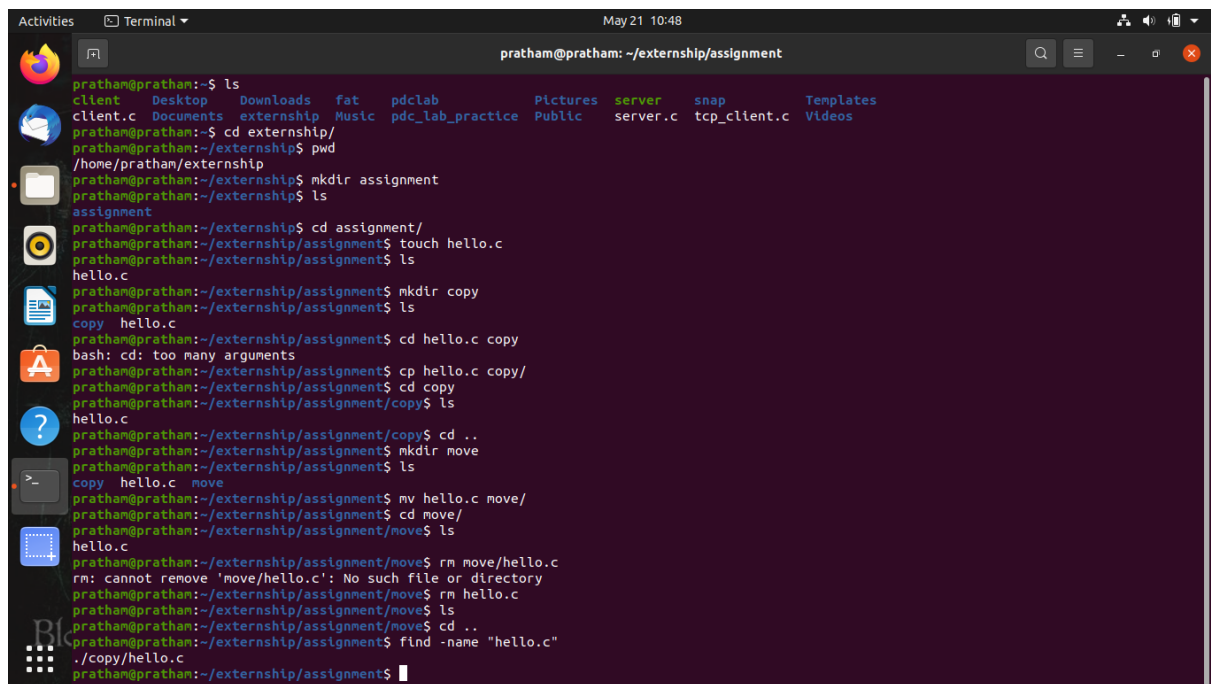


Name: Pratham Gupta

Reg. No: 20BCE2084

Linux Command List Assessment

1. File and Directory Operations:

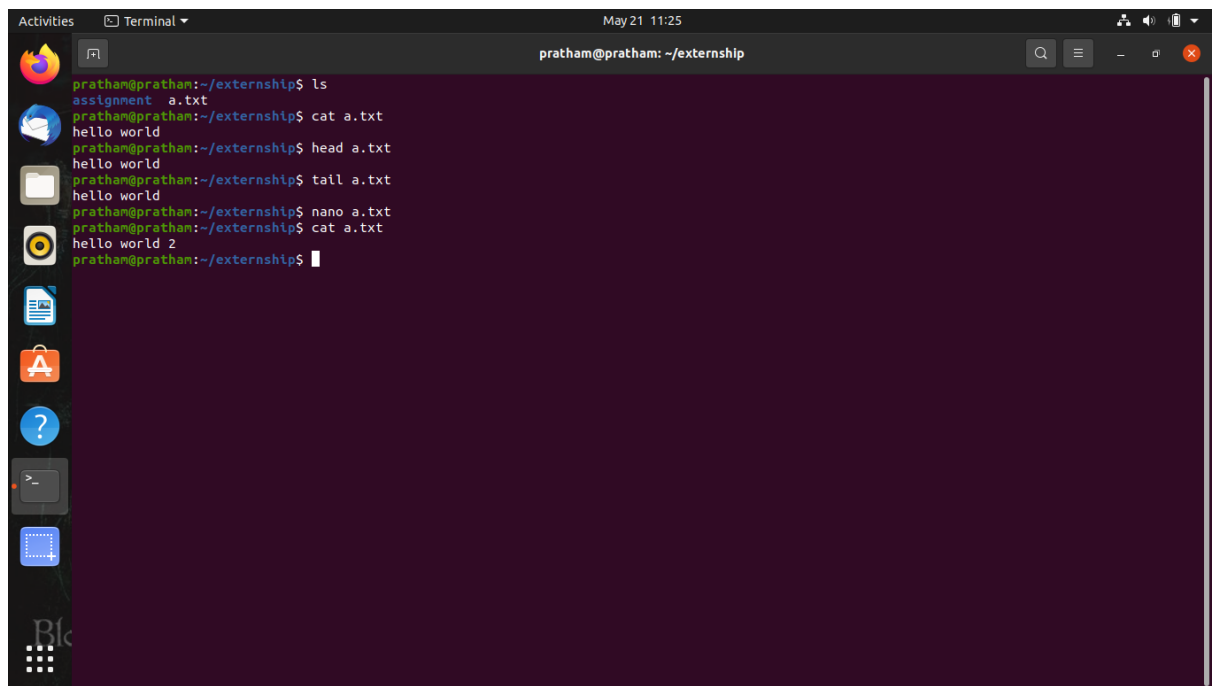


The screenshot shows a terminal window titled "pratham@pratham: ~/externship/assignment" with a timestamp of "May 21 10:48". The terminal displays a series of commands and their outputs for file and directory operations:

```
pratham@pratham:~$ ls
client  Desktop  Downloads  fat  pdclab  Pictures  server  snap  Templates
client.c  Documents  externship  Music  pdc_lab_practice  Public  server.c  tcp_client.c  Videos

pratham@pratham:~$ cd externship/
pratham@pratham:~/externship$ pwd
/home/pratham/externship
pratham@pratham:~/externship$ mkdir assignment
pratham@pratham:~/externship$ ls
assignment
pratham@pratham:~/externship$ cd assignment/
pratham@pratham:~/externship/assignment$ touch hello.c
pratham@pratham:~/externship/assignment$ ls
hello.c
pratham@pratham:~/externship/assignment$ mkdir copy
pratham@pratham:~/externship/assignment$ ls
copy  hello.c
pratham@pratham:~/externship/assignment$ cd hello.c copy
bash: cd: too many arguments
pratham@pratham:~/externship/assignment$ cp hello.c copy/
pratham@pratham:~/externship/assignment$ cd copy
pratham@pratham:~/externship/assignment/copy$ ls
hello.c
pratham@pratham:~/externship/assignment/copy$ cd ..
pratham@pratham:~/externship/assignment$ mkdir move
pratham@pratham:~/externship/assignment$ ls
copy  hello.c  move
pratham@pratham:~/externship/assignment$ mv hello.c move/
pratham@pratham:~/externship/assignment$ cd move/
pratham@pratham:~/externship/assignment/move$ ls
hello.c
pratham@pratham:~/externship/assignment/move$ rm move/hello.c
rm: cannot remove 'move/hello.c': No such file or directory
pratham@pratham:~/externship/assignment/move$ rm hello.c
pratham@pratham:~/externship/assignment/move$ ls
pratham@pratham:~/externship/assignment/move$ cd ..
pratham@pratham:~/externship/assignment$ find -name "hello.c"
./copy/hello.c
pratham@pratham:~/externship/assignment$
```

