Module 5: Ansible Assignment - 1

1. Setup Ansible cluster with 3 nodes
2. On slave 1 install Java
3. On slave 2 install MySQL server

Do the above tasks using Ansible Playbooks.

Solution:-

Server:-

$ apt update -y && apt-get install python3 -y && apt upgrade -y

```
Server@Ansible-Server:/home/Server$ sudo apt update && sudo apt-get install python3
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 110 kB in 1s (170 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
105 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
```

Node1:-

$ apt update -y && apt-get install python3 -y && apt upgrade -y

```
Node1@Ansible-Node1:~$ sudo apt update && sudo apt-get install python3
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 110 kB in 1s (171 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

Node2:-

$ apt update -y && apt-get install python3 -y && apt upgrade -y

```
Node2@Ansible-Node2:~$ sudo apt update && sudo apt-get install python3
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 110 kB in 1s (158 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
105 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

$ sudo apt install software-properties-common -y

```
Server@Ansible-Server:/home/Server$ sudo apt install software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  python3-software-properties
The following packages will be upgraded:
  python3-software-properties software-properties-common
2 upgraded, 0 newly installed, 0 to remove and 103 not upgraded.
Need to get 42.9 kB of archives.
```

$ sudo apt-add-repository --yes --update ppa:ansible/ansible

```
Server@Ansible-Server:/home/Server$ sudo apt-add-repository --yes --update ppa:ansible/ansible
Repository: 'deb https://ppa.launchpadcontent.net/ansible/ansible/ubuntu/ jammy main'
Description:
Ansible is a radically simple IT automation platform that makes your applications and systems easier t
ur applications— automate in a language that approaches plain English, using SSH, with no agents to in

http://ansible.com/

If you face any issues while installing Ansible PPA, file an issue here:
```

$ sudo apt install ansible -y

```
Server@Ansible-Server:/home/Server$ sudo apt install ansible
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ansible-core python3-jmespath python3-kerberos python3-nacl python3-ntlm-auth python3-pack
  python3-resolvelib python3-winrm python3-xmltodict sshpass
Suggested packages:
  python-nacl-doc python3-gssapi python3-invoke
```

$ ansible --version

```
Server@Ansible-Server:/home/Server$ ansible --version
ansible [core 2.15.2]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/Server/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/Server/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.6 (main, Mar 10 2023, 10:55:28) [GCC 11.3.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
```

$ sudo vi /etc/ansible/hosts

```
Server@Ansible-Server:/home/Server$ sudo vi /etc/ansible/hosts
```

<Enter ips of nodes and create cluster host.>

```
##
## db01.intranet.mydomain.net
## db02.intranet.mydomain.net
## 10.25.1.56
## 10.25.1.57

# Here's another example of host rang
# leading 0s:

## db-[99:101]-node.example.com

[cluster]
172.31.88.190
172.31.80.122
```

$ sudo mkdir ansible-cluster && cd ansible-cluster && sudo mkdir -p inventories/production && sudo mkdir playbooks && sudo mkdir -p roles/common/tasks && sudo mkdir -p roles/common/handlers
$ ls

```
Server@Ansible-Server:/home/Server$ mkdir ansible-cluster &&
cd ansible-cluster &&
mkdir -p inventories/production &&
mkdir playbooks &&
mkdir -p roles/common/tasks &&
mkdir -p roles/common/handlers
Server@Ansible-Server:/home/Server/ansible-cluster$ ls
inventories  playbooks  roles
Server@Ansible-Server:/home/Server/ansible-cluster$
```

Server:-
$ sudo su
$ cd /root
$ vi /etc/hostname

```
ubuntu@ip-172-31-91-164:~$ sudo su
root@ip-172-31-91-164:/home/ubuntu# cd /root
root@ip-172-31-91-164:~# vi /etc/hostname
```

<Give hostname Ansible-Server to server>

```
Ansible-Server
~
~
~
```

$ sudo su
$ cd /root
$ vi /etc/hostname

```
ubuntu@ip-172-31-81-59:~$ sudo su
root@ip-172-31-81-59:/home/ubuntu# cd /root/
root@ip-172-31-81-59:~# vi /etc/hostname
```

<Give hostname Ansible-Node1 to node1>

```
Ansible-Node1
~
~
~
~
```

$ sudo su
$ cd /root
$ vi /etc/hostname

```
ubuntu@ip-172-31-83-14:~$ sudo su
root@ip-172-31-83-14:/home/ubuntu# cd /root/
root@ip-172-31-83-14:~# vi /etc/hostname
```

