

COMSATS UNIVERSITY ISLAMABAD WAH CAMPUS



LAB MANUAL # 01

DEV OPS FOR CLOUD COMPUTING

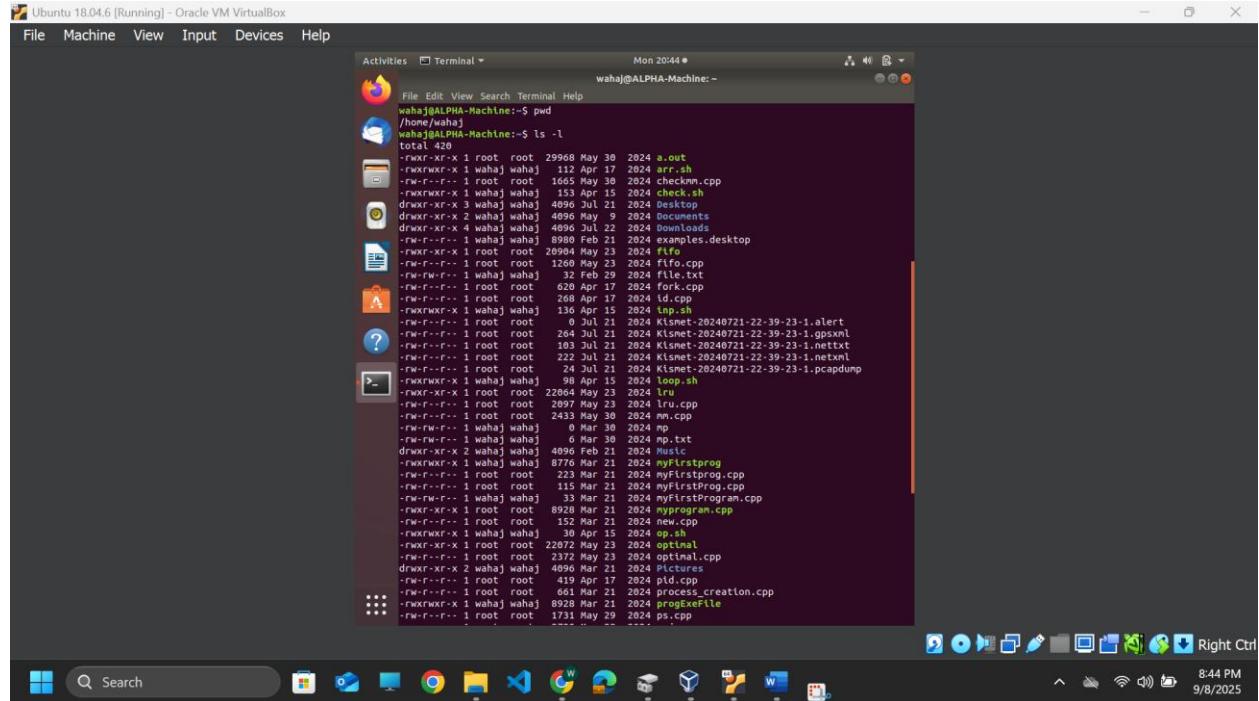
Submitted By: M. Wahaj .Yasin

Registration #: SP22-BSE-040

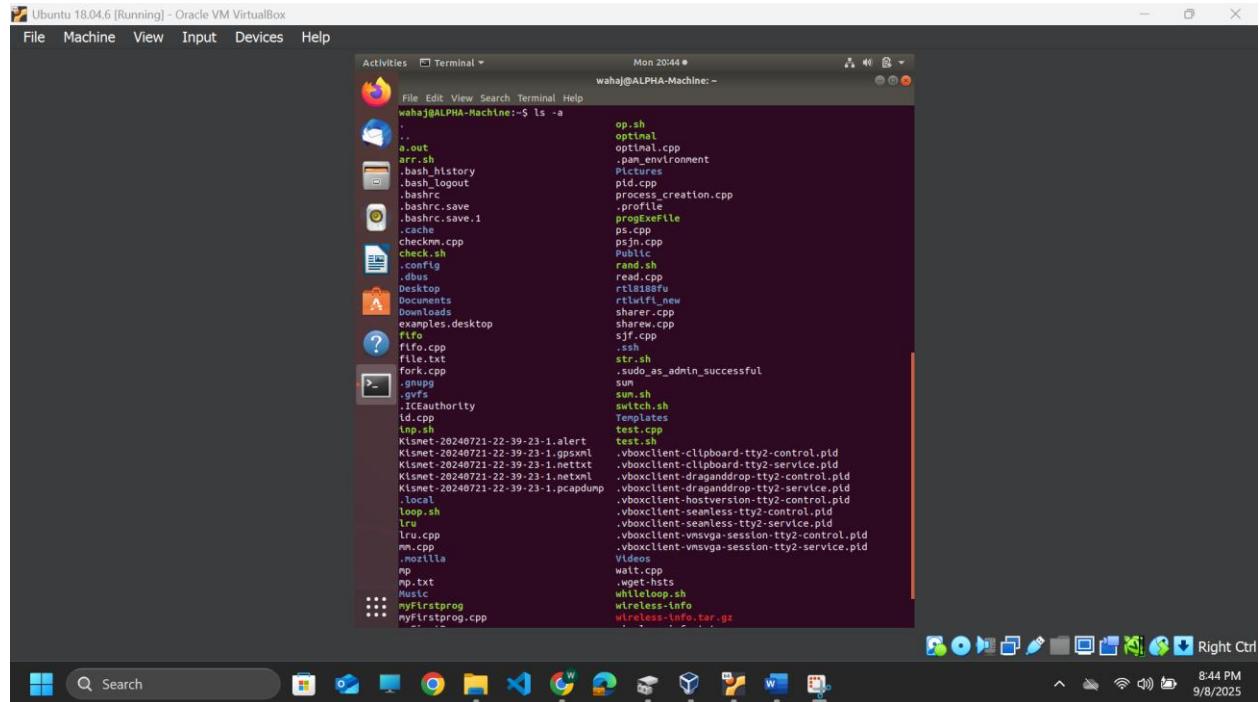
Submitted to: Mr Muhammad Ibrahim

ls

pwd

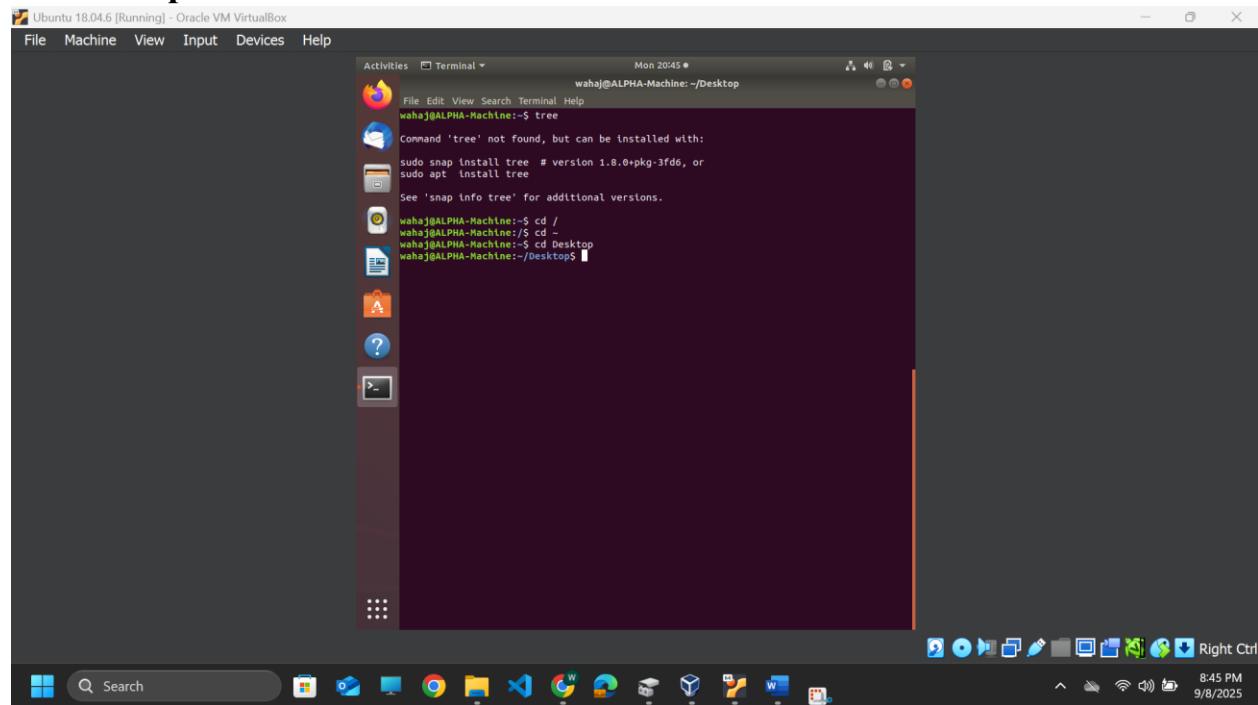
ls -l


```
waha@ALPHA-Machine:~$ ls -l
total 420
-rwxr-xr-x 1 root root 29968 May 30 2024 a.out
-rw-r--r-- 1 root root 1665 May 30 2024 checkm.cpp
-rwxrwxr-x 1 wahaJ wahaJ 153 Apr 15 2024 check.sh
drwxr-xr-x 3 wahaJ wahaJ 4096 Jul 21 2024 Desktop
drwxr-xr-x 2 wahaJ wahaJ 4096 May 9 2024 Documents
drwxr-xr-x 4 wahaJ wahaJ 4096 Jul 22 2024 Downloads
-rw-r--r-- 1 wahaJ wahaJ 896 Feb 29 2024 Examples.desktop
-rw-r--r-- 1 root root 28654 May 23 2024 FIFO
-rw-r--r-- 1 root root 1269 May 23 2024 fifo.cpp
-rw-rw-r-- 1 wahaJ wahaJ 32 Feb 29 2024 file.txt
-rw-r--r-- 1 root root 620 Apr 17 2024 fork.cpp
-rw-r--r-- 1 root root 268 Apr 17 2024 id.cpp
-rwxr-xr-x 1 wahaJ wahaJ 137 Apr 15 2024 kpp.sh
-rw-r--r-- 1 root root 0 Jul 21 2024 Kismet-20240721-22-39-23-1.alert
-rw-r--r-- 1 root root 264 Jul 21 2024 Kismet-20240721-22-39-23-1.gpsxml
-rw-r--r-- 1 root root 103 Jul 21 2024 Kismet-20240721-22-39-23-1.nettxt
-rw-r--r-- 1 root root 222 Jul 21 2024 Kismet-20240721-22-39-23-1.netxml
-rw-r--r-- 1 root root 24 Jul 21 2024 Kismet-20240721-22-39-23-1.pcapdump
-rwxr-xr-x 1 wahaJ wahaJ 28654 May 23 2024 loop.sh
-rw-r--r-- 1 root root 2097 May 23 2024 lru.cpp
-rw-r--r-- 1 root root 2433 May 30 2024 mm.cpp
-rw-r--r-- 1 wahaJ wahaJ 0 Mar 30 2024 mp
-rw-r--r-- 1 wahaJ wahaJ 6 Mar 30 2024 mp.txt
drwxr-xr-x 1 wahaJ wahaJ 4096 Feb 29 2024 myFirstProgram
-rw-r--r-- 1 wahaJ wahaJ 876 Mar 21 2024 myFirstProg
-rw-r--r-- 1 root root 223 Mar 21 2024 myFirstProg.cpp
-rw-r--r-- 1 root root 115 Mar 21 2024 myFirstProg.cpp
-rw-r--r-- 1 wahaJ wahaJ 33 Mar 21 2024 myFirstProgram.cpp
-rwxr-xr-x 1 root root 8928 Mar 21 2024 myprogram.cpp
-rw-r--r-- 1 root root 152 Mar 21 2024 myprogram.cpp
-rwxrwxr-x 1 wahaJ wahaJ 152 Apr 15 2024 op.sh
-rwxr-xr-x 1 root root 22072 May 23 2024 optimal
-rw-r--r-- 1 root root 2372 May 23 2024 optimal.cpp
drwxr-xr-x 2 wahaJ wahaJ 4096 May 21 2024 Pictures
drwxr-xr-x 1 root root 419 Apr 17 2024 pid.cpp
-rw-r--r-- 1 root root 604 May 21 2024 process_creation.cpp
-rwxrwxr-x 1 wahaJ wahaJ 8938 Mar 21 2024 progXfile
-rw-r--r-- 1 root root 1731 May 29 2024 ps.cpp
```

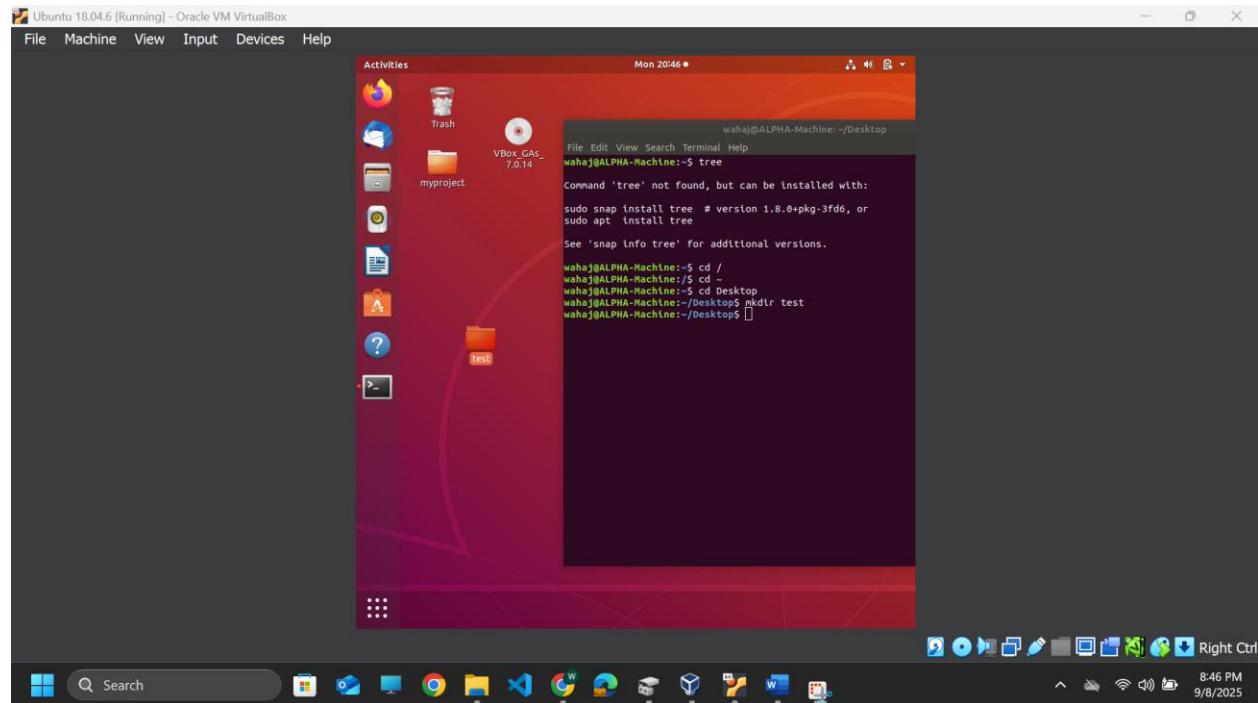
ls -a


```
waha@ALPHA-Machine:~$ ls -a
op.sh
optimal
optimal.cpp
.pam_environment
Pictures
pid.cpp
process_creation.cpp
progXfile
ps.cpp
psjn.cpp
Public
rand.sh
rtls1s88f
rtlutf1_new
sharer.cpp
sharew.cpp
sjf.cpp
str.cpp
str.sh
.sudo_as_admin_successful
sum
sum.sh
switch.sh
tempsets
tempsets
test.cpp
test.sh
.vboxclient-clipboard-tty2-control.pid
.vboxclient-clipboard-tty2-service.pid
.vboxclient-draganddrop-tty2-control.pid
.vboxclient-draganddrop-tty2-service.pid
.vboxclient-hostversion-tty2-control.pid
.vboxclient-seamless-tty2-control.pid
.vboxclient-vmsvga-session-tty2-control.pid
.vboxclient-vmsvga-session-tty2-service.pid
VIM
walt.cpp
.wget-hsts
whileLoop.sh
wireless-info
wireless-info.tar.gz
```