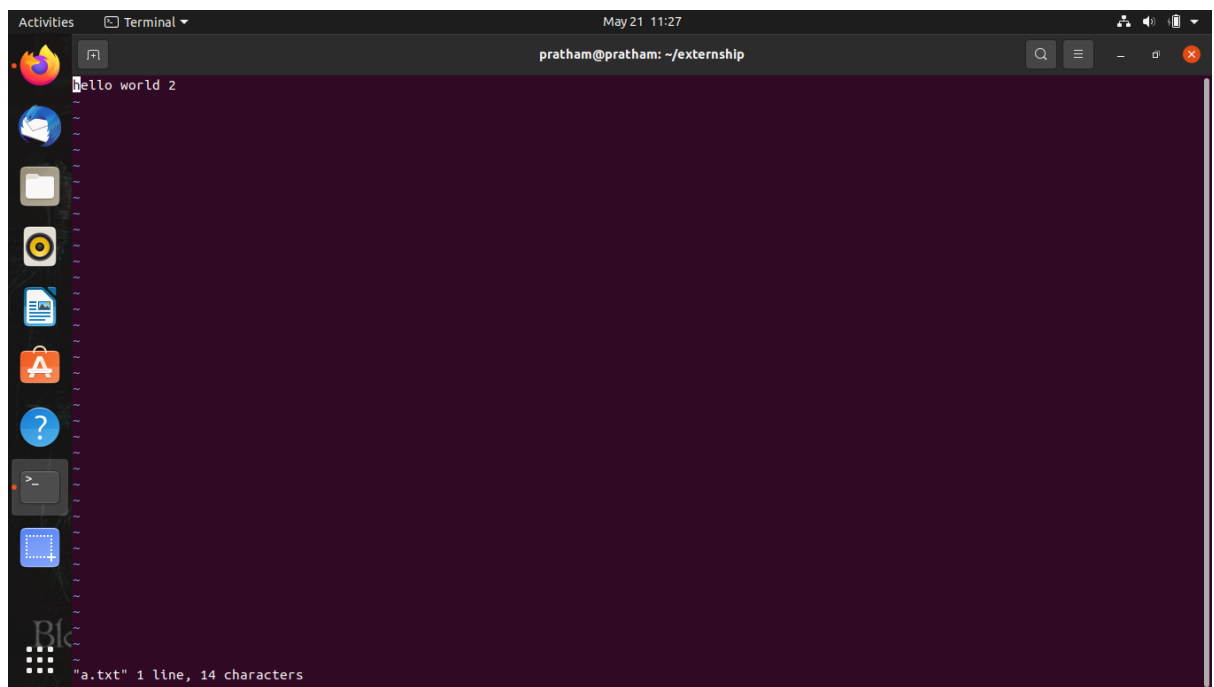
2. File Viewing and Editing:



A terminal window titled "pratham@pratham: ~/externship" with a search bar and window controls. The terminal shows a series of commands and their outputs:

```
pratham@pratham:~/externship$ ls
assignment  a.txt
pratham@pratham:~/externship$ cat a.txt
hello world
pratham@pratham:~/externship$ head a.txt
hello world
pratham@pratham:~/externship$ tail a.txt
hello world
pratham@pratham:~/externship$ nano a.txt
pratham@pratham:~/externship$ cat a.txt
hello world 2
pratham@pratham:~/externship$
```

The left sidebar shows application icons for Firefox, Files, Mail, Photos, Videos, Music, and a dock with various utility icons.

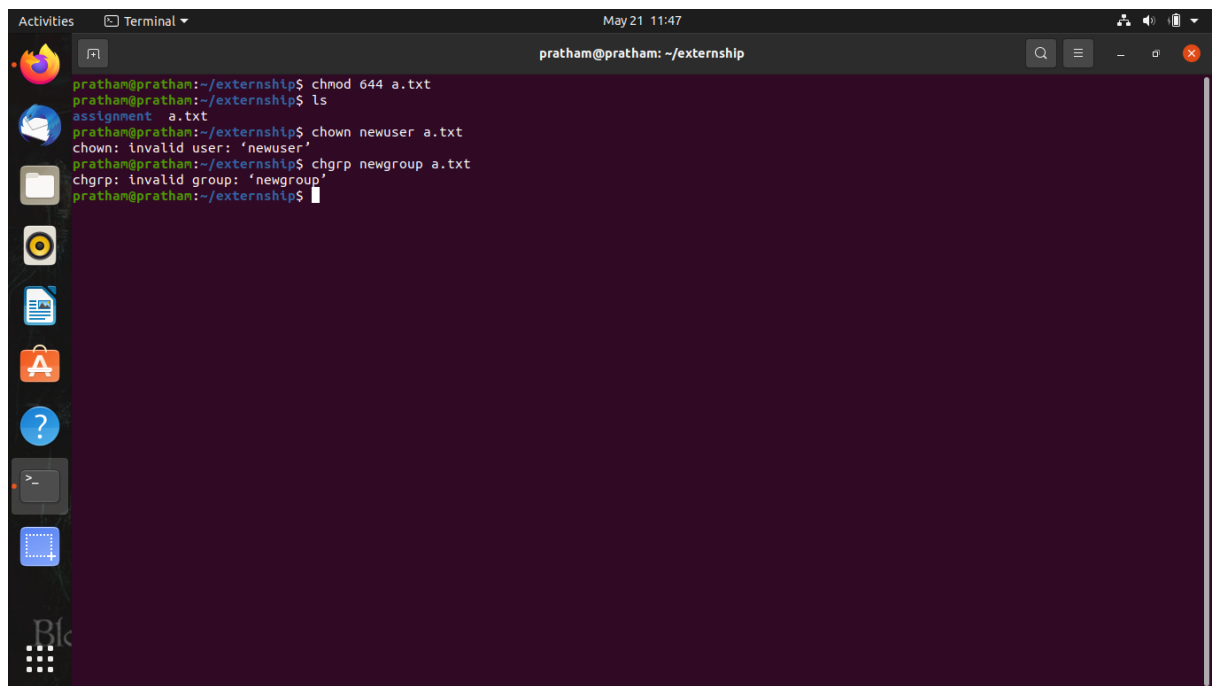


A terminal window titled "pratham@pratham: ~/externship" with a search bar and window controls. The terminal shows the output of a command:

```
hello world 2
```