<Give hostname Ansible-Node2 to node2>

```
Ansible-Node2
~
~
~
```

Server:-

$ sudo su

$ apt update -y && apt-get install python3 -y && apt upgrade -y

```
ubuntu@Ansible-Server:~$ sudo su
root@Ansible-Server:/home/ubuntu# cd /root
root@Ansible-Server:~# apt update && apt-get install python3
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Fetched 227 kB in 1s (345 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
105 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
```

Node1:-

$ sudo su

$ apt update -y && apt-get install python3 -y && apt upgrade -y

```
ubuntu@Ansible-Node1:~$ sudo su
root@Ansible-Node1:/home/ubuntu# cd /root
root@Ansible-Node1:~# apt update && apt-get install python3
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Fetched 227 kB in 1s (342 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

Node2:-

$ sudo su

$ apt update -y && apt-get install python3 -y && apt upgrade -y

```
ubuntu@Ansible-Node2:~$ sudo su
root@Ansible-Node2:/home/ubuntu# cd /root
root@Ansible-Node2:~# apt update && apt-get install python3
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Fetched 227 kB in 1s (344 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

Server:-

$ useradd -s /bin/bash -m -d /home/Server/ Server

$ passwd Server

$ visudo

```
root@Ansible-Server:~# useradd -s /bin/bash -m -d /home/Server/ Server
root@Ansible-Server:~# passwd Server
New password:
Retype new password:
passwd: password updated successfully
root@Ansible-Server:~# visudo
```

Server   ALL=(ALL:ALL) NOPASSWD: ALL

```
# User privilege specification
root    ALL=(ALL:ALL) ALL
Server   ALL=(ALL:ALL) NOPASSWD: ALL
# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL
```

Node1:-

$ useradd -s /bin/bash -m -d /home/Server/ Server

$ passwd Server

$ visudo

```
root@Ansible-Node1:~# useradd -s /bin/bash -m -d /home/Server/ Server
root@Ansible-Node1:~# passwd Server
New password:
Retype new password:
passwd: password updated successfully
root@Ansible-Node1:~# visudo
```

Server   ALL=(ALL:ALL) NOPASSWD: ALL

```
# User privilege specification
root    ALL=(ALL:ALL) ALL
Server   ALL=(ALL:ALL) NOPASSWD: ALL
# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL
```

Node2:-
$ useradd -s /bin/bash -m -d /home/Server/ Server
$ passwd Server
$ visudo

```
root@Ansible-Node2:~# useradd -s /bin/bash -m -d /home/Server/ Server
root@Ansible-Node2:~# passwd Server
New password:
Retype new password:
passwd: password updated successfully
root@Ansible-Node2:~# visudo
```

Server ALL=(ALL:ALL) NOPASSWD: ALL

```
# User privilege specification
root    ALL=(ALL:ALL) ALL
Server   ALL=(ALL:ALL) NOPASSWD: ALL
# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL
```

Server:-
$ cat /etc/sudoers | grep ALL
$ su Server
$ cd /home/Server
$ sudo vi /etc/ssh/sshd_config

```
root@Ansible-Server:~# cat /etc/sudoers | grep ALL
# This allows running arbitrary commands, but so does ALL, and it means
root    ALL=(ALL:ALL) ALL
Server   ALL=(ALL:ALL) NOPASSWD: ALL
%admin ALL=(ALL) ALL
%sudo   ALL=(ALL:ALL) ALL
root@Ansible-Server:~# su Server
Server@Ansible-Server:/root$ cd /home/Server
Server@Ansible-Server:/home/Server$ sudo vi /etc/ssh/sshd_config
```

<uncommit PermitRootLogin yes,
PasswordAuthentication yes and commit
PasswordAuthentication no>

```
PermitRootLogin yes
PasswordAuthentication yes
# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication no
#PermitEmptyPasswords no
```

Node1:-
$ cat /etc/sudoers | grep ALL
$ su Server
$ cd /home/Server
$ sudo vi /etc/ssh/sshd_config

```
root@Ansible-Node1:~# cat /etc/sudoers | grep ALL
# This allows running arbitrary commands, but so does ALL, and it means
root    ALL=(ALL:ALL) ALL
Server   ALL=(ALL:ALL) NOPASSWD: ALL
%admin ALL=(ALL) ALL
%sudo   ALL=(ALL:ALL) ALL
root@Ansible-Node1:~# su Server
Server@Ansible-Node1:/root$ cd /home/Server
Server@Ansible-Node1:/home/Server$ sudo vi /etc/ssh/sshd_config
```

