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Prelim Exam

Tools Needed:

1. Control Node (CN) - 1
2. Manage Node (MN) - 1 Ubuntu
3. Manage Node (MN) - 1 CentOS

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.
2. Create a repository in your GitHub account and label it as Surname_Prelim Exam.

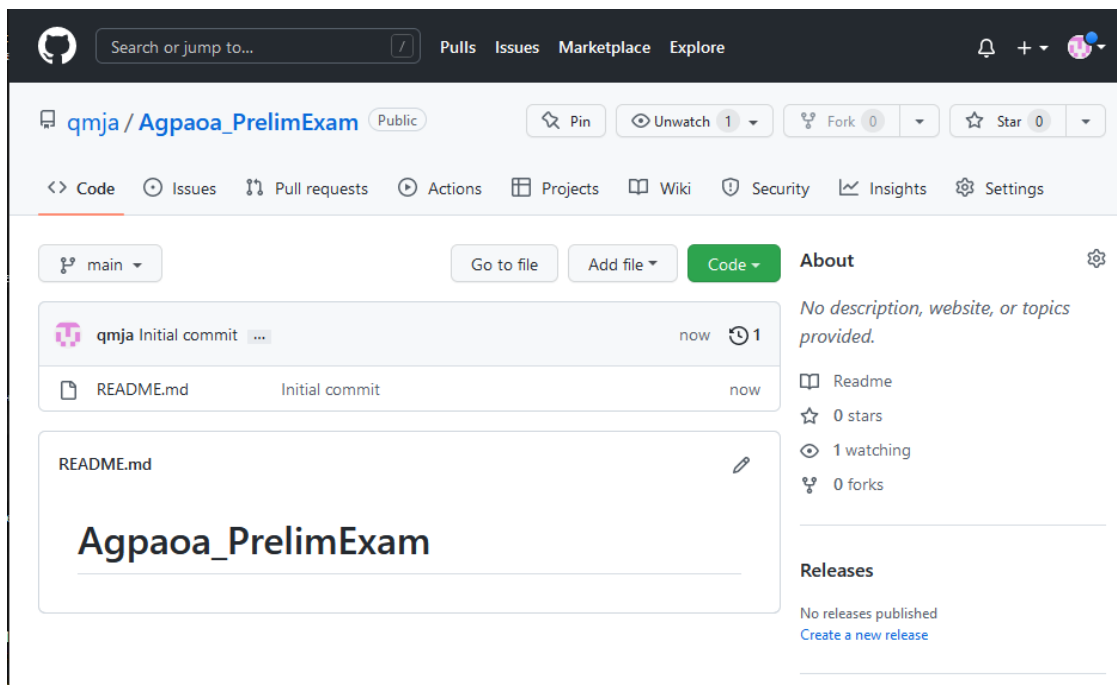


Figure 1. Successfully creating a Repository

I created a repository in my GitHub account and labeled it as Agpaoa_Prelim Exam.

3. Clone your new repository in your CN.

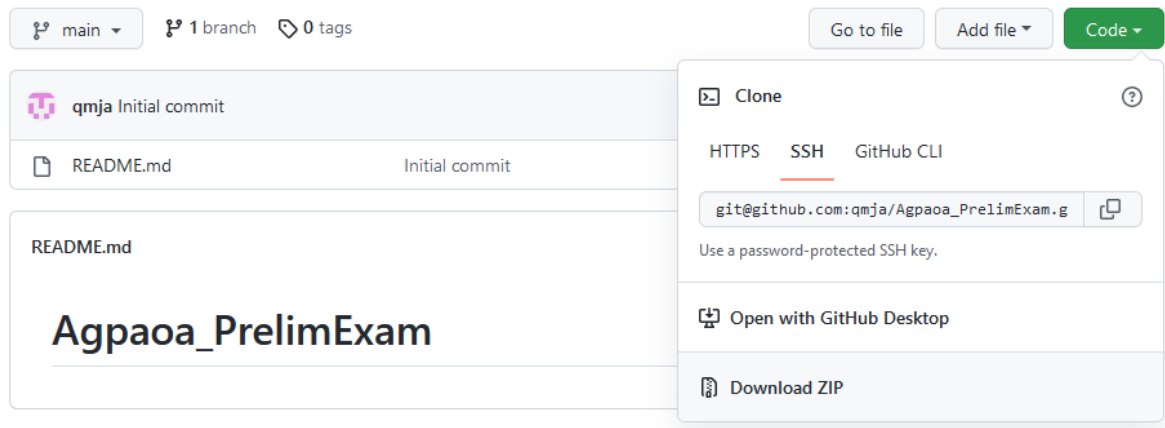


Figure 2.1. Copying the SSH link

I clicked the dropdown of “Code”, then clicked the SSH tab and copied the SSH link from the repository.

```
madiane@workstation:~$ git clone git@github.com:qmja/Agpaoa_PrelimExam.git
Cloning into 'Agpaoa_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.
madiane@workstation:~$
```

Figure 2.2. Using the command “*git clone*”

I execute the command `git clone` followed by the SSH link that I copied from github.com. Based on the result, cloning the repository was successful.