At the bottom of the terminal, a status bar indicates: `"a.txt" 1 line, 14 characters`. The left sidebar is identical to the first image.

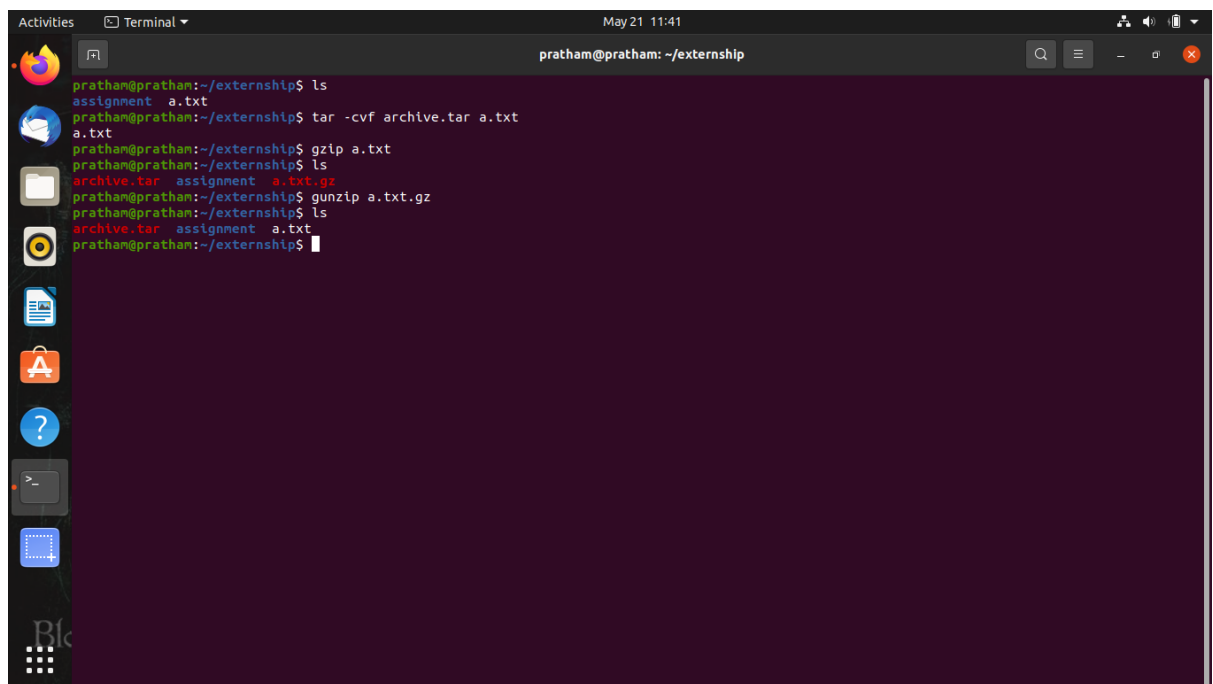
3. File Permissions:



A terminal window titled "pratham@pratham: ~/externship" showing the following commands and output:

```
pratham@pratham:~/externship$ chmod 644 a.txt
pratham@pratham:~/externship$ ls
assignment  a.txt
pratham@pratham:~/externship$ chown newuser a.txt
chown: invalid user: 'newuser'
pratham@pratham:~/externship$ chgrp newgroup a.txt
chgrp: invalid group: 'newgroup'
pratham@pratham:~/externship$
```

4. File Compression and Archiving:



A terminal window titled "pratham@pratham: ~/externship" showing the following commands and output:

```
pratham@pratham:~/externship$ ls
assignment  a.txt
pratham@pratham:~/externship$ tar -cvf archive.tar a.txt
a.txt
pratham@pratham:~/externship$ gzip a.txt
pratham@pratham:~/externship$ ls
archive.tar  assignment  a.txt.gz
pratham@pratham:~/externship$ gunzip a.txt.gz
pratham@pratham:~/externship$ ls
archive.tar  assignment  a.txt
pratham@pratham:~/externship$
```

