

Preliminary Skills Examination	
Course Code: CPE232	Program: Computer Engineering (BSCPE)
Course Title: Managing Enterprise Servers	Date Performed: 09-25-2023
Section: CPE31S4	Date Submitted: 09-25-2023
Student's Name: Seruelas, Ronn Kristoper H.	Instructor: Dr. Jonathan V. Taylar
1. Examination	
<div> <div>Tools Needed:</div> <div> 1. Control Node (CN) - 1 2. Manage Node (MN) - 1 Ubuntu 3. Manage Node (MN) - 1 CentOS </div> </div> <div> <div>Procedure:</div> <div> 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. 2. Create a repository in your GitHub account and label it as Surname_PrelimExam 3. Clone your new repository in your CN. 4. In your CN, create an inventory file and ansible.cfg files. 5. Create an Ansible playbook that does the following with an input of a config.yaml file for both Manage Nodes <ul style="list-style-type: none"> Installs the latest python3 and pip3 use pip3 as default pip use python3 as default python Install Java open-jdk 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 repo 7. Your document report should be submitted here. 7. For your prelim exam to be counted, please paste your repository link here. </div> </div>	
2. Answers	
1. Create a document report of the steps you will do for this exam. All screenshots should be labeled and explained properly. 2. Create a repository in your GitHub account and label it as Surname_PrelimExam.	

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

Required fields are marked with an asterisk (*).

Owner * TuRonnDraco / Repository name * Seruelas_PrelimExam
✓ Seruelas_PrelimExam is available.

Great repository names are short and memorable. Need inspiration? How about [musical-octo-tribble](#) ?

Description (optional)

☒ **Public**
Anyone on the internet can see this repository. You choose who can commit.
☐ **Private**
You choose who can see and commit to this repository.

Initialize this repository with:

☒ **Add a README file**
This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

.gitignore template: None

Choose which files not to track from a list of templates. [Learn more about ignoring files.](#)

Choose a license

License: None

A license tells others what they can and can't do with your code. [Learn more about licenses.](#)

This will set main as the default branch. Change the default name in your [settings](#).

? You are creating a public repository in your personal account.

Create repository

Figure 2.1 - Creation of the Seruelas_PrelimExam repository in Github.

3. Clone your new repository in your CN.

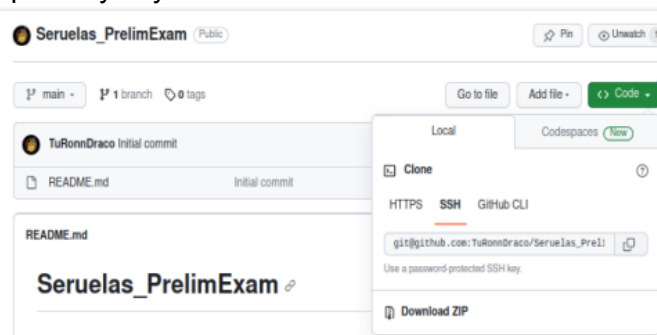
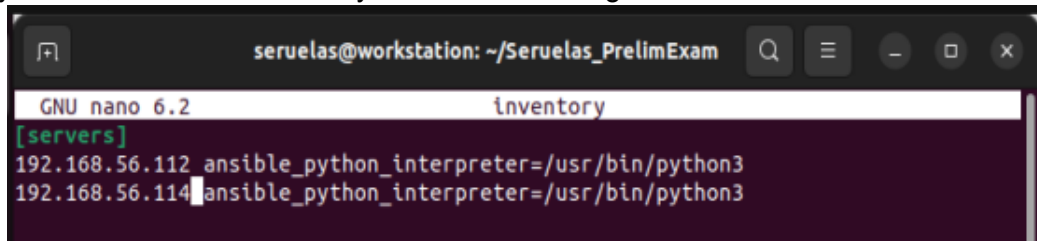


