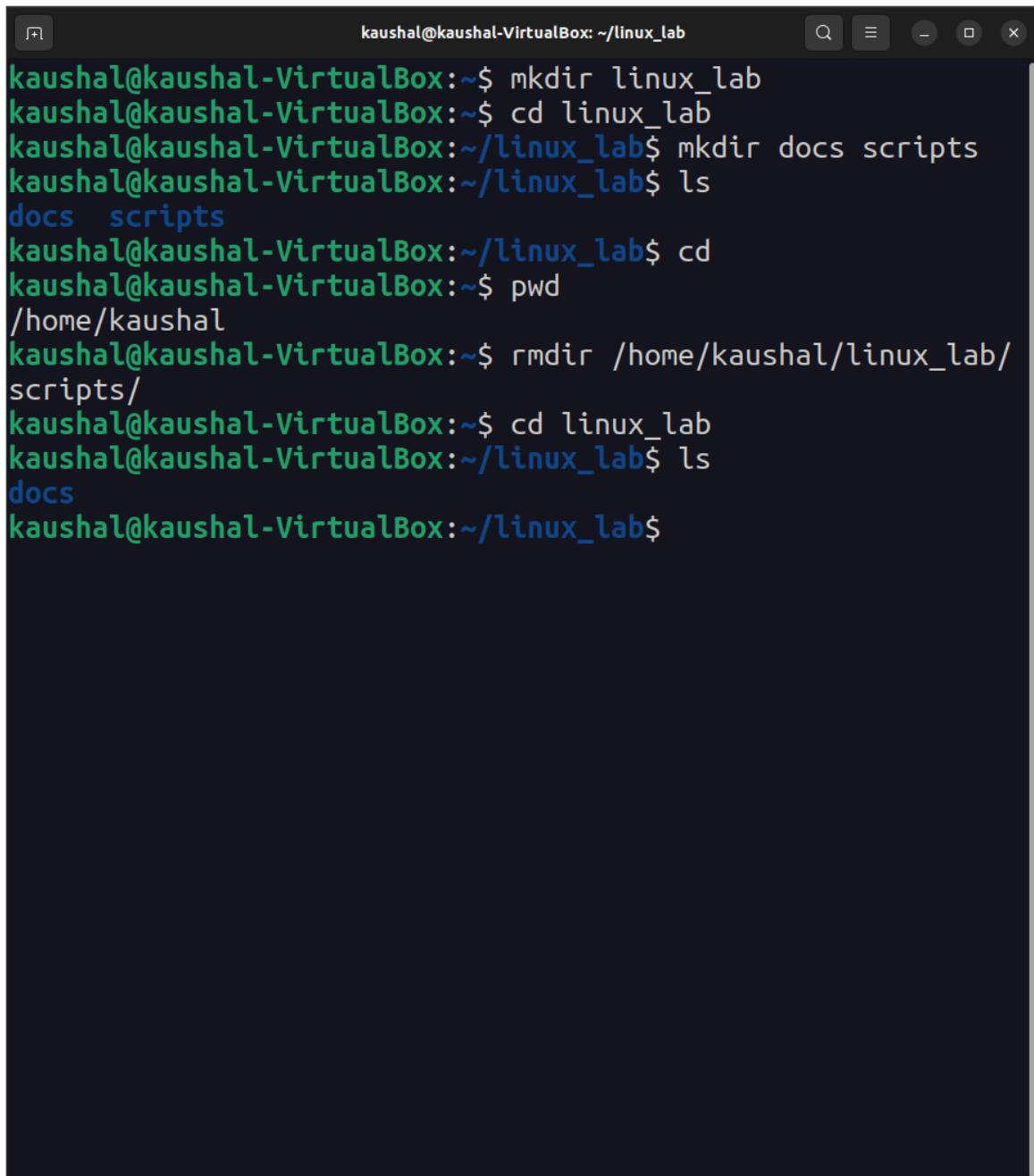


# Assignment 