



UNIVERSITY OF INFORMATION TECHNOLOGY & SCIENCES

Department of CSE

Linux Programming Lab - CSE 304

Lab Report- 1

Submitted By :

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Linux Command Flags :

ls,ls -a,ls -l :

```
fahima@fahima:~$ ls
Desktop Documents Downloads Music Pictures Public snap Templates Videos
fahima@fahima:~$ ls -a
ls-a: command not found
fahima@fahima:~$ ls -a
.          .bashrc  Documents Music      snap          Videos
..         .cache  Downloads Pictures  .ssh
.bash_history .config .gnupg    .profile .sudo_as_admin_successful
.bash_logout Desktop .local    Public   Templates
fahima@fahima:~$ ls -l
total 36
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Desktop
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Documents
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Downloads
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Music
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Pictures
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Public
drwx----- 4 fahima fahima 4096 Nov  7 01:04 snap
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Templates
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Videos
```

```
fahima@fahima:~$ ls -l
drwxr-xr-x 2 fahima fahima 4096 Nov  2 02:18 Videos
fahima@fahima:~$ ls -t
Documents Pictures snap Downloads Music Public Templates Videos Desktop
fahima@fahima:~$ ls -r
Videos Templates snap Public Pictures Music Downloads Documents Desktop
fahima@fahima:~$
```

cd -P,cd -L :

```
fahima@fahima:~/Desktop$ cd ..
fahima@fahima:~$ ls
Desktop Documents Downloads Music Pictures Public snap Templates Videos
fahima@fahima:~$ cd -P Desktop
fahima@fahima:~/Desktop$ cd -L Downloads
bash: cd: Downloads: No such file or directory
fahima@fahima:~/Desktop$ cd - Desktop
bash: cd: too many arguments
fahima@fahima:~/Desktop$
```

pwd -L,pwd -P :

```
fahima@fahima:~$ pwd -L
/home/fahima
fahima@fahima:~$ pwd -P
/home/fahima
fahima@fahima:~$
```

cp -r, cp -i:

```
fahima@fahima:~/Box$ cp -r /home/fahima/Box/file4.txt /home/fahima/Box/file5.txt
fahima@fahima:~/Box$ cp -i cp -r /home/fahima/Box/file4.txt /home/fahima/Box/file5.txt
cp: target '/home/fahima/Box/file5.txt': Not a directory
fahima@fahima:~/Box$
```

rm -rf ,mkdir -p:

```
cp: cannot stat '/home/fahima/Box/files.txt': Not a directory
fahima@fahima:~/Box$ cp -r /home/fahima/Box/file4.txt /home/fahima/Box/file5.txt
fahima@fahima:~/Box$ cp -i cp -r /home/fahima/Box/file4.txt /home/fahima/Box/file5.txt
cp: target '/home/fahima/Box/file5.txt': Not a directory
fahima@fahima:~/Box$ rm -rf Public
fahima@fahima:~/Box$ mkdir -p home/fahima/Box
fahima@fahima:~/Box$ mkdir -p home/fahima/1135
fahima@fahima:~/Box$ pwd -P fahima
/home/fahima/Box
```

rmdir -p,rmdir -v :

```
fahima@fahima:~$ rmdir -p /home/fahima/Box
rmdir: failed to remove '/home/fahima/Box': Directory not empty
fahima@fahima:~$ rmdir v /home/fahima/Box
rmdir: failed to remove 'v': No such file or directory
rmdir: failed to remove '/home/fahima/Box': Directory not empty
fahima@fahima:~$
```

touch -a, -m, -t

```
fahima@fahima:~/1135$ touch elmi.txt
fahima@fahima:~/1135$ touch file2.txt
fahima@fahima:~/1135$ touch -a -m -t 202311121230.45 me.txt
fahima@fahima:~$
```

cat -n, -b, -T :

```
fahima@fahima:~$ cat -n 1noFile
  1 My name is Fahima Abida Chowdhury.
  2 My Id is 1135.
fahima@fahima:~$ cat -b 1noFile
  1 My name is Fahima Abida Chowdhury.
  2 My Id is 1135.
fahima@fahima:~$ cat -T 1noFile
My name is Fahima Abida Chowdhury.
My Id is 1135.
```

head -n, -c :

```
fahima@fahima:~$ head -n 1 1noFile
My name is Fahima Abida Chowdhury.
fahima@fahima:~$ head -c 2 1noFile
Myfahima@fahima:~$
```

