

## Experiment-01

**AIM:** Study of different Linux and shell commands for process management, file management, disk management, memory management, as well as user access commands

1.top: Display dynamic real-time system statistics.

Syntax-top

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ top
top - 15:35:43 up 3:40, 1 user, load average: 0.42, 0.35, 0.21
Tasks: 349 total, 1 running, 348 sleeping, 0 stopped, 0 zombie
%CPU(s): 0.4 us, 0.3 sy, 0.0 ni, 99.2 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 15382.0 total, 7964.4 free, 2201.7 used, 5215.9 buff/cache
MiB Swap: 7813.0 total, 7813.0 free, 0.0 used. 12723.4 avail Mem

      PID USER      PR  NI    VIRT    RES    SHR S %CPU %MEM     TIME+ COMMAND
 2108 abhi      20   0  6253272 369104 158672 S  3.7  2.3  0:39.64 gnome-s+
 5211 abhi      20   0 1131.6g 224316 125580 S  2.0  1.4  0:38.30 chrome
 5721 abhi      20   0  567796  57776  45156 S  1.3  0.4  0:00.30 gnome-t+
 208 root      -51   0      0      0      0 S  1.0  0.0  0:03.00 irq/38-
 4818 abhi      20   0  32.7g 277772 191084 S  0.7  1.8  0:20.24 chrome
 4912 abhi      20   0  32.4g 120244  96780 S  0.7  0.8  0:07.47 chrome
 670 systemd+   20   0  14828   6784   6016 S  0.3  0.0  0:04.89 systemd+
1947 abhi      39  19  646436 31912  22512 S  0.3  0.2  0:00.56 tracker+
5539 root      20   0      0      0      0 I  0.3  0.0  0:00.04 kworker+
  1 root      20   0  168500 13120   8128 S  0.0  0.1  0:03.37 systemd
  2 root      20   0      0      0      0 S  0.0  0.0  0:00.00 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+
  5 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 slub_fl+
  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+
 10 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 mm_perc+
```

2.kill: Terminate a process by PID.

Syntax-kill PID

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ kill 2232
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

### 3.ps: Display information about processes.

Syntax-ps aux

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~ $ ps aux
USER      PID %CPU %MEM    VSZ RSS TTY STAT START   TIME COMMAND
root      1  0.0  0.0 168500 13120 ?        Ss  11:54  0:03 /sbin/init splash
root      2  0.0  0.0     0  0 ?        S   11:54  0:00 [kthreadd]
root      3  0.0  0.0     0  0 ?        I<  11:54  0:00 [rcu_gp]
root      4  0.0  0.0     0  0 ?        I<  11:54  0:00 [rcu_par_gp]
root      5  0.0  0.0     0  0 ?        I<  11:54  0:00 [susb_flushwq]
root      6  0.0  0.0     0  0 ?        I<  11:54  0:00 [netns]
root      8  0.0  0.0     0  0 ?        I<  11:54  0:00 [kworker/0:0H-events_highpri]
root     10  0.0  0.0     0  0 ?        I<  11:54  0:00 [mm_percpu_wq]
root     11  0.0  0.0     0  0 ?        I   11:54  0:00 [rcu_tasks_kthread]
root     12  0.0  0.0     0  0 ?        I   11:54  0:00 [rcu_tasks_rude_kthread]
root     13  0.0  0.0     0  0 ?        I   11:54  0:00 [rcu_tasks_trace_kthread]
root     14  0.0  0.0     0  0 ?        S   11:54  0:00 [ksoftirqd/0]
root     15  0.0  0.0     0  0 ?        I   11:54  0:01 [rcu_preempt]
root     16  0.0  0.0     0  0 ?        S   11:54  0:00 [migration/0]
root     17  0.0  0.0     0  0 ?        S   11:54  0:00 [idle_inject/0]
root     19  0.0  0.0     0  0 ?        S   11:54  0:00 [cpuhp/0]
root     20  0.0  0.0     0  0 ?        S   11:54  0:00 [cpuhp/1]
root     21  0.0  0.0     0  0 ?        S   11:54  0:00 [idle_inject/1]
root     22  0.0  0.0     0  0 ?        S   11:54  0:00 [migration/1]
root     23  0.0  0.0     0  0 ?        S   11:54  0:00 [ksoftirqd/1]
root     25  0.0  0.0     0  0 ?        I<  11:54  0:00 [kworker/1:0H-events_highpri]
root     26  0.0  0.0     0  0 ?        S   11:54  0:00 [cpuhp/2]
root     27  0.0  0.0     0  0 ?        S   11:54  0:00 [idle_inject/2]
root     28  0.0  0.0     0  0 ?        S   11:54  0:00 [migration/2]
root     29  0.0  0.0     0  0 ?        S   11:54  0:00 [ksoftirqd/2]
root     31  0.0  0.0     0  0 ?        I<  11:54  0:00 [kworker/2:0H-events_highpri]
root     32  0.0  0.0     0  0 ?        S   11:54  0:00 [cpuhp/3]
root     33  0.0  0.0     0  0 ?        S   11:54  0:00 [idle_inject/3]
root     34  0.0  0.0     0  0 ?        S   11:54  0:00 [migration/3]
root     35  0.0  0.0     0  0 ?        S   11:54  0:00 [ksoftirqd/3]
root     37  0.0  0.0     0  0 ?        I<  11:54  0:00 [kworker/3:0H-events_highpri]
root     38  0.0  0.0     0  0 ?        S   11:54  0:00 [cpuhp/4]
root     39  0.0  0.0     0  0 ?        S   11:54  0:00 [idle_inject/4]
root     40  0.0  0.0     0  0 ?        S   11:54  0:00 [migration/4]
root     41  0.0  0.0     0  0 ?        S   11:54  0:00 [ksoftirqd/4]
root     43  0.0  0.0     0  0 ?        I<  11:54  0:00 [kworker/4:0H-events_highpri]
root     44  0.0  0.0     0  0 ?        S   11:54  0:00 [cpuhp/5]
root     45  0.0  0.0     0  0 ?        S   11:54  0:00 [idle_inject/5]
root     46  0.0  0.0     0  0 ?        S   11:54  0:00 [migration/5]
```

### 4.pstree: Display processes as a tree

Syntax-pstree

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~ $ pstree
systemd--ModemManager--2*[{ModemManager}]
--NetworkManager--2*[{NetworkManager}]
--accounts-daemon--2*[{accounts-daemon}]
-acpid
apache2--2*[apache2--26*[{apache2}]]
-avahi-daemon--avahi-daemon
-bluetoothd
-colord--2*[{colord}]
-cron
-cups-browsed--2*[{cups-browsed}]
-cupsd
-dbus-daemon
-fwupd--4*[{fwupd}]
-gdm3--gdm-session-wor--gdm-wayland-ses--gnome-session-b--2*[{gnome-session-b}]
--2*[{gdm-session-wor}]
--2*[{gdm3}]
--gnome-keyring-d--3*[{gnome-keyring-d}]
--irqbalance--(irqbalance)
--2*[{kerneloops}]
--networkd-dispat
--packagekitd--2*[{packagekitd}]
--polkitd--2*[{polkitd}]
--power-profiles--2*[{power-profiles-}]
--rsyslogd--3*[{rsyslogd}]
--rtkit-daemon--2*[{rtkit-daemon}]
--run-cups-browse--run-cups-browse--sleep
--run-cupsd--cupsd
--snapd--19*[{snapd}]
--switcheroo-cont--2*[{switcheroo-cont}]
--systemd--(sd-pam)
--at-spi2-registr--2*[{at-spi2-registr}]
--chrome_crashpad--2*[{chrome_crashpad}]
--chrome_crashpad--{chrome_crashpad}
--dbus-daemon
--dconf-service--2*[{dconf-service}]
--evolution-addre--5*[{evolution-addre}]
--evolution-calen--8*[{evolution-calen}]
--evolution-sourc--3*[{evolution-source}]
--2*[{gjs}--10*[{gjs}]]
--gnome-session-b--at-spi-bus-laun--dbus-daemon
--3*[{at-spi-bus-laun}]
--evolution-alarm--5*[{evolution-alarm}]
--gsd-disk-utilit--2*[{gsd-disk-utilit}]
--update-notifier--3*[{update-notifier}]
--3*[{gnome-session-b}]
```

5.ps aux --sort=-%cpu | head: Display top CPU-consuming processes.

Syntax-ps aux --sort=-%cpu | head

```
abbhi@abbhi-Vtvo8oab:~$ ls aux --sort=-%cpu | head
USER      PID CPU %MEAN   VSZ  RSS TTY STAT TIME COMMAND
abbhi      5473 6.2 2.3 1186598672 173560 ? 0:15:34 1:26 /opt/google/chrome/chrome --type-renderer --crashpad-handler-pid=4826 --enable-crash-reporter=285a7b56-c9ec-46de-aebb-7e273dba6a0a, --disable-nacl --origin-tri
abbhi      5473 6.2 2.3 1186598672 173560 ? 0:15:34 1:26 /opt/google/chrome/chrome --change-stack-guard-on-fork-enabled --lang=en-GB --num-raster-threads=4 --enable-main-frame-before-activation --renderer-client-id=34 --time-ticks-at-unix-epoch=+1706433256792396 --launch-time-ticks=+2794177866 --shared-files=v8_context_snapshot_data:100 --field_trial-handle=0, i,18235831308814684734,10063298391957369977,262144 --variations-sseed-version=20240123-180207,766000
abbhi      5211 4.0 1.3 1186566288 218396 ? 0:15:25 1:00 /opt/google/chrome/chrome --type-renderer --crashpad-handler-pid=4826 --enable-crash-reporter=285a7b56-c9ec-46de-aebb-7e273dba6a0a, --disable-nacl --origin-tri
abbhi      5211 4.0 1.3 1186566288 218396 ? 0:15:25 1:00 /opt/google/chrome/chrome --type-renderer --crashpad-handler-pid=4826 --enable-crash-reporter=285a7b56-c9ec-46de-aebb-7e273dba6a0a, --disable-nacl --origin-tri
abbhi      4911 2.9 1.3 13457918 217292 ? 0:15 0:52 /opt/google/chrome/chrome --type-gpu-process --crashpad-handler-pid=4826 --enable-crash-reporter=285a7b56-c9ec-46de-aebb-7e273dba6a0a, --change-stack-guard-on-fork-enabled --gpu-preferences=WAAAAMAAAAAGAAEAAAAAAAAMAAAAAAAABgAAAAAAMAAAAAMAAAAAAAAMAAAAAAAABAAAAGAAAAAAAAYAAAAAAAAGAAAAAAAACAAAAAAIAAAAAAA== --shared-files --field-trial-handle=0,i,18235831308814684734,10063298391957369977,262144 --variations-sseed-version=20240123-180207,766000
abbhi      4911 2.9 1.3 13457918 217292 ? 0:15 0:52 /opt/google/chrome/chrome --type-gpu-process --crashpad-handler-pid=4826 --enable-crash-reporter=285a7b56-c9ec-46de-aebb-7e273dba6a0a, --change-stack-guard-on-fork-enabled --gpu-preferences=WAAAAMAAAAAGAAEAAAAAAAAMAAAAAAAABgAAAAAAMAAAAAMAAAAAAAAMAAAAAAAABAAAAGAAAAAAAAYAAAAAAAAGAAAAAAAACAAAAAAIAAAAAAA== --shared-files --field-trial-handle=0,i,18235831308814684734,10063298391957369977,262144 --variations-sseed-version=20240123-180207,766000
abbhi      4849 0.6 0.6 690984 188664 ? 0:13 /usr/bin/Xwayland :0 -rootless -noreset -accessx -core -auth /run/user/1000/.mutter-Xwaylandauth.W2DSH2 -listen 4 -listen 5 -displayfd 6 -intfd 7
abbhi      2108 0.6 0.7 6635580 431988 ? 0:11:55 1:33 /usr/bin/gnome-shell
```

6.lsof: List open files associated with processes.

## Syntax-IsOf -i

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~ $ lsof -i  
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME  
chrome 4818 abhi 192u IPv4 44890 0t0 UDP mdns.mcast.net:mdns  
chrome 4912 abhi 28u IPv6 57075 0t0 UDP abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:48865->pnbomb-ad-in-x0a.1e100.net:https  
chrome 4912 abhi 37u IPv6 78177 0t0 UDP abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:58120->bom07s28-in-x0e.1e100.net:https  
chrome 4912 abhi 40u IPv6 77040 0t0 TCP abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:45906->bom12s17-in-x01.1e100.net:https (ESTABLISHED)  
chrome 4912 abhi 42u IPv6 45497 0t0 TCP abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:53888->ssl-in-f188.1e100.net:5228 (ESTABLISHED)  
chrome 4912 abhi 56u IPv6 60016 0t0 UDP abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:35971->bom07s25-in-x0e.1e100.net:https  
chrome 4912 abhi 62u IPv6 63700 0t0 UDP abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:54351->bom07s27-in-x0a.1e100.net:https
```