<uncommit PermitRootLogin yes,
PasswordAuthentication yes and commit
PasswordAuthentication no>

```
PermitRootLogin yes
PasswordAuthentication yes
# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication no
#PermitEmptyPasswords no
```

Node2:-
$ cat /etc/sudoers | grep ALL
$ su Server
$ cd /home/Server
$ sudo vi /etc/ssh/sshd_config

```
root@Ansible-Node2:~# cat /etc/sudoers | grep ALL
# This allows running arbitrary commands, but so does ALL, and it means
root    ALL=(ALL:ALL) ALL
Server   ALL=(ALL:ALL) NOPASSWD: ALL
%admin ALL=(ALL) ALL
%sudo   ALL=(ALL:ALL) ALL
root@Ansible-Node2:~# su Server
Server@Ansible-Node2:/root$ cd /home/Server
Server@Ansible-Node2:/home/Server$ sudo vi /etc/ssh/sshd_config
```

<uncommit PermitRootLogin yes,
PasswordAuthentication yes and commit
PasswordAuthentication no>

```
PermitRootLogin yes
PasswordAuthentication yes
# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication no
#PermitEmptyPasswords no
```

$ sudo service sshd restart
$ mkdir .ssh
$ cd .ssh

```
Server@Ansible-Server:/home/Server$ sudo service sshd restart
Server@Ansible-Server:/home/Server$ mkdir .ssh
Server@Ansible-Server:/home/Server$ cd .ssh
```

$ ssh-keygen -t rsa -b 4096 -f /home/Server/.ssh/id_rsa

```
Server@Ansible-Server:/home/Server/.ssh$ ssh-keygen -t rsa -b 4096 -f /home/Server/.ssh/id_rsa
Generating public/private rsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/Server/.ssh/id_rsa
Your public key has been saved in /home/Server/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:3822tl7IV4yixlGQ9g8ETiN9KNjOQdS1TAlt4p/OxlQ Server@Ansible-Server
The key's randomart image is:
+---[RSA 4096]----+
|       =+o*Bo.   |
|      . ++B=*.   |
|       o =.*+    |
|        o ..o Eo |
|        S ...=. o|
|         o ++=...|
|          ==. * o|
|         .  =..+ |
|           . o+. |
+----[SHA256]-----+
```

$ ls -al

```
Server@Ansible-Server:/home/Server/.ssh$ ls -al
total 16
drwxrwxr-x 2 Server Server 4096 Aug 13 07:26 .
drwxr-x--- 3 Server Server 4096 Aug 13 07:25 ..
-rw------- 1 Server Server 3389 Aug 13 07:26 id_rsa
-rw-r--r-- 1 Server Server  747 Aug 13 07:26 id_rsa.pub
Server@Ansible-Server:/home/Server/.ssh$ cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDEnhv0V7Kl3RO6Nso4DZTO4s
EVh6+UJUb6anuGpnn259W26jp+rf5dtEZqV8YrC2gwofO7IOcw5CALfjzKSL6v
XoYS+oFfOk/o6UwS7FlzZA3heg7QmvLlMbqjjn+FXM/W7pe8mkzAu3sNbFCn4+
QUugO3/JgcnPyXnCExCXQxGScn8QILOubH4v4PrExbaDFM0UP5foDnP4zHy+3z
WLGQyqct1UNzkvVU2n2ikOZtO22dL9GlUw== Server@Ansible-Server
```

Node1:-
$ sudo service sshd restart
$ mkdir .ssh
$ cd .ssh
$ sudo vi authorized_keys

```
Server@Ansible-Node1:/home/Server$ sudo service sshd restart
Server@Ansible-Node1:/home/Server$ mkdir .ssh
Server@Ansible-Node1:/home/Server$ cd .ssh/
Server@Ansible-Node1:/home/Server/.ssh$ vi authorized keys
```

-> Paste above copied key from server here

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDEnhv0V7Kl3RO6Nso4DZTO4sOj9YNzT9UTc
EVh6+UJUb6anuGpnn259W26jp+rf5dtEZqV8YrC2gwofO7IOcw5CALfjzKSL6vA5m2zWTgd9ap
XoYS+oFfOk/o6UwS7FlzZA3heg7QmvLlMbqjjn+FXM/W7pe8mkzAu3sNbFCn4+MnSNzKg3Bh5I
QUugO3/JgcnPyXnCExCXQxGScn8QILOubH4v4PrExbaDFM0UP5foDnP4zHy+3zch3g/HuN4g1p
WLGQyqct1UNzkvVU2n2ikOZtO22dL9GlUw== Server@Ansible-Server
~
~
~
```

$ service sshd restart