tail -n, -f, -c :

```
Myfahima@fahima:~$ tail -n 1 1noFile
My Id is 1135.
fahima@fahima:~$ tail -f /var/log/syslog
2024-11-08T14:28:18.583257+06:00 fahima gnome-shell[1977]: Window manager warning: Overwriting
existing binding of keysym 36 with keysym 36 (keycode f).
2024-11-08T14:28:18.583343+06:00 fahima gnome-shell[1977]: Window manager warning: Overwriting
existing binding of keysym 38 with keysym 38 (keycode 11).
2024-11-08T14:28:18.583405+06:00 fahima gnome-shell[1977]: Window manager warning: Overwriting
existing binding of keysym 37 with keysym 37 (keycode 10).
2024-11-08T14:28:18.583493+06:00 fahima gnome-shell[1977]: Window manager warning: Overwriting
existing binding of keysym 35 with keysym 35 (keycode e).
2024-11-08T14:28:18.583538+06:00 fahima gnome-shell[1977]: Window manager warning: Overwriting
existing binding of keysym 39 with keysym 39 (keycode 12).
2024-11-08T14:28:41.646446+06:00 fahima systemd[1]: fprintd.service: Deactivated successfully.
2024-11-08T14:30:01.791447+06:00 fahima CRON[5250]: (root) CMD ([ -x /etc/init.d/anacron ] && i
f [ ! -d /run/systemd/system ]; then /usr/sbin/invoke-rc.d anacron start >/dev/null; fi)
2024-11-08T14:30:02.826997+06:00 fahima systemd[1]: Starting sysstat-collect.service - system a
ctivity accounting tool...
2024-11-08T14:30:02.853283+06:00 fahima systemd[1]: sysstat-collect.service: Deactivated succes
sfully.
2024-11-08T14:30:02.853683+06:00 fahima systemd[1]: Finished sysstat-collect.service - system a
ctivity accounting tool.
```

```
fahima@fahima:~$ tail -c 20 1noFile
ury.
My Id is 1135.
fahima@fahima:~$
```

grep -i, -v, -r, --color :

```
My Id is 1135.
fahima@fahima:~$ grep -i "elmi" 1noFile
Elmi
fahima@fahima:~$ grep -v "elmi" 1noFile
My name is Fahima Abida Chowdhury.
My Id is 1135.

Elmi
fahima@fahima:~$ grep -r "Id" /home/fahima/Box
fahima@fahima:~$ grep -r "Id" /home
grep: /home/fahima/.local/share/nautilus/tags/meta.db: binary file matches
grep: /home/fahima/.cache/gstreamer-1.0/registry.x86_64.bin: binary file matches
fahima@fahima:~$
```

```

matches
grep: /home/fahima/snap/snap-store/common/.cache/snap-store/snapd/category-featured
grep: /home/fahima/snap/snap-store/common/.cache/snap-store/snapd/snap-sublime-merc
grep: /home/fahima/Documents/Pasted image.png: binary file matches
/home/fahima/1noFile:My Id is 1135.
/home/fahima/1135/file1.txt:My Id is 1135.
fahima@fahima:~$ ^C

```

```

fahima@fahima:~$ grep -i --color "1135" 1noFile
My Id is 1135.
fahima@fahima:~$

```

find -name, -type :

```

fahima@fahima:~$ find /home/fahima -name "pi*.txt"
/home/fahima/pie.txt
fahima@fahima:~$ find /home/fahima -type f
/home/fahima/.config/tiling-assistant/tiledSessionRestore.json
/home/fahima/.config/user-dirs.dirs
/home/fahima/.config/ubuntu-xdg-terminals.list
/home/fahima/.config/gtk-3.0/bookmarks
/home/fahima/.config/dconf/user
/home/fahima/.config/gnome-initial-setup-done
/home/fahima/.config/user-dirs.locale
/home/fahima/.config/enchant/en_US.exc
/home/fahima/.config/enchant/en_US.dic
/home/fahima/.config/nautilus/nautilus.conf

```

find -mtime :

```

fahima@fahima:~$ find /home/fahima -mtime 1
/home/fahima/.config/eog
/home/fahima/.config/enchant
/home/fahima/.config/enchant/en_US.exc
/home/fahima/.config/enchant/en_US.dic
/home/fahima/.local/share/evolution/tasks/system
/home/fahima/.local/share/evolution/tasks/system/tasks.ics
/home/fahima/.local/share/nautilus
/home/fahima/.local/share/nautilus/scripts
/home/fahima/.cache
/home/fahima/.cache/update-manager-core
/home/fahima/.cache/update-manager-core/meta-release-lts
/home/fahima/.cache/thumbnails
/home/fahima/.cache/thumbnails/large
/home/fahima/.cache/thumbnails/large/b8c22b827d31044f123c2c6cd9725e22.png
/home/fahima/.cache/thumbnails/large/06d4085cac64b44cf05a6b4bc6bdde7d.png
/home/fahima/.cache/thumbnails/large/6a3d7576d5aac85c28d9efbd1d1c55e3.png
/home/fahima/.cache/thumbnails/large/4559f644e0482c9240cb2fb6e66c01eb.png
/home/fahima/.cache/thumbnails/large/a0028c9998b57d07f4735fb4cd82cd4c.png
/home/fahima/.cache/thumbnails/large/3ca8241ddc9f7ee818f6142508fb0afe.png
/home/fahima/.cache/thumbnails/large/31210498d17b068f946ea7e70c2b3871.png
/home/fahima/.cache/thumbnails/large/cad86e8e4b2d9a57ecd6d3846670476e.png
/home/fahima/.cache/thumbnails/large/61bd5919f5be351bb900e12f7ed0b209.png
/home/fahima/.cache/thumbnails/large/8e328908fe761b2e99f0800b0f1d9b9d.png
/home/fahima/.cache/thumbnails/normal

