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Report No :- 02
Name of The Lab :- Basic command of Linux operating system.

Objective:- Linux is a family of open source Unix-like operating systems based on the Linux kernel, an operating system kernel first released on September 17, 1991, by Linus Torvalds. Linux is one of the most popular operating system among other OS because it is a free of cost operating system. From today's lab we have learnt about linux command. How linux command works in the linux terminal we saw from today's lab.

Thanks to our course teacher Mr. Nazrul Islam sir who helped us to learn about basic operation of linux and how command works on linux terminal.

Discussion:-

i) What is Linux command?

Ans : Linux is an open-source operating system. It is like Windows, Mac-OS etc. Linux is a Unix-Like operating system. All the Linux/Unix commands are run in the terminal provided by the Linux system. This terminal is just like command prompt of Windows OS. Linux/Unix commands are *case-sensitive*. The terminal can be used to accomplish all Administrative tasks. This includes package installation, file manipulation, and user management. Linux terminal is user-interactive. The terminal outputs the results of commands which are specified by the user itself. All the work which could be done by the mouse pointer we can do by using command in the linux terminal.

ii) Write 15 commands in Linux operating system.

There are a lot of linux command for linux operating system. The most useful 15 linux command out of many are given below with there work details and also the screenshot of the command are also given below which will help us to understand how the linux command works.

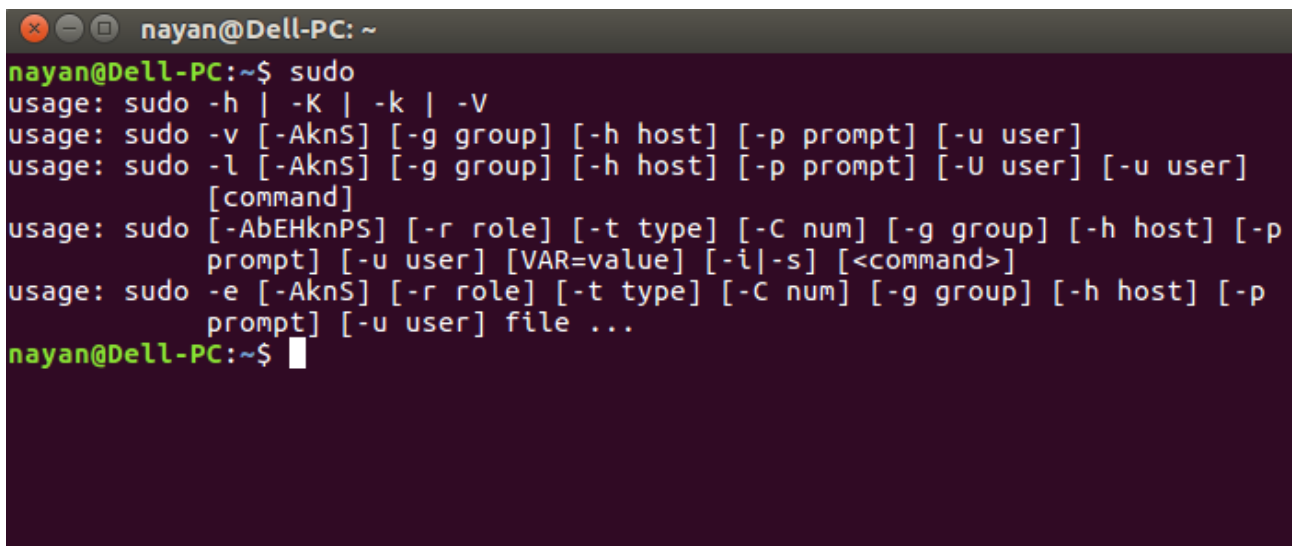
Command of Linux Operating System:-

1. sudo
2. ls a.) ls -l b.) ls -a
3. pwd
4. cd ..
5. ls -al --color=yes

6. df -h
7. du -sh
8. uname
9. passwd
10. ip
11. more
12. kill -l
13. vim
14. history
15. sudo apt -get upgrade

