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Assignment 6 - Linux Commands

1) ls - The most frequently used command in Linux to list directories

```
indrajeet15@DESKTOP-0PPL9C1:~$ ls
a.out  ans.py  assgin2.tar  indra  main.c  solution.cpp  sum.c  sum.h
indrajeet15@DESKTOP-0PPL9C1:~$
```

2) pwd - Print working directory command

```
indrajeet15@DESKTOP-0PPL9C1:~$ pwd
/home/indrajeet15
indrajeet15@DESKTOP-0PPL9C1:~$
```

3) cd - command to navigate through directories

```
indrajeet15@DESKTOP-0PPL9C1:~$ cd dsa.codes
indrajeet15@DESKTOP-0PPL9C1:~/dsa.codes$
```

4) mkdir - Command used to create directories

```
indrajeet15@DESKTOP-0PPL9C1:~/dsa.codes$ mkdir newfolder
indrajeet15@DESKTOP-0PPL9C1:~/dsa.codes$ ls
newfolder
indrajeet15@DESKTOP-0PPL9C1:~/dsa.codes$
```

5) mv - Move or rename files

```
indrajeet15@DESKTOP-0PPL9C1:~$ mv ans.py demo.py
indrajeet15@DESKTOP-0PPL9C1:~$ ls
a.out  assgin2.tar  demo.py  dsa.codes  indra  main.c  solution.cpp  sum.c  sum.h
indrajeet15@DESKTOP-0PPL9C1:~$
```

6) cp - Similar usage as mv but for copying files in Linux

```
indrajeet15@DESKTOP-0PPL9C1:~/indra$ ls
a.out  try.c  try.s
indrajeet15@DESKTOP-0PPL9C1:~/indra$ cat try.c
#include<stdio.h>
int main(){
        int a;
        a = 1;
        return 0;
}
indrajeet15@DESKTOP-0PPL9C1:~/indra$ cp try.c main.c
indrajeet15@DESKTOP-0PPL9C1:~/indra$ ls
a.out  main.c  try.c  try.s
indrajeet15@DESKTOP-0PPL9C1:~/indra$ cat main.c
#include<stdio.h>
int main(){
        int a;
        a = 1;
        return 0;
}
indrajeet15@DESKTOP-0PPL9C1:~/indra$
```

7) rm - Delete files or directories

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  try.c  try.s
indrajeet15@DESKTOP-0PPL9C1:~/practice$ rm try.s
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  try.c
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

8) touch - Create blank/empty files

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  try.c
indrajeet15@DESKTOP-0PPL9C1:~/practice$ touch samplefile
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  samplefile  try.c
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

9) cat - Display file contents on the terminal

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ cat try.c
#include<stdio.h>
int main(){
        int a;
        a = 1;
        return 0;
}
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

10) clear - Clear the terminal display

```
Select indrajeet15@DESKTOP-0PPL9C1: ~/practice
indrajeet15@DESKTOP-0PPL9C1:~$ ls
a.out  assgin2.tar  demo.py  dsa.codes  indra  main.c  solution.cpp  sum.c  sum.h
indrajeet15@DESKTOP-0PPL9C1:~$ mv indra practice
indrajeet15@DESKTOP-0PPL9C1:~$ ls
a.out  assgin2.tar  demo.py  dsa.codes  main.c  practice  solution.cpp  sum.c  sum.h
indrajeet15@DESKTOP-0PPL9C1:~$ cd practice
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  try.c  try.s
indrajeet15@DESKTOP-0PPL9C1:~/practice$ rm try.s
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  try.c
indrajeet15@DESKTOP-0PPL9C1:~/practice$ touch samplefile
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  samplefile  try.c
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ls
a.out  main.c  samplefile  try.c
indrajeet15@DESKTOP-0PPL9C1:~/practice$ cat try.c
#include<stdio.h>
int main(){
        int a;
        a = 1;
        return 0;
}
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

```
indrajeet15@DESKTOP-0PPL9C1: ~/practice
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

11) echo - Print any text that follows the command

```
indrajeet15@DESKTOP-0PPL9C1: ~/practice
indrajeet15@DESKTOP-0PPL9C1:~/practice$ echo I am writing on terminal
I am writing on terminal
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

12)less - Linux command to display paged outputs in the terminal

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ cat main.c | less
```
```
indrajeet15@DESKTOP-0PPL9C1: ~/practice
#include<stdio.h>
int main(){
        int a;
        a = 1;
        return 0;
}
(END)
```