```

chmod -R, -v :

```
Try 'chmod --help' for more information.
fahima@fahima:~$ chmod -v 1135 *.txt
mode of 'file3.txt' changed from 0664 (rw-rw-r--) to 1135 (--x-wxr-t)
mode of 'pie.txt' changed from 0664 (rw-rw-r--) to 1135 (--x-wxr-t)
fahima@fahima:~$
```

```
fahima@fahima:~$ sudo chmod u+rxw /home
[sudo] password for fahima:
fahima@fahima:~$ ls
ls: cannot open directory '.': Permission denied
fahima@fahima:~$ sudo chmod u+rxw /home/fahima
fahima@fahima:~$ ls
1135      Abida  Desktop  Downloads  file3.txt  Pictures  Public  Templates
1noFile  Box    Documents  Fahima      Music      pie.txt  snap    Videos
fahima@fahima:~$
```

chown -R, -v :

```
fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-00-16.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-17-39.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-10-34.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-07 01-24-57.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-07 01-35-18.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 18-53-58.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-05-00.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-07 01-45-55.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-07 01-28-02.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-42-53.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-10-19.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-44-16.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-07 01-46-27.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-44-01.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-04-56.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-05-19.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-07 01-25-06.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-10-08.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-07 01-26-20.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-48-42.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Pictures/Screenshots/Screenshot from 2024-11-08 14-49-02.png' from fahima:fahima to :fahima
changed ownership of '/home/fahima/1135/file1.txt' from fahima:fahima to :fahima
changed ownership of '/home/fahima/1135/elmi.txt' from fahima:fahima to :fahima
changed ownership of '/home/fahima/1135' from fahima:fahima to :fahima
changed ownership of '/home/fahima/.sudo_as_admin_successful' from fahima:fahima to :fahima
changed ownership of '/home/fahima/.bashrc' from fahima:fahima to :fahima
changed ownership of '/home/fahima/Music' from fahima:fahima to :fahima
changed ownership of '/home/fahima' from fahima:fahima to :fahima
changed ownership of '/home' from root:root to :fahima
fahima@fahima:~$ ^C
```


ps -e, -f:

```
fahima@fahima:/home$ ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root           1        0  0 15:31 ?           00:00:04 /sbin/init splash
root           2        0  0 15:31 ?           00:00:00 [kthreadd]
root           3        2  0 15:31 ?           00:00:00 [pool_workqueue_release]
root           4        2  0 15:31 ?           00:00:00 [kworker/R-rcu_g]
root           5        2  0 15:31 ?           00:00:00 [kworker/R-rcu_p]
root           6        2  0 15:31 ?           00:00:00 [kworker/R-slub_]
root           7        2  0 15:31 ?           00:00:00 [kworker/R-netns]
root          10        2  0 15:31 ?           00:00:00 [kworker/0:0H-events_highpri]
root          11        2  0 15:31 ?           00:00:00 [kworker/u4:0-ext4-rsv-conversion]
root          12        2  0 15:31 ?           00:00:00 [kworker/R-mm_pe]
root          13        2  0 15:31 ?           00:00:00 [rcu_tasks_kthread]
root          14        2  0 15:31 ?           00:00:00 [rcu_tasks_rude_kthread]
root          15        2  0 15:31 ?           00:00:00 [rcu_tasks_trace_kthread]
root          16        2  0 15:31 ?           00:00:04 [ksoftirqd/0]
root          17        2  0 15:31 ?           00:00:09 [rcu_preempt]
root          18        2  0 15:31 ?           00:00:00 [migration/0]
root          19        2  0 15:31 ?           00:00:00 [idle_inject/0]
root          20        2  0 15:31 ?           00:00:00 [cpuhp/0]
root          21        2  0 15:31 ?           00:00:00 [cpuhp/1]
```

