

OS-Lab-Task-3

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Section: 4B

Commands Execution

Exercises During Lab:

Ex:1

```
lab@pc-lab-dell-7420:~$ mkdir Grades
lab@pc-lab-dell-7420:~$ ls
2026      Documents  f2.txt    Music     Public   Templates
Auto85.csv  Downloads  file.txt  myenv    SMAHMED Untitled.ipynb
Desktop    f1.txt    Grades    Pictures  snap     Videos
lab@pc-lab-dell-7420:~$ cd Grades/
lab@pc-lab-dell-7420:~/Grades$ mkdir A B C
lab@pc-lab-dell-7420:~/Grades$ ls
A  B  C
lab@pc-lab-dell-7420:~/Grades$ mkdir /home/lab/Grades/A/ Math
mkdir: cannot create directory '/home/lab/Grades/A/': File exists
lab@pc-lab-dell-7420:~/Grades$ mkdir /home/lab/Grades/A/Math
lab@pc-lab-dell-7420:~/Grades$ mkdir /home/lab/Grades/B/Physics Maths
lab@pc-lab-dell-7420:~/Grades$ mkdir /home/lab/Grades/C/Physics
lab@pc-lab-dell-7420:~/Grades$ ls
A  B  C  Math  Maths
lab@pc-lab-dell-7420:~/Grades$ rm -r Math
lab@pc-lab-dell-7420:~/Grades$ rm -r
A/      B/      C/      Maths/
lab@pc-lab-dell-7420:~/Grades$ rm -r Maths/
lab@pc-lab-dell-7420:~/Grades$ ls A/
Math
lab@pc-lab-dell-7420:~/Grades$ ls
A/  B/  C/
lab@pc-lab-dell-7420:~/Grades$ ls B/
Physics
lab@pc-lab-dell-7420:~/Grades$ ls C
Physics
lab@pc-lab-dell-7420:~/Grades$ cd B
lab@pc-lab-dell-7420:~/Grades/B$ ls
Physics
lab@pc-lab-dell-7420:~/Grades/B$ mkdir Maths
lab@pc-lab-dell-7420:~/Grades/B$ ls
Maths  Physics
lab@pc-lab-dell-7420:~/Grades/B$ cd ..
lab@pc-lab-dell-7420:~/Grades$ ls
A  B  C
lab@pc-lab-dell-7420:~/Grades$ cd A/
lab@pc-lab-dell-7420:~/Grades/A$ ls
Math
lab@pc-lab-dell-7420:~/Grades/A$ echo "24P-0706"
24P-0706
lab@pc-lab-dell-7420:~/Grades/A$ █
```

Ex:2

```
lab@pc-lab-dell-7420:~$ echo "24P-0706"
24P-0706
lab@pc-lab-dell-7420:~$ mkdir Subject
lab@pc-lab-dell-7420:~$ cd Subject/
lab@pc-lab-dell-7420:~/Subject$ mkdir Math Physics
lab@pc-lab-dell-7420:~/Subject$ ls
Math Physics
lab@pc-lab-dell-7420:~/Subject$ mv Physics/ Math/
lab@pc-lab-dell-7420:~/Subject$ ls
Math
lab@pc-lab-dell-7420:~/Subject$ ls Math/
Physics
lab@pc-lab-dell-7420:~/Subject$ cd Math/Physics/
lab@pc-lab-dell-7420:~/Subject/Math/Physics$ pwd
/home/lab/Subject/Math/Physics
lab@pc-lab-dell-7420:~/Subject/Math/Physics$ cd /home/lab/Subject/
lab@pc-lab-dell-7420:~/Subject$ pwd
/home/lab/Subject
lab@pc-lab-dell-7420:~/Subject$ rm /
bin/          lib/          mnt/          snap/
bin usr-is-merged/ lib32/        opt/          srv/
boot/         lib64/        proc/         sys/
cdrom/        lib usr-is-merged/ root/        tmp/
dev/          libx32/       run/          usr/
etc/          lost+found/   sbin/        var/
home/         media/       sbin usr-is-merged/
lab@pc-lab-dell-7420:~/Subject$ ls
Math
lab@pc-lab-dell-7420:~/Subject$ rm Math/Physics/
rm: cannot remove 'Math/Physics/': Is a directory
lab@pc-lab-dell-7420:~/Subject$ rm -f Math/Physics/
rm: cannot remove 'Math/Physics/': Is a directory
lab@pc-lab-dell-7420:~/Subject$ rm
rm rmdir rmod rmt rmt-tar
lab@pc-lab-dell-7420:~/Subject$ rmdir Math/Physics/
lab@pc-lab-dell-7420:~/Subject$ ls
Math
lab@pc-lab-dell-7420:~/Subject$ ls Math/
lab@pc-lab-dell-7420:~/Subject$ █
```

Lab Task Commands:

1. man command:

```
aazan-noor-khuwaja@Hp-G3:~$ echo "24P-0706"
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ man ls
aazan-noor-khuwaja@Hp-G3:~$ █
```

```

ls(1)                               Fri Feb 13 2:24 PM 41°C
                                         aazan-noor-khuwaja@Hp-G3:~ User Commands
                                         LS(1)

NAME      ls - list directory contents
SYNOPSIS   ls [OPTION]... [FILE]...
DESCRIPTION
List information about the FILEs (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

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

-a, --all
        do not ignore entries starting with .

-A, --almost-all
        do not list implied . and ..

--author
        with -l, print the author of each file

-b, --escape
        print C-style escapes for nongraphic characters

--block-size=SIZE
        with -l, scale sizes by SIZE when printing them; e.g., '--block-size=M'; see SIZE format below

-B, --ignore-backups
        do not list implied entries ending with ~

-c      with -lt: sort by, and show, ctime (time of last change of file status information); with -l: show ctime and sort by name; otherwise: sort by ctime, newest first

-C      list entries by columns

--color[=WHEN]
        color the output WHEN; more info below

-d, --directory
        list directories themselves, not their contents

Manual page ls(1) line 1/215 18% (press h for help or q to quit)

```

```

aazan-noor-khuwaja@Hp-G3:~$ echo "24P-0706"
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ man 3 sudo
No manual entry for sudo in section 3
aazan-noor-khuwaja@Hp-G3:~$ man 2 sudo
No manual entry for sudo in section 2
aazan-noor-khuwaja@Hp-G3:~$ man 2 mkdir
aazan-noor-khuwaja@Hp-G3:~$ 

```

```

mkdir(2)                               System Calls Manual                               mkdir(2)
                                         aazan-noor-khuwaja@Hp-G3:~-
NAME      mkdir, mkdirat - create a directory
LIBRARY   Standard C library (libc, -lc)
SYNOPSIS
#include <sys/stat.h>

int mkdir(const char *pathname, mode_t mode);
#include <fcntl.h>           /* Definition of AT_* constants */
#include <sys/stat.h>

int mkdirat(int dirfd, const char *pathname, mode_t mode);

Feature Test Macro Requirements for glibc (see feature_test_macros(7)):

mkdirat():
  Since glibc 2.10:
    _POSIX_C_SOURCE >= 200809L
  Before glibc 2.10:
    _ATFILE_SOURCE

DESCRIPTION
mkdir() attempts to create a directory named pathname.

The argument mode specifies the mode for the new directory (see inode(7)). It is modified by the process's umask in the usual way: in the absence of a default ACL, the mode of the created directory is (mode & umask & 0777). Whether other mode bits are honored for the created directory depends on the operating system. For Linux, see NOTES below.

The newly created directory will be owned by the effective user ID of the process. If the directory containing the file has the set-group-ID bit set, or if the filesystem is mounted with BSD group semantics (mount -o bsdgroups or, synonymously mount -o grpid), the new directory will inherit the group ownership from its parent; otherwise it will be
Manual page mkdir(2) line 1 (press h for help or q to quit)

```

2. clear command:

```
aazan-noor-khuwaja@Hp-G3:~$ echo "24P-0706"
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ man 3 sudo
No manual entry for sudo in section 3
aazan-noor-khuwaja@Hp-G3:~$ man 2 sudo
No manual entry for sudo in section 2
aazan-noor-khuwaja@Hp-G3:~$ man 2 mkdir
aazan-noor-khuwaja@Hp-G3:~$ clear
```

```
aazan-noor-khuwaja@Hp-G3:~$
```

3. Exit:

```
aazan-noor-khuwaja@Hp-G3:~$ echo "24P-0706"
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ exit
```

4. history command:

```
aazan-noor-khuwaja@Hp-G3:~$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~$ history  
153 suod apy install qbittorrent  
154 suod apt install qbittorrent  
155 sudo apt install qbittorrent  
156 ls  
157 cd .  
158 cd ..  
159 ls  
160 clear  
161 cd aazan-noor-khuwaja/  
162 clear  
163 neofetch  
164 clear  
165 sudo apt-get install cheese  
166 cheese  
167 l  
168 clear  
169 ls  
170 cd ..  
171 clear  
172 ls  
173 cat /etc/shadow
```

5. echo command:

```
aazan-noor-khuwaja@Hp-G3:~$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~$ echo "This is my lab task of OS"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -n "This is my lab task of OS"  
This is my lab task of OSaazan-noor-khuwaja@Hp-G3:~$ echo -n "This is my lab task of  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my lab \btask of OS"  
This is my labtask of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my lab task of OS\b"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "\b This is my lab task of OS"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "\bThis is my lab task of OS"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "\bThis is my lab task of OS\b"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my lab task of OS\a"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my lab task \bof OS"  
This is my lab taskof OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my la\bb \btask \bof OS"  
This is my lbtaskof OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my lab task of OS\c"  
This is my lab task of OSaazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my lab task of OS\c"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my lab\c task of OS"  
This is my labaazan-noor-khuwaja@Hp-G3:~$ echo -e "This is my la\bb \btask \bof OS"  
This is my lbtaskof OS  
aazan-noor-khuwaja@Hp-G3:~$ echo -E "This is my lab task of OS"  
This is my lab task of OS  
aazan-noor-khuwaja@Hp-G3:~$
```