Figure 3.1 - Copying the SSH code needed for cloning the repository unto the workstation.

```
seruelas@workstation: ~  
seruelas@workstation:~$ git clone git@github.com:TuRonnDraco/Seruelas_PrelimExam  
.git  
Cloning into 'Seruelas_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  
Receiving objects: 100% (3/3), done.  
seruelas@workstation:~$ ls  
AnsibleS4      Desktop      Pictures      Templates  
CPE232_Act5_Seruelas  Documents   Public        Videos  
CPE232_Seruelas1  Downloads   Seruelas_PrelimExam  
CPE232_TESTREPOSITORY  Music       snap
```

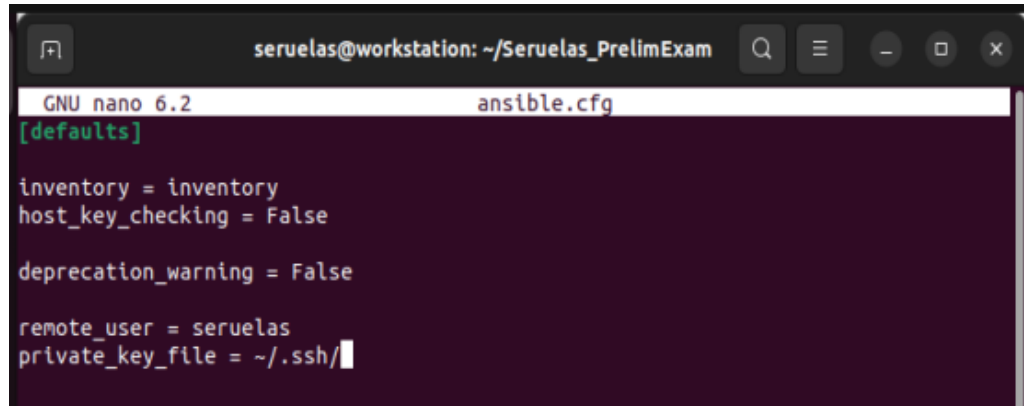
Figure 3.2 - Cloning the Seruelas_PrelimExam repository unto the control node.

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



```
seruelas@workstation: ~/Seruelas_PrelimExam
GNU nano 6.2 inventory
[servers]
192.168.56.112 ansible_python_interpreter=/usr/bin/python3
192.168.56.114 ansible_python_interpreter=/usr/bin/python3
```

Figure 4.1 - Inventory configuration file for the repository.



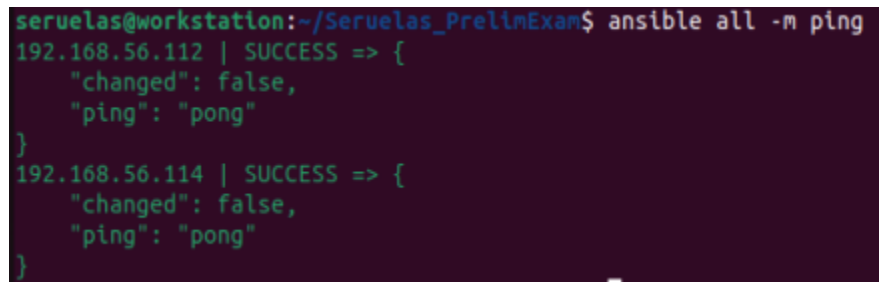
```
seruelas@workstation: ~/Seruelas_PrelimExam
GNU nano 6.2 ansible.cfg
[defaults]

inventory = inventory
host_key_checking = False

deprecation_warning = False

remote_user = seruelas
private_key_file = ~/.ssh/
```

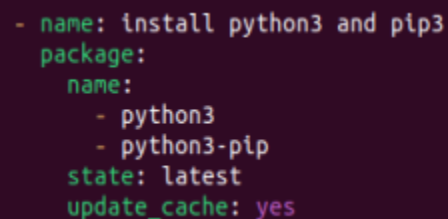
Figure 4.2 - Ansible.cfg file for the repository.



```
seruelas@workstation:~/Seruelas_PrelimExam$ ansible all -m ping
192.168.56.112 | SUCCESS => {
  "changed": false,
  "ping": "pong"
}
192.168.56.114 | SUCCESS => {
  "changed": false,
  "ping": "pong"
}
```

Figure 4.3 - Verification of the connection between the two nodes.