7.pgrep Command:The pgrep command allows to search for processes by name and returns their PIDs.

Syntax-pgrep process\_name

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ pgrep chrome  
4818  
4826  
4828  
4834  
4835  
4839  
4911  
4912  
4925  
5202  
5211  
5473  
5525  
5594  
5603
```

8.killall: Terminate a process by name.

Syntax-killall process name

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ killall chrome  
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

9.journalctl: Query and display messages from the journal, managed by systemd.  
Syntax-journalctl

## 10.strace: Trace system calls and signals.

Syntax-strace -p PID

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ strace -p 7413  
strace: Process 7413 attached  
waitid(P_ALL, 0, █
```

11.uptime: Display how long the system has been running.

## Syntax-uptime

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ uptime  
16:11:30 up 4:16, 1 user, load average: 0.44, 0.50, 0.46  
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

12.pidstat-The pidstat command provides detailed statistics for processes, including CPU, memory and I/O usage.

## Syntax-pidstat

System Resource Utilization									
System Resource Utilization									
System Resource Utilization									
Time	Process Type	User CPU (%)	System CPU (%)	Guest CPU (%)	Wait CPU (%)	CPU Usage (%)	CPU ID	Processor	Command
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	0	0	systemd
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	0	1	kthreadd
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	0	2	ksoftirqd/0
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	0	3	rcu_prempt/0
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	0	4	migration/0
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	1	1	migration/1
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	1	2	migration/2
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	2	2	migration/3
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	3	3	migration/4
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	3	4	ksoftirqd/3
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	4	4	migration/4
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	4	5	ksoftirqd/4
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	5	5	migration/5
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	5	6	ksoftirqd/5
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	6	6	migration/6
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	6	7	ksoftirqd/6
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	7	7	migration/7
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	7	8	ksoftirqd/7
04:14:07 PM IST	System	0.00	0.00	0.00	0.01	0.00	8	8	migration/8
04:14:07 PM IST	System	0.00	0.00	0.00	0.01	0.00	8	9	ksoftirqd/8
04:14:07 PM IST	System	0.00	0.00	0.00	0.00	0.00	9	9	migration/9

13.watch-The watch command can be used to repeatedly run a command and display its output, useful for monitoring processes.

Syntax-watch -n 1 "ps aux | grep process\_name"

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ watch -n 1 "ps aux | grep chrome"
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █

Every 1.0s: ps aux | grep chrome                                         abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: Sun Jan 28 16:16:02 2024
abhi      7395  2.0  1.8 34242160 290080 ?    SLL 16:01  0:17 /opt/google/chrome/chrome
abhi     7484  0.0  0.0 33576980 3584 ?    SL 16:01  0:00 /opt/google/chrome/chrome_crashpad_handler --monitor-self --monitor-self-annotation
abhi     7496  0.0  0.0 33567744 3200 ?    SL 16:01  0:00 /opt/google/chrome/chrome_crashpad_handler --no-periodic-tasks --monitor-self-annot
abhi     7412  0.0  0.3 34179648 59008 ?    S 16:01  0:00 /opt/google/chrome/chrome --type=zygote --no-zygote-sandbox --crashpad-handler-pid=7404 --enable-crash-
abhi     7413  0.0  0.3 34179640 59904 ?    S 16:01  0:00 /opt/google/chrome/chrome --type=zygote --crashpad-handler-pid=7404 --enable-crash-
abhi     7414  0.0  0.0 33563712 4352 ?    S 16:01  0:00 /opt/google/chrome/nacl_helper
abhi     7417  0.0  0.1 34179668 16720 ?    S 16:01  0:00 /opt/google/chrome/chrome --type=zygote --crashpad-handler-pid=7404 --enable-crash-
abhi     7441  2.3  1.2 34575740 201076 ?    SL 16:01  0:21 /opt/google/chrome/chrome --type=gpu-process --crashpad-handler-pid=7404 --enable-c
abhi     7442  0.8  0.7 33928084 117444 ?    SL 16:01  0:07 /opt/google/chrome/chrome --type=utility --utility-sub-type=network.mojom.NetworkSe
abhi     7451  0.0  0.3 34236268 55148 ?    SL 16:01  0:00 /opt/google/chrome/chrome --type=utility --utility-sub-type=storage.mojom.StorageSe
abhi     7519  0.0  0.7 1186486744 112600 ?    SL 16:01  0:00 /opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=7404 --enable-cras
abhi     7520  0.0  0.8 1186541172 129220 ?    SL 16:01  0:00 /opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=7404 --enable-cras
abhi     7588  0.0  0.6 1186514556 99716 ?    SL 16:01  0:00 /opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=7404 --enable-cras
abhi     7614  2.8  1.3 1186557260 208060 ?    SL 16:01  0:25 /opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=7404 --enable-cras
abhi     7633  5.1  2.1 1186566564 339768 ?    SL 16:01  0:45 /opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=7404 --enable-cras
abhi     7634  0.1  0.8 1186542488 140644 ?    SL 16:01  0:01 /opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=7404 --enable-cras
abhi     7675  0.0  0.4 34162904 77184 ?    SL 16:01  0:00 /opt/google/chrome/chrome --type=utility --utility-sub-type=audio.mojom.AudioServic
abhi     7689  0.0  0.4 1186456804 67736 ?    SL 16:01  0:00 /opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=7404 --enable-cras
abhi     8566  0.0  0.0 9356 3328 pts/0   S+ 16:15  0:00 watch -n 1 ps aux | grep chrome
abhi     8619  0.0  0.0 9356 1208 pts/0   S+ 16:16  0:00 watch -n 1 ps aux | grep chrome
abhi     8620  0.0  0.0 2888 1536 pts/0   S+ 16:16  0:00 sh -c ps aux | grep chrome
abhi     8622  0.0  0.0 9268 2432 pts/0   S+ 16:16  0:00 grep chrome
```

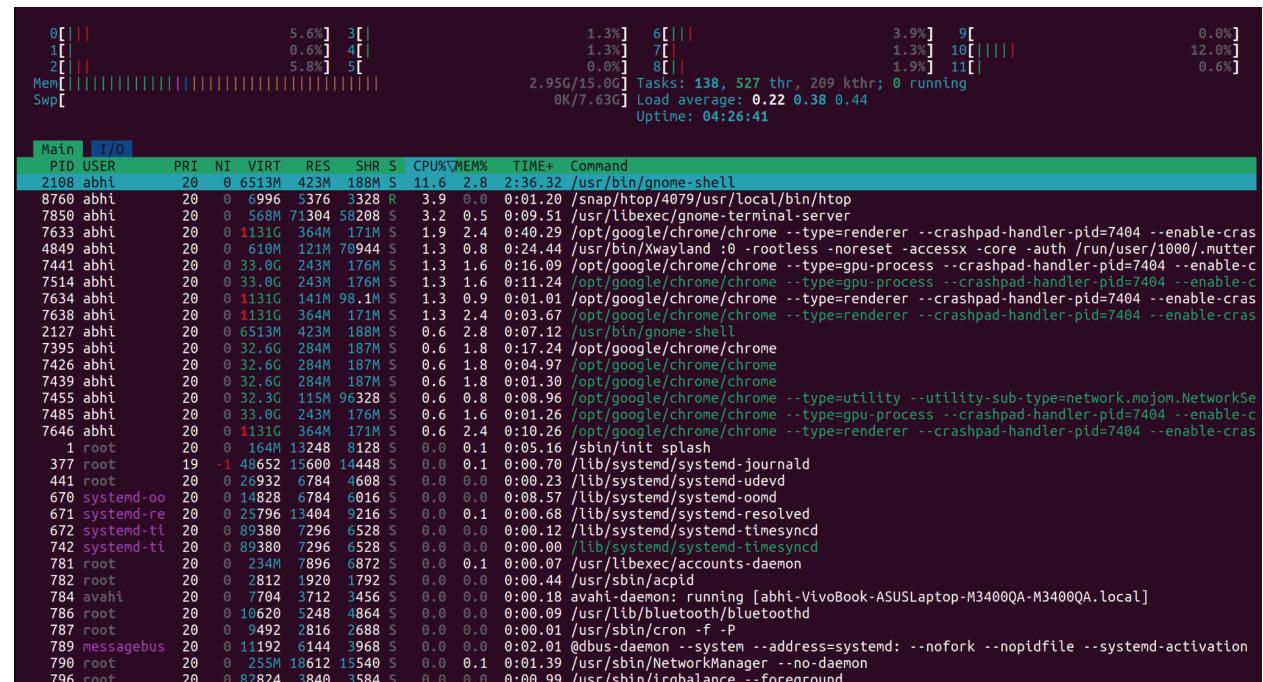
14.kill -9: Forcefully kill a process.

Syntax-kill -9 PID

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ kill -9 7519
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

15.htop: Interactive process viewer.

Syntax-htop



16.bg: Put a process in the background.

Syntax-bg

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sleep 300 &
[1] 8811
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ fg
sleep 300
^Z
[1]+  Stopped                  sleep 300
```

17\_fg: Bring a process to the foreground.

