

**Batch Number :-** B.N013/25-AWS & Devops

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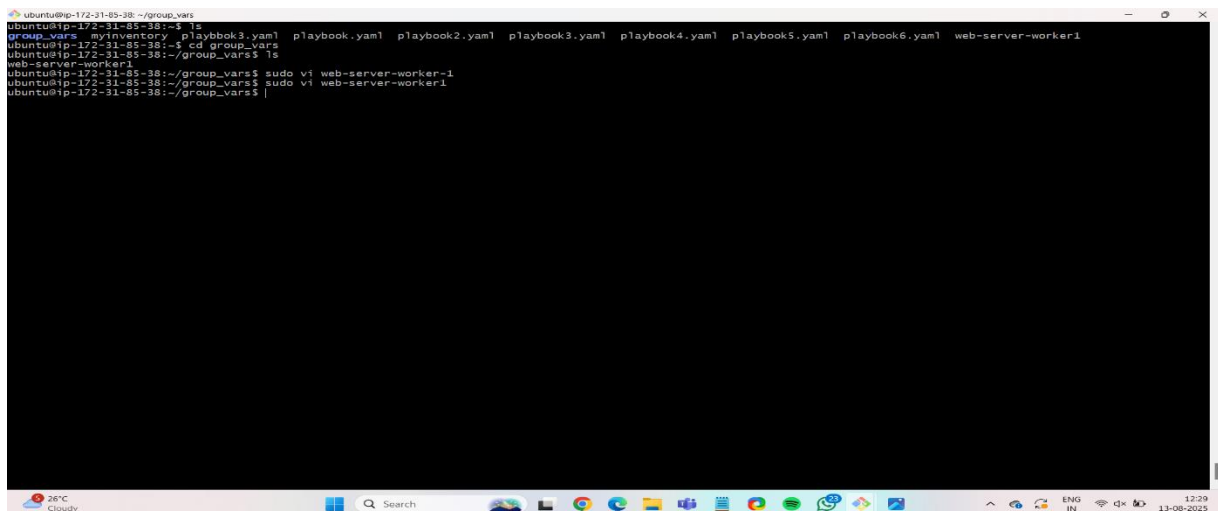
**Topic :-** Host\_Scope Variable

**Assignment No :-** 04

**TASK :-** Write multiple playbooks for host scope variable. There are two types single host scope and multiple host scope.

**STEP 1 :-** Create 3 instance and connect with gitbash

**STEP 2 :-** Create two folders i.e group\_vars create one file inside group\_vars name web-server-worker1 and inside that file mention some variable with description. Define file name same as group name which you want.



```
ubuntu@ip-172-31-85-38: ~/group_vars
ubuntu@ip-172-31-85-38:~$ ls
group_vars  myinventory  playbok3.yaml  playbook.yaml  playbook2.yaml  playbook3.yaml  playbook4.yaml  playbook5.yaml  playbook6.yaml  web-server-worker1
ubuntu@ip-172-31-85-38:~$ cd group_vars
ubuntu@ip-172-31-85-38:~/group_vars$ ls
web-server-worker1
ubuntu@ip-172-31-85-38:~/group_vars$ sudo v1 web-server-worker-1
ubuntu@ip-172-31-85-38:~/group_vars$ sudo v1 web-server-worker1
ubuntu@ip-172-31-85-38:~/group_vars$ |
```

In that web-server-worker1 mention variables :

For creating user we define

a :name

b : password

c : path

d : uid

e : shell

For installing Docker Package

f : package\_name

g : state

```
ubuntu@ip-172-31-85-38: ~/group_vars
a: Laxmi_Swanthi
b: Laxmi01134
c: /home/Laxmi
d: 331933
e: /bin/bash
f: docker
g: present

"web-server-worker1" 7L, 888

1.14 A11
```

Playbook6.yaml file we write plays with the help of variable which we define in web-server-worker1 file

```
ubuntu@ip-172-31-85-38: ~
- name: host scope variable
  hosts: web-server-worker1
  tasks:
    - name: user creation
      user:
        name: "{{a}}"
        password: "{{b}}"
        home: "{{c}}"
        uid: "{{d}}"
        shell: "{{e}}"

...

"playbook6.yaml" 12L, 250B

12,3 A11
```

