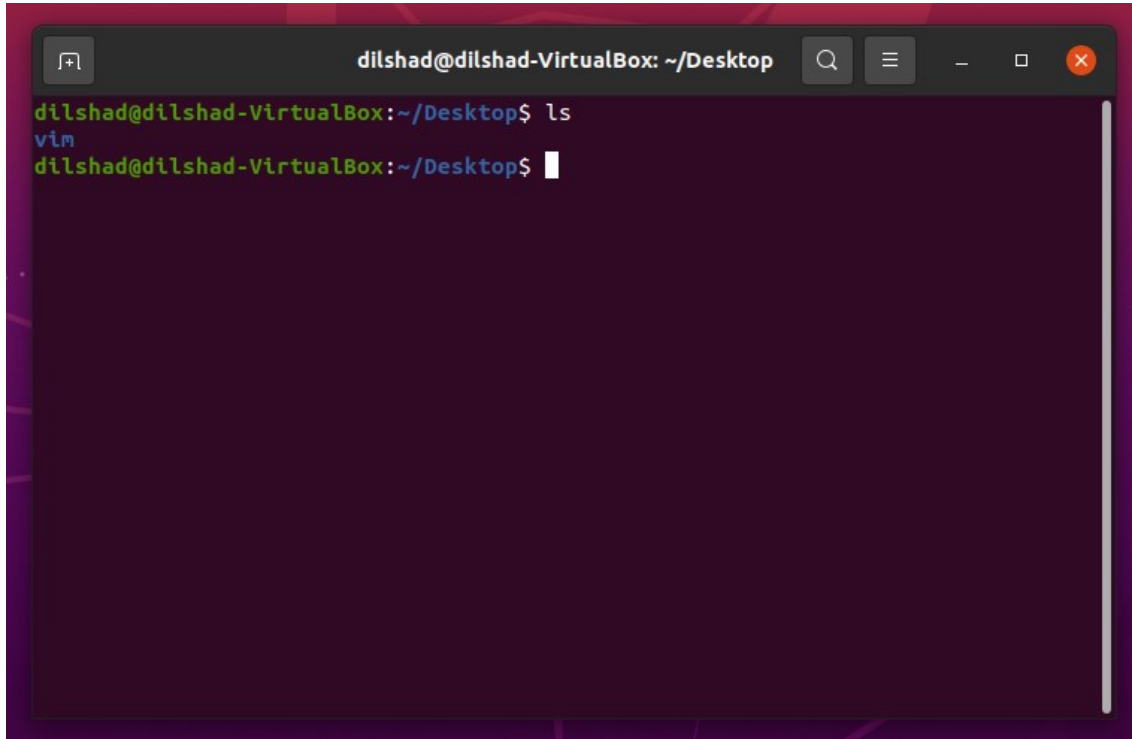


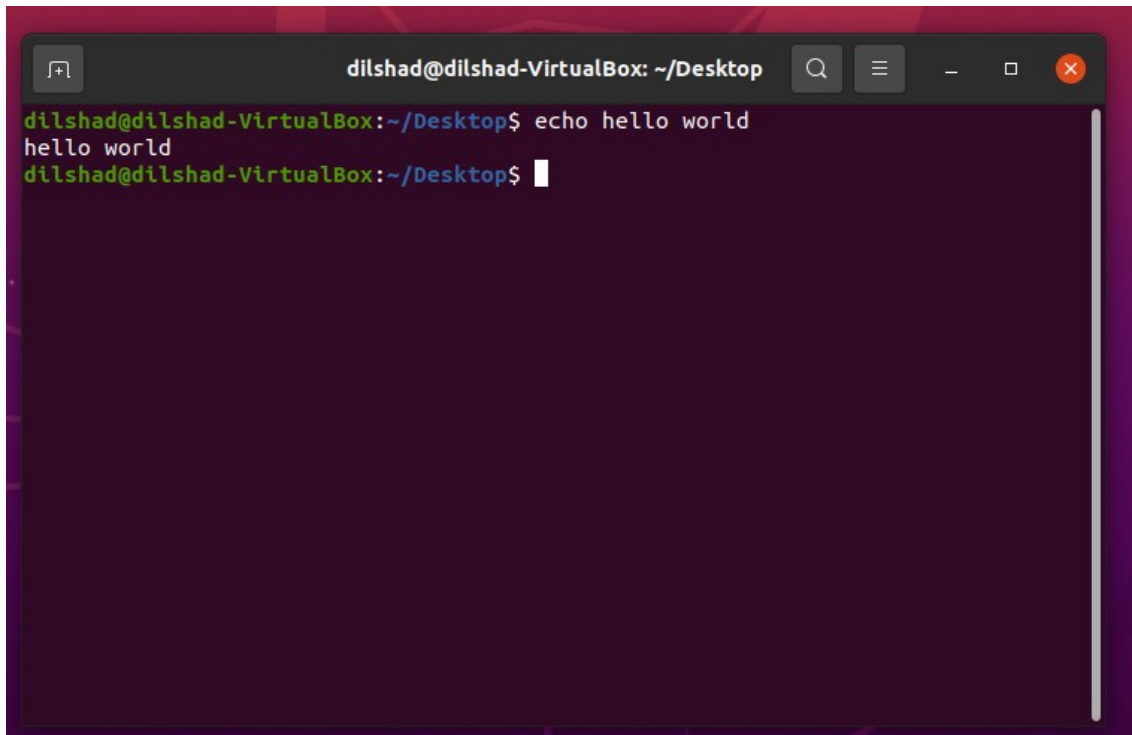
# Basic Linux Commands

⇒ **ls** :- used to list items inside a directory.

A terminal window titled 'dilshad@dilshad-VirtualBox: ~/Desktop'. The prompt is 'dilshad@dilshad-VirtualBox:~/Desktop\$'. The command 'ls' has been entered and executed, resulting in a blank line. The command 'vim' has also been entered and executed, resulting in a blank line. The prompt is now 'dilshad@dilshad-VirtualBox:~/Desktop\$' with a cursor.

```
dilshad@dilshad-VirtualBox:~/Desktop$ ls
vim
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **echo** :- used to display text or string.

A terminal window titled 'dilshad@dilshad-VirtualBox: ~/Desktop'. The prompt is 'dilshad@dilshad-VirtualBox:~/Desktop\$'. The command 'echo hello world' has been entered and executed, resulting in the output 'hello world'. The prompt is now 'dilshad@dilshad-VirtualBox:~/Desktop\$' with a cursor.