5. Process Management:

```
Activities Terminal May 21 12:06 pratham@pratham: ~
pratham@pratham:~$ ps
PID TTY          TIME CMD
6977 pts/0      00:00:00 bash
7139 pts/0      00:00:00 ps
pratham@pratham:~$ top
```

```
Activities Terminal May 21 12:06 pratham@pratham: ~
top - 12:06:15 up 45 min, 1 user, load average: 0.13, 0.10, 0.09
Tasks: 209 total, 1 running, 208 sleeping, 0 stopped, 0 zombie
%Cpu(s): 7.1 us, 4.7 sy, 0.0 ni, 88.0 id, 0.0 wa, 0.0 hi, 0.1 si, 0.0 st
MLB Mem : 4912.6 total, 1877.2 free, 1441.7 used, 1593.7 buff/cache
MLB Swap: 2048.0 total, 2048.0 free, 0.0 used, 3202.1 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 1564 pratham   20   0 4791944 330556 135544 S   27.0   6.6   1:46.44 gnome-shell
 1362 pratham   20   0 299432 109440 62680 S   13.7   2.2   0:43.85 Xorg
 7186 pratham   20   0 735584 44228 33340 S   13.0   0.9   0:00.39 gnome-screensho
 6969 pratham   20   0 814604 51012 38416 S    2.0   1.0   0:01.86 gnome-terminal-
   14 root       20   0      0      0      0 I    0.3   0.0   0:01.11 rcu_sched
  316 root      -51   0      0      0      0 S    0.3   0.0   0:01.42 irq/18-vmmgfx
 1315 pratham   20   0  12444  9732  3968 S    0.3   0.2   0:01.42 dbus-daemon
 1614 pratham   20   0 162912  6580  5932 S    0.3   0.1   0:00.28 at-spi2-registr
 1981 pratham   20   0 610044 10572  9292 S    0.3   0.2   0:00.27 xdg-desktop-por
 1985 pratham   20   0 346232  28440 19096 S    0.3   0.6   0:00.64 xdg-desktop-por
 3048 pratham   20   0 9248284 385892 114712 S    0.3   7.7   2:22.92 Web Content
 7046 root       20   0      0      0      0 I    0.3   0.0   0:00.13 kworker/1:0-events
 7177 pratham   20   0 434652 24776 14452 S    0.3   0.5   0:00.12 tracker-store
    1 root       20   0 167488 11592  8444 S    0.0   0.2   0:02.42 systemd
    2 root       20   0      0      0      0 S    0.0   0.0   0:00.03 kthreadd
    3 root       0 -20      0      0      0 I    0.0   0.0   0:00.00 rcu_gp
    4 root       0 -20      0      0      0 I    0.0   0.0   0:00.00 rcu_par_gp
    5 root       0 -20      0      0      0 I    0.0   0.0   0:00.00 slab_flushwq
    6 root       0 -20      0      0      0 I    0.0   0.0   0:00.00 netns
    8 root       0 -20      0      0      0 I    0.0   0.0   0:00.00 kworker/0:0H-events_highpri
   10 root       0 -20      0      0      0 I    0.0   0.0   0:00.00 mm_percpu_wq
   11 root       20   0      0      0      0 S    0.0   0.0   0:00.00 rcu_tasks_rude_
   12 root       20   0      0      0      0 S    0.0   0.0   0:00.00 rcu_tasks_trace
   13 root       20   0      0      0      0 S    0.0   0.0   0:00.06 ksoftirqd/0
   15 root       rt    0      0      0      0 S    0.0   0.0   0:00.11 migration/0
   16 root      -51   0      0      0      0 S    0.0   0.0   0:00.00 idle_inject/0
   18 root       20   0      0      0      0 S    0.0   0.0   0:00.00 cpuhp/0
   19 root       20   0      0      0      0 S    0.0   0.0   0:00.00 cpuhp/1
   20 root      -51   0      0      0      0 S    0.0   0.0   0:00.00 idle_inject/1
   21 root       rt    0      0      0      0 S    0.0   0.0   0:00.83 migration/1
   22 root       20   0      0      0      0 S    0.0   0.0   0:00.05 ksoftirqd/1
```

```
Activities Terminal May 21 12:09 pratham@pratham: ~/externship
pratham@pratham:~/externship$ kill 10
bash: kill: (10) - Operation not permitted
pratham@pratham:~/externship$ bg 7774
bash: bg: 7774: no such job
pratham@pratham:~/externship$ fg 7774
bash: fg: 7774: no such job
pratham@pratham:~/externship$
```