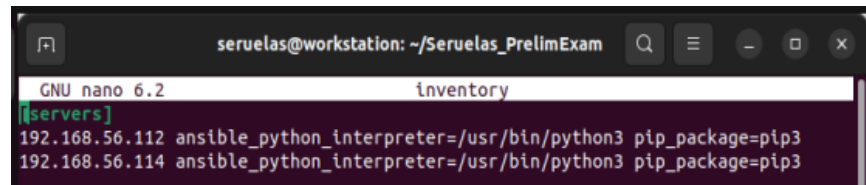
5. Create an Ansible playbook that does the following with an input of a config.yaml file for both Manage Nodes.
- Installs the latest python3 and pip3



```
- name: install python3 and pip3
  package:
    name:
      - python3
      - python3-pip
    state: latest
    update_cache: yes
```

Figure 5.1 - Module that will install python3 and pip3 on the manage nodes on the latest version.

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



```

GNU nano 6.2 inventory
[servers]
192.168.56.112 ansible_python_interpreter=/usr/bin/python3 pip_package=pip3
192.168.56.114 ansible_python_interpreter=/usr/bin/python3 pip_package=pip3

```

Figure 5.2 - Using pip3 and python3 as default in the playbook (set in inventory)

- Install Java open-jdk

```

- name: install java open-jdk in Ubuntu
  apt:
    name:
      - openjdk-17-jdk
    state: latest
    update_cache: yes
    when: ansible_distribution == "Ubuntu"

- name: install java open-jdk in CentOS
  yum:
    name:
      - java-11-openjdk
    state: latest
    update_cache: yes
    when: ansible_distribution == "CentOS"

```

Figure 5.3 - Module that will install Java OpenJDK on the manage nodes.

- 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)"

```

vars:
  motd:
    - Ansible Managed Node by Seruelas, done on {{ inventory_hostname }}

- name: Banner MOTD
  ansible.builtin.debug:
    msg:
      - "{{ motd }}"

```

Figure 5.4-5.5 - Variable declared for MOTD, and the module for the MOTD.

- Create a user with a variable defined in config.yaml

```

vars_prompt:
  - name: username
    prompt: Input your user name
    private: false
  - name: uid
    prompt: Input your own UID
    private: false

- name: Create a user
  ansible.builtin.user:
    name: "{{ username }}"
    comment: NewUser
    uid: "{{ uid }}"
    createhome: yes
    home: /home/"{{ username }}"
    shell: /bin/bash

```

Figure 5.6-5.7 - Declaration of variable prompts for creating a user, and the module coded in