13)man - Access manual pages for all Linux commands

```
indrajeet15@DESKTOP-0PPL9C1: ~/practice
TOUCH(1)                                                          User Commands

NAME
       touch - change file timestamps

SYNOPSIS
       touch [OPTION]... FILE...

DESCRIPTION
       Update the access and modification times of each FILE to the current time.

       A FILE argument that does not exist is created empty, unless -c or -h is supplied.

       A FILE argument string of - is handled specially and causes touch to change the times of the file associated with standard output.

       Mandatory arguments to long options are mandatory for short options too.

       -a     change only the access time

       -c, --no-create
              do not create any files

       -d, --date=STRING
              parse STRING and use it instead of current time

       -f     (ignored)

       -h, --no-dereference
              affect each symbolic link instead of any referenced file (useful only on systems that can change the timestamps of a symlink)

       -m     change only the modification time

       -r, --reference=FILE
              use this file's times instead of current time

       -t STAMP
              use [[CC]YY]MMDDhhmm[.ss] instead of current time

       --time=WORD
              change the specified time: WORD is access, atime, or use: equivalent to -a WORD is modify or mtime: equivalent to -m

       --help display this help and exit
```

14)uname - Linux command to get basic information about the OS

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ uname
Linux
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

15)whoami - Get the active username

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ whoami
indrajeet15
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

16)grep - Search for a string within an output

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ cat samplefile
Using WSL.
Not on virtual machine though.
Will be soon.
indrajeet15@DESKTOP-0PPL9C1:~/practice$ cat samplefile | grep "virtual"
Not on virtual machine though.
indrajeet15@DESKTOP-0PPL9C1:~/practice$ _
```

17)head - Return the specified number of lines from the top

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ cat samplefile
Using WSL.
Not on virtual machine though.
Will be soon.

This file contains text and characters.
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
indrajeet15@DESKTOP-0PPL9C1:~/practice$ head samplefile
Using WSL.
Not on virtual machine though.
Will be soon.

This file contains text and characters.
A
B
C
D
E
```

18)tail - Return the specified number of lines from the bottom

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ tail samplefile
Q
R
S
T
U
V
W
X
Y
Z
indrajeet15@DESKTOP-0PPL9C1:~/practice$ _
```

19)cmp - Allows you to check if two files are identical

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ cmp samplefile newfile
samplefile newfile differ: byte 1, line 1
indrajeet15@DESKTOP-0PPL9C1:~/practice$ _
```

20)comm - Combines the functionality of diff and cmp

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ comm samplefile newfile
        This is new file.
comm: file 2 is not in sorted order
        Created Now.
Using WSL.
comm: file 1 is not in sorted order
Not on virtual machine though.
Will be soon.
comm: input is not in sorted order
```

21)sort - Linux command to sort the content of a file while outputting

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ sort samplefile
Not on virtual machine though.
Using WSL.
Will be soon.
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

22)ps - Display active processes

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ps
  PID TTY          TIME CMD
   11 tty1     00:00:01 bash
  246 tty1     00:00:00 ps
indrajeet15@DESKTOP-0PPL9C1:~/practice$ _
```

23)df - Display disk filesystem information

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ df
Filesystem      1K-blocks     Used Available Use% Mounted on
rootfs         243555652 97940040 145615612  41% /
none           243555652 97940040 145615612  41% /dev
none           243555652 97940040 145615612  41% /run
none           243555652 97940040 145615612  41% /run/lock
none           243555652 97940040 145615612  41% /run/shm
none           243555652 97940040 145615612  41% /run/user
tmpfs          243555652 97940040 145615612  41% /sys/fs/cgroup
C:\            243555652 97940040 145615612  41% /mnt/c
D:\            464760828  2062520 462698308   1% /mnt/d
E:\            511998972   117668 511881304   1% /mnt/e
```

24)ifconfig - Display network interfaces and IP addresses

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ifconfig
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 1500
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0xfe<compat,link,site,host>
        loop  (Local Loopback)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wifi0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.100.105.114  netmask 255.255.240.0  broadcast 10.100.111.255
        inet6 fe80::955f:9697:bd48:8742  prefixlen 64  scopeid 0xfd<compat,link,site,host>
        ether b4:8c:9d:99:4c:bb  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

25)traceroute - Trace all the network hops to reach the destination

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ traceroute localhost
traceroute to localhost (127.0.0.1), 30 hops max, 60 byte packets
 1  * * *
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
22  * * *
23  * * *
24  * * *
25  * * *
26  * * *
27  * * *
28  * * *
29  * * *
30  * * *
```