6. System Information:

```
Activities Terminal May 21 12:03 pratham@pratham: ~
pratham@pratham:~$ uname
Linux
pratham@pratham:~$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
udev            2476952         0   2476952   0% /dev
tmpfs           503048         1444    501604   1% /run
/dev/sda5       102107096 13105516  83768684  14% /
tmpfs           2515236         0   2515236   0% /dev/shm
tmpfs           5120          4      5116   1% /run/lock
tmpfs           2515236         0   2515236   0% /sys/fs/cgroup
/dev/loop0       57088        57088         0 100% /snap/core18/2745
/dev/loop2       223744       223744         0 100% /snap/gnome-3-34-1804/93
/dev/loop3       358144       358144         0 100% /snap/gnome-3-38-2004/137
/dev/loop1         128          128         0 100% /snap/bare/5
/dev/loop5       64896        64896         0 100% /snap/core20/1852
/dev/loop4       93952        93952         0 100% /snap/gtk-common-themes/1535
/dev/loop6       56960        56960         0 100% /snap/core18/2721
/dev/loop7       65024        65024         0 100% /snap/core20/1891
/dev/loop12      51072        51072         0 100% /snap/snapd/18596
/dev/loop10      47104        47104         0 100% /snap/snap-store/638
/dev/loop9       54528        54528         0 100% /snap/snapd/19122
/dev/loop11      55552        55552         0 100% /snap/snap-store/558
/dev/loop8       358144       358144         0 100% /snap/gnome-3-38-2004/140
/dev/loop13      223744       223744         0 100% /snap/gnome-3-34-1804/90
/dev/loop14      66816        66816         0 100% /snap/gtk-common-themes/1519
/dev/sda1       523248         4    523244   1% /boot/efi
tmpfs           503044         36    503008   1% /run/user/1000
pratham@pratham:~$ free
              total        used        free      shared  buff/cache   available
Mem:           5030476      1492856      1905640         40700       1631980       3258976
Swap:          2097148           0       2097148
pratham@pratham:~$ uptime
11:50:52 up 30 min,  1 user,  load average: 0.08, 0.12, 0.18
pratham@pratham:~$ who
pratham  :0                2023-05-21 11:21 (:0)
pratham@pratham:~$ w
11:51:08 up 30 min,  1 user,  load average: 0.06, 0.11, 0.18
USER      TTY      FROM              LOGIN@   IDLE   JCPU   PCPU   WHAT
pratham    -        -                  11:51   0.00s  0.00s  0.00s  sshd: pratham@10.0.2.15
```