ps -u:

```
fahima@fahima:/home$ ps -u
USER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
fahima       1812  0.0  0.1 244336 5888 tty2      Ssl+  15:31   0:00 /usr/libexec/gdm-wayland-session env GNOME_SHELL_SESSION_MODE=ubuntu /usr/bi
fahima       1820  0.0  0.3 306876 16384 tty2      Sl+   15:31   0:00 /usr/libexec/gnome-session-binary --session=ubuntu
fahima       2695  0.0  0.1 19692 5248 pts/0    Ss+   15:31   0:00 bash
fahima       8176  0.0  0.1 21100 6016 pts/1    Ss    18:49   0:00 bash
fahima      12304  0.0  0.0 22416 4736 pts/1    R+    19:14   0:00 ps -u
fahima@fahima:/home$
```

top -u :

```
See 'snap info <snapname>' for additional versions.
fahima@fahima:/home$ top -u $(whoami)

top - 19:18:56 up 3:47, 1 user, load average: 2.52, 1.76, 1.22
Tasks: 209 total, 1 running, 208 sleeping, 0 stopped, 0 zombie
%Cpu(s): 2.5 us, 5.3 sy, 7.0 ni, 84.9 id, 0.0 wa, 0.0 hi, 0.3 si, 0.0 st
MiB Mem : 5057.1 total, 812.9 free, 2671.9 used, 1928.6 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 2385.2 avail Mem

   PID USER      PR  NI   VIRT   RES   SHR S  %CPU  %MEM    TIME+  COMMAND
  1977 fahima    20   0 4097800 489844 161572 S   3.9   9.5   38:53.54 gnome-shell
  3973 fahima    20   0 2818112 390132 121300 S   3.0   7.5   5:31.29 Isolated Web Co
  2516 fahima    39  19 956268 27896 18800 S   1.0   0.5   0:12.61 tracker-miner-f
  3292 fahima    20   0  11.3g 544096 278356 S   1.0  10.5  19:25.29 firefox
 13270 fahima    20   0  23200   5760  3584 R   1.0   0.1   0:00.11 top
  2688 fahima    20   0 721884 69888 45620 S   0.3   1.3   6:49.27 gnome-terminal-
  2969 fahima    20   0 1761880 20280 13696 S   0.3   0.4   0:00.93 snap
  3969 fahima    20   0 2602576 183324 100220 S   0.3   3.5   1:13.89 Isolated Web Co
```

top -n :

```
2091 fahima 20 0 397508 12508 7040 S 0.0 0.2 0:37.20 ibus-daemon
fahima@fahima:/home$ top -n 5

top - 19:20:33 up 3:49, 1 user, load average: 1.22, 1.53, 1.19
Tasks: 211 total, 1 running, 210 sleeping, 0 stopped, 0 zombie
%Cpu(s): 4.6 us, 5.5 sy, 7.3 ni, 81.4 id, 0.0 wa, 0.0 hi, 1.2 si, 0.0 st
MiB Mem : 5057.1 total, 841.5 free, 2635.2 used, 1916.7 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used, 2421.9 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     TIME+ COMMAND
 1977 fahima    20   0 4097800 489896 161572 S   8.6   9.5   39:16.82 gnome-shell
 2091 fahima    20   0 397508 12508  7040 S   1.7   0.2   0:37.43 ibus-daemon
 2688 fahima    20   0 722220 70116 45592 S   1.7   1.4   6:50.01 gnome-terminal-
 2516 fahima    39  19 956268 27896 18800 S   1.0   0.5   0:13.39 tracker-miner-f
```

df -h :

```
 18 root      rt   0      0      0      0 S   0.0   0.0   0:00.61 migration/0
 19 root      -51  0      0      0      0 S   0.0   0.0   0:00.00 idle_inject/0
fahima@fahima:/home$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs            506M  1.7M  505M   1% /run
/dev/sda2        25G   9.6G   14G  42% /
tmpfs            2.5G     0  2.5G   0% /dev/shm
tmpfs            5.0M  8.0K  5.0M   1% /run/lock
tmpfs            506M  148K  506M   1% /run/user/1000
fahima@fahima:/home$
```

df -i :

```
tmpfs            5.0M  8.0K  5.0M   1% /run/lock
tmpfs            506M  148K  506M   1% /run/user/1000
fahima@fahima:/home$ df -i
Filesystem      Inodes   IUsed   IFree IUse% Mounted on
tmpfs           647311    1048  646263    1% /run
/dev/sda2       1638400  172072 1466328   11% /
tmpfs           647311      1  647310    1% /dev/shm
tmpfs           647311      4  647307    1% /run/lock
tmpfs          129462    186  129276    1% /run/user/1000
fahima@fahima:/home$
```