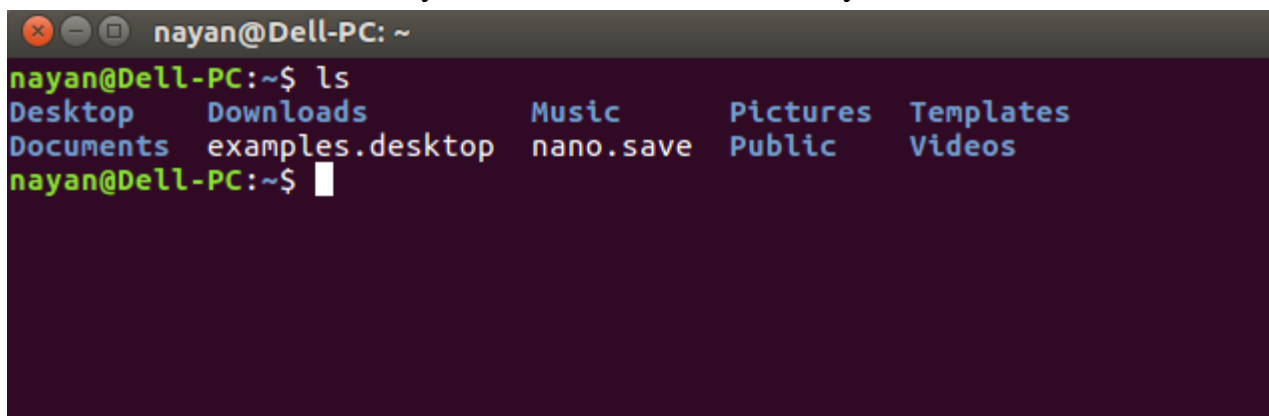
iii) . Description of the linux command:-

1. **sudo:-** This is a very powerful command that allows an authorized user to execute commands as the root user of the system.



```
nayan@Dell-PC: ~  
nayan@Dell-PC:~$ sudo  
usage: sudo -h | -K | -k | -V  
usage: sudo -v [-AknS] [-g group] [-h host] [-p prompt] [-u user]  
usage: sudo -l [-AknS] [-g group] [-h host] [-p prompt] [-U user] [-u user]  
[command]  
usage: sudo [-AbEHknPS] [-r role] [-t type] [-C num] [-g group] [-h host] [-p  
prompt] [-u user] [VAR=value] [-i|-s] [<command>]  
usage: sudo -e [-AknS] [-r role] [-t type] [-C num] [-g group] [-h host] [-p  
prompt] [-u user] file ...  
nayan@Dell-PC:~$
```

2. **ls:-** This is the list directory command and displays the contents of the current working directory. Using the variant **ls -l** gives long form information and **ls -a** also will show us any hidden files in the directory.



```
nayan@Dell-PC: ~  
nayan@Dell-PC:~$ ls  
Desktop      Downloads      Music          Pictures      Templates  
Documents    examples.desktop  nano.save     Public        Videos  
nayan@Dell-PC:~$
```