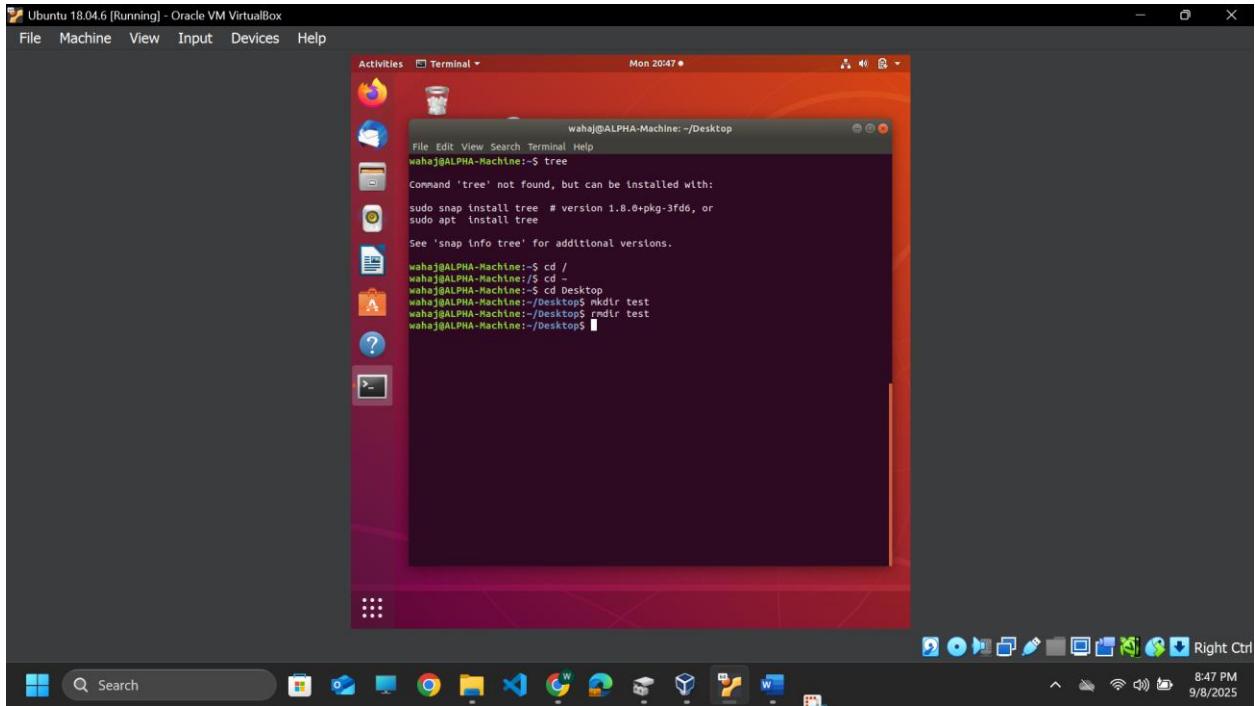
cd Desktop



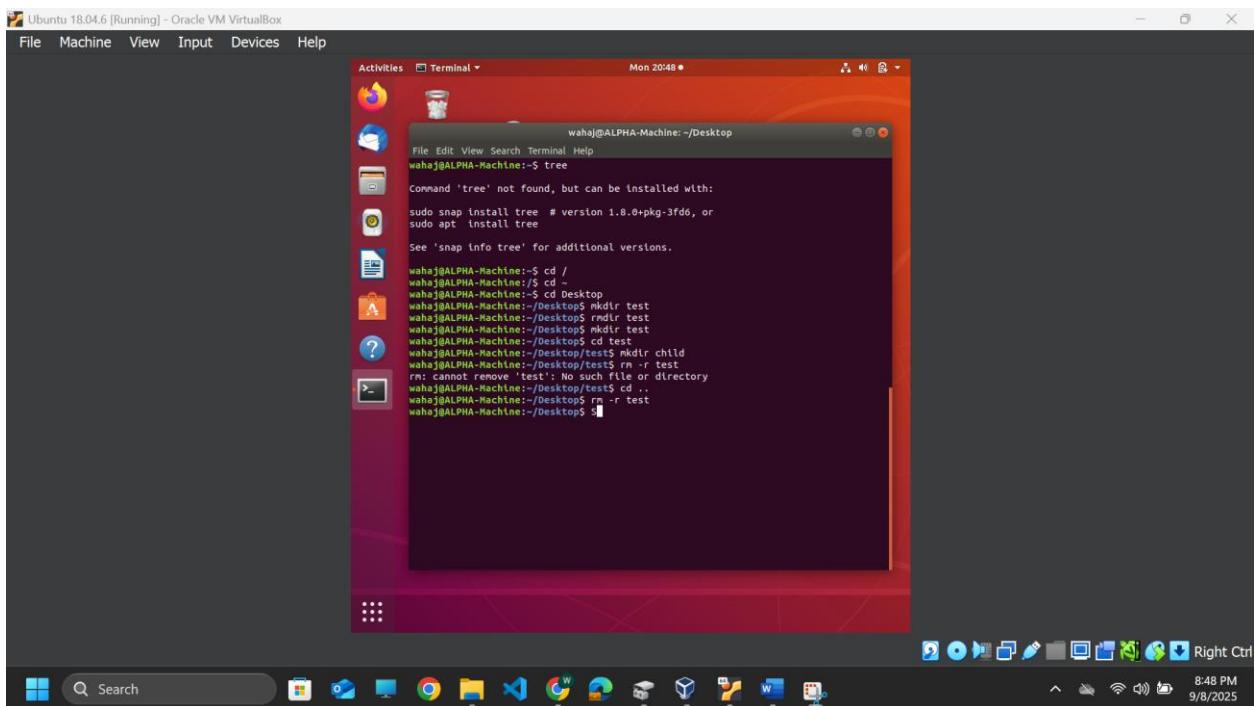
mkdir test



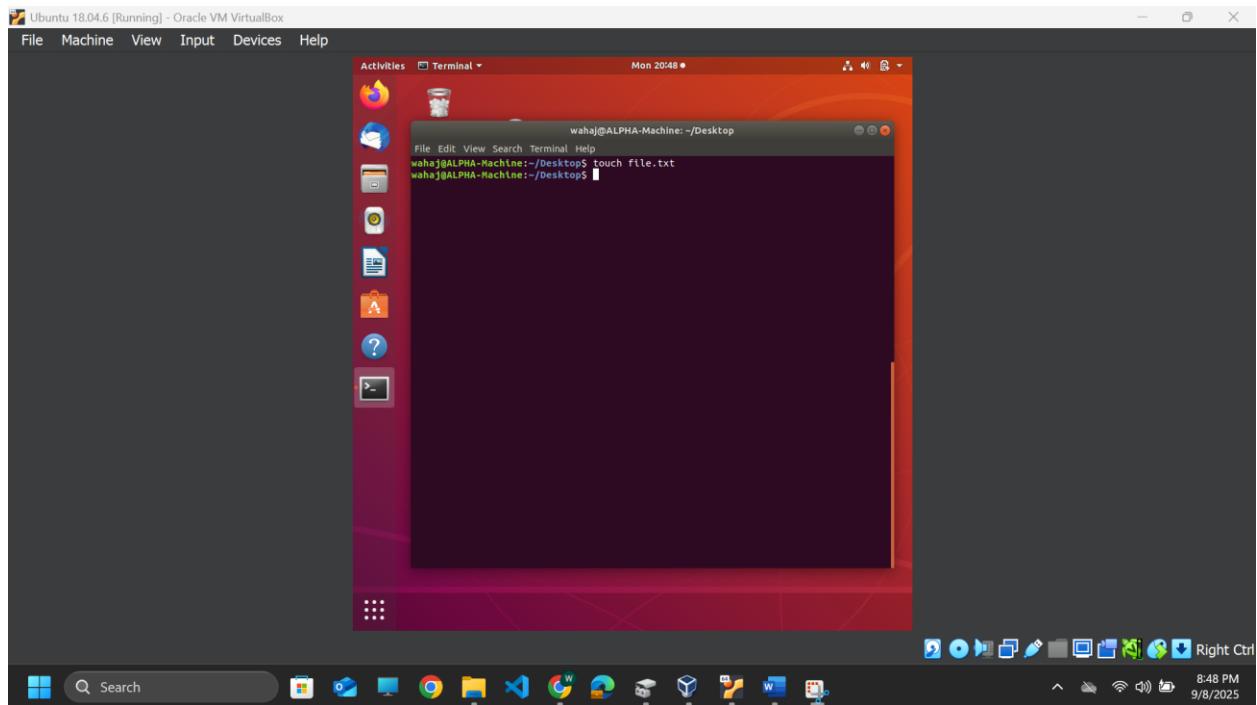
rmdir test



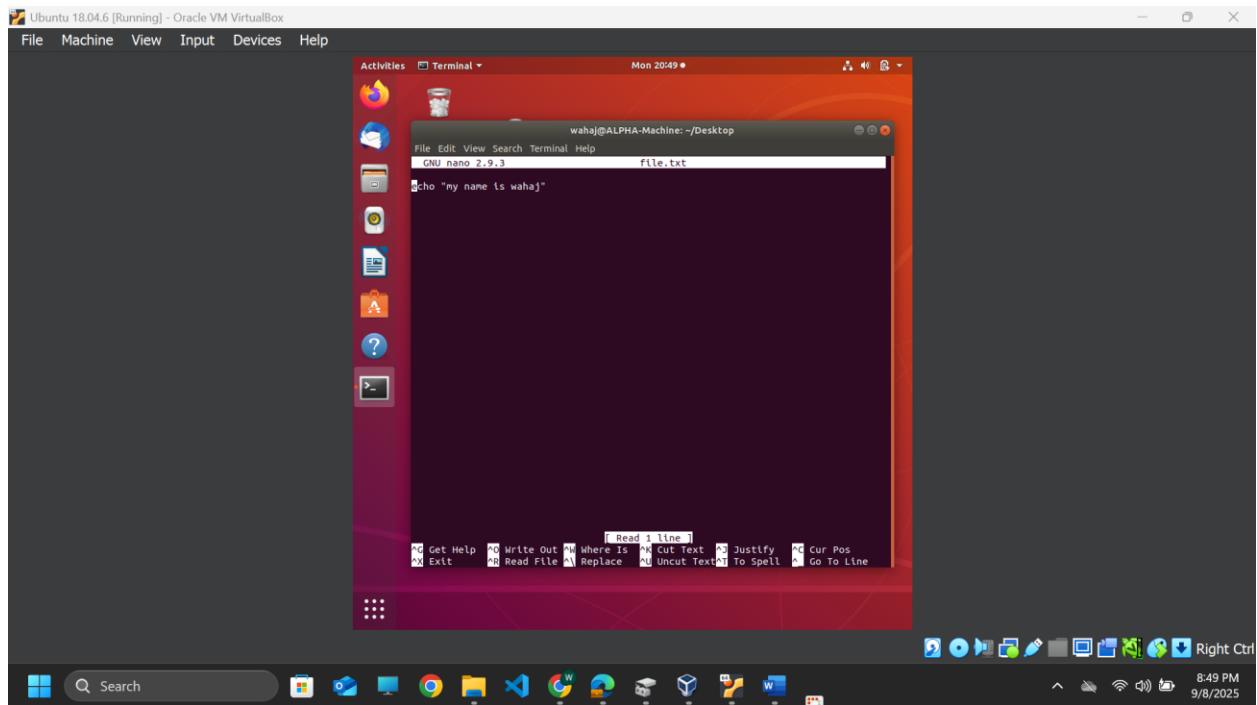
rm -r test

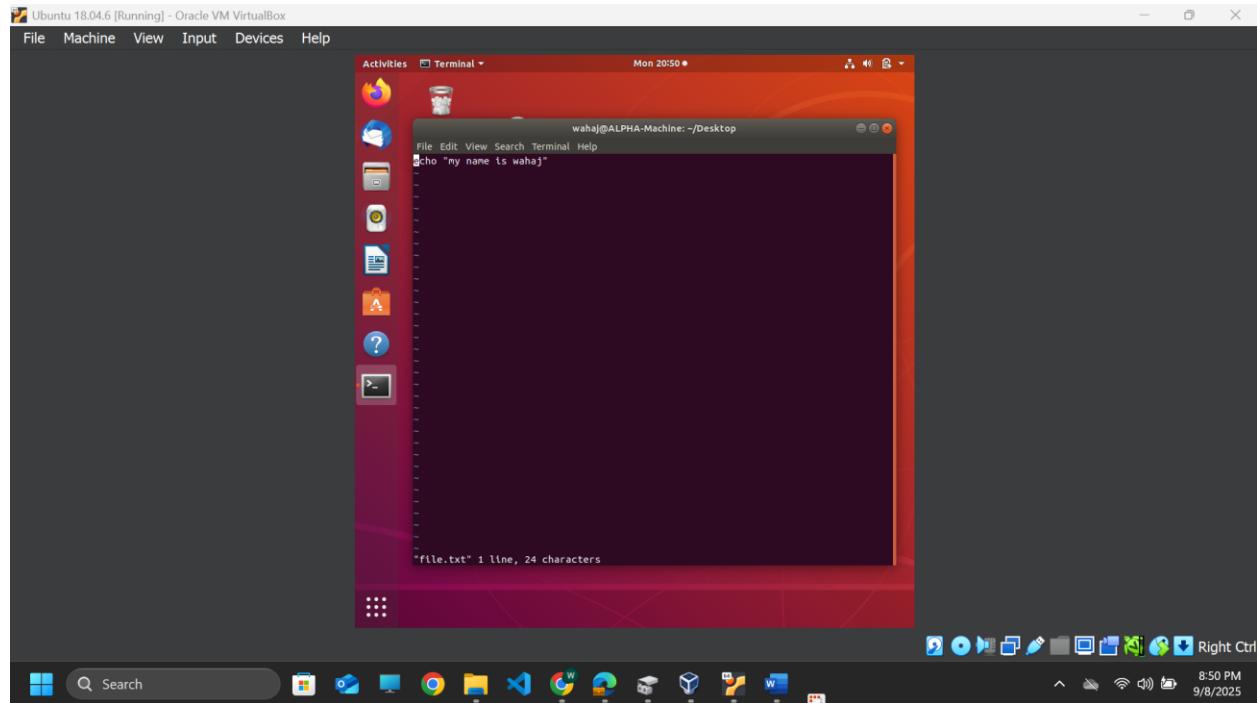
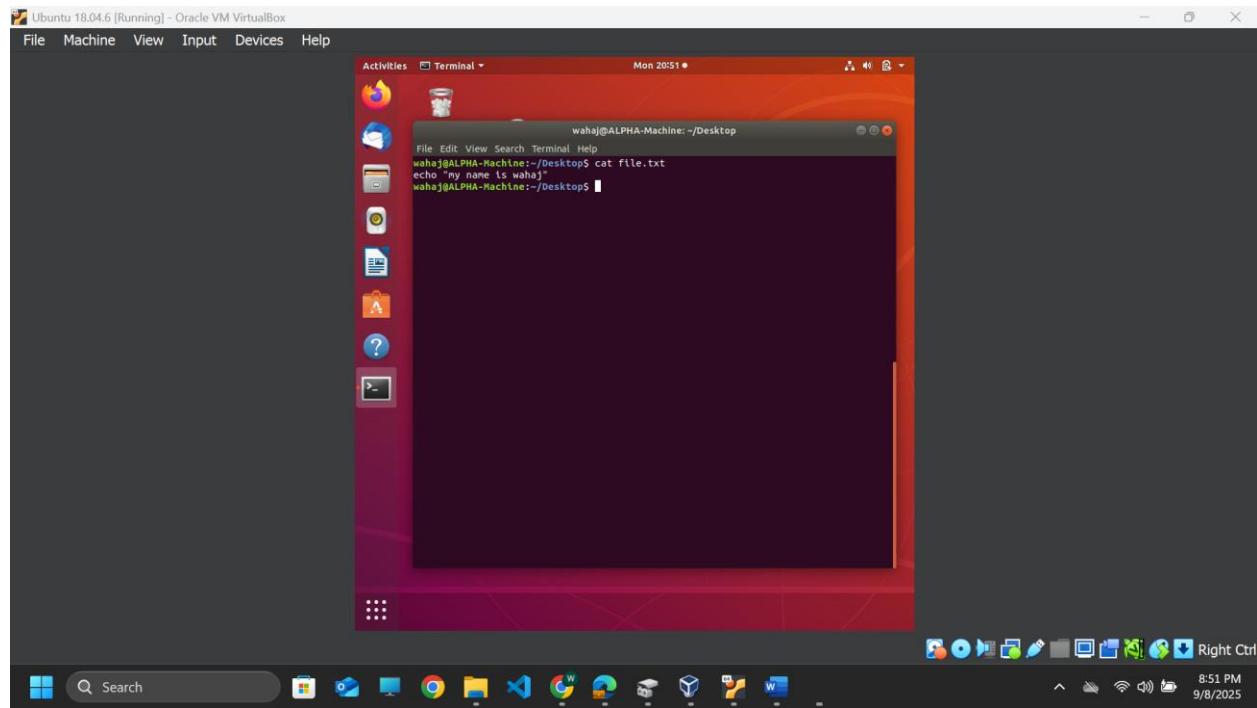


touch file.txt

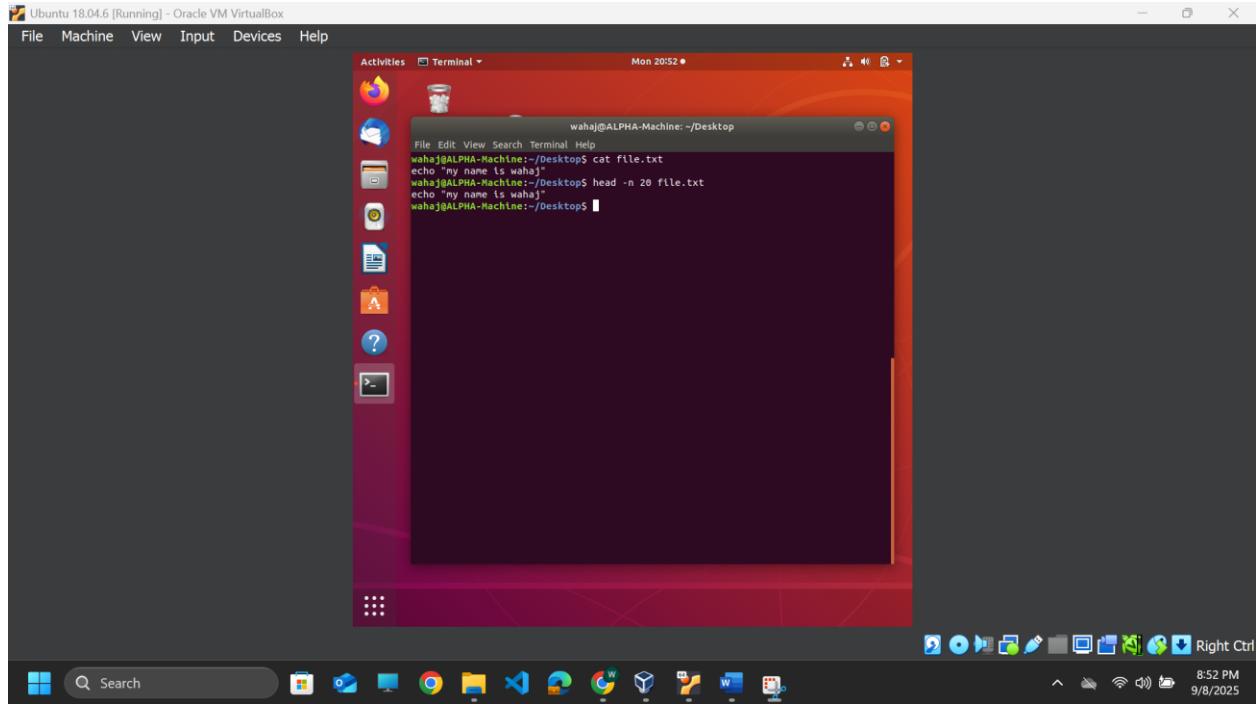


nano file.txt



vi file.txt**cat file.txt**

head -n 20 file.txt



Ubuntu 18.04.6 [Running] - Oracle VM VirtualBox

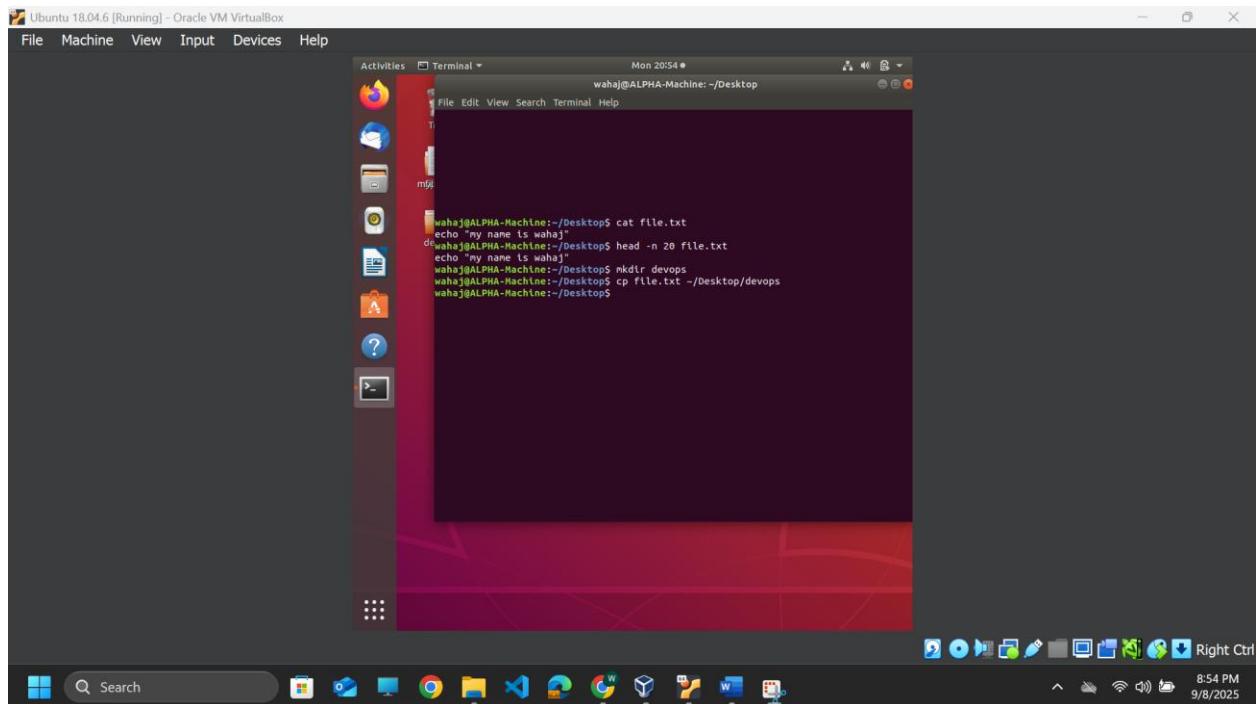
File Machine View Input Devices Help

Activities Terminal Mon 20:52 •

```
wahaJ@ALPHA-Machine:~/Desktop$ cat file.txt
echo "my name is wahaJ"
wahaJ@ALPHA-Machine:~/Desktop$ head -n 20 file.txt
echo "my name is wahaJ"
wahaJ@ALPHA-Machine:~/Desktop$
```

8:52 PM 9/8/2025 Right Ctrl

cp file.txt ~/Desktop/devops



Ubuntu 18.04.6 [Running] - Oracle VM VirtualBox

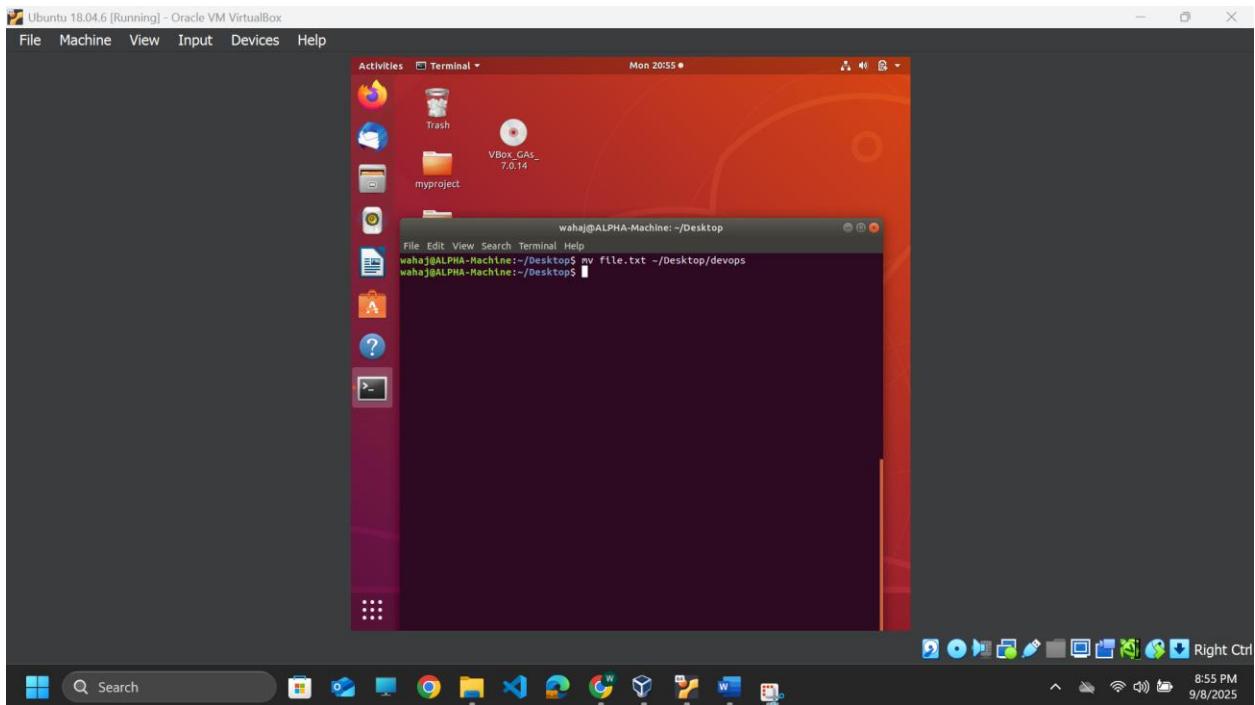
File Machine View Input Devices Help

Activities Terminal Mon 20:54 •

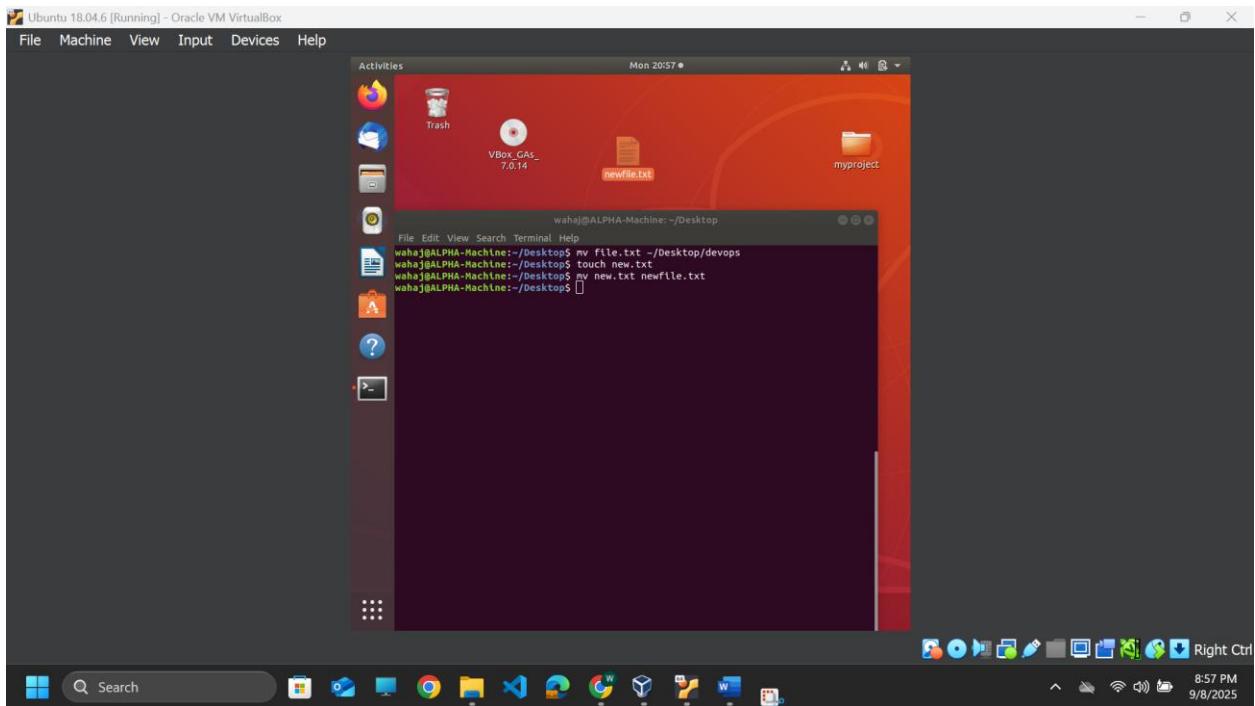
```
wahaJ@ALPHA-Machine:~/Desktop$ cat file.txt
echo "my name is wahaJ"
wahaJ@ALPHA-Machine:~/Desktop$ head -n 20 file.txt
echo "my name is wahaJ"
wahaJ@ALPHA-Machine:~/Desktop$ mkdir devops
wahaJ@ALPHA-Machine:~/Desktop$ cp file.txt ~/Desktop/devops
wahaJ@ALPHA-Machine:~/Desktop$
```

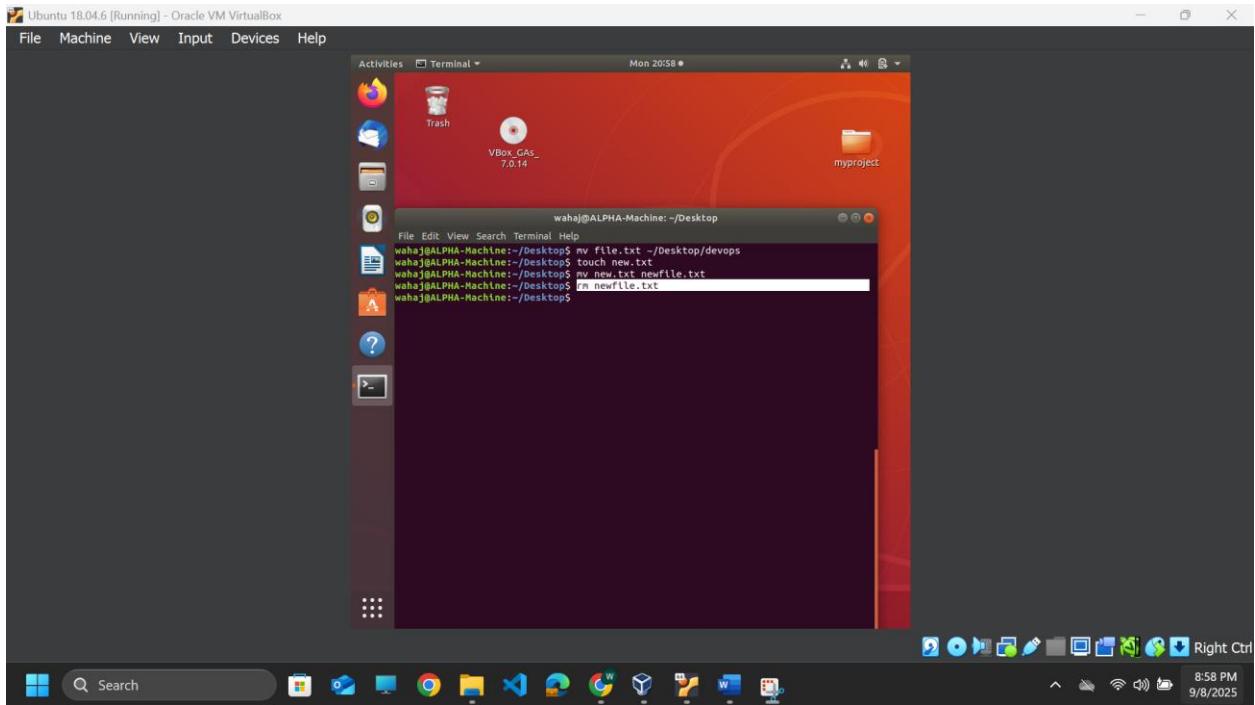
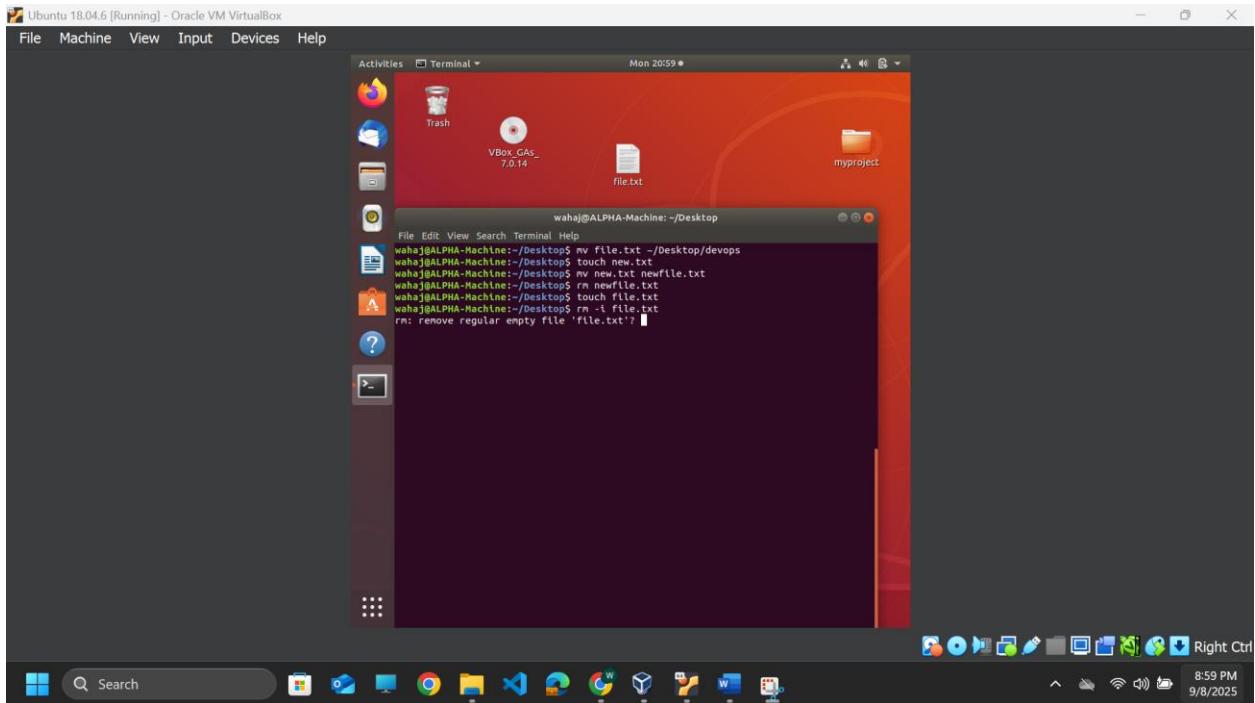
8:54 PM 9/8/2025 Right Ctrl