df --total :

```
tmpfs            129462    186  129276    1% /run/user/1000
fahima@fahima:/home$ df --total
Filesystem      1K-blocks    Used Available Use% Mounted on
tmpfs            517852    1676   516176    1% /run
/dev/sda2       25623780 10122096 14174736  42% /
tmpfs           2589244      0  2589244   0% /dev/shm
tmpfs            5120      8     5112    1% /run/lock
tmpfs           517848    148   517700    1% /run/user/1000
total           29253844 10123928 17802968  37% -
fahima@fahima:/home$
```


du -h, -s, -d :

```
/home
fahima@fahima:/home$ du -h /home
du: cannot read directory '/home/fahima': Permission denied
4.0K    /home/fahima
8.0K    /home
fahima@fahima:/home$ du -du -sb /home
```

```
fahima
fahima@fahima:/home$ du -h -d 1 /home/fahima
du: cannot read directory '/home/fahima': Permission denied
4.0K    /home/fahima
fahima@fahima:/home$
```

kill -l, -SIGTERM :

```
fahima@fahima:/home$ 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
fahima@fahima:/home$
```

ping -c, -i, -t :

```
fahima@fahima:/home$ ping -c 4 google.com
PING google.com (172.217.31.206) 56(84) bytes of data.
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=1 ttl=255 time=55.3 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=2 ttl=255 time=53.4 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=3 ttl=255 time=53.5 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=4 ttl=255 time=53.7 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3031ms
rtt min/avg/max/ndev = 53.429/54.003/55.348/0.782 ms
fahima@fahima:/home$
```

ping -i :

```
rtt min/avg/max/mdev = 55.123/57.003/59.510/0.762 ms
fahima@fahima:/home$ ping -i 2 google.com
PING google.com (172.217.31.206) 56(84) bytes of data.
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=1 ttl=255 time=55.5 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=2 ttl=255 time=55.4 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=3 ttl=255 time=54.0 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=4 ttl=255 time=58.6 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=5 ttl=255 time=58.5 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=6 ttl=255 time=55.7 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=7 ttl=255 time=75.8 ms
```

ping -t :

```
fahima@fahima:/home$ ping -t 5 google.com
PING google.com (172.217.31.206) 56(84) bytes of data.
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=1 ttl=255 time=53.0 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=2 ttl=255 time=52.0 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=3 ttl=255 time=72.8 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=4 ttl=255 time=72.9 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=5 ttl=255 time=54.7 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=6 ttl=255 time=51.0 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=7 ttl=255 time=52.4 ms
64 bytes from maa03s28-in-f14.1e100.net (172.217.31.206): icmp_seq=8 ttl=255 time=55.0 ms
```

wget -c, -b, -q :

```
rtt min/avg/max/mdev = 49.442/61.872/476.930/40.894 ms
fahima@fahima:/home$ wget -c http://example.com/file.zip
--2024-11-08 19:47:29-- http://example.com/file.zip
Resolving example.com (example.com)... 93.184.215.14, 2606:2800:21f:cb07:6820:80da:af6b:8b2c
Connecting to example.com (example.com)|93.184.215.14|:80... connected.
HTTP request sent, awaiting response... 404 Not Found
2024-11-08 19:47:29 ERROR 404: Not Found.
```

```
rtt min/avg/max/mdev = 49.442/61.872/476.930/40.894 ms
fahima@fahima:/home$ wget -c http://example.com/file.zip
--2024-11-08 19:47:29-- http://example.com/file.zip
Resolving example.com (example.com)... 93.184.215.14, 2606:2800:21f:cb07:6820:80da:af6b:8b2c
Connecting to example.com (example.com)|93.184.215.14|:80... connected.
HTTP request sent, awaiting response... 404 Not Found
2024-11-08 19:47:29 ERROR 404: Not Found.
```

```
fahima@fahima:/home$ wget -b http://example.com/largefile.zip
Continuing in background, pid 21100.
fahima@fahima:/home$ wget -q http://example.com/file.zip
fahima@fahima:/home$
```

curl -O :

```
fahima@fahima:/home$ curl -O http://example.com/file.zip
Command 'curl' not found, but can be installed with:
sudo snap install curl # version 8.1.2, or
sudo apt install curl # version 8.5.0-2ubuntu10.4
See 'snap info curl' for additional versions.
fahima@fahima:/home$ curl -I http://example.com
```

curl -I, -X :

```
See 'snap info curl' for additional versions.
fahima@fahima:/home$ curl -I http://example.com
Command 'curl' not found, but can be installed with:
sudo snap install curl # version 8.1.2, or
sudo apt install curl # version 8.5.0-2ubuntu10.4
See 'snap info curl' for additional versions.
fahima@fahima:/home$ curl -X POST http://example.com/submit
Command 'curl' not found, but can be installed with:
sudo snap install curl # version 8.1.2, or
sudo apt install curl # version 8.5.0-2ubuntu10.4
See 'snap info curl' for additional versions.
```