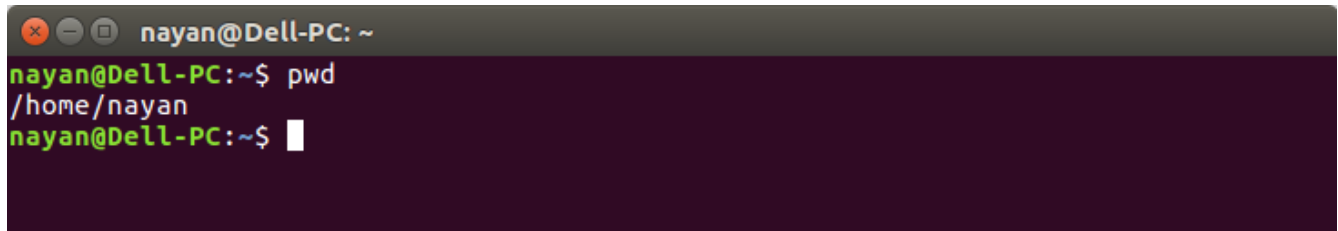
a. `ls -a`

```
nayan@Dell-PC: ~  
nayan@Dell-PC:~$ ls -a  
.          Documents      .pam_environment  
..         Downloads   Pictures  
.adobe     examples.desktop .profile  
.bash_history .gconf         Public  
.bash_logout .gnupg        .sudo_as_admin_successful  
.bashrc    .ICEauthority  Templates  
.cache     .local         Videos  
.compiz    .macromedia    .Xauthority  
.config    .mozilla       .xinputrc  
Desktop    Music          .xsession-errors  
.dmrc      nano.save     .xsession-errors.old  
nayan@Dell-PC:~$
```

b. `ls -l`

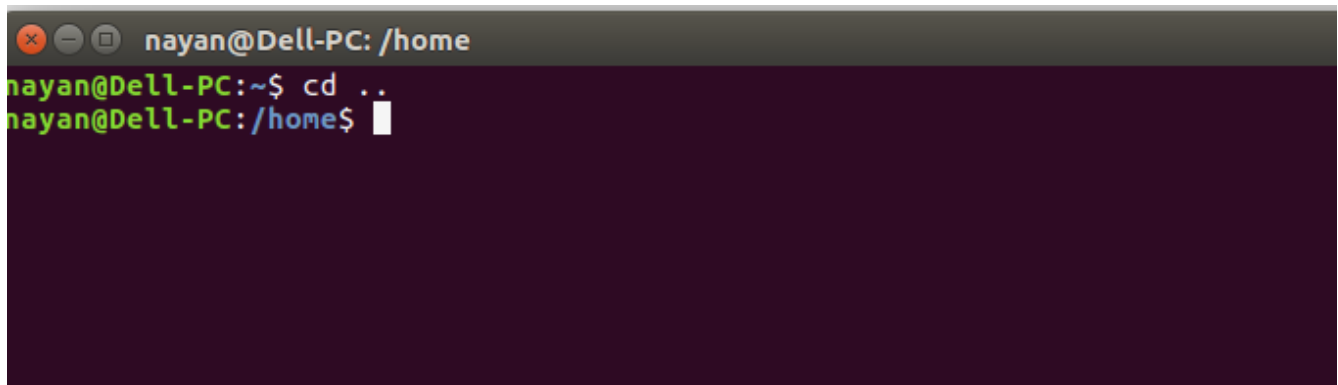
```
nayan@Dell-PC: ~  
nayan@Dell-PC:~$ ls  
Desktop    Downloads      Music          Pictures      Templates  
Documents  examples.desktop nano.save     Public       Videos  
nayan@Dell-PC:~$ ls -l  
ls-l: command not found  
nayan@Dell-PC:~$ ls a  
ls: cannot access 'a': No such file or directory  
nayan@Dell-PC:~$ ls -l  
total 48  
drwxr-xr-x 2 nayan nayan 4096 Aug  4 19:08 Desktop  
drwxr-xr-x 2 nayan nayan 4096 Aug  4 19:08 Documents  
drwxr-xr-x 2 nayan nayan 4096 Aug  4 19:08 Downloads  
-rw-r--r-- 1 nayan nayan 8980 Aug  4 18:45 examples.desktop  
drwxr-xr-x 2 nayan nayan 4096 Aug  4 19:08 Music  
-rw----- 1 root  root   236 Aug  4 19:21 nano.save  
drwxr-xr-x 2 nayan nayan 4096 Sep  4 18:59 Pictures  
drwxr-xr-x 2 nayan nayan 4096 Aug  4 19:08 Public  
drwxr-xr-x 2 nayan nayan 4096 Aug  4 19:08 Templates  
drwxr-xr-x 2 nayan nayan 4096 Aug  4 19:08 Videos  
nayan@Dell-PC:~$
```

3 **pwd**:- The current working directory is displayed with this command.