6. alias, unalias commands:

```
aazan-noor-khuwaja@Hp-G3:~ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~$ alias dikhao="ls"  
aazan-noor-khuwaja@Hp-G3:~$ dikhao  
'Aazan_Data' 'All about Linux' Desktop Documents Downloads Movies Music Pictures Public snap Templates Videos WhatSie  
aazan-noor-khuwaja@Hp-G3:~$ unalias dikhao  
aazan-noor-khuwaja@Hp-G3:~$ dikhao  
dikhao: command not found  
aazan-noor-khuwaja@Hp-G3:~$
```

7. (|) Pipe command:

```
aazan-noor-khuwaja@Hp-G3:~/Desktop$ ro  
Command 'ro' not found, but can be installed with:  
sudo apt install golang-redoctober  
aazan-noor-khuwaja@Hp-G3:~/Desktop$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Desktop$ ls | grep ".txt"  
file.txt  
aazan-noor-khuwaja@Hp-G3:~/Desktop$
```

8. &&:

```
aazan-noor-khuwaja@Hp-G3:~ roll && ls  
24P-0706  
'Aazan_Data' 'All about Linux' Desktop Documents Downloads Movies Music Pictures Public snap Templates Videos WhatSie  
aazan-noor-khuwaja@Hp-G3:~$
```

9. date command:

```
aazan-noor-khuwaja@Hp-G3:~ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~$ date  
Fri Feb 13 03:13:05 PM PKT 2026  
aazan-noor-khuwaja@Hp-G3:~$
```

10. ps command:

```
aazan-noor-khuwaja@Hp-G3:~ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:-$ ps
  PID TTY      STAT TIME COMMAND
 415583 pts/0    00:00:00 bash
 436240 pts/0    00:00:00 ps
aazan-noor-khuwaja@Hp-G3:-$ ps -t
  PID TTY      STAT TIME COMMAND
 415583 pts/0    Ss    0:00 bash
 436368 pts/0    R+   0:00 ps -t
aazan-noor-khuwaja@Hp-G3:-$ ps -u
USER      PID %CPU %MEM VSZ RSS TTY      STAT START  TIME COMMAND
aazan-++  2337  0.0  0.1 235676 6240 tty2    Ssl+ Feb10  0:00 /usr/libexec/gdm-wayland-session env GNOME_SHELL_SESSION_MODE=ubuntu /usr/bin/gnome-session --session=ubuntu
aazan-++  2344  0.0  0.1 298244 16608 tty2    Ssl+ Feb10  0:00 /usr/libexec/gnome-session-binary --session=ubuntu
aazan-++  415583  0.0  0.1 13100 6920 pts/0    Ss  14:36  0:00 bash
aazan-++  436439  10.0  0.1 13752 4800 pts/0    R+  15:15  0:00 ps -u
aazan-noor-khuwaja@Hp-G3:-$ ps -A
  PID TTY      STAT TIME COMMAND
  1 ?    0:00:00 16 systemd
  2 ?    0:00:00 kthread
  3 ?    0:00:00 pool_workqueue_release
  4 ?    0:00:00 kworker/R-rcu_gp
  5 ?    0:00:00 kworker/R-sync_wq
  6 ?    0:00:00 kworker/R-kvfree_rcu_reclaim
  7 ?    0:00:00 kworker/R-stub_flushwq
  8 ?    0:00:00 kworker/R-netns
 13 ?    0:00:00 kworker/R-mm_percpu_wq
 14 ?    0:02:42 ksoftirqd/0
 15 ?    0:00:28 rcu_preempt
 16 ?    0:00:00 rcu_exp_par_gp_kthread_worker/0
 17 ?    0:00:00 rcu_exp_gp_kthread_worker
 18 ?    0:00:00 migration/0
 19 ?    0:00:00 tde_inject/0
 20 ?    0:00:00 cpuhp/0
 21 ?    0:00:00 cpuhp/1
 22 ?    0:00:00 tde_inject/1
 23 ?    0:00:00 migration/1
 24 ?    0:00:37 ksoftirqd/1
 27 ?    0:00:00 cpuhp/2
 28 ?    0:00:00 tde_inject/2
 29 ?    0:00:00 migration/2
 30 ?    0:00:07 ksoftirqd/2
 32 ?    00:00:00 kworker/2@events_highpri
```

11. kill command:

```
aazan-noor-khuwaja@Hp-G3:~ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:-$ ps ux
  PID %CPU %MEM VSZ RSS TTY      STAT START  TIME COMMAND
aazan-++  2266  0.0  0.0 21660 13064 ?        Ss  Feb10  0:11 /usr/lib/systemd/systemd --user
aazan-++  2211  0.0  0.0 21472 3636 ?        S     Feb10  0:00 (sd-pam)
aazan-++  2221  0.0  0.1 123124 20968 ?       Ssl+ Feb10  1:42 /usr/bin/pipewire
aazan-++  2222  0.0  0.0 97744 6666 ?        Ssl+ Feb10  0:00 /usr/bin/pipewire -c filter-chain.conf
aazan-++  2225  0.0  0.1 406964 19216 ?       Ssl+ Feb10  0:05 /usr/bin/wireplumber
aazan-++  2226  0.0  0.2 154428 48292 ?       S-Ls Feb10  0:38 /usr/bin/pipewire-pulse
aazan-++  2242  0.0  0.0 12368 8168 ?        Ss  Feb10  0:10 /usr/bin/dbus-daemon --session --address=sessionbus --nofork --nopidfile --systemd-activation --syslog-only
aazan-++  2244  0.0  0.0 316644 10556 ?       S-Ls Feb10  0:00 /usr/bin/gnome-keyring-daemon --foreground --components=pkcs11_secrets --control-directory=/run/user/1000/keyring
aazan-++  2280  0.0  0.0 898864 7624 ?        Ssl+ Feb10  0:00 /usr/libexec/xdg-document-portal
aazan-++  2284  0.0  0.0 389444 6240 ?        Ssl+ Feb10  0:00 /usr/libexec/xdg-permission-store
aazan-++  2337  0.0  0.0 235676 6240 tty2    Ssl+ Feb10  0:00 /usr/libexec/gdm-wayland-session env GNOME_SHELL_SESSION_MODE=ubuntu /usr/bin/gnome-session --session=ubuntu
aazan-++  2344  0.0  0.1 298244 16608 tty2    Ssl+ Feb10  0:00 /usr/libexec/gnome-session-binary --session=ubuntu
aazan-++  2417  0.0  0.0 162660 6916 ?        Ssl+ Feb10  0:00 /usr/libexec/gcr-ssh-agent --base-dir /run/user/1000/gcr

aazan-++  351253  0.3  3.1 1542672 514844 ?       SL  12:25  0:34 /usr/bin/okular /home/aazan-noor-khuwaja/aazan_Data/4th_Semester/OS_Lab/Lab-02-Manual-Basic-Linux-Commands.pdf
aazan-++  351699  0.0  0.7 1459748652 129272 ?       SL  12:26  0:01 /opt/brave.com/brave/brave --type=renderer --crashpad-handler-pid=192317 --enable-crash-reporter=03b269aa-b402-435d-8633-e0
aazan-++  375458  3.7  3.6 1459826668 598352 ?       SL  12:57  5:15 /opt/brave.com/brave/brave --type=renderer --crashpad-handler-pid=192317 --enable-crash-reporter=03b269aa-b402-435d-8633-e0
aazan-++  388052  0.0  0.4 2949212 71508 ?       SL  13:46  0:01 qjs /usr/share/gnome-shell/extensions/ding@astersoft.com/app/ding.js -E -P /usr/share/gnome-shell/extensions/ding@asterso
aazan-++  395986  4.0  2.4 3031724 392388 ?       SL  13:59  3:11 /snap/spotify/89/usr/share/spotify/spotify
aazan-++  395169  0.0  0.5 525624 97180 ?       S    13:59  0:00 /snap/spotify/89/usr/share/spotify/spotify --type=zygote --no-zygote-sandbox --no-sandbox --enable-crash-reporter=, --chang
aazan-++  395170  0.0  0.6 525624 97584 ?       S    13:59  0:00 /snap/spotify/89/usr/share/spotify/spotify --type=zygote --no-sandbox --enable-crash-reporter=, --change-stack-guard-on-for
aazan-++  395289  2.2  0.8 1425932 143512 ?       S    13:59  1:47 /snap/spotify/89/usr/share/spotify/spotify --type=zygote-sandbox --no-sandbox --enable-crash-reporter=, --change-stack-guard-o
aazan-++  395212  0.1  0.8 971448 134576 ?       SL  13:59  0:04 /snap/spotify/89/usr/share/spotify/spotify --type=utility --utility-sub-type=network.mojom.NetworkService --lang=en-US --se
aazan-++  395213  0.0  0.3 969252 59680 ?       SL  13:59  0:00 /snap/spotify/89/usr/share/spotify/spotify --type=utility --utility-sub-type=storage.mojom.StorageService --lang=en-US --se
aazan-++  395282  3.8  2.5 1479285456 412300 ?       SL  13:59  3:02 /snap/spotify/89/usr/share/spotify/spotify --type=utility --utility-sub-type=storage.mojom.StorageService --lang=en-US --se
aazan-++  412446  3.5  1.6 1459782120 264112 ?       SL  14:30  1:39 /opt/brave.com/brave/brave --type=renderer --crashpad-handler-pid=192317 --enable-crash-reporter=03b269aa-b402-435d-8633-e0
aazan-++  414279  0.0  0.9 1459750060 156176 ?       SL  14:30  0:00 /opt/brave.com/brave/brave --type=renderer --crashpad-handler-pid=192317 --enable-crash-reporter=03b269aa-b402-435d-8633-e0
aazan-++  415557  0.0  0.1 31916 19488 ?        S    14:36  0:00 /usr/bin/python3 /usr/bin/gnome-terminal -wait
aazan-++  415566  0.0  0.1 458992 29504 ?        S    14:36  0:00 /usr/bin/gnome-terminal-server
aazan-++  415583  0.0  0.0 13100 6920 pts/0    Ss  14:36  0:00 bash
aazan-++  432916  0.0  0.4 1459730844 76684 ?       SL  15:09  0:00 /opt/brave.com/brave/brave --type=renderer --crashpad-handler-pid=192317 --enable-crash-reporter=03b269aa-b402-435d-8633-e0
aazan-++  437560  0.0  0.0 13752 4796 pts/0    R+  15:18  0:00 ps ux
aazan-noor-khuwaja@Hp-G3:~ kill 351353
aazan-noor-khuwaja@Hp-G3:~ ps ux | grep "351353"
aazan-++  438631  0.0  0.0 9152 2312 pts/0    S+  15:20  0:00 grep --color=auto 351353
aazan-noor-khuwaja@Hp-G3:~
```