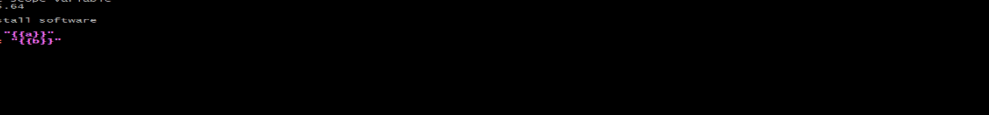
**STEP 3 :-** Now you're setup is done now write some playbook and run them using command **ansible-playbook playbook.yaml -b**



```

ubuntu@ip-172-31-85-38:~$ host vars
ubuntu@ip-172-31-85-38:~$ sudo vi playbook0.yaml
ubuntu@ip-172-31-85-38:~$ mkdir host_vars
ubuntu@ip-172-31-85-38:~$ cd host_vars
ubuntu@ip-172-31-85-38:~/host_vars$ sudo vi 172.31.95.64
ubuntu@ip-172-31-85-38:~/host_vars$

```

[illegible]

The screenshot shows a terminal window with a black background and white text. The text is a JSON configuration for a task. The configuration includes a name, hosts, tasks, a plan, and a state. The plan is a list of steps, and the state is a list of variables. The terminal window has a title bar at the top and a taskbar at the bottom.

```
ubuntu@172.31.85.38:~$ cat /dev/null
{
  "name": "use single scope variable",
  "hosts": "172.31.85.64",
  "tasks": [
    {
      "plan": "Install software",
      "steps": [
        {
          "name": "{{a}}",
          "state": "{{b}}"
        }
      ]
    }
  ]
}
```

```

ubuntu@ip-172-31-85-38:~$ cd /etc/ansible
ubuntu@ip-172-31-85-38:~/etc/ansible$ sudo vi playbook9.yaml
ubuntu@ip-172-31-85-38:~/etc/ansible$ cd ..
ubuntu@ip-172-31-85-38:~/etc$ cd host_vars
ubuntu@ip-172-31-85-38:~/etc/host_vars$ sudo vi 172.31.95.64
ubuntu@ip-172-31-85-38:~/etc/host_vars$ cd
ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook9.yaml -b
[WARNING]: Invalid characters were found in group names but not replaced, use --vvvv to see details

PLAY [use single scope variable] *****
TASK [gather facts] *****
[WARNING]: Platform linux on host 172.31.95.64 is using the discovered python interpreter at /usr/bin/python3.10, but future installation of another python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
TASK [install software] *****
PRG |172.31.95.64|
PLAY RECAP *****
172.31.95.64 : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-85-38:~$ 
ubuntu@ip-172-31-85-38:~$ 