26)wget - Direct download files from the internet

27)sudo - Command to escalate privileges in Linux

28)cal - View a command-line calendar

29)alias - Create custom shortcuts for your regularly used commands

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ alias lsl="ls -l"
indrajeet15@DESKTOP-0PPL9C1:~/practice$ lsl
total 24
-rwxr-xr-x 1 indrajeet15 indrajeet15 16856 Nov 29 00:53 a.out
-rw-r--r-- 1 indrajeet15 indrajeet15   695 Jan 22 15:44 index.html
-rw-r--r-- 1 indrajeet15 indrajeet15    59 Jan 22 14:30 main.c
-rw-r--r-- 1 indrajeet15 indrajeet15    31 Jan 22 14:58 newfile
-rw-r--r-- 1 indrajeet15 indrajeet15    57 Jan 22 14:59 samplefile
-rw-r--r-- 1 indrajeet15 indrajeet15    59 Nov 29 00:50 try.c
```

30)whereis - Locate the binary, source, and manual pages for a command

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ whereis cat
cat: /usr/bin/cat /usr/share/man/man1/cat.1.gz
```

31)whatis - Find what a command is used for

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ whatis cat
cat (1)              - concatenate files and print on the standard output
```

32)top - View active processes live with their system usage

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ top
top - 15:58:30 up  1:45,  0 users,  load average: 0.52, 0.58, 0.59
Tasks:   4 total,   1 running,   3 sleeping,   0 stopped,   0 zombie
%Cpu(s):  3.8 us,  3.0 sy,  0.0 ni, 92.4 id,  0.0 wa,  0.8 hi,  0.0 si,  0.0 st
MiB Mem :   7933.0 total,   1618.3 free,   6090.8 used,    224.0 buff/cache
MiB Swap:  24576.0 total,  23439.0 free,   1137.0 used.   1711.6 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
    1 root      20   0    8960    416    344 S   0.0   0.0   0:00.10 init
  662 root      20   0    9308    236    184 S   0.0   0.0   0:00.00 init
  663 indraje+  20   0   17268   3920   3808 S   0.0   0.0   0:00.11 bash
  869 indraje+  20   0   18808   2276   1588 R   0.0   0.0   0:00.01 top
```

33)passwd - Create or update passwords for existing users

```
indrajeet15@DESKTOP-0PPL9C1: ~/practice
indrajeet15@DESKTOP-0PPL9C1:~/practice$ passwd
Changing password for indrajeet15.
Current password: _
```

34)ping

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ ping moodle.coep.org.in
PING moodle.coep.org.in (172.16.1.200) 56(84) bytes of data.
64 bytes from moodle.coep.org.in (172.16.1.200): icmp_seq=1 ttl=62 time=3.10 ms
64 bytes from moodle.coep.org.in (172.16.1.200): icmp_seq=2 ttl=62 time=16.6 ms
64 bytes from moodle.coep.org.in (172.16.1.200): icmp_seq=3 ttl=62 time=7.59 ms
64 bytes from moodle.coep.org.in (172.16.1.200): icmp_seq=4 ttl=62 time=3.44 ms
64 bytes from moodle.coep.org.in (172.16.1.200): icmp_seq=5 ttl=62 time=4.16 ms
^Z
[2]+  Stopped                 ping moodle.coep.org.in
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

35)service

```
indrajeet15@DESKTOP-0PPL9C1:~/practice$ service
Usage: service < option > | --status-all | [ service_name [ command | --full-restart ] ]
indrajeet15@DESKTOP-0PPL9C1:~/practice$
```

36) g++

```
indrajeet15@DESKTOP-0PPL9C1:~$ g++ solution.cpp
indrajeet15@DESKTOP-0PPL9C1:~$ ./a.out
```

37) bc

```
indrajeet15@DESKTOP-0PPL9C1:~$ bc
bc 1.07.1
Copyright 1991-1994, 1997, 1998, 2000, 2004, 2006,
This is free software with ABSOLUTELY NO WARRANTY.
For details type `warranty'.
3+5
8
```

38) acpi

```
indrajeet15@DESKTOP-0PPL9C1: ~
indrajeet15@DESKTOP-0PPL9C1:~$ acpi
Battery 0: Charging, 0%, charging at zero rate - will never fully charge.
indrajeet15@DESKTOP-0PPL9C1:~$
```

39) version command

```
indrajeet15@DESKTOP-0PPL9C1:~$ python3 --version
Python 3.10.6
```

40) du : Used to track the files and directories which are consuming excessive amount of space on hard disk drive

```
indrajeet15@DESKTOP-0PPL9C1:~$ du
0       ./.config/procps
0       ./.config/swi-prolog/dir-history
0       ./.config/swi-prolog
0       ./.config
0       ./.landscape
0       ./dsa.codes/newfolder
0       ./dsa.codes
24      ./practice
144     .
```