Ansible

Exercise:

1. Run Ansible Ad-hoc commands:

      1.1 To execute command in bash and see the result

1.2 To check all running processes on node.

```
fahad@fahad ~ <master*>
  ➤ ansible ubuntu@3.92.228.126 -m shell -a "ps -ef"
ubuntu@3.92.228.126 | CHANGED | rc=0 >>
UID        PID  PPID  C STIME TTY          TIME CMD
root         1     0  0 09:51 ?        00:00:03 /sbin/init
root         2     0  0 09:51 ?        00:00:00 [kthreadd]
root         4     2  0 09:51 ?        00:00:00 [kworker/0:0H]
root         6     2  0 09:51 ?        00:00:00 [mm_percpu_wq]
root         7     2  0 09:51 ?        00:00:00 [ksoftirqd/0]
root         8     2  0 09:51 ?        00:00:00 [rcu_sched]
root         9     2  0 09:51 ?        00:00:00 [rcu_bh]
root        10     2  0 09:51 ?        00:00:00 [migration/0]
root        11     2  0 09:51 ?        00:00:00 [watchdog/0]
root        12     2  0 09:51 ?        00:00:00 [cpuhp/0]
root        13     2  0 09:51 ?        00:00:00 [kdevtmpfs]
root        14     2  0 09:51 ?        00:00:00 [netns]
root        15     2  0 09:51 ?        00:00:00 [rcu_tasks_kthre]
root        16     2  0 09:51 ?        00:00:00 [kauditd]
root        17     2  0 09:51 ?        00:00:00 [xenbus]
root        18     2  0 09:51 ?        00:00:00 [xenwatch]
root        20     2  0 09:51 ?        00:00:00 [khungtaskd]
root        21     2  0 09:51 ?        00:00:00 [oom_reaper]
root        22     2  0 09:51 ?        00:00:00 [writeback]
root        23     2  0 09:51 ?        00:00:00 [kcompactd0]
root        24     2  0 09:51 ?        00:00:00 [ksmd]
root        25     2  0 09:51 ?        00:00:00 [khugepaged]
root        26     2  0 09:51 ?        00:00:00 [crypto]
root        27     2  0 09:51 ?        00:00:00 [kintegrityd]
root        28     2  0 09:51 ?        00:00:00 [kblockd]
root        29     2  0 09:51 ?        00:00:00 [ata_sff]
root        30     2  0 09:51 ?        00:00:00 [md]
root        31     2  0 09:51 ?        00:00:00 [edac-poller]
root        32     2  0 09:51 ?        00:00:00 [devfreq_wq]
root        33     2  0 09:51 ?        00:00:00 [watchdogd]
root        36     2  0 09:51 ?        00:00:00 [kswapd0]
```

1.3 To copying files to multiple nodes concurrently.

```
fahad@fahad ~ <master*>
  ➤ ansible ubuntu@3.92.228.126 -m copy -a "src=test_file.txt dest=/home/ubuntu
/t34ak"
ubuntu@3.92.228.126 | CHANGED => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": true,
    "checksum": "da39a3ee5e6b4b0d3255bfef95601890afd80709",
    "dest": "/home/ubuntu/t34ak/test_file.txt",
    "gid": 1000,
    "group": "ubuntu",
    "md5sum": "d41d8cd98f00b204e9800998ecf8427e",
    "mode": "0664",
    "owner": "ubuntu",
    "size": 0,
    "src": "/home/ubuntu/.ansible/tmp/ansible-tmp-1584014571.95-35253306256218/s
ource",
    "state": "file",
    "uid": 1000
}
fahad@fahad ~ <master*>
  ➤
```

```
ubuntu@ip-172-31-90-48:~/t34ak$ ls
test_file.txt
ubuntu@ip-172-31-90-48:~/t34ak$
```

1.4 To add and delete users.

```
┌fahad@fahad ~  ‹master*›
└─► ansible all -u ubuntu -b -m user -a "name=t34ak"
ec2-user@3.87.221.207 | CHANGED => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/libexec/platform-python"
    },
    "changed": true,
    "comment": "",
    "create_home": true,
    "group": 1001,
    "home": "/home/t34ak",
    "name": "t34ak",
    "shell": "/bin/bash",
    "state": "present",
    "system": false,
    "uid": 1001
}
ubuntu@3.92.228.126 | CHANGED => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": true,
    "comment": "",
    "create_home": true,
    "group": 1001,
    "home": "/home/t34ak",
    "name": "t34ak",
    "shell": "/bin/sh",
    "state": "present",
    "system": false,
    "uid": 1001
}
┌fahad@fahad ~  ‹master*›
└─►
```

```
sshd:x:109:65534::/run/sshd:/usr/sbin/nologin
pollinate:x:110:1::/var/cache/pollinate:/bin/false
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
t34ak:x:1001:1001::/home/t34ak:/bin/sh
ubuntu@ip-172-31-90-48:~/t34ak$
```

```
┌fahad@fahad ~/ansible-playbooks  ‹master*›
└─➤ ansible all -b -m user -a "name=t34ak state=absent"
ubuntu@54.211.9.136 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "name": "t34ak",
    "state": "absent"
}
┌fahad@fahad ~/ansible-playbooks  ‹master*›
└─➤ █
```