```

Implementing Loop: we can execute one modules multiple times using loops. In `playbook10.yaml` we execute 3 package at time using `with_items`

```
ubuntu@ip-172-31-85-38:~$ cat playbook10.yaml
- name: install software package
  hosts: web-server-worker1
  tasks:
    - name: Install software
      apt:
        name: "{{item}}"
        state: present
      with_items:
        - tree
        - git
        - docker
    ...

ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook10.yaml
```

```
ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook10.yaml
PLAY RECAP *****
172.31.90.40 : ok=1 changed=0 unreachable=0 failed=1 skipped=0 rescued=0 ignored=0

ubuntu@ip-172-31-85-38:~$ cat playbook10.yaml
cat: playbook10.yaml: No such file or directory
ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook10.yaml -b
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details

PLAY [install software package] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.90.40 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.90.40]

TASK [Install software] *****
changed: [172.31.90.40] => (item=tree)
changed: [172.31.90.40] => (item=git)
ok: [172.31.90.40] => (item=docker)

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

ubuntu@ip-172-31-85-38:~$ cat 172.31.95.64 hosts_vars/
cat: 172.31.95.64: No such file or directory
cat: hosts_vars/: No such file or directory
ubuntu@ip-172-31-85-38:~$ cat 172.31.95.64 host_vars/
cat: 172.31.95.64: No such file or directory
cat: host_vars/: Is a directory
ubuntu@ip-172-31-85-38:~$ cat playbook10.yaml
---
- name: install software package
  hosts: web-server-worker1
  tasks:
    - name: Install software
      apt:
        name: "{{item}}"
        state: present
      with_items:
        - tree
        - git
        - docker
    ...

ubuntu@ip-172-31-85-38:~$
```

```
ubuntu@ip-172-31-90-40:~$ ssh 172.31.90.40
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1029-aws x86_64)

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

System information as of Wed Aug 13 07:29:45 UTC 2025

System load:  0.0          Processes:    113
Usage of /:   30.7% of 7.57GB   Users logged in: 1
Memory usage: 28%          IPv4 address for ens5: 172.31.90.40
Swap usage:   0%

 * Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.
  https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

12 updates can be applied immediately.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
New release '24.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

*** System restart required ***
Last login: Wed Aug 13 07:29:35 2025 from 172.31.85.38
ubuntu@ip-172-31-90-40:~$ docker --version
Command 'docker' not found, but can be installed with:
sudo snap install docker # version 28.1.1+1, or
sudo apt install podman-docker # version 3.4.4-df1-1ubuntu1.22.04.3
sudo apt install docker.io # version 26.1.3-1ubuntu1.22.04.1
See 'snap info docker' for additional versions.
ubuntu@ip-172-31-90-40:~$ git --version
git version 2.34.1
ubuntu@ip-172-31-90-40:~$
ubuntu@ip-172-31-90-40:~$
```

In above playbook we only execute one module multiple time but using variable in that item we can execute multiple module task multiple time like we execute multiple plackage and also execute state:

```
ubuntu@ip-172-31-85-38:~$ cat playbook11.yml
- name: Installation
  hosts: web-server-worker1
  tasks:
    - name: Install software
      apt:
        name: "{{item.a}}"
        state: "{{item.b}}"
      with_items:
        - { a: tree, b: present }
        - { a: docker, b: absent }
        - { a: git, b: present }

ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook11.yml
PLAY [Installation] *************************************************************************************************************************************
TASK [Install software] *************************************************************************************************************************************
fatal: [172.31.90.40]: FAILED! => {"msg": "The task includes an option with an undefined variable.. 'dict object' has no attribute 'b'\n\nThe error appears to be in '/home/
ubuntu/playbook11.yml': line 5, column 9, but may\nbe elsewhere in the file depending on the exact syntax problem.\n\nThe offending line appears to be:\n\n  tasks:\n
- name: Install software\n      A here\n"}

PLAY RECAP *************************************************************************************************************************************
172.31.90.40      : ok=1  changed=0  unreachable=0  failed=1  skipped=0  rescued=0  ignored=0

ubuntu@ip-172-31-85-38:~$ sudo vi playbook11.yml
ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook11.yml -b
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details

PLAY [Installation] *************************************************************************************************************************************
TASK [Gathering Facts] *************************************************************************************************************************************
[WARNING]: Platform linux on host 172.31.90.40 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.90.40]

TASK [Install software] *************************************************************************************************************************************
fatal: [172.31.90.40]: FAILED! => {"msg": "The task includes an option with an undefined variable.. 'dict object' has no attribute 'b'\n\nThe error appears to be in '/home/
ubuntu/playbook11.yml': line 5, column 9, but may\nbe elsewhere in the file depending on the exact syntax problem.\n\nThe offending line appears to be:\n\n  tasks:\n
- name: Install software\n      A here\n"}

PLAY RECAP *************************************************************************************************************************************
172.31.90.40      : ok=1  changed=0  unreachable=0  failed=1  skipped=0  rescued=0  ignored=0

ubuntu@ip-172-31-85-38:~$ sudo vi playbook11.yml
ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook11.yml -b
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details

PLAY [Installation] *************************************************************************************************************************************
TASK [Gathering Facts] *************************************************************************************************************************************
[WARNING]: Platform linux on host 172.31.90.40 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.90.40]

TASK [Install software] *************************************************************************************************************************************
ok: [172.31.90.40] => (item={'a': 'tree', 'b': 'present'})
changed: [172.31.90.40] => (item={'a': 'docker', 'b': 'absent'})
ok: [172.31.90.40] => (item={'a': 'git', 'b': 'present'})

PLAY RECAP *************************************************************************************************************************************
172.31.90.40      : ok=3  changed=1  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

ubuntu@ip-172-31-85-38:~$
```