mv file.txt ~/Desktop/devops

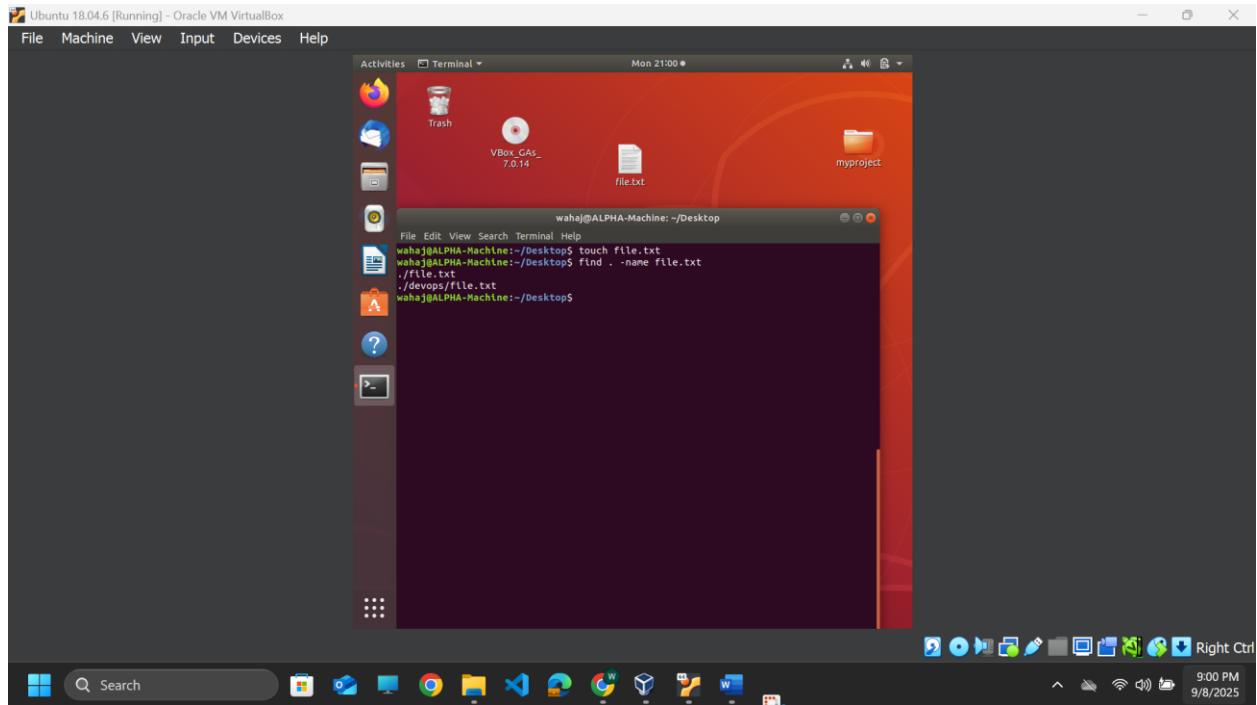


mv new.txt newfile.txt

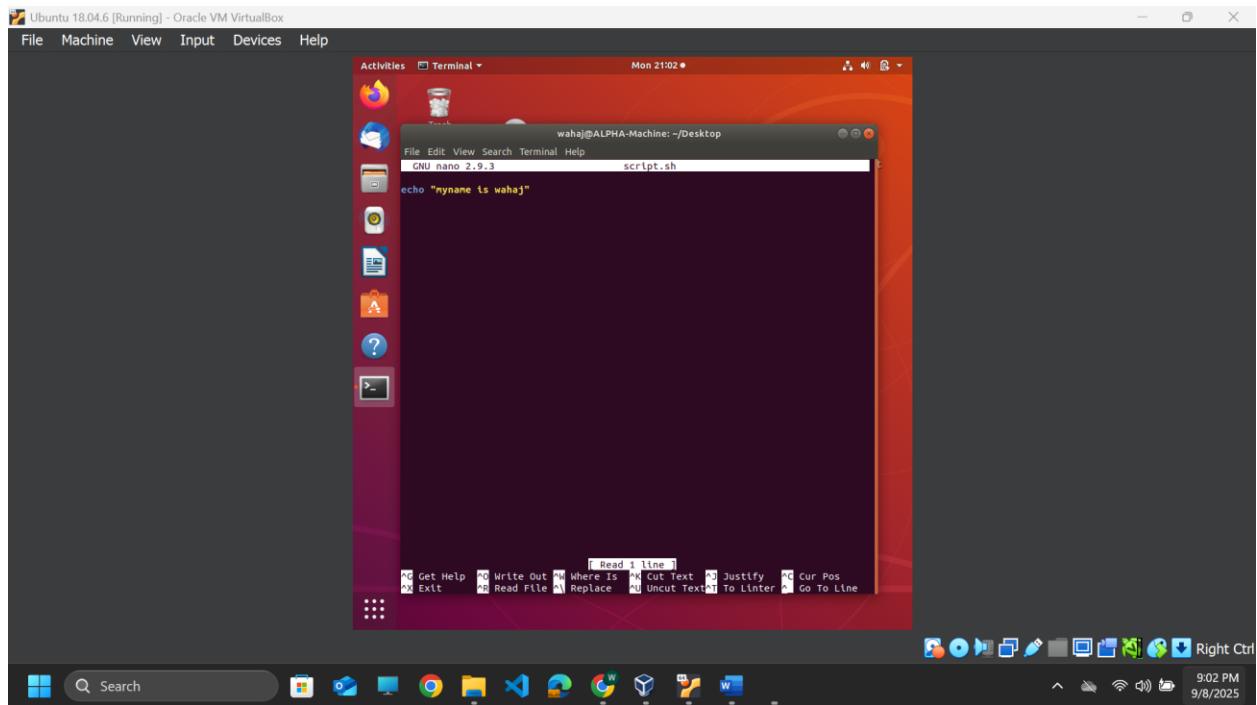


rm newfile.txt**rm -i file.txt**

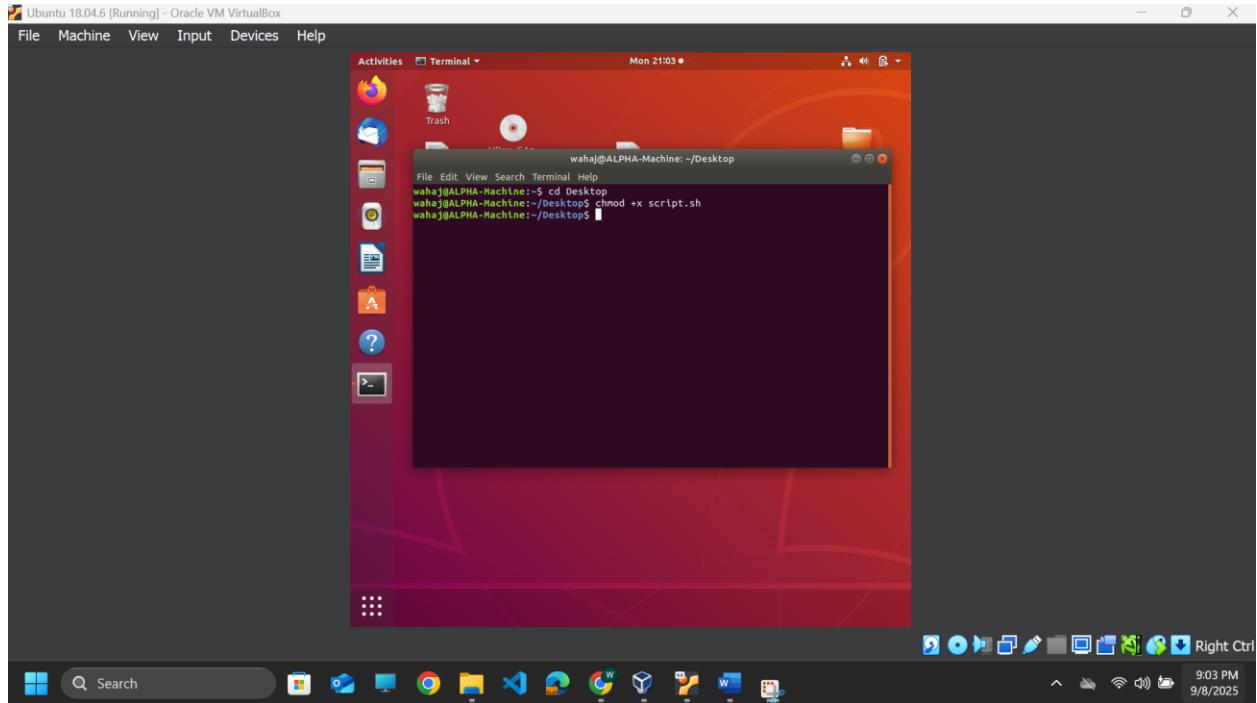
find . -name file.txt



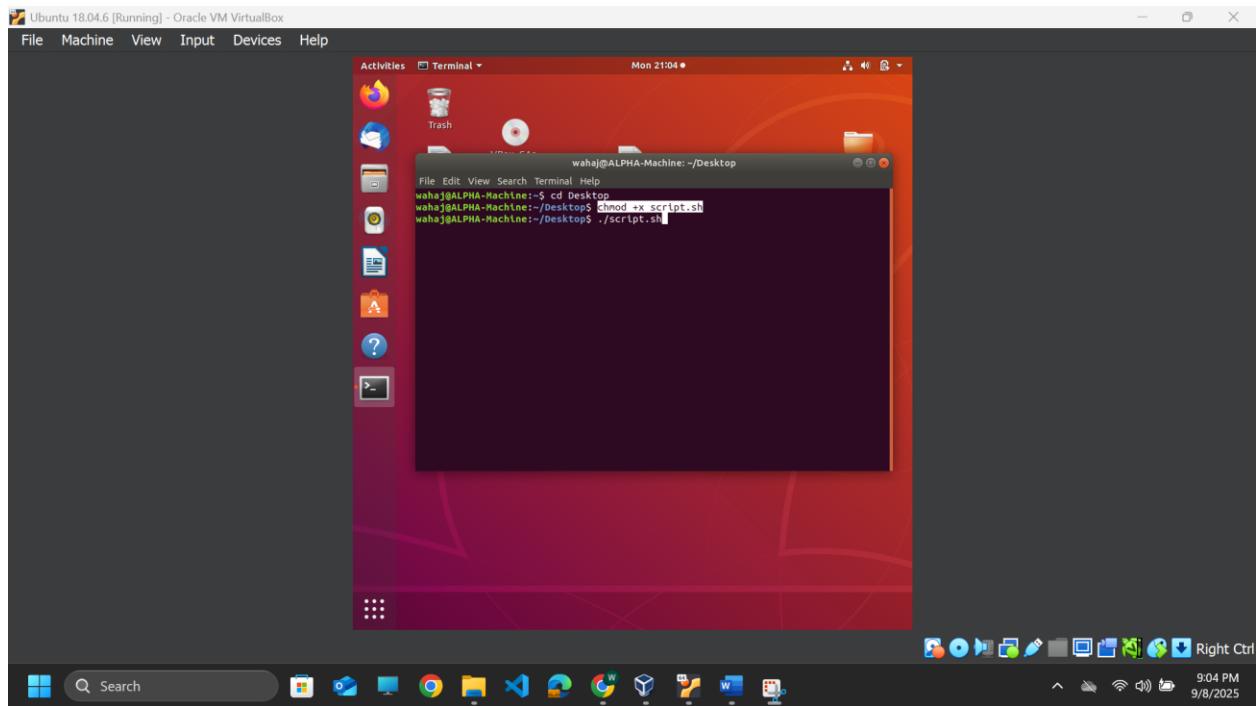
nano script.sh

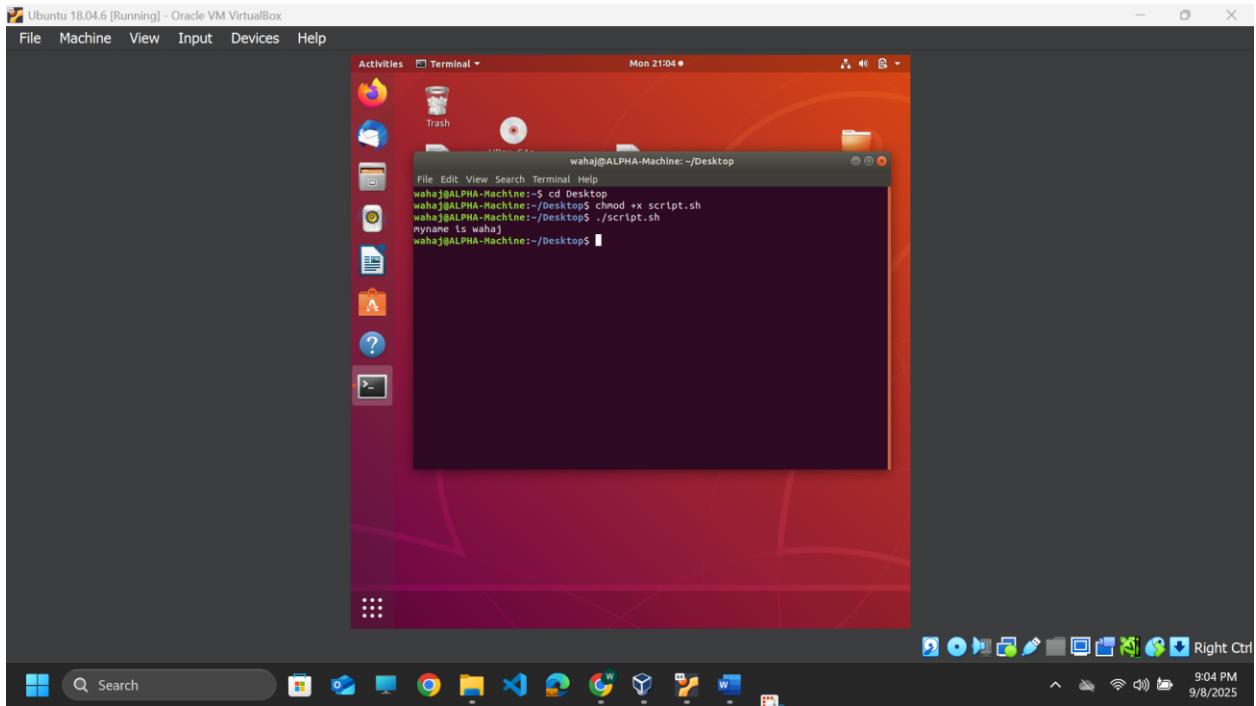


chmod +x script.sh

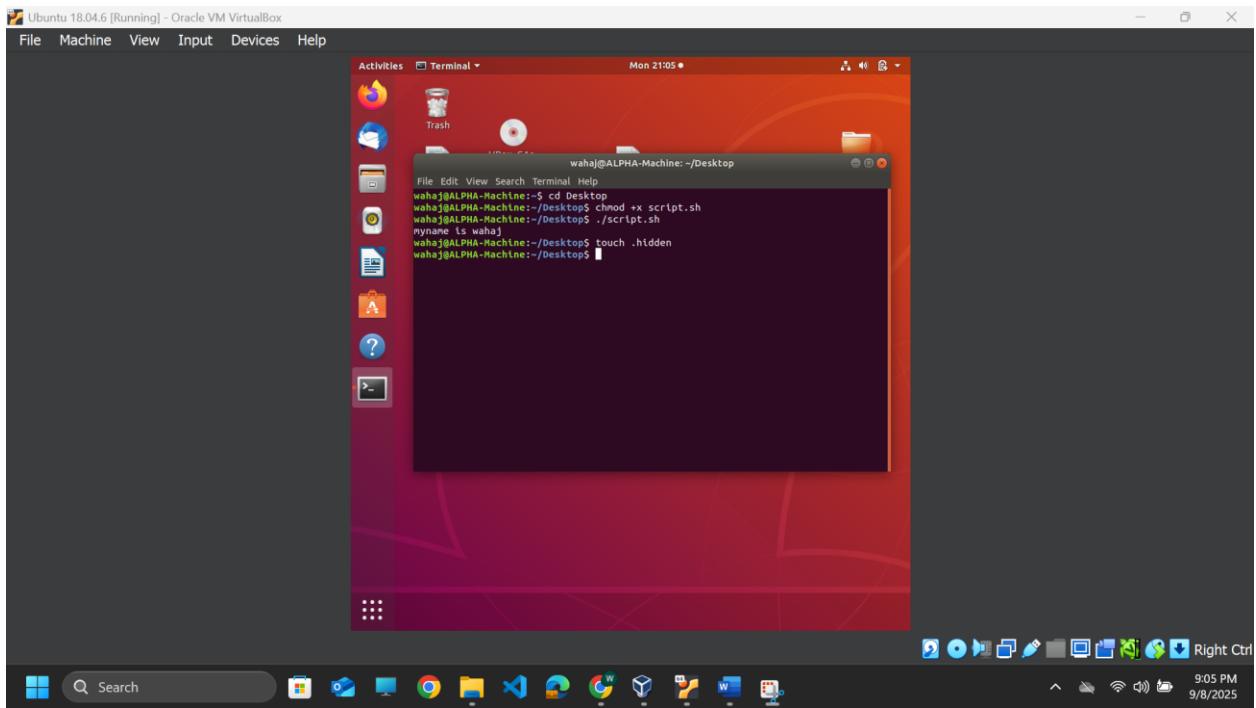


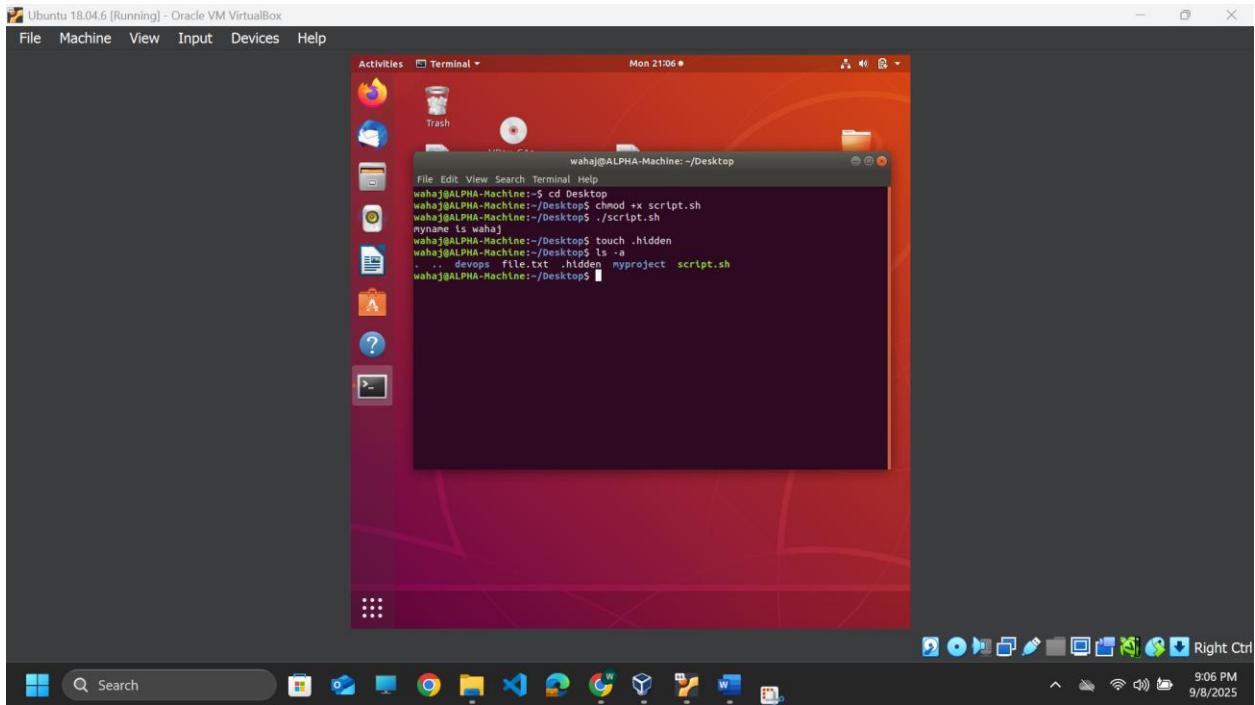
./script.sh





touch .hidden

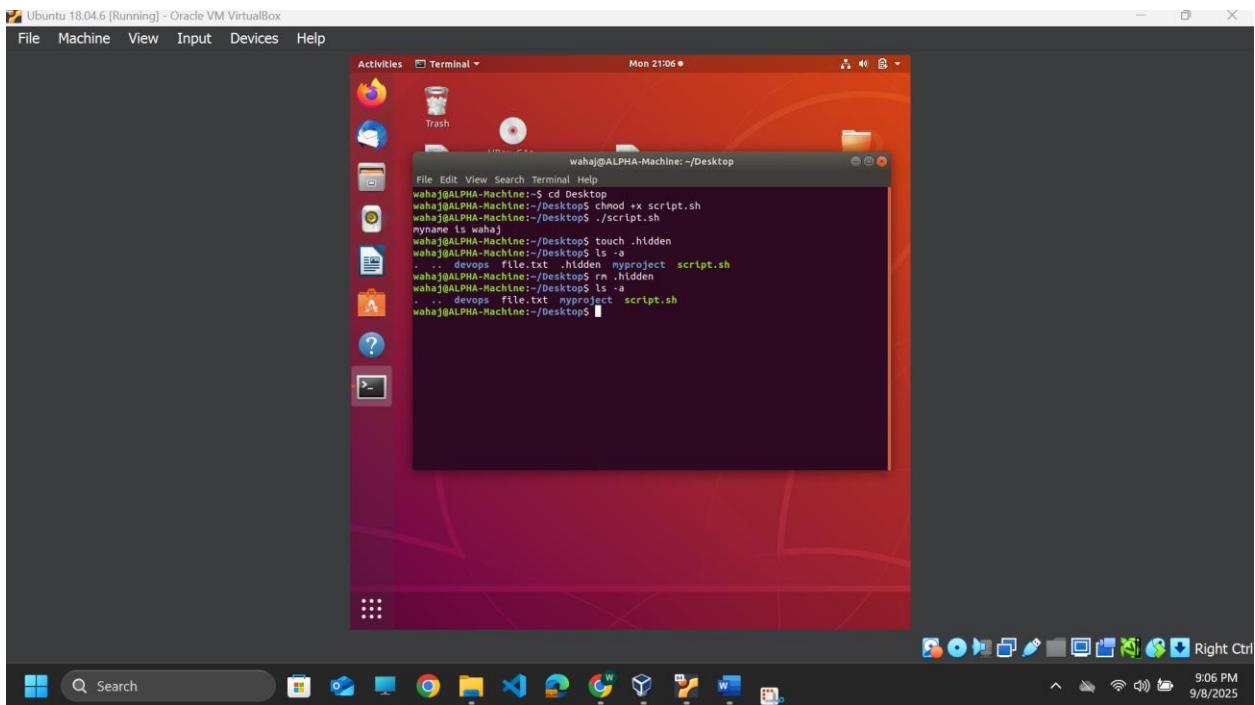


ls -a

The screenshot shows a desktop environment with a terminal window open. The terminal window title is "Terminal" and the path is "wahaj@ALPHA-Machine: ~/Desktop". The terminal content shows the following command sequence:

```
wahaj@ALPHA-Machine:~$ cd Desktop
wahaj@ALPHA-Machine:~/Desktop$ chmod +x script.sh
wahaj@ALPHA-Machine:~/Desktop$ ./script.sh
myname is wahaj
wahaj@ALPHA-Machine:~/Desktop$ ls -a
. .devops file.txt .hidden myproject script.sh
wahaj@ALPHA-Machine:~/Desktop$
```

The desktop background is orange, and the taskbar at the bottom shows various application icons.

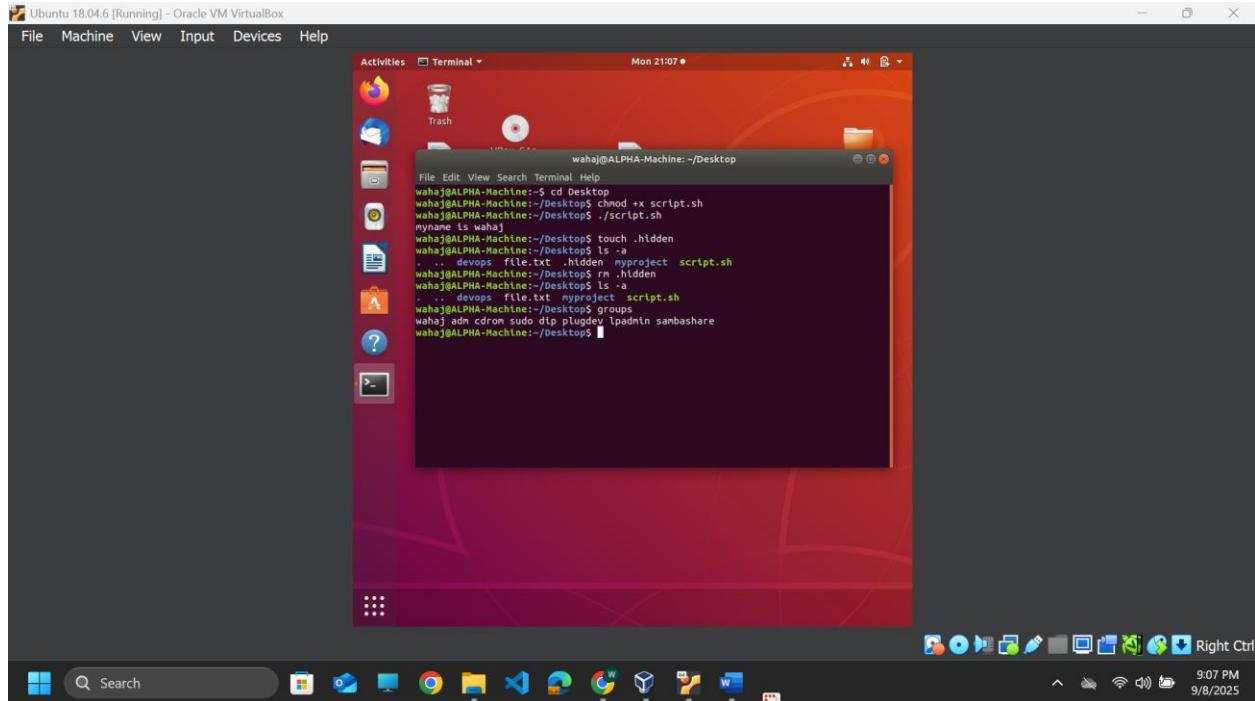
rm .hidden

This screenshot is similar to the previous one, showing the same desktop environment and terminal window. The terminal content now includes the removal of the ".hidden" file:

```
wahaj@ALPHA-Machine:~$ cd Desktop
wahaj@ALPHA-Machine:~/Desktop$ chmod +x script.sh
wahaj@ALPHA-Machine:~/Desktop$ ./script.sh
myname is wahaj
wahaj@ALPHA-Machine:~/Desktop$ ls -a
. .devops file.txt .hidden myproject script.sh
wahaj@ALPHA-Machine:~/Desktop$ rm .hidden
wahaj@ALPHA-Machine:~/Desktop$ ls -a
. .devops file.txt myproject script.sh
wahaj@ALPHA-Machine:~/Desktop$
```

