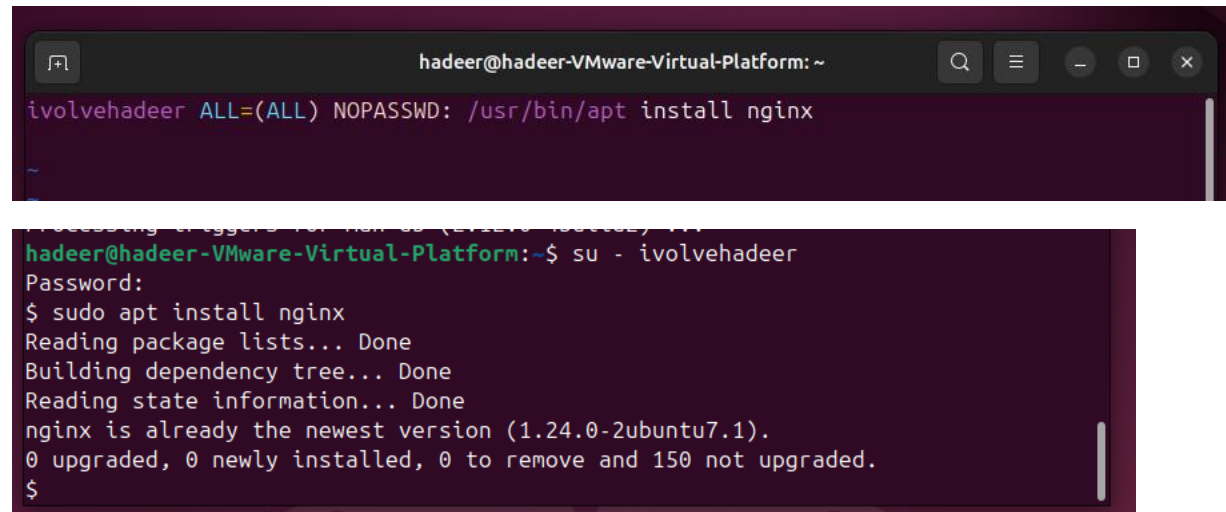


## Lab1

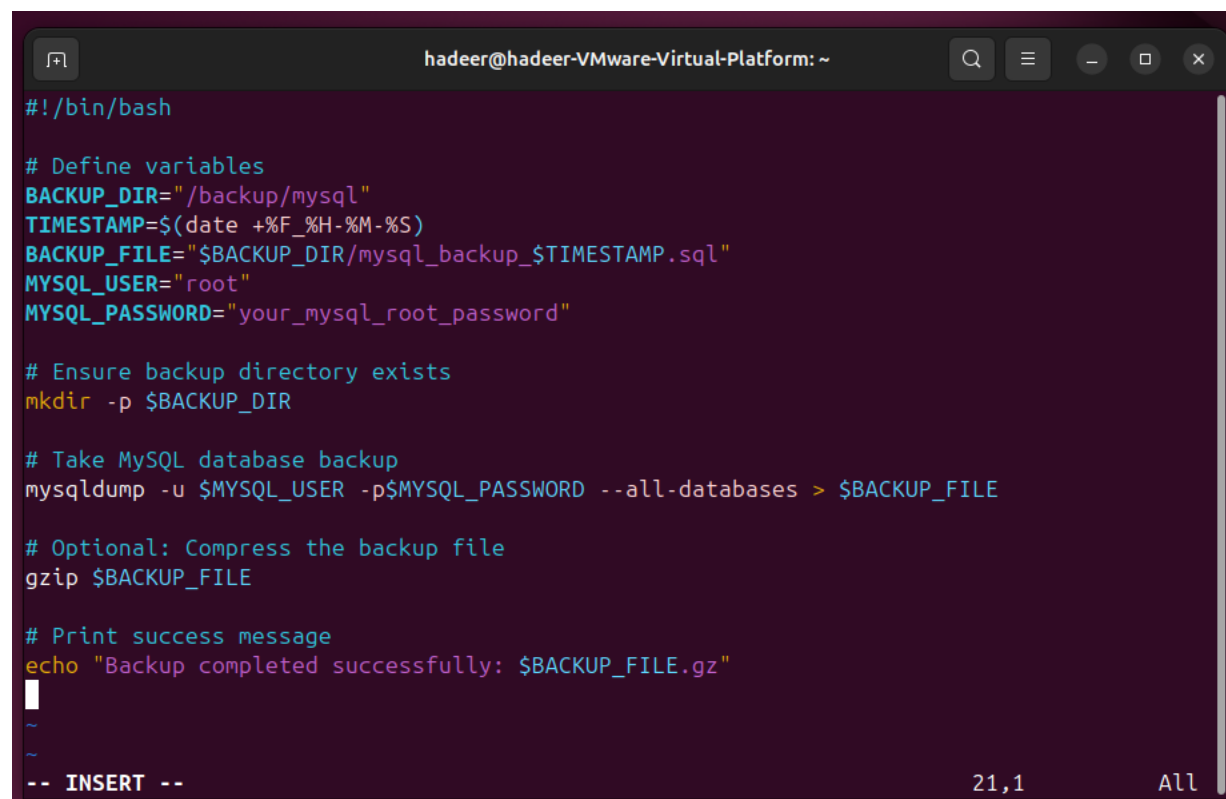
```
57 sudo vim /etc/sudoers.d/involve
```



