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Section: CPE31S24

October 1, 2022
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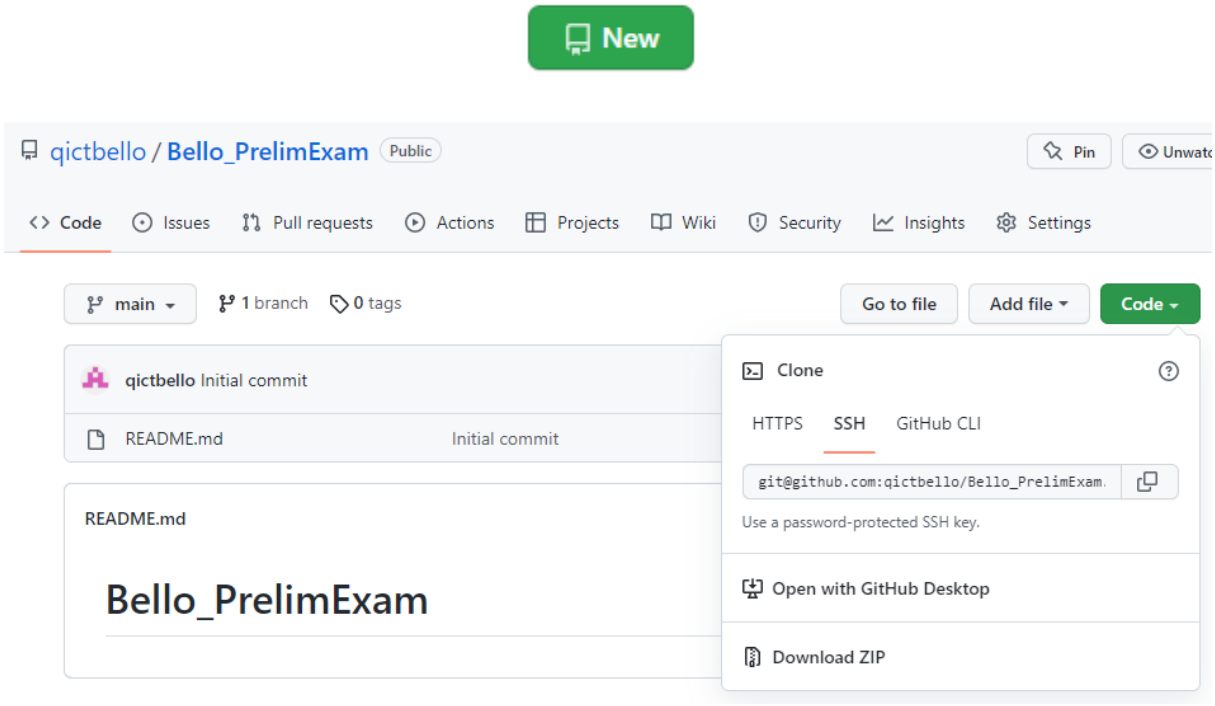
Tools Needed:

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



We created a new repository name Bello_PrelimExam in GitHub and copy its SSH for cloning

3. Clone your new repository in your CN.

```
ubuntuhost@workstation:~$ git clone git@github.com:qictbello/Bello_PrelimExam.g
it
Cloning into 'Bello_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.
ubuntuhost@workstation:~$
```

We cloned the repository in our CN or workstation with the command git clone and the link we copied from the SSH GitHub repository.

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

```
ubuntuhost@workstation:~$ cd Bello_PrelimExam/
ubuntuhost@workstation:~/Bello_PrelimExam$ ls
README.md
ubuntuhost@workstation:~/Bello_PrelimExam$ nano inventory
ubuntuhost@workstation:~/Bello_PrelimExam$ nano ansible.cfg
ubuntuhost@workstation:~/Bello_PrelimExam$ ls
ansible.cfg  inventory  README.md
ubuntuhost@workstation:~/Bello_PrelimExam$
```

We created 2 files the ansible.cfg where defaults are set to inventory and our private key for using ansible command. The inventory contains the IP address or domain name of the 2 servers and soon we will implement their conditions.

```
ubuntuhost@workstation:~/Bello_PrelimExam$ cat inventory
server1
servercent
ubuntuhost@workstation:~/Bello_PrelimExam$ cat ansible.cfg
[defaults]
inventory = inventory
private_key_file = ~/.ssh/ansible
ubuntuhost@workstation:~/Bello_PrelimExam$
```

Here are the contents of both file like the last activity.

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

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```
ubuntuhost@workstation:~/Bello_PrelimExam$ pip3
Command 'pip3' not found, but can be installed with:
sudo apt install python3-pip
ubuntuhost@workstation:~/Bello_PrelimExam$ python3
Python 3.10.6 (main, Aug 10 2022, 11:40:04) [GCC 11.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
[1]+  Stopped                 python3
ubuntuhost@workstation:~/Bello_PrelimExam$
```

We look forward to knowing what command to install both pip3 and python3.

```
server1 python3_package=python3 pip3_package=python3-pip
servercent python3_package=python3 pip3_package=python3-pip
```

We knew that it is python3 and python3-pip so we created separation so both environments don't overlap their installations.

```
---

- hosts: all
  become: true
  tasks:

  - name: install latest python3 and pip3
    package:
      name:
        - "{{ python3_package }}"
        - "{{ pip3_package }}"
      state: latest
```

We created config.yaml with this content installing both pip3 and python3 packages on both servers with the latest distribution. Techniques we're applied from last activity.

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

```
- name: use pip3 as default pip and python3 as default python
  ansible.builtin.shell: |
   echo "alias python=/usr/local/bin/python3" >> ~/.bashrc
   echo "alias pip=/usr/local/bin/pip3" >> ~/.bashrc
```

We created another line to make pip3 and python3 as default in both distribution of servers. Where all Linux and similar distribution have both codes to set their default, we didn't have to change it.

- Install Java open-jdk

```
- name: install Java open-jdk
  package:
    name:
      - "{{ java_package }}"
    state: latest
```

Like pip3 and python3 we created another package for java because the distribution has different installation, we also checked this similar on how we knew the installation for both distributions.