A terminal window titled 'nayan@Dell-PC: ~' with a dark purple background. The prompt 'nayan@Dell-PC:~\$' is followed by the command 'pwd'. The output is '/home/nayan'. The prompt then changes to 'nayan@Dell-PC:~\$' with a cursor.

```
nayan@Dell-PC: ~  
nayan@Dell-PC:~$ pwd  
/home/nayan  
nayan@Dell-PC:~$
```

04. **cd ..** :- We can Change our home directory with this command. Appending a space and a name will switch us to the named directory. Appending two periods will bring us to the current directory's parent directory.

A terminal window titled 'nayan@Dell-PC: /home' with a dark purple background. The prompt 'nayan@Dell-PC:~\$' is followed by the command 'cd ..'. The output is 'nayan@Dell-PC:/home\$'. The prompt then changes to 'nayan@Dell-PC:/home\$' with a cursor.

```
nayan@Dell-PC: /home  
nayan@Dell-PC:~$ cd ..  
nayan@Dell-PC:/home$
```

05. `ls -al --color = yes`

This command shows us all the list of files and their manipulation.

```
nayan@Dell-PC: ~
nayan@Dell-PC:~$ ls -al --color=yes
total 136
drwxr-xr-x 19 nayan nayan 4096 Sep  5 2019 .
drwxr-xr-x  3 root  root  4096 Aug  4 18:45 ..
drwx----- 3 nayan nayan 4096 Aug  4 21:54 .adobe
-rw----- 1 nayan nayan  343 Sep  4 19:07 .bash_history
-rw-r--r-- 1 nayan nayan  220 Aug  4 18:45 .bash_logout
-rw-r--r-- 1 nayan nayan 3771 Aug  4 18:45 .bashrc
drwx----- 20 nayan nayan 4096 Aug  8 10:40 .cache
drwx-----  3 nayan nayan 4096 Aug  4 19:25 .compiz
drwx----- 21 nayan nayan 4096 Sep  4 18:57 .config
drwxr-xr-x  2 nayan nayan 4096 Aug  4 19:08 Desktop
-rw-r--r-- 1 nayan nayan   25 Aug  4 19:08 .dmrc
drwxr-xr-x  2 nayan nayan 4096 Aug  4 19:08 Documents
drwxr-xr-x  2 nayan nayan 4096 Aug  4 19:08 Downloads
-rw-r--r-- 1 nayan nayan 8980 Aug  4 18:45 examples.desktop
drwx----- 2 nayan nayan 4096 Aug  8 12:47 .gconf
drwx----- 3 nayan nayan 4096 Sep  5 2019 .gnupg
-rw----- 1 nayan nayan 2254 Sep  5 2019 .ICEauthority
drwx----- 3 nayan nayan 4096 Aug  4 19:08 .local
drwx----- 3 nayan nayan 4096 Aug  4 21:54 .macromedia
drwx----- 5 nayan nayan 4096 Aug  4 21:38 .mozilla
drwxr-xr-x  2 nayan nayan 4096 Aug  4 19:08 Music
-rw----- 1 root  root   236 Aug  4 19:21 nano.save
-rw-r--r-- 1 nayan nayan  265 Aug  4 20:05 .pam_environment
drwxr-xr-x  2 nayan nayan 4096 Sep  4 19:03 Pictures
-rw-r--r-- 1 nayan nayan  655 Aug  4 18:45 .profile
drwxr-xr-x  2 nayan nayan 4096 Aug  4 19:08 Public
-rw-r--r-- 1 nayan nayan    0 Aug  4 19:16 .sudo_as_admin_successful
drwxr-xr-x  2 nayan nayan 4096 Aug  4 19:08 Templates
drwxr-xr-x  2 nayan nayan 4096 Aug  4 19:08 Videos
-rw----- 1 nayan nayan   52 Sep  5 2019 .Xauthority
-rw-rw-r-- 1 nayan nayan  131 Aug  4 20:01 .xinputrc
-rw----- 1 nayan nayan   82 Sep  5 2019 .xsession-errors
-rw----- 1 nayan nayan 1004 Aug  8 14:13 .xsession-errors_old
```