the playbook to create a user.

```
GNU nano 6.2 config.yaml
--
- hosts: all
  become: true
  vars:
    motd:
      - Ansible Managed Node by Seruelas, done on {{ inventory_hostname }}
  vars_prompt:
    - name: username
      prompt: Input your user name
      private: false
    - name: uid
      prompt: Input your own UID
      private: false

  tasks:

    - name: Banner MOTD
      ansible.builtin.debug:
        msg:
          - "{{ motd }}"

    - name: install python3 and pip3
      package:
        name:
          - python3
          - python3-pip
        state: latest
        update_cache: yes

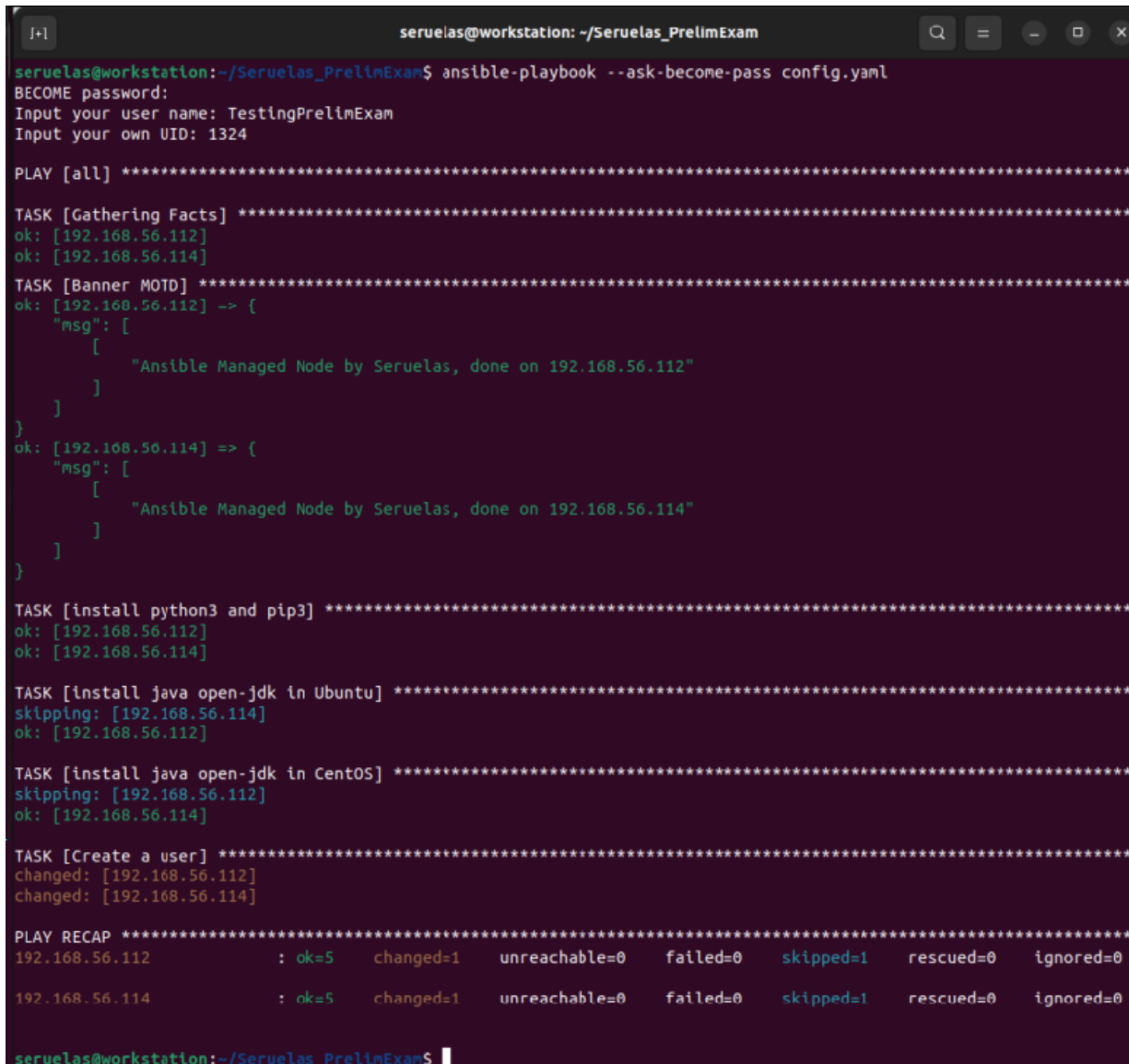
    - name: install java open-jdk in ubuntu
      apt:
        name:
          - openjdk-17-jdk
        state: latest
        update_cache: yes
      when: ansible_distribution == "Ubuntu"

    - name: install java open-jdk in CentOS
      yum:
        name:
          - java-11-openjdk
        state: latest
        update_cache: yes
      when: ansible_distribution == "CentOS"

    - name: Create a user
      ansible.builtin.user:
        name: "{{ username }}"
        comment: NewUser
        uid: "{{ uid }}"
        createhome: yes
        home: /home/"{{ username }}"
        shell: /bin/bash
```

Figure 5.8 - config.yaml playbook in complete code.