The terminal window shows the user 'hadeer' at the 'hadeer-VMware-Virtual-Platform' prompt. The user enters the command 'involvehadeer ALL=(ALL) NOPASSWD: /usr/bin/apt install nginx'. Below this, the user runs 'su - involvehadeer' and enters a password. The prompt changes to '\$', and the user runs 'sudo apt install nginx'. The output shows that nginx is already the newest version (1.24.0-2ubuntu7.1) and no packages need to be upgraded.

```
hadeer@hadeer-VMware-Virtual-Platform: ~  
involvehadeer ALL=(ALL) NOPASSWD: /usr/bin/apt install nginx  
~  
Processing triggers for man-db (2.12.0-1ubuntu1) ...  
hadeer@hadeer-VMware-Virtual-Platform:~$ su - involvehadeer  
Password:  
$ sudo apt install nginx  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
nginx is already the newest version (1.24.0-2ubuntu7.1).  
0 upgraded, 0 newly installed, 0 to remove and 150 not upgraded.  
$
```

## Lab 2



The terminal window shows the user 'hadeer' at the 'hadeer-VMware-Virtual-Platform' prompt. The user enters the command '#!/bin/bash'. The script defines variables for the backup directory, timestamp, backup file, MySQL user, and MySQL password. It then ensures the backup directory exists, takes a MySQL database backup, optionally compresses the backup file, and prints a success message.

```
hadeer@hadeer-VMware-Virtual-Platform: ~  
#!/bin/bash  
  
# Define variables  
BACKUP_DIR="/backup/mysql"  
TIMESTAMP=$(date +%F_%H-%M-%S)  
BACKUP_FILE="$BACKUP_DIR/mysql_backup_${TIMESTAMP}.sql"  
MYSQL_USER="root"  
MYSQL_PASSWORD="your_mysql_root_password"  
  
# Ensure backup directory exists  
mkdir -p $BACKUP_DIR  
  
# Take MySQL database backup  
mysqldump -u $MYSQL_USER -p$MYSQL_PASSWORD --all-databases > $BACKUP_FILE  
  
# Optional: Compress the backup file  
gzip $BACKUP_FILE  
  
# Print success message  
echo "Backup completed successfully: $BACKUP_FILE.gz"  
~  
~  
-- INSERT --  
21,1 All
```

```
hadeer@hadeer-VMware-Virtual-Platform: ~
GNU nano 7.2 /tmp/crontab.vBprIX/crontab * I
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
0 17 * * 0 /usr/local/bin/mysql_backup.sh
```

### Lab 3

```
hadeer@hadeer-VMware-Virtual-Platform:~$ vim ping_script.sh
```

```
hadeer@hadeer-VMware-Virtual-Platform: ~
#!/bin/bash

for x in {0..255}; do
    IP="172.16.17.$x"

    if ping -c 1 -w 1 $IP > /dev/null 2>&1; then
        echo "server $IP is up and running"
    else
        echo "server $IP is unreachable"
    fi
done
~
```

```
hadeer@hadeer-VMware-Virtual-Platform:~$ ./ping_script.sh
server 172.16.17.0 is unreachable
server 172.16.17.1 is unreachable
server 172.16.17.2 is unreachable
server 172.16.17.3 is unreachable
server 172.16.17.4 is unreachable
```

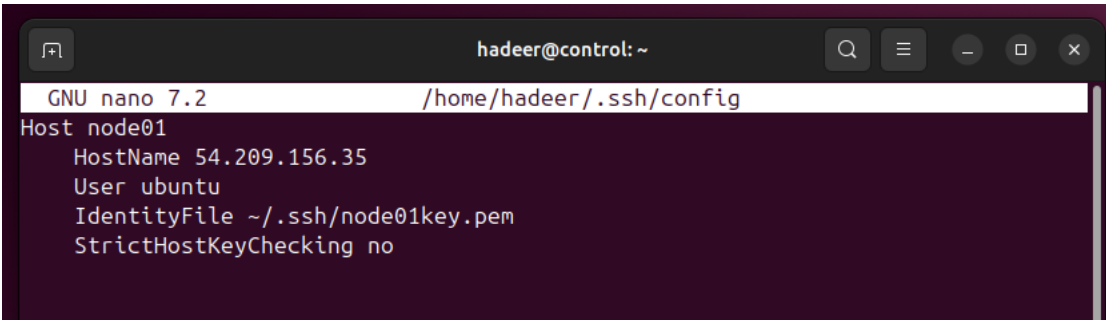
## Lab 5

```
hadeer@control:~$ hostnamectl set-hostname control
```

```
hadeer@control:~/.ssh$ vim node01key.pem
hadeer@control:~/.ssh$ ls
authorized_keys  config  id_rsa  id_rsa.pub  known_hosts  known_hosts.old  node01key.pem
hadeer@control:~/.ssh$ # ssh -i ~/.ssh/node01key.pem ubuntu@54.209.156.35
hadeer@control:~/.ssh$ chmod 400 ~/.ssh/node01key.pem
hadeer@control:~/.ssh$ ssh -i ~/.ssh/node01key.pem ubuntu@54.209.156.35
The authenticity of host '54.209.156.35 (54.209.156.35)' can't be established.
ED25519 key fingerprint is SHA256:LfwDNSGLCZr3wRg6grujrucGJ3XdJ0Myjc1LvpzBd7c.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '54.209.156.35' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1021-aws x86_64)
```

```
ubuntu@ip-172-31-82-123:~$
```

```
hadeer@control:~$ sudo nano ~/.ssh/config
```



The screenshot shows a terminal window titled 'hadeer@control:~'. Inside, the GNU nano 7.2 editor is open, editing the file '/home/hadeer/.ssh/config'. The content of the file is as follows:

```
Host node01
  HostName 54.209.156.35
  User ubuntu
  IdentityFile ~/.ssh/node01key.pem
  StrictHostKeyChecking no
```

```
hadeer@control:~$ chmod 600 /home/hadeer/.ssh/config
```

```
hadeer@control:~$ ssh node01
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1021-aws x86_64)
```