2. Create nginx ansible-playbook and run the node, also check
if nginx service and default page is running or not.

```
┌fahad@fahad ~/ansible-playbooks  ‹master*›
└─➤ ansible-playbook nginx-new.yaml

PLAY [all] ***********************************************************

TASK [Gathering Facts] **********************************************
ok: [ubuntu@54.174.81.235]

TASK [Install nginx Package] ****************************************
changed: [ubuntu@54.174.81.235]

TASK [start nginx] **************************************************
changed: [ubuntu@54.174.81.235]

PLAY RECAP *********************************************************
ubuntu@54.174.81.235          : ok=3    changed=2    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0

┌fahad@fahad ~/ansible-playbooks  ‹master*›
└─➤ curl -i 54.174.81.235:80
HTTP/1 1 200 OK
```

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.
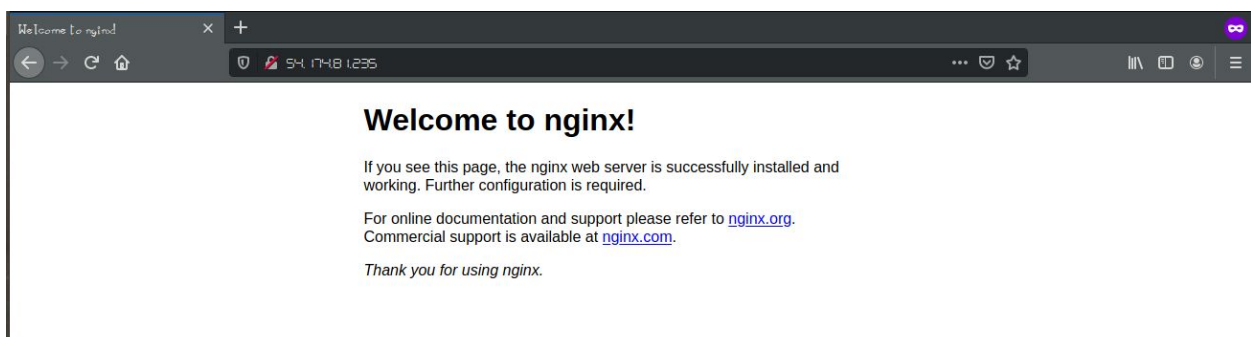
3. Create the roles for the same playbook and use a custom conf file and index.html.

Here I'm specifying the different conf and index.html file

```
fahad@fahad ~/ansible-playbooks/nginx/tasks  <master*>
 ➤ cat configure.yml
# - hosts: all
#   become: true
#   tasks:
    - name: make the directory
      file:
          path: /var/www/html/abc
          state: directory
    - name: Copy the configuration files
      copy:
          src: /home/fahad/ansible-playbooks/nginx/files/sites-available/abc.conf
          dest: /etc/nginx/sites-available/abc.conf
    - name: removing the default configuration file
      command: rm /etc/nginx/sites-enabled/default
    - name: creating the soft link of abc.conf
      command: ln -s /etc/nginx/sites-available/abc.conf /etc/nginx/sites-enabled/
    - name: Copy the index.html file
      copy:
          src: /home/fahad/ansible-playbooks/nginx/files/index.html
          dest: /var/www/html/abc/
          #        notify:
          # - restart nginx
    - name: start nginx
      service:
          name: nginx
          state: restarted
          enabled: yes


fahad@fahad ~/ansible-playbooks/nginx/tasks  <master*>
```