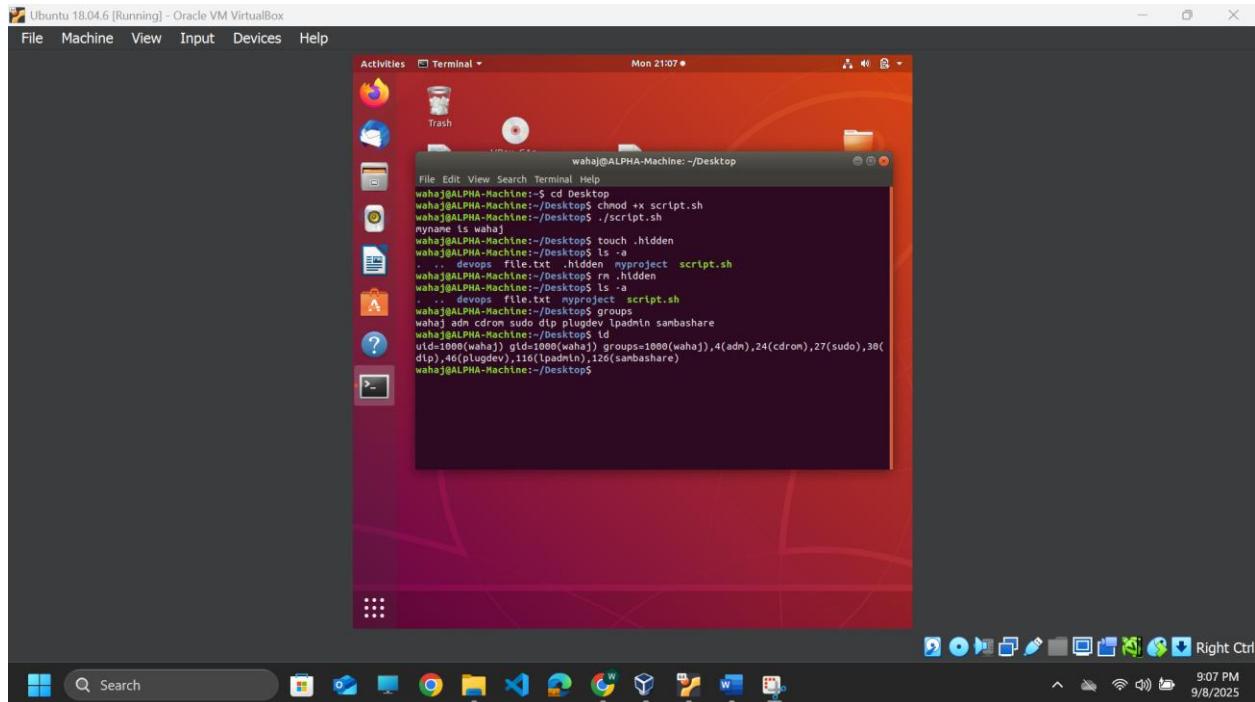
The desktop background and taskbar remain the same.

groups



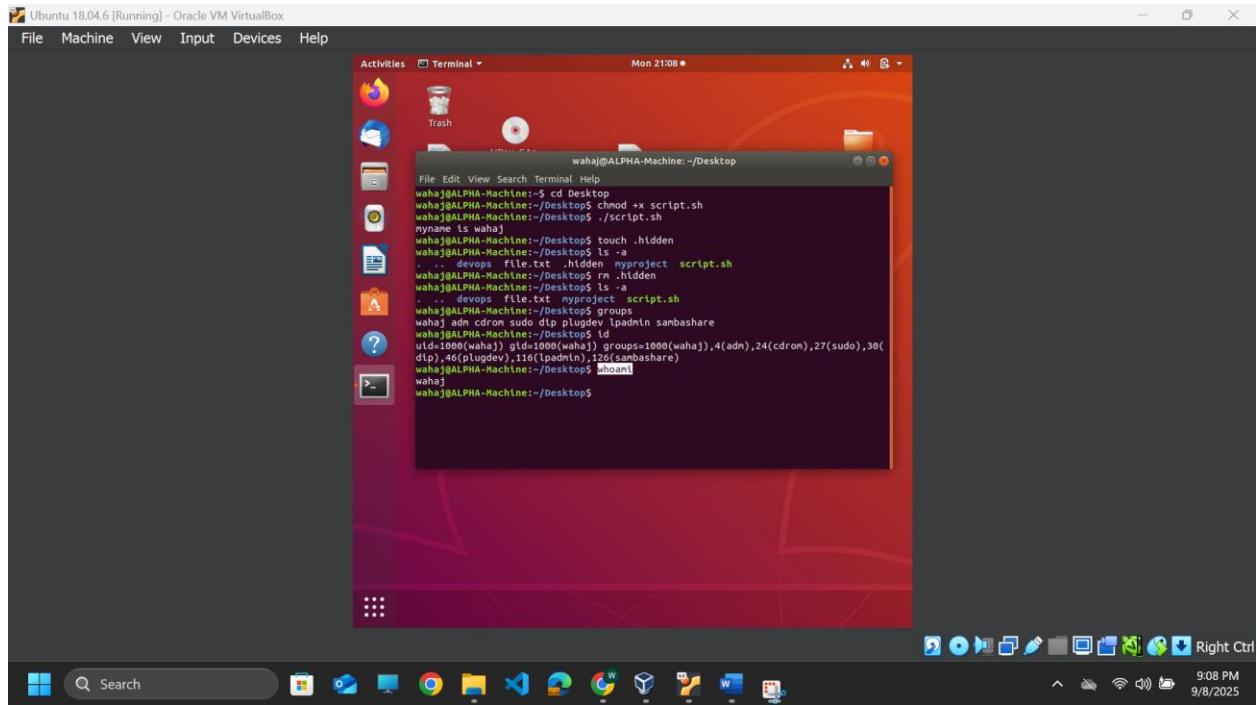
```
wahaJ@ALPHA-Machine:~/Desktop$ chmod +x script.sh
wahaJ@ALPHA-Machine:~/Desktop$ ./script.sh
myname is wahaJ
wahaJ@ALPHA-Machine:~/Desktop$ touch .hidden
wahaJ@ALPHA-Machine:~/Desktop$ ls -a
.  ..  devops  file.txt  .hidden  myproject  script.sh
wahaJ@ALPHA-Machine:~/Desktop$ rm .hidden
wahaJ@ALPHA-Machine:~/Desktop$ ls -a
.  ..  devops  file.txt  myproject  script.sh
wahaJ@ALPHA-Machine:~/Desktop$ groups
wahaJ adm cdrom sudo dip plugdev lpadmin sambashare
wahaJ@ALPHA-Machine:~/Desktop$ id
```

Id

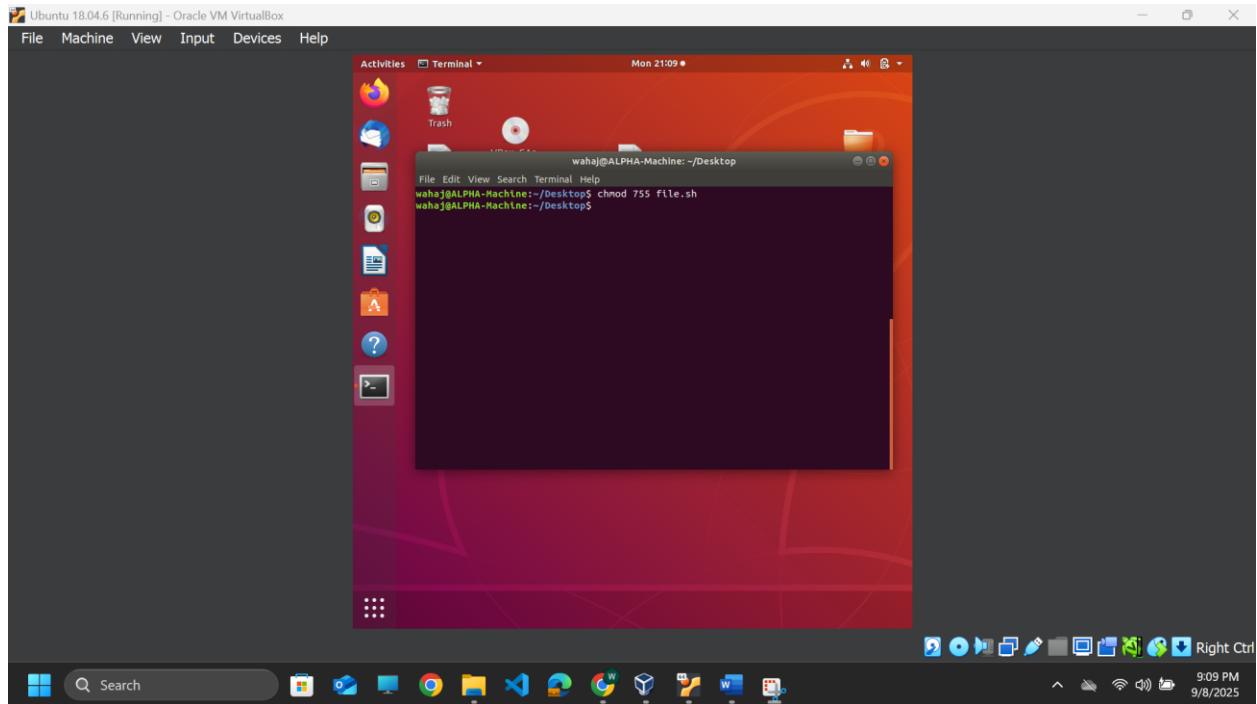


```
wahaJ@ALPHA-Machine:~/Desktop$ chmod +x script.sh
wahaJ@ALPHA-Machine:~/Desktop$ ./script.sh
myname is wahaJ
wahaJ@ALPHA-Machine:~/Desktop$ touch .hidden
wahaJ@ALPHA-Machine:~/Desktop$ ls -a
.  ..  devops  file.txt  .hidden  myproject  script.sh
wahaJ@ALPHA-Machine:~/Desktop$ rm .hidden
wahaJ@ALPHA-Machine:~/Desktop$ ls -a
.  ..  devops  file.txt  myproject  script.sh
wahaJ@ALPHA-Machine:~/Desktop$ groups
wahaJ adm cdrom sudo dip plugdev lpadmin sambashare
wahaJ@ALPHA-Machine:~/Desktop$ id
uid=1000(wahaJ) gid=1000(wahaJ) groups=1000(wahaJ),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),116(lpadmin),126(sambashare)
wahaJ@ALPHA-Machine:~/Desktop$
```

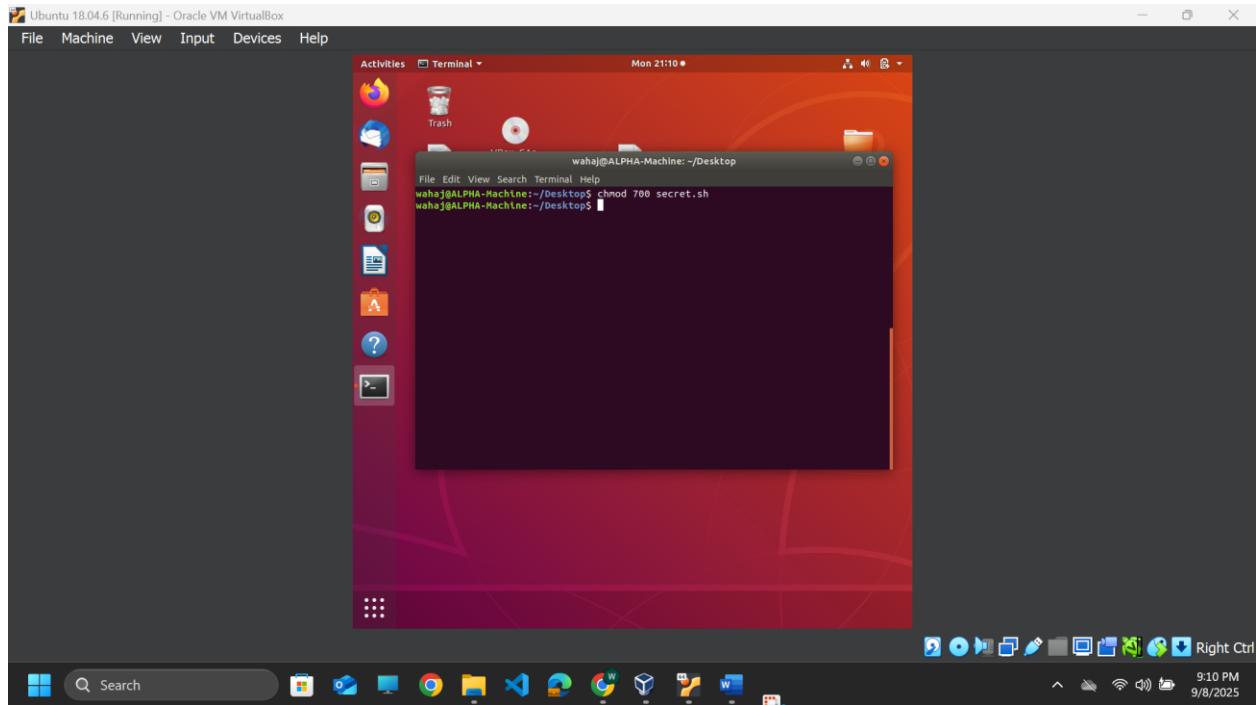
whoami



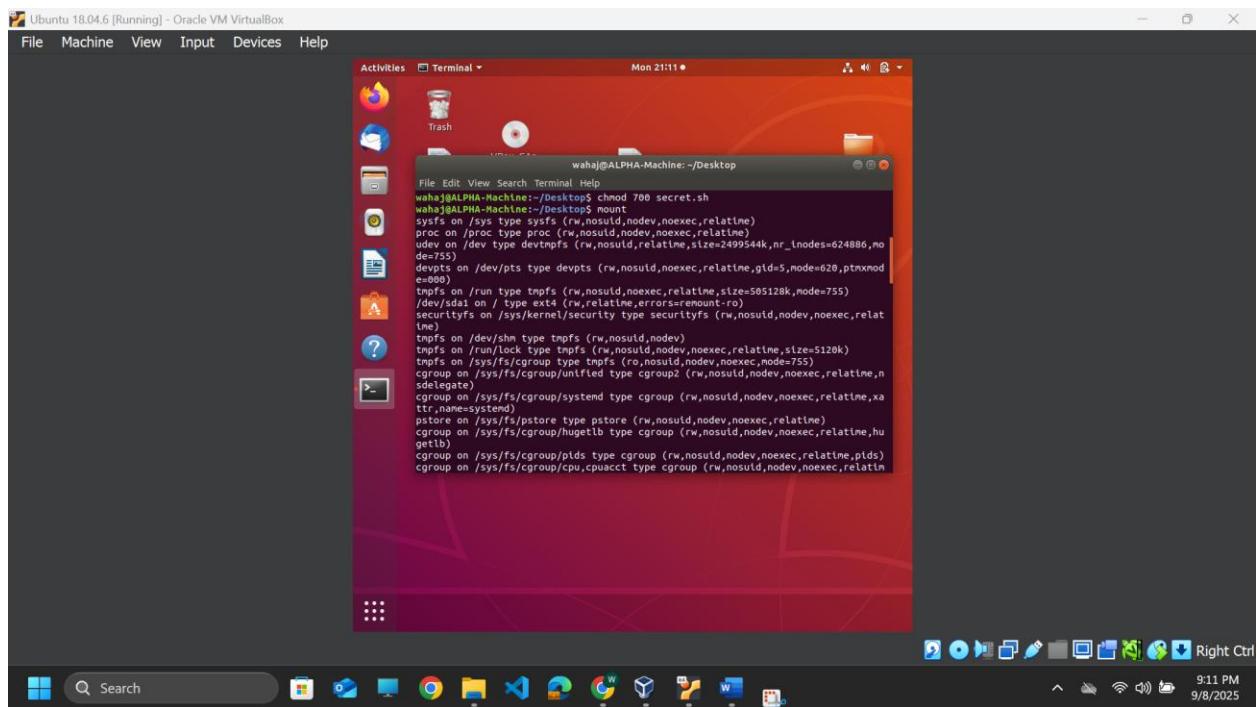
chmod 755 file.sh – owner full, others read/execute



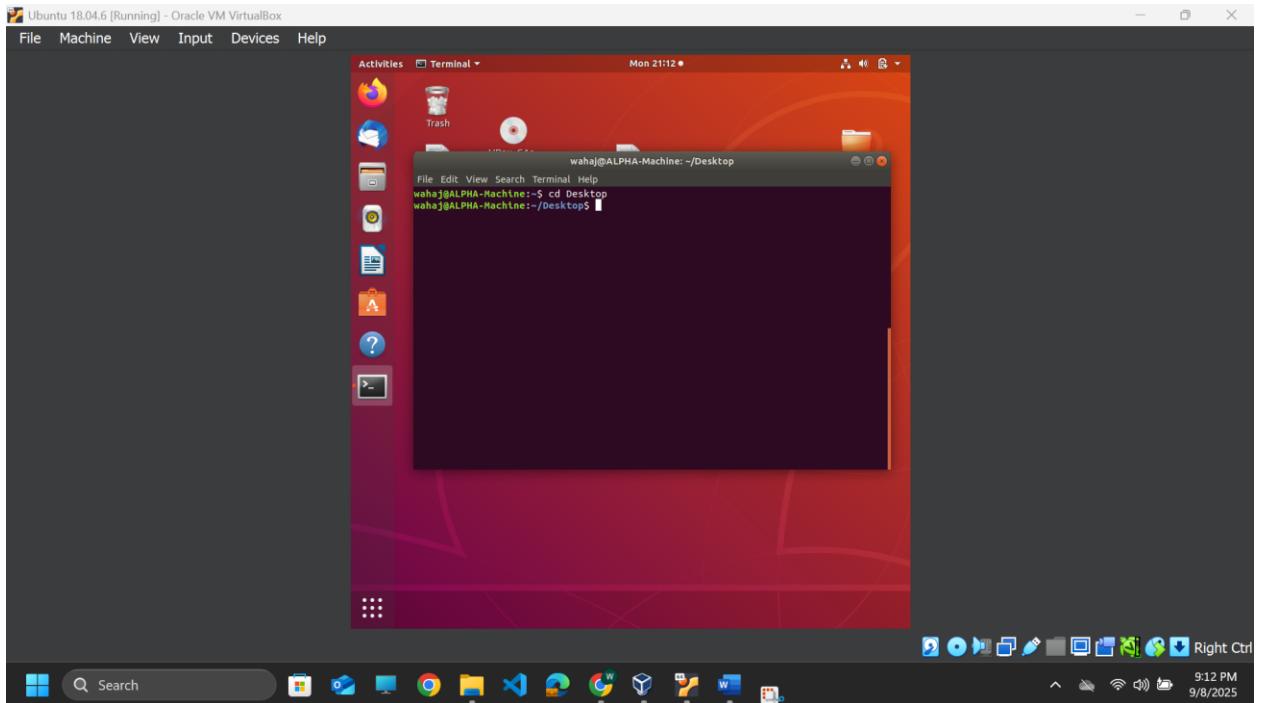
chmod 700 secret.txt – owner only access