6. Execute the playbook and show its outputs.



```
seruelas@workstation: ~/Seruelas_PrelimExam
seruelas@workstation:~/Seruelas_PrelimExam$ ansible-playbook --ask-become-pass config.yaml
BECOME password:
Input your user name: TestingPrelimExam
Input your own UID: 1324

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.112]
ok: [192.168.56.114]

TASK [Banner MOTD] *****
ok: [192.168.56.112] => {
  "msg": [
    [
      "Ansible Managed Node by Seruelas, done on 192.168.56.112"
    ]
  ]
}
ok: [192.168.56.114] => {
  "msg": [
    [
      "Ansible Managed Node by Seruelas, done on 192.168.56.114"
    ]
  ]
}

TASK [install python3 and pip3] *****
ok: [192.168.56.112]
ok: [192.168.56.114]

TASK [install java open-jdk in Ubuntu] *****
skipping: [192.168.56.114]
ok: [192.168.56.112]

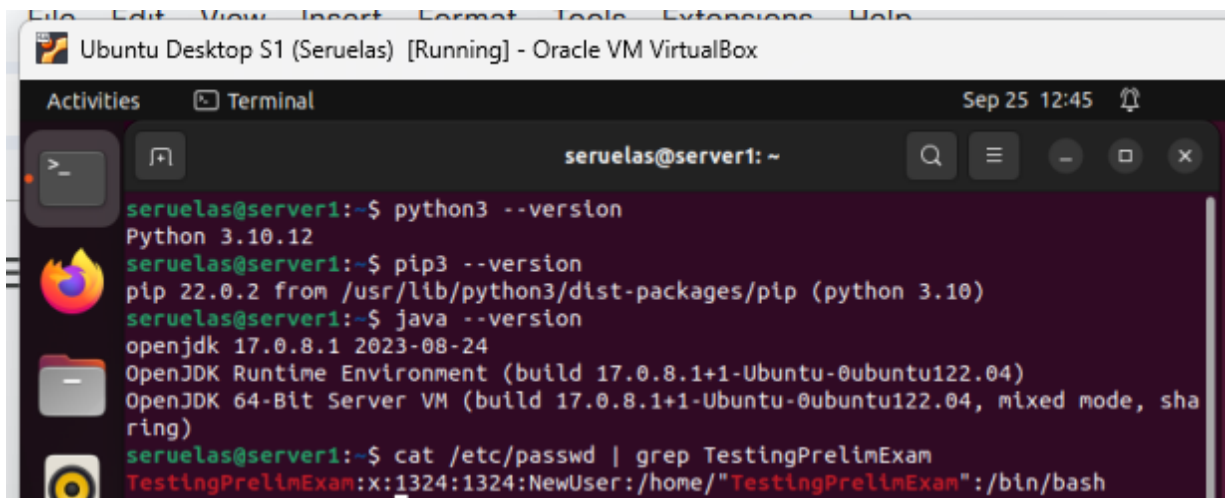
TASK [install java open-jdk in CentOS] *****
skipping: [192.168.56.112]
ok: [192.168.56.114]

TASK [Create a user] *****
changed: [192.168.56.112]
changed: [192.168.56.114]

PLAY RECAP *****
192.168.56.112      : ok=5    changed=1    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.56.114      : ok=5    changed=1    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0

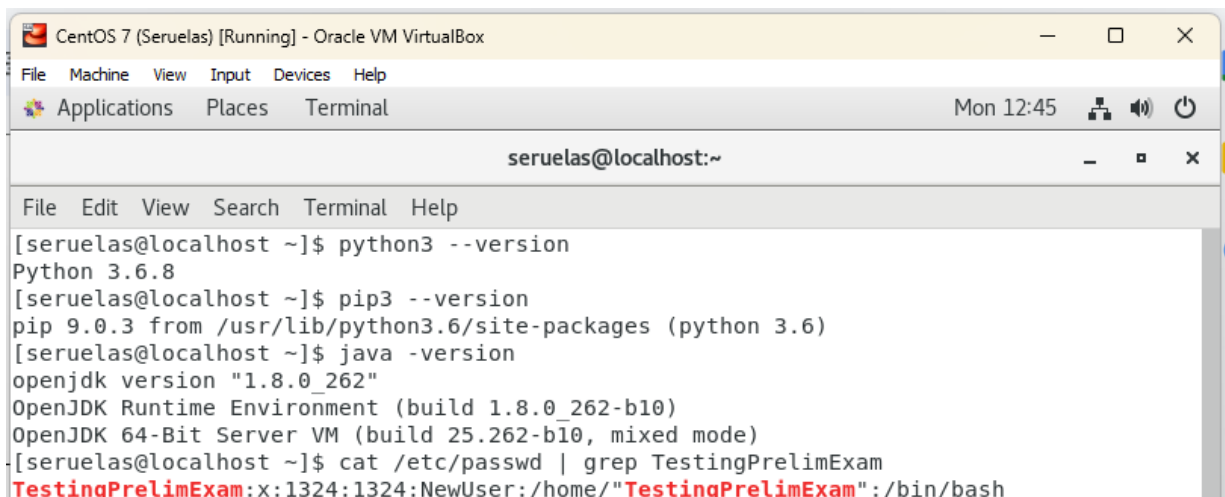
seruelas@workstation:~/Seruelas_PrelimExam$
```

