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<b>Course and Section:</b> CPE232-CPE31S24	<b>Date Submitted:</b> 10 / 01 / 2022
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<b>CPE232 - Prelim Exam</b>	

#### 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\_PrelimExam.

### Create a new repository

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

---

Owner \*

Repository name \*

jmaducal12

/ Aducal\_PrelimExam

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

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:**  
 Skip this step if you're importing an existing repository.

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

**Add .gitignore**  
 Choose which files not to track from a list of templates. [Learn more.](#)

.gitignore template: None

---

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

License: None

---

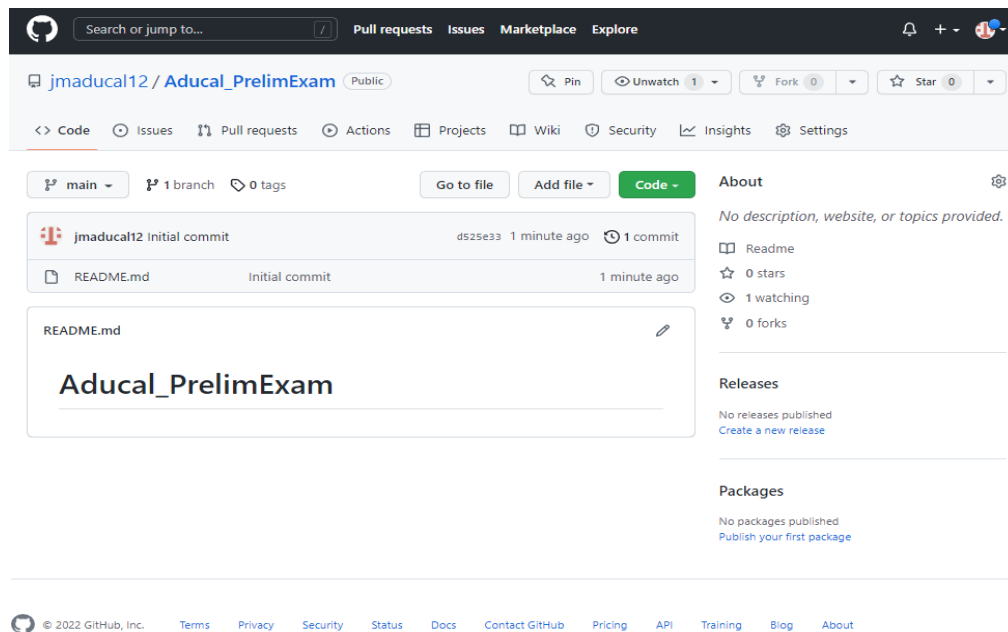
This will set **main** as the default branch. Change the default name in your [settings](#).

---

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

---

Create repository



I have created a new GitHub repository name Aducal\_PrelimExam.

3. Clone your new repository in your CN.

```
jmaducal@workstation: ~  
jmaducal@workstation:~$ git clone git@github.com:jmaducal12/Aducal_PrelimExam.git  
Cloning into 'Aducal_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.  
jmaducal@workstation:~$
```

I use git clone command to clone the new GitHub repository I've created in my CN.

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

```
jmaducal@workstation: ~/Aducal_PrelimExam  
jmaducal@workstation:~/Aducal_PrelimExam$ touch inventory  
jmaducal@workstation:~/Aducal_PrelimExam$ touch ansible.cfg  
jmaducal@workstation:~/Aducal_PrelimExam$ ls  
ansible.cfg  inventory  README.md
```

I have created two files, inventory and ansible.cfg files using the command touch.

```
jmaducal@workstation: ~/Aducal_PrelimExam
GNU nano 6.2 inventory
[remote_servers]
server1 ansible_host=192.168.56.102
CentOS ansible_host=192.168.56.108
```

The Inventory file contains the IP addresses of server1 and CentOS.

```
jmaducal@workstation: ~/Aducal_PrelimExam
GNU nano 6.2 ansible.cfg
[defaults]

inventory = inventory
host_key_checking = False

deprecation_warnings = False

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

The ansible.cfg file contains the configurations of ansible.

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

```
jmaducal@workstation: ~/Aducal_PrelimExam
GNU nano 6.2 config.yaml
---
- hosts: remote_servers
  become: true
  tasks:

    - name: install latest python3 and pip3 packages for Ubuntu
      apt:
        name:
          - python3
          - python3-pip
        state: latest
        when: ansible_distribution == "Ubuntu"