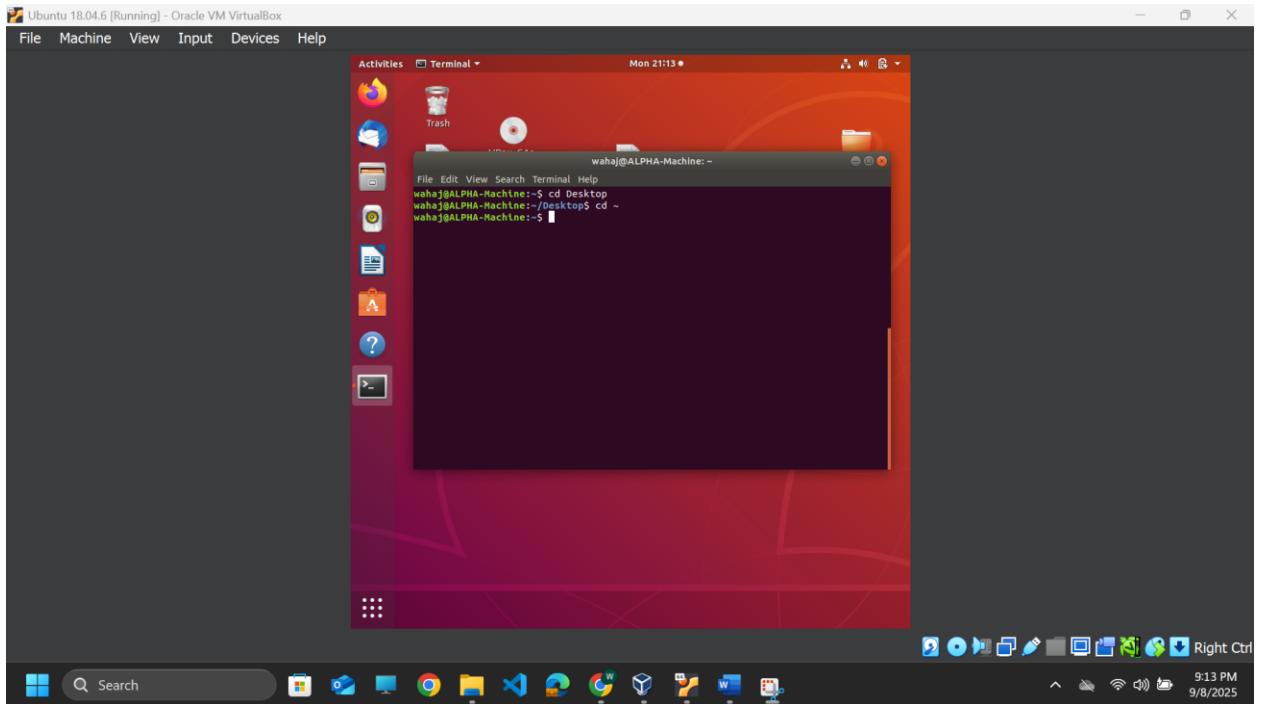
mount



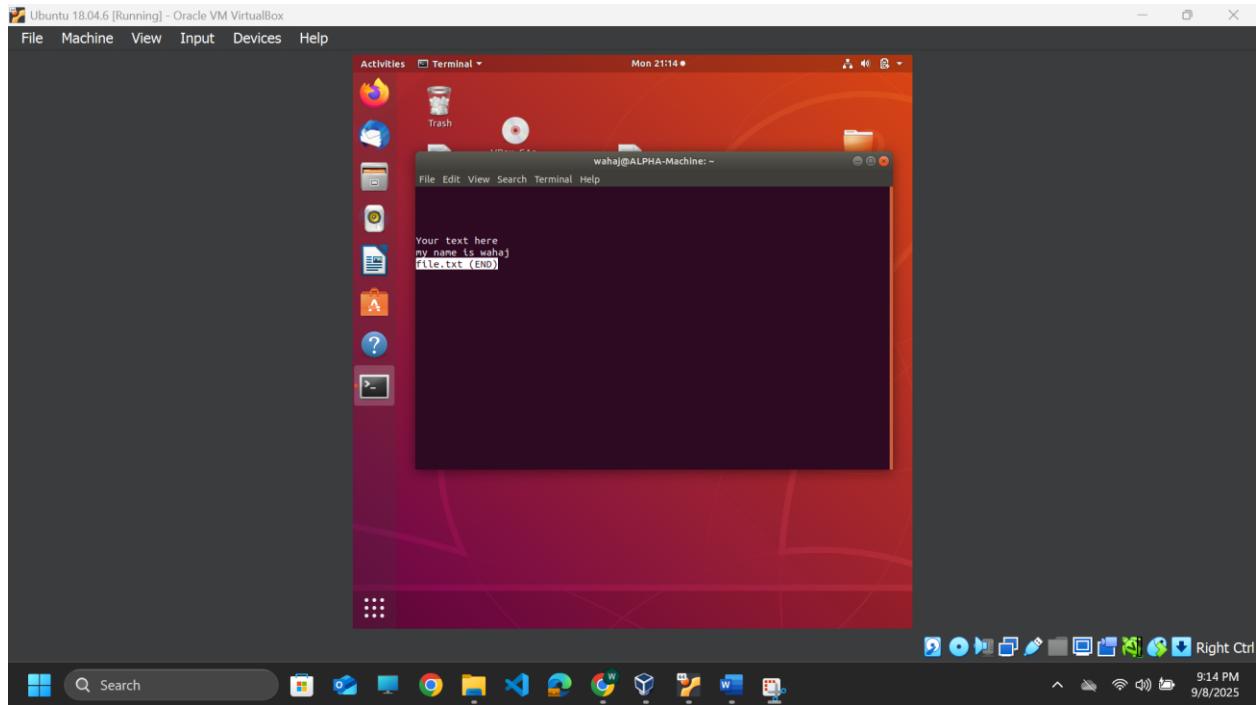
cd /path # Change directory



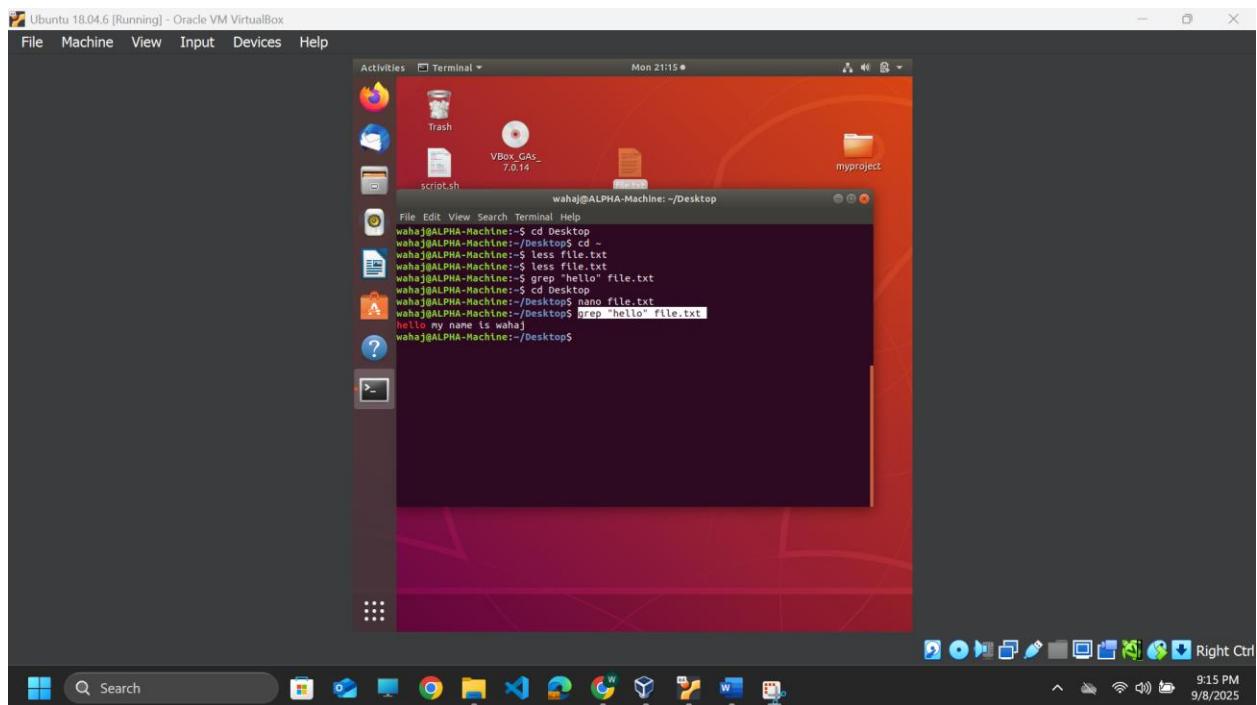
cd ~ # Go to home directory



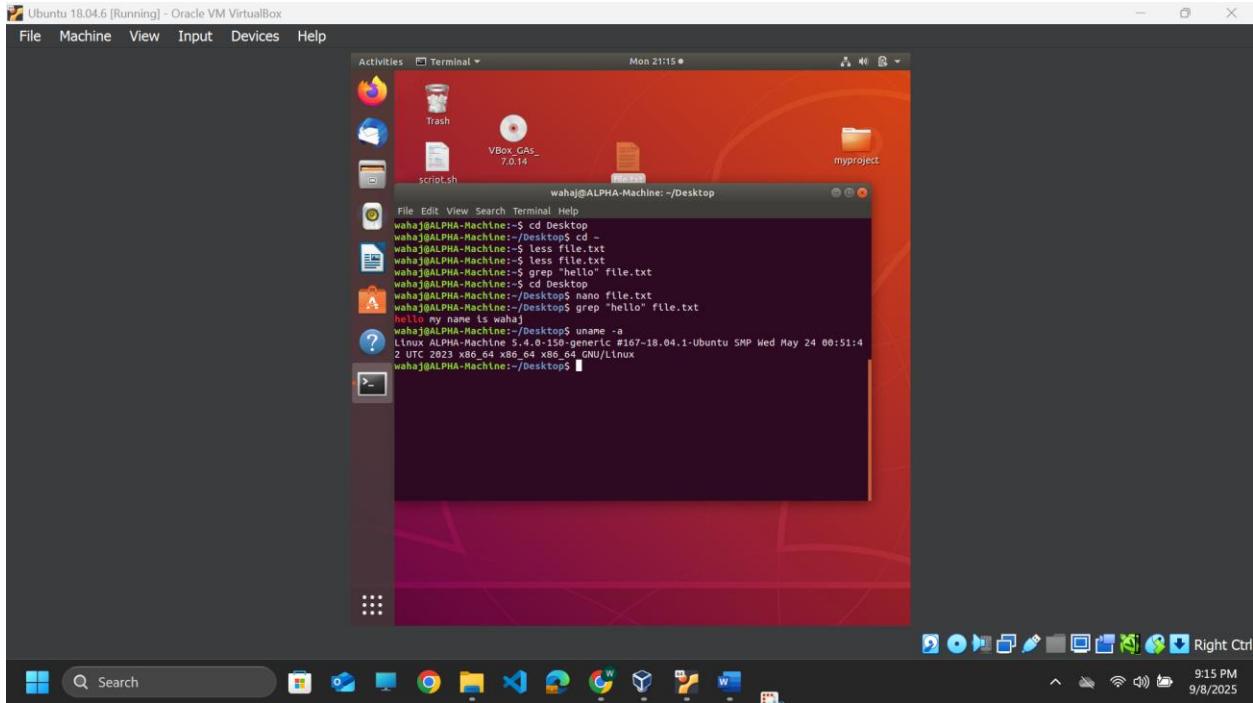
less file.txt



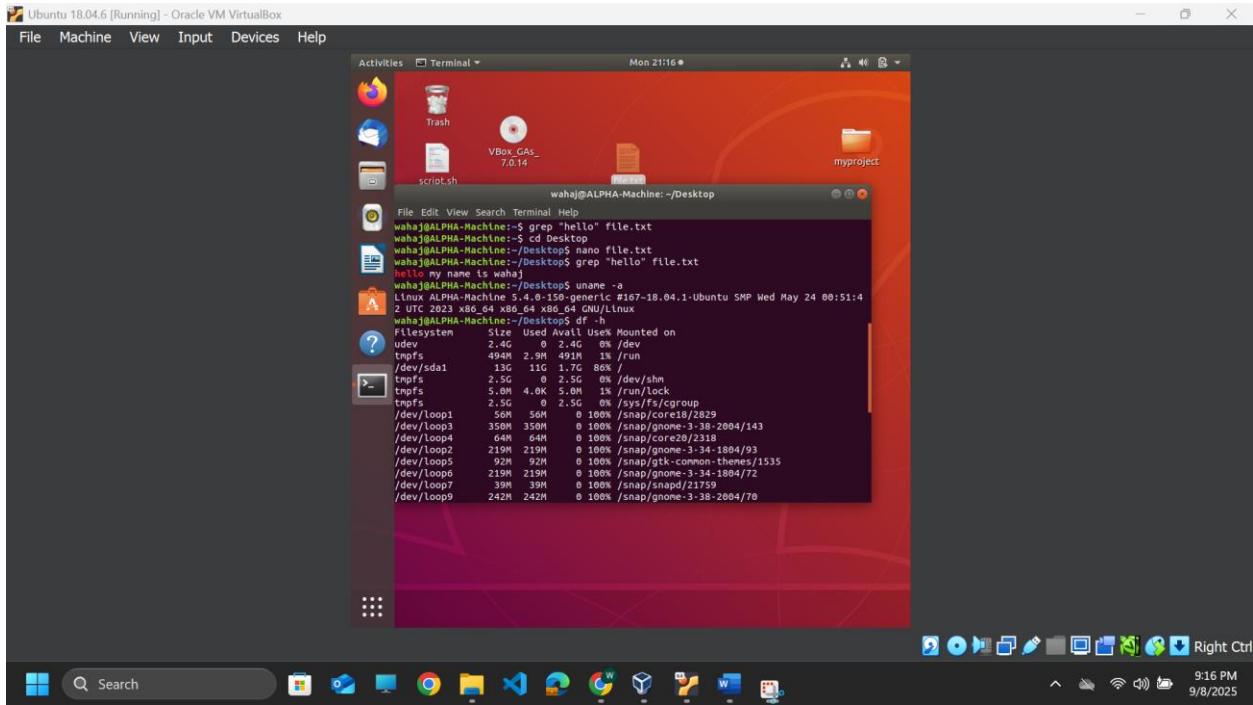
grep "hello" file.txt # Search for 'hello' inside file.txt



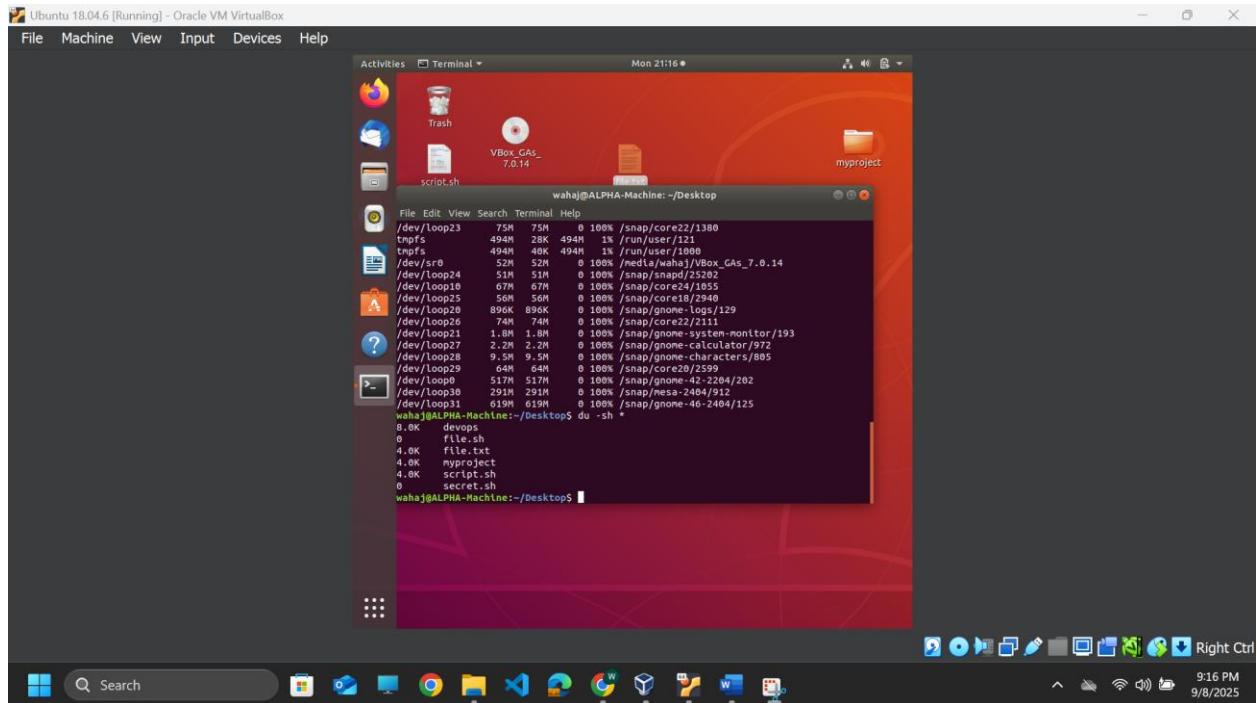
uname -a



df -h



du -sh *

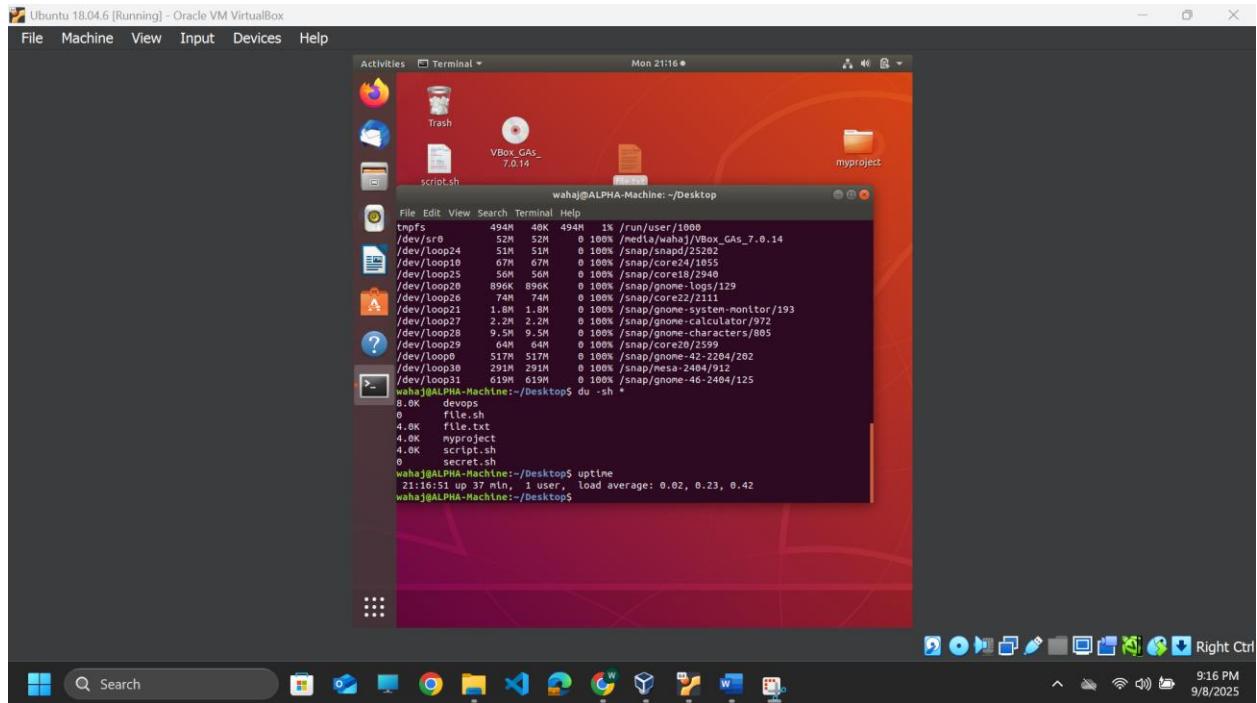


wahaJ@ALPHA-Machine:~/Desktop\$ du -sh *

```

./dev/loop23 52M 75M 0 10% /snap/core22/1380
tmpfs 494M 40K 494M 1% /run/user/1000
tmpfs 494M 40K 494M 1% /run/user/1000
tmpfs 52M 52M 0 100% /media/wahaJ/VBox_GAS_7.0.14
./dev/loop24 51M 51M 0 100% /snap/snapd/25202
./dev/loop10 67M 67M 0 100% /snap/core24/1055
./dev/loop25 56M 56M 0 100% /snap/core18/2946
./dev/loop12 896K 896K 0 100% /snap/gnome-logs/129
./dev/loop26 74M 74M 0 100% /snap/core22/2111
./dev/loop27 2.2M 2.2M 0 100% /snap/gnome-calculator/972
./dev/loop28 9.5M 9.5M 0 100% /snap/gnome-characters/805
./dev/loop29 64M 64M 0 100% /snap/core20/2599
./dev/loop30 517M 517M 0 100% /snap/gnome-42-2204/202
./dev/loop38 291M 291M 0 100% /snap/gnome-46-2404/912
./dev/loop31 619M 619M 0 100% /snap/gnome-46-2404/125
wahaJ@ALPHA-Machine:~/Desktop$ du -sh *
8.0K  devops
0  file.sh
4.0K  file.txt
4.0K  myproject
4.0K  script.sh
0  secret.sh
wahaJ@ALPHA-Machine:~/Desktop$ 
```

uptime

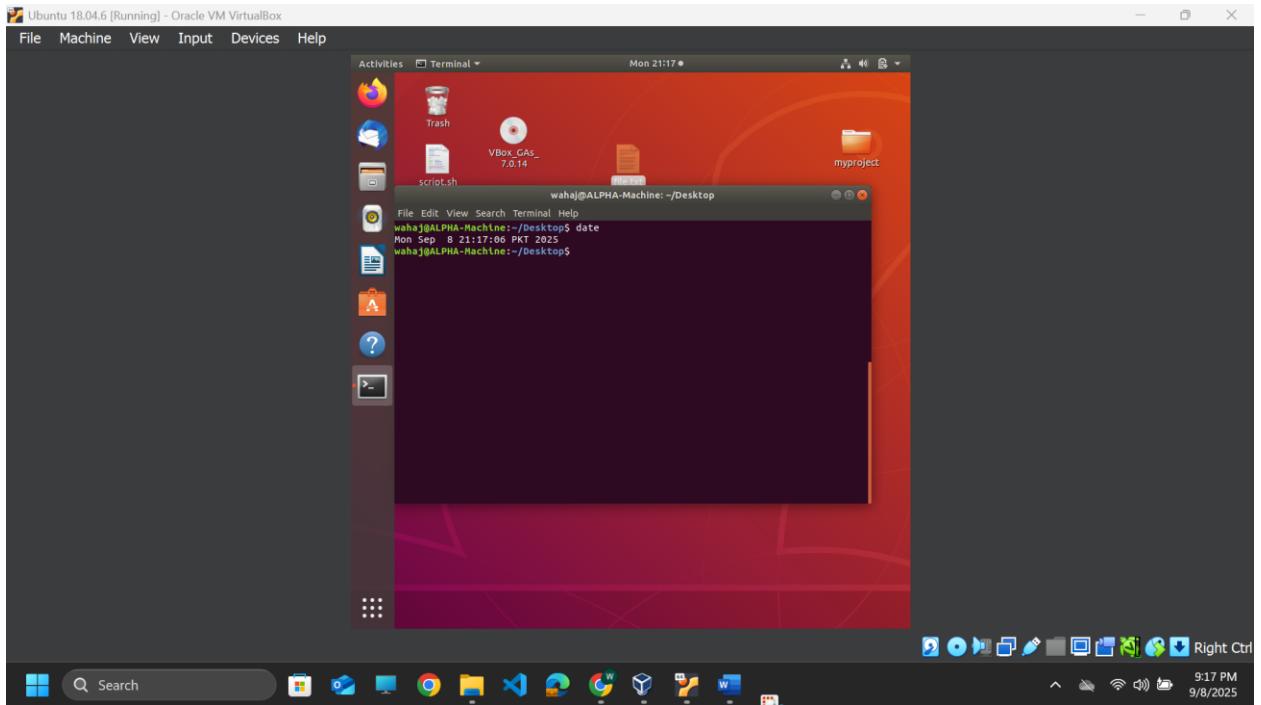


wahaJ@ALPHA-Machine:~/Desktop\$ uptime

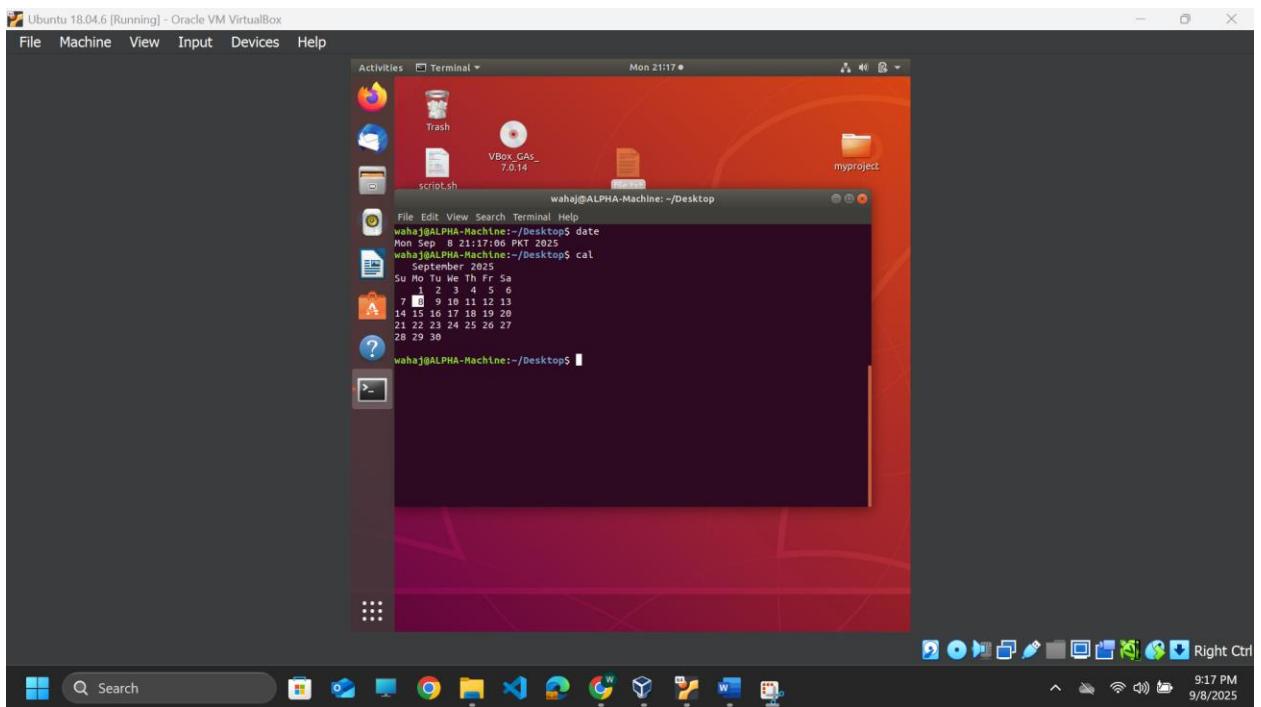
```

tmpfs 494M 40K 494M 1% /run/user/1000
./dev/sr0 52M 52M 0 100% /media/wahaJ/VBox_GAS_7.0.14
./dev/loop24 51M 51M 0 100% /snap/snapd/25202
./dev/loop10 67M 67M 0 100% /snap/core24/1055
./dev/loop25 56M 56M 0 100% /snap/core18/2946
./dev/loop20 896K 896K 0 100% /snap/gnome-logs/129
./dev/loop26 74M 74M 0 100% /snap/core22/2111
./dev/loop27 2.2M 2.2M 0 100% /snap/gnome-calculator/972
./dev/loop28 9.5M 9.5M 0 100% /snap/gnome-characters/805
./dev/loop29 64M 64M 0 100% /snap/core20/2599
./dev/loop30 517M 517M 0 100% /snap/gnome-42-2204/202
./dev/loop38 291M 291M 0 100% /snap/gnome-46-2404/912
./dev/loop31 619M 619M 0 100% /snap/gnome-46-2404/125
wahaJ@ALPHA-Machine:~/Desktop$ du -sh *
0 0K  devops
0  file.sh
4.0K  file.txt
4.0K  myproject
4.0K  script.sh
0  secret.sh
wahaJ@ALPHA-Machine:~/Desktop$ uptime
21:16:51 up 37 min, 1 user, load average: 0.02, 0.23, 0.42
wahaJ@ALPHA-Machine:~/Desktop$ 
```