tar -c, -v, -f :

```
fahima@fahima:/$ cd -P myDirectory
fahima@fahima:/myDirectory$ touch doc1.txt
touch: cannot touch 'doc1.txt': Permission denied
fahima@fahima:/myDirectory$ sudo touch doc1.txt
fahima@fahima:/myDirectory$ sudo touch doc2.txt
fahima@fahima:/myDirectory$ ls
doc1.txt  doc2.txt
fahima@fahima:/myDirectory$ tar -cvf archive.tar doc1.txt
tar: archive.tar: Cannot open: Permission denied
tar: Error is not recoverable: exiting now
fahima@fahima:/myDirectory$ ^C
fahima@fahima:/myDirectory$ sudo tar -cvf archive.tar doc1.txt
doc1.txt
```

zip -r, -u, -v :

```
fahima@fahima:/$ sudo zip -r archive.zip myDirectory
updating: myDirectory/ (stored 0%)
updating: myDirectory/doc1.txt (stored 0%)
updating: myDirectory/doc2.txt (stored 0%)
updating: myDirectory/archive.tar (deflated 99%)
fahima@fahima:/$
```

unzip -l :

```
fahima@fahima:/$ unzip -l archive.zip
Archive:  archive.zip
  Length      Date    Time    Name
-----
         0  2024-11-08  21:52   myDirectory/
         0  2024-11-08  21:50   myDirectory/doc1.txt
         0  2024-11-08  21:50   myDirectory/doc2.txt
      10240  2024-11-08  21:52   myDirectory/archive.tar
-----
      10240                     4 files
```

unzip -v :

```
fahima@fahima:/$ unzip -v archive.zip
Archive:  archive.zip
 Length  Method      Size  Cmpr   Date   Time   CRC-32   Name
-----  -
      0   Stored      0    0%  2024-11-08 21:52 00000000 myDirectory/
      0   Stored      0    0%  2024-11-08 21:50 00000000 myDirectory/doc1.txt
      0   Stored      0    0%  2024-11-08 21:50 00000000 myDirectory/doc2.txt
 10240   Defl:N     93   99%  2024-11-08 21:52 8fdcac5e myDirectory/archive.tar
-----  -
 10240                   93  99%                   4 files
fahima@fahima:/$
```

scp -P :

ssh -p :

```
fahima@fahima:/$ scp -P 22 file5.txt user@remote_host:/path/
ssh: Could not resolve hostname remote_host: Temporary failure in name resolution
scp: Connection closed
fahima@fahima:/$ ssh -p 22 user@remote_host
ssh: Could not resolve hostname remote_host: Temporary failure in name resolution
fahima@fahima:/$ sudo ssh -p 22 user@remote_host
ssh: Could not resolve hostname remote_host: Temporary failure in name resolution
```

history -w, -r :

```
fahima@fahima:/$ history -w
fahima@fahima:/$ history -r
fahima@fahima:/$ ls -l
total 4194404
-rw-r--r--  1 root root      777 Nov  8 22:03 archive.zip
lrwxrwxrwx  1 root root       17 Apr 22  2024 bin -> usr/bin
```

alias alias_name='command'

unalias :

```
fahima@fahima:/$ alias ll='ls -l'
fahima@fahima:/$ unalias ll
fahima@fahima:/$
```

df -h, --total :

```
fahima@fahima:/$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           506M  1.5M  505M   1% /run
/dev/sda2       25G   11G   13G  45% /
tmpfs           2.5G    0  2.5G   0% /dev/shm
tmpfs           5.0M  8.0K  5.0M   1% /run/lock
tmpfs           506M  120K  506M   1% /run/user/1000
fahima@fahima:/$ df -h --total
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           506M  1.5M  505M   1% /run
/dev/sda2       25G   11G   13G  45% /
tmpfs           2.5G    0  2.5G   0% /dev/shm
tmpfs           5.0M  8.0K  5.0M   1% /run/lock
tmpfs           506M  120K  506M   1% /run/user/1000
total           28G   11G   17G  39% -
```

df -i :

```
fahima@fahima:/$ df -i
Filesystem      Inodes   IUsed   IFree IUse% Mounted on
tmpfs           647309   1006   646303    1% /run
/dev/sda2      1638400 172122 1466278   11% /
tmpfs           647309     1   647308    1% /dev/shm
tmpfs           647309     4   647305    1% /run/lock
tmpfs           129461   154   129307    1% /run/user/1000
fahima@fahima:/$
```

mount -a, unmount :

```
fahima@fahima:/$ sudo mount -a
[sudo] password for fahima:
fahima@fahima:/$ sudo unmount -f/mnt/usb
```


ifconfig -a :

```
fahima@fahima:/$ ifconfig -a
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fd00::a00:27ff:fe4d:e9df prefixlen 64 scopeid 0x0<global>
    inet6 fe80::a00:27ff:fe4d:e9df prefixlen 64 scopeid 0x20<link>
    inet6 fd00::ff34:cff4:ea6:a8c5 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:4d:e9:df txqueuelen 1000 (Ethernet)
    RX packets 663 bytes 268394 (268.3 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 738 bytes 68310 (68.3 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 167 bytes 14116 (14.1 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 167 bytes 14116 (14.1 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ip addr :