7. Networking:

```
Activities Terminal May 21 12:47 pratham@pratham: ~/externship

pratham@pratham:~/externship$ ifconfig
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 fe80::fd93:e79e:43bc:baea prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:de:be:21 txqueuelen 1000 (Ethernet)
    RX packets 10968 bytes 10180950 (10.1 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 6964 bytes 2528291 (2.5 MB)
    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 1355 bytes 138626 (138.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1355 bytes 138626 (138.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

pratham@pratham:~/externship$ ifconfig eth0 up
eth0: ERROR while getting interface flags: No such device
pratham@pratham:~/externship$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=55 time=254 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=55 time=30.1 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=55 time=63.5 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=55 time=81.9 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=55 time=79.5 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=55 time=27.6 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=55 time=84.0 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=55 time=185 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=55 time=76.1 ms
64 bytes from 8.8.8.8: icmp_seq=10 ttl=55 time=85.6 ms
64 bytes from 8.8.8.8: icmp_seq=11 ttl=55 time=79.1 ms
64 bytes from 8.8.8.8: icmp_seq=12 ttl=55 time=82.5 ms
64 bytes from 8.8.8.8: icmp_seq=13 ttl=55 time=61.7 ms
64 bytes from 8.8.8.8: icmp_seq=14 ttl=55 time=81.6 ms
64 bytes from 8.8.8.8: icmp_seq=15 ttl=55 time=79.3 ms
64 bytes from 8.8.8.8: icmp_seq=16 ttl=55 time=65.2 ms
64 bytes from 8.8.8.8: icmp_seq=17 ttl=55 time=63.9 ms
64 bytes from 8.8.8.8: icmp_seq=18 ttl=55 time=61.0 ms
64 bytes from 8.8.8.8: icmp_seq=19 ttl=55 time=51.4 ms
64 bytes from 8.8.8.8: icmp_seq=20 ttl=55 time=64.5 ms
64 bytes from 8.8.8.8: icmp_seq=21 ttl=55 time=54.8 ms
64 bytes from 8.8.8.8: icmp_seq=22 ttl=55 time=34.4 ms
64 bytes from 8.8.8.8: icmp_seq=23 ttl=55 time=28.6 ms
64 bytes from 8.8.8.8: icmp_seq=24 ttl=55 time=41.2 ms
64 bytes from 8.8.8.8: icmp_seq=25 ttl=55 time=47.5 ms
64 bytes from 8.8.8.8: icmp_seq=26 ttl=55 time=40.2 ms
64 bytes from 8.8.8.8: icmp_seq=27 ttl=55 time=32.1 ms
64 bytes from 8.8.8.8: icmp_seq=28 ttl=55 time=31.8 ms
64 bytes from 8.8.8.8: icmp_seq=29 ttl=55 time=34.4 ms
64 bytes from 8.8.8.8: icmp_seq=30 ttl=55 time=78.6 ms
64 bytes from 8.8.8.8: icmp_seq=31 ttl=55 time=33.6 ms
64 bytes from 8.8.8.8: icmp_seq=32 ttl=55 time=30.0 ms
64 bytes from 8.8.8.8: icmp_seq=33 ttl=55 time=97.8 ms
64 bytes from 8.8.8.8: icmp_seq=34 ttl=55 time=67.2 ms
64 bytes from 8.8.8.8: icmp_seq=35 ttl=55 time=64.0 ms
64 bytes from 8.8.8.8: icmp_seq=36 ttl=55 time=68.4 ms
64 bytes from 8.8.8.8: icmp_seq=37 ttl=55 time=55.5 ms
64 bytes from 8.8.8.8: icmp_seq=38 ttl=55 time=30.1 ms
64 bytes from 8.8.8.8: icmp_seq=39 ttl=55 time=33.7 ms
64 bytes from 8.8.8.8: icmp_seq=40 ttl=55 time=32.7 ms
64 bytes from 8.8.8.8: icmp_seq=41 ttl=55 time=32.8 ms
64 bytes from 8.8.8.8: icmp_seq=42 ttl=55 time=29.7 ms
64 bytes from 8.8.8.8: icmp_seq=43 ttl=55 time=56.1 ms
64 bytes from 8.8.8.8: icmp_seq=44 ttl=55 time=40.2 ms
64 bytes from 8.8.8.8: icmp_seq=45 ttl=55 time=77.5 ms
64 bytes from 8.8.8.8: icmp_seq=46 ttl=55 time=31.0 ms
64 bytes from 8.8.8.8: icmp_seq=47 ttl=55 time=74.9 ms
64 bytes from 8.8.8.8: icmp_seq=48 ttl=55 time=71.7 ms
^C
-- 8.8.8.8 ping statistics --
82 packets transmitted, 82 received, 0% packet loss, time 81175ms
rtt min/avg/max/mdev = 24.352/60.080/253.581/35.261 ms
pratham@pratham:~/externship$
```

```
Activities Terminal May 21 12:53 pratham@pratham: ~/externship

64 bytes from 8.8.8.8: icmp_seq=69 ttl=55 time=64.0 ms
64 bytes from 8.8.8.8: icmp_seq=70 ttl=55 time=68.4 ms
64 bytes from 8.8.8.8: icmp_seq=71 ttl=55 time=55.5 ms
64 bytes from 8.8.8.8: icmp_seq=72 ttl=55 time=30.1 ms
64 bytes from 8.8.8.8: icmp_seq=73 ttl=55 time=33.7 ms
64 bytes from 8.8.8.8: icmp_seq=74 ttl=55 time=32.7 ms
64 bytes from 8.8.8.8: icmp_seq=75 ttl=55 time=32.8 ms
64 bytes from 8.8.8.8: icmp_seq=76 ttl=55 time=29.7 ms
64 bytes from 8.8.8.8: icmp_seq=77 ttl=55 time=56.1 ms
64 bytes from 8.8.8.8: icmp_seq=78 ttl=55 time=40.2 ms
64 bytes from 8.8.8.8: icmp_seq=79 ttl=55 time=77.5 ms
64 bytes from 8.8.8.8: icmp_seq=80 ttl=55 time=31.0 ms
64 bytes from 8.8.8.8: icmp_seq=81 ttl=55 time=74.9 ms
64 bytes from 8.8.8.8: icmp_seq=82 ttl=55 time=71.7 ms
^C
--- 8.8.8.8 ping statistics ---
82 packets transmitted, 82 received, 0% packet loss, time 81175ms
rtt min/avg/max/mdev = 24.352/60.080/253.581/35.261 ms
pratham@pratham:~/externship$ ssh pratham@pratham-server
ssh: Could not resolve hostname pratham-server: Temporary failure in name resolution
pratham@pratham:~/externship$ ls
assignment a.txt
pratham@pratham:~/externship$ scp a.txt pratham@127.0.0.53:./assignment/
ssh: connect to host 127.0.0.53 port 22: Connection refused
lost connection
pratham@pratham:~/externship$ wget https://archive.apache.org/dist/httpd/httpd-2.4.46.tar.gz
--2023-05-21 12:53:28-- https://archive.apache.org/dist/httpd/httpd-2.4.46.tar.gz
Resolving archive.apache.org (archive.apache.org)... 65.108.204.189, 2a01:4f9:1a:a084::2
Connecting to archive.apache.org (archive.apache.org)|65.108.204.189|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9363314 (8.9M) [application/x-gzip]
Saving to: 'httpd-2.4.46.tar.gz'

httpd-2.4.46.tar.gz      100%[=====] 8.93M  1.80MB/s  in 7.2s

2023-05-21 12:53:37 (1.23 MB/s) - 'httpd-2.4.46.tar.gz' saved [9363314/9363314]

pratham@pratham:~/externship$
```