1

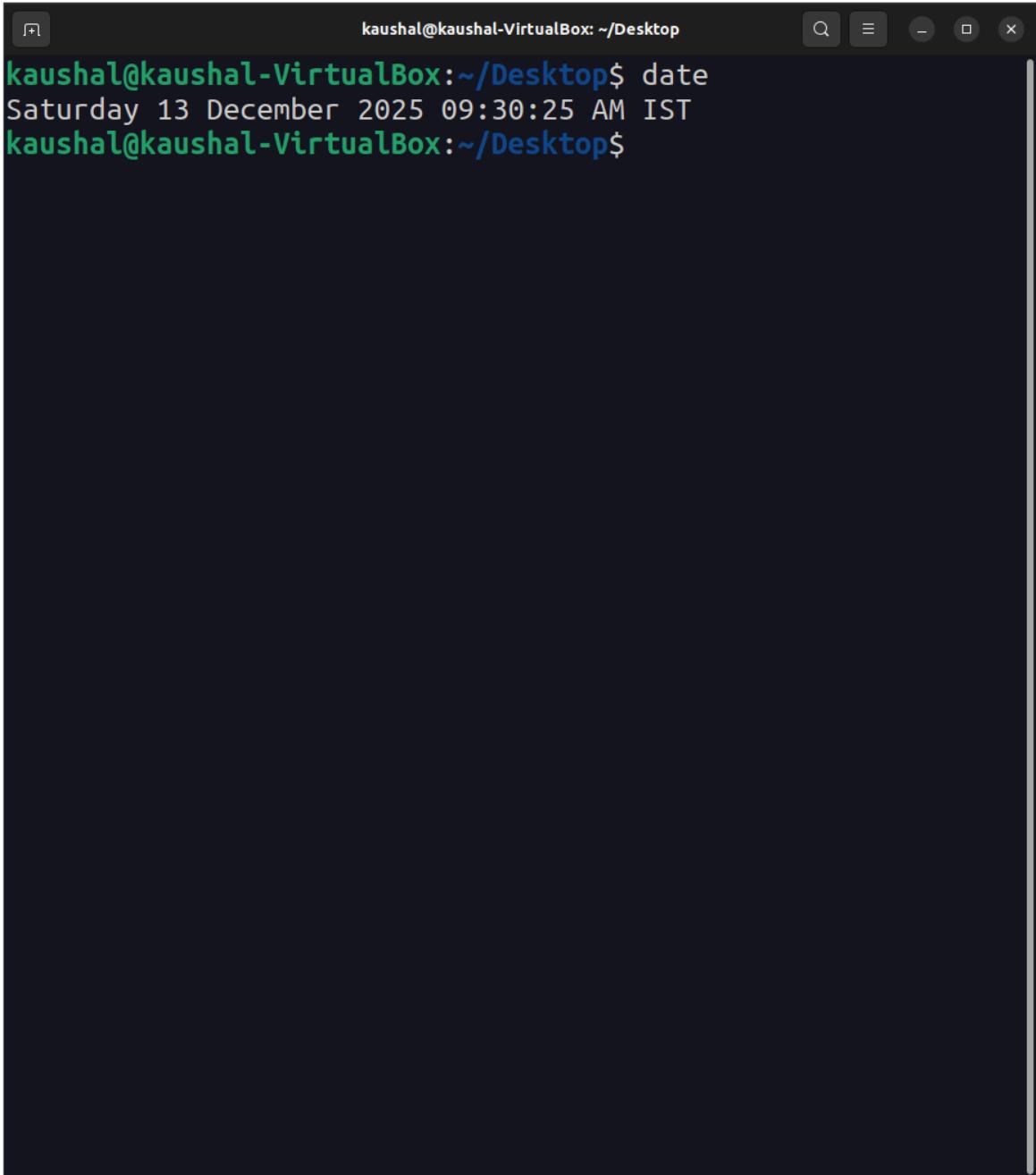
(13 Dec 2025)