12. df command:

```
aazan-noor-khuwaja@Hp-G3:~$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~$ df -h  
Filesystem      Size  Used Avail Use% Mounted on  
tmpfs          1.6G  2.7M  1.6G  1% /run  
/dev/nvme0n1p6   86G   38G   43G  47% /  
tmpfs          7.8G  48M  7.8G  1% /dev/shm  
tmpfs          5.0M  8.0K  5.0M  1% /run/lock  
efivarfs       118K   73K   41K  65% /sys/firmware/efi/efivars  
/dev/nvme0n1p2   99M   16M   84M  16% /boot/efi  
tmpfs          1.6G  4.9M  1.6G  1% /run/user/1000  
aazan-noor-khuwaja@Hp-G3:~$ df -m  
Filesystem    1M-blocks  Used Available Use% Mounted on  
tmpfs           1588     3    1585   1% /run  
/dev/nvme0n1p6  87122  38758    43894  47% /  
tmpfs            7937    50    7887   1% /dev/shm  
tmpfs              5     1      5   1% /run/lock  
efivarfs          1     1      1  65% /sys/firmware/efi/efivars  
/dev/nvme0n1p2    99     16      84  16% /boot/efi  
tmpfs           1588     5    1583   1% /run/user/1000  
aazan-noor-khuwaja@Hp-G3:~$ df -k  
Filesystem    1K-blocks  Used Available Use% Mounted on  
tmpfs          1625312   2728  1622584   1% /run  
/dev/nvme0n1p6  89212832 39688076 44947068  47% /  
tmpfs          8126544   47356   8079188   1% /dev/shm  
tmpfs            5120     8     5112   1% /run/lock  
efivarfs          118     73      41  65% /sys/firmware/efi/efivars  
/dev/nvme0n1p2   100808   15707   85101   16% /boot/efi  
tmpfs          1625308   4988   1620320   1% /run/user/1000  
aazan-noor-khuwaja@Hp-G3:~$ df -T  
Filesystem  Type  1K-blocks  Used Available Use% Mounted on  
tmpfs      tmpfs  1625312   2728  1622584   1% /run  
/dev/nvme0n1p6 ext4  89212832 39688076 44947068  47% /  
tmpfs      tmpfs  8126544   47356   8079188   1% /dev/shm  
tmpfs      tmpfs   5120     8     5112   1% /run/lock  
efivarfs    efivarfs   118     73      41  65% /sys/firmware/efi/efivars  
/dev/nvme0n1p2 vfat  100808   15707   85101   16% /boot/efi  
tmpfs      tmpfs  1625308   4988   1620320   1% /run/user/1000  
aazan-noor-khuwaja@Hp-G3:~$
```

13. du command:

14. top command:

```
aazan-noor-khuwaja@Hp-G3:~$ top
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ top

top - 15:40:03 up 2 days, 17:50, 1 user, load average: 2.96, 3.76, 3.77
Tasks: 267 total, 1 running, 265 sleeping, 0 stopped, 1 zombie
%Cpus(s): 4.0 us, 2.8 sy, 0.0 ni, 92.2 id, 1.0 wa, 0.0 hi, 0.0 sl, 0.0 st
MiB Mem: 15872.2 total, 2982.7 free, 4725.7 used, 9287.3 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used, 11146.4 avail Mem

PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
395088 aazan-n+ 20 0 3031724 392624 210352 S 4.7 2.4 4:20.56 spotify
415566 aazan-n+ 20 0 735788 73712 54204 S 4.0 0.5 0:25.22 gnome-terminal-
57 root -51 0 0 0 0 0 1.7 0.0 15:29.90 irq/9-acpi
2226 aazan-n+ 9 -11 154428 48300 11156 S 1.7 0.3 4:01.73 pipewire-pulse
1 root 20 0 23928 15216 9452 S 0.7 0.1 0:17.16 systemd
375458 aazan-n+ 20 0 1392.2g 606276 172488 S 0.7 3.7 5:56.74 brave
395282 aazan-n+ 20 0 1410.7g 411852 149288 S 0.7 2.5 6:01.74 spotify
448721 aazan-n+ 20 0 14544 5996 3744 R 0.7 0.0 0:00.07 top
599 systemd+ 20 0 17572 7640 6728 S 0.3 0.0 0:13.61 systemd-oiodm
851 root 20 0 313772 8064 6968 D 0.3 0.0 3:52.12 iio-sensor-prox
2221 aazan-n+ 9 -11 123124 20968 9264 S 0.3 0.1 1:45.89 pipewire
3232 root 20 0 607392 46044 38888 S 0.3 0.3 0:09.56 fwupd
147719 aazan-n+ 20 0 162788 6336 5568 S 0.3 0.0 0:03.45 sd_dummy
192315 aazan-n+ 20 0 48.9g 436836 266124 S 0.3 2.7 14:27.98 brave
192358 aazan-n+ 20 0 49.8g 278096 152176 S 0.3 1.7 20:51.82 brave
395212 aazan-n+ 20 0 971448 134576 110772 S 0.3 0.8 0:05.96 spotify
2 root 20 0 0 0 0 0 0.0 0.0 0:00.00 kthreadd
3 root 20 0 0 0 0 0 0.0 0.0 0:00.00 pool_workqueue_release
4 root 0 -20 0 0 0 0 I 0.0 0.0 0:00.00 kworker/R_rcu_gp
5 root 0 -20 0 0 0 0 I 0.0 0.0 0:00.00 kworker/R_sync_wq
6 root 0 -20 0 0 0 0 I 0.0 0.0 0:00.00 kworker/R_kvfree_rcu_reclaim
7 root 0 -20 0 0 0 0 I 0.0 0.0 0:00.00 kworker/R_slab_flushwq
8 root 0 -20 0 0 0 0 I 0.0 0.0 0:00.00 kworker/R_netns
13 root 0 -20 0 0 0 0 I 0.0 0.0 0:00.00 kworker/R_mm_percpu_wq
14 root 20 0 0 0 0 0 S 0.0 0.0 2:55.49 ksoftirqd/0
15 root 20 0 0 0 0 0 I 0.0 0.0 0:29.22 rcu_preempt
16 root 20 0 0 0 0 0 S 0.0 0.0 0:00.00 rcu_exp_par_gp_kthread_worker/0
17 root 20 0 0 0 0 0 S 0.0 0.0 0:00.04 rcu_exp_gp_kthread_worker
18 root rt 0 0 0 0 S 0.0 0.0 0:00.29 migration/0
19 root -51 0 0 0 0 S 0.0 0.0 0:00.00 idle_inject/0
20 root 20 0 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/0
21 root 20 0 0 0 0 0 S 0.0 0.0 0:00.00 couhp/1
```

15. htop command:

```
aazan-noor-khuwaja@Hp-G3:~$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ htop
aazan-noor-khuwaja@Hp-G3:~$
```