```
Server@Ansible-Node1:/home/Server/.ssh$ sudo service sshd restart
Server@Ansible-Node1:/home/Server/.ssh$ cd ..
Server@Ansible-Node1:/home/Server$
```

Node2:-
$ sudo service sshd restart
$ mkdir .ssh
$ cd .ssh
$ sudo vi authorized_keys

```
Server@Ansible-Node2:/home/Server$ sudo service sshd restart
Server@Ansible-Node2:/home/Server$ mkdir .ssh
Server@Ansible-Node2:/home/Server$ cd .ssh/
Server@Ansible-Node2:/home/Server/.ssh$ vi authorized_keys
```

-> Paste above copied key from server here

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDEnhv0V7Kl3RO6Nso4DZTO4sOj9YNzT9UTcC
EVh6+UJUb6anuGpnn259W26jp+rf5dtEZqV8YrC2gwofO7IOcw5CALfjzKSL6vA5m2zWTgd9ap
XoYS+oFfOk/o6UwS7FlzZA3heg7QmvLlMbqjjn+FXM/W7pe8mkzAu3sNbFCn4+MnSNzKg3Bh5I
QUugO3/JgcnPyXnCExCXQxGScn8QILOubH4v4PrExbaDFM0UP5foDnP4zHy+3zch3g/HuN4g1p
WLGQyqct1UNzkvVU2n2ikOZtO22dL9GlUw== Server@Ansible-Server
~
~
~
```

$ service sshd restart

```
Server@Ansible-Node2:/home/Server/.ssh$ sudo service sshd restart
Server@Ansible-Node2:/home/Server/.ssh$ cd ..
Server@Ansible-Node2:/home/Server$
```

$ ssh Server@172.31.81.59

```
Server@Ansible-Server:/home/Server/.ssh$ sudo service sshd restart
Server@Ansible-Server:/home/Server/.ssh$ cd ..
Server@Ansible-Server:/home/Server$ ssh Server@172.31.81.59
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)

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

  System information as of Sun Aug 13 07:38:41 UTC 2023
```

```
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


Last login: Sun Aug 13 07:37:07 2023 from 172.31.91.164
Server@Ansible-Node1:~$
```

$ ssh Server@172.31.83.14

```
Server@Ansible-Server:/home/Server$ ssh Server@172.31.83.14
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)

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

  System information as of Sun Aug 13 07:55:05 UTC 2023
```

```
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


Last login: Sun Aug 13 07:43:11 2023 from 172.31.91.164
Server@Ansible-Node2:~$
```

$ sudo apt install software-properties-common -y

```
Server@Ansible-Server:/home/Server$ sudo apt install software-properties-common -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  python3-software-properties
The following packages will be upgraded:
  python3-software-properties software-properties-common
```

$ sudo apt-add-repository --yes --update ppa:ansible/ansible

```
Server@Ansible-Server:/home/Server$ sudo apt-add-repository --yes --update ppa:ansible/ansible
Repository: 'deb https://ppa.launchpadcontent.net/ansible/ansible/ubuntu/ jammy main'
Description:
Ansible is a radically simple IT automation platform that makes your applications and systems easier t
ur applications– automate in a language that approaches plain English, using SSH, with no agents to in

http://ansible.com/

If you face any issues while installing Ansible PPA, file an issue here:
https://github.com/ansible-community/ppa/issues
More info: https://launchpad.net/~ansible/+archive/ubuntu/ansible
```

$ sudo apt install ansible -y

```
Server@Ansible-Server:/home/Server$ sudo apt install ansible -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ansible-core python3-jmespath python3-kerberos python3-nacl python3-ntlm-auth pytho
  python3-resolvelib python3-winrm python3-xmltodict sshpass
Suggested packages:
  python-nacl-doc python3-gssapi python3-invoke
```

$ ansible --version

```
Server@Ansible-Server:/home/Server$ ansible --version
ansible [core 2.15.2]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/Server/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/Server/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.6 (main, Mar 10 2023, 10:55:28) [GCC 11.3.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
Server@Ansible-Server:/home/Server$ sudo vi /etc/ansible/hosts
```