## Q1: Basic Terminal Commands



A screenshot of a terminal window titled "kaushal@kaushal-VirtualBox: ~/linux\_lab". The terminal displays the following sequence of commands:

```
kaushal@kaushal-VirtualBox:~$ mkdir linux_lab
kaushal@kaushal-VirtualBox:~$ cd linux_lab
kaushal@kaushal-VirtualBox:~/linux_lab$ mkdir docs scripts
kaushal@kaushal-VirtualBox:~/linux_lab$ ls
docs scripts
kaushal@kaushal-VirtualBox:~/linux_lab$ cd
kaushal@kaushal-VirtualBox:~$ pwd
/home/kaushal
kaushal@kaushal-VirtualBox:~$ rmdir /home/kaushal/linux_lab/
scripts/
kaushal@kaushal-VirtualBox:~$ cd linux_lab
kaushal@kaushal-VirtualBox:~/linux_lab$ ls
docs
kaushal@kaushal-VirtualBox:~/linux_lab$
```



A screenshot of a terminal window titled "kaushal@kaushal-VirtualBox: ~/Desktop". The window contains the command "date" followed by its output: "Saturday 13 December 2025 09:30:25 AM IST". The terminal has a dark background with light-colored text. The title bar and window controls are visible at the top.

```
kaushal@kaushal-VirtualBox:~/Desktop$ date
Saturday 13 December 2025 09:30:25 AM IST
kaushal@kaushal-VirtualBox:~/Desktop$
```

## Q2: Directory Management

```
kaushal@kaushal-VirtualBox:~/linux_lab$ mkdir linux_lab
kaushal@kaushal-VirtualBox:~/linux_lab$ cd linux_lab
kaushal@kaushal-VirtualBox:~/linux_lab$ mkdir docs scripts
kaushal@kaushal-VirtualBox:~/linux_lab$ ls
docs scripts
kaushal@kaushal-VirtualBox:~/linux_lab$ cd
kaushal@kaushal-VirtualBox:~/$ pwd
/home/kaushal
kaushal@kaushal-VirtualBox:~/$ rmdir /home/kaushal/linux_lab/
scripts/
kaushal@kaushal-VirtualBox:~/$ cd linux_lab
kaushal@kaushal-VirtualBox:~/linux_lab$ ls
docs
kaushal@kaushal-VirtualBox:~/linux_lab$
```

### Q3: File Management

```
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ touch test.txt
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ nano test.txt
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ cat
Assignment - 1.pdf
Assignment - 2.pdf
GD_Topics.pdf
Linux_Commands_assignment.pdf
test.txt
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ cat test.txt
Kaushal Kalas
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ mv test.txt linux_test.txt
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ ls
'Assignment - 1.pdf'    Linux_Commands_assignment.pdf
'Assignment - 2.pdf'    linux_test.txt
GD_Topics.pdf
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ rm linux_test.txt
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ ls
'Assignment - 1.pdf'    GD_Topics.pdf
'Assignment - 2.pdf'    Linux_Commands_assignment.pdf
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$
```