```
dilshad@dilshad-VirtualBox:~/Desktop$ echo hello world
hello world
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **man** :-provide user manual for the command mentioned.

```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ man
What manual page do you want?
For example, try 'man man'.
dilshad@dilshad-VirtualBox:~/Desktop$ man man
```

```
dilshad@dilshad-VirtualBox: ~/Desktop
MAN(1)                                Manual pager utils                                MAN(1)

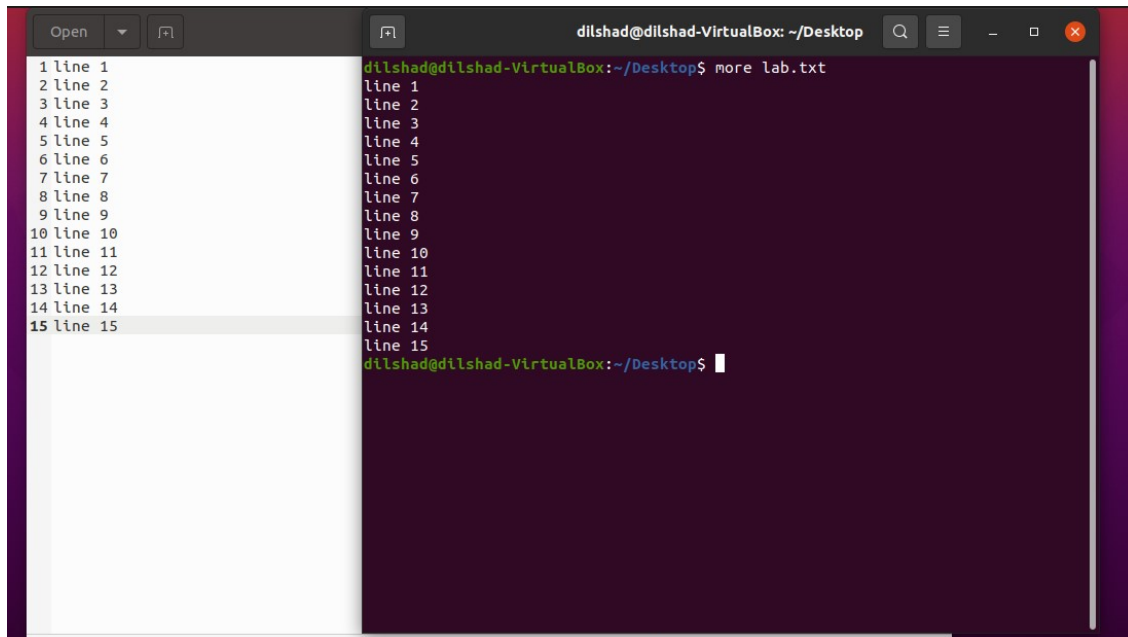
NAME
    man - an interface to the system reference manuals

SYNOPSIS
    man [man options] [section] page ...] ...
    man -k [apropos options] regexp ...
    man -K [man options] [section] term ...
    man -f [whatis options] page ...
    man -l [man options] file ...
    man -w|-W [man options] page ...

DESCRIPTION
    man is the system's manual pager. Each page argument given to man is normally the name of a program, utility or function. The manual page associated with each of these arguments is then found and displayed. A section, if provided, will direct man to look only in that section of the manual. The default action is to search in all of the available sections following a pre-defined order (see DEFAULTS), and to show only the first page found, even if page exists in several sections.

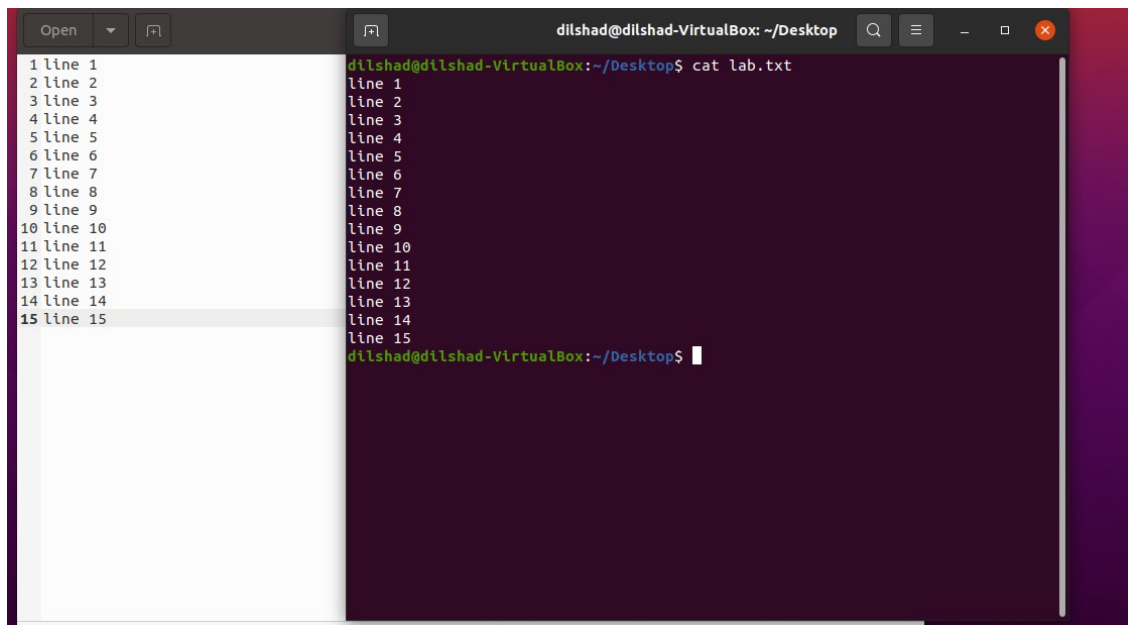
Manual page man(1) line 1 (press h for help or q to quit)
```

⇒ **more :-** used to view text files in command prompt.



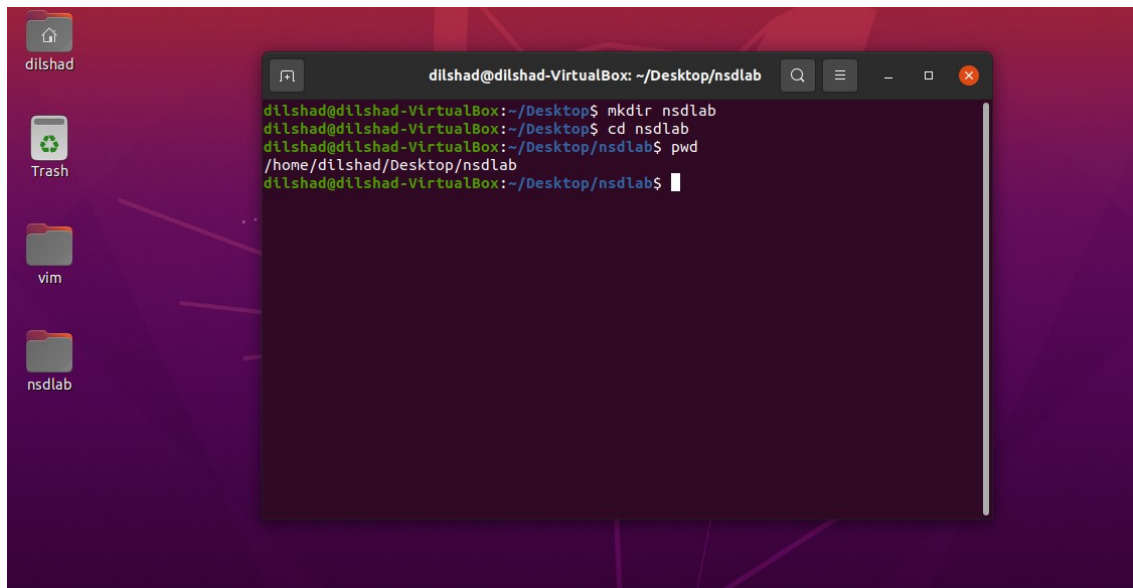
The screenshot shows a terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop". On the left, a file explorer pane displays a list of files from "line 1" to "line 15". The main terminal area shows the command `more lab.txt` being executed. The output of the command is displayed line by line, from "line 1" to "line 15". The prompt `dilshad@dilshad-VirtualBox:~/Desktop$` is visible at the bottom of the terminal.

⇒ **cat :-** read a file and give its content as output.



The screenshot shows a terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop". On the left, a file explorer pane displays a list of files from "line 1" to "line 15". The main terminal area shows the command `cat lab.txt` being executed. The output of the command is displayed all at once, showing "line 1" through "line 15". The prompt `dilshad@dilshad-VirtualBox:~/Desktop$` is visible at the bottom of the terminal.

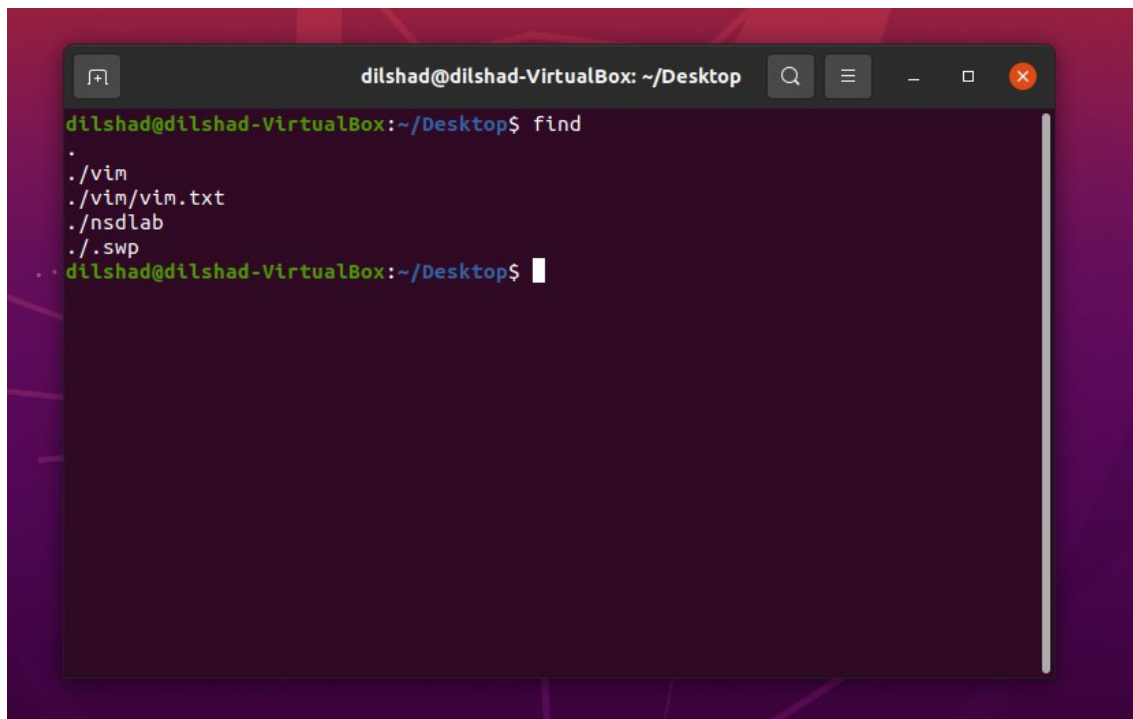
- ⇒ **mkdir** :- used to create a folder.
- ⇒ **Cd** :- used to change directory.
- ⇒ **Pwd** :- used to print working directory.



A terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop/nsdlab" is open on a desktop with a purple background. The desktop has icons for "dilshad", "Trash", "vim", and "nsdlab". The terminal shows the following commands and output:

```
dilshad@dilshad-VirtualBox:~/Desktop$ mkdir nsdlab
dilshad@dilshad-VirtualBox:~/Desktop$ cd nsdlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$ pwd
/home/dilshad/Desktop/nsdlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$
```

- ⇒ **Find** :- gives a complete heirarchial structure of a directory.

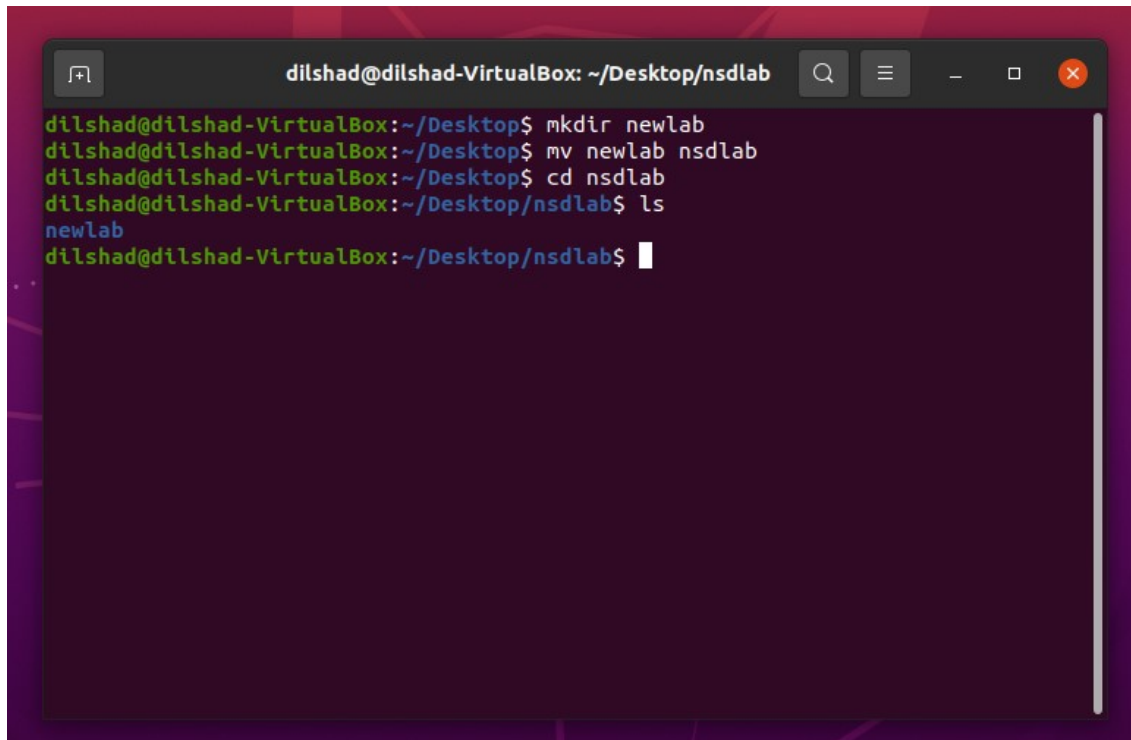


A terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop" is open. The terminal shows the following command and output:

```
dilshad@dilshad-VirtualBox:~/Desktop$ find
.
./vim
./vim/vim.txt
./nsdlab
./swp
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **mv** :- used for moving a file or folder.

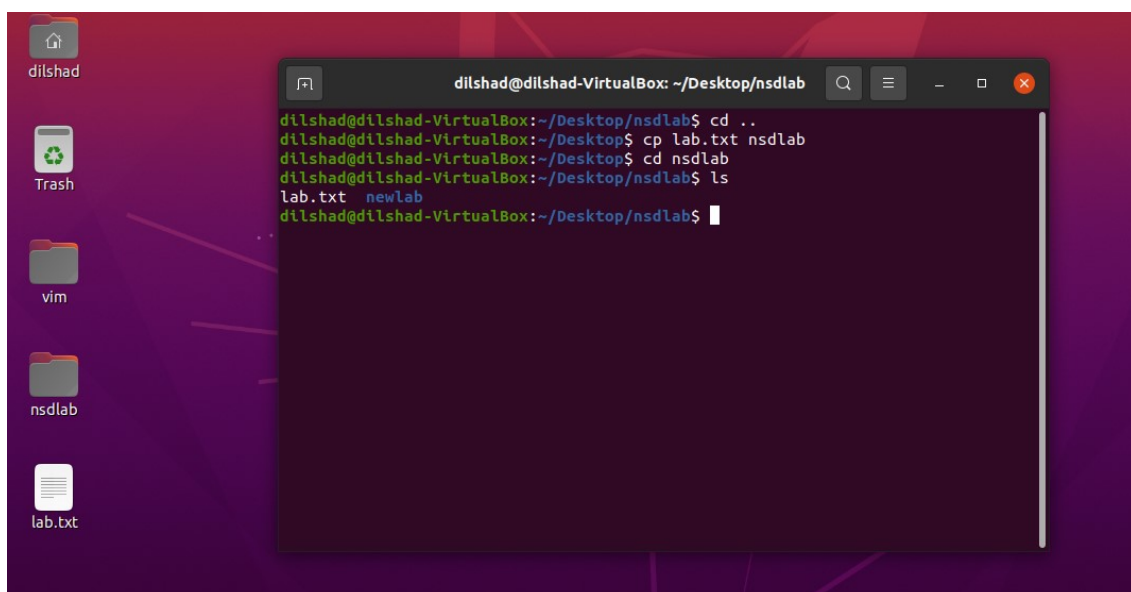
*Syntax* : mv (moving file)(destination)

A terminal window titled 'dilshad@dilshad-VirtualBox: ~/Desktop/nsdlab' with search, menu, and window control icons. The terminal shows the following commands and output:

```
dilshad@dilshad-VirtualBox:~/Desktop$ mkdir newlab
dilshad@dilshad-VirtualBox:~/Desktop$ mv newlab nsdlab
dilshad@dilshad-VirtualBox:~/Desktop$ cd nsdlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$ ls
newlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$
```

⇒ **Cp**:- copy a file or folder.

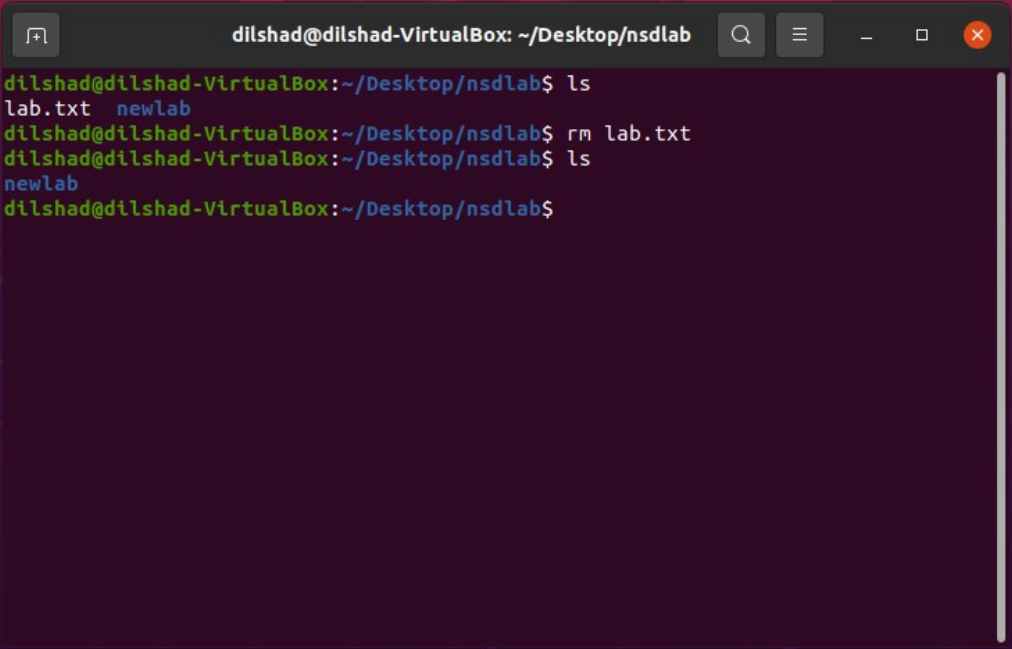
*Syntax* : cp copying\_file destination\_folder

A terminal window titled 'dilshad@dilshad-VirtualBox: ~/Desktop/nsdlab' with search, menu, and window control icons. The terminal shows the following commands and output:

```
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$ cd ..
dilshad@dilshad-VirtualBox:~/Desktop$ cp lab.txt nsdlab
dilshad@dilshad-VirtualBox:~/Desktop$ cd nsdlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$ ls
lab.txt  newlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$
```

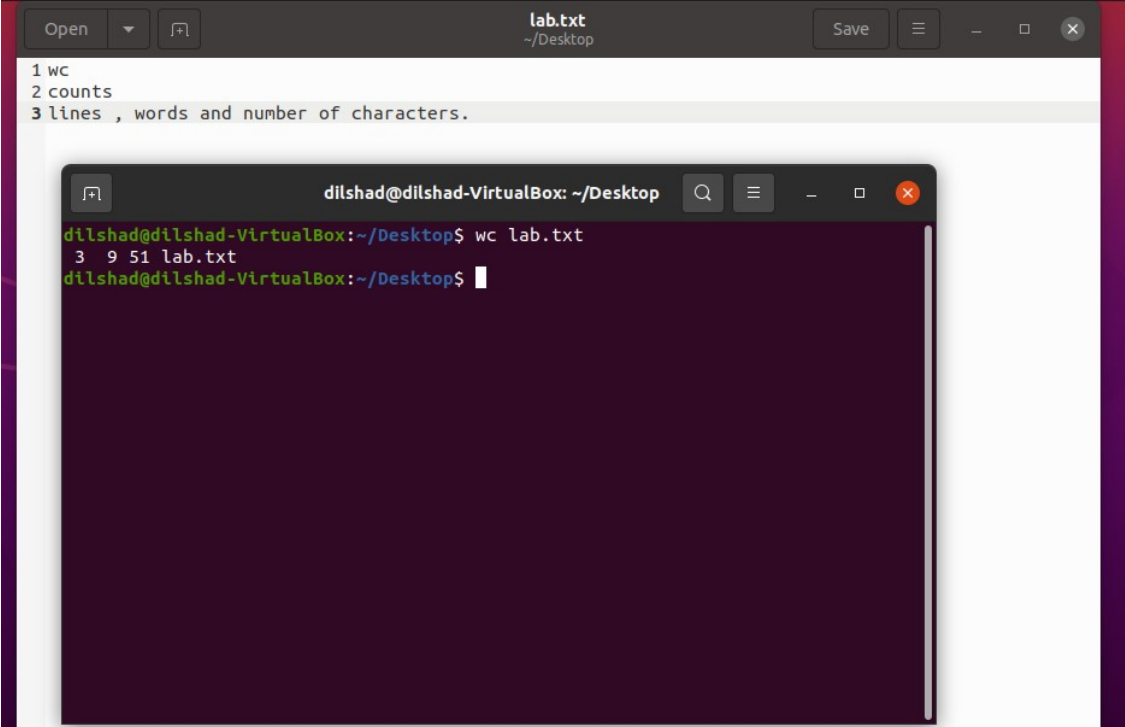
On the desktop background, icons for 'dilshad', 'Trash', 'vim', 'nsdlab', and 'lab.txt' are visible.

⇒ **rm :-** used to remove a file.



```
dilshad@dilshad-VirtualBox: ~/Desktop/nsdlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$ ls
lab.txt  newlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$ rm lab.txt
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$ ls
newlab
dilshad@dilshad-VirtualBox:~/Desktop/nsdlab$
```

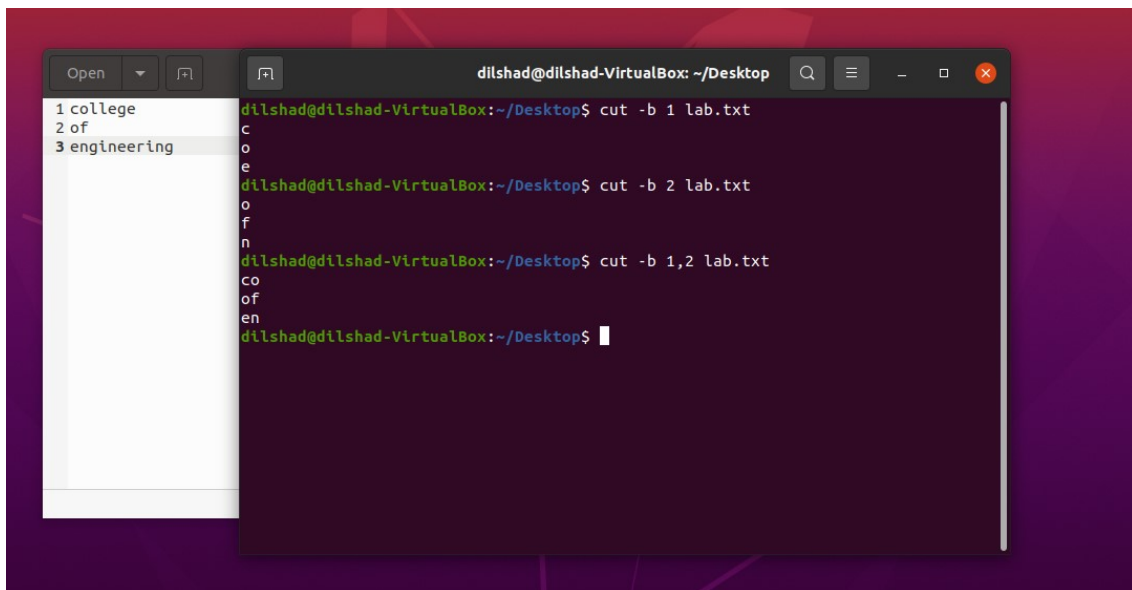
⇒ **wc :-** used to count characters, words, lines in a file.



```
1 wc
2 counts
3 lines , words and number of characters.
```

```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ wc lab.txt
3 9 51 lab.txt
dilshad@dilshad-VirtualBox:~/Desktop$
```

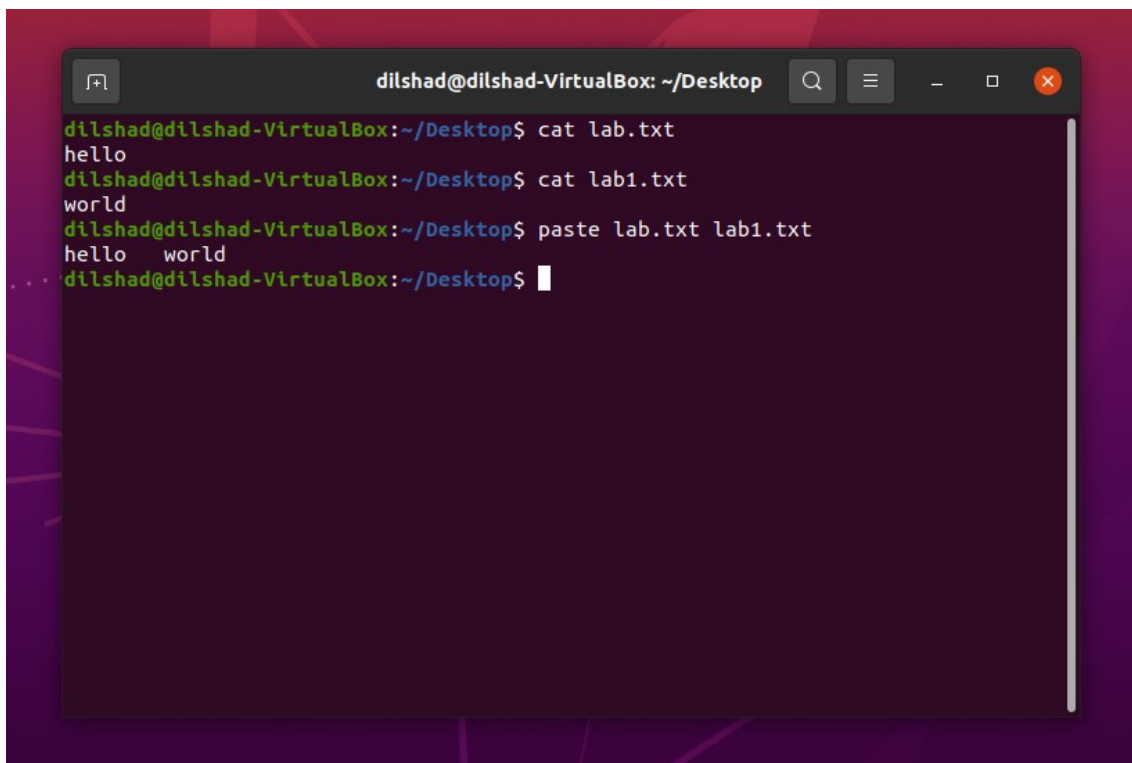
⇒ **Cut** :- used to cut characters from a file.



The screenshot shows a terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop". On the left, a file explorer shows a file named "lab.txt" with the following content: "1 college", "2 of", "3 engineering". The terminal shows the following commands and output:

```
dilshad@dilshad-VirtualBox:~/Desktop$ cut -b 1 lab.txt
c
o
e
dilshad@dilshad-VirtualBox:~/Desktop$ cut -b 2 lab.txt
o
f
n
dilshad@dilshad-VirtualBox:~/Desktop$ cut -b 1,2 lab.txt
co
of
en
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **Paste** :-paste content of file1 to file2.

