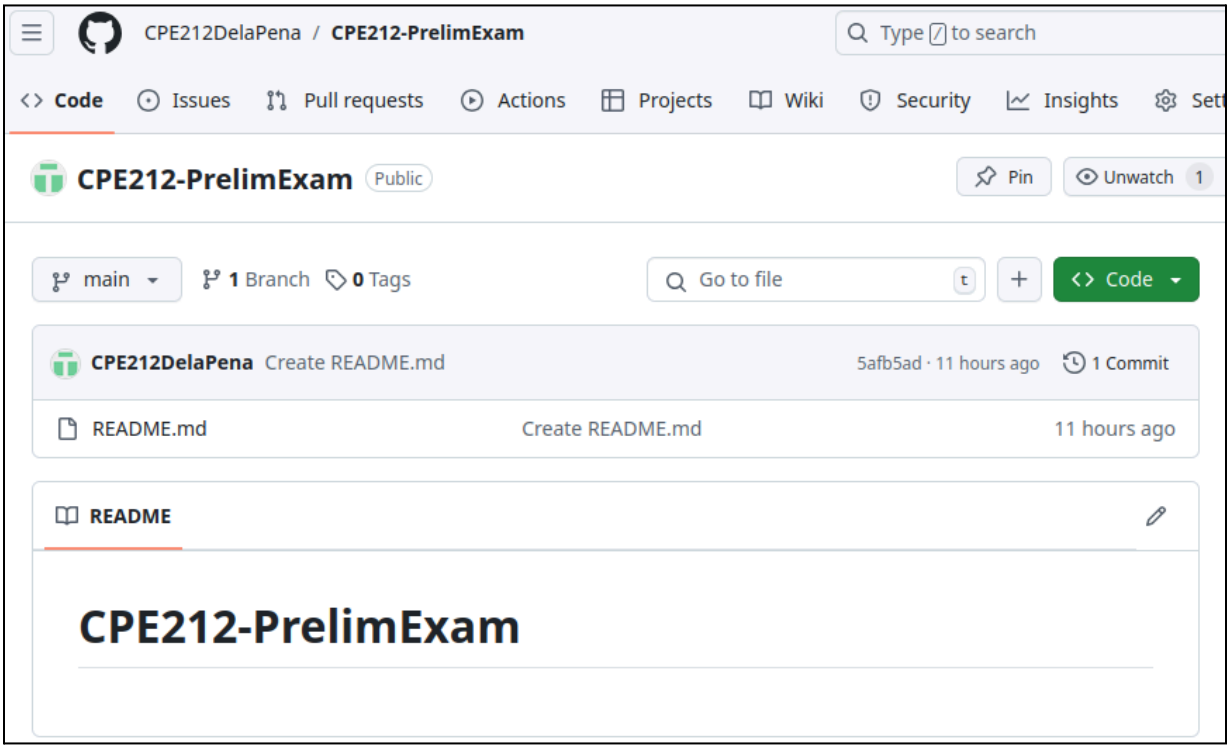
Course/Section: CPE31S2	**Date Submitted: 09/20/2024**
Instructor: Engr. Robin Valenzuela	**Semester and SY: 1st Sem, 2024 - 2025**

Hands-on Prelim Exam

Procedure:

1. Note: You are required to create a document report of the steps you will do for this exam. All screenshots should be labeled and explained properly. LABELED AND EXPLAIN EACH CODE (PLAYBOOK) No explanation = Minus Points
2. Create a repository in your GitHub account and label it as Surname_PrelimExam



Explanation:

I created a new Repository on my Github with a README.md file.

3. Clone your new repository in your CN.

```
josemari@workstation:~$ git clone git@github.com:CPE212DelaPena/CPE212-PrelimExam.git
Cloning into 'CPE212-PrelimExam'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
```

Explanation:

I cloned my github repository using the SSH link on Github and the command *git clone <SSH link>*.

4. In your CN, create an inventory file and ansible.cfg files.

```
josemari@workstation:~/CPE212-PrelimExam$ cat inventory
192.168.56.12
192.168.56.10
josemari@workstation:~/CPE212-PrelimExam$ cat ansible.cfg
[defaults]
inventory = inventory
remote_user = josemari
host_key_checking = True
```

Explanation:

I created an inventory and ansible.cfg file through *nano* command, and the contents are as shown in the screenshot.