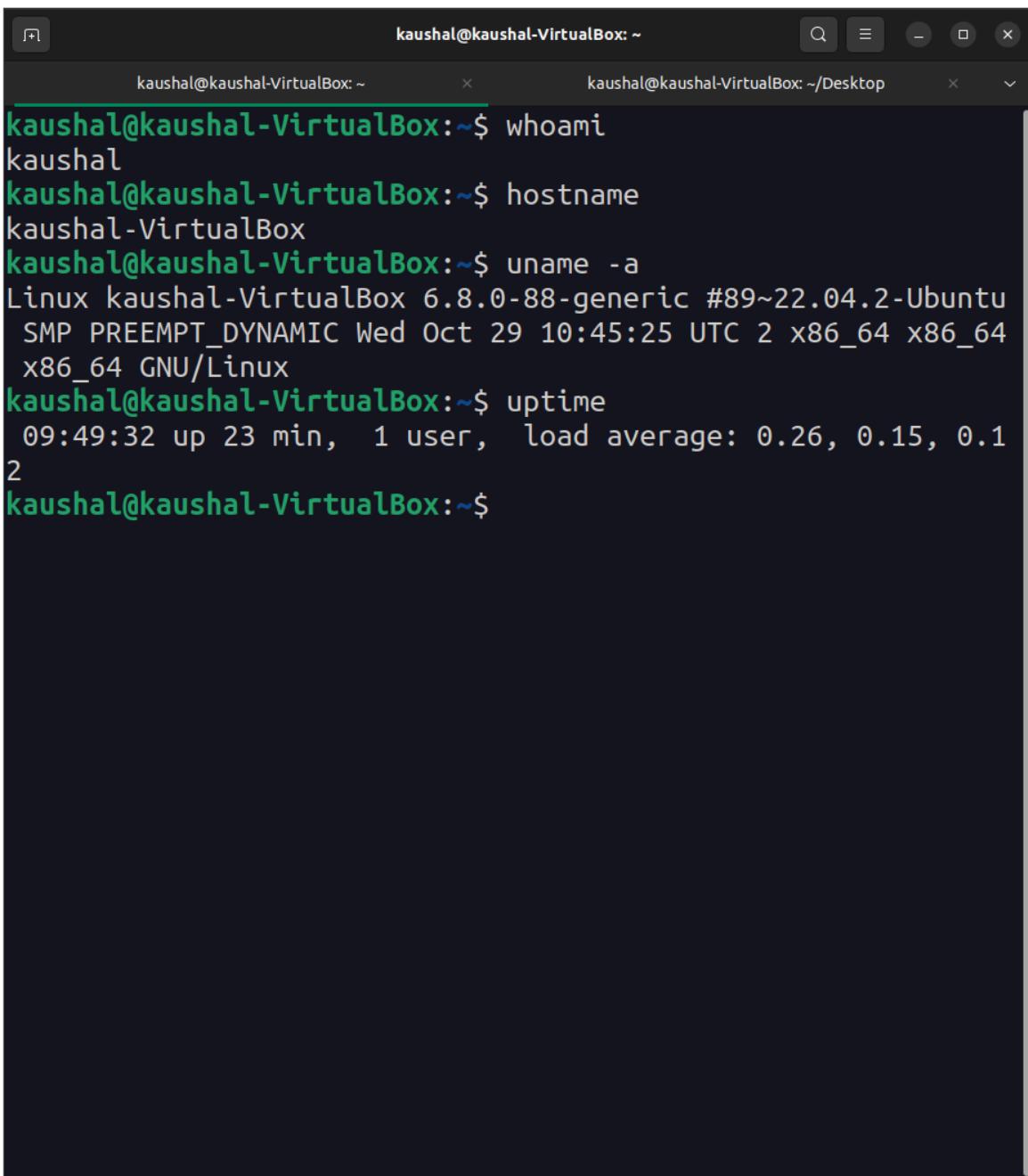
#### Q4: Copy & Move

```
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04/backup
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ cat /home/kaushal/Desktop/hello.txt
Hello, I'm Kaushal
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ ls
'Assignment - 1.pdf'    GD_Topics.pdf
'Assignment - 2.pdf'    Linux_Commands_assignment.pdf
backup
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ cp /home/kaushal/Desktop/hello.txt /backup/
cp: cannot create regular file '/backup/': Not a directory
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ cp /home/kaushal/Desktop/hello.txt backup/
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ cd backup
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04/backup$ ls
hello.txt
kaushal@kaushal-VirtualBox: ~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04/backup$
```