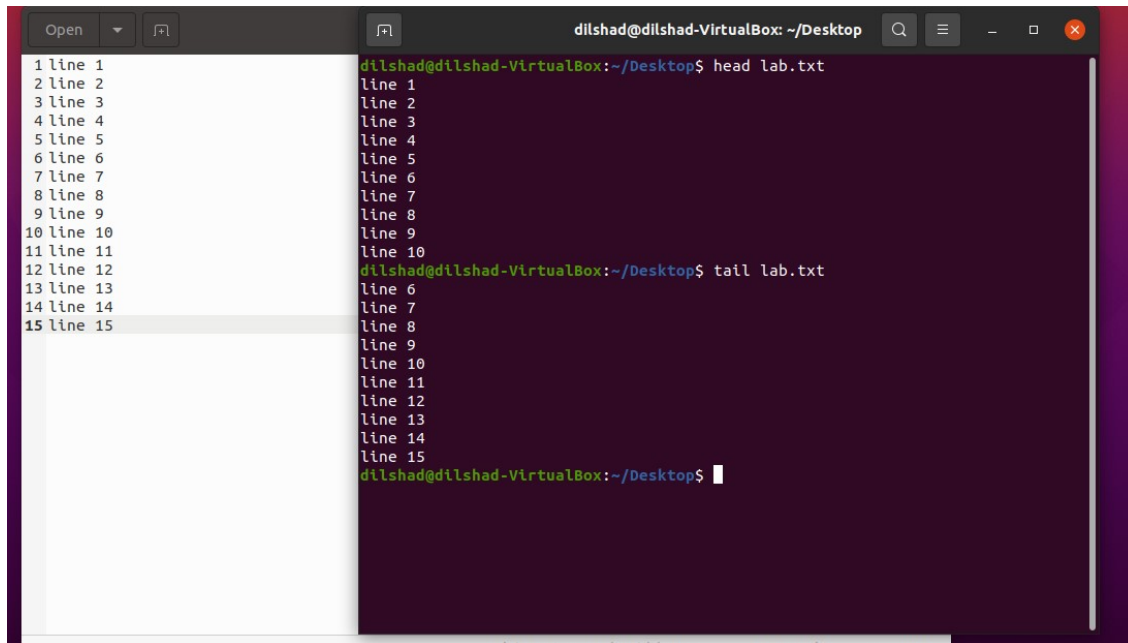


The screenshot shows a terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop". The terminal shows the following commands and output:

```
dilshad@dilshad-VirtualBox:~/Desktop$ cat lab.txt
hello
dilshad@dilshad-VirtualBox:~/Desktop$ cat lab1.txt
world
dilshad@dilshad-VirtualBox:~/Desktop$ paste lab.txt lab1.txt
hello world
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **Head**:- display first 10 lines of the file.

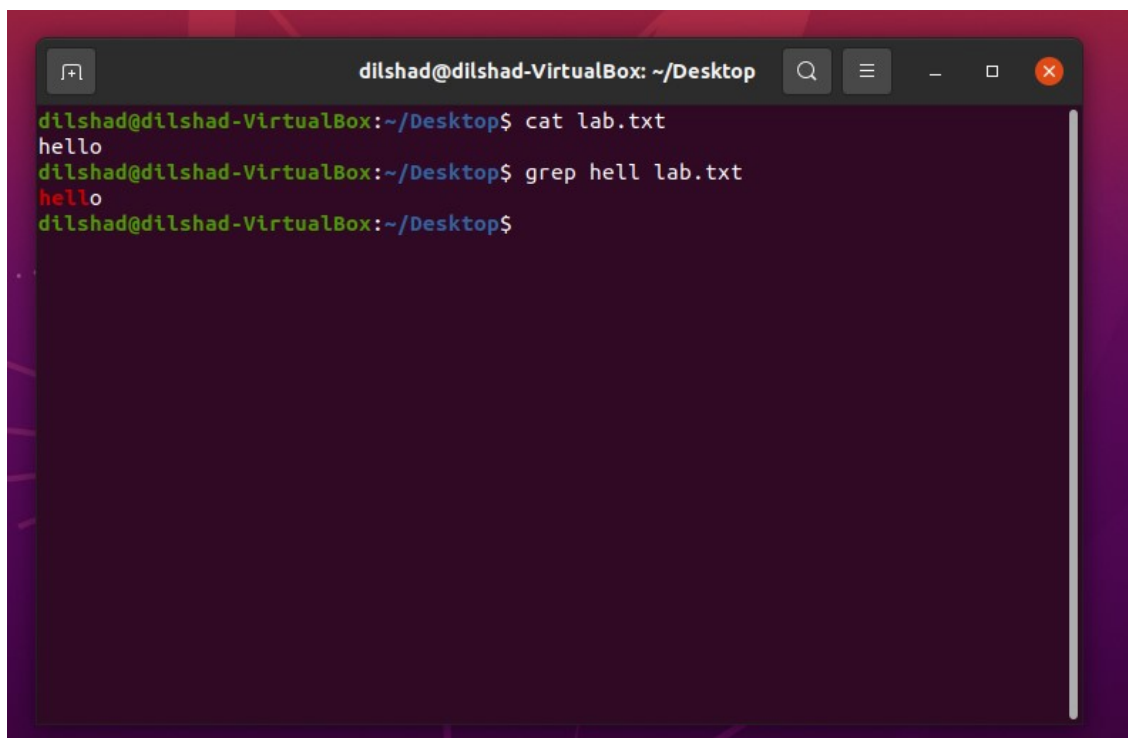
⇒ **Tail** :- display last 10 lines of a file.



The screenshot shows a terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop". On the left, a file named "lab.txt" is open in a text editor, displaying 15 lines of text, each starting with a line number followed by the word "line". The terminal window shows the following commands and output:

```
dilshad@dilshad-VirtualBox:~/Desktop$ head lab.txt
line 1
line 2
line 3
line 4
line 5
line 6
line 7
line 8
line 9
line 10
dilshad@dilshad-VirtualBox:~/Desktop$ tail lab.txt
line 6
line 7
line 8
line 9
line 10
line 11
line 12
line 13
line 14
line 15
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **Grep** :- used to find a matching pattern in the file.

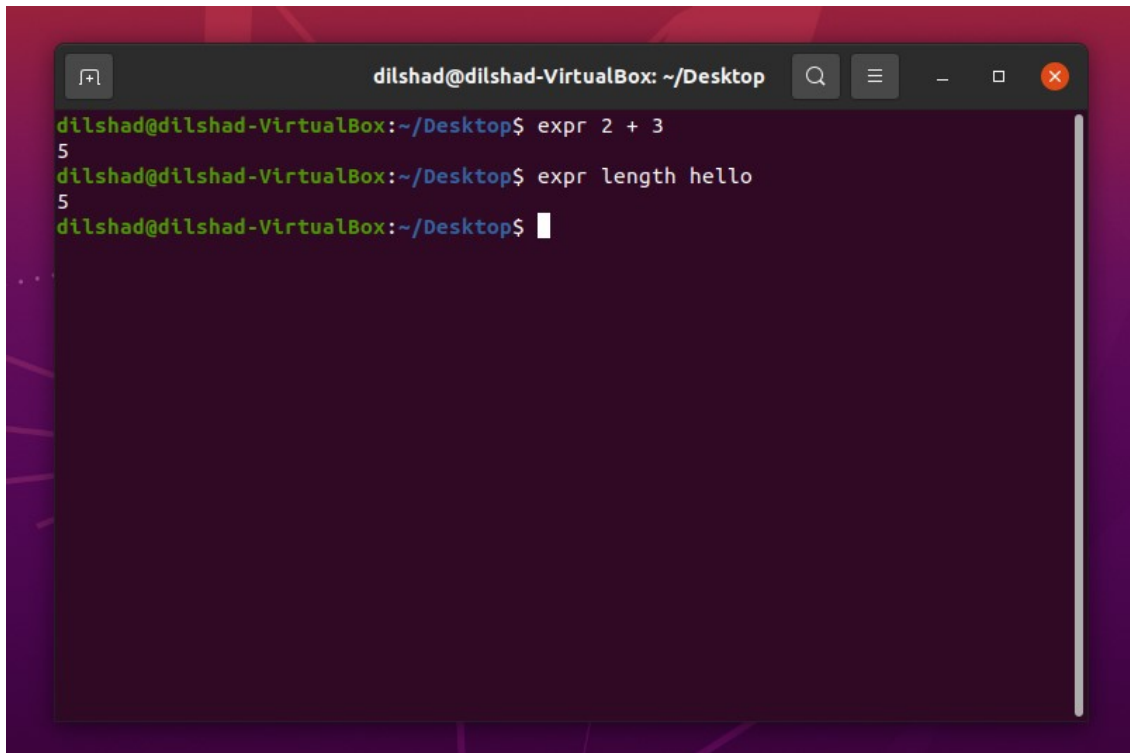


The screenshot shows a terminal window titled "dilshad@dilshad-VirtualBox: ~/Desktop". The terminal window shows the following commands and output:

```
dilshad@dilshad-VirtualBox:~/Desktop$ cat lab.txt
hello
dilshad@dilshad-VirtualBox:~/Desktop$ grep hell lab.txt
hello
dilshad@dilshad-VirtualBox:~/Desktop$
```