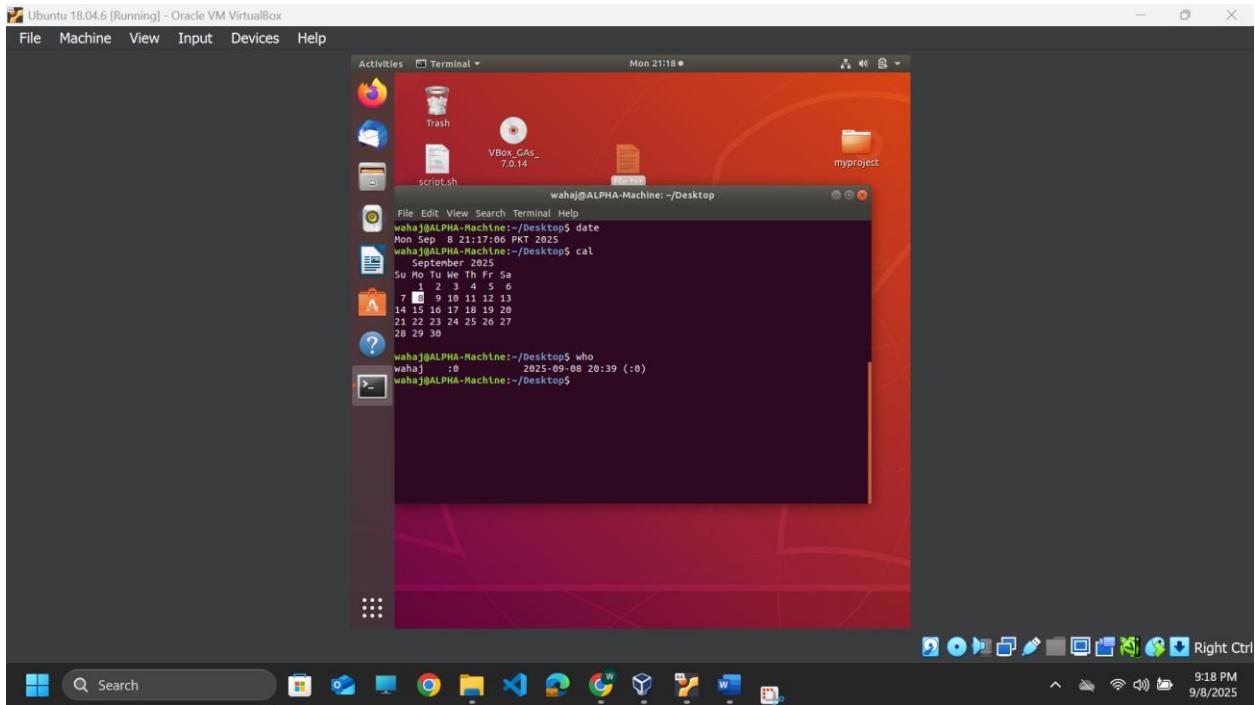
date



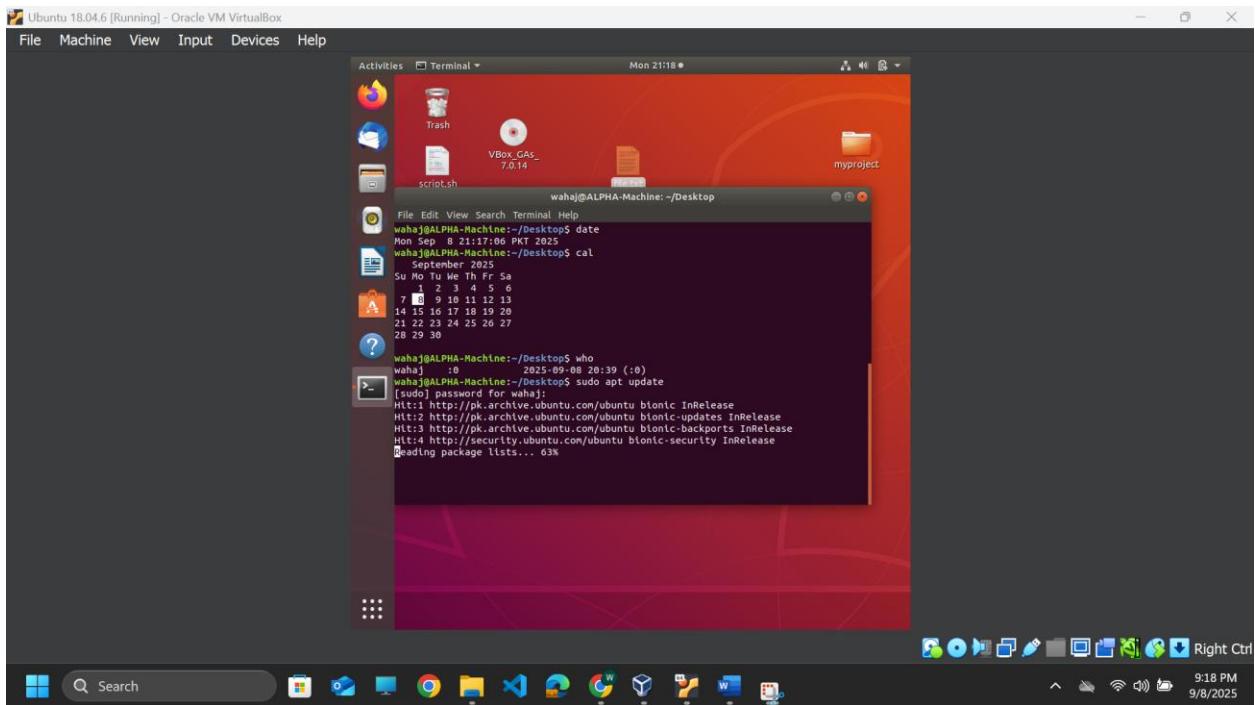
Cal



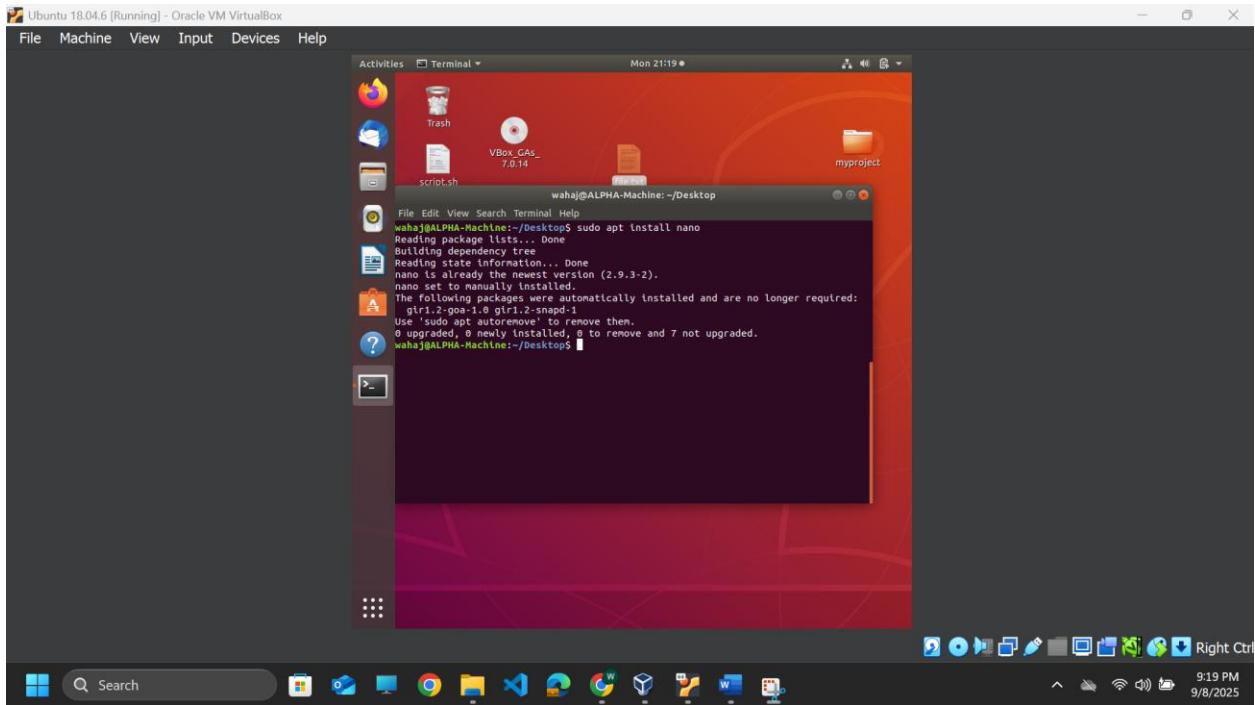
who



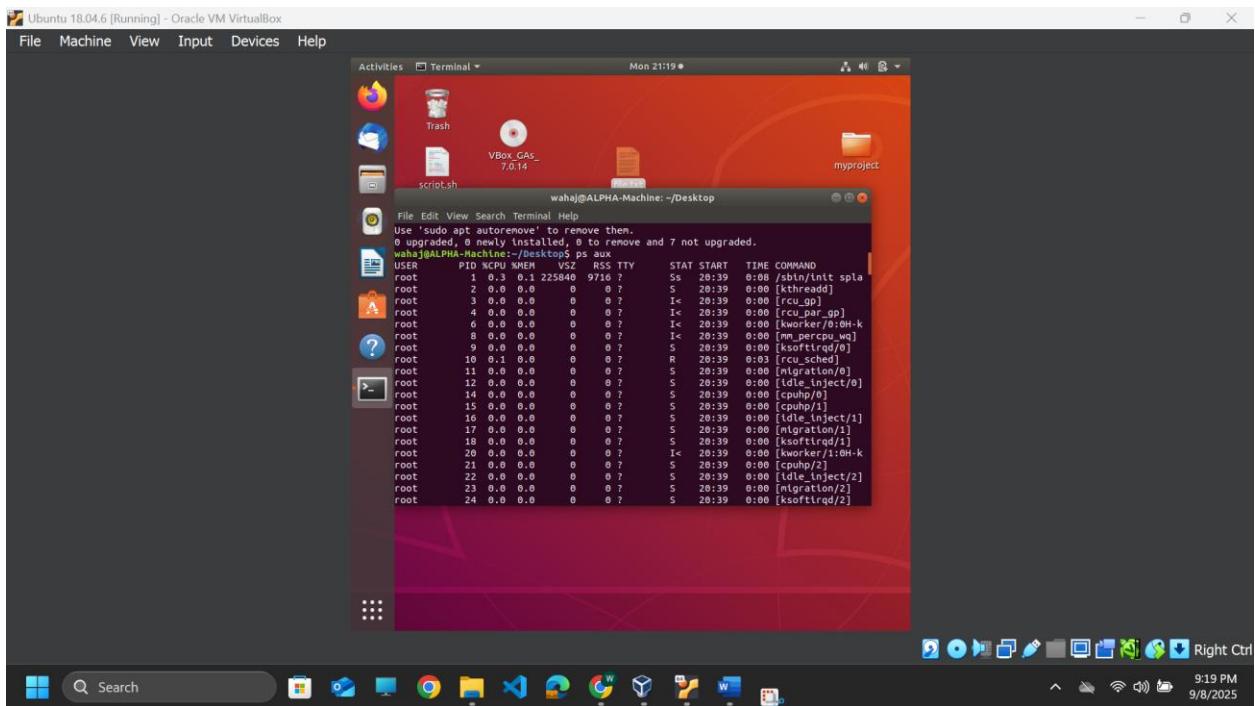
sudo apt update



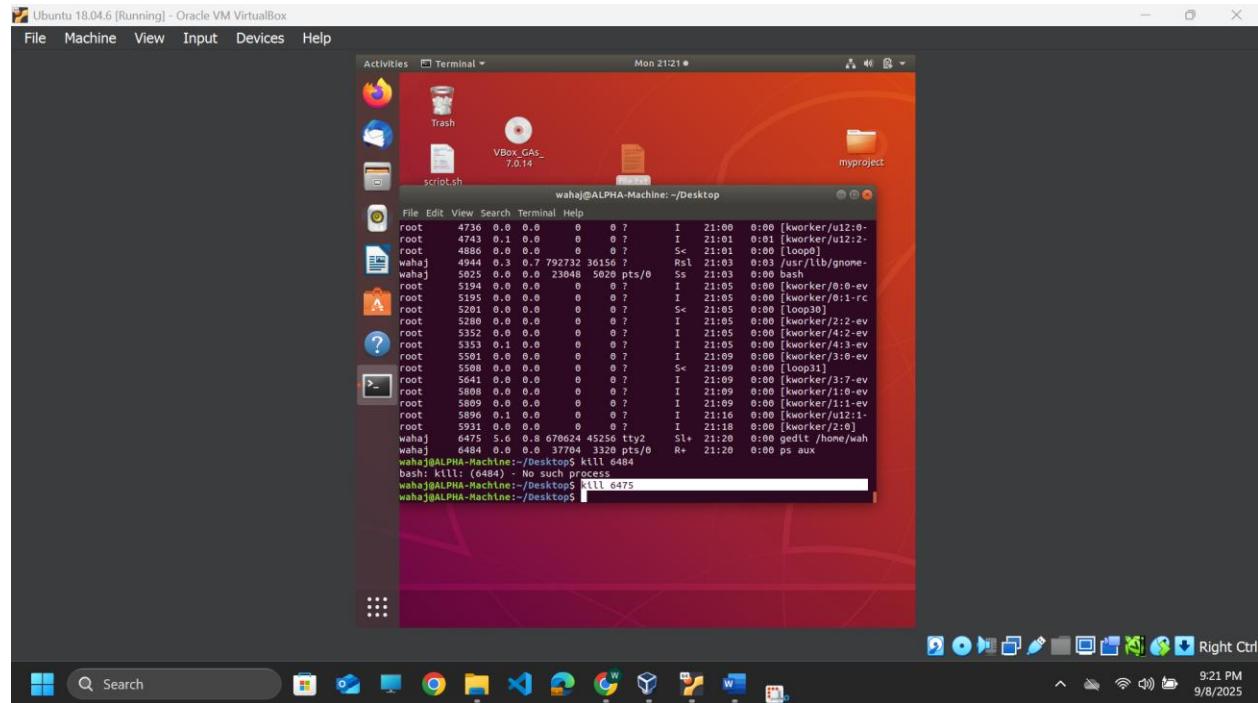
sudo apt install nano



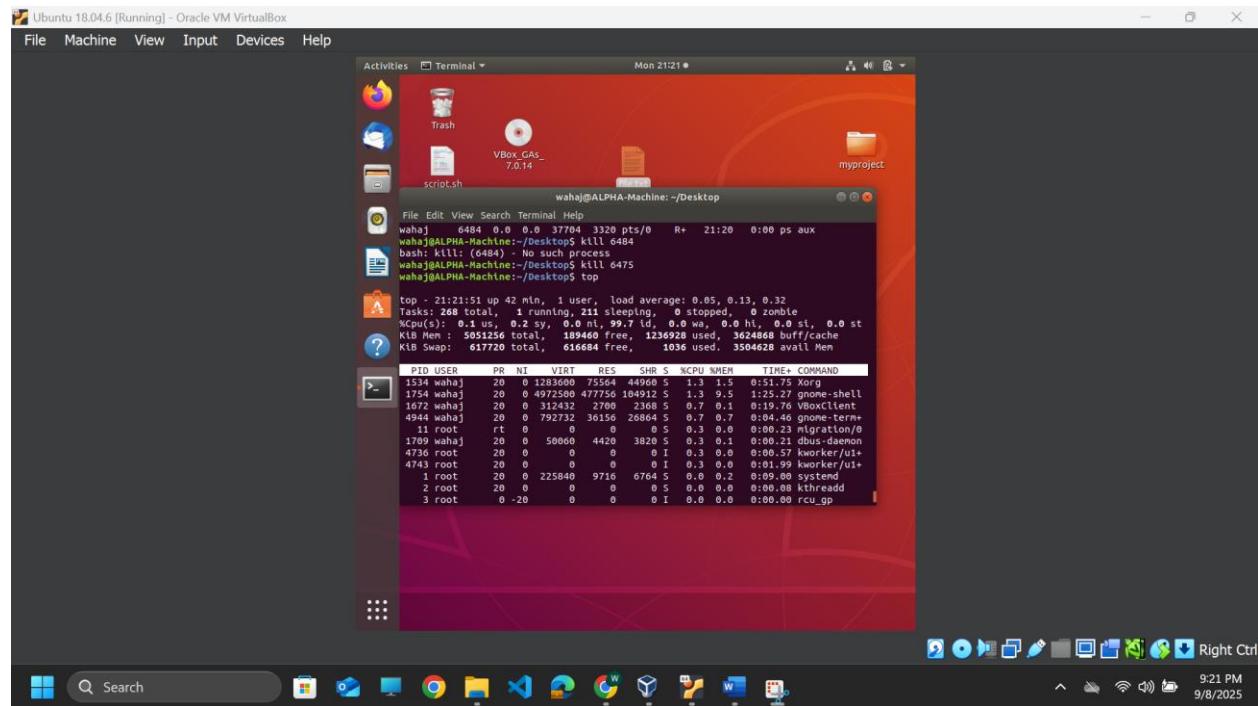
ps aux (list processes)