    - name: install latest python3 and pip3 packages for CentOS
      dnf:
        name:
          - python3
          - python3-pip
        state: latest
        when: ansible_distribution == "CentOS"
```

Config.yaml file contains ansible tasks that will install latest python3 and pip3 in remote servers such as ubuntu and CentOS.

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

PLAY [remote_servers] *****
*

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

TASK [install latest python3 and pip3 packages for Ubuntu] *****
*
skipping: [CentOS]
changed: [server1]

TASK [install latest python3 and pip3 packages for CentOS] *****
*
skipping: [server1]
changed: [CentOS]

PLAY RECAP *****
*
CentOS                : ok=2    changed=1    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
server1               : ok=2    changed=1    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
```

I have successfully Installed latest python3 and pip3 in server1(ubuntu) and CentOS.

- Use pip3 as default pip
- Use python3 as default python

#### Server1

```
jmaducal@server1: ~
jmaducal@server1:~$ python3 --version
Python 3.10.6
jmaducal@server1:~$ pip3 --version
pip 22.0.2 from /usr/lib/python3/dist-packages/pip (python 3.10)
jmaducal@server1:~$
jmaducal@server1:~$
```

Python version 3.10.6 and pip3 version 22.0.2 for server 1

#### CentOS

```
jmaducal@CentOS:~
File Edit View Search Terminal Help
[jmaducal@CentOS ~]$ python3 -V
Python 3.6.8
[jmaducal@CentOS ~]$ pip3 -V
pip 9.0.3 from /usr/lib/python3.6/site-packages (python 3.6)
[jmaducal@CentOS ~]$
```

Python version 3.6.8 and pip3 version 9.0.3 for CentOS

- Install Java open-jdk

```

jmaducal@workstation: ~/Aducal_PrelimExam
GNU nano 6.2 config.yaml
---
- hosts: remote_servers
  become: true
  tasks:

    - name: install latest python3, pip3 and Java packages for Ubuntu
      apt:
        name:
          - python3
          - python3-pip
          - openjdk-17-jre-headless
        state: latest
        when: ansible_distribution == "Ubuntu"

    - name: install latest python3, pip3 and Java packages for CentOS
      dnf:
        name:
          - python3
          - python3-pip
          - java-11-openjdk-devel
        state: latest
        when: ansible_distribution == "CentOS"

```

Config.yaml file contains ansible tasks that will install latest python3, pip3 and java in remote servers such as ubuntu and CentOS.

```

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

PLAY [remote_servers] *****
*

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

TASK [install latest python3, pip3 and Java packages for Ubuntu] *****
*
skipping: [CentOS]
ok: [server1]

TASK [install latest python3, pip3 and Java packages for CentOS] *****
*
skipping: [server1]
ok: [CentOS]

PLAY RECAP *****
*
CentOS                : ok=2    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
server1             : ok=2    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0

```

I have successfully Installed Java-openjdk in CentOS and server1.  
 I repeat again the command, the first I've execute command have  
 Both changed=1 CentOS and server1.

Checking the java version for server1 and CentOS

### Server1

```
jmaducal@server1:~$ java -version
openjdk version "17.0.4" 2022-07-19
OpenJDK Runtime Environment (build 17.0.4+8-Ubuntu-122.04)
OpenJDK 64-Bit Server VM (build 17.0.4+8-Ubuntu-122.04, mixed mode, sharing)
jmaducal@server1:~$
```

I have successfully installed java openjdk version "17.0.4" in server1

### CentOS

```
jmaducal@CentOS:~$ java -version
openjdk version "1.8.0_342"
OpenJDK Runtime Environment (build 1.8.0_342-b07)
OpenJDK 64-Bit Server VM (build 25.342-b07, mixed mode)
jmaducal@CentOS ~]$
```

I have successfully installed java openjdk version "1.8.0\_342" in CentOS

- 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 Manage node by(your username)"

```
jmaducal@workstation: ~/Aducal_PrelimExam
GNU nano 6.2 config.yaml

- name: install latest python3, pip3 and Java packages for Ubuntu
  apt:
    name:
      - python3
      - python3-pip
      - openjdk-17-jre-headless
    state: latest
    when: ansible_distribution == "Ubuntu"

- name: install latest python3, pip3 and Java packages for CentOS
  dnf:
    name:
      - python3
      - python3-pip
      - java-11-openjdk-devel
    state: latest
    when: ansible_distribution == "CentOS"

- name: Create a banner motd for remote servers ssh connection
  copy:
    content: "Ansible Manage node by jmaducal"
    dest: /etc/motd
```

I have created another ansible task to have a banner motd when using ssh connecting to remote servers.