8. System Administration:

```
Activities Terminal May 21 12:17 pratham@pratham: ~/externship

pratham@pratham:~/externship$ sudo apt-get update
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:3 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Get:4 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Fetched 222 kB in 3s (81.6 kB/s)
Reading package lists... Done
pratham@pratham:~/externship$ sudo yum install php
sudo: yum: command not found
pratham@pratham:~/externship$ systemctl start docker
Failed to start docker.service: Unit docker.service not found.
pratham@pratham:~/externship$ crontab -i
crontab: invalid option -- 'i'
crontab: usage error: unrecognized option
usage: crontab [-u user] file
crontab [-u user] [-i] [-e] [-l] [-r]
        (default operation is replace, per 1003.2)
        -e      (edit user's crontab)
        -l      (list user's crontab)
        -r      (delete user's crontab)
        -i      (prompt before deleting user's crontab)
pratham@pratham:~/externship$ crontab -e
no crontab for pratham - using an empty one

Select an editor. To change later, run 'select-editor'.
 1. /bin/nano <---- easiest
 2. /usr/bin/vim.tiny
 3. /bin/ed
Choose 1-3 [1]: 1

Use "Fg" to return to nano.

[1]+  Stopped                  crontab -e
pratham@pratham:~/externship$
```

```
Activities Terminal May 21 12:17
pratham@pratham: ~/externship
GNU nano 4.8 /tmp/crontab.Ptsh5A/crontab
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
# m h dom mon dow   command
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos ^M-U Undo ^M-A Mark Text ^M-] To Bracket
^X Exit ^R Read File ^I Replace ^U Paste Text ^T To Spell ^_ Go To Line ^M-E Redo ^M-G Copy Text ^M-_ Where Was

Activities Terminal May 21 12:19
pratham@pratham: ~/externship
pratham@pratham:~/externship$ systemctl start docker
Failed to start docker.service: Unit docker.service not found.
pratham@pratham:~/externship$ crontab -i
crontab: invalid option -- 'i'
crontab: usage error: unrecognized option
usage: crontab [-u user] file
crontab [-u user] [-i] [-e | -l | -r]
        (default operation is replace, per 1003.2)
        -e      (edit user's crontab)
        -l      (list user's crontab)
        -r      (delete user's crontab)
        -i      (prompt before deleting user's crontab)
pratham@pratham:~/externship$ crontab -e
no crontab for pratham - using an empty one
Select an editor.  To change later, run 'select-editor'.
 1. /bin/nano        <---- easiest
 2. /usr/bin/vim.tiny
 3. /bin/ed
Choose 1-3 [1]: 1
Use "fg" to return to nano.
[1]+  Stopped                  crontab -e
pratham@pratham:~/externship$ crontab -e
no crontab for pratham - using an empty one
No modification made
pratham@pratham:~/externship$ useradd default
useradd: Permission denied.
useradd: cannot lock /etc/passwd; try again later.
pratham@pratham:~/externship$ useradd -m default
useradd: Permission denied.
useradd: cannot lock /etc/passwd; try again later.
pratham@pratham:~/externship$ passwd default
passwd: user 'default' does not exist
pratham@pratham:~/externship$
```