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

```
madiane@workstation:~$ ssh-copy-id -i ~/.ssh/id_rsa madiane@192.168.56.115
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/madiane/.ssh/id_rsa.pub"
The authenticity of host '192.168.56.115 (192.168.56.115)' can't be established
ED25519 key fingerprint is SHA256:xJg/wfZyMjLJ+ywk8wskb5Tv3dJJesAAhVC8o6u/sRs.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter
out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
madiane@192.168.56.115's password:

Number of key(s) added: 1

Now try logging into the machine, with:  "ssh 'madiane@192.168.56.115'"
and check to make sure that only the key(s) you wanted were added.
```

Figure 3.1. Establishing a SSH connection with CentOS

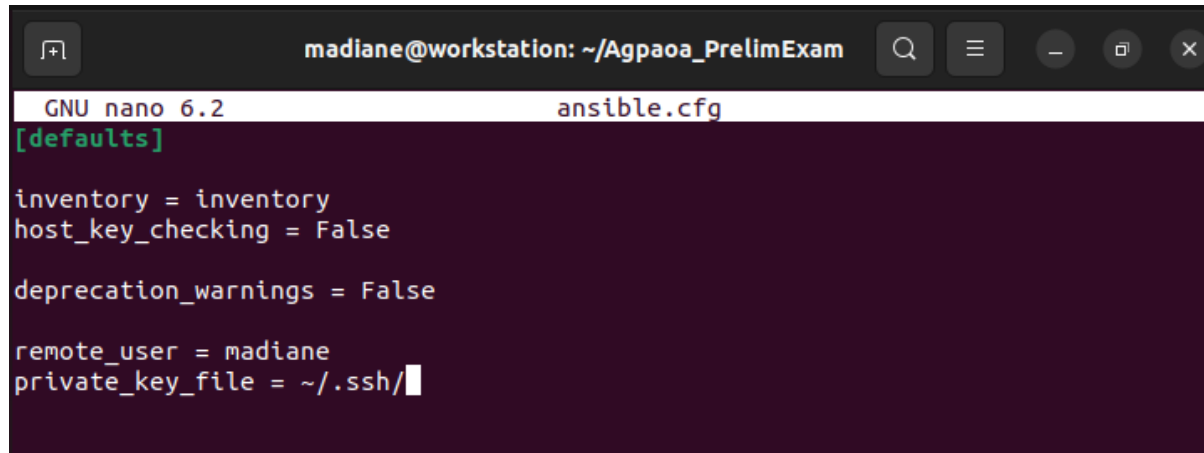
I established a SSH connection with CentOS by executing the command “ssh-copy-id -i ~/.ssh/id_rsa madiane@192.168.56.115”.

```
madiane@workstation:~/Agpaoa_PrelimExam$ nano inventory
GNU nano 6.2 inventory
192.168.56.115
192.168.56.101
```

Figure 3.2. Creating the inventory file

I created the inventory file by executing the command “nano inventory”. I wrote the IP addresses of the managed nodes inside the inventory file, then I saved and exited the file.

```
madiane@workstation:~/Agpaoa_PrelimExam$ sudo nano ansible.cfg
[sudo] password for madiane:
madiane@workstation:~/Agpaoa_PrelimExam$
```



```
GNU nano 6.2 ansible.cfg
[defaults]

inventory = inventory
host_key_checking = False

deprecation_warnings = False

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

Figure 3.3. Creating the ansible.cfg files

I created the ansible.cfg file by executing the command “sudo nano ansible.cfg”. I wrote the lines based on the previous activity inside the ansible.cfg file, then I saved and exited the file.

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
 - 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

```

madiane@workstation:~/Agpaoa_PrelimExam$ ansible-playbook --ask-become-pass config.yaml
BECOME password:

PLAY [all] *****
*

TASK [Gathering Facts] *****
*
ok: [192.168.56.115]
ok: [192.168.56.101]

TASK [MOTD] *****
*
changed: [192.168.56.101]
changed: [192.168.56.115]

```

Figure 5.1. Executing the config.yaml

Creating a MOTD was successful, however the installation for python3, pip3, and Java open-jdk is not successful. It needs to be debug.

```

madiane@workstation:~/Agpaoa_PrelimExam$ ansible-playbook --ask-become-pass config.yaml
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.115]
ok: [192.168.56.101]

TASK [MOTD] *****
ok: [192.168.56.101]
ok: [192.168.56.115]

TASK [Installs the latest python3 and pip3 in Ubuntu] *****
skipping: [192.168.56.115]
changed: [192.168.56.101]

TASK [Installs the latest python3 and pip3 in CentOS] *****
skipping: [192.168.56.101]
changed: [192.168.56.115]

TASK [Install Java open-jdk in Ubuntu] *****
skipping: [192.168.56.115]
changed: [192.168.56.101]

TASK [Install Java open-jdk in CentOS] *****
skipping: [192.168.56.101]
fatal: [192.168.56.115]: FAILED! => {"changed": false, "failures": ["No package default-jdk available
."], "msg": "Failed to install some of the specified packages", "rc": 1, "results": []}

PLAY RECAP *****
192.168.56.101      : ok=4    changed=2    unreachable=0    failed=0    skipped=2    rescued=0
ignored=0
192.168.56.115    : ok=3    changed=1    unreachable=0    failed=1    skipped=2    rescued=0
ignored=0

```

Figure 5.2. Executing the config.yaml

The installation of python3, pip3 and Java openjdk in Ubuntu was successful. The installation of Java openjdk in CentOS failed because I wrote the wrong package name.