Figure 6.1 - Execution of config.yaml playbook through the control node or workstation.



```
seruelas@server1:~$ python3 --version
Python 3.10.12
seruelas@server1:~$ pip3 --version
pip 22.0.2 from /usr/lib/python3/dist-packages/pip (python 3.10)
seruelas@server1:~$ java --version
openjdk 17.0.8.1 2023-08-24
OpenJDK Runtime Environment (build 17.0.8.1+1-Ubuntu-0ubuntu122.04)
OpenJDK 64-Bit Server VM (build 17.0.8.1+1-Ubuntu-0ubuntu122.04, mixed mode, sha
ring)
seruelas@server1:~$ cat /etc/passwd | grep TestingPrelimExam
TestingPrelimExam:x:1324:1324:NewUser:/home/"TestingPrelimExam":/bin/bash
```

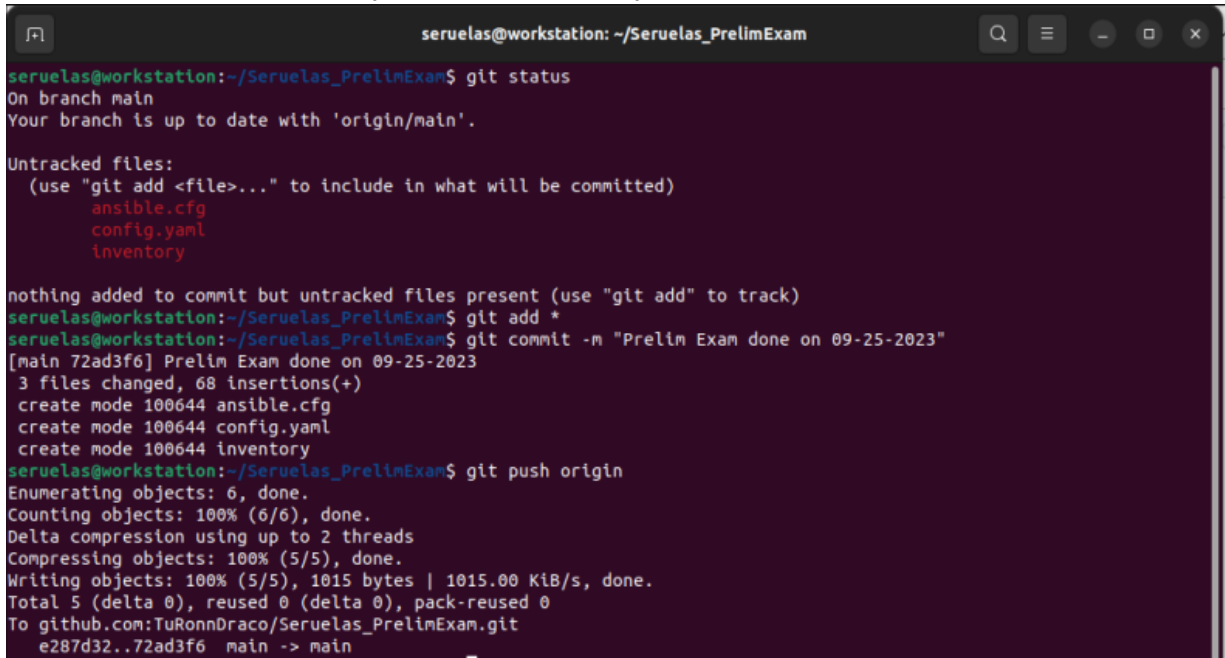
Figure 6.2 - Output or proof of successful installation of packages and successful execution of tasks in the control node 1 or server 1 (Ubuntu).



```
[seruelas@localhost ~]$ python3 --version
Python 3.6.8
[seruelas@localhost ~]$ pip3 --version
pip 9.0.3 from /usr/lib/python3.6/site-packages (python 3.6)
[seruelas@localhost ~]$ java -version
openjdk version "1.8.0_262"
OpenJDK Runtime Environment (build 1.8.0_262-b10)
OpenJDK 64-Bit Server VM (build 25.262-b10, mixed mode)
[seruelas@localhost ~]$ cat /etc/passwd | grep TestingPrelimExam
TestingPrelimExam:x:1324:1324:NewUser:/home/"TestingPrelimExam":/bin/bash
```