aazan-noor-khuwaja@Hp-G3:~

aazan-noor-khuwaja@Hp-G3:~									
23.1% Tasks: 160, 662 thr, 110 kthr; 1 running 22.4% Load average: 3.56 3.81 3.79 28.8% Uptime: 2 days, 17:50:58 25.2%									
Mem[4.21G/15.5G] 0K/4.00G]									
Main	1/10	PID	USER	PRI	NI	VIRT	RES	SHR	S %CPU %MEM TIME+ COMMAND
449157	aazan-noor	20	0	12392	6224	3728	R	6.2	0.9 0:00.55 httpd
2491	aazan-noor	20	0	5131N	486M	159W	R	20.6	3.1 54:12.77 /usr/bin/gnome-shell
395289	aazan-noor	20	0	1428M	142M	95744	S	14.4	0.9 2:52.62 /snap/spotify/89/usr/share/spotify/spotify --type=gpu-process --no-sandbox --enable-crash-reporter= --change-stack-guard=
395249	aazan-noor	20	0	1423M	142M	95744	S	9.4	0.9 1:41.80 /snap/spotify/89/usr/share/spotify/spotify --type=gpu-process --no-sandbox --enable-crash-reporter= --change-stack-guard=
395282	aazan-noor	20	0	1410C	443M	189W	R	3.1	2.8 2:34.23 /snap/spotify/89/usr/share/spotify/spotify --type=renderer --enable-crash-reporter= --change-stack-guard-on-fork=enable=
395289	aazan-noor	20	0	1410C	443M	189W	S	12.5	2.8 2:38.66 /snap/spotify/89/usr/share/spotify/spotify --type=renderer --enable-crash-reporter= --change-stack-guard-on-fork=enable=
1	root	20	0	25928	15216	9452	S	0.0	0.1 0:17.16 /sbin/init splash
325	root	19	-1	67684	24860	2296	S	0.0	0.1 0:03.26 /usr/lib/systemd/systemd-journal
428	root	20	0	31264	9112	4868	S	0.0	0.1 0:04.09 /usr/lib/systemd/systemd-udevd
599	systemd-oo	20	0	17572	7640	6728	S	0.0	0.0 0:13.62 /usr/lib/systemd/systemd-oiodm
614	systemd-re	20	0	22496	14108	18532	S	0.0	0.1 0:06.79 /usr/lib/systemd/systemd-resolved
628	systemd-tl	20	0	91668	7884	6994	S	0.0	0.0 0:00.30 /usr/lib/systemd/systemd-timesyncd
682	systemd-tt	20	0	91668	7884	6994	S	0.0	0.0 0:00.00 /usr/lib/systemd/systemd-timesyncd
843	avahi	20	0	9336	5376	4164	S	0.0	0.0 0:10.76 avahi-daemon: running [Hp-G3-2.local]
844	root	20	0	13644	6876	6136	S	0.0	0.0 0:00.18 /usr/libexec/bluetooth/bluetoothd
845	messagebus	20	0	12484	7816	4586	S	0.0	0.0 0:16.79 dibus-daemon -system -address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
848	gnome-remo	20	0	428M	16300	13812	S	0.0	0.1 0:00.03 /usr/libexec/gnome-remote-desktop-daemon --system
851	root	20	0	306M	8064	6968	D	0.6	0.0 3:52.15 /usr/libexec/iio-sensor-proxy
853	polkitd	20	0	383M	14708	8208	S	0.0	0.1 0:03.58 /usr/lib/polkit-1/polkitd --no-debug
856	root	20	0	306M	7896	7084	S	0.0	0.0 0:00.19 /usr/libexec/power-profiles-daemon
866	root	20	0	2383M	43732	24768	S	0.0	0.3 0:00.09 /usr/lib/snapd/snapd
873	root	20	0	305M	7986	7012	S	0.0	0.0 0:00.13 /usr/libexec/accounts-daemon
876	root	20	0	9432	2872	2624	S	0.0	0.0 0:00.10 /usr/sbin/cron -f -P
877	root	20	0	302M	7084	6312	S	0.0	0.0 0:00.12 /usr/libexec/switcheroo-control
879	root	20	0	2383M	43732	24768	S	0.0	0.3 0:00.94 /usr/lib/snapd/snapd
880	root	20	0	2383M	43732	24768	S	0.0	0.3 0:01.42 /usr/lib/snapd/snapd
881	root	20	0	2383M	43732	24768	S	0.0	0.3 0:00.00 /usr/libexec/iio-sensor-proxy
882	root	20	0	2383M	43732	24768	S	0.0	0.3 0:02.20 /usr/lib/snapd/snapd
884	root	20	0	2383M	43732	24768	S	0.0	0.3 0:00.00 /usr/libexec/iio-sensor-proxy
889	root	20	0	18184	9288	7964	S	0.0	0.1 0:01.43 /usr/lib/systemd/systemd-logind
890	root	20	0	306M	8064	6968	S	0.0	0.0 0:00.00 /usr/libexec/iio-sensor-proxy

F1 Help F2 Setup F3 Search F4 Filter F5 Tree F6 SortByF7 Nice F8 Force F9 Kill F10 quit

```

aazan-noor-khuwaja@Hp-G3:~$ htop
24P-0766
aazan-noor-khuwaja@Hp-G3:~$ htop
aazan-noor-khuwaja@Hp-G3:~$ htop -d
htop: option requires an argument -- 'd'
aazan-noor-khuwaja@Hp-G3:~$ htop -C
aazan-noor-khuwaja@Hp-G3:~$ htop -h
htop 3.3.0
(C) 2004-2019 Hisham Muhammad. (C) 2020-2024 htop dev team.
Released under the GNU GPLv2+.

-C --no-color           Use a monochrome color scheme
-d --delay=DELAY        Set the delay between updates, in tenths of seconds
-F --filter=FILTER       Show only the commands matching the given filter
-h --help                Print this help screen
-H --highlight-changes[=DELAY] Highlight new and old processes
-M --no-mouse            Disable the mouse
-n --max-iterations=NUMBER Exit htop after NUMBER iterations/frame updates
-p --pid=PID,PID,PID...  Show only the given PIDs
--readonly              Disable all system and process changing features
-s --sort-key=COLUMN     Sort by COLUMN in list view (try --sort-key=help for a list)
-t --tree                Show the tree view (can be combined with -s)
-u --user=[USERNAME]    Show only processes for a given user (or $USER)
-U --no-unicode          Do not use unicode but plain ASCII
-V --version             Print version info

Press F1 inside htop for online help.
See 'man htop' for more information.
aazan-noor-khuwaja@Hp-G3:~$ htop -d
htop: option requires an argument -- 'd'
aazan-noor-khuwaja@Hp-G3:~$ htop -h
htop 3.3.0
(C) 2004-2019 Hisham Muhammad. (C) 2020-2024 htop dev team.
Released under the GNU GPLv2+.

-C --no-color           Use a monochrome color scheme
-d --delay=DELAY        Set the delay between updates, in tenths of seconds
-F --filter=FILTER       Show only the commands matching the given filter
-h --help                Print this help screen
-H --highlight-changes[=DELAY] Highlight new and old processes
-M --no-mouse            Disable the mouse
-n --max-iterations=NUMBER Exit htop after NUMBER iterations/frame updates
-p --pid=PID,PID,...    Show only the given PIDs

aazan-noor-khuwaja@Hp-G3:~$ htop
[Main] [I/O]
PID USER      PRI NI VIRT   RES  SHR S CPU%MEM TIME+  Command
450035 aazan-noor  20  0 12372 6112 3672 R 59.6 0.0  0:00.31 htop -C
395209 aazan-noor  20  0 1410M 142M 95744 S 17.0 0.9  3:06.50 /snap/spotify/89/usr/share/spotify/spotify -type=gpu-process --no-sandbox --enable-crash-reporter=, --change-stack-guard-o
2491 aazan-noor  20  0 5147M 499M 159M S 8.5 3.1 54:32.28 /usr/bin/gnome-shell
395249 aazan-noor  20  0 1410M 142M 95744 S 8.5 0.9  1:50.61 /snap/spotify/89/usr/share/spotify/spotify -type=gpu-process --no-sandbox --enable-crash-reporter=, --change-stack-guard-o
395289 aazan-noor  20  0 1410G 451M 148M S 8.5 2.8  2:50.70 /snap/spotify/89/usr/share/spotify/spotify -type=renderer --enable-crash-reporter=, --change-stack-guard-on-fork=enable --
1 root      20  0 23928 15216 9452 S 0.0 0.1  0:17.17 /sbin/init splash
325 root      19 -1 67684 24064 22306 S 0.0 0.1  0:03.26 /usr/lib/systemd/systemd-journald
420 root      20  0 31264 9112 4866 S 0.0 0.1  0:04.09 /usr/lib/systemd/systemd-udevd
599 systemd-oo  20  0 17572 7640 6728 S 0.0 0.0  0:13.65 /usr/lib/systemd/systemd-ood
614 systemd-re  20  0 22496 14108 10832 S 0.0 0.1  0:06.79 /usr/lib/systemd/systemd-resolved
620 systemd-tl  20  0 91060 7884 6994 S 0.0 0.0  0:00.30 /usr/lib/systemd/systemd-timesyncd
682 systemd-tl  20  0 91060 7884 6994 S 0.0 0.0  0:00.00 /usr/lib/systemd/systemd-timesyncd
843 avahi      20  0 9336 5376 4164 S 0.0 0.0  0:10.76 avahi-daemon: running [Hp-G3-2.local]
844 root      20  0 13644 6876 6136 S 0.0 0.0  0:00.18 /usr/libexec/bluetooth/bluetoothd
845 messagebus 20  0 12484 7816 4580 S 0.0 0.0  0:16.89 gibus-daemon --systemd=systemd: --nofork --nopidfile --systemd-activation --syslog-only
848 gnome-remo 20  0 428M 16300 13812 S 0.0 0.1  0:00.03 /usr/libexec/gnome-remote-desktop-daemon --system
851 root      20  0 306K 8064 6968 S 0.0 0.0  3:52.63 /usr/libexec/iio-sensor-proxy
853 polkitd   20  0 383M 14708 8288 S 0.0 0.1  0:03.58 /usr/lib/polkit-1/polkitd --no-debug
856 root      20  0 306K 7894 7084 S 0.0 0.0  0:00.19 /usr/libexec/power-profiles-daemon
866 root      20  0 2383M 43732 24768 S 0.0 0.3  0:00.09 /usr/lib/snapd/snapd
873 root      20  0 305K 7904 7912 S 0.0 0.0  0:00.13 /usr/libexec/accounts-daemon
876 root      20  0 9432 2872 2624 S 0.0 0.0  0:00.10 /usr/sbin/cron -f -P
877 root      20  0 302K 7084 6112 S 0.0 0.0  0:00.17 /usr/libexec/swtcheroot-control
879 root      20  0 2383M 43732 24768 S 0.0 0.3  0:00.94 /usr/lib/snapd/snapd
880 root      20  0 2383M 43732 24768 S 0.0 0.3  0:01.42 /usr/lib/snapd/snapd
881 root      20  0 2383M 43732 24768 S 0.0 0.3  0:00.00 /usr/lib/snapd/snapd
882 root      20  0 2383M 43732 24768 S 0.0 0.3  0:02.20 /usr/lib/snapd/snapd
884 root      20  0 2383M 43732 24768 S 0.0 0.3  0:00.00 /usr/lib/snapd/snapd
889 root      20  0 18184 9280 7964 S 0.0 0.1  0:01.43 /usr/lib/systemd/systemd-logind
990 root      20  0 306K 8064 6968 S 0.0 0.0  0:00.00 /usr/libexec/iio-sensor-proxy
991 root      20  0 306K 8064 6968 S 0.0 0.0  0:00.00 /usr/libexec/iio-sensor-proxy

F1 Help  F2 Setup  F3 Search  F4 Filter  F5 Tree  F6 SortByF7 Nice  F8 nice  F9 Kill  F10 quit
```