```
nadiane@workstation: ~/Agpaoa_PrelimExam$ ansible-playbook --ask-become-pass config.yaml
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.115]
ok: [192.168.56.101]

TASK [MOTD] *****
ok: [192.168.56.101]
ok: [192.168.56.115]

TASK [Installs the latest python3 and pip3 in Ubuntu] *****
skipping: [192.168.56.115]
ok: [192.168.56.101]

TASK [Installs the latest python3 and pip3 in CentOS] *****
skipping: [192.168.56.101]
ok: [192.168.56.115]

TASK [Install Java open-jdk in Ubuntu] *****
skipping: [192.168.56.115]
ok: [192.168.56.101]

TASK [Install Java open-jdk in CentOS] *****
skipping: [192.168.56.101]
changed: [192.168.56.115]

PLAY RECAP *****
192.168.56.101      : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0
                   ignored=0
192.168.56.115      : ok=4    changed=1    unreachable=0    failed=0    skipped=2    rescued=0
                   ignored=0
```

Figure 5.3. Executing the config.yaml

Based on the results, all the tasks has been successful.

```

nadiane@workstation:~/Agpaoa_PrelimExam$ ansible-playbook --ask-become-pass config.yaml
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.101]
ok: [192.168.56.115]

TASK [MOTD] *****
ok: [192.168.56.101]
ok: [192.168.56.115]

TASK [User - Ubuntu] *****
skipping: [192.168.56.115]
changed: [192.168.56.101]

TASK [User - CentOS] *****
skipping: [192.168.56.101]
changed: [192.168.56.115]

TASK [Installs the latest python3 and pip3 in Ubuntu] *****
skipping: [192.168.56.115]
ok: [192.168.56.101]

TASK [Installs the latest python3 and pip3 in CentOS] *****
skipping: [192.168.56.101]
ok: [192.168.56.115]

TASK [Install Java open-jdk in Ubuntu] *****
skipping: [192.168.56.115]
ok: [192.168.56.101]

TASK [Install Java open-jdk in CentOS] *****
skipping: [192.168.56.101]
ok: [192.168.56.115]

PLAY RECAP *****
192.168.56.101      : ok=5    changed=1    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
192.168.56.115      : ok=5    changed=1    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0

```

Figure 5.4. Executing the config.yaml

In this execution, the config.yaml has been configured to add user in Ubuntu and CentOS.

```
GNU nano 6.2                                config.yaml
--
- hosts: all
  become: true
  vars:
    username1: Managed-Node_Ubuntu
    username2: Managed-Node_CentOS

  tasks:
    - name: MOTD
      template:
        src: motd.j2
        dest: /etc/motd
      tags:
        - motd_config

    - name: User - Ubuntu
      ansible.builtin.user:
        name: "{{ username1 }}"
        state: present
      when: ansible_distribution == "Ubuntu"

    - name: User - CentOS
      ansible.builtin.user:
        name: "{{ username2 }}"
        state: present
      when: ansible_distribution == "CentOS"

    - name: Installs the latest python3 and pip3 in Ubuntu
      apt:
        name:
          - python3
          - python3-pip
        state: latest
      when: ansible_distribution == "Ubuntu"

    - name: Installs the latest python3 and pip3 in CentOS
      dnf:
        name:
          - python3
          - python3-pip
        state: latest
      when: ansible_distribution == "CentOS"

    - name: Install Java open-jdk in Ubuntu
      apt:
        name: default-jdk
      when: ansible_distribution == "Ubuntu"

    - name: Install Java open-jdk in CentOS
      dnf:
        name: java-11-openjdk-devel
      when: ansible_distribution == "CentOS"
```

Figure 5.5. Final configuration of config.yml

```
madiane@workstation:~/Agpaoa_PrelimExam$ git add *
```

Figure 5.6. Adding the files

```
madiane@workstation:~/Agpaoa_PrelimExam$ git commit -m "Changes"
[master 391eeaa] Changes
5 files changed, 78 insertions(+)
create mode 100644 ansible.cfg
create mode 100644 config.yaml
create mode 100644 config1.yaml
create mode 100644 inventory
create mode 100644 motd.j2
```

Figure 5.7. Committing the changes


```
madiane@workstation:~/Agpaoa_PrelimExam$ git push
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 4 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (7/7), 1.18 KiB | 1.18 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:qmja/Agpaoa_PrelimExam.git
 1de5311..391eeaa main -> main
```

Figure 5.7 Pushing the commits

GitHub Link: https://github.com/qmja/Agpaoa_PrelimExam.git