Figure 6.2 - Output or proof of successful installation of packages and successful execution of tasks in the control node 3 or server 3 (CentOS).

7. PUSH and COMMIT your PrelimExam in your GitHub repo.



```
seruelas@workstation: ~/Seruelas_PrelimExam
seruelas@workstation:~/Seruelas_PrelimExam$ git status
On branch main
Your branch is up to date with 'origin/main'.

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





nothing added to commit but untracked files present (use "git add" to track)
seruelas@workstation:~/Seruelas_PrelimExam$ git add *
seruelas@workstation:~/Seruelas_PrelimExam$ git commit -m "Prelim Exam done on 09-25-2023"
[main 72ad3f6] Prelim Exam done on 09-25-2023
 3 files changed, 68 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yaml
 create mode 100644 inventory
seruelas@workstation:~/Seruelas_PrelimExam$ git push origin
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 1015 bytes | 1015.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:TuRonnDraco/Seruelas_PrelimExam.git
 e287d32..72ad3f6  main -> main
```

Figure 7.1 - Pushing and Committing all changes made in local repository to github repository.

8. For your prelim exam to be counted, please paste your repository link here.

https://github.com/TuRonnDraco/Seruelas_PrelimExam

3. Assessment

SO 7 - HOA Complete (6)								
Criteria	Ratings							P
 T.I.P. SO 7.1 Acquire and apply new knowledge from outside sources threshold: 4.2 pts	6 pts [Excellent] Educational interests and pursuits exist and flourish outside classroom requirements, knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts [Good] Educational interests and pursuits exist and flourish outside classroom requirements, knowledge and/or experiences are pursued independently	4 pts [Satisfactory] Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts [Unsatisfactory] Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts [Poor] Relies on classroom instruction only	1 pts [Very Poor] No initiative or interest in acquiring new knowledge		6
 T.I.P. SO 7.2 Learn independently threshold: 4.2 pts	6 pts [Excellent] Completes an assigned task independently and practices continuous improvement	5 pts [Good] Completes an assigned task without supervision or guidance	4 pts [Satisfactory] Requires minimal guidance to complete an assigned task	3 pts [Unsatisfactory] Requires detailed or step-by-step instructions to complete a task	2 pts [Poor] Shows little interest to complete a task independently	1 pts [Very Poor] No interest to complete a task independently		6
 T.I.P. SO 7.3 Critical thinking in the broadest context of technological change threshold: 4.2 pts	6 pts [Excellent] Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts [Good] Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts [Satisfactory] Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts [Unsatisfactory] Apply the gathered information to formulate the problem	2 pts [Poor] Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts [Very Poor] Gather information from a variety of sources		6
 T.I.P. SO 7.4 Creativity and adaptability to new and emerging technologies threshold: 4.2 pts	6 pts [Excellent] Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts [Good] Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts [Satisfactory] Ideas are creative in solving a problem, or address an issue	3 pts [Unsatisfactory] Shows some creative ways to solve the problem	2 pts [Poor] Shows initiative and attempt to develop creative ideas to solve the problem	1 pts [Very Poor] Ideas are copied or restated from the sources consulted		6
Total Points:								

“I affirm that I have not received or given any unauthorized help on this examination and that all work is my own.”