A screenshot of a terminal window titled "kaushal@kaushal-VirtualBox: ~". The window has two tabs: "kaushal@kaushal-VirtualBox: ~" and "kaushal@kaushal-VirtualBox: ~/Desktop". The main pane displays the following command-line session:

```
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ mv backup/ /home/kaushal/
kaushal@kaushal-VirtualBox:~/Desktop/Sunbeam/IIT-08-A-CySecurity/Day04$ cd
kaushal@kaushal-VirtualBox:~$ ls
backup  Documents  linux_lab  Pictures  snap      Videos
Desktop  Downloads  Music      Public    Templates
kaushal@kaushal-VirtualBox:~$
```

## Q5: User & System Information



A screenshot of a terminal window titled "kaushal@kaushal-VirtualBox: ~". The window contains two tabs: "kaushal@kaushal-VirtualBox: ~" and "kaushal@kaushal-VirtualBox: ~/Desktop". The main pane displays the following command-line session:

```
kaushal@kaushal-VirtualBox:~$ whoami
kaushal
kaushal@kaushal-VirtualBox:~$ hostname
kaushal-VirtualBox
kaushal@kaushal-VirtualBox:~$ uname -a
Linux kaushal-VirtualBox 6.8.0-88-generic #89~22.04.2-Ubuntu
SMP PREEMPT_DYNAMIC Wed Oct 29 10:45:25 UTC 2 x86_64 x86_64
x86_64 GNU/Linux
kaushal@kaushal-VirtualBox:~$ uptime
09:49:32 up 23 min, 1 user, load average: 0.26, 0.15, 0.1
2
kaushal@kaushal-VirtualBox:~$
```

## Q6: Package Management

```
kaushal@kaushal-VirtualBox:~$ sudo apt update
[sudo] password for kaushal:
Hit:1 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metadata [112 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 DEP-11 Metadata [212 B]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 DEP-11 Metadata [359 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 DEP-11 Metadata [940 B]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy-backports/main amd64 DEP-11 Metadata [7,144 B]
Get:10 http://in.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 DEP-11 Metadata [212 B]
Get:11 http://in.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 DEP-11 Metadata [9,716 B]
Get:12 http://in.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 DEP-11 Metadata [212 B]
Fetched 745 kB in 5s (144 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
3 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

```
kaushal@kaushal-VirtualBox: ~          kaushal@kaushal-VirtualBox: ~
kaushal@kaushal-VirtualBox: ~          kaushal@kaushal-VirtualBox: ~/Desktop
E: Invalid operation tree
kaushal@kaushal-VirtualBox:~$ 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 3 not upgrade
d.
Need to get 47.9 kB of archives.
After this operation, 116 kB of additional disk space will b
e used.
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/universe amd
64 tree amd64 2.0.2-1 [47.9 kB]
Fetched 47.9 kB in 2s (31.5 kB/s)
Selecting previously unselected package tree.
(Reading database ... 211300 files and directories currently
installed.)
Preparing to unpack .../tree_2.0.2-1_amd64.deb ...
Unpacking tree (2.0.2-1) ...
Setting up tree (2.0.2-1) ...
Processing triggers for man-db (2.10.2-1) ...
kaushal@kaushal-VirtualBox:~$ tree
.
├── backup
│   └── hello.txt
└── Desktop
    ├── hello.txt
    └── Sunbeam
        └── IIT-08-A-CySecurity
            └── Day01
```

```
kaushal@kaushal-VirtualBox: ~          kaushal@kaushal-VirtualBox: ~/Desktop
Setting up tree (2.0.2-1) ...
Processing triggers for man-db (2.10.2-1) ...
kaushal@kaushal-VirtualBox:~$ tree
.
├── backup
│   └── hello.txt
├── Desktop
│   └── hello.txt
└── Sunbeam
    └── IIT-08-A-CySecurity
        ├── Day01
        │   └── GIT Lecture Batch-A.zip
        │   └── GIT Lecture Batch-B.zip
        ├── Day02
        │   └── GIT Assignment.pdf
        ├── Day03
        │   ├── VM Assignment.pdf
        │   └── VM_Assignment_Solutions.docx
        ├── Day04
        │   ├── Assignment - 1.pdf
        │   ├── Assignment - 2.pdf
        │   ├── GD_Topics.pdf
        │   └── Linux_Commands_assignment.pdf
        └── README.md
├── Documents
├── Downloads
├── linux_lab
│   └── docs
├── Music
├── Pictures
└── Screenshots
```