Syntax-fg

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sleep 300 &
[1] 8811
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ fg
sleep 300
^Z
[1]+  Stopped                  sleep 300
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ bg
[1]+ sleep 300 &
```

18.pmap:Display memory map of a process.

Syntax:pmap PID

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ pmap 7417
7417  /opt/google/chrome/chrome --type=zygote --crashpad-handler-pid=7404 --enable-crash-reporter=285a7b56-c9ec-46de-aebb-7e273dba6a0a, --change-stat
ck-guard-on-fork=enable
0000277fffff000 16777220K ----- [ anon ]
00002c0400000000 2052K ----- [ anon ]
00002c0400201000 4K rw--- [ anon ]
00002c0400202000 40K ----- [ anon ]
00002c040020c000 72K rw--- [ anon ]
00002c040021e000 8K ----- [ anon ]
00002c0400229000 344K rw--- [ anon ]
00002c0400276000 8K ----- [ anon ]
00002c0400279000 200K rw--- [ anon ]
00002c04002za000 8K ----- [ anon ]
00002c04002ac000 28K rw--- [ anon ]
00002c04002b3000 4K ----- [ anon ]
00002c04002b4000 344K rw--- [ anon ]
00002c040030a000 8K ----- [ anon ]
00002c040030c000 76K rw--- [ anon ]
00002c040031f000 4K ----- [ anon ]
00002c0400320000 28K rw--- [ anon ]
00002c0400327000 4K ----- [ anon ]
00002c0400328000 56K rw--- [ anon ]
00002c0400336000 16773928K ----- [ anon ]
000037c0600000000 262144K ----- [ anon ]
00005634fa7945000 41220K r---- chrome
00005634fa187000 175704K r-x-- chrome
0000563504d1d000 9196K r---- chrome
0000563505619000 4K rw--- chrome
000056350561a000 4K rw--- chrome
000056350561b000 52K rw--- chrome
```

19.kill -SIGTERM:Gracefully terminate a process.

Syntax:kill -15 PID

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ kill -15 7442
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

20..pgrep -u:List processes by user.

Syntax:pgrep -u username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~$ pgrep -u root
1
2
3
4
5
6
8
10
11
12
13
14
15
16
17
19
20
21
22
23
25
26
27
28
29
31
32
33
34
35
37
38
39
40
41
```

21.ls:List files and directories.

Syntax:ls

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~$ ls
AsthaJ_221081023DSL2.pdf      esp           'python object oriented programming'
AbhiMehta_221080001.mp4        fastseg        python_object_oriented_programming
ade20k-mobilennetv2dilated-c1_deepsup.yaml  fast-semantic-segmentation
ASSIGNMENT_2.pdf               filename1.txt   python_project
ayurvedic_plant_classification_model.h1     Inheritance    RealtimeSemanticSegmentation
cmpt130                         Lab-01(221080058).pdf
demo                           Lab8.docx       Riddhi.fds1.pdf
Desktop                         LAB ASSIGNMENT 02.pdf'  'Screenshot from 2023-11-20 06-45-24.png'
directory_9                      Music          Semantic_Segmentation
doc.pdf                          nohup.out      SIH
Documents                        Pictures        'sah presentation 101.pptx'
Downloads                        Projects        snap
DSLd.1.pdf                      Public         Templates
DSLd_assign1.pdf                 tf             tf-segmentation
                                         Untitled1.ipynb Untitled2.ipynb
                                         Untitled3.ipynb Untitled3-Copy1.ipynb
                                         Untitled4.ipynb Untitled4.ipynb
                                         Untitled5.ipynb Untitled5.ipynb
                                         Untitled6.ipynb Untitled6.ipynb
                                         Untitled7.ipynb Untitled7.ipynb
                                         Untitled.ipynb Untitled.ipynb
                                         untitled.py  Untitled.ipynb
                                         Videos        Wall-E
                                         Web Development'  Web Development'
                                         wget-log     wget-log
                                         wget-log.1  wget-log.1
```

22.cd:To change the working directory.

Syntax:cd Directory

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~$ cd Documents
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~/Documents$
```

23.pwd:To print the current working directory.

Syntax:pwd

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~/Documents$ pwd
/home/abhi/Documents
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~/Documents$
```

24.cp:Copy files or directories.

Syntax:cp source destination

```
cp: cannot stat 'untitled.py': No such file or directory
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~/Documents$ cd
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ cp untitled.py Music
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ cd Music
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~/Music$ ls
untitled.py  'Web Dev Part'
```

25.mv:Move files or directories.

Syntax:mv source destination

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ mv filename.txt Music
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ls Music
filename.txt  untitled.py  'Web Dev Part'
```

26.rm:Remove files or directories

Syntax:rm file or directory name

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ rm filename1.txt
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ls
AasthaJ_221081023DSLD2.pdf      python_project
AsthMehta_221080001.mp4          RealTimeSemanticSegmentation
ade20k-mobilenetv2dilated-c1_deepsup.yaml fastseg
Assignment_2.pdf                 Inheritance
ayurvedic_plant_classification_model.h1 'Lab-01(221080058).pdf'
cnnpt130                          fast-semantic-segmentation
demo                               Lab8.docx
Desktop                           Inheritance
directory_9                        Lab8.pdf
doc.pdf                            Lab_ASSIGNMENT_02.pdf'
Downloads                          Lab_ASSIGNMENT_02.pdf'
DSLD.1.pdf                         Lab8.out
dsld_asstgn1.pdf                  Pictures
                                     Projects
                                     Public
                                     'python object oriented programming'
                                     'python_object_oriented_programming'
                                     python_object_oriented_programming
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

27.mkdir>Create a new directory.

Syntax:mkdir directory\_name

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ mkdir Abhi
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ls
AasthaJ_221081023DSLD2.pdf      python_object_oriented_programming
Abhi                             python_project
AsthMehta_221080001.mp4          RealTimeSemanticSegmentation
ade20k-mobilenetv2dilated-c1_deepsup.yaml fastseg
Assignment_2.pdf                 Inheritance
ayurvedic_plant_classification_model.h1 'Lab-01(221080058).pdf'
cnnpt130                          fast-semantic-segmentation
demo                               Lab8.docx
Desktop                           Inheritance
directory_9                        Lab8.pdf
doc.pdf                            Lab_ASSIGNMENT_02.pdf'
Downloads                          Lab_ASSIGNMENT_02.pdf'
DSLD.1.pdf                         Lab8.out
dsld_asstgn1.pdf                  Pictures
                                     Projects
                                     Public
                                     'python object oriented programming'
                                     'python_object_oriented_programming'
                                     python_object_oriented_programming
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

## 28.rmdir:Removes a directory

Syntax:rmdir directory\_name

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ mkdir Abhi
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ls
AasthaJ_221081023SDL2.pdf          dsld_assign1.pdf           python_object_oriented_programming      Untitled3-Copy1.ipynb
Abhi                                esp                         python_project                    Untitled3.ipynb
AbhiMehta_221080001.mp4              fastseg                     RealTimeSemanticSegmentation      Untitled4.ipynb
ade20k-mobilenetv2dilated-c1_deepsup.yaml   Inheritance                Riddhi.fds1.pdf                  Untitled5.ipynb
ASSIGNMENT_2.pdf                   Lab-01(221080058).pdf        'Screenshot from 2023-11-20 06-45-24.png'  Untitled6.ipynb
ayurvedic_plant_classification_model.h1    Lab8.docx                  Semantic_Segmentation      Untitled7.ipynb
cmtpt130                            Music                       SIH                         Untitled.ipynb
demo                                nohup.out                 snap                         Untitled.py
Desktop                             Pictures                   Templates                   Videos
directory_9                          Projects                  tf                           Wall-E
doc.pdf                             Public                     tf-segmentation            'Web Development'
Documents                           'python object oriented programming' Untitled1.ipynb
Downloads                           'LAB ASSIGNMENT 02.pdf'  Untitled2.ipynb
DSLD.1.pdf                          'sith presentation 101.pptx' Untitled3.ipynb
dsld_assign1.pdf                   'Lab 01(221080058).pdf'  Untitled4.ipynb
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

## 29.touch:Create an empty file or update file timestamps.

Syntax:touch filename

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ touch txt1.txt
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ls
AasthaJ_221081023SDL2.pdf          esp                         python_project      Untitled3-Copy1.ipynb
Abhi                                fastseg                     RealTimeSemanticSegmentation  Untitled3.ipynb
AbhiMehta_221080001.mp4              Inheritance                Riddhi.fds1.pdf      Untitled4.ipynb
ade20k-mobilenetv2dilated-c1_deepsup.yaml   Lab-01(221080058).pdf  'Screenshot from 2023-11-20 06-45-24.png'  Untitled5.ipynb
ASSIGNMENT_2.pdf                   Lab8.docx                  Semantic_Segmentation  Untitled6.ipynb
ayurvedic_plant_classification_model.h1    Music                      SIH                         Untitled7.ipynb
cmtpt130                            nohup.out                 snap                         Untitled.ipynb
demo                                Pictures                   Templates                   Videos
Desktop                             Projects                  tf                           Wall-E
directory_9                          Public                     tf-segmentation            'Web Development'
doc.pdf                             'python object oriented programming' Untitled1.ipynb
Documents                           'LAB ASSIGNMENT 02.pdf'  Untitled2.ipynb
Downloads                           'sith presentation 101.pptx' Untitled3.ipynb
DSLD.1.pdf                          'Lab 01(221080058).pdf'  Untitled4.ipynb
dsld_assign1.pdf                   txt1.txt                  Untitled5.ipynb
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

## 30.cat:concatenates and displays the contents of a file.

Syntax:cat filename

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ cat wget-log
1f5tyhujkl;
hbffdffhjkl
ujytrfgvbnm,
```