16. uname command:

```
aazan-noor-khuwaja@Hp-G3:~$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~$ uname  
Linux  
aazan-noor-khuwaja@Hp-G3:~$ uname -a  
Linux Hp-G3 6.17.0-14-generic #14~24.04.1-Ubuntu SMP PREEMPT_DYNAMIC Thu Jan 15 15:52:10 UTC 2 x86_64 x86_64 x86_64 GNU/Linux  
aazan-noor-khuwaja@Hp-G3:~$ uname -s  
Linux  
aazan-noor-khuwaja@Hp-G3:~$ uname -n  
Hp-G3  
aazan-noor-khuwaja@Hp-G3:~$
```

17. sudo command:

```
aazan-noor-khuwaja@Hp-G3:~$ sudo useradd task  
aazan-noor-khuwaja@Hp-G3:~$ ls  
'Aazan_Data' Desktop Downloads Music Public Templates WhatSie  
'All about Linux' Documents Movies Pictures snap Videos  
aazan-noor-khuwaja@Hp-G3:~$ cd /  
aazan-noor-khuwaja@Hp-G3:/  
bin dev lib64 mnt run srv usr  
bin usr-is-merged etc lib usr-is-merged opt sbin swap.img var  
boot home lost+found proc sbin usr-is-merged sys  
cdrom lib media root snap tmp  
aazan-noor-khuwaja@Hp-G3:/  
aazan-noor-khuwaja@Hp-G3:/home$ ls  
aazan-noor-khuwaja  
aazan-noor-khuwaja@Hp-G3:/home$ sudo adduser l_task  
info: Adding user 'l_task' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'l_task' (1002) ...  
info: Adding new user 'l_task' (1002) with group 'l_task (1002)' ...  
info: Creating home directory '/home/l_task' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
Changing the user information for l_task  
Enter the new value, or press ENTER for the default  
    Full Name []: ank  
    Room Number []:  
    Work Phone []:  
    Home Phone []:  
    Other []:  
Is the information correct? [Y/n] y  
info: Adding new user 'l_task' to supplemental / extra groups 'users' ...  
info: Adding user 'l_task' to group 'users' ...  
aazan-noor-khuwaja@Hp-G3:/home$ ls  
aazan-noor-khuwaja l_task  
aazan-noor-khuwaja@Hp-G3:/home$ cd ..  
aazan-noor-khuwaja@Hp-G3:$ cd /  
aazan-noor-khuwaja@Hp-G3:$ ls  
bin dev lib64 mnt run srv usr  
bin usr-is-merged etc lib usr-is-merged opt sbin swap.img var  
boot home lost+found proc sbin usr-is-merged sys  
cdrom lib media root snap tmp
```

```
aazan-noor-khuwaja@Hp-G3:/etc$ 
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/usr/sbin/nologin
systemd-timesyncd:x:996:996:systemd Time Synchronization:/usr/sbin/nologin
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin
syslog:x:102:102::/nonexistent:/usr/sbin/nologin
systemd-resolve:x:991:991:systemd Resolver:::/usr/sbin/nologin
uuiddd:x:103:103::/run/uuiddd:/usr/sbin/nologin
ushmux:x:104:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
tss:x:105:105:TSS software stack,,,:/var/lib/tpm:/bin/false
systemd-oomd:x:990:990:systemd Userspace OOM Killer:/usr/sbin/nologin
kernoops:x:106:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
whoopsie:x:107:109::/nonexistent:/bin/false
dnsmasq:x:999:65534:dnsmasq:/var/lib/misc:/usr/sbin/nologin
avahi_ix:108:111:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
tcpdump:x:109:112::/nonexistent:/usr/sbin/nologin
sssd:x:110:113:SSSD system user,,,:/var/lib/sssd:/usr/sbin/nologin
speech-dispatcher:x:111:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
cups-pk-helper:x:112:114:user for cups-pk_helper service,,,:/nonexistent:/usr/sbin/nologin
fwupd-refresh:x:989:989:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin
saned:x:113:116:/var/lib/saned:/usr/sbin/nologin
geoclue:x:114:117:/var/lib/geoclue:/usr/sbin/nologin
cups-browsed:x:115:114::/nonexistent:/usr/bin/false
hpip:x:116:7:HPLIP system user,,,:/run/hplib:/bin/false
gnome-remote-desktop:x:988:988:GNOME Remote Desktop:/var/lib/gnome-remote-desktop:/usr/sbin/nologin
polkittd:x:987:987:User for polkitd:/usr/sbin/nologin
rtkit:x:117:119:RealtimeKit,,,:/proc:/usr/sbin/nologin
colord:x:118:120:color colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
gnome-initial-setup:x:119:65534::/run/gnome-initial-setup:/bin/false
gdm:x:120:121:Gnome Display Manager:/var/lib/gdm3:/bin/false
nm-openvpn:x:121:122:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
aazan-noor-khuwaja:x:1000:1000:Aazan Noor Khuwaja:/home/aazan-noor-khuwaja:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
_flatpak:x:122:124:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
task:x:1001:1001::/home/task:/bin/sh
l_task:x:1002:1002:ank,,,,:/home/l_task:/bin/bash
aazan-noor-khuwaja@Hp-G3:/etc$ 
```

```
aazan-noor-khuwaja@Hp-G3:/etc$ visudo /etc/sudoers
visudo: /etc/sudoers: Permission denied
aazan-noor-khuwaja@Hp-G3:/etc$ sudo visudo /etc/sudoers
visudo: /etc/sudoers.tmp unchanged
aazan-noor-khuwaja@Hp-G3:/etc$ 
```

```
aazan-noor-khuwaja:x:1000:1000:Aazan Noor Khuwaja:/home/aazan-noor-khuwaja:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
_flatpak:x:122:124:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
task:x:1001:1001::/home/task:/bin/sh
l_task:x:1002:1002:ank,,,,:/home/l_task:/bin/bash
aazan-noor-khuwaja@Hp-G3:/etc$ 
```

```

fatal: addgroup with two arguments is an unspecified operation.

fatal: The group 'l_task' already exists.

lib/          lib64/      lib usr-is-merged/ lost+found/

info: Selecting GID from range 1000 to 59999 ...
info: Adding group 'task_grp' (GID 1003) ...

tape       task      task_grp

lib/          lib64/      lib usr-is-merged/ lost+found/

lib/          lib64/      lib usr-is-merged/ lost+found/

fatal: Only root may add a user or group to the system.

info: Adding user 'task_grp' ...
info: Selecting UID from range 1000 to 59999 ...

info: Adding new user 'task_grp' (1003) with group 'sudo (27)' ...
info: Creating home directory '/home/task_grp' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for task_grp
Enter the new value, or press ENTER for the default
    Full Name []: new one
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n]
info: Adding new user 'task_grp' to supplemental / extra groups 'users' ...
info: Adding user 'task_grp' to group 'users' ...

bin      dev  lib64      mnt  run      srv      usr
bin usr-is-merged  etc  lib usr-is-merged  opt  sbin      swap.img  var
boot     home  lost+found  proc  sbin usr-is-merged  sys
cdrom    lib   media      root  snap      tmp











```

```


24P-0766

'Aazan_Data' 'All about Linux' Desktop Documents Downloads Movies Music Pictures Public snap Templates Videos WhatsSie


bin bin usr-is-merged boot cdrom dev etc home lib lib64 lib usr-is-merged lost+found media mnt opt proc root run sbin sbin usr-is-merged snap srv swap.img sys tmp usr var





```

```
aazan-noor-khuwaja@Hp-G3:/home$ ls
aazan-noor-khuwaja l_task task_grp
aazan-noor-khuwaja@Hp-G3:/home$ passwd l_task
passwd: You may not view or modify password information for l_task.
aazan-noor-khuwaja@Hp-G3:/home$ passwd task_grp
passwd: You may not view or modify password information for task_grp.
aazan-noor-khuwaja@Hp-G3:/home$ sudo pas
passwd paste
aazan-noor-khuwaja@Hp-G3:/home$ sudo passwd l_task/
sudo: passwd: command not found
aazan-noor-khuwaja@Hp-G3:/home$ sudo passwd l_task/
passwd: user 'l_task/' does not exist
aazan-noor-khuwaja@Hp-G3:/home$ sudo passwd task
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
aazan-noor-khuwaja@Hp-G3:/home$
```

```
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser --remove-home task_grp
info: Looking for files to backup/remove ...
info: Removing files ...
info: Removing crontab ...
info: Removing user 'task_grp' ...
userdel: group task_grp not removed because it is not the primary group of user task_grp.
aazan-noor-khuwaja@Hp-G3:/home$ ls
aazan-noor-khuwaja l_task
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser --remove-home l_task/
fatal: The user 'l_task/' does not exist.
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser
aazan-noor-khuwaja/ l_task/
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser l_task/
fatal: The user 'l_task/' does not exist.
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser l_task
info: Removing crontab ...
info: Removing user 'l_task' ...
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser --remove-home l_task
fatal: The user 'l_task' does not exist.
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser --remove-home l_task
fatal: The user 'l_task' does not exist.
aazan-noor-khuwaja@Hp-G3:/home$ ls
aazan-noor-khuwaja l_task
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser --remove-home l_task
fatal: The user 'l_task' does not exist.
aazan-noor-khuwaja@Hp-G3:/home$ sudo deluser --remove-home task
info: Looking for files to backup/remove ...
info: Removing crontab ...
info: Removing user 'task' ...
aazan-noor-khuwaja@Hp-G3:/home$
```