06. `df -h` :- this command shows how many size is used by the drives of the disk.

```
nayan@Dell-PC: ~
nayan@Dell-PC:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            3.8G   0    3.8G   0% /dev
tmpfs           768M   9.5M  759M   2% /run
/dev/sda3       72G   5.1G  63G    8% /
tmpfs           3.8G   62M   3.7G   2% /dev/shm
tmpfs           5.0M   4.0K   5.0M   1% /run/lock
tmpfs           3.8G   0    3.8G   0% /sys/fs/cgroup
tmpfs           768M   84K   768M   1% /run/user/1000
/dev/sda7       401G  228G  173G   57% /media/nayan/Luna
/dev/sda6       151G   96G   55G   64% /media/nayan/SOFTWARE
/dev/sda5       183G   94G   89G   52% /media/nayan/STUDIES FILES
nayan@Dell-PC:~$
```

07. **du -f**:- We can Use du (Disk Usage) to view how much space files and folders occupy. Here nayan@dell-pc (my pc) shows 245M and Documents shows 4.0K sized used

```
nayan@dell-PC: ~  
nayan@dell-PC:~$ du -sh  
245M      .  
nayan@dell-PC:~$ du -sh Documents/  
4.0K      Documents/  
nayan@dell-PC:~$
```

08. **uname**:- This command displays information regarding the machine name and operating system.

```
nayan@dell-PC: ~  
nayan@dell-PC:~$ uname  
Linux  
nayan@dell-PC:~$
```

09. **passwd** :- This command allows us to create or update passwords for user accounts.

```
nayan@dell-PC: ~  
nayan@dell-PC:~$ passwd  
Changing password for nayan.  
(current) UNIX password:  
Enter new UNIX password:  
Retype new UNIX password:  
passwd: password updated successfully  
nayan@dell-PC:~$
```

10. **ip** :- This displays and manages routing, devices, and can be used to assign an IP address to a specific interface.

```
nayan@Dell-PC: ~
nayan@Dell-PC:~$ ip
Usage: ip [ OPTIONS ] OBJECT { COMMAND | help }
       ip [ -force ] -batch filename
where  OBJECT := { link | address | addrlabel | route | rule | neighbor | ntable
|
               tunnel | tuntap | maddress | mroute | mrule | monitor | xfrm
|
               netns | l2tp | fou | tcp_metrics | token | netconf }
       OPTIONS := { -V[ersion] | -s[tatistics] | -d[etails] | -r[esolve] |
                   -h[uman-readable] | -iec |
                   -f[amily] { inet | inet6 | ipx | dnet | mpls | bridge | link
} |
                   -4 | -6 | -I | -D | -B | -0 |
                   -l[oops] { maximum-addr-flush-attempts } | -br[ief] |
                   -o[neline] | -t[imestamp] | -ts[hort] | -b[atch] [filename]
|
                   -rc[vbuf] [size] | -n[etns] name | -a[ll] | -c[olor]}
nayan@Dell-PC:~$
```