## 31.more:Display content one screen at a time.

Syntax:more filename

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ more txt1.txt
war

Also known as: warfare
Written by
Fact-checked by
Last Updated: Jan 27, 2024 • Article History
Korean War
See all media
Category: History & Society
Key People: Charlemagne Alexander the Great Elizabeth I Genghis Khan Justinian I
Related Topics: tactics logistics strategy law of war guerrilla warfare
Recent News
Jan. 27, 2024, 12:56 AM ET (The Guardian)
'It can explode at any second': fear at the Israeli market town split between two communities
Jan. 24, 2024, 11:34 PM ET (Smithsonian Magazine)
Doomsday Clock Stays at 90 Seconds to Midnight Amid Climate Change, War and A.I.
Mar., 2023, 10:15 AM ET (Smithsonian Magazine)
In all ages war has been an important topic of analysis. In the latter part of the 20th century, in the aftermath of two World Wars and in the shadow of nuclear, biological, and chemical holocaust, more was written on the subject than ever before. Endeavours to understand the nature of war, to formulate some theory of its causes, conduct, and prevention, are of great importance, for theory shapes human expectations and determines human behaviour. The various schools of theorists are generally aware of the profound influence they can exercise upon life, and their writings usually include a strong normative element, for, when accepted by politicians, their ideas can assume the characteristics of self-fulfilling prophecies.

atomic bombing of Hiroshima
atomic bombing of Hiroshima
A gigantic mushroom cloud rising above Hiroshima, Japan, on August 6, 1945, after a U.S. aircraft dropped an atomic bomb on the city, immediately killing tens of thousands of people.
In all ages war has been an important topic of analysis. In the latter part of the 20th century, in the aftermath of two World Wars and in the shadow of nuclear, biological, and chemical holocaust, more was written on the subject than ever before. Endeavours to understand the nature of war, to formulate some theory of its causes, conduct, and prevention, are of great importance, for theory shapes human expectations and determines human behaviour. The various schools of theorists are generally aware of the profound influence they can exercise upon life, and their writings usually include a strong normative element, for, when accepted by politicians, their ideas can assume the characteristics of self-fulfilling prophecies.

Weird war facts in history
Weird war facts in history
Learn strange and weird facts about wars in history. See all videos for this article
The analysis of war may be divided into several categories: philosophical, political, economic, technological, legal, sociological, and psychological. Approaches are frequently distinguished. These distinctions indicate the varying focuses of interest and the different analytical categories employed by the theoretician, but most of the actual theories are mixed because war is an extremely complex social phenomenon that cannot be explained by any single approach.
```

## 32.less:Display content with pagination and backward movement.

Syntax:less filename

```
war
Also known as: warfare
Written by
Fact-checked by
Last Updated: Jan 27, 2024 • Article History
Korean War
Korean War
See all media
Category: History & Society
Keywords: Charlemagne Alexander the Great Elizabeth I Genghis Khan Justinian I
Related Topics: tactics logistics strategy law of war guerrilla warfare
Recent News
Jan. 27, 2024, 12:56 AM ET (The Guardian)
It's official: Every year is now 'Year of the Jarrell' market town split between two communities
Jan. 24, 2024, 11:34 AM ET (Smithsonian Magazine)
Doomsday Clock Stays at 90 Seconds to Midnight Amid Climate Change, War and A.I.
War, in the popular sense, a conflict between political groups involving hostilities of considerable duration and magnitude. In the usage of social scientists, however, the term adds another dimension, which concerns how they are initiated and conducted, and hence with socially recognized forms. Thus, treat war as an institution recognized in custom or in law. Military writers usually confine the term to hostilities in which the contending groups are sufficiently equal in power to render the outcome uncertain for a time. Armed conflicts of powerful states with isolated and powerless peoples are usually called pacifications, military expeditions, or explorations; with small states, they are called interventions or reprisals; and with internal groups, rebellions or insurrections. Such incidents, if the resistance is sufficiently strong or protracted, may achieve a magnitude that entitles them to the name "war."
atomic bombing of Hiroshima
atomic bombing of Hiroshima
A group of nuclear bombers flying above Hiroshima, Japan, on August 6, 1945, after a U.S. aircraft dropped an atomic bomb on the city, immediately killing more than 70,000 people.
In all ages war has been an important topic of analysis. In the latter part of the 20th century, in the aftermath of two World Wars and in the shadow of nuclear holocaust, political analysts have more and more focused their attention on the causes, conduct, and consequences of war. Theoretical approaches to war have been developed by several schools of thought. Theorists' understandings of the nature of war, to formulate theories about its causes, conduct, and preventions, are of great importance, for theory shaped human expectations and determined human behaviour. The various schools of theorists are generally aware of the profound influence they can exercise upon life, and their writings usually include a strong normative element, for, when accepted by politicians, their ideas can assume the characteristics of self-fulfilling prophecies.
Weird war facts in history
Weird war facts in history
Learn strange and weird facts about wars in history. See all videos for this article
The analysis of war may be divided into several categories. Philosophical, political, economic, technological, legal, sociological, and psychological approaches are frequently distinguished. These distinctions indicate the varying focuses of interest and the different analytical categories employed by the theoretician, but most of the actual theories are mixed because war is an extremely complex social phenomenon that cannot be explained by any single factor or through any single approach.
Evolution of theories of war
:
```

## 33.head:Displays the first few lines of a file.

Syntax:head filename

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ head txt1.txt
war
Also known as: warfare
Written by
Fact-checked by
Last Updated: Jan 27, 2024 • Article History
Korean War
Korean War
See all media
Category: History & Society
```

## 34.tail:Displays the last few lines of a file

Syntax:tail filename

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ tail txt1.txt
Learn about the social behavior of bonobos
What bonobos may be able to teach humans about getting along. See all videos for this article
Theories centring upon man's innate drives are developed by ethologists, who draw analogies from animal behaviour, and also by psychologists and psychanalysts.

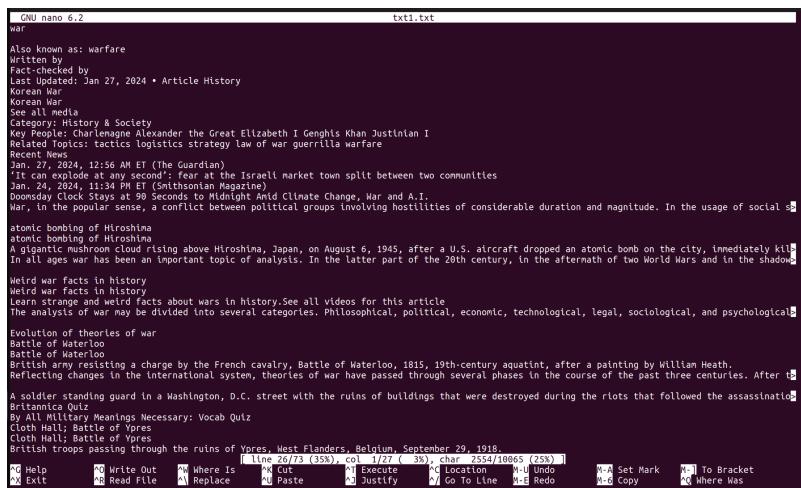
Ethology
Ethologists start with the persuasive argument that study of animal warfare may contribute toward an understanding of war as employed by man. The behaviour of monkeys and apes in captivity and the behaviour of young children, for example, show basic similarities. In both cases it is possible to observe that aggressive behaviour usually arises from several drives: rivalry for possession, the intrusion of a stranger, or frustration of an activity. The major conflict situations leading to aggression among animals, especially those concerning access of males to females and control of a territory for feeding and breeding, are usually associated with patterns of dominance.

The analogies of animal to human behaviour drawn by many ethologists, however, are severely questioned by their more restrained colleagues as well as by many social scientists. The term "aggression," for example, is imprecisely and inconsistently used, often referring merely to the largely symbolic behaviour of animals involving such signals as grimaces.

Observed animal behaviour can be regarded as a po
```

### 35.nano:A simple text editor

Syntax:nano filename



The screenshot shows the nano text editor interface with a dark background. The text content is a detailed article about war, including sections on warfare, Korean War, and World Wars. It also discusses the atomic bombing of Hiroshima and the Battle of Waterloo. The bottom of the screen displays the nano command-line interface with various keyboard shortcut keys.

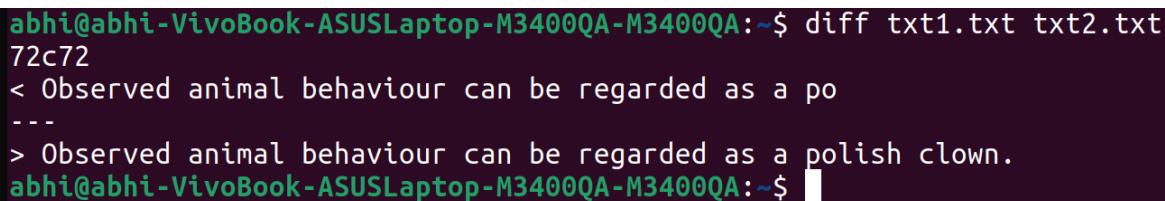
```
GNU nano 6.2                               txt1.txt

war

Also known as: warfare
Written by
Fact checked by
Last updated: Jan 27, 2024 • Article History
Korean War
Korean War
See also: media
Category: History & Society
Key People: Charlemagne Alexander the Great Elizabeth I Genghis Khan Justinian I
Related Topics: tactics logistics strategy law of war guerrilla warfare
Recent News
Date: Jan 27, 2024, 12:56 AM ET (The Guardian)
'It can explode at any second': fear at the Israeli market town split between two communities
Jan. 24, 2024, 11:34 PM ET (Smithsonian Magazine)
Doomsday Clock Stays at 90 Seconds to Midnight Amid Climate Change, War and A.I.
War, In the popular sense, a conflict between political groups involving hostilities of considerable duration and magnitude. In the usage of social s...
atomic bombing of Hiroshima
atomic bombing of Hiroshima
A Japanese nuclear explosion rising above Hiroshima, Japan, on August 6, 1945, after a U.S. aircraft dropped an atomic bomb on the city, immediately kill...
In all ages war has been an important topic of analysis. In the latter part of the 20th century, in the aftermath of two World Wars and in the shadow...
Weird war facts in history
Weird war facts in history
Learn strange and weird facts about wars in history. See all videos for this article
The analysis of war may be divided into several categories. Philosophical, political, economic, technological, legal, sociological, and psychological...
Evolution of theories of war
Battle of Waterloo
Battle of Waterloo
British army resisting a charge by the French cavalry, Battle of Waterloo, 1815, 19th-century aquatint, after a painting by William Heath.
Reflecting changes in the international system, theories of war have passed through several phases in the course of the past three centuries. After t...
A soldier standing guard in a Washington, D.C. street with the ruins of buildings that were destroyed during the riots that followed the assassination...
By All Military Meanings Necessary: Vocab Quiz
Cloth Hall; Battle of Ypres
Cloth Hall; Battle of Ypres
British troops passing through the ruins of Ypres, West Flanders, Belgium, September 29, 1918.
Line 26/73 (35%), col 1/27 (35%), char 2554/18865 (25%)
H-C Help   H-W Write Out   H-Where Is   H-Cut   H-Paste   H-Execute   H-Location   H-U Undo   H-A Set Mark   H-B To Bracket
H-X Exit   H-R Read File   H-Replace   H-J Justify   H-G Go To Line   H-E Redo   H-D Copy   H-W Where Was
```

### 36.diff:Compare files line by line.

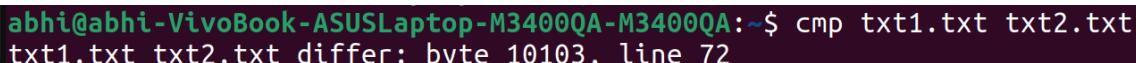
Syntax:diff file1 file2