18. Ping command:

```
aazan-noor-khuwaja@Hp-G3:/home$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:/home$ ping
::1          ff02::1                           ip6-localhost           localhost
aazan-noor-khuwaja-HP-EliteBook-840-G3  ff02::2                           ip6-localnet
fe00::0      ip6-allnodes                     ip6-loopback
ff00::0      ip6-allrouters                   ip6-mcastprefix
aazan-noor-khuwaja@Hp-G3:/home$ ping google.com
PING google.com (2a00:1450:4018:812::200e) 56 data bytes
64 bytes from lcmcta-ad-in-x0e.1e100.net (2a00:1450:4018:812::200e): icmp_seq=1 ttl=110 time=239 ms
64 bytes from lcmcta-ad-in-x0e.1e100.net (2a00:1450:4018:812::200e): icmp_seq=2 ttl=110 time=159 ms
64 bytes from lcmcta-ad-in-x0e.1e100.net (2a00:1450:4018:812::200e): icmp_seq=3 ttl=110 time=181 ms
64 bytes from lcmcta-ad-in-x0e.1e100.net (2a00:1450:4018:812::200e): icmp_seq=4 ttl=110 time=204 ms
q64 bytes from lcmcta-ad-in-x0e.1e100.net (2a00:1450:4018:812::200e): icmp_seq=5 ttl=110 time=227 ms
64 bytes from lcmcta-ad-in-x0e.1e100.net (2a00:1450:4018:812::200e): icmp_seq=6 ttl=110 time=250 ms
^C
--- google.com ping statistics ---
7 packets transmitted, 6 received, 14.2857% packet loss, time 6006ms
rtt min/avg/max/mdev = 159.438/210.329/250.388/32.162 ms
aazan-noor-khuwaja@Hp-G3:/home$ ping .
-4 -6 -a -A -b -B -c -C -d -D -e -f -F -h -H -i -I -l -L -m -M -n -N -O -o -p -q -Q -R -s -S -t -T -U -v -V -w -W
aazan-noor-khuwaja@Hp-G3:/home$ ping facebook.com
PING facebook.com (2a03:2880:f34a:1:face:b00c:0:25de) 56 data bytes
64 bytes from edge-star-mini6-shv-02-mct1.facebook.com (2a03:2880:f34a:1:face:b00c:0:25de): icmp_seq=1 ttl=51 time=47.6 ms
64 bytes from edge-star-mini6-shv-02-mct1.facebook.com (2a03:2880:f34a:1:face:b00c:0:25de): icmp_seq=2 ttl=51 time=49.0 ms
64 bytes from edge-star-mini6-shv-02-mct1.facebook.com (2a03:2880:f34a:1:face:b00c:0:25de): icmp_seq=3 ttl=51 time=47.4 ms
64 bytes from edge-star-mini6-shv-02-mct1.facebook.com (2a03:2880:f34a:1:face:b00c:0:25de): icmp_seq=4 ttl=51 time=46.5 ms
^C
--- facebook.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3002ms
rtt min/avg/max/mdev = 46.484/47.622/49.004/0.902 ms
aazan-noor-khuwaja@Hp-G3:/home$
```

19. wget command:

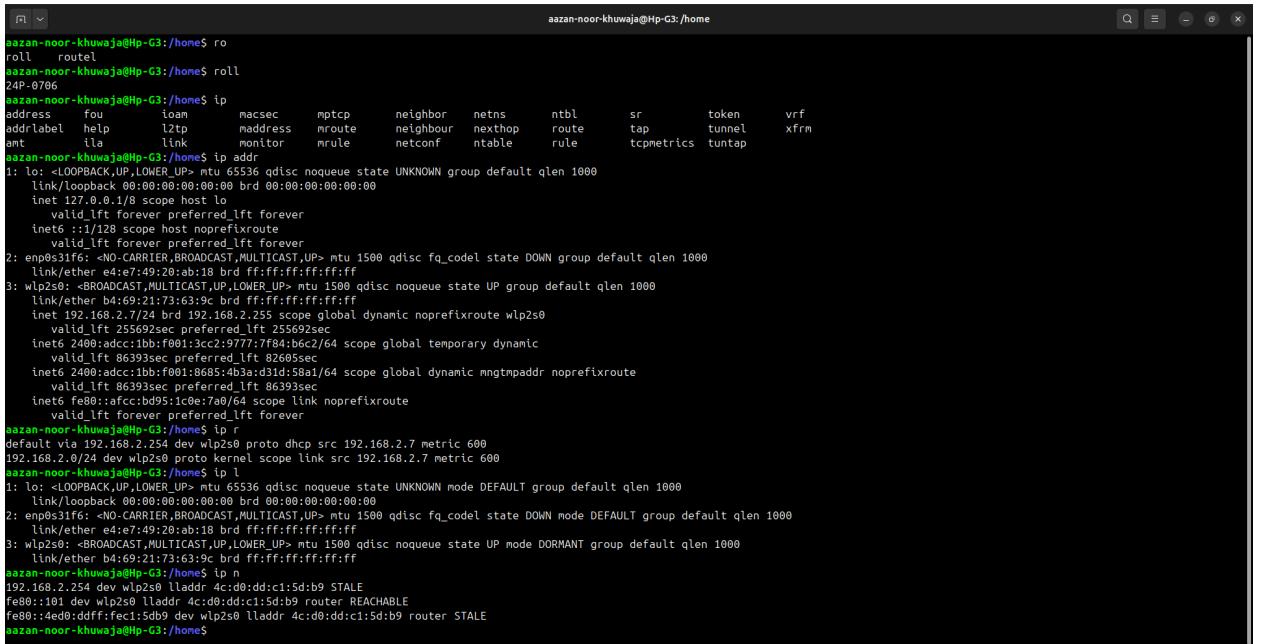
```
aazan-noor-khuwaja@Hp-G3:/home$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:/home$ wget https://github.com/vifm/vifm/archive/refs/heads/master.zip
--2026-02-14 18:04:43--  https://github.com/vifm/vifm/archive/refs/heads/master.zip
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)|20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://codeload.github.com/vifm/vifm/zip/refs/heads/master [following]
--2026-02-14 18:04:45--  https://codeload.github.com/vifm/vifm/zip/refs/heads/master
Resolving codeload.github.com (codeload.github.com)... 20.207.73.88
Connecting to codeload.github.com (codeload.github.com)|20.207.73.88|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [application/zip]
master.zip: Permission denied

Cannot write to 'master.zip' (Success).
aazan-noor-khuwaja@Hp-G3:/home$
```

20. hostname command:

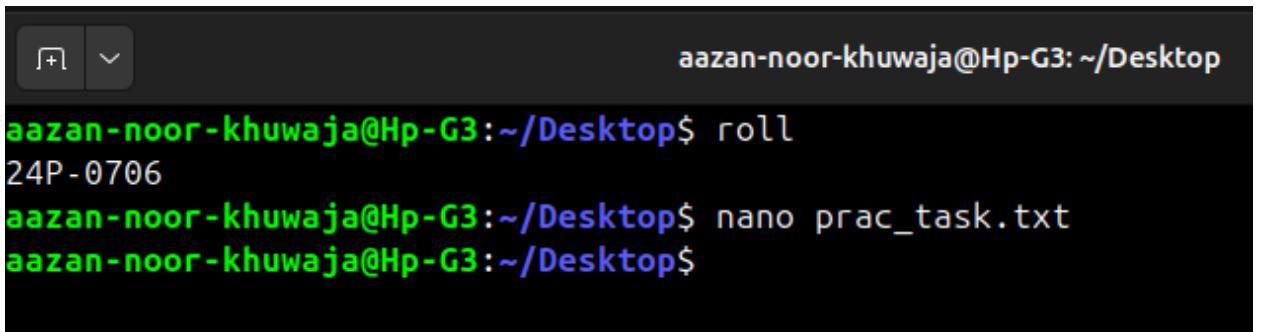
```
aazan-noor-khuwaja@Hp-G3:/home$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:/home$ hostname -A
Hp-G3 Hp-G3 Hp-G3
aazan-noor-khuwaja@Hp-G3:/home$ hostname -i
2400:adcc:1bb:f001:3cc2:9777:7f84:b6c2 2400:adcc:1bb:f001:8685:4b3a:d31d:58a1 192.168.2.7 fe80::afcc:bd95:1c0e:7a0
aazan-noor-khuwaja@Hp-G3:/home$ hostname -a
aazan-noor-khuwaja@Hp-G3:/home$
```