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

PLAY [remote_servers] *****
*

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

TASK [install latest python3, pip3 and Java packages for Ubuntu] *****
*
skipping: [CentOS]
ok: [server1]

TASK [install latest python3, pip3 and Java packages for CentOS] *****
*
skipping: [server1]
ok: [CentOS]

TASK [Create a banner motd for remote servers ssh connection] *****
*
changed: [CentOS]
changed: [server1]

PLAY RECAP *****
*
CentOS      : ok=3    changed=1    unreachable=0    failed=0
skipped=1   rescued=0   ignored=0
server1     : ok=3    changed=1    unreachable=0    failed=0
skipped=1   rescued=0   ignored=0
```

There is some changes in tasks create a banner motd for ssh connection to remote servers.

### Server1

```
jmaducal@server1: ~
jmaducal@workstation:~/Aducal_PrelimExam$ ssh jmaducal@server1
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-47-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 updates can be applied immediately.

*** System restart required ***
Ansible Manage node by jmaducal ✓
Last login: Sat Oct 1 03:30:43 2022 from 10.0.2.15
jmaducal@server1:~$
```

The motd "Ansible Manage node by jmaducal" was successfully displayed when we doing ssh connection to server1.

## CentOS

```
jmaducal@CentOS:~  
jmaducal@workstation:~/Aducal_PrelimExam$ ssh jmaducal@CentOS  
Last login: Fri Sep 30 15:39:30 2022 from workstation  
Ansible Manage node by jmaducal ✓  
[jmaducal@CentOS ~]$
```

The motd "Ansible Manage node by jmaducal" was successfully displayed when we doing ssh connection to CentOS.

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

```
GNU nano 6.2 config.yaml  
- openjdk-17-jre-headless  
  state: latest  
  when: ansible_distribution == "Ubuntu"  
  
- name: install latest python3, pip3 and Java packages for CentOS  
  dnf:  
    name:  
      - python3  
      - python3-pip  
      - java-11-openjdk-devel  
    state: latest  
    when: ansible_distribution == "CentOS"  
  
- name: Create a banner motd for remote servers ssh connection  
  copy:  
    content: "Ansible Manage node by jmaducal\n"  
    dest: /etc/motd  
  
- name: Create a user  
  user:  
    name: user1  
    password: "{{ 'itsasecret' | password_hash('sha512') }}"  
    state: present
```

I have created another ansible task to create a new user.

```
jmaducal@workstation: ~/Aducal_PrelimExam  
jmaducal@workstation:~/Aducal_PrelimExam$ ansible-playbook --ask-become-pass config.yaml  
BECOME password:  
  
PLAY [remote_servers] *****  
*  
  
TASK [Gathering Facts] *****  
*  
ok: [CentOS]  
ok: [server1]  
  
TASK [install latest python3, pip3 and Java packages for Ubuntu] *****  
*  
skipping: [CentOS]  
ok: [server1]  
  
TASK [install latest python3, pip3 and Java packages for CentOS] *****  
*  
skipping: [server1]  
ok: [CentOS]
```



```

TASK [Create a banner motd for remote servers ssh connection] *****
*
ok: [CentOS]
ok: [server1]

TASK [Create a user] *****
*
changed: [CentOS]
changed: [server1]

PLAY RECAP *****
*
CentOS                : ok=4    changed=1    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
server1              : ok=4    changed=1    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0

```

There is another task added, create a user and some changes applied in remote servers CentOS and server1.

Checking if the user1 exists in server 1 and Cent OS

#### Server1

```

jmaducal@server1: ~
jmaducal@server1:~$ getent passwd | grep user1
user1:x:1001:1001::/home/user1:/bin/sh
jmaducal@server1:~$

```

Using the command `getent passwd | grep user1` we can check if the user we created earlier 'user1' exists.

#### CentOS

```

jmaducal@CentOS:~
File Edit View Search Terminal Help
[jmaducal@CentOS ~]$ getent passwd | grep user1
user1:x:1001:1001::/home/user1:/bin/bash
[jmaducal@CentOS ~]$

```

Using the command `getent passwd | grep user1` we can check if the user we created earlier 'user1' exists.

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