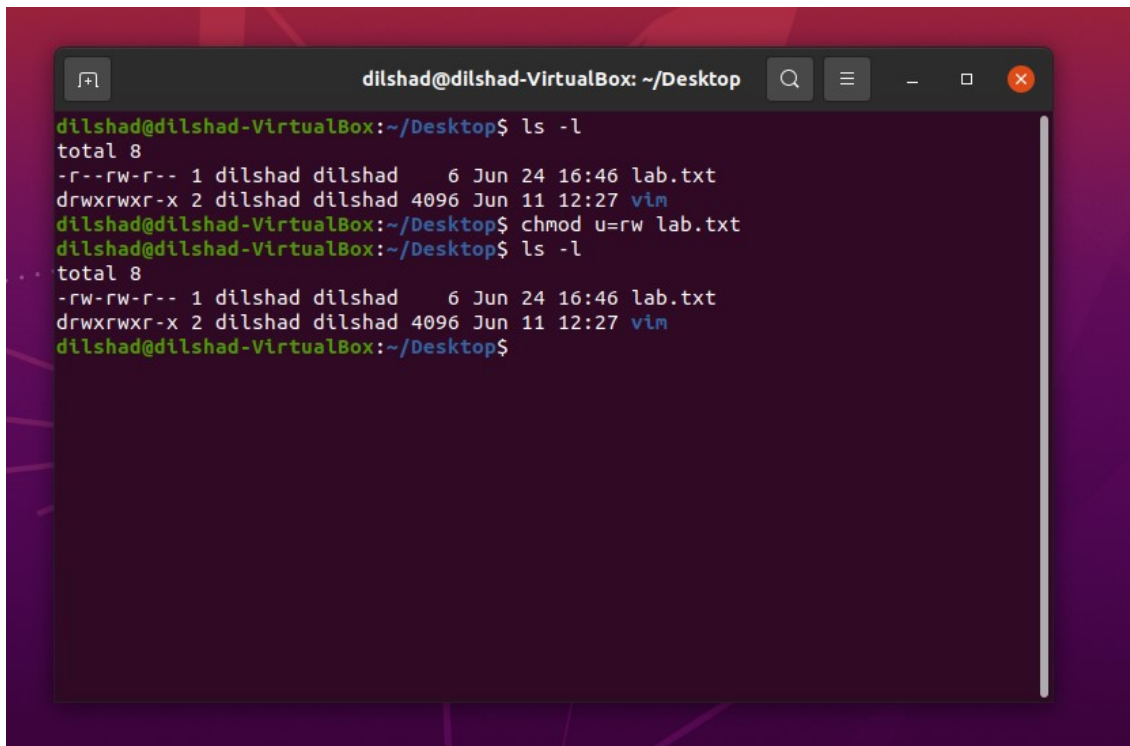


⇒ **Expr :-** used to perform numerical and string operations.



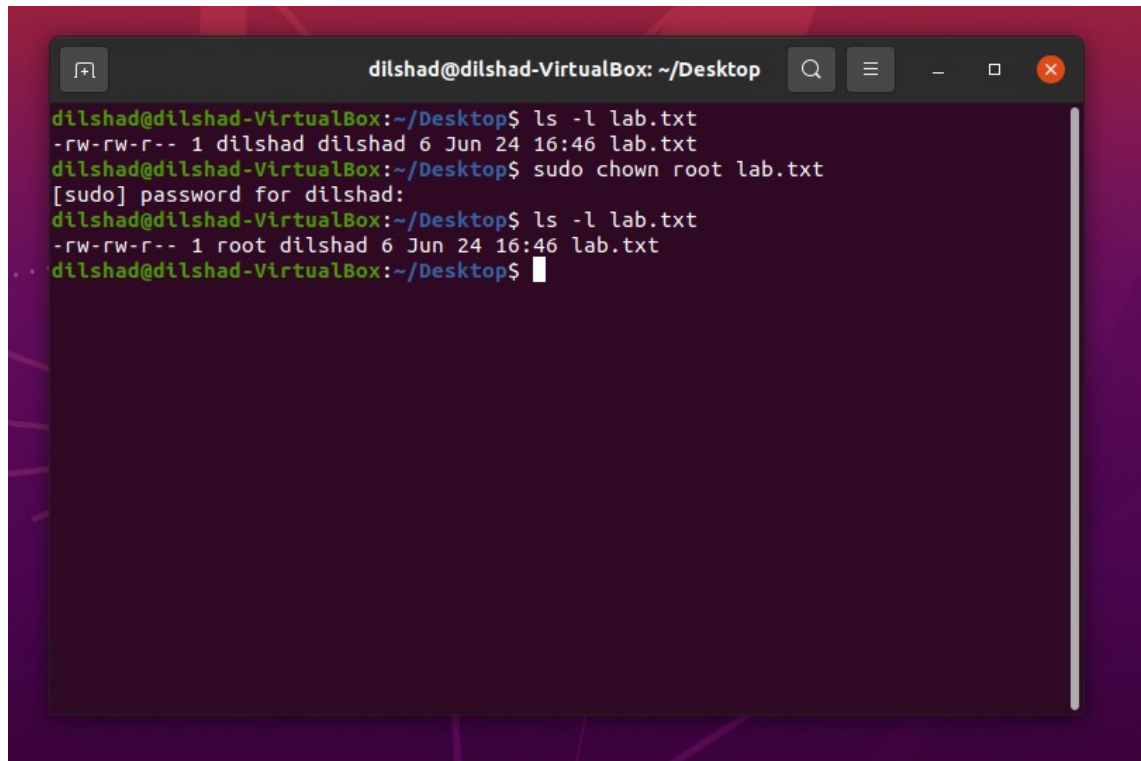
```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ expr 2 + 3
5
dilshad@dilshad-VirtualBox:~/Desktop$ expr length hello
5
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **Chmod :-** used to change the operating mode of a file.read,write, read-write,execute the file.



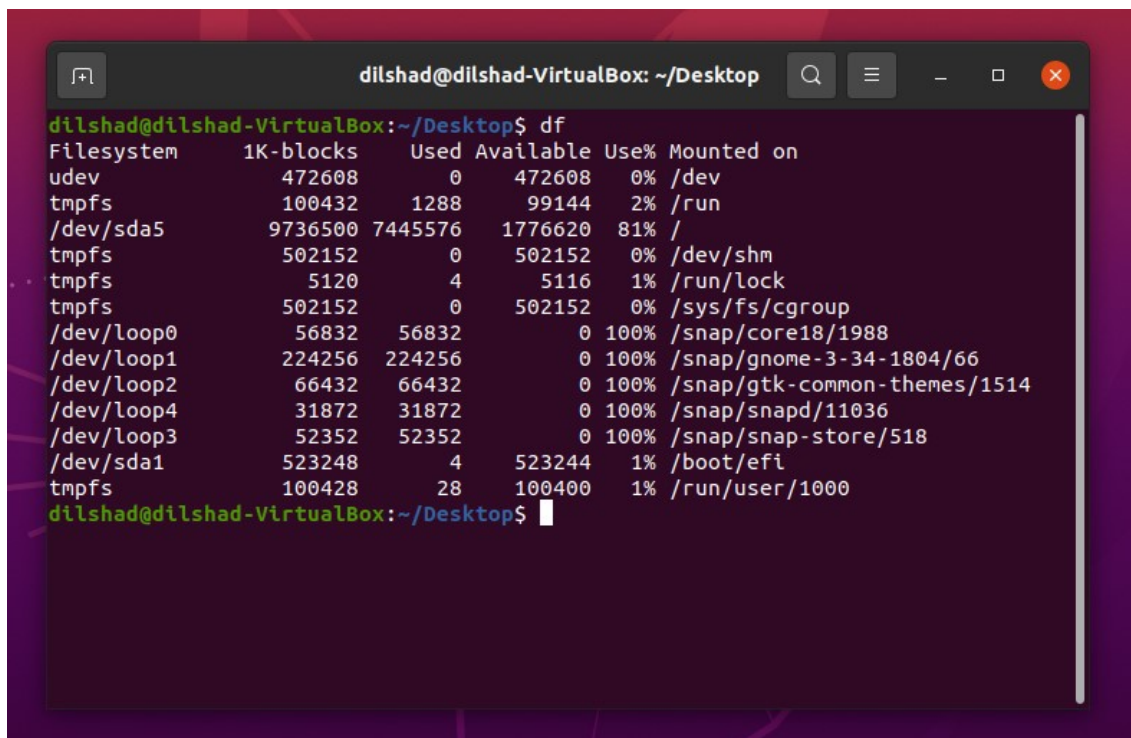
```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ ls -l
total 8
-r--rw-r-- 1 dilshad dilshad  6 Jun 24 16:46 lab.txt
drwxrwxr-x 2 dilshad dilshad 4096 Jun 11 12:27 vim
dilshad@dilshad-VirtualBox:~/Desktop$ chmod u=rw lab.txt
dilshad@dilshad-VirtualBox:~/Desktop$ ls -l
total 8
-rw-rw-r-- 1 dilshad dilshad  6 Jun 24 16:46 lab.txt
drwxrwxr-x 2 dilshad dilshad 4096 Jun 11 12:27 vim
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **Chown** :- change the existing owner of a file.