In playbook12.yml we can create multiple users and execute multiple module task:

```
ubuntu@ip-172-31-85-38:~$ cat playbook12.yml
- name: Create multiple Users and create File/directory
  hosts: all
  tasks:
    - name: Create multiple users
      user:
        name: "{{item.a}}"
        password: "{{item.b}}"
        uid: "{{item.c}}"
      with_items:
        - { a: laxmi, b: laxmi03112, c: 33190 }
        - { a: rashmi, b: rashmi02213, c: 229909 }
        - { a: git1, b: git10112, c: 23456 }
    - name: file/directory creation
      file:
        path: "{{item.a}}"
        state: "{{item.b}}"
      with_items:
        - { a: /home/git1/file1, b: touch }
        - { a: /home/rashi/aws, b: directory }
```



```
ubuntu@ip-172-31-85-38:~$ cat playbook12.yaml
with_items:
  - { a: laxmi, b: laxmi@3312, c: 33190 }
  - { a: rashmi, b: rashmi@2213, c: 220909 }
  - { a: git1, b: git1@112, c: 23456 }
- name: file/directory creation
  file:
    path: "{{item.a}}",
    state: "{{item.b}}",
  with_items:
    - { a: /home/git1/file1, b: touch }
    - { a: /home/rash1/aws, b: directory }
...

ubuntu@ip-172-31-85-38:~$ sudo vi playbook12.yaml
ubuntu@ip-172-31-85-38:~$ sudo vi playbook12.yaml
ubuntu@ip-172-31-85-38:~$ ansible-playbook playbook12.yaml -b
[WARNING]: Invalid characters were found in group names but not replaced, use --vvvv to see details

PLAY [Create multiple users and create file/directory] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.90.40 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
[WARNING]: Platform linux on host 172.31.95.64 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok [172.31.95.64]

TASK [Create multiple users] *****
changed: [172.31.90.40] => Citemm['a': 'laxmi', 'b': 'laxmi@3312', 'c': 33190]
changed: [172.31.95.64] => Citemm['a': 'laxmi', 'b': 'laxmi@3312', 'c': 33190]
changed: [172.31.90.40] => Citemm['a': 'rashmi', 'b': 'rashmi@2213', 'c': 220909]
changed: [172.31.95.64] => Citemm['a': 'rashmi', 'b': 'rashmi@2213', 'c': 220909]
changed: [172.31.90.40] => Citemm['a': 'git1', 'b': 'git1@112', 'c': 23456]
[WARNING]: The input password appears not to have been hashed. The 'password' argument must be encrypted for this module to work properly.
changed: [172.31.95.64] => Citemm['a': 'git1', 'b': 'git1@112', 'c': 23456]

TASK [file/directory creation] *****
changed: [172.31.90.40] => Citemm['a': '/home/git1/file1', 'b': 'touch']
changed: [172.31.95.64] => Citemm['a': '/home/git1/file1', 'b': 'touch']
changed: [172.31.90.40] => Citemm['a': '/home/rash1/aws', 'b': 'directory']
changed: [172.31.95.64] => Citemm['a': '/home/rash1/aws', 'b': 'directory']

PLAY RECAP *****
172.31.90.40 : ok=3 changed=2 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
172.31.95.64 : ok=3 changed=2 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

ubuntu@ip-172-31-85-38:~$ sudo vi playbook12.yaml
ubuntu@ip-172-31-85-38:~$
```

```
ubuntu@ip-172-31-90-40:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin

Last login: Wed Aug 13 09:45:33 2025 from 172.31.85.38
ubuntu@ip-172-31-90-40:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
```

```