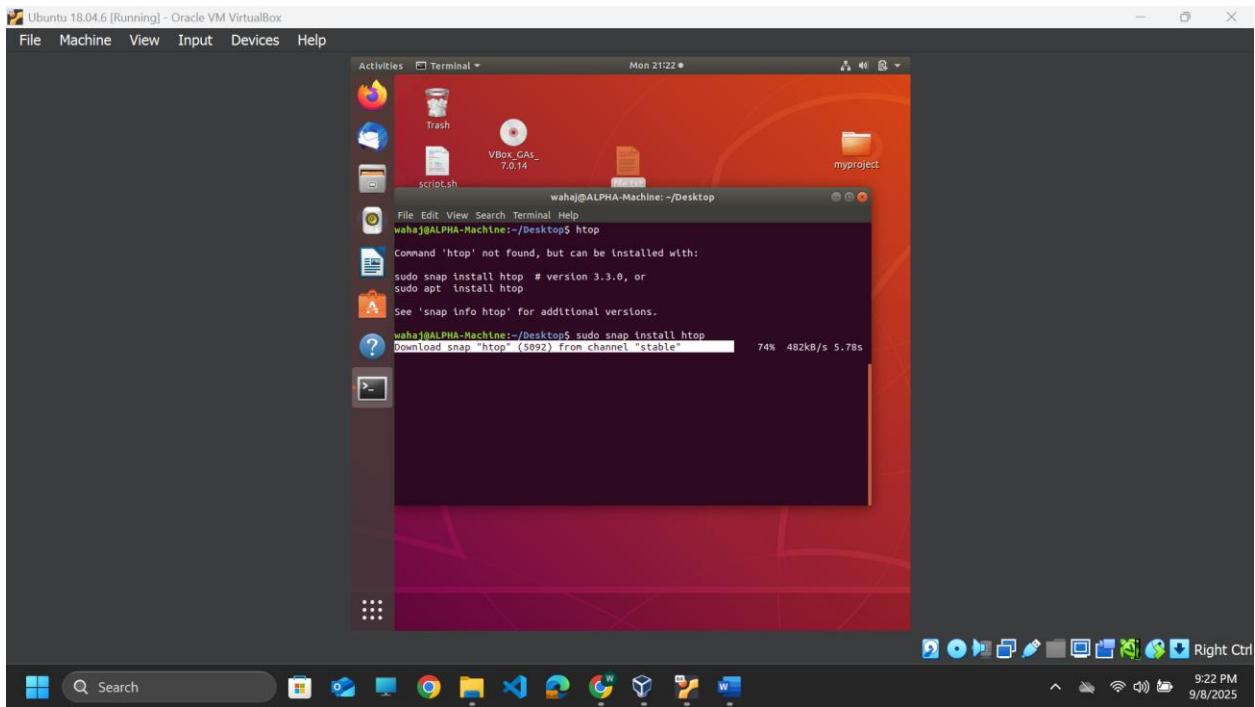
kill 6475



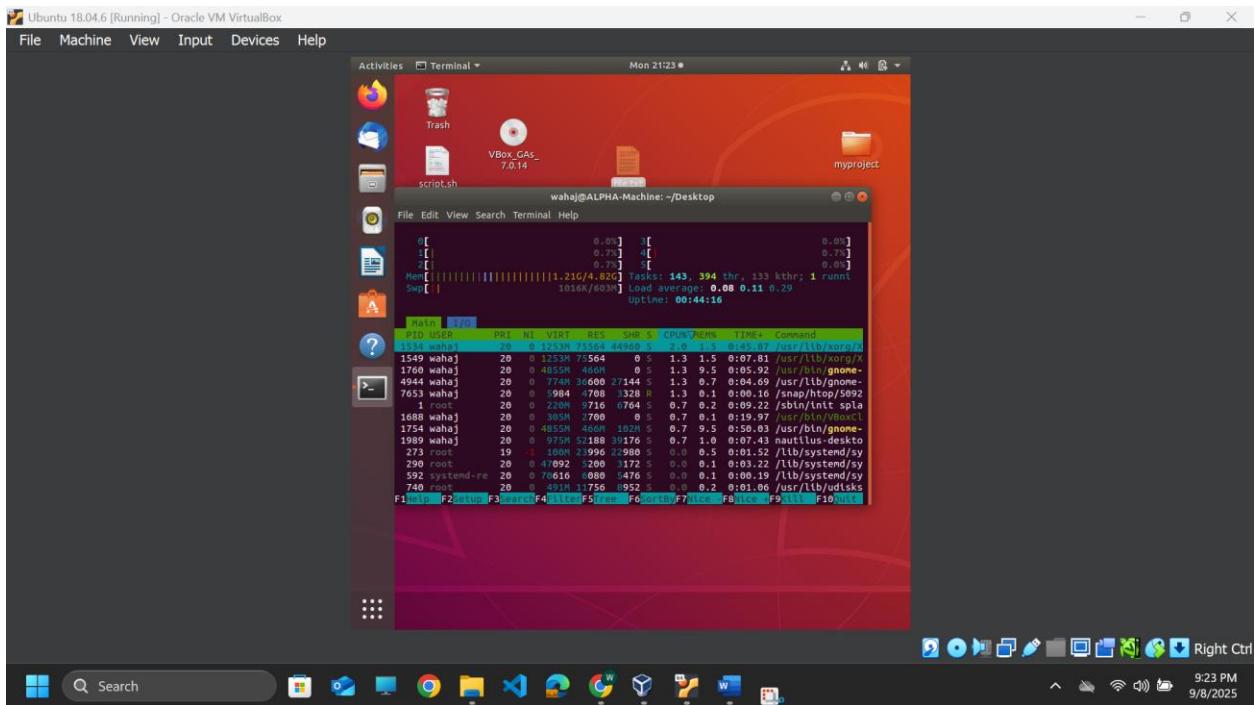
top



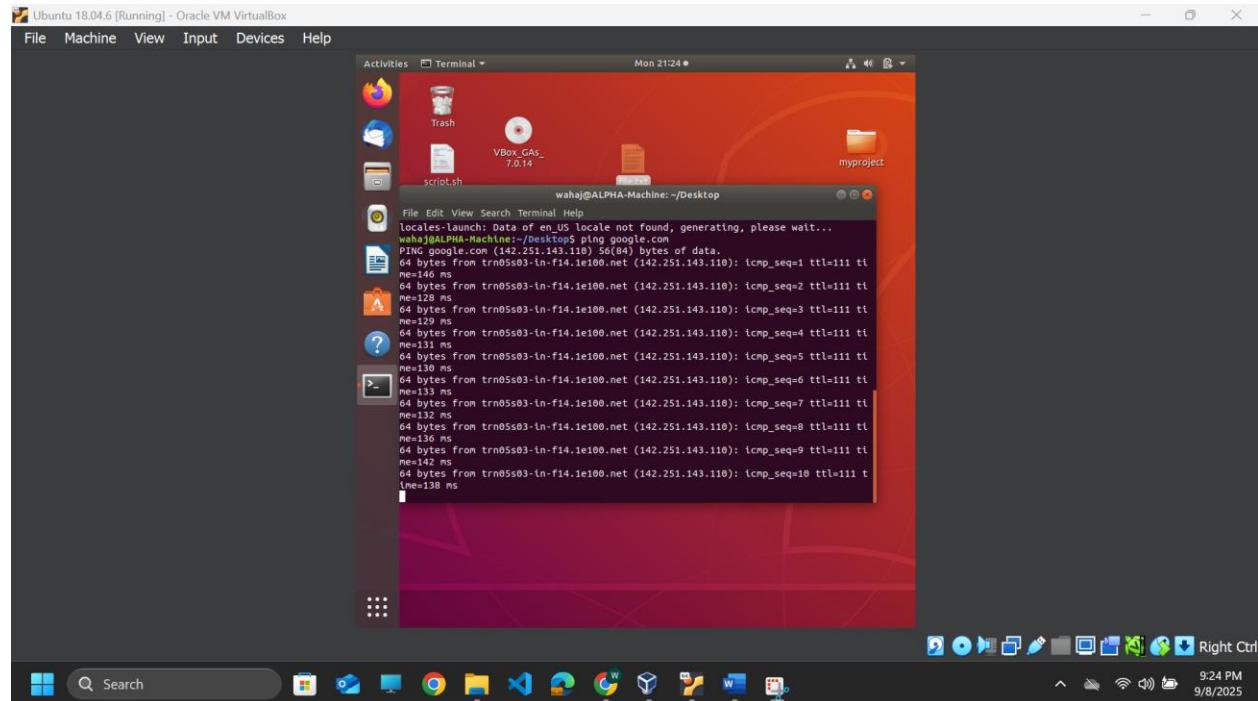
sudo snap install htop



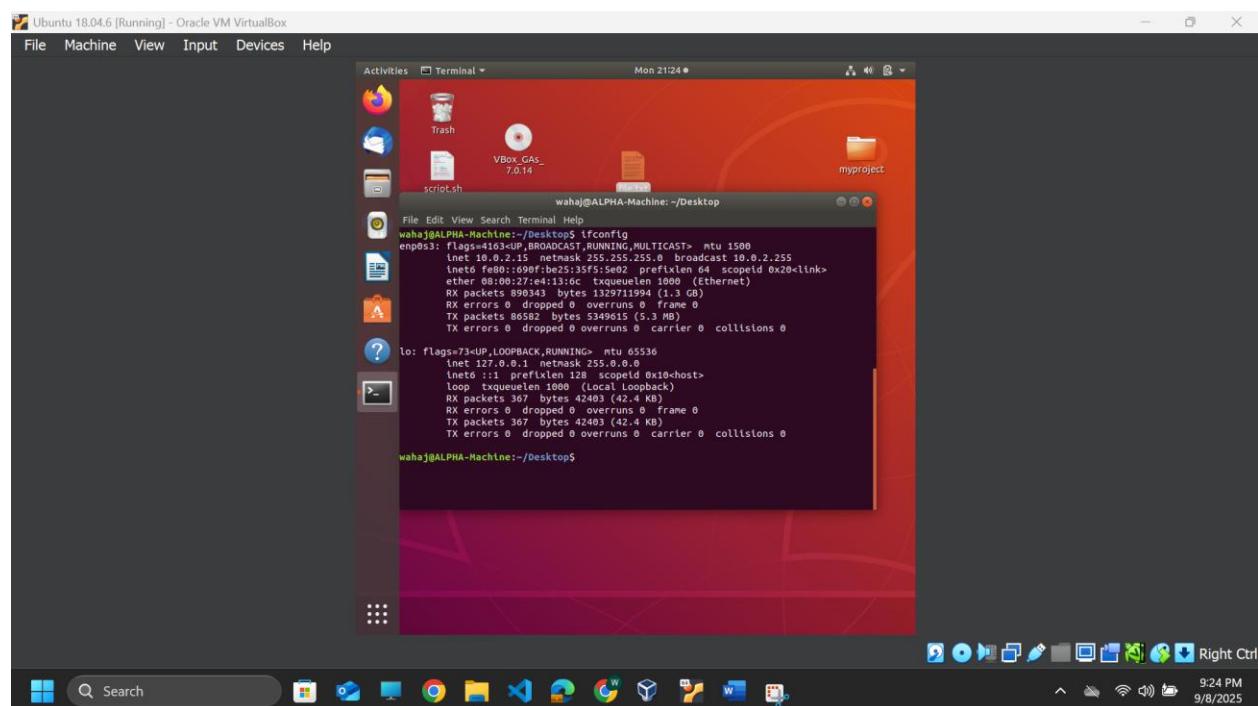
htop



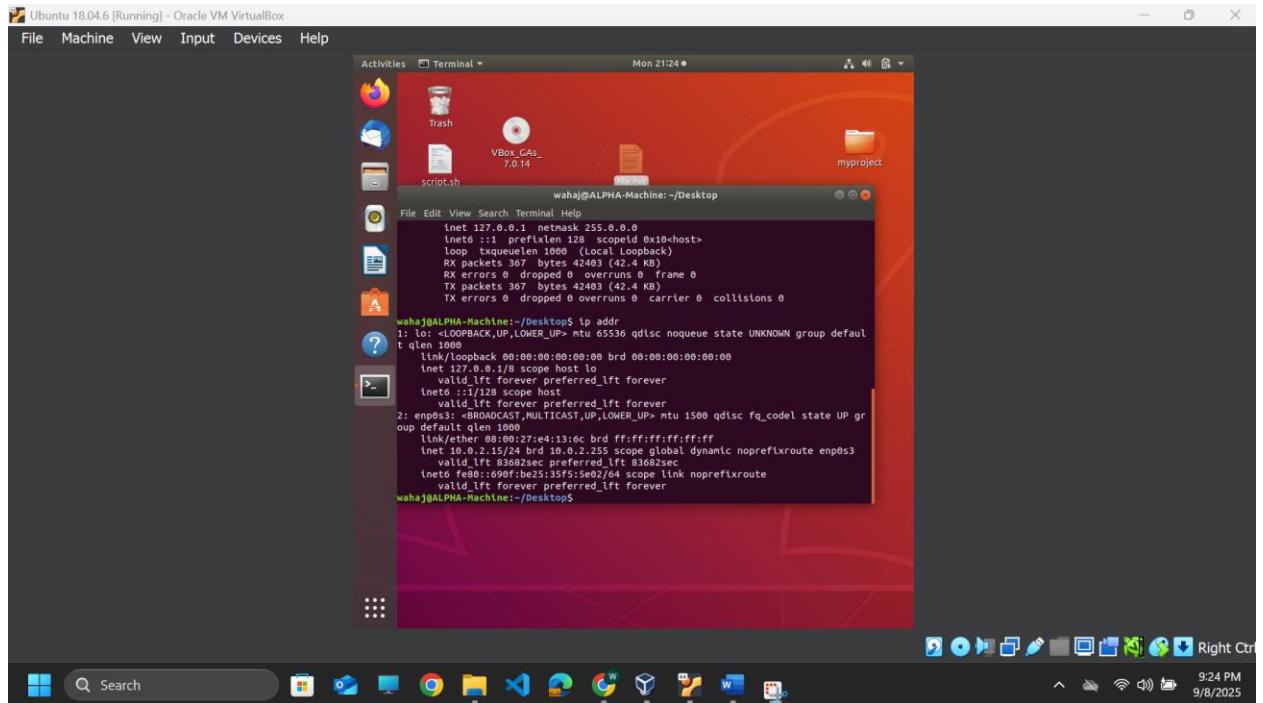
ping google.com



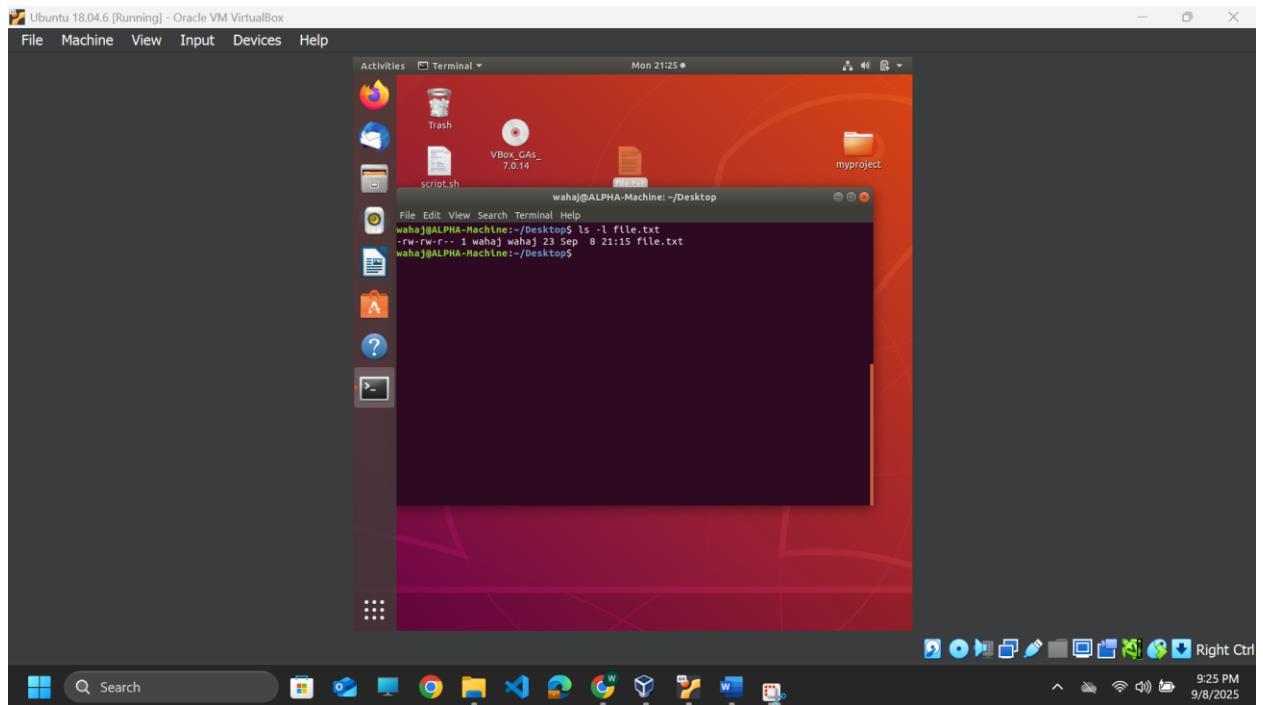
Ipfconfig



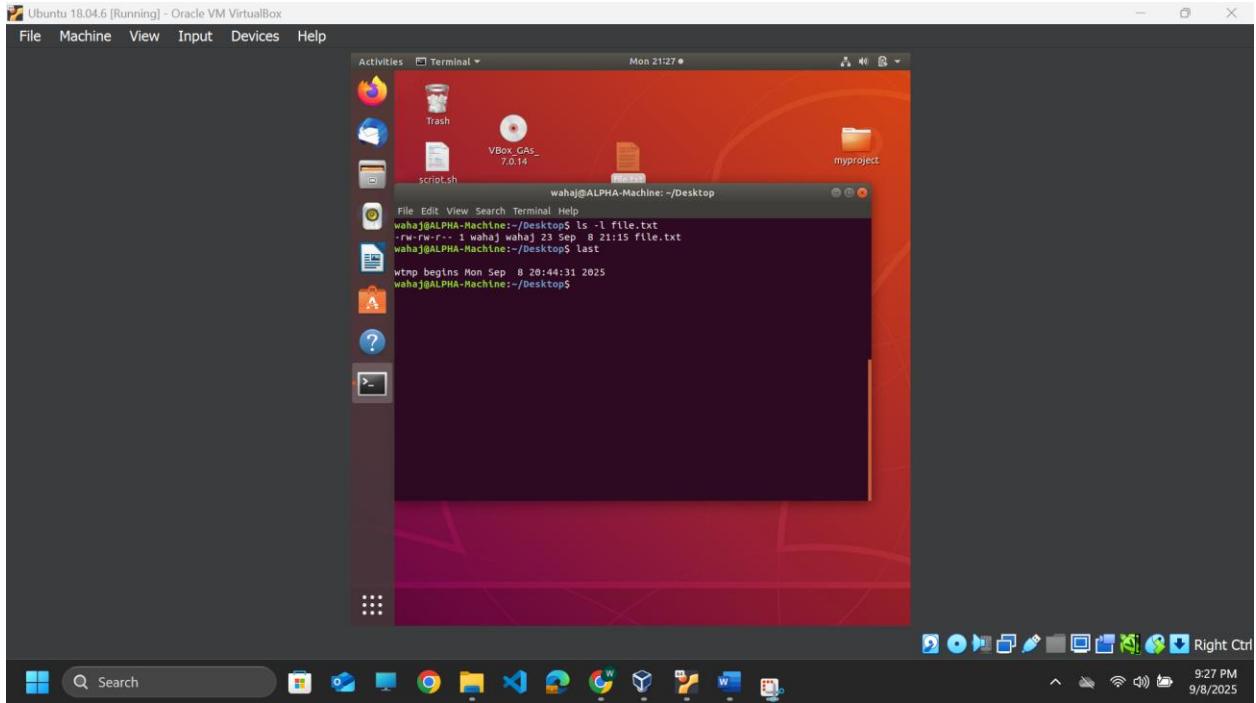
ip addr



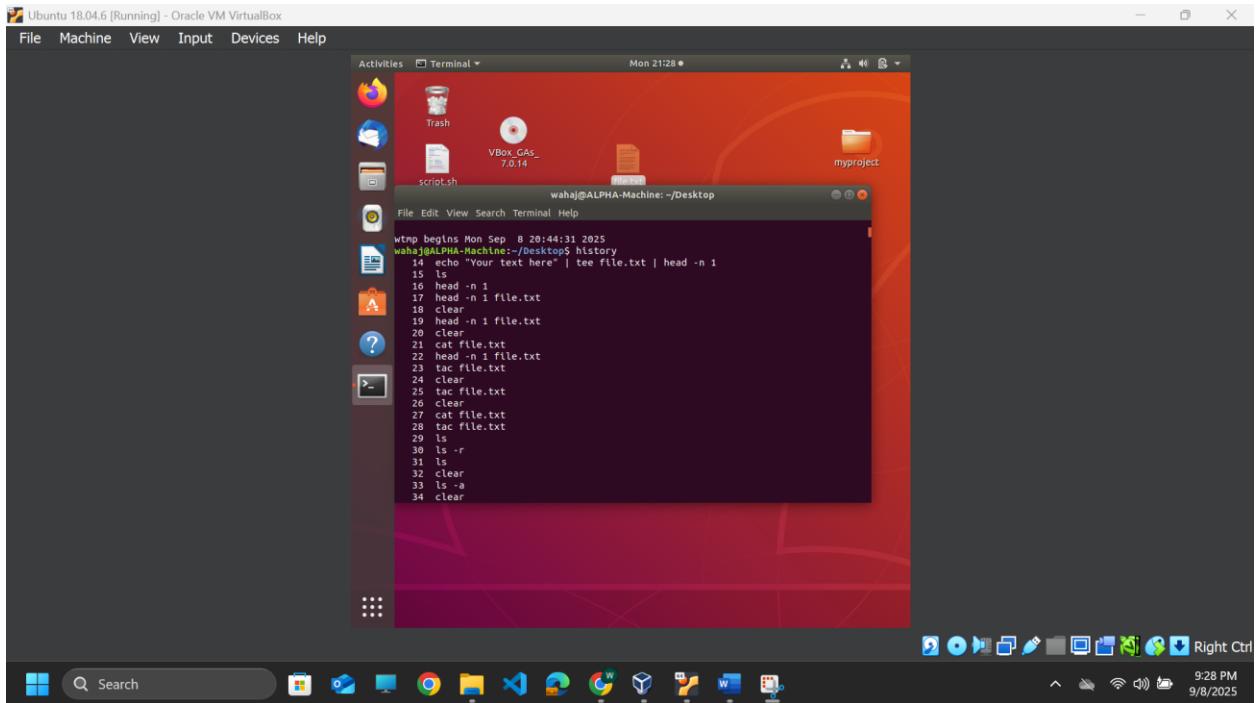
ls -l file.txt



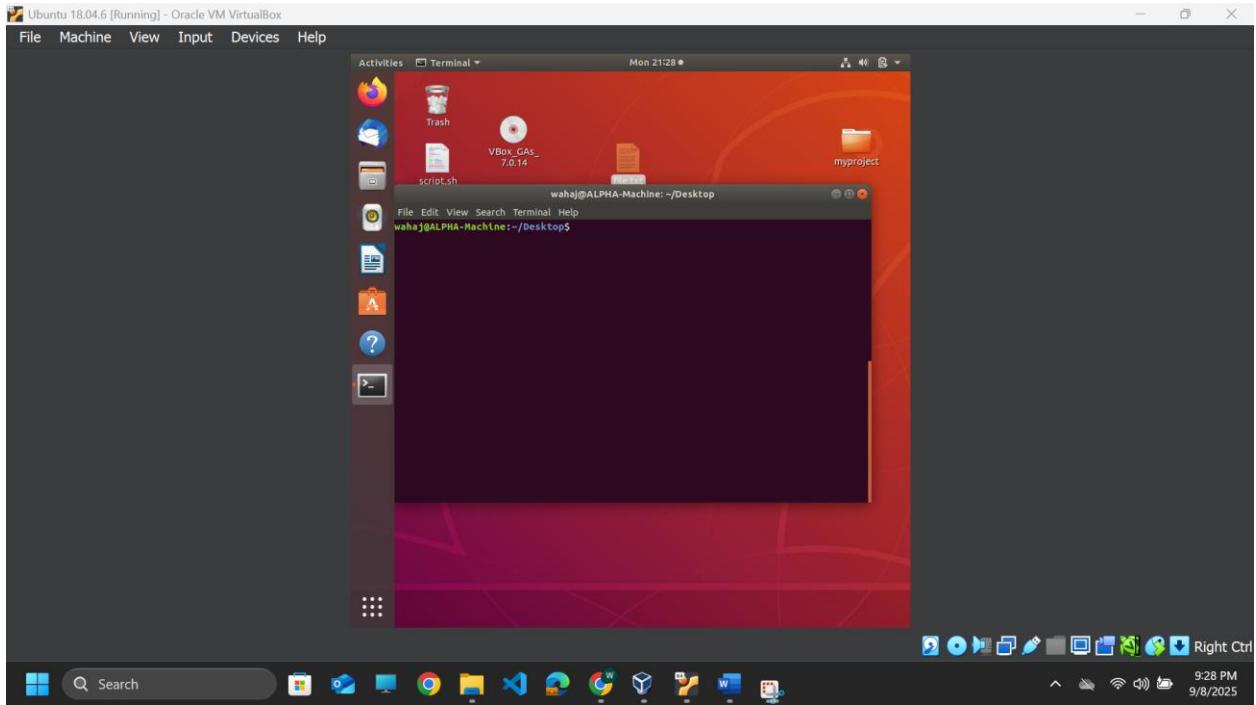
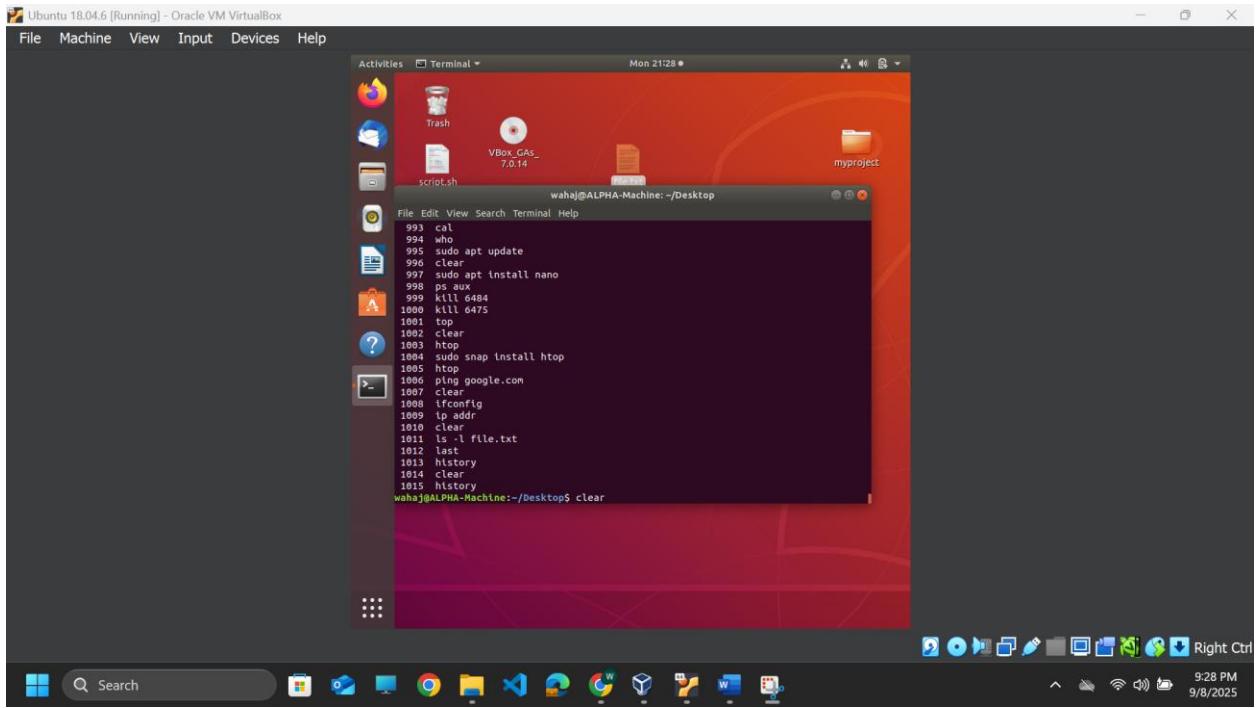
last # Show login history



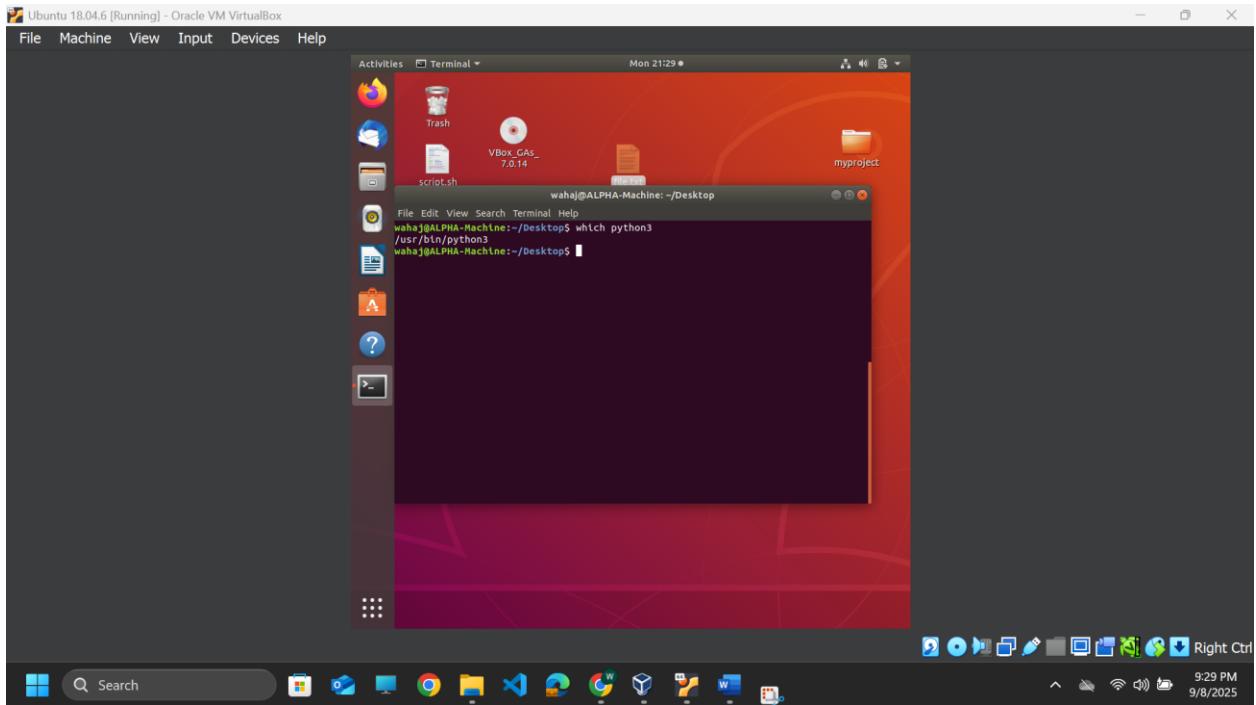
history



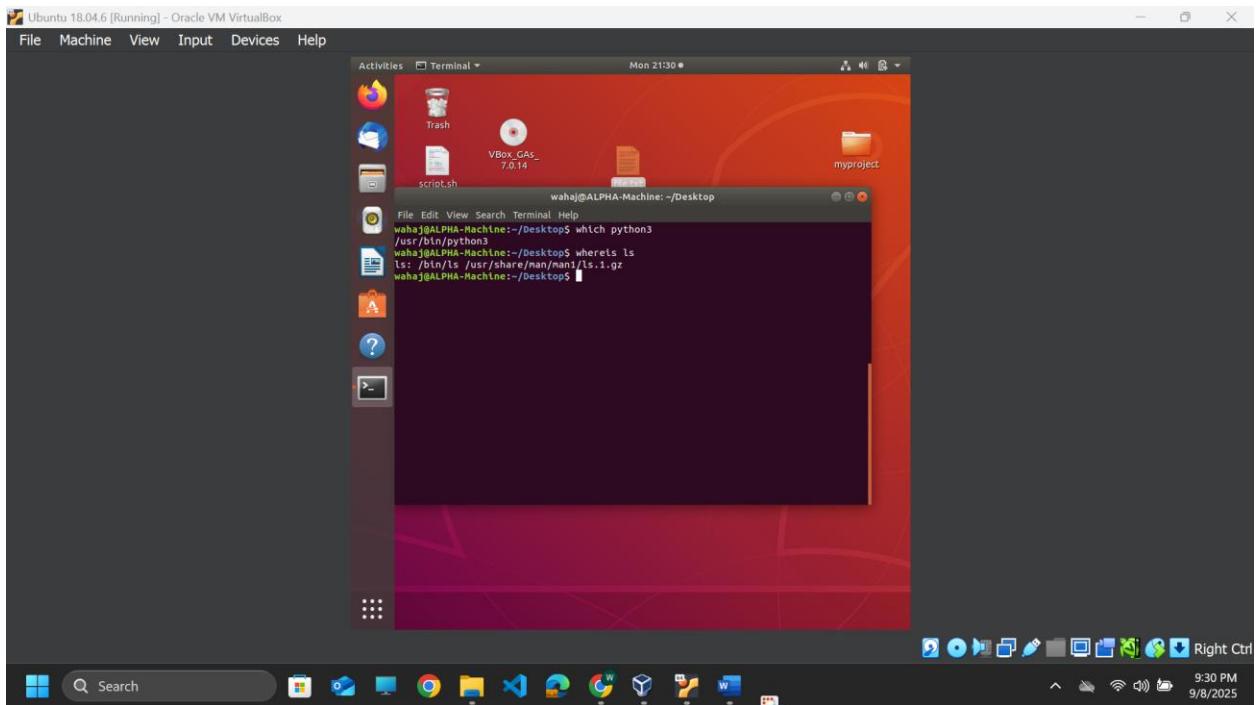
clear



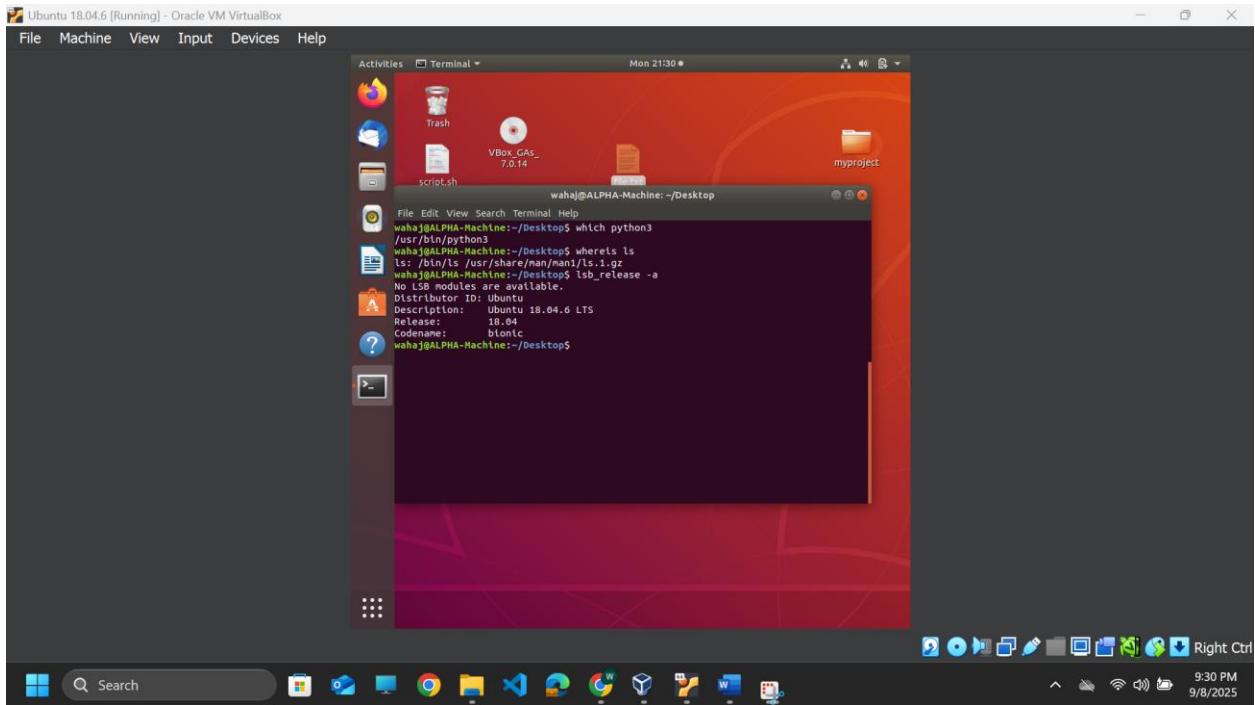
which python3 (Show path of a command)



whereis ls # Show location of a command



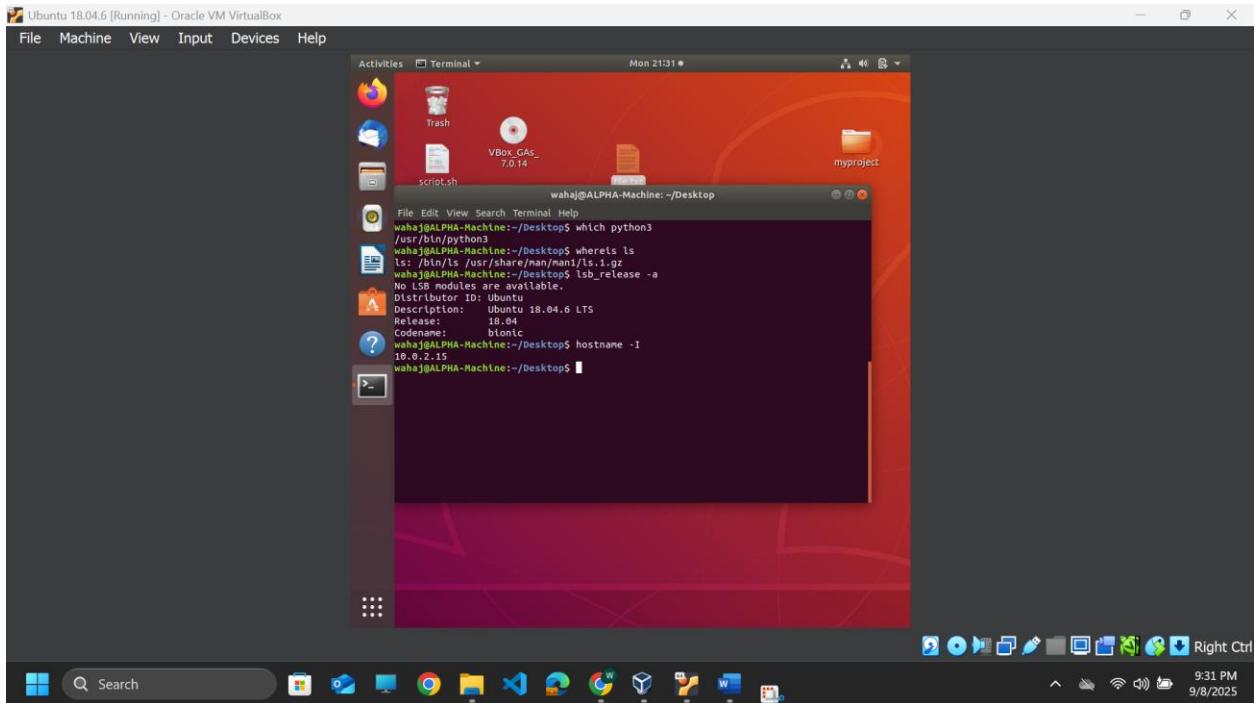
lsb_release -a



Ubuntu 18.04.6 [Running] - Oracle VM VirtualBox

```
waha@ALPHA-Machine:~/Desktop$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 18.04.6 LTS
Release:        18.04
Codename:       bionic
waha@ALPHA-Machine:~/Desktop$
```

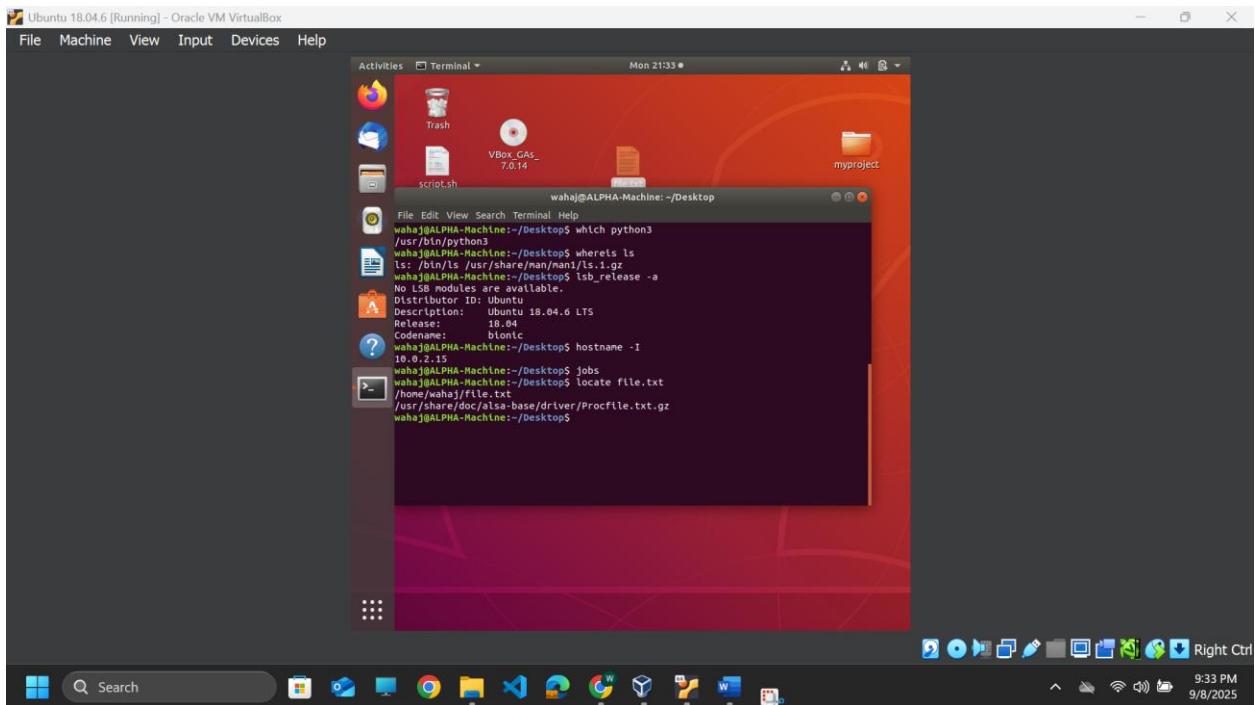
hostname -I # Show only IP address



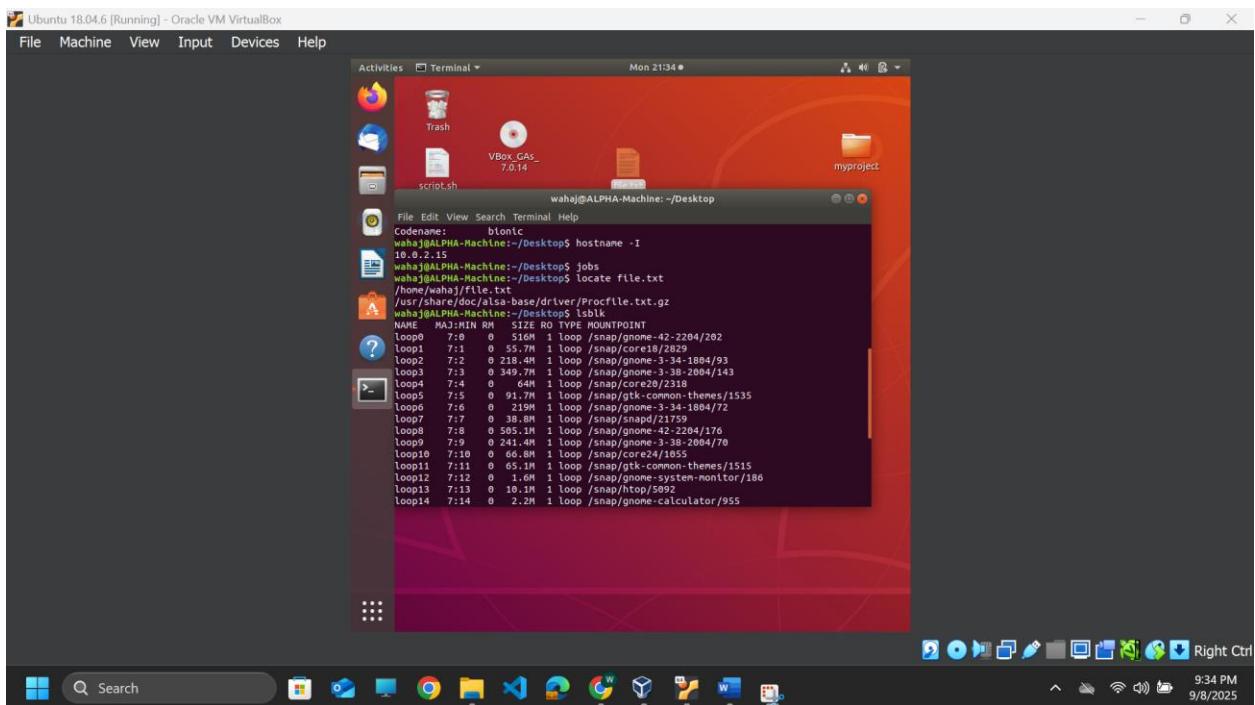
Ubuntu 18.04.6 [Running] - Oracle VM VirtualBox