```
fahima@fahima:/$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:4d:e9:df brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 80803sec preferred_lft 80803sec
    inet6 fd00::ff34:cff4:ea6:a8c5/64 scope global temporary dynamic
        valid_lft 86113sec preferred_lft 14113sec
    inet6 fd00::a00:27ff:fe4d:e9df/64 scope global dynamic mngtnpaddr
        valid_lft 86113sec preferred_lft 14113sec
    inet6 fe80::a00:27ff:fe4d:e9df/64 scope link
        valid_lft forever preferred_lft forever
```

ip route,ip link :

```
fahima@fahima:/$ ip route
default via 10.0.2.2 dev enp0s3 proto dhcp src 10.0.2.15 metric 100
10.0.2.0/24 dev enp0s3 proto kernel scope link src 10.0.2.15 metric 100
fahima@fahima:/$ ip link
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: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP
    mode DEFAULT group default qlen 1000
    link/ether 08:00:27:4d:e9:df brd ff:ff:ff:ff:ff:ff
```

ip neigh :

```
fahima@fahima:/$ ip neigh
10.0.2.3 dev enp0s3 lladdr 52:55:0a:00:02:03 STALE
10.0.2.2 dev enp0s3 lladdr 52:55:0a:00:02:02 STALE
fd00::2 dev enp0s3 lladdr 52:56:00:00:00:02 router STALE
fe80::2 dev enp0s3 lladdr 52:56:00:00:00:02 router STALE
fahima@fahima:/$
```

ping -c :

```
fahima@fahima:/$ ping -c 5 google.com
PING google.com (142.250.182.110) 56(84) bytes of data:
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=1 ttl=255 time=98.6 m
s
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=3 ttl=255 time=58.4 m
s
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=4 ttl=255 time=80.6 m
s
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=5 ttl=255 time=83.4 m
s
```

ping -i :

```
fahima@fahima:/$ ping -i 2 google.com
PING google.com (142.250.182.110) 56(84) bytes of data:
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=1 ttl=255 time=53.2 m
s
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=2 ttl=255 time=43.0 m
s
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=3 ttl=255 time=42.4 m
s
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=4 ttl=255 time=42.2 m
s
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=5 ttl=255 time=41.6 m
s
```

ping -t :

```
ping: temporary failure in name resolution
fahima@fahima:/$ ping -t 10 google.com
PING google.com (142.250.182.110) 56(84) bytes of data.
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=1 ttl=255 time=73.4 ms
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=2 ttl=255 time=41.2 ms
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=3 ttl=255 time=42.9 ms
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=4 ttl=255 time=45.1 ms
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=5 ttl=255 time=43.6 ms
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=6 ttl=255 time=77.6 ms
64 bytes from maa05s21-in-f14.1e100.net (142.250.182.110): icmp_seq=7 ttl=255 time=46.4 ms
^C
```

traceroute -n :

```
Processing triggers for man-db (2.7.4-1) ...
fahima@fahima:/$ traceroute -n google.com
traceroute to google.com (142.250.182.110), 30 hops max, 60 byte packets
 1  10.0.2.2  0.649 ms  0.613 ms  0.585 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
```

traceroute -w :

```
fahima@fahima:/$ traceroute -w 3 google.com
traceroute to google.com (142.250.182.110), 30 hops max, 60 byte packets
 1  _gateway (10.0.2.2)  1.387 ms  1.205 ms  1.171 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
```

traceroute -m :

```
fahima@fahima:/$ traceroute -m 10 google.com
traceroute to google.com (142.250.182.110), 10 hops max, 60 byte packets
 1  _gateway (10.0.2.2)  2.179 ms  2.036 ms  1.911 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
```

etstat -r, netstat -i :

```
fahima@fahima:/$ netstat -r
Kernel IP routing table
Destination        Gateway            Genmask           Flags        MSS Window  irtt Iface
default            _gateway          0.0.0.0           UG           0  0        0 enp0s3
10.0.2.0           0.0.0.0           255.255.255.0     U            0  0        0 enp0s3
fahima@fahima:/$ netstat -i
Kernel Interface table
Iface              MTU        RX-OK RX-ERR RX-DRP RX-OVR    TX-OK TX-ERR TX-DRP TX-OVR Flg
enp0s3             1500       965    0      0  0       1183    0      0    0  BMRU
lo                 65536     217    0      0  0        217    0      0    0  LRU
fahima@fahima:/$ etstat -r
```

netstat -n :