```
kaushal@kaushal-VirtualBox: ~          kaushal@kaushal-VirtualBox: ~
kaushal@kaushal-VirtualBox: ~          kaushal@kaushal-VirtualBox: ~/Desktop
                                         Pictures
                                         Public
                                         Templates
                                         Videos
                                         common
                                         current -> 315
                                         snap-store
                                         1113
                                         common
                                         current -> 1113
                                         Templates
                                         Videos

52 directories, 21 files
kaushal@kaushal-VirtualBox:~$ sudo apt remove tree
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages will be REMOVED:
  tree
0 upgraded, 0 newly installed, 1 to remove and 3 not upgraded.
After this operation, 116 kB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 211308 files and directories currently
 installed.)
Removing tree (2.0.2-1) ...
Processing triggers for man-db (2.10.2-1) ...
kaushal@kaushal-VirtualBox:~$
```

## Q7: Networking Commands

```
kaushal@kaushal-VirtualBox:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:f6:df:ed brd ff:ff:ff:ff:ff:ff
    inet 10.198.125.241/24 brd 10.198.125.255 scope global dynamic noprefixroute enp0s3
        valid_lft 1705sec preferred_lft 1705sec
    inet6 2409:40c2:1003:2e91:89c9:2010:774e:e93a/64 scope global temporary dynamic
        valid_lft 6830sec preferred_lft 6830sec
    inet6 2409:40c2:1003:2e91:7ed7:a0ea:d4df:bb4b/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 6830sec preferred_lft 6830sec
    inet6 fe80::8272:b6a7:7e48:f639/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
kaushal@kaushal-VirtualBox:~$ ping google.com
PING google.com(tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e)) 56 data bytes
64 bytes from tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e): icmp_seq=1 ttl=116 time=69.7 ms
64 bytes from tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e): icmp_seq=2 ttl=116 time=84.1 ms
64 bytes from tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e): icmp_seq=3 ttl=116 time=84.1 ms
```

```
kaushal@kaushal-VirtualBox: ~
```

```
kaushal@kaushal-VirtualBox: ~
```

```
fq_codel state UP group default qlen 1000
    link/ether 08:00:27:f6:df:ed brd ff:ff:ff:ff:ff:ff
        inet 10.198.125.241/24 brd 10.198.125.255 scope global dynamic
            noupdate
            valid_lft 1705sec preferred_lft 1705sec
            inet6 2409:40c2:1003:2e91:89c9:2010:774e:e93a/64 scope global temporary dynamic
                valid_lft 6830sec preferred_lft 6830sec
                inet6 2409:40c2:1003:2e91:7ed7:a0ea:d4df:bb4b/64 scope global dynamic
                    noupdate
                    valid_lft 6830sec preferred_lft 6830sec
                    inet6 fe80::8272:b6a7:7e48:f639/64 scope link noupdate
                        valid_lft forever preferred_lft forever
kaushal@kaushal-VirtualBox:~$ ping google.com
PING google.com(tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e)) 56 data bytes
64 bytes from tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e): icmp_seq=1 ttl=116 time=69.7 ms
64 bytes from tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e): icmp_seq=2 ttl=116 time=84.1 ms
64 bytes from tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e): icmp_seq=3 ttl=116 time=108 ms
64 bytes from tzdelb-ay-in-x0e.1e100.net (2404:6800:4002:82a::200e): icmp_seq=4 ttl=116 time=77.0 ms
^C
--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3022 ms
rtt min/avg/max/mdev = 69.730/84.753/108.249/14.482 ms
kaushal@kaushal-VirtualBox:~$
```