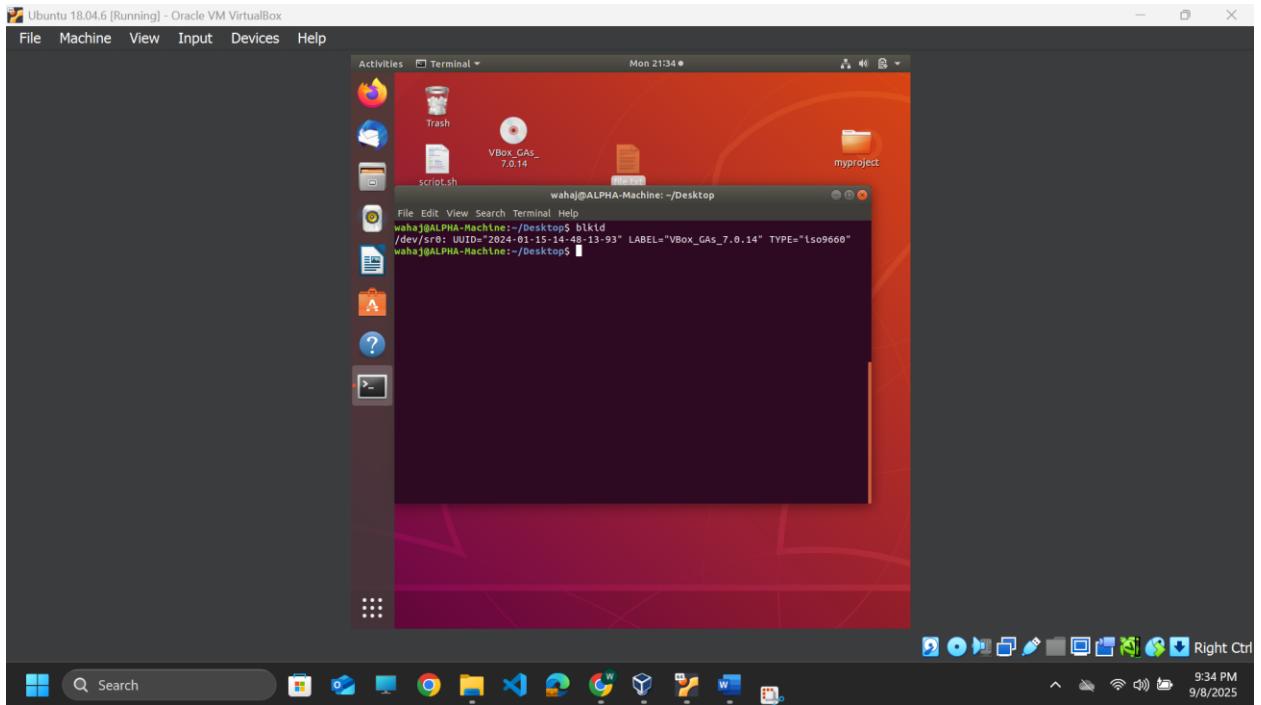
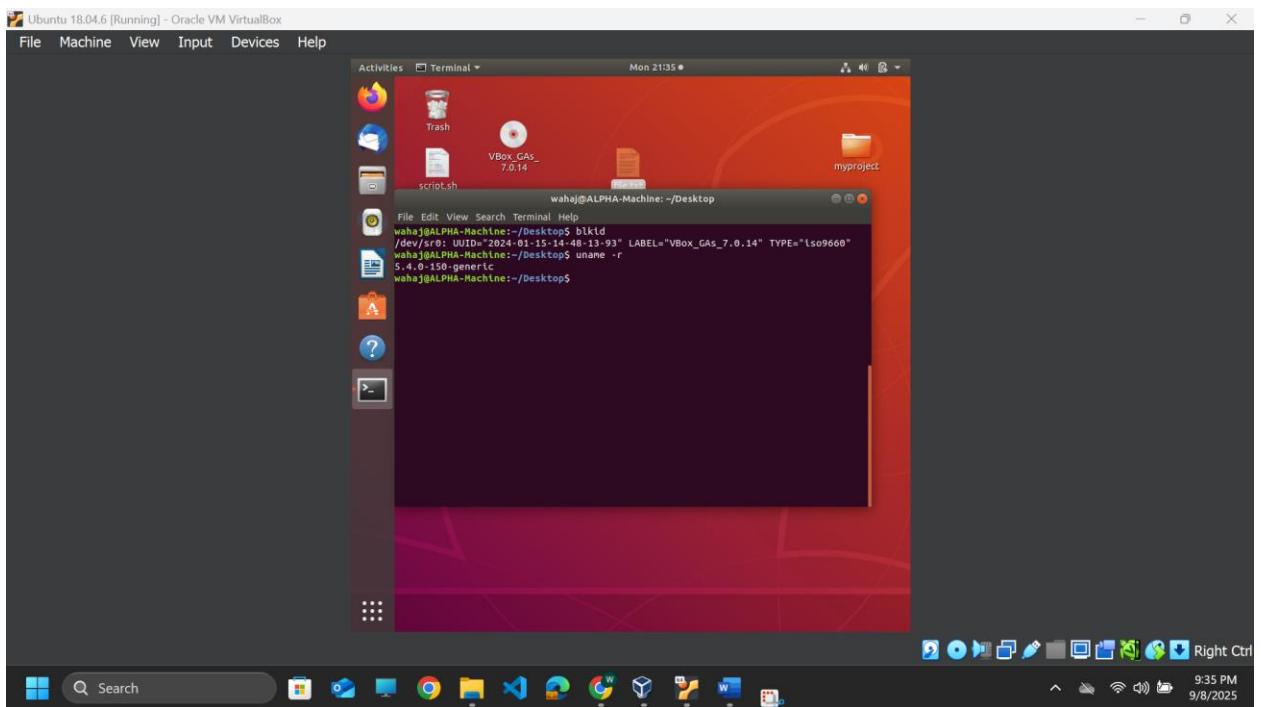
```
waha@ALPHA-Machine:~/Desktop$ hostname -I
10.0.2.15
waha@ALPHA-Machine:~/Desktop$
```

locate file.txt

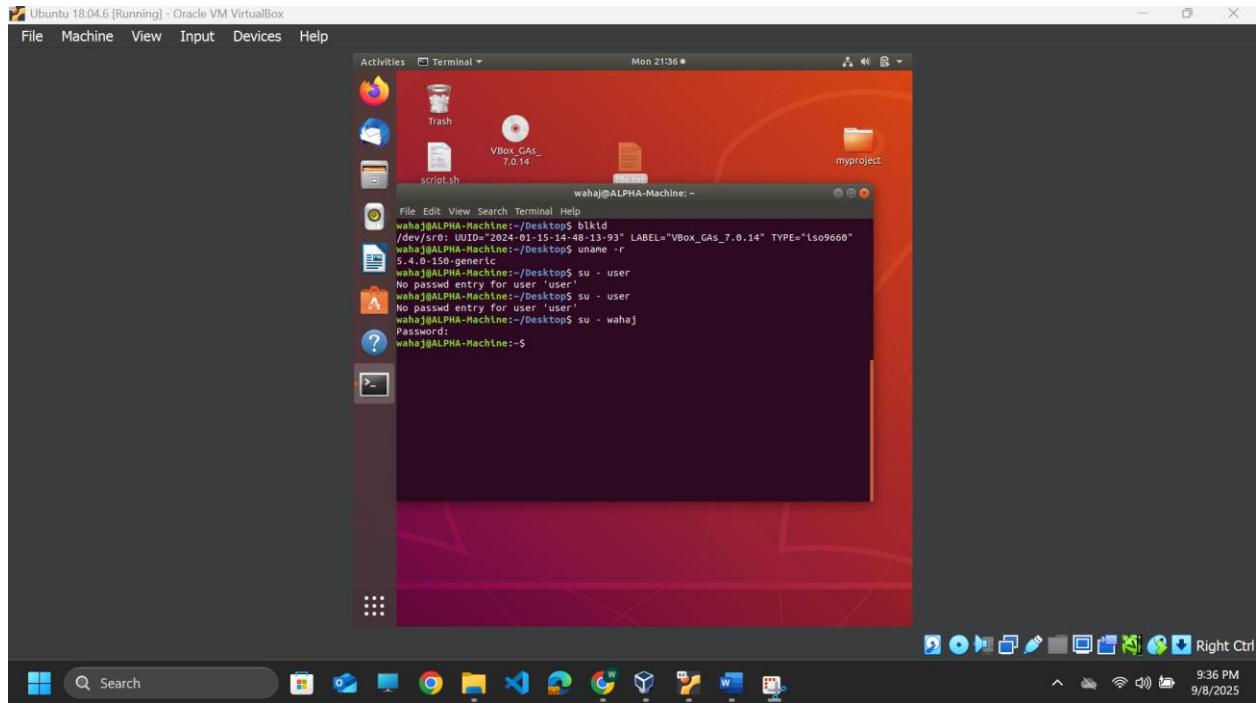


lsblk (List all disks and partitions)

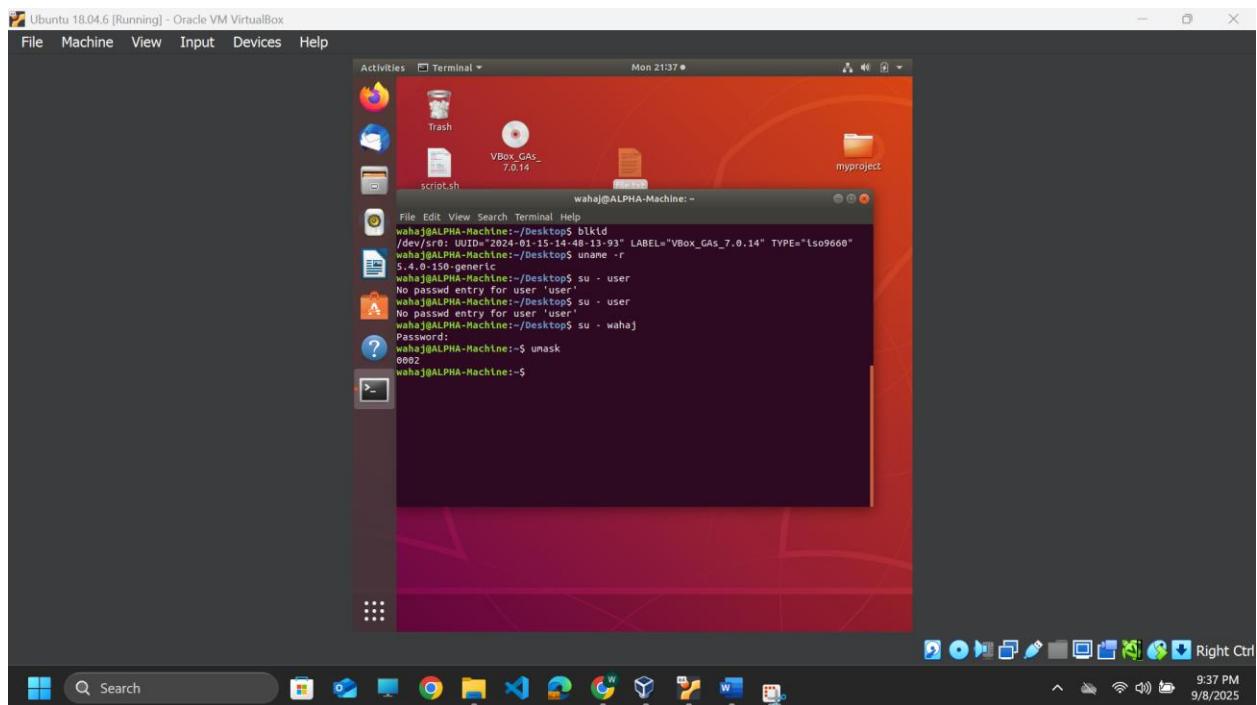


blkid # Show block device IDs**uname -r** # Show kernel version

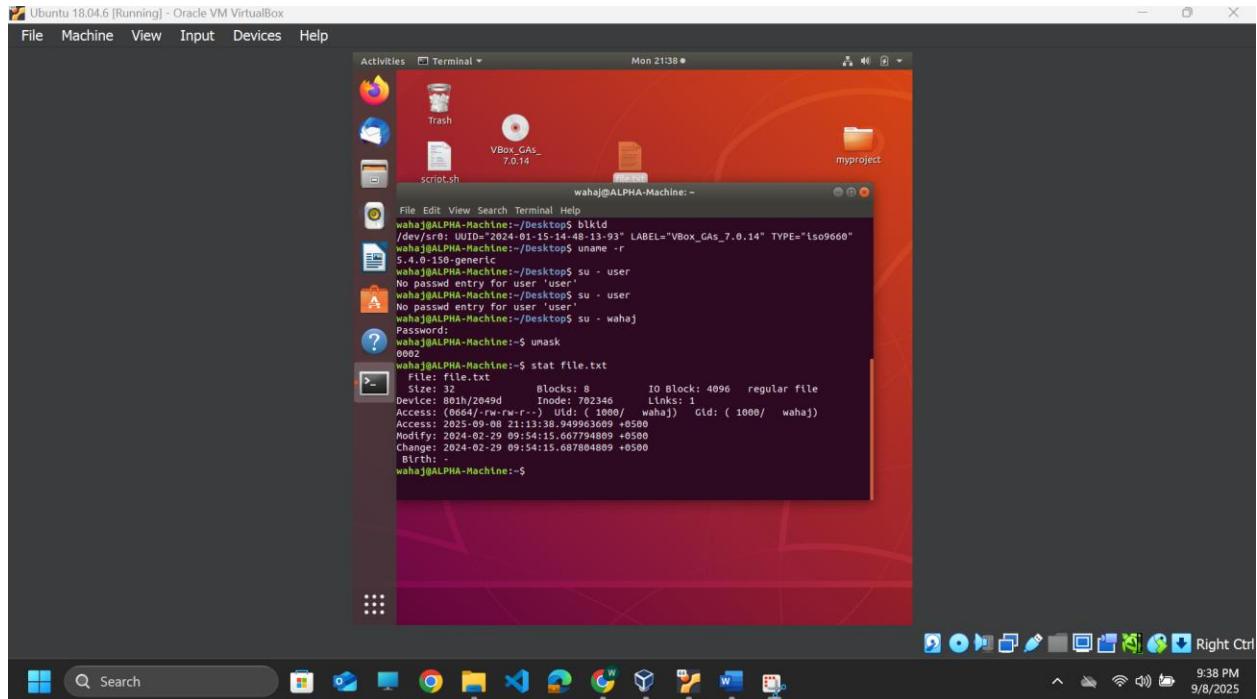
su - user



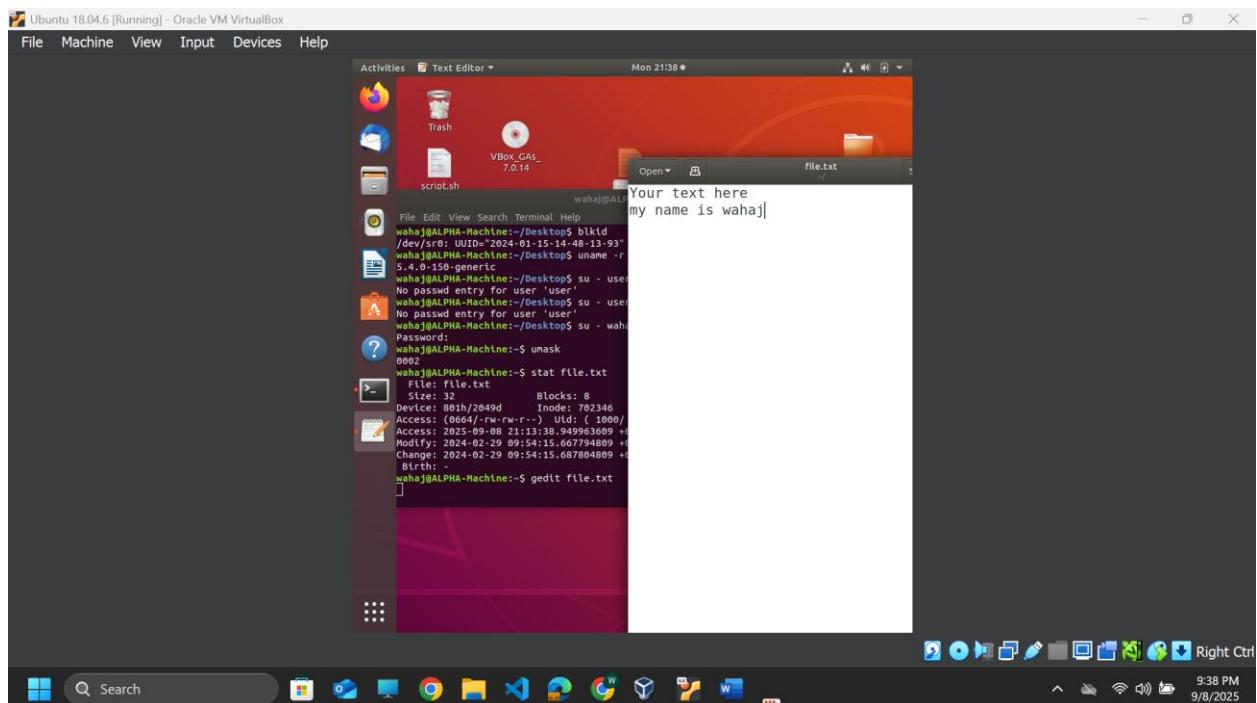
umask



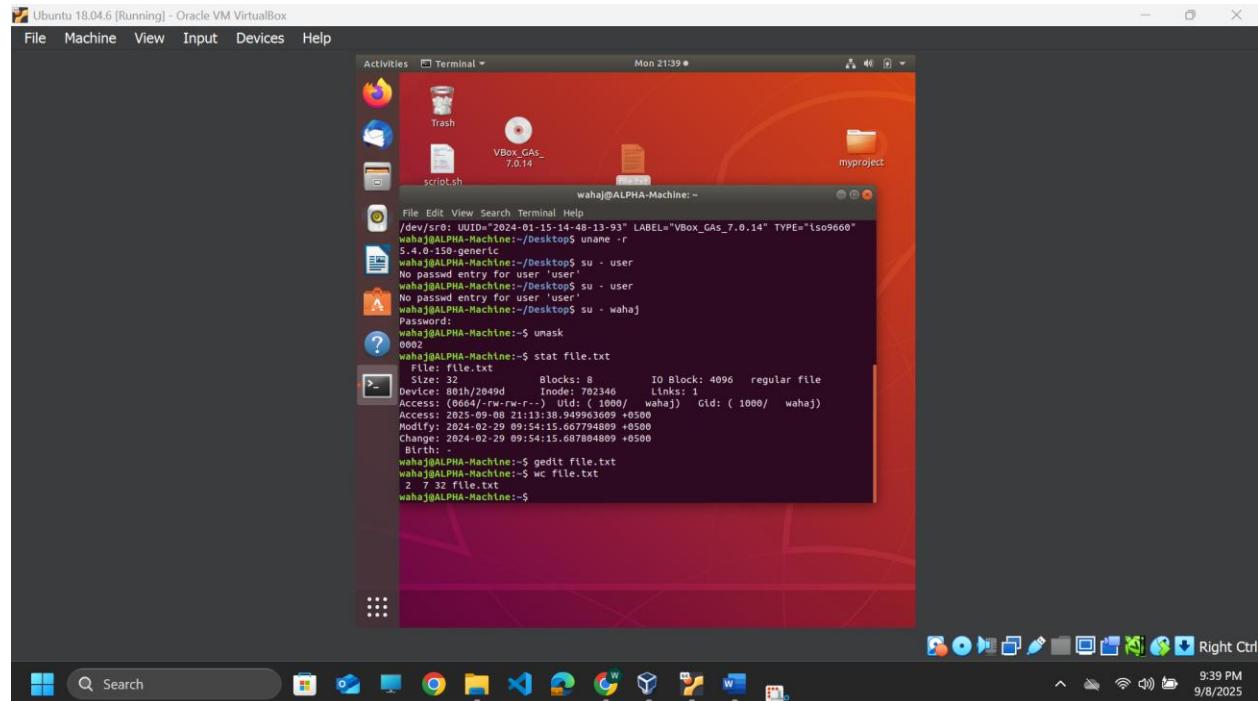
stat file.txt (show file info)



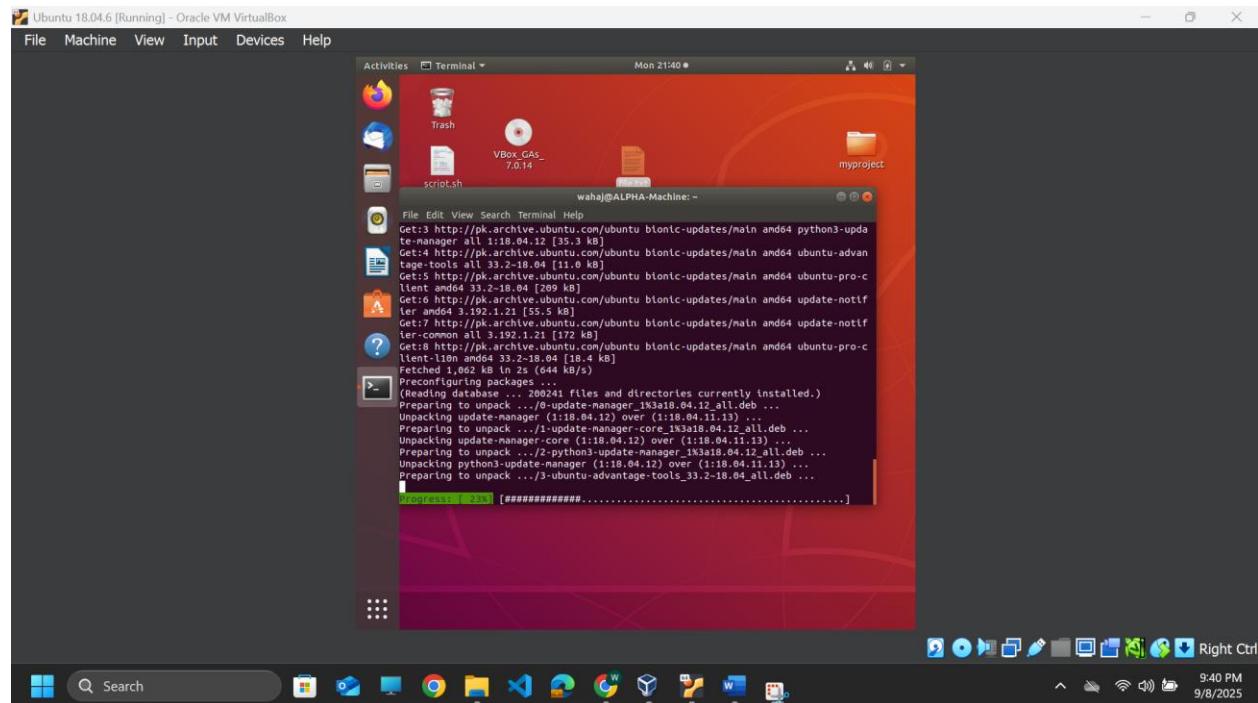
gedit file.txt



wc file.txt – count words/lines/characters



sudo apt upgrade – upgrade packages



sort file.txt

A screenshot of an Ubuntu 18.04.6 desktop environment running in Oracle VM VirtualBox. The desktop has a red and orange gradient background. A terminal window titled "wahaj@ALPHA-Machine:~" is open in the foreground, displaying a series of update notifications from the "update-notifier-common" package. The notifications mention various packages like "ubuntu-pro-client-l10n", "python3-update-manager", and "gnome-menu". The terminal window has a dark theme and is positioned over a desktop background featuring a grid of icons for "Activities", "Terminal", and system status indicators. The taskbar at the bottom shows icons for the Dash, Home, and various applications like a file manager, browser, and terminal.

traceroute google.com

A screenshot of an Ubuntu 18.04.6 desktop environment. The desktop has a dark orange/red background. A terminal window is open in the foreground, showing the command 'traceroute to google.com' being run. The output shows the traceroute path from the user's machine to Google's servers. The terminal window has a black background with white text. The desktop bar at the bottom contains icons for various applications like File Explorer, Mail, and a search bar.