21. ip command:



```
aazar-noor-khuwaja@Hp-G3:/home$ ro
roll routel
aazar-noor-khuwaja@Hp-G3:/home$ roll
24P-0706
aazar-noor-khuwaja@Hp-G3:/home$ ip
address   fou      iom      macsec     mptcp     neighbor    netns     ntbl      sr       token      vrf
addrlabel  help     l2tp     maddress   mroute   neighbour   nexthop   route     tap       tunnel     xfrm
amt        ila      link     monitor   mrule    netconf   ntable    rule      tcpmetrics tuntap
aazar-noor-khuwaja@Hp-G3:/home$ 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 brd 127.0.0.1 scope host lo
            valid_lft forever preferred_lft forever
            inet6 ::1/128 scope host noprefixroute
                valid_lft forever preferred_lft forever
2: enp0s31f6: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
    link/ether e4:e7:49:20:ab:18 brd ff:ff:ff:ff:ff:ff
3: wlp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether b4:69:21:73:63:9c brd ff:ff:ff:ff:ff:ff
        inet 192.168.2.7/24 brd 192.168.2.255 scope global dynamic noprefixroute wlp2s0
            valid_lft 255692sec preferred_lft 82605sec
            inet6 2400::dcdc:bb:ff01:3c22:9777:7f84:bc2/64 scope global temporary dynamic
                valid_lft 86393sec preferred_lft 82605sec
            inet6 2400::dcdc:bb:ff01:8685:405a:d31d:58a1/64 scope global dynamic mngrtmpaddr noprefixroute
                valid_lft 86393sec preferred_lft 86393sec
            inet6 fe80::afcc:bd95:fc0e:7a0/64 scope link noprefixroute
                valid_lft forever preferred_lft forever
aazar-noor-khuwaja@Hp-G3:/home$ ip r
default via 192.168.2.254 dev wlp2s0 proto dhcp src 192.168.2.7 metric 600
192.168.2.0/24 dev wlp2s0 proto kernel scope link src 192.168.2.7 metric 600
aazar-noor-khuwaja@Hp-G3:/home$ ip l
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s31f6: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN mode DEFAULT group default qlen 1000
    link/ether e4:e7:49:20:ab:18 brd ff:ff:ff:ff:ff:ff
3: wlp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP mode DORMANT group default qlen 1000
    link/ether b4:69:21:73:63:9c brd ff:ff:ff:ff:ff:ff
aazar-noor-khuwaja@Hp-G3:/home$ ip n
192.168.2.254 dev wlp2s0 lladdr 4c:d0:dd:c1:5d:b9 STALE
fe80::1%dev wlp2s0 lladdr 4c:d0:dd:c1:5d:b9 router REACHABLE
fe80::4ed0:ddff:fe1c:5db9 dev wlp2s0 lladdr 4c:d0:dd:c1:5d:b9 router STALE
aazar-noor-khuwaja@Hp-G3:/home$
```

22. Nano Txt Editor:



```
aazar-noor-khuwaja@Hp-G3: ~/Desktop$ roll
24P-0706
aazar-noor-khuwaja@Hp-G3: ~/Desktop$ nano prac_task.txt
aazar-noor-khuwaja@Hp-G3: ~/Desktop$
```

The screenshot shows a terminal window titled "aazan-noor-khuwaja@Hp-G3: ~/Desktop". Inside the terminal, the command "nano" is running on a file named "prac_task.txt". The screen displays the message "this is nano a txt editor for linux with gnu..". At the bottom of the terminal, there is a menu bar with various keyboard shortcuts:

[Read 1 line]					
^{^G} Help	^{^O} Write Out	^{^W} Where Is	^{^K} Cut	^{^T} Execute	^{^C} Location
^{^X} Exit	^{^R} Read File	^{^V} Replace	^{^U} Paste	^{^J} Justify	^{^/} Go To Line

23. Vim Txt Editor:

The screenshot shows a terminal window titled "aazan-noor-khuwaja@Hp-G3: ~/Desktop". Inside the terminal, the command "vim" is running on a file named "n_file.cpp". The screen shows the command line history:

```
aazan-noor-khuwaja@Hp-G3:~/Desktop$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Desktop$ vim n_file.cpp  
aazan-noor-khuwaja@Hp-G3:~/Desktop$
```

A screenshot of a terminal window titled "aazan-noor-khuwaja@Hp-G3: ~/Desktop". The window contains the following C++ code:

```
#include <iostream>
using namespace std;
int main(){
    cout<<"Hello World...\\n Ank "<<endl;
    return 0;
}
```

The terminal window has a dark background and light-colored text. The status bar at the bottom shows "1,1" and "All".

The screenshot shows a terminal window with a dark theme. The title bar reads "aazan-noor-khuwaja@Hp-G3: ~/Desktop". The main area of the terminal contains a C++ code editor with the following code:

```
#include <iostream>
using namespace std;
int main(){
    cout<<"Hello World...\\n Ank "<<endl;
    return 0;
}
```

At the bottom of the terminal window, there is a command prompt with the text ":wq".

24. Touch Command:

```
aazan-noor-khuwaja@Hp-G3: ~/Desktop
aazan-noor-khuwaja@Hp-G3:~/Desktop$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:~/Desktop$ touch n_file.cpp
aazan-noor-khuwaja@Hp-G3:~/Desktop$ ls
n_file.cpp
aazan-noor-khuwaja@Hp-G3:~/Desktop$ touch new_usage.txt
aazan-noor-khuwaja@Hp-G3:~/Desktop$ ls
new_usage.txt  n_file.cpp
aazan-noor-khuwaja@Hp-G3:~/Desktop$
```

25. Locate or Plocate:

```
aazan-noor-khuwaja@Hp-G3:~$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ find .sh
find: '.sh': No such file or directory
aazan-noor-khuwaja@Hp-G3:~$ locate .sh
/boot/grub/x86_64-efi/modinfo.sh
/etc/console-setup/cached_setup_font.sh
/etc/console-setup/cached_setup_keyboard.sh
/etc/console-setup/cached_setup_terminal.sh
/etc/gdm3/config-error-dialog.sh
/etc/init.d/console-setup.sh
/etc/init.d/keyboard-setup.sh
/etc/libreoffice/soffice.sh
/etc/profile.d/01-locale-fix.sh
/etc/profile.d/799-cloud-locale-test.sh
```

26. Find Command:

```

aazan-noor-khuwaja@Hp-G3:~$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:~$ find /home/aazan-noor-khuwaja/Aazan_\Data/4th_Semester/ -name *.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Lab/Lab-1/Intro to linux and installation of Ubuntu.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Lab/Lab-1/24P_0706_OS_LAB_1.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Lab/Lab-2/24P_0706_OS_LAB_2.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Lab/Lab-2/Lab-02-Manual-Basic-linux-Commands.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Lab/Lab-02-Manual-Basic-linux-Commands.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/SDA/SDA_Notes_Quiz1.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/SP-2026_Academic Plan.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/DB_Lab/lab1/24P_0706_Aazan_labtask01.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/DB_Lab/lab2/24P_0706_Aazan_labtask02.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/DB_Lab/lab2/DB-Lab-02-Task.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/DB_Lab/lab3/DB-Lab-03-Task.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/DB_Lab/lab3/24P_0706_Aazan_Lab_Task_3.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Theory/lovepdf_converted/Slide Set 2.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Theory/lovepdf_converted/Slide Set 1.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Theory/Textbook-2 - William Stallings.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Theory/Week 1 Reading Material - I_O Structure.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/OS_Theory/Textbook-1 - Silberschatz-Operating-System-Concepts-10th-2018.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/Tentative Datasheet Sessional 1 Spring 2026.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/Python_Learning/The_Ultimate_Python_Handbook.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/81_intro_to_AI.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/Artificial Intelligence - A Modern Approach, 4th Edition, Russell and Norvig (1).pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/AI Week 1 Notes.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/ai/python 2025 edition.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/03_Searching.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/04_agents.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Theory/AI searching Lecture Notes.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/back.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/home.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/hand.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/help.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/zoom_to_rect.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/filesave.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/forward.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/move.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/t4d_editor_options.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/myenv/lib/python3.12/site-packages/matplotlib/mpl-data/images/subplots.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/Aazan_At_Lab/lab1/24P_0706_Aazan_Noor_labtask_1.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/AI_Lab/Aazan_At_Lab/AI_Lab_01.pdf
/home/aazan-noor-khuwaja/Aazan_Data/4th_Semester/DB_Theory/RHCS_Full_Notes.pdf

```

27. Grep Command:

```

aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ nano ank.txt
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ grep explore ank.txt
Today we will explore how to use grep and for what purpose we use it and why should everyone must make a full advantage of it.
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ 

```

28. Head Command:

```

aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ roll
24P-0706
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ head ank.txt
Today we will explore how to use grep and for what purpose we use it
and why should everyone must make a full advantage of it.
Server Hardening: You are configuring a web server.
You need to create a specific user for the web service that cannot
log in interactively (security best practice).
You would use useradd with specific flags to deny shell access.

aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ head -n 2 ank.txt
Today we will explore how to use grep and for what purpose we use it
and why should everyone must make a full advantage of it.
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ head -c ank.txt
head: invalid number of bytes: 'ank.txt'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ head -c
ank.txt           Lab 3 task.docx
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ head -c Lab\ 3\ task.docx
head: invalid number of bytes: 'Lab 3 task.docx'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ 

```

```
aazan-noor-khuwaja@Hp-G3:~/Desktop$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Desktop$ tac n_file.cpp  
  
}  
    return 0;  
    cout<<"Helllo World...\\n ANk "<<endl;  
int main(){  
using namespace std;  
#include <iostream>  
aazan-noor-khuwaja@Hp-G3:~/Desktop$
```

```
aazan-noor-khuwaja@Hp-G3:~/Desktop$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Desktop$ tac n_file.cpp  
  
}  
    return 0;  
    cout<<"Helllo World...\\n ANk "<<endl;  
int main(){  
using namespace std;  
#include <iostream>  
aazan-noor-khuwaja@Hp-G3:~/Desktop$ head -c 10 n_file.cpp  
#include <aazan-noor-khuwaja@Hp-G3:~/Desktop$ head -c 30 n_file.cpp  
#include <iostream>  
using nameaazan-noor-khuwaja@Hp-G3:~/Desktop$
```