5. Create an Ansible playbook that does the following with an input of a config.yaml file for both Manage Nodes
    - Installs the latest python3 and pip3

```
josemari@workstation:~/CPE212-PrelimExam$ ansible-playbook --ask-become-pass install_prelim.yml

BECOME password:

PLAY [all] *********************************************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.10]
ok: [192.168.56.12]

TASK [Install python3] *********************************************************
ok: [192.168.56.10]
ok: [192.168.56.12]

TASK [Install pip3] ************************************************************
changed: [192.168.56.10]
changed: [192.168.56.12]

PLAY RECAP *********************************************************************
192.168.56.10              : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
192.168.56.12              : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Explanation:

I installed python3 and pip3 using this command in the playbook:

```yaml
---
- hosts: all
  become: true
  tasks:

  - name: Install python3
    apt:
      name: python3
      state: latest

  - name: Install pip3
    apt:
      name: python3-pip
      state: latest
```

In which I added the name of the task, then the apt package name, then I added *state:latest* which is mainly for the latest version of the package.

- use pip3 as default pip
- use python3 as default python

```
TASK [Remove existing python links] ********************************************************************************
changed: [192.168.56.12]
changed: [192.168.56.10]

TASK [Use python3 as default] **************************************************************************************
changed: [192.168.56.12]
changed: [192.168.56.10]

TASK [Remove existing pip links] ***********************************************************************************
changed: [192.168.56.12]
changed: [192.168.56.10]

TASK [Use pip3 as default] *****************************************************************************************
changed: [192.168.56.12]
changed: [192.168.56.10]

PLAY RECAP *********************************************************************************************************
192.168.56.10              : ok=7    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
192.168.56.12              : ok=7    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Explanation:

I set the python3 and pip3 as default using this command in the playbook:

```
- name: Remove existing python links
  command: rm /usr/bin/python

- name: Use python3 as default
  command: ln -s /usr/bin/python3 /usr/bin/python

- name: Remove existing pip links
  command: rm /usr/bin/pip

- name: Use pip3 as default
  command: ln -s /usr/bin/pip3 /usr/bin/pip
```

In which I first remove the initial python and pip links/directory, followed by the creation of directories for the default python3 and pip3.

- Install Java open-jdk
- Install MariaDB as well as starting the server, create a database and a table using mariaDB and input one record into a table USING ANSIBLE ONLY

```
TASK [Install Java open-jdk] ***************************************************************************************
changed: [192.168.56.12]
changed: [192.168.56.10]

TASK [Install MariaDB] *********************************************************************************************
changed: [192.168.56.10]
changed: [192.168.56.12]

PLAY RECAP *********************************************************************************************************
192.168.56.10              : ok=9    changed=6    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
192.168.56.12              : ok=9    changed=6    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Explanation:

I installed Java open-jdk and MariaDB using this command in the playbook:

```
- name: Install Java open-jdk
  apt:
    name: openjdk-21-jdk
    state: latest
- name: Install MariaDB
  apt:
    name: mariadb-server
    state: latest
```

In which I added the name of the task, then the apt package name, then I added *state:latest* which is mainly for the latest version of the package.

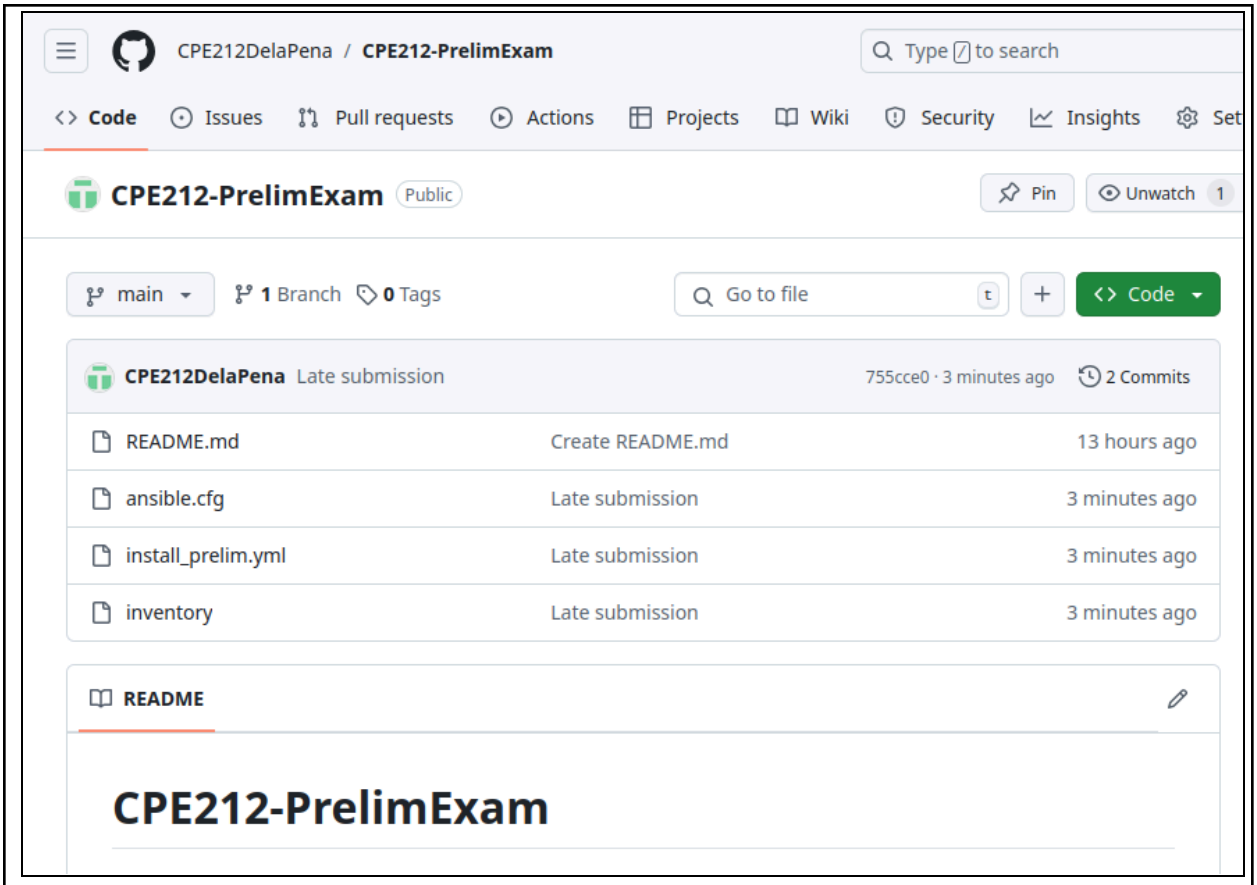
- Create Motd containing the text defined by a variable defined in config.yaml file and if there is no variable input the default motd is "Ansible Managed node by (your user name)"
- Create a user with a variable defined in config.yaml

6. PUSH and COMMIT your PrelimExam in your GitHub repository.

```
josemari@workstation:~/CPE212-PrelimExam$ git add ansible.cfg
josemari@workstation:~/CPE212-PrelimExam$ git add install_prelim.yml
josemari@workstation:~/CPE212-PrelimExam$ git add inventory
josemari@workstation:~/CPE212-PrelimExam$ git commit -m "Late submission"
[main 755cce0] Late submission
 3 files changed, 41 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 install_prelim.yml
 create mode 100644 inventory
josemari@workstation:~/CPE212-PrelimExam$ git push origin main
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 5 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 694 bytes | 57.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:CPE212DelaPena/CPE212-PrelimExam.git
   5afb5ad..755cce0  main -> main
```

Explanation:

Using the following Github commands I was first able to add the files I want to push, then commit them, then finally push it to my Github repository as shown in the last screenshot..



7. Your document report should be submitted here.

8. For your prelim exam to be counted, please paste your repository link here. (Failure to submit will result in ZERO)

9. NO USE OF EXTERNAL WEBSITES SUCH AS , REDDIT, CHATGPT, GITHUB, GEMINI, CLAUDE, FORUMS, AND DOCUMENTATIONS. FAILURE TO COMPLY WITH RESULT IN ZERO.