ubuntu@ip-172-31-90-40:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:11:11:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:mailing list manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin)/:/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,/,/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,/,/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:/nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,/,/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/nonexistent:/usr/sbin/nologin
tss:x:106:112:TPM software stack,/,/var/lib/tpm:/bin/false
uridd:x:107:113:/run/uridd:/usr/sbin/nologin
tcpdump:x:108:114:/nonexistent:/usr/sbin/nologin
sshd:x:109:65534:/run/sshd:/usr/sbin/nologin
pollinate:x:110:1:/var/cache/pollinate:/bin/false
landscape:x:111:116:/var/lib/landscape:/usr/sbin/nologin
fwupd-refresh:x:112:117:fwupd-refresh user,/,/run/systemd:/usr/sbin/nologin
ec2-instance-connect:x:113:65534:/nonexistent:/usr/sbin/nologin
_chrony:x:114:121:Chrony daemon,/,/var/lib/chrony:/usr/sbin/nologin
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
lxd:x:999:1001:/var/snap/lxd/common/lxd:/bin/false
laxmi:x:33190:3319:/home/ubuntu/laxmi:/bin/sh
laxmi_awsami:x:33193:3320:/home/laxmi:/bin/bash
rashmi:x:220909:3321:/home/rashmi:/bin/sh
git1:x:23456:23456:/home/git1:/bin/sh

ubuntu@ip-172-31-90-40:~$
```

```
ubuntu@ip-172-31-85-38:~  
-rw-r--r-- 1 root root 0 Aug 13 05:31 authorized_keys  
drwxr-x--- 2 laxmi laxmi 4096 Aug 13 05:54 laxmi  
ubuntu@ip-172-31-90-40:~$ cd /etc/passwd  
-bash: cd: /etc/passwd: No such file or directory  
ubuntu@ip-172-31-90-40:~$ ls  
authorized_keys laxmi  
ubuntu@ip-172-31-90-40:~$ cd ..  
ubuntu@ip-172-31-90-40:/home$ ls  
giti laxmi rashi ubuntu  
ubuntu@ip-172-31-90-40:/home$ cd giti  
-bash: cd: giti: Permission denied  
ubuntu@ip-172-31-90-40:/home$ cd giti/  
-bash: cd: giti/: Permission denied  
ubuntu@ip-172-31-90-40:/home$ cd /home/giti  
-bash: cd: /home/giti: Permission denied  
ubuntu@ip-172-31-90-40:/home$ cd /etc/passwd  
-bash: cd: /etc/passwd: Not a directory  
ubuntu@ip-172-31-90-40:/home$ cd ..  
ubuntu@ip-172-31-90-40:/home$ ls  
bin boot dev etc home lib lib32 lib64 libx32 lost+found media mnt opt proc root run sbin snap srv sys usr var  
ubuntu@ip-172-31-90-40:/home$ cd home  
ubuntu@ip-172-31-90-40:/home$ ls  
giti laxmi rashi ubuntu  
ubuntu@ip-172-31-90-40:/home$ cd rashi  
-bash: cd: rashi: Permission denied  
ubuntu@ip-172-31-90-40:/home$ sudo su giti  
$ ls -la  
total 24  
drwxr-xr-x 6 root root 4096 Aug 13 09:45 .  
drwxr-xr-x 19 root root 4096 Aug 13 09:15 ..  
drwxr-x--- 2 giti giti 4096 Aug 13 09:45 giti  
drwxr-x--- 2 laxmi_swami laxmi_swami 4096 Aug 13 06:58 laxmi  
drwxr-x--- 3 rashi rashi 4096 Aug 13 09:45 rashi  
drwxr-x--- 6 ubuntu ubuntu 4096 Aug 13 05:54 ubuntu  
$ ls  
giti laxmi rashi ubuntu  
$ cd giti  
$ ls  
file1  
$ cd  
$ exit  
ubuntu@ip-172-31-90-40:/home$ cd  
ubuntu@ip-172-31-90-40:~$ exit  
logout  
Connection to 172.31.90.40 closed.  
ubuntu@ip-172-31-85-38:~$ ls  
group_vars myinventory playbook.yaml playbook11.yaml playbook2.yaml playbook4.yaml playbook6.yaml playbook8.yaml web-server-worker1  
host_vars playbok3.yaml playbook10.yaml playbook12.yaml playbook3.yaml playbook5.yaml playbook7.yaml playbook9.yaml  
ubuntu@ip-172-31-85-38:~$
```