<Enter nodes private ip>

```
[cluster]
172.31.81.59
172.31.83.14
```

$ sudo apt install tree

```
Server@Ansible-Server:/home/Server$ sudo apt install tree
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  tree
0 upgraded, 1 newly installed, 0 to remove and 103 not upgraded.
Need to get 47.9 kB of archives.
After this operation, 116 kB of additional disk space will be used.
```

$ sudo mkdir ansible-cluster && cd ansible-cluster && sudo mkdir -p inventories/production && sudo mkdir playbooks && sudo mkdir -p roles/common/tasks && sudo mkdir -p roles/common/handlers && tree

```
Server@Ansible-Server:/home/Server$ sudo mkdir ansible-cluster && cd ansible-cluster && sudo
 mkdir -p inventories/production && sudo mkdir playbooks && sudo mkdir -p roles/common/tasks
 && sudo mkdir -p roles/common/handlers && tree
```

```
.
└── ansible-cluster
    ├── inventories
    │   └── production
    ├── playbooks
    └── roles
        └── common
            ├── handlers
            └── tasks
```

$ cd ansible-cluster/playbook/
$ vi install_java.yml

```
Server@Ansible-Server:/home/Server$ cd ansible-cluster/playbooks/
Server@Ansible-Server:/home/Server/ansible-cluster/playbooks$ vi install_java.yml
```

<Code written in install_java.yml file in yml format.>

```
---
- name: Install Java on Slave 1
  hosts: cluster
  become: true
  tasks:
    - name: Update apt cache
      apt:
        update_cache: yes

    - name: Install OpenJDK
      apt:
        name: openjdk-11-jdk
        state: present
~
~
```

$ sudo vi install_java.yml

```
Server@Ansible-Server:/home/Server/ansible-cluster/playbooks$ sudo vi install_java.yml
Server@Ansible-Server:/home/Server/ansible-cluster/playbooks$ ansible-playbook -i /etc/ansib
le/hosts install_java.yml --check

PLAY [Install Java on Slave 1] ************************************************************
*********************************************************************************

TASK [Gathering Facts] ********************************************************************
*********************************************************************************
ok: [172.31.83.14]
ok: [172.31.81.59]

TASK [Update apt cache] *******************************************************************
*********************************************************************************
changed: [172.31.81.59]
changed: [172.31.83.14]

TASK [Install OpenJDK] ********************************************************************
*********************************************************************************
changed: [172.31.81.59]
changed: [172.31.83.14]

PLAY RECAP ********************************************************************************
```

```
PLAY RECAP *********************************************************************************
*********************************************************************************
172.31.81.59               : ok=3    changed=2    unreachable=0    failed=0    skipped=0
rescued=0    ignored=0
172.31.83.14               : ok=3    changed=2    unreachable=0    failed=0    skipped=0
rescued=0    ignored=0
```

$ ansible-playbook -I /etc/ansible/hosts install_java.yml

```
Server@Ansible-Server:/home/Server/ansible-cluster/playbooks$ ansible-playbook -i /etc/ansib
le/hosts install_java.yml

PLAY [Install Java on Slave 1] *************************************************************
*********************************************************************************

TASK [Gathering Facts] *********************************************************************
*********************************************************************************
ok: [172.31.81.59]
ok: [172.31.83.14]

TASK [Update apt cache] ********************************************************************
*********************************************************************************
changed: [172.31.83.14]
changed: [172.31.81.59]

TASK [Install OpenJDK] *********************************************************************
*********************************************************************************
changed: [172.31.83.14]
changed: [172.31.81.59]

PLAY RECAP *********************************************************************************
*********************************************************************************
172.31.81.59               : ok=3    changed=2    unreachable=0    failed=0    skipped=0
rescued=0    ignored=0
172.31.83.14               : ok=3    changed=2    unreachable=0    failed=0    skipped=0
rescued=0    ignored=0
```

Node1:-

$ java -version

```
Server@Ansible-Node1:/home/Server$ java --version
openjdk 11.0.20 2023-07-18
OpenJDK Runtime Environment (build 11.0.20+8-post-Ubuntu-1ubuntu122.04)
OpenJDK 64-Bit Server VM (build 11.0.20+8-post-Ubuntu-1ubuntu122.04, mixed mode, sharing)
Server@Ansible-Node1:/home/Server$
```