```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ diff txt1.txt txt2.txt
72c72
< Observed animal behaviour can be regarded as a po
---
> Observed animal behaviour can be regarded as a polish clown.
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

### 37. cmp:Compare two files byte by byte.

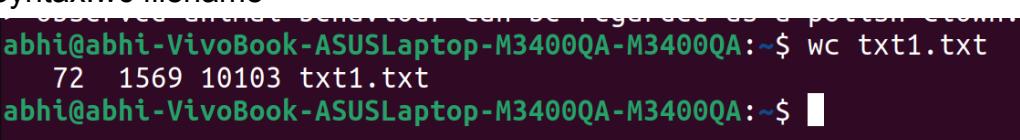
Syntax:cmp file1 file2



```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ cmp txt1.txt txt2.txt
txt1.txt txt2.txt differ: byte 10103, line 72
```

### 38.wc:Count lines, words, and characters in a file.

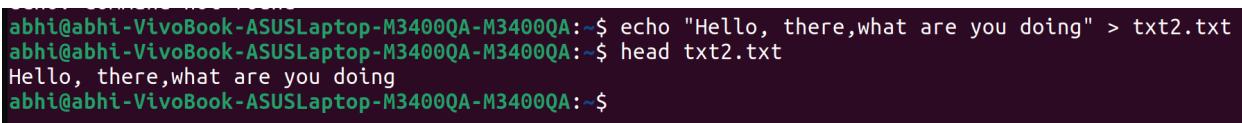
Syntax:wc filename



```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ wc txt1.txt
    72 1569 10103 txt1.txt
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

### 39.echo:Print text to the terminal or redirect to a file.

Syntax:echo "Hello, World!" > filename.txt



```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ echo "Hello, there,what are you doing" > txt2.txt
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ head txt2.txt
Hello, there,what are you doing
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

40.file -i:Determine the MIME type of a file

Syntax:file -i filename

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ file -i txt1.txt
txt1.txt: text/plain; charset=utf-8
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

41.df:Display disk space usage.

Syntax:df -h

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           1.6G   2.2M  1.6G  1% /run
/dev/nvme0n1p6   94G   60G   29G  68% /
tmpfs           7.6G   70M   7.5G  1% /dev/shm
tmpfs           5.0M   4.0K   5.0M  1% /run/lock
/dev/nvme0n1p1   256M   52M   205M 21% /boot/efi
tmpfs           1.6G  120K   1.6G  1% /run/user/1000
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

42. du:Display directory space usage.

Syntax:du -h

```
5.6M  ./local/share/virtualenv
28K   ./local/share/grilo-plugins
12K   ./local/share/applications
16K   ./local/share/rhythmbox
4.0K   ./local/share/remmina
20K   ./local/share/CMakeTools
8.0K   ./local/share/sounds/_custom
12K   ./local/share/sounds
4.0K   ./local/share/gnome-mines/scores
8.0K   ./local/share/gnome-mines
12K   ./local/share/flatpak/db
16K   ./local/share/flatpak
4.0K   ./local/share/gstreamer-1.0/presets
8.0K   ./local/share/gstreamer-1.0
8.0K   ./local/share/evolution/tasks/system
4.0K   ./local/share/evolution/tasks/trash
16K   ./local/share/evolution/tasks
4.0K   ./local/share/evolution/addressbook/system/photos
92K   ./local/share/evolution/addressbook/system
4.0K   ./local/share/evolution/addressbook/trash
100K  ./local/share/evolution/addressbook
4.0K   ./local/share/evolution/memos/trash
8.0K   ./local/share/evolution/memos
4.0K   ./local/share/evolution/mail/trash
8.0K   ./local/share/evolution/mail
8.0K   ./local/share/evolution/calendar/system
4.0K   ./local/share/evolution/calendar/trash
16K   ./local/share/evolution/calendar
152K  ./local/share/evolution
4.0K   ./local/share/backgrounds
252K  ./local/share/shotwell/data
256K  ./local/share/shotwell
30M   ./local/share
212K  ./local/bin
16K   ./local/etc/jupyter/jupyter_notebook_config.d
8.0K   ./local/etc/jupyter/nbconfig/notebook.d
12K   ./local/etc/jupyter/nbconfig
28K   ./local/etc/jupyter/jupyter_server_config.d
60K   ./local/etc/jupyter
64K   ./local/etc
2.3G  ./local
360K  ./Videos/Screencasts
736K  ./Videos
40G   .
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

## 43. lsblk:List information about block devices.

Syntax:lsblk

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~ $ lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0    7:0    0   4K  1 loop /snap/bare/5
loop1    7:1    0 162.3M 1 loop /snap/brave/333
loop2    7:2    0 165M  1 loop /snap/brave/335
loop3    7:3    0 302.6M 1 loop /snap/code/148
loop4    7:4    0 302.6M 1 loop /snap/code/149
loop5    7:5    0 55.7M  1 loop /snap/core18/2796
loop6    7:6    0 55.7M  1 loop /snap/core18/2812
loop7    7:7    0 63.5M  1 loop /snap/core20/2015
loop8    7:8    0 63.9M  1 loop /snap/core20/2105
loop9    7:9    0 74.1M  1 loop /snap/core22/1033
loop10   7:10   0 73.9M  1 loop /snap/core22/864
loop11   7:11   0 66.5M  1 loop /snap/cups/1024
loop12   7:12   0 66.6M  1 loop /snap/cups/980
loop13   7:13   0 97.7M  1 loop /snap/discord/175
loop14   7:14   0 97.7M  1 loop /snap/discord/176
loop15   7:15   0 245.9M 1 loop /snap/firefox/3600
loop16   7:16   0 262.1M 1 loop /snap/firefox/3728
loop17   7:17   0 164.8M 1 loop /snap/gnome-3-28-1804/198
loop18   7:18   0 349.7M 1 loop /snap/gnome-3-38-2004/140
loop19   7:19   0 349.7M 1 loop /snap/gnome-3-38-2004/143
loop20   7:20   0 496.9M 1 loop /snap/gnome-42-2204/132
loop21   7:21   0 497M   1 loop /snap/gnome-42-2204/141
loop22   7:22   0 91.7M  1 loop /snap/gtk-common-themes/1535
loop23   7:23   0 9.7M   1 loop /snap/htop/4079
loop24   7:24   0 45.9M  1 loop /snap/snap-store/638
loop25   7:25   0 12.3M  1 loop /snap/snap-store/959
loop26   7:26   0 40.9M  1 loop /snap/snapd/20290
loop27   7:27   0 40.4M  1 loop /snap/snapd/20671
loop28   7:28   0 428K   1 loop /snap/snapd-desktop-integration/57
loop29   7:29   0 452K   1 loop /snap/snapd-desktop-integration/83
loop30   7:30   0 414.1M 1 loop /snap/telegram-desktop/5305
loop31   7:31   0 414.4M 1 loop /snap/telegram-desktop/5470
loop32   7:32   0 321.1M 1 loop /snap/vlc/3721
loop33   7:33   0 90.8M  1 loop /snap/whatsapp-for-linux/58
nvme0n1  259:0  0 476.9G 0 disk
└─nvme0n1p1 259:1  0 260M  0 part /boot/efi
└─nvme0n1p2 259:2  0 16M   0 part
└─nvme0n1p3 259:3  0 367.3G 0 part /media/abhi/OS
└─nvme0n1p4 259:4  0 1.2G  0 part
└─nvme0n1p5 259:5  0 200M  0 part
└─nvme0n1p6 259:6  0 95.4G 0 part /var/snap/firefox/common/host-hunspell
   /
└─nvme0n1p7 259:7  0 7.6G  0 part [SWAP]
```

## 44. fdisk:Partition table manipulator for Linux.

Syntax:sudo fdisk /dev/sdX

```
try: sudo apt install fdisk
[abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: ~ $ sudo fdisk /dev/nvme0n1
[sudo] password for abhi:
Welcome to fdisk (util-linux 2.37.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

This disk is currently in use - repartitioning is probably a bad idea.
It's recommended to umount all file systems, and swapoff all swap
partitions on this disk.

Command (n for help): n
Help:
  GPT
  M  enter protective/hybrid MBR
  Generic
  d  delete a partition
  F  list free unpartitioned space
  l  list known partition types
  n  add a new partition
  p  print the partition table
  t  change a partition type
  v  verify the partition table
  i  print information about a partition
```

## 45. parted:Partition manipulation program.

Syntax:sudo parted /dev/sdX

```
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo parted /dev/nvme0n1
GNU Parted 3.4
Using /dev/nvme0n1
Welcome to GNU Parted! Type 'help' to view a list of commands.
(parted) help
  align-check TYPE N          check partition N for TYPE(min|opt) alignment
  help [COMMAND]              print general help, or help on COMMAND
  mklabel,mktable LABEL-TYPE create a new disklabel (partition table)
  mkpart PART-TYPE [FS-TYPE] START END
  name NUMBER NAME           name a partition
  print [devices]free|list,all[NUMBER]
  quit                       exit program
  rescue START END           rescue a lost partition near START and END
  resizepart NUMBER END      resize partition NUMBER
  rm NUMBER                  delete partition NUMBER
  select DEVICE               choose the device to edit
  disk_set FLAG STATE        change the FLAG on selected device
  disk_toggle [FLAG]
  set NUMBER FLAG STATE     change the FLAG on partition NUMBER
  toggle [NUMBER [FLAG]]    toggle the state of FLAG on partition NUMBER
  unit UNIT                  set the default unit to UNIT
  version                    display the version number and copyright information of GNU Parted
(parted) █
```

## 46. mkfs>Create a file system.

Syntax:mkfs -t ext4 /dev/sdX1

```
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ mkfs -t ext4 /dev/nvme0n1
mke2fs 1.46.5 (30-Dec-2021)
mkfs.ext4: Permission denied while trying to determine filesystem size
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

## 47. mount:Mount a file system.

Syntax:mount /dev/sdX1 /mnt

```
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ mount /dev/nvme0n1 /mnt
mount: /mnt: must be superuser to use mount.
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo mount /dev/nvme0n1 /mnt
mount: /mnt: /dev/nvme0n1 already mounted or mount point busy.
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

## 48. ls /dev/sd\*:List block devices.

Syntax:ls /dev/nvme\*

```
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ls /dev/nvme*
/dev/nvme0  /dev/nvme0n1  /dev/nvme0n1p1  /dev/nvme0n1p2  /dev/nvme0n1p3  /dev/nvme0n1p4  /dev/nvme0n1p5  /dev/nvme0n1p6  /dev/nvme0n1p7
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

## 49.gdisk:Interactive GUID partition table (GPT) manipulator.

Syntax:gdisk /dev/sdX

```
abi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo gdisk /dev/nvme0n1
GPT fdisk (gdisk) version 1.0.8

Partition table scan:
  MBR: protective
  BSD: not present
  APM: not present
  GPT: present

Found valid GPT with protective MBR; using GPT.