```
fahima@fahima:/$ netstat -n
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 10.0.2.15:68           10.0.2.2:67            ESTABLISHED

Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags               Type                   State                  I-Node    Path
unix    3      [ ]                 STREAM                CONNECTED              15802     /run/dbus/system_bus_socket
unix    3      [ ]                 STREAM                CONNECTED              15130
unix    3      [ ]                 STREAM                CONNECTED              17861
unix    2      [ ]                 DGRAM                 17636
unix    3      [ ]                 STREAM                CONNECTED              16045
unix    3      [ ]                 STREAM                CONNECTED              13404     /run/systemd/journal/stdout
unix    3      [ ]                 STREAM                CONNECTED              15066     /run/systemd/journal/stdout
unix    3      [ ]                 STREAM                CONNECTED              15168
```

ss -tuln :

```
fahima@fahima:/$ ss -tuln
Netid      State      Recv-Q     Send-Q       Local Address:Port      Peer Address:Port       Process
udp        UNCONN     0           0             0.0.0.0:5353            0.0.0.0:*
udp        UNCONN     0           0             0.0.0.0:56464           0.0.0.0:*
udp        UNCONN     0           0             127.0.0.54:53           0.0.0.0:*
udp        UNCONN     0           0             127.0.0.53%lo:53        0.0.0.0:*
udp        UNCONN     0           0             [::]:49752              [::]:*
udp        UNCONN     0           0             [::]:5353               [::]:*
tcp        LISTEN     0           4096          127.0.0.54:53           0.0.0.0:*
tcp        LISTEN     0           4096          127.0.0.1:631           0.0.0.0:*
tcp        LISTEN     0           4096          127.0.0.53%lo:53        0.0.0.0:*
tcp        LISTEN     0           4096          [::1]:631               [::]:*
```

nmap -sS -A :

```
fahima@fahima:/$ sudo snap install nmap
[sudo] password for fahima:
nmap 7.95 from Maximiliano Bertacchini (maxiberta) installed
fahima@fahima:/$ nmap -sS -A 192.168.1.1
2024/11/08 23:18:46.118794 cmd_run.go:1129: WARNING: cannot create user data directory:
a/snap/nmap: permission denied
```

tcpdump -i, -D :

```
fahima@fahima:/$ tcpdump -i etho
tcpdump: etho: You don't have permission to perform this capture on that device
(socket: Operation not permitted)
fahima@fahima:/$ tcpdump -D
1.enp0s3 [Up, Running, Connected]
2.any (Pseudo-device that captures on all interfaces) [Up, Running]
3.lo [Up, Running, Loopback]
4.bluetooth-monitor (Bluetooth Linux Monitor) [Wireless]
5.nflog (Linux netfilter log (NFLOG) interface) [none]
6.nfqueue (Linux netfilter queue (NFQUEUE) interface) [none]
7.dbus-system (D-Bus system bus) [none]
8.dbus-session (D-Bus session bus) [none]
Show Apps
```

wireshark :

```
sudo apt install wireshark
fahima@fahima:/$ wireshark
Command 'wireshark' not found, but can be installed with:
sudo apt install wireshark
fahima@fahima:/$
```

dig +short ,+trace :

```
sudo apt install wireshark
fahima@fahima:/$ dig +short example.com
93.184.215.14
fahima@fahima:/$ dig +trace example.com

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> +trace example.com
;; global options: +cmd
.                87203    IN      NS      i.root-servers.net.
.                87203    IN      NS      f.root-servers.net.
.                87203    IN      NS      a.root-servers.net.
.                87203    IN      NS      d.root-servers.net.
.                87203    IN      NS      b.root-servers.net.
.                87203    IN      NS      h.root-servers.net.
.                87203    IN      NS      j.root-servers.net.
```

telnet :

```
^Cfahima@fahima:/$ telnet example.com 80
Trying 93.184.215.14...
Connected to example.com.
Escape character is '^['.
```

arp -a,-d,-s :

```
sudo apt install tshark
fahima@fahima:/$ arp -a
? (10.0.2.3) at 52:55:0a:00:02:03 [ether] on enp0s3
_gateway (10.0.2.2) at 52:55:0a:00:02:02 [ether] on enp0s3
fahima@fahima:/$ arp -d
arp: need host name
fahima@fahima:/$ arp -s
arp: need host name
```

tshark -i eth0 :

```
connection closed by foreign host.
fahima@fahima:/$ tshark -i eth0
Command 'tshark' not found, but can be installed with:
sudo apt install tshark
fahima@fahima:/$ sudo apt install tshark
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```