Node2:-

$ java -version

```
Server@Ansible-Node2:/home/Server$ java --version
openjdk 11.0.20 2023-07-18
OpenJDK Runtime Environment (build 11.0.20+8-post-Ubuntu-1ubuntu122.04)
OpenJDK 64-Bit Server VM (build 11.0.20+8-post-Ubuntu-1ubuntu122.04, mixed mode, sharing)
Server@Ansible-Node2:/home/Server$
```

$ sudo vi install_mysql.yml

```
Server@Ansible-Server:/home/Server/ansible-cluster/playbooks$ sudo vi install_mysql.yml
```

<Code written in install_mysql.yml in yaml format.>

```yaml
---
- name: Install MySQL Server on Slave 2
  hosts: cluster
  become: true
  tasks:
    - name: Update apt cache
      apt:
        update_cache: yes

    - name: Install MySQL Server
      apt:
        name: mysql-server
        state: present

    - name: Start MySQL service
      service:
        name: mysql
        state: started
```

$ ansible-playbook -I /etc/ansible/hosts install_mysql.yml --check

```
Server@Ansible-Server:/home/Server/ansible-cluster/playbooks$ ansible-playbook -i /etc/ansible/hosts in
stall_mysql.yml --check

PLAY [Install MySQL Server on Slave 2] *****************************************************************
*********************************************************************

TASK [Gathering Facts] *********************************************************************************
*********************************************************************
ok: [172.31.83.14]
ok: [172.31.81.59]

TASK [Update apt cache] ********************************************************************************
*********************************************************************
changed: [172.31.83.14]
changed: [172.31.81.59]

TASK [Install MySQL Server] ****************************************************************************
*********************************************************************
changed: [172.31.83.14]
changed: [172.31.81.59]

TASK [Start MySQL service] *****************************************************************************
*********************************************************
fatal: [172.31.83.14]: FAILED! => {"changed": false, "msg": "Could not find the requested service mysql
: host"}
fatal: [172.31.81.59]: FAILED! => {"changed": false, "msg": "Could not find the requested service mysql
: host"}

PLAY RECAP *********************************************************************************************
*********************************************************************
172.31.81.59               : ok=3    changed=2    unreachable=0    failed=1    skipped=0    rescued=0
```

```
PLAY RECAP *********************************************************************************************************
*********************************************************************
172.31.81.59               : ok=3    changed=2    unreachable=0    failed=1    skipped=0    rescued=0
  ignored=0
172.31.83.14               : ok=3    changed=2    unreachable=0    failed=1    skipped=0    rescued=0
  ignored=0
```

$ ansible-playbook -I /etc/ansible/hosts install_mysql.yml

```
Server@Ansible-Server:/home/Server/ansible-cluster/playbooks$ ansible-playbook -i /etc/ansible/hosts in
stall_mysql.yml

PLAY [Install MySQL Server on Slave 2] *****************************************************************
*********************************************************************

TASK [Gathering Facts] *********************************************************************************
*********************************************************************
ok: [172.31.83.14]
ok: [172.31.81.59]

TASK [Update apt cache] ********************************************************************************
*********************************************************************
changed: [172.31.83.14]
changed: [172.31.81.59]

TASK [Install MySQL Server] ****************************************************************************
*********************************************************************
changed: [172.31.83.14]
changed: [172.31.81.59]

TASK [Start MySQL service] *****************************************************************************
*********************************************************************
ok: [172.31.83.14]
ok: [172.31.81.59]

PLAY RECAP *********************************************************************************************
*********************************************************************
172.31.81.59               : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0
  ignored=0
172.31.83.14               : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0
  ignored=0
```

Node1:-

$ sudo mysql -u root -p

mysql> SELECT VERSION();

mysql> exit

```
Server@Ansible-Node1:/home/Server$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.33-0ubuntu0.22.04.4 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SELECT VERSION();
+-------------------------+
| VERSION()               |
+-------------------------+
| 8.0.33-0ubuntu0.22.04.4 |
+-------------------------+
1 row in set (0.00 sec)

mysql> exit
Bye
Server@Ansible-Node1:/home/Server$
```

Node2:-
$ sudo mysql -u root -p
mysql> SELECT VERSION();
mysql> exit

```
Server@Ansible-Node2:/home/Server$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.33-0ubuntu0.22.04.4 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SELECT VERSION();
+-------------------------+
| VERSION()               |
+-------------------------+
| 8.0.33-0ubuntu0.22.04.4 |
+-------------------------+
1 row in set (0.00 sec)

mysql> exit
Bye
```