Command (? for help):
```

## 50.fdisk:List all disk partitions.

Syntax:sudo fdisk -l

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo fdisk -l
Disk /dev/loop0: 4 KiB, 4096 bytes, 8 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop1: 162.31 MiB, 170192896 bytes, 332408 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop2: 165.02 MiB, 173035520 bytes, 337960 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop3: 302.61 MiB, 317308928 bytes, 619744 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop4: 302.61 MiB, 317304832 bytes, 619736 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop5: 55.66 MiB, 58363904 bytes, 113992 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop6: 55.66 MiB, 58363904 bytes, 113992 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop7: 63.46 MiB, 66547712 bytes, 129976 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/nvme0n1: 476.94 GiB, 512110190592 bytes, 1000215216 sectors
Disk model: HFM512GD3JX013N
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
```

## 51.hdparm:Get/set SATA/IDE device parameters.

Syntax:hdparm -l /dev/sdX

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo hdparm -I /dev/nvme0n1
/dev/nvme0n1:
```

## 52. smartctl:Control and monitor storage systems using SMART.

Syntax:smartctl -a /dev/sdX

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo smartctl -a /dev/nvme0n1
smartctl 7.2 2020-12-30 r5155 [x86_64-linux-6.2.0-39-generic] (local build)
Copyright (C) 2002-20, Bruce Allen, Christian Franke, www.smartmontools.org

==== START OF INFORMATION SECTION ====
Model Number: HFMS12GD3JX013N
Serial Number: FYACN05661430CR16
Firmware Version: 41000C20
PCI Vendor/Subsystem ID: 0x1c5c
IEEE OUI Identifier: 0xace42e
Controller ID: 1
NVMe Version: 1.3
Number of Namespaces: 1
Namespace 1 Size/Capacity: 512,110,190,592 [512 GB]
Namespace 1 Formatted LBA Size: 512
Namespace 1 IEEE EUI-64: ffffff fffffffffff
Local Time is: Sun Jan 28 17:58:39 2024 IST
Firmware Updates (0x16): 3 Slots, no Reset required
Optional Admin Commands (0x0017): Security Format Fwrmw_DL Self_Test
Optional NVM Commands (0x005f): Comp Wr_Unc DS_Mngmt Wr_Zero Sav/Sel_Feat Timestamp
Log Page Attributes (0x1e): Cmd_Eff_Lg Ext_Get_Lg Telmtry_Lg Pers_Ev_Lg
Maximum Data Transfer Size: 64 Pages
Warning Comp. Temp. Threshold: 83 Celsius
Critical Comp. Temp. Threshold: 85 Celsius

Supported Power States
St Op Max Active Idle RL RT WL WT Ent_Lat Ex_Lat
0 + 6.3000W - - 0 0 0 0 5 5
1 + 2.4000W - - 1 1 1 1 30 30
2 + 1.9000W - - 2 2 2 2 100 100
3 - 0.0500W - - 3 3 3 3 1000 1000
4 - 0.0040W - - 3 3 3 3 1000 9000

Supported LBA Sizes (NSID 0x1)
Id Fmt Data Metadt Rel_Perf
0 + 512 0 0
1 - 4096 0 0

==== START OF SMART DATA SECTION ====
SMART overall-health self-assessment test result: PASSED
```

## 53. mkswap:Set up a Linux swap area.

Syntax:mkswap /dev/sdX

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo mkswap /dev/nvme0n1
mkswap: cannot open /dev/nvme0n1: Device or resource busy
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

## 54. swapon:Enable devices and files for paging and swapping.

Syntax:swapon /dev/sdX

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo swapon /dev/nvme0n1p7
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:       15Gi       3.8Gi       8.0Gi     204Mi       3.3Gi      10Gi
Swap:      7.6Gi        0B       7.6Gi
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

## 55. swapoff:Disable devices and files for paging and swapping.

Syntax:swapoff /dev/sdX

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo swapoff /dev/nvme0n1p7
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:       15Gi       3.8Gi       8.0Gi     204Mi       3.3Gi      10Gi
Swap:        0B        0B        0B
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo swapon /dev/nvme0n1p7
```

56. fallocate:Preallocate space to a file.

Syntax:fallocate -l 1G filename

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ fallocate -l 1G txt1.txt
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

57. badblocks:Search a device for bad blocks.

Syntax:badblocks -v /dev/sdX

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo badblocks -v /dev/nvme0n1
Checking blocks 0 to 500107607
Checking for bad blocks (read-only test): 9

^C
Interrupted at block 10378624
```

58. sync:

Synchronize cached writes to persistent storage.

Syntax:sync

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sync
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

59. fstrim:

Discard unused blocks on a mounted filesystem.

Syntax:fstrim /mount/point

```
fstrim: stat of /home, permission denied. No such file or directory.
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo fstrim /home
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs          1.6G   2.2M  1.6G   1% /run
/dev/nvme0n1p6  94G   62G  28G  70% /
tmpfs          7.6G   64M  7.5G   1% /dev/shm
tmpfs          5.0M   4.0K  5.0M   1% /run/lock
/dev/nvme0n1p1  256M   52M  205M  21% /boot/efi
tmpfs          1.6G  120K  1.6G   1% /run/user/1000
/dev/nvme0n1p3  368G  130G  239G  36% /media/abhi/OS
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

60.lsblk -f:List block devices with filesystem information.

Syntax:lsblk -f

NAME	FSTYPE	FSVER	LABEL	UUID	FSAVAIL	FSUSE%	MOUNTPOINTS
loop0	squashfs	4.0			0	100%	/snap/bare/5
loop1	squashfs	4.0			0	100%	/snap/brave/333
loop2	squashfs	4.0			0	100%	/snap/code/148
loop3	squashfs	4.0			0	100%	/snap/code/149
loop4	squashfs	4.0			0	100%	/snap/core18/2796
loop5	squashfs	4.0			0	100%	/snap/core18/2812
loop6	squashfs	4.0			0	100%	/snap/core20/2615
loop7	squashfs	4.0			0	100%	/snap/core20/2105
loop8	squashfs	4.0			0	100%	/snap/core22/1633
loop9	squashfs	4.0			0	100%	/snap/core22/864
loop10	squashfs	4.0			0	100%	/snap/cups/1024
loop11	squashfs	4.0			0	100%	/snap/cups/980
loop13	squashfs	4.0			0	100%	/snap/discord/175
loop14	squashfs	4.0			0	100%	/snap/discord/176
loop15	squashfs	4.0			0	100%	/snap/firefox/3600
loop16	squashfs	4.0			0	100%	/snap/firefox/3728
loop17	squashfs	4.0			0	100%	/snap/gnome-3-38-1804/198
loop18	squashfs	4.0			0	100%	/snap/gnome-3-38-1804/140
loop19	squashfs	4.0			0	100%	/snap/gnome-3-38-1804/143
loop20	squashfs	4.0			0	100%	/snap/gnome-42-2204/132
loop21	squashfs	4.0			0	100%	/snap/gnome-42-2204/141
loop22	squashfs	4.0			0	100%	/snap/gtk-common-themes/1535
loop23	squashfs	4.0			0	100%	/snap/htop/4079
loop24	squashfs	4.0			0	100%	/snap/snap-store/638
loop25	squashfs	4.0			0	100%	/snap/snap-store/959
loop26	squashfs	4.0			0	100%	/snap/snapd/20299
loop27	squashfs	4.0			0	100%	/snap/snapd/20671
loop28	squashfs	4.0			0	100%	/snap/snapd-desktop-integration/57
loop29	squashfs	4.0			0	100%	/snap/snapd-desktop-integration/83
loop30	squashfs	4.0			0	100%	/snap/telegram-desktop/5305
loop31	squashfs	4.0			0	100%	/snap/telegram-desktop/5470
loop32	squashfs	4.0			0	100%	/snap/vlc/3721
loop33	squashfs	4.0			0	100%	/snap/whatsapp-for-linux/58
nvme0n01	-	-	-	-	-	-	-
-nvme0n1p1	vfat	FAT32	SYSTEM	4EB0-30F8	204.4M	20%	/boot/efi
-nvme0n1p2	-	-	-	-	-	-	-
-nvme0n1p3	ntfs	OS	C440B1F040B1E976		238.2G	35%	/media/abhi/OS
-nvme0n1p4	ntfs	RECOVERY	B1A4BEBC14BEA919		-	-	-
-nvme0n1p5	vfat	FAT32	MYASUS	3058-6495	-	-	-
-nvme0n1p6	ext4	1.0	6609261c-2ff3-4486-9566-7469f72f221c		27.4G	66%	/var/snap/firefox/common/host-hunspell
-nvme0n1p7	swap	1	9eb9fbfa-0b5a-4a11-be67-35ceb55da116		-	-	[SWAP]

61.free:

Display amount of free and used memory in the system.

Syntax:free -h

total	used	free	shared	buff/cache	available
Mem:	15Gi	3.9Gi	7.9Gi	232Mi	3.3Gi
Swap:	7.6Gi	0B	7.6Gi		10Gi

62.cat /proc/meminfo:Display detailed information about the system's memory.

Syntax:cat /proc/meminfo

MemTotal:	15751188 kB
MemFree:	8204484 kB
MemAvailable:	11094132 kB
Buffers:	379144 kB
Cached:	2543308 kB
SwapCached:	0 kB
Active:	1359100 kB
Inactive:	3414016 kB
Active(anon):	3116 kB
Inactive(anon):	2070724 kB
Active(file):	1355984 kB
Inactive(file):	1343292 kB
Unevictable:	16 kB
Mlocked:	16 kB
SwapTotal:	8000508 kB
SwapFree:	8000508 kB
Zswap:	0 kB
Zswapped:	0 kB
Dirty:	24 kB
Writeback:	0 kB
AnonPages:	1850800 kB
Mapped:	697832 kB
Shmem:	223180 kB
KReclaimable:	525680 kB
Slab:	751120 kB

## 63.vmstat:Report virtual memory statistics.

Syntax:vmstat 1

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ vmstat 1
procs -----memory----- swap-- io--- system-- cpu-----
r b swpd free buff cache si so bi bo in cs us sy id wa st
0 0 0 8259420 379432 3055172 0 0 181 23 230 330 2 1 97 0 0
0 0 0 8259196 379432 3055228 0 0 0 332 798 770 0 1 99 0 0
0 0 0 8259196 379432 3055228 0 0 0 0 1068 1404 1 1 98 0 0
0 0 0 8259196 379432 3055228 0 0 0 0 1006 1263 1 0 99 0 0
0 0 0 8259196 379432 3055228 0 0 0 0 452 387 0 0 99 0 0
0 0 0 8259196 379432 3055228 0 0 0 0 442 363 0 0 100 0 0
0 0 0 8259196 379448 3055228 0 0 0 560 485 416 0 0 100 0 0
```