```
 GNU nano 6.2                                    inventory
server1 python3_package=python3 pip3_package=python3-pip java_package=openjdk-8-jdk
servercent python3_package=python3 pip3_package=python3-pip java_package=java-1.8.0-openjdk
```

We called their packages again for each distribution this time it's java_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)"

```
- name: MOTD deployer defined var
  copy:
     content: "Ansible Managed node by {{user}}\n"
     dest: /etc/motd

- name: MOTD deployer default
  copy:
     content: "Ansible Managed node by Bello\n"
     dest: /etc/motd
```

We created lines for creating or deploying motd to the servers with defined variable and default.

```
- hosts: all
  become: true
  vars:
   - user: bughaw
  tasks:
```

Here we created variable as an input "bughaw" which is my nickname, and we will use this also for user creation.

```
ubuntuhost@server1:~$ cat /etc/motd
Ansible Managed node by Bello
ubuntuhost@server1:~$
```

```
[ubuntuhost@localhost ~]$ cat /etc/motd
Ansible Managed node by Bello
[ubuntuhost@localhost ~]$
```

Here we can see that servers motd are set to default.

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

```
- name: Create User in both server
  ansible.builtin.user:
     name: "{{user}}"
     comment: Nickname
     uid: 1069
     group: root
     createhome: yes
     home: /home/"{{user}}"
```

In this line we are creating the user using the builtin.user command and we used our called variable “bughaw” as name and comment it as my Nickname. We set UID to 1069, group to root, and created home directory for the user.

```
bughaw:x:1069:0:Nickname:/home/"bughaw":/bin/sh
ubuntuhost@server1:~$
```

```
bughaw:x:1069:0:Nickname:/home/"bughaw":/bin/bash
[ubuntuhost@localhost ~]$
```

As you can see after doing /etc/passwd in the servers it shows the user we created and information.

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```
TASK [Gathering Facts] *********************************************************************************************************************************
ok: [server1]
ok: [servercent]

TASK [install latest python3 and pip3] *****************************************************************************************************************
ok: [server1]
ok: [servercent]

TASK [use pip3 as default pip and python3 as default python] *******************************************************************************************
changed: [server1]
changed: [servercent]

TASK [install Java open-jdk] ***************************************************************************************************************************
ok: [server1]
ok: [servercent]

TASK [MOTD deployer defined var] ***********************************************************************************************************************
ok: [server1]
ok: [servercent]

TASK [MOTD deployer default] ***************************************************************************************************************************
changed: [server1]
changed: [servercent]

TASK [Create User in both server] **********************************************************************************************************************
ok: [server1]
ok: [servercent]

PLAY RECAP *********************************************************************************************************************************************
server1                    : ok=7    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
servercent                 : ok=7    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntuhost@workstation:~/Bello_PrelimExam$
```

Here is our final run of the config.yaml playbook.

5. PUSH and COMMIT your PrelimExam in your GitHub repo

```
ubuntuhost@workstation:~/Bello_PrelimExam$ git add -A
ubuntuhost@workstation:~/Bello_PrelimExam$ git commit -m Final
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
ubuntuhost@workstation:~/Bello_PrelimExam$ git push
Everything up-to-date
ubuntuhost@workstation:~/Bello_PrelimExam$
```

Here we add, commit and push changes into our directory and will be pushed to the website.

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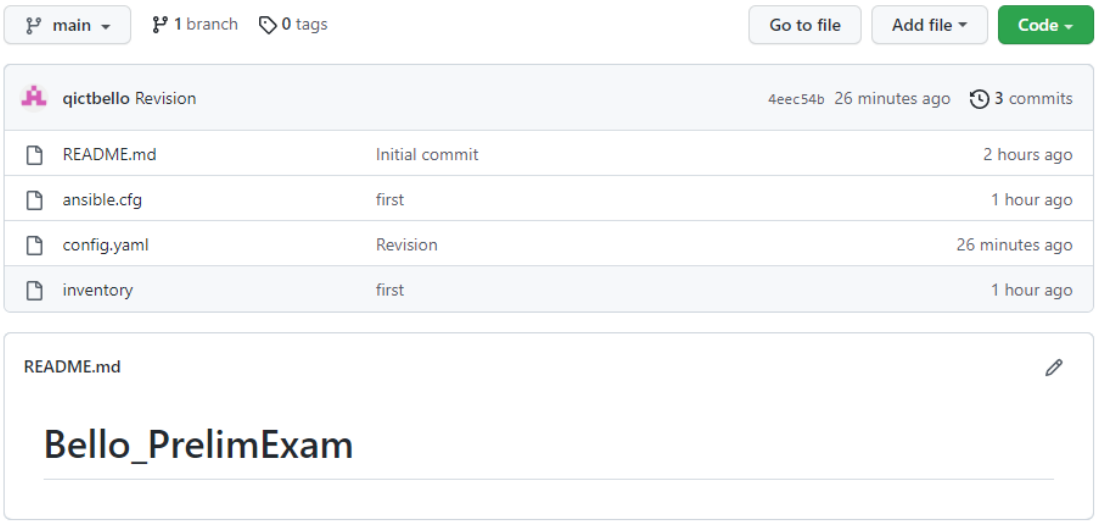

Here is our final Repository in GitHub.

6. Your document report should be submitted here.

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

https://github.com/qictbello/Bello_PrelimExam