29. Tail command

```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ tail ank.txt  
Today we will explore how to use grep and for what purpose we use it  
and why should everyone must make a full advantage of it.  
Server Hardening: You are configuring a web server.  
You need to create a specific user for the web service that cannot  
log in interactively (security best practice).  
You would use useradd with specific flags to deny shell access.  
  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ tail -n 3 ank.txt  
log in interactively (security best practice).  
You would use useradd with specific flags to deny shell access.  
  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$
```

30. Cat Command:

```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ cat ank.txt  
Today we will explore how to use grep and for what purpose we use it  
and why should everyone must make a full advantage of it.  
Server Hardening: You are configuring a web server.  
You need to create a specific user for the web service that cannot  
log in interactively (security best practice).  
You would use useradd with specific flags to deny shell access.  
  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ cat name.txt  
lets say today we will learn about why we should always learn the basics of linux.  
  
"  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ cat ank.txt name.txt > n3.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ ls  
ank.txt 'Lab 3 task.docx' n3.txt name.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ cat n3.txt  
Today we will explore how to use grep and for what purpose we use it  
and why should everyone must make a full advantage of it.  
Server Hardening: You are configuring a web server.  
You need to create a specific user for the web service that cannot  
log in interactively (security best practice).  
You would use useradd with specific flags to deny shell access.  
  
lets say today we will learn about why we should always learn the basics of linux.  
  
"  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$
```

31. Permissions:

```

24P-0766
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls -l
total 3.9M
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 13:28 AI_Lab
drwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:29 AI_Theory
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Lab
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Theory
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 13 14:09 OS_Lab
drwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:34 OS_Theory
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 13 14:09 Prob_Statistics
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 10 22:49 SDA
-rw-rw-r- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5K Jan 26 00:41 'SP-2026 Academic Plan.pdf'
-rw-rw-r- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5K Feb 12 23:26 'Tentative Datesheet Sessional 1 Spring-2026.pdf'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ mkdir pract_permissions
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls
AI_Lab  AI_Theory  DB_Lab  DB_Theory  OS_Lab  OS_Theory  Prob_Statistics  SDA  Tentative Datesheet Sessional 1 Spring-2026.pdf'  'Tentative Datesheet Sessional 1 Spring-2026.pdf'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls -lh
total 3.9M
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 13:28 AI_Lab
drwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:29 AI_Theory
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Lab
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Theory
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 13 14:09 OS_Lab
drwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:34 OS_Theory
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 14 19:23 pract_permissions
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 12 23:37 Prob_Statistics
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 10 22:49 SDA
-rw-rw-r- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5K Jan 26 00:41 'SP-2026 Academic Plan.pdf'
-rw-rw-r- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5K Feb 12 23:26 'Tentative Datesheet Sessional 1 Spring-2026.pdf'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ sudo chmod g-rwx pract_permissions
[sudo] password for aazan-noor-khuwaja:
Sorry, try again.
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls
ls: cannot find
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls -lh
total 3.9M
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 13:28 AI_Lab
drwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:29 AI_Theory
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Lab
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Theory
drwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 13 14:09 OS_Lab
drwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:34 OS_Theory
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 14 19:23 pract_permissions
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 12 23:37 Prob_Statistics
drwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 10 22:49 SDA
-rw-rw-r- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5K Jan 26 00:41 'SP-2026 Academic Plan.pdf'
-rw-rw-r- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5K Feb 12 23:26 'Tentative Datesheet Sessional 1 Spring-2026.pdf'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ sudo chmod u-x pract_permissions
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ cd pract_permissions/
bash: cd: pract_permissions/: Permission denied
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$
```



```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls -lh
total 3.9M
drwxrwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 13:28 AI_Lab
drwxrwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:29 AI_Theory
drwxrwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Lab
drwxrwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Theory
drwxrwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 13 14:09 OS_Lab
drwxrwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:34 OS_Theory
drwxrwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 14 19:23 pract_permissions
drwxrwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 1 12:37 'Prob & Statistics'
drwxrwxr-x 1 aazan-noor-khuwaja aazan-noor-khuwaja 386K Jan 26 00:41 'SP-2026 Academic Plan.pdf'
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5M Feb 12 23:26 'Tentative Datesheet Sessional 1 Spring-2026.pdf'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ sudo chmod 775 pract_permissions/
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls -lh
total 3.9M
drwxrwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 13:28 AI_Lab
drwxrwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:29 AI_Theory
drwxrwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Lab
drwxrwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 5 23:57 DB_Theory
drwxrwxr-x 5 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 13 14:09 OS_Lab
drwxrwxr-x 3 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 8 16:34 OS_Theory
drwxrwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 14 19:23 pract_permissions
drwxrwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 1 12:37 'Prob & Statistics'
drwxrwxr-x 2 aazan-noor-khuwaja aazan-noor-khuwaja 4.0K Feb 10 22:49 SDA
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 386K Jan 26 00:41 'SP-2026 Academic Plan.pdf'
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 3.5M Feb 12 23:26 'Tentative Datesheet Sessional 1 Spring-2026.pdf'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$
```

32. Chown:

```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/05_Lab/lab-3$ sudo adduser
Fatal: Only one or two names allowed.
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/05_Lab/lab-3$ sudo adduser new
info: Adding user 'new' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'new' (1002) ...
info: Adding new user 'new' (1002) with group 'new (1002)' ...
info: Creating home directory '/home/new' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for new
Enter the new value, or press ENTER for the default
  Full Name []: ANK
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []
Is the information correct? [Y/n]
info: Adding new user 'new' to supplemental / extra groups 'users' ...
info: Adding user 'new' to group 'users' ...
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/05_Lab/lab-3$ ls -lh
total 376K
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 374K Feb 13 14:09 'Lab 3 task.docx'
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 0 Feb 14 19:40 new.txt
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/05_Lab/lab-3$ chown ANK new.txt
chown: invalid user: 'ANK'
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/05_Lab/lab-3$ ls /home/
aazan-noor-khuwaja new
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/05_Lab/lab-3$ chown new new.txt
chown: changing ownership of 'new.txt': Operation not permitted
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/05_Lab/lab-3$
```

33. Chgrp:

```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ ls -lh  
total 376K  
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 374K Feb 13 14:09 'Lab 3 task.docx'  
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 0 Feb 14 19:40 new.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ sudo chgrp aazan-noor-khuwaja new.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ ls  
'Lab 3 task.docx' new.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$ ls -lh  
total 376K  
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 374K Feb 13 14:09 'Lab 3 task.docx'  
-rw-rw-r-- 1 aazan-noor-khuwaja aazan-noor-khuwaja 0 Feb 14 19:40 new.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab/lab-3$
```

34. Wildcards:

```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/AI_Theory/Python_learning$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/AI_Theory/Python_learning$ ls *.pdf  
'The Ultimate Python Handbook.pdf'  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/AI_Theory/Python_learning$ ls  
'Python By Coerry'  
'Python Full Course for Beginners [_uQrJ0TkZlc].en.vtt'  
'Python Full Course for Beginners [_uQrJ0TkZlc].mp4'  
python_practice  
'Python Projects for Beginners – Master Problem-Solving! 🚀 [yVL_G-F7m8c].mp4'  
'The Ultimate Python Handbook.pdf'  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/AI_Theory/Python_learning$ ls *mp4  
'Python Full Course for Beginners [_uQrJ0TkZlc].mp4'  
'Python Projects for Beginners – Master Problem-Solving! 🚀 [yVL_G-F7m8c].mp4'
```

```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$ roll  
24P-0706  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Labs$ ls  
'Lab-02-Manual-Basic-linux-Comands .pdf' 'Lab-1 lab-2 lab-3 OS_Outline.docx'  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$ ls lab?  
24P-0706_OS_LAB_1.docx 24P-0706_OS_LAB_1.pdf 'Lab-01-Introduction to linux and installation of Ubuntu.pdf' 'Material for lab1'  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$ ls lab?  
lab-2:  
24P-0706_OS_LAB_2.docx 24P-0706_OS_LAB_2.pdf 'Lab-02-Manual-Basic-linux-Comands .pdf'  
  
lab-3:  
'Lab 3 task.docx' new.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$
```

```
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ ls  
AI_Lab AI_Theory DB_Lab DB_Theory OS_Lab OS_Theory pract_permissions 'Prob & Statistics' SDA 'SP-2026 Academic Plan.pdf' 'Tentative Datesheet Sessional 1 Spring-2026.pdf'  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester$ cd OS_Lab/  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$ ls lab-[123]  
lab-2:  
24P-0706_OS_LAB_2.docx 24P-0706_OS_LAB_2.pdf 'Lab-02-Manual-Basic-linux-Comands .pdf'  
  
lab-3:  
'Lab 3 task.docx' new.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$ ls lab[123]  
ls: cannot access 'lab[123]': No such file or directory  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$ ls lab-[12]  
24P-0706_OS_LAB_2.docx 24P-0706_OS_LAB_2.pdf 'Lab-02-Manual-Basic-linux-Comands .pdf'  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$ ls lab-[12345]  
lab-2:  
24P-0706_OS_LAB_2.docx 24P-0706_OS_LAB_2.pdf 'Lab-02-Manual-Basic-linux-Comands .pdf'  
  
lab-3:  
'Lab 3 task.docx' new.txt  
aazan-noor-khuwaja@Hp-G3:~/Aazan_Data/4th_Semester/OS_Lab$
```