## 64.smem:Report memory usage with shared memory divided proportionally.

Syntax:smem

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ smem
PID User Command Swap USS PSS RSS
3201 abhi cat 0 104 135 2036
3202 abhi cat 0 104 135 2036
2239 abhi sh -c /usr/bin/ibus-daemon 0 220 229 1756
2091 abhi /usr/libexec/gnome-session- 0 476 519 5644
5054 abhi less txt1.txt 0 524 582 2792
2021 abhi /usr/libexec/gdm-wayland-se 0 600 651 6328
2264 abhi /usr/libexec/gsd-screensave 0 652 707 6560
1936 abhi /usr/libexec/xdg-permission 0 660 714 6528
2133 abhi /usr/bin/dbus-daemon --conf 0 604 750 4664
2240 abhi /usr/libexec/gsd-a11y-setti 0 744 808 7132
3206 abhi /opt/google/chrome/chrome_c 0 324 818 3296
2010 abhi /usr/libexec/gvfs-mtp-volum 0 860 916 6900
2262 abhi /usr/libexec/gsd-rfkill 0 872 933 7060
2365 abhi /usr/libexec/ibus-portal 0 820 939 7736
2216 abhi /usr/libexec/at-spi2-regist 0 888 953 7588
2337 abhi /usr/libexec/ibus-dconf 0 812 954 7628
2121 abhi /usr/libexec/at-spi-bus-lau 0 892 964 8044
2640 abhi /usr/libexec/gvfsd-metadata 0 912 979 6924
1985 abhi /usr/libexec/gvfs-goa-volum 0 892 998 6920
2434 abhi /usr/libexec/ibus-engine-si 0 888 1009 7692
2172 abhi /usr/libexec/dconf-service 0 996 1045 6392
3204 abhi /opt/google/chrome/chrome_c 0 544 1071 3748
1925 abhi /usr/libexec/gvfsd-fuse /ru 0 976 1131 7064
1927 abhi /usr/libexec/xdg-document-p 0 1004 1158 7772
1910 abhi /usr/libexec/gvfsd 0 1008 1182 8296
2015 abhi /usr/libexec/gvfs-gphoto2-v 0 1188 1308 7372
2269 abhi /usr/libexec/gsd-sound 0 1292 1495 10056
2249 abhi /usr/libexec/gsd-housekeepi 0 1392 1503 8760
2002 abhi /usr/libexec/gvfs-afc-volum 0 1304 1549 8360
2267 abhi /usr/libexec/gsd-smartcard 0 1372 1575 8496
3214 abhi /opt/google/chrome/nacl_hel 0 1700 1718 4364
3217 abhi /opt/google/chrome/chrome - 0 296 1797 16588
2203 abhi /usr/libexec/gvfsd-trash -- 0 1668 1859 9488
2261 abhi /usr/libexec/gsd-print-noti 0 1632 1891 11688
1886 abhi /usr/bin/pipewire 0 1548 2080 6952
```

## 65.pidstat:Report statistics for Linux processes.

Syntax:pidstat -r

abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~\$ pidstat -r Linux 6.2.0-39-generic (abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA) 28/01/24 _x86_64_ (12 CPU)									
06:23:07 PM IST	UID	PID	minflts/s	majflts/s	Vsz	RSS	%MEM	Command	
06:23:07 PM IST	0	1	4.65	0.03	168516	12304	1.50	systemd	
06:23:07 PM IST	0	388	2.22	0.04	48836	20352	0.13	systemd-journal	
06:23:07 PM IST	0	415	0.73	0.00	26988	6528	0.04	systemd-udevd	
06:23:07 PM IST	108	702	0.11	0.00	14828	6784	0.04	systemd-ondemand	
06:23:07 PM IST	181	703	0.20	0.00	25076	13204	0.06	systemd-resolve	
06:23:07 PM IST	103	704	0.12	0.00	49348	1468	0.05	accounts-daemon	
06:23:07 PM IST	0	810	0.15	0.00	240394	8188	0.05	accounts-daemon	
06:23:07 PM IST	0	811	0.03	0.00	2812	1792	0.01	acpid	
06:23:07 PM IST	114	814	0.06	0.00	7628	3840	0.02	avahi-daemon	
06:23:07 PM IST	0	816	0.07	0.00	10620	5248	0.03	blueoothd	
06:23:07 PM IST	0	817	0.07	0.00	7628	5248	0.03	cron	
06:23:07 PM IST	102	819	0.18	0.00	11172	6400	0.04	dropbeacon	
06:23:07 PM IST	0	820	0.25	0.02	261420	18628	0.12	NetworkManager	
06:23:07 PM IST	0	825	0.06	0.00	82824	3968	0.03	irqbalance	
06:23:07 PM IST	0	827	0.48	0.02	41028	20864	0.13	networkd-dispatcher	
06:23:07 PM IST	0	828	0.28	0.00	243024	11108	0.07	polkitd	
06:23:07 PM IST	0	829	0.09	0.00	240084	7236	0.05	power-profiles-rayload	
06:23:07 PM IST	104	830	0.20	0.00	33120	5312	0.04	rayload	
06:23:07 PM IST	0	833	2.34	0.05	1985376	32696	0.21	swapper	
06:23:07 PM IST	0	836	0.08	0.00	235492	6400	0.04	switcheroo-control	
06:23:07 PM IST	0	844	0.51	0.00	48236	7784	0.05	systemd-logind	
06:23:07 PM IST	0	851	1.07	0.01	393796	13236	0.08	udisksd	
06:23:07 PM IST	0	853	0.13	0.01	17712	10752	0.07	wpa_supplicant	
06:23:07 PM IST	114	872	0.01	0.00	7448	1684	0.01	avahi-daemon	
06:23:07 PM IST	0	989	0.18	0.02	337960	11856	0.08	NetworkManager	

## 66.numactl --hardware:Display information about NUMA nodes.

Syntax:numactl --hardware

abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~\$ numactl --hardware	
available:	1 nodes (0)
node 0 cpus:	0 1 2 3 4 5 6 7 8 9 10 11
node 0 size:	15382 MB
node 0 free:	7992 MB
node distances:	
node 0	0: 10

## 67.numactl --show>Show NUMA policy for a process.

Syntax:numactl --show

abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~\$ numactl --show	
policy:	default
preferred node:	current
physcpubind:	0 1 2 3 4 5 6 7 8 9 10 11
cpubind:	0
nodebind:	0
membind:	0

## 68.ulimit -a:Display user-level resource limits.

Syntax:ulimit -a

abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~\$ ulimit -a	
real-time non-blocking time (microseconds, -R)	unlimited
core file size (blocks, -c)	0
data seg size (kbytes, -d)	unlimited
scheduling priority (-e)	0
file size (blocks, -f)	unlimited
pending signals (-i)	61229
max locked memory (kbytes, -l)	1968896
max memory size (kbytes, -m)	unlimited
open files (-n)	1024
pipe size (512 bytes, -p)	8
POSIX message queues (bytes, -q)	819200
real-time priority (-r)	0
stack size (kbytes, -s)	8192
cpu time (seconds, -t)	unlimited
max user processes (-u)	61229
virtual memory (kbytes, -v)	unlimited
file locks (-x)	unlimited

69.inxi -m:Display memory information using inxi.

Syntax:inxi -m

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ inxi -m
Memory:
  RAM: total: 15.02 GiB used: 4.4 GiB (29.3%)
  RAM Report:
    permissions: Unable to run dmidecode. Root privileges required.
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

70.ipcs:Show information on interprocess communication facilities, including shared memory.

Syntax:ipcs -m

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ipcs -m
----- Shared Memory Segments -----
key      shmid   owner     perms      bytes  nattch   status
0x00000000 5       abhi      600        524288    2        dest
0x00000000 33      abhi      600        524288    2        dest

abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

71.slabtop:Display kernel slab cache information.

Syntax:sudo slabtop

```
Active / Total Objects (% used) : 1982298 / 2001258 (99.1%)
Active / Total Slabs (% used) : 58718 / 58718 (100.0%)
Active / Total Caches (% used) : 123 / 174 (70.7%)
Active / Total Size (% used) : 640254.91K / 644657.55K (99.3%)
Minimum / Average / Maximum Object : 0.01K / 0.32K / 8.80K

OBS ACTIVE USE OBJ SIZE SLABS OBJ/SLAB CACHE SIZE NAME
406260 406190 99% 0.19K 19060 21 76240K dentry
378080 377866 99% 0.05K 4448 85 17792K shared_policy_node
304911 304894 99% 1.16K 11293 27 361376K ext4_inode_cache
230139 230104 99% 0.10K 5901 39 23604K buffer_head
61704 61457 99% 0.16K 2571 24 10284K vm_area_struct
55560 55500 99% 0.04K 545 162 2180K extent_status
50432 50380 99% 0.04K 1056 52 5304K anon_vma_cache
49256 49256 100% 0.06K 754 54 3016K kmalloc-rcl-64
380000 380000 100% 0.62K 1520 25 24328K inode_cache
32640 32688 98% 0.06K 510 64 2048K anon_vma_chain
25620 25583 99% 0.57K 915 28 14640K radix_tree_node
23835 23835 100% 0.19K 1135 21 4540K kmalloc-192
21248 21237 99% 0.06K 332 64 1328K vmap_area
20163 19937 98% 0.10K 517 39 2068K anon_vma
18496 17916 96% 0.06K 289 64 1156K kmalloc-64
17216 17209 99% 0.25K 538 32 4304K kmalloc-256
16768 16715 99% 0.03K 131 128 524K kmalloc-cg-32
16384 15681 95% 0.02K 64 256 256K kmalloc-16
15561 15561 100% 0.81K 399 39 12708K fuse_inode
14880 14840 99% 0.50K 465 32 7440K kmalloc-512
```

72.swapoff -a:Disable swapping.

Syntax:sudo swapoff -a

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo swapoff -a
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:      15Gi       3.9Gi      7.8Gi     223Mi      3.3Gi      10Gi
Swap:          0B          0B          0B
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

73.swapon -a:Enable swapping.

Syntax:sudo swapon -a

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo swapon -a
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:      15Gi       3.9Gi      7.8Gi     223Mi      3.3Gi      10Gi
Swap:      7.6Gi          0B      7.6Gi
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

74.gcore PID:Generate a core dump of a running process.

Syntax:gcore PID

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ gcore 4140
[New LWP 4141]
[New LWP 4142]
[New LWP 4143]
[New LWP 4144]
[New LWP 4145]
[New LWP 4146]
[New LWP 4147]
[New LWP 4148]
[New LWP 4167]
[New LWP 4196]
[New LWP 4197]
[New LWP 4198]
[New LWP 4199]
[New LWP 4200]
[New LWP 4201]
[New LWP 4202]
[New LWP 4302]
Warning: Target and debugger are in different PID namespaces; thread lists and other data are likely unreliable. Connect to gdbserver inside the container.
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/libthread_db.so.1".
```

75.vmstat -s:Display a summary of memory statistics, including the number of pages that are in active use and inactive.