```
jmaducal@workstation: ~/Aducal_PrelimExam
jmaducal@workstation:~/Aducal_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)
jmaducal@workstation:~/Aducal_PrelimExam$ git add ansible.cfg
jmaducal@workstation:~/Aducal_PrelimExam$ git add config.yaml
jmaducal@workstation:~/Aducal_PrelimExam$ git add inventory
```

The ansible.cfg, config.yaml and inventory are untracked files. to track I use the command  
git add "file name".

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

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   ansible.cfg
    new file:   config.yaml
    new file:   inventory

jmaducal@workstation:~/Aducal_PrelimExam$ git commit -m "Aducal_PrelimExam"
[main 80cab61] Aducal_PrelimExam
3 files changed, 45 insertions(+)
create mode 100644 ansible.cfg
create mode 100644 config.yaml
create mode 100644 inventory
jmaducal@workstation:~/Aducal_PrelimExam$ git push origin main
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 902 bytes | 902.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:jmaducal12/Aducal_PrelimExam.git
d525e33..80cab61  main -> main
jmaducal@workstation:~/Aducal_PrelimExam$
```

The files are now tracked and in the staged and ready to be committed. I use the command  
git commit -m "Aducal\_PrelimExam" to commit the files and git push origin main to save  
the changes in our origin to main.

The committed repository should reflect on the GitHub account.

7. Your document report should be submitted here.

The screenshot shows the GitHub repository page for `jmaducal12/Aducal_PrelimExam`. The repository is public and has 0 forks, 0 stars, and 1 watcher. The repository contains 1 branch (main) and 0 tags. The commit history shows 2 commits by John Mark Aducal. The files listed are `README.md`, `ansible.cfg`, `config.yaml`, and `inventory`. The `README.md` file is displayed, showing the title `Aducal_PrelimExam`. The right sidebar shows the repository's metadata, including the README, stars, watchers, forks, releases, and packages.

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jmaducal12 / Aducal\_PrelimExam Public

Notifications Fork 0 Star 0

<> Code Issues Pull requests Actions Projects Security Insights

main 1 branch 0 tags Go to file Code

About

No description, website, or topics provided.

Readme

0 stars

1 watching

0 forks

Releases

No releases published

Packages

No packages published

John Mark Aducal Aducal\_PrelimExam 80cab61 7 minutes ago 2 commits

File	Commit	Time
README.md	Initial commit	6 hours ago
ansible.cfg	Aducal_PrelimExam	7 minutes ago
config.yaml	Aducal_PrelimExam	7 minutes ago
inventory	Aducal_PrelimExam	7 minutes ago

README.md

# Aducal\_PrelimExam


The screenshot shows the `ansible.cfg` file in the `Aducal_PrelimExam` repository. The file is 9 lines (6 sloc) and 141 Bytes. The content of the file is as follows:

```
1 [defaults]
2
3 inventory = inventory
4 host_key_checking = False
5
6 deprecation_warnings = False
7
8 remote_user = jmaducal
9 private_key_file = ~/.ssh/
```

The screenshot shows the `inventory` file in the `Aducal_PrelimExam` repository. The file is 3 lines (3 sloc) and 88 Bytes. The content of the file is as follows:

```
1 [remote_servers]
2 server1 ansible_host=192.168.56.102
3 CentOS ansible_host=192.168.56.108
```

main ▾ Aducal\_PrelimExam / config.yaml

 John Mark Aducal Aducal\_PrelimExam

0 contributors

33 lines (29 sloc) | 805 Bytes

```
1 ---
2 - hosts: remote_servers
3   become: true
4   tasks:
5
6     - name: install latest python3, pip3 and Java packages for Ubuntu
7       apt:
8         name:
9           - python3
10          - python3-pip
11          - openjdk-17-jre-headless
12        state: latest
13        when: ansible_distribution == "Ubuntu"
14
15    - name: install latest python3, pip3 and Java packages for CentOS
16      dnf:
17        name:
18          - python3
19          - python3-pip
20          - java-11-openjdk-devel
21        state: latest
22        when: ansible_distribution == "CentOS"
23
24    - name: Create a banner motd for remote servers ssh connection
25      copy:
26        content: "Ansible Manage node by jmaducal\n"
27        dest: /etc/motd
28
29    - name: Create a user
30      user:
31        name: user1
32        password: "{{ 'itsasecret' | password_hash('sha512') }}"
33        state: present
```

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

[https://github.com/jmaducal12/Aducal\\_PrelimExam.git](https://github.com/jmaducal12/Aducal_PrelimExam.git)

**Honor Pledge:**

"I affirm that I will not give or receive any unauthorized help on this exam and that all work will be my own"



**John Mark S. Aducal**