11. **more** :- This is a very helpful command that displays multiple pages of information one screen at a time.

```
nayan@Dell-PC: ~
nayan@Dell-PC:~$ more
Usage:
  more [options] <file>...

A file perusal filter for CRT viewing.

Options:
  -d          display help instead of ringing bell
  -f          count logical rather than screen lines
  -l          suppress pause after form feed
  -c          do not scroll, display text and clean line ends
  -p          do not scroll, clean screen and display text
  -s          squeeze multiple blank lines into one
  -u          suppress underlining
  -<number>   the number of lines per screenful
  +<number>   display file beginning from line number
  +/<string>  display file beginning from search string match
  -V          display version information and exit

For more details see more(1).
nayan@Dell-PC:~$
```

12. **kill -l**:- To display all the available signals we can use below command option

```
nayan@Dell-PC: ~  
nayan@Dell-PC:~$ kill -l  
1) SIGHUP      2) SIGINT      3) SIGQUIT     4) SIGILL      5) SIGTRAP  
6) SIGABRT     7) SIGBUS      8) SIGFPE      9) SIGKILL     10) SIGUSR1  
11) SIGSEGV    12) SIGUSR2    13) SIGPIPE     14) SIGALRM     15) SIGTERM  
16) SIGSTKFLT  17) SIGCHLD   18) SIGCONT     19) SIGSTOP     20) SIGTSTP  
21) SIGTTIN    22) SIGTTOU    23) SIGURG      24) SIGXCPU     25) SIGXFSZ  
26) SIGVTALRM  27) SIGPROF    28) SIGWINCH    29) SIGIO       30) SIGPWR  
31) SIGSYS     34) SIGRTMIN   35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIGRTMIN+3  
38) SIGRTMIN+4 39) SIGRTMIN+5 40) SIGRTMIN+6 41) SIGRTMIN+7 42) SIGRTMIN+8  
43) SIGRTMIN+9 44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13  
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12  
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7  
58) SIGRTMAX-6 59) SIGRTMAX-5 60) SIGRTMAX-4 61) SIGRTMAX-3 62) SIGRTMAX-2  
63) SIGRTMAX-1 64) SIGRTMAX  
nayan@Dell-PC:~$
```

13. **vim** :- Executing this command allows us to edit text and program files.

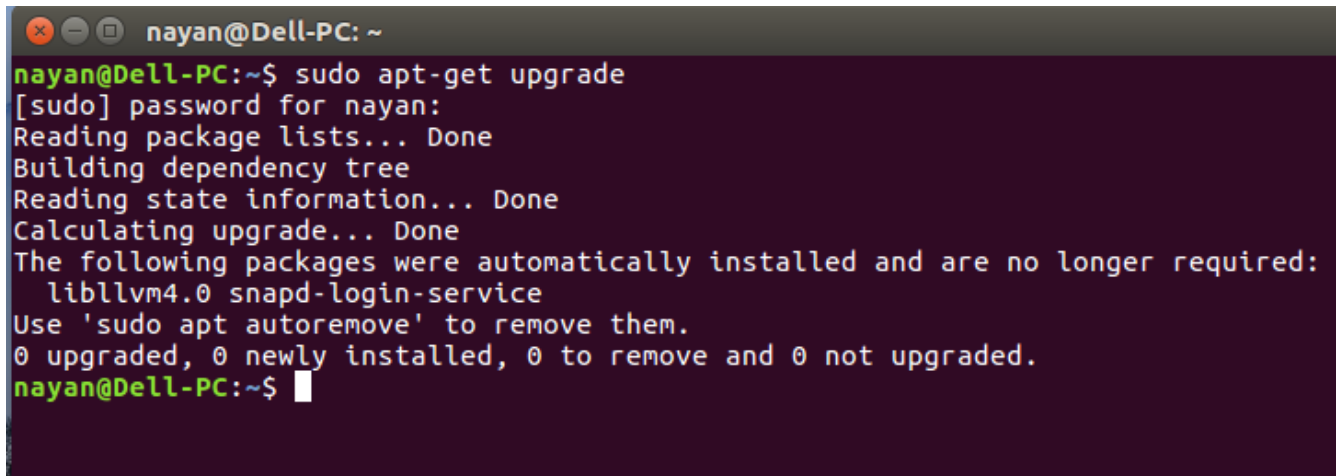
```
nayan@Dell-PC: ~  
nayan@Dell-PC:~$ vim  
The program 'vim' can be found in the following packages:  
* vim  
* vim-gnome  
* vim-tiny  
* vim-athena  
* vim-athena-py2  
* vim-gnome-py2  
* vim-gtk  
* vim-gtk-py2  
* vim-gtk3  
* vim-gtk3-py2  
* vim-nox  
* vim-nox-py2  
Try: sudo apt install <selected package>  
nayan@Dell-PC:~$
```


