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<b>Course/Section:</b> CPE31S4	<b>Date Submitted:</b> 09/25/2023
<b>Instructor:</b> Dr. Jonathan Taylar	<b>Semester and SY:</b> 1st - 2023-2024
<b>Prelim Skills Exam</b>	
<b>Tools Needed:</b>	
<ol style="list-style-type: none"> <li>1. Control Node (CN) - 1</li> <li>2. Manage Node (MN) - 1 Ubuntu</li> <li>3. Manage Node (MN) - 1 CentOS</li> </ol>	
<b>Procedure</b>	
<ol style="list-style-type: none"> <li>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.</li> <li>2. Create a repository in your GitHub account and label it as Surname_PrelimExam</li> </ol>	

## Create a new repository

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

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*Required fields are marked with an asterisk (\*).*


Owner \* jrstendencia / Repository name \* Tendencia\_PrelimExam


✔ Tendencia\_PrelimExam is available.

Great repository names are short and memorable. Need inspiration? How about [scaling-enigma](#) ?

Description (optional)

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☒  **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.

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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

Here, I have created a new repository named as 'Tendencia\_PrelimExam'. I ticked the README.md file.

3. Clone your new repository in your CN.

```
^Ctendencia@workstation:~$ git clone git@github.com:jrstendencia/Tendencia_PrelimExam.git
Cloning into 'Tendencia_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.
```

Before cloning the repository I tried to run the command for a new ssh key to be generated.

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

**ansible.cfg:**

```
[defaults]

inventory = inventory
host_key_checking = false

deprecation_warnings = false

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

**inventory:**

```
1    [servers]
2
3    192.168.56.103 ansible_python_interpreter=/usr/bin/python3
4    192.168.56.104 ansible_python_interpreter=/usr/bin/python3
5
6    192.168.56.103 python_package=python3 pip_package=python3-pip
7    192.168.56.104 python_package=python3 pip_package=python3-pip
8
9    192.168.56.103 java_package=openjdk-8-jdk
10   192.168.56.104 java_package=java-1.8.0-openjdk
```

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

Playbooks:

config.yaml:

```
# config.yaml
python_version: 3
pip_version: 3
motd_text: "Welcome to Ansible Managed Node"
new_username: jrpogi
```

prelim\_exam.yaml (main):

```

- name: Configure Manage Nodes
  hosts: all
  become: yes
  become_user: root
  vars_files:
    - config.yaml

tasks:
  - name: Update package cache on Ubuntu
    apt:
      update_cache: yes
    when: ansible_distribution == 'Ubuntu'

  - name: Update package cache on CentOS
    yum:
      name: "*"
      state: latest
    when: ansible_distribution == 'CentOS'

  - name: Install Python and Pip
    package:
      name: "[{ item }]"
      state: latest
    with_items:
      - python[{ python_version }]
      - python3-pip
    become: yes
    become_user: root

# - name: Set Python and Pip versions
#   alternatives:
#     name: python
#     path: /usr/bin/python[{ python_version }]
#   become: yes
#   become_user: root

  - name: Install Java OpenJDK on Ubuntu
    apt:
      name: "[{ java_package }]"
      state: present
    when: ansible_distribution == 'Ubuntu'
    become: yes
    become_user: root

  - name: Enable EPEL repository on CentOS
    command: dnf install -y epel-release
    when: ansible_distribution == 'CentOS'
    become: yes
    become_user: root

```

In the created .yaml file named as prelim\_exam.yaml, I have installed the Python3 and pip3 in the two manage nodes which are the server for Ubuntu and server for CentOS. Also, set the default for Python and pip, again, in the manage nodes. Installation of Java OpenJDK is also inputted here. As you can see, I just used the *user\_name* so I won't get confused.

- 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

```
GNU nano 6.2 motd.j2
{{ motd_text | default('Ansible Managed node by tendencia ') }}
```

I also just used the tendencia as username here and the default *motd* or message.

Output:

```
tendencia@workstation:~/Tendencia_PrelimExam$ ansible-playbook --ask-become-pass prelim_exam.yaml
BECOME password:

PLAY [Configure Manage Nodes] *****

TASK [Gathering Facts] *****
ok: [192.168.56.104]
ok: [192.168.56.103]

TASK [Update package cache on Ubuntu] *****
skipping: [192.168.56.104]
changed: [192.168.56.103]

TASK [Update package cache on CentOS] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [Install Python and Pip] *****
ok: [192.168.56.103] => (item=python3)
ok: [192.168.56.103] => (item=python3-pip)
ok: [192.168.56.104] => (item=python3)
ok: [192.168.56.104] => (item=python3-pip)

TASK [Install Java OpenJDK on Ubuntu] *****
skipping: [192.168.56.104]
changed: [192.168.56.103]

TASK [Enable EPEL repository on CentOS] *****
skipping: [192.168.56.103]
changed: [192.168.56.104]

TASK [Install Java OpenJDK on CentOS] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [Set MOTD] *****
changed: [192.168.56.104]
changed: [192.168.56.103]

TASK [Create User] *****
changed: [192.168.56.104]
changed: [192.168.56.103]

PLAY RECAP *****
192.168.56.103      : ok=6   changed=4   unreachable=0   failed=0   skipped=3   rescued=0   ignored=0
192.168.56.104      : ok=7   changed=3   unreachable=0   failed=0   skipped=2   rescued=0   ignored=0

tendencia@workstation:~/Tendencia_PrelimExam$
```

5. PUSH and COMMIT your PrelimExam in your GitHub repo

```

nothing added to commit but untracked files present (use 'git add' to track)
tendencia@workstation:~/Tendencia_PrelimExam$ git add ansible.cfg
tendencia@workstation:~/Tendencia_PrelimExam$ git add config.yaml
tendencia@workstation:~/Tendencia_PrelimExam$ sudo nano inventory
tendencia@workstation:~/Tendencia_PrelimExam$ git add inventory
tendencia@workstation:~/Tendencia_PrelimExam$ git add prelim_exam.yaml
tendencia@workstation:~/Tendencia_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
        new file:   prelim_exam.yaml

tendencia@workstation:~/Tendencia_PrelimExam$ git commit -m "Updates"
[main 43f4015] Updates
 4 files changed, 53 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yaml
 create mode 100644 inventory
 create mode 100644 prelim_exam.yaml
tendencia@workstation:~/Tendencia_PrelimExam$ git push origin main
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 1.01 KiB | 1.01 MiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:jrstendencia/Tendencia_PrelimExam.git
   5e5c888..43f4015  main -> main
tendencia@workstation:~/Tendencia_PrelimExam$

```

Here the command: `git add [name of file]` was used to add the file for commit. Then, the `git status` is used to know if there are any committed files or for staged. Next is the `git commit -m [message]` to make the changes visible in the repository through the use of a specific message. Lastly, the `git push origin main` to save all the files that was committed.

Repository link: [https://github.com/jrstendencia/Tendencia\\_PrelimExam.git](https://github.com/jrstendencia/Tendencia_PrelimExam.git)