Nginx is successfully deployed with custom conf and index.html page

```
┌─fahad@fahad ~/ansible-playbooks <master*>
└─> ansible-playbook -b runsetup.yml                                          2 ◄┤

PLAY [all] ***********************************************************************

TASK [nginx : Install nginx Package] ********************************************
ok: [ubuntu@54.211.9.136]

TASK [nginx : start nginx] ******************************************************
changed: [ubuntu@54.211.9.136]

TASK [nginx : make the directory] ***********************************************
ok: [ubuntu@54.211.9.136]

TASK [nginx : Copy the configuration files] *************************************
ok: [ubuntu@54.211.9.136]

TASK [nginx : removing the default configuration file] **************************
[WARNING]: Consider using the file module with state=absent rather than running 'rm'.  If you need to use command because file is
insufficient you can add 'warn: false' to this command task or set 'command_warnings=False' in ansible.cfg to get rid of this message.
changed: [ubuntu@54.211.9.136]

TASK [nginx : creating the soft link of abc.conf] ******************************
[WARNING]: Consider using the file module with state=link rather than running 'ln'.  If you need to use command because file is insufficient
you can add 'warn: false' to this command task or set 'command_warnings=False' in ansible.cfg to get rid of this message.
changed: [ubuntu@54.211.9.136]

TASK [nginx : Copy the index.html file] ****************************************
ok: [ubuntu@54.211.9.136]

TASK [nginx : start nginx] ****************************************************
changed: [ubuntu@54.211.9.136]

PLAY RECAP **********************************************************************
ubuntu@54.211.9.136        : ok=8    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

54.2 1 1.9. 136/   ✕   +
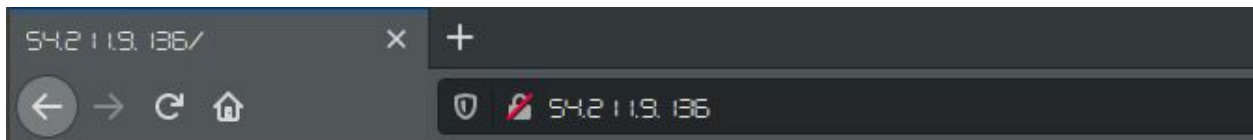
←   →   C   ⌂   🛡   🛡 54.2 1 1.9. 136

T34aK

This is the center

```
┌fahad@fahad ~/ansible-playbooks ‹master*›
└➤ curl -i 54.211.9.136
HTTP/1.1 200 OK
Server: nginx/1.14.0 (Ubuntu)
Date: Mon, 16 Mar 2020 07:33:32 GMT
Content-Type: text/html
Content-Length: 74
Last-Modified: Mon, 16 Mar 2020 06:56:58 GMT
Connection: keep-alive
ETag: "5e6f233a-4a"
Accept-Ranges: bytes

<html>
<body>

<h1>T34aK</h1>

<p>This is the center</p>
</body>
</html>

┌fahad@fahad ~/ansible-playbooks ‹master*›
└➤ █
```

4. Using loops, copy multiple files from ansible machine to remote node.

```
┌fahad@fahad ~/ansible-playbooks ‹master*›
└➤ vi loop.yml
┌fahad@fahad ~/ansible-playbooks ‹master*›
└➤ ansible-playbook -b loop.yml

PLAY [all] *************************************************************************************************************

TASK [Copying multiple files] *****************************************************************************************
changed: [ubuntu@54.211.9.136] => (item=/home/fahad/f1)
changed: [ubuntu@54.211.9.136] => (item=/home/fahad/f2)
changed: [ubuntu@54.211.9.136] => (item=/home/fahad/f3)
changed: [ubuntu@54.211.9.136] => (item=/home/fahad/f4)

PLAY RECAP ************************************************************************************************************
ubuntu@54.211.9.136        : ok=1    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
fahad@fahad ~/ansible-playbooks  ‹master*›
➤ cat loop.yml
- hosts: all
  gather_facts: false
  tasks:
  - name: Copying multiple files
    copy:
      src: "{{ item }}"
      dest: /home/ubuntu/
    with_items:
      - /home/fahad/f1
      - /home/fahad/f2
      - /home/fahad/f3
      - /home/fahad/f4
fahad@fahad ~/ansible-playbooks  ‹master*›
➤
```

Screen shot from the instance

```
ubuntu@ip-172-31-75-144:~$ ls -l
total 0
-rw-r--r-- 1 root root 0 Mar 16 08:49 f1
-rw-r--r-- 1 root root 0 Mar 16 08:49 f2
-rw-r--r-- 1 root root 0 Mar 16 08:50 f3
-rw-r--r-- 1 root root 0 Mar 16 08:50 f4
ubuntu@ip-172-31-75-144:~$
```

5. Write a playbook to demonstrate the precedence of default and var file, override them from CLI.

```
┌─fahad@fahad ~/ansible-playbooks ‹master*›
└─➤ ansible-playbook -b var.yml -e var=200

PLAY [all] *************************************************************************

TASK [loop-demo : for printing variable] ******************************************
ok: [ubuntu@54.211.9.136] => {
    "var": "200"
}

PLAY RECAP ************************************************************************
ubuntu@54.211.9.136        : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

┌─fahad@fahad ~/ansible-playbooks ‹master*›
└─➤ ansible-playbook -b var.yml

PLAY [all] *************************************************************************

TASK [loop-demo : for printing variable] ******************************************
ok: [ubuntu@54.211.9.136] => {
    "var": "this  is from default file"
}

PLAY RECAP ************************************************************************
ubuntu@54.211.9.136        : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

┌─fahad@fahad ~/ansible-playbooks ‹master*›
└─➤
```