14. **history** :- Using this command we can see a list of the recently executed commands entered through the command line.

```
nayan@Dell-PC:~$ history
 1 sudo pm-hibernate
 2 sudo nano /etc/polkit-1/localauthority/50-local.d/com.ubuntu.enable-hibernate.pkla
 3 sudo pm-hibernate
 4 sudo nano /etc/polkit-1/localauthority/50-local.d/com.ubuntu.enable-hibernate.pkla
 5 sudo apt-get upgrade
 6 exit
 7 ls
 8 ls -l
 9 ls -a
10 ls -l
11 clear
12 ls -a
13 clear
14 pwd
15 clear
16 cd
17 cd
18 cd..
19 clear
20 ls all
21 ls -al --color=yes
22 clear
23 ls -al --color=yes
24 clear
25 ls -al --color=yes
26 clear
27 pwd
28 clear
29 cd ..
30 cd documents
31 cd desktop
32 cd Desktop
33 cd Music
34 cd / pub /video
35 clear
36 cd ..
37 clear
38 cd ..

32 cd Desktop
33 cd Music
34 cd / pub /video
35 clear
36 cd ..
37 clear
38 cd ..
39 exit
40 cd ..
41 clear
42 chmod
43 chmod a+x
44 chmod a+x myfile
45 chmod a+x video
46 clear
47 df -h
48 du -sh
49 du -sh /luna
50 du -sh luna
51 du -sh luna /
52 mkdir
53 mkdir:
54 passwd
55 mkdir -p /use/one/command/to/make/a/long/path/
56 rm /home/you.txt
57 rm:
58 du -sh Documents/
59 clear
60 du -sh
61 du -sh Documents/
62 clear
63 du -sh
64 mkdir
65 mkdir --
66 mkdir --help
67 clear
68 mv
69 uname
70 clear
71 uname
72 clear
73 history
nayan@Dell-PC:~$
```

15 **sudo apt --get upgrade** :- This command help us to upgrade our system software and keep us up to date.

A screenshot of a Linux terminal window. The title bar shows a red close button, a yellow maximize button, and a green window icon, followed by the text 'nayan@Dell-PC: ~'. The terminal content shows the command 'nayan@Dell-PC:~\$ sudo apt-get upgrade' being executed. The output includes: '[sudo] password for nayan:', 'Reading package lists... Done', 'Building dependency tree', 'Reading state information... Done', 'Calculating upgrade... Done', and a list of packages to be removed: 'liblvm4.0 snapd-login-service'. It also states 'Use 'sudo apt autoremove' to remove them.' and '0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.' The prompt returns to 'nayan@Dell-PC:~\$' with a cursor.

```
nayan@Dell-PC:~$ sudo apt-get upgrade
[sudo] password for nayan:
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  liblvm4.0 snapd-login-service
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
nayan@Dell-PC:~$
```

Conclusion : Linux Terminal is one of the best feature linux have. It help us do our things without using mouse. We can do all the necessary things using command on linux terminal. By using command we can change password our computer, we can create rename any folder and files. To use terminal as root user we need our password which is good for the security of the system. Learning linux command we can help ourselves to operate linux smoothly. We need to learn basic linux command to run linux operating system properly.