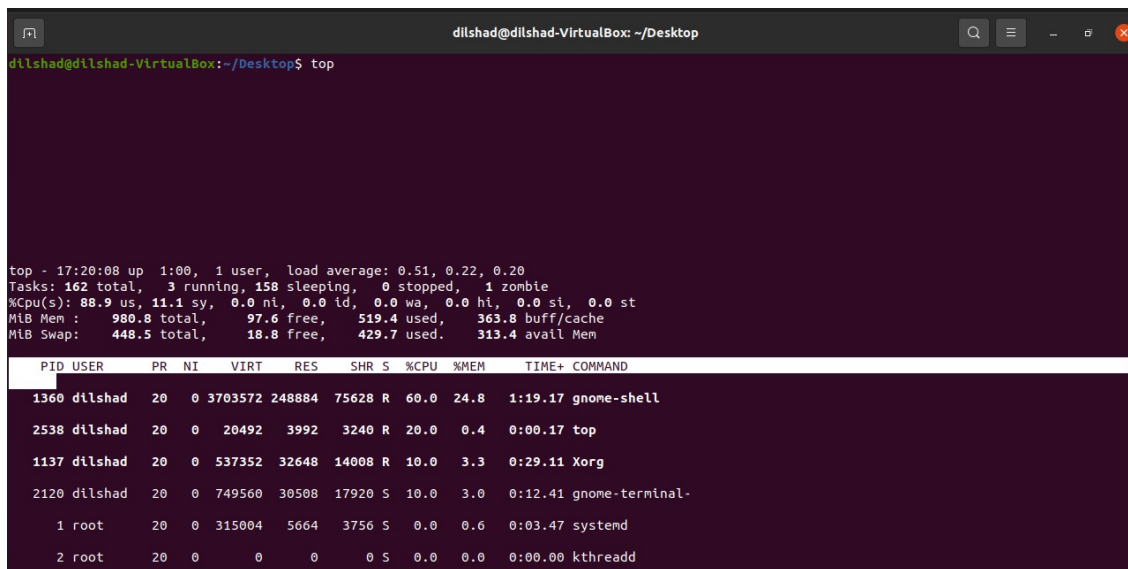
```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ ls -l lab.txt
-rw-rw-r-- 1 dilshad dilshad 6 Jun 24 16:46 lab.txt
dilshad@dilshad-VirtualBox:~/Desktop$ sudo chown root lab.txt
[sudo] password for dilshad:
dilshad@dilshad-VirtualBox:~/Desktop$ ls -l lab.txt
-rw-rw-r-- 1 root dilshad 6 Jun 24 16:46 lab.txt
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **df** :- used to display available disk space for the file systems.



```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
udev             472608         0   472608    0% /dev
tmpfs            100432     1288    99144    2% /run
/dev/sda5       9736500 7445576 1776620   81% /
tmpfs            502152         0   502152    0% /dev/shm
tmpfs             5120          4    5116    1% /run/lock
tmpfs            502152         0   502152    0% /sys/fs/cgroup
/dev/loop0        56832    56832         0 100% /snap/core18/1988
/dev/loop1       224256    224256         0 100% /snap/gnome-3-34-1804/66
/dev/loop2        66432    66432         0 100% /snap/gtk-common-themes/1514
/dev/loop4       31872    31872         0 100% /snap/snapd/11036
/dev/loop3       52352    52352         0 100% /snap/snap-store/518
/dev/sda1        523248          4   523244    1% /boot/efi
tmpfs            100428         28   100400    1% /run/user/1000
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **top**:-used to show processes of running systems.

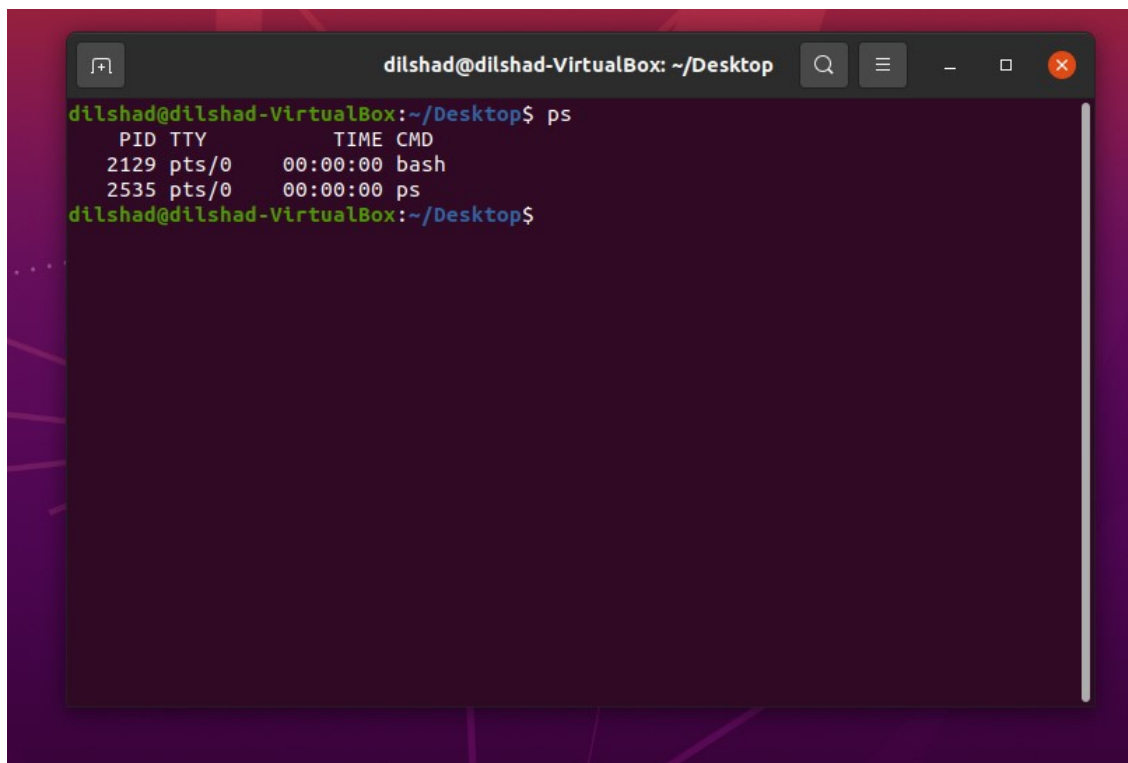


```
dilshad@dilshad-VirtualBox: ~/Desktop$ top
```

top - 17:20:08 up 1:00, 1 user, load average: 0.51, 0.22, 0.20  
Tasks: 162 total, 3 running, 158 sleeping, 0 stopped, 1 zombie  
%Cpu(s): 88.9 us, 11.1 sy, 0.0 ni, 0.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st  
MiB Mem : 980.8 total, 97.6 free, 519.4 used, 363.8 buff/cache  
MiB Swap: 448.5 total, 18.8 free, 429.7 used, 313.4 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1360	dilshad	20	0	3703572	248884	75628	R	60.0	24.8	1:19.17	gnome-shell
2538	dilshad	20	0	20492	3992	3240	R	20.0	0.4	0:00.17	top
1137	dilshad	20	0	537352	32648	14008	R	10.0	3.3	0:29.11	Xorg
2120	dilshad	20	0	749560	30508	17920	S	10.0	3.0	0:12.41	gnome-terminal-
1	root	20	0	315004	5664	3756	S	0.0	0.6	0:03.47	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd

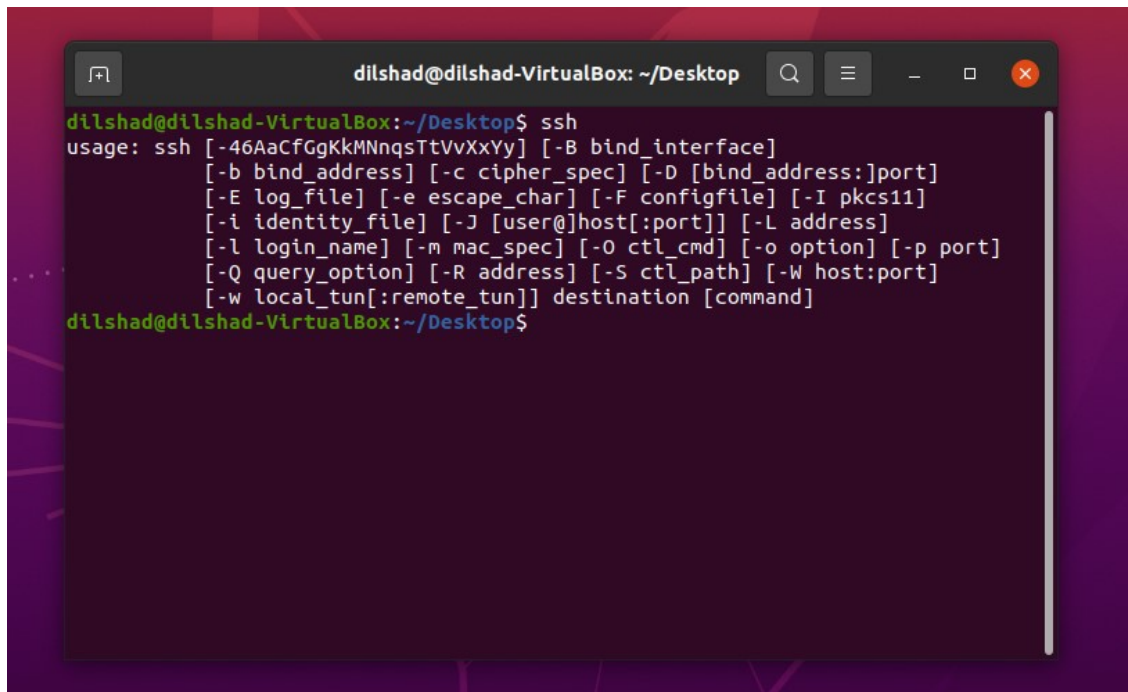
⇒ **ps**:-list currently running processes.



```
dilshad@dilshad-VirtualBox: ~/Desktop$ ps
```

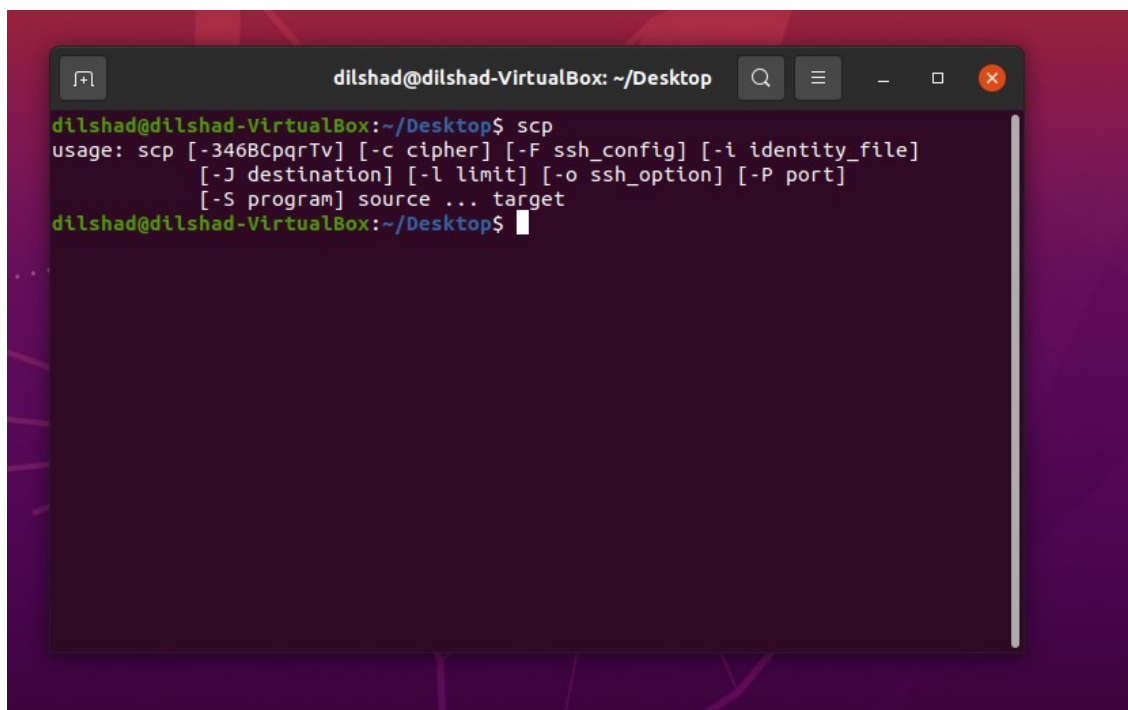
PID	TTY	TIME	CMD
2129	pts/0	00:00:00	bash
2535	pts/0	00:00:00	ps

⇒ **ssh:-**instruct the system to establish an encrypted secure connection with host.



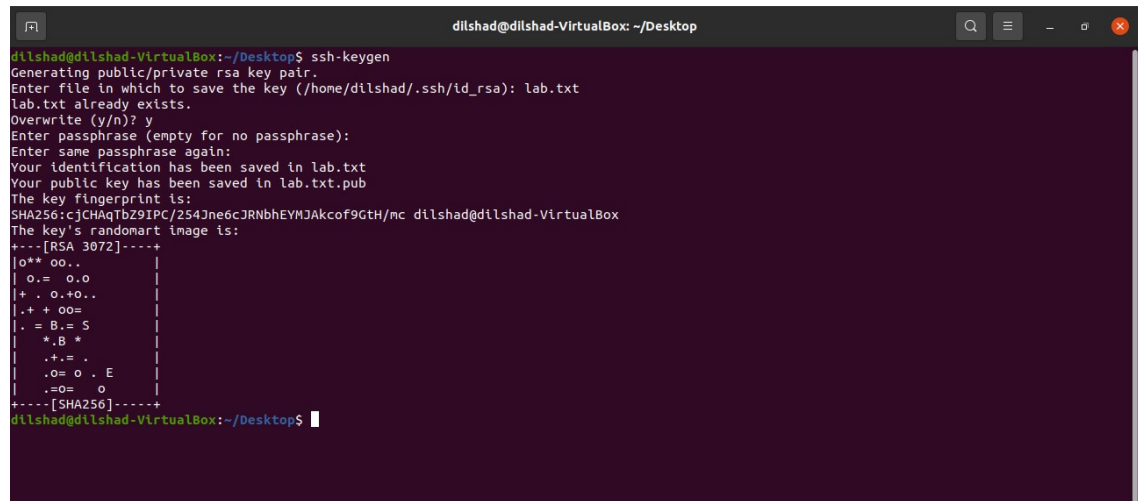
```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ ssh
usage: ssh [-46AaCfGgKkMnNqsTtVvXxYy] [-B bind_interface]
          [-b bind_address] [-c cipher_spec] [-D [bind_address:]port]
          [-E log_file] [-e escape_char] [-F configfile] [-I pkcs11]
          [-i identity_file] [-J [user@]host[:port]] [-L address]
          [-l login_name] [-m mac_spec] [-O ctl_cmd] [-o option] [-p port]
          [-Q query_option] [-R address] [-S ctl_path] [-W host:port]
          [-w local_tun[:remote_tun]] destination [command]
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **scp:-** securely copy files between locations.



```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ scp
usage: scp [-346BCpqrTV] [-c cipher] [-F ssh_config] [-i identity_file]
          [-J destination] [-l limit] [-o ssh_option] [-P port]
          [-S program] source ... target
dilshad@dilshad-VirtualBox:~/Desktop$
```

⇒ **ssh-keygen**:-tool for creating new authentication key pair for **ssh**.



```
dilshad@dilshad-VirtualBox: ~/Desktop
dilshad@dilshad-VirtualBox:~/Desktop$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/dilshad/.ssh/id_rsa): lab.txt
lab.txt already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in lab.txt
Your public key has been saved in lab.txt.pub
The key fingerprint is:
SHA256:cjCHaQtbZ9IPC/254Jne6cJRNbhEYmJAKcof9GtH/mc dilshad@dilshad-VirtualBox
The key's randomart image is:
+---[RSA 3072]-----+
|o*  oo..|
|o.= o.o |
|+ . o.+..|
|. + oo=  |
|.= B.= S |
|*.B *   |
|. +. = . |
|.o= o . E|
|.o= o    |
+---[SHA256]-----+
dilshad@dilshad-VirtualBox:~/Desktop$
```