Syntax:vmstat -m

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ vmstat -s
15751188 K total memory
 3903052 K used memory
 1667124 K active memory
10929884 K inactive memory
 186152 K free memory
 506940 K buffer memory
11155044 K swap cache
 8000508 K total swap
    768 K used swap
 7999740 K free swap
 156606 non-nice user cpu ticks
   2583 nice user cpu ticks
   85174 system cpu ticks
 8062053 idle cpu ticks
   6330 IO-wait cpu ticks
     0 IRQ cpu ticks
 18304 softirq cpu ticks
     0 stolen cpu ticks
12686792 pages paged in
 30675889 pages paged out
     8 pages swapped in
    39 pages swapped out
19220730 interrupts
27214059 CPU context switches
1706440525 boot time
   8827 forks
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

76.cat /sys/kernel/mm/ksm/run:Display whether KSM is currently running.

Syntax:cat /sys/kernel/mm/ksm/run

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ cat /sys/kernel/mm/ksm/run
0
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

77.swapoff -a && swapon -a:

Disable and then enable swapping to clear swap space.

Syntax: sudo swapoff -a && sudo swapon -a

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo swapoff -a && sudo swapon -a
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:       15Gi       3.6Gi      579Mi      245Mi       10Gi       10Gi
Swap:      7.6Gi        0B      7.6Gi
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

78.mpstat -P ALL:Display individual processor statistics, including memory usage.

Syntax: mpstat -P ALL

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ mpstat -P ALL
Linux 6.2.0-39-generic (abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA)           28/01/24          _x86_64_      (12 CPU)

06:45:08 PM IST  CPU  %usr  %nice  %sys %iowait  %irq  %soft  %steal  %guest  %gnice  %idle
06:45:08 PM IST  all  1.89  0.03  1.03  0.07  0.00  0.22  0.00  0.00  0.00  0.00  96.76
06:45:08 PM IST  0   2.06  0.04  1.15  0.11  0.00  2.19  0.00  0.00  0.00  0.00  94.46
06:45:08 PM IST  1   1.96  0.01  0.81  0.02  0.00  0.14  0.00  0.00  0.00  0.00  97.06
06:45:08 PM IST  2   2.33  0.04  1.40  0.12  0.00  0.10  0.00  0.00  0.00  0.00  96.01
06:45:08 PM IST  3   1.62  0.01  0.99  0.04  0.00  0.02  0.00  0.00  0.00  0.00  97.32
06:45:08 PM IST  4   2.16  0.05  1.21  0.08  0.00  0.02  0.00  0.00  0.00  0.00  96.47
06:45:08 PM IST  5   1.90  0.06  0.87  0.01  0.00  0.01  0.00  0.00  0.00  0.00  97.15
06:45:08 PM IST  6   2.01  0.04  1.15  0.18  0.00  0.01  0.00  0.00  0.00  0.00  96.61
06:45:08 PM IST  7   1.65  0.01  0.92  0.02  0.00  0.01  0.00  0.00  0.00  0.00  97.40
06:45:08 PM IST  8   1.93  0.03  1.15  0.09  0.00  0.02  0.00  0.00  0.00  0.00  96.78
06:45:08 PM IST  9   1.32  0.02  0.66  0.01  0.00  0.02  0.00  0.00  0.00  0.00  97.97
06:45:08 PM IST  10  2.10  0.03  1.21  0.15  0.00  0.01  0.00  0.00  0.00  0.00  96.50
06:45:08 PM IST  11  1.58  0.02  0.78  0.07  0.00  0.06  0.00  0.00  0.00  0.00  97.49
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

79.sar -r 1:Display real-time memory statistics.

Syntax:sar -r 1

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sar -r 1
Linux 6.2.0-39-generic (abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA)           28/01/24          _x86_64_      (12 CPU)

06:47:04 PM IST kmemfree  kbavail kbmused %memused kbbuffers kbcached kbcommit %commit kbactive kbinact kbdirty
06:47:05 PM IST 784332 11164616 3728440 23.67 507396 9320456 8661052 36.46 1661536 10059376 108
06:47:06 PM IST 784332 11164616 3728440 23.67 507404 9320448 8661056 36.47 1661536 10059496 108
06:47:07 PM IST 825180 11205464 3725504 23.65 507404 9282568 8623168 36.31 1661536 10021608 96
06:47:08 PM IST 826392 11206684 3723252 23.64 507404 9282568 8621692 36.30 1661548 10015892 96
06:47:09 PM IST 826392 11206684 3723252 23.64 507404 9282568 8621696 36.30 1661548 10016168 68
06:47:10 PM IST 826680 11206972 3723476 23.64 507404 9282568 8621704 36.30 1661548 10016184 68
06:47:11 PM IST 826680 11206972 3723472 23.64 507404 9282568 8621732 36.30 1661548 10016232 68
06:47:12 PM IST 826680 11206972 3723484 23.64 507404 9282556 8621756 36.30 1661548 10016252 48
06:47:13 PM IST 823928 11204228 3725640 23.65 507412 9282888 8622048 36.30 1661556 10016016 2136
06:47:14 PM IST 823144 11204292 3726040 23.66 507412 9283508 8661060 36.47 1662016 10024128 2384
^C

Average:     817374 11197750 3725100 23.65 507405 9290270 8633696 36.35 1661592 10026135 518
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

80.pidstat -r 1:Display real-time memory usage for processes.

Syntax:pidstat -r 1

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ pidstat -r 1
Linux 6.2.0-39-generic (abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA)        28/01/24      _x86_64_      (12 CPU)

06:47:53 PM IST   UID      PID  minflt/s majflt/s    VSZ    RSS %MEM Command
06:47:54 PM IST  1000     2131   0.99   0.00 6631824 437564  2.78 gnome-shell
06:47:54 PM IST  1000     3196   21.78   0.00 34281548 411316  2.61 chrome
06:47:54 PM IST  1000     3385   0.00   0.00 34651284 276092  1.75 chrome
06:47:54 PM IST  1000     3399   1.98   0.00 34238712 56208  0.36 chrome
06:47:54 PM IST  1000     4168   0.99   0.00 34171100 79488  0.50 chrome
06:47:54 PM IST  1000     4327   0.00   0.00 1186568932 317960  2.02 chrome

06:47:54 PM IST   UID      PID  minflt/s majflt/s    VSZ    RSS %MEM Command
06:47:55 PM IST  1000     3386   5.00   0.00 33986888 122876  0.78 chrome
06:47:55 PM IST  1000     4327   1.00   0.00 1186568932 317960  2.02 chrome
06:47:55 PM IST  1000     8938   1.00   0.00 11532      5376  0.03 pidstat

06:47:55 PM IST   UID      PID  minflt/s majflt/s    VSZ    RSS %MEM Command
06:47:56 PM IST   0      388   594.06   1.98 73412 38784  0.25 systemd-journal
06:47:56 PM IST  104     830   0.99   0.00 222400 5376  0.03 rsyslogd
06:47:56 PM IST  1000     3196   5.94   0.00 34281548 411316  2.61 chrome
06:47:56 PM IST  1000     3385   0.00   0.00 34643092 276092  1.75 chrome
06:47:56 PM IST  1000     3386   215.84   0.00 33986888 123772  0.79 chrome
06:47:56 PM IST  1000     4361   4.95   0.00 1186543828 153432  0.97 chrome

06:47:56 PM IST   UID      PID  minflt/s majflt/s    VSZ    RSS %MEM Command
06:47:57 PM IST  1000     3196   202.00   0.00 34281548 411684  2.61 chrome
06:47:57 PM IST  1000     3385   9.00   0.00 34643092 275612  1.75 chrome
06:47:57 PM IST  1000     3386   164.00   0.00 33986888 123164  0.78 chrome
06:47:57 PM IST  1000     4158   234.00   0.00 1186629140 429464  2.73 chrome
^C

Average:   UID      PID  minflt/s majflt/s    VSZ    RSS %MEM Command
Average:   0      388   149.25   0.50 73412 38528  0.24 systemd-journal
Average:  104     830   0.25   0.00 222400 5376  0.03 rsyslogd
Average: 1000     2131   0.25   0.00 6631824 437564  2.78 gnome-shell
Average: 1000     3196   57.21   0.00 34281548 411408  2.61 chrome
Average: 1000     3385   2.24   0.00 34647188 275972  1.75 chrome
Average: 1000     3386   96.27   0.00 33986888 123172  0.78 chrome
Average: 1000     3399   0.50   0.00 34238712 56208  0.36 chrome
Average: 1000     4158   58.21   0.00 1186629140 429181  2.72 chrome
Average: 1000     4168   0.25   0.00 34171100 79488  0.50 chrome
Average: 1000     4327   0.25   0.00 1186568932 317960  2.02 chrome
Average: 1000     4361   1.24   0.00 1186543828 153432  0.97 chrome
Average: 1000     8938   0.25   0.00 11532      5376  0.03 pidstat
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $
```

81.id username:Display user and group information for a specified username.

Syntax:id username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ id abhi
uid=1000(abhi) gid=1000(abhi) groups=1000(abhi),4(admin),24(cdrom),27(sudo),30(dip),46(plugdev),122(lpadmin),134(lxd),135(sambashare)
```

82.finger username:Display information about a user, including their login name, real name, terminal, and more.

Syntax:finger username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ finger abhi
Login: abhi                                Name: Abhi Mehta
Directory: /home/abhi                         Shell: /bin/bash
On since Sun Jan 28 16:45 (IST) on tty2 from tty2
  2 hours 12 minutes idle
No mail.
No Plan.
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: -$
```

83.who:Display information about users who are currently logged in.

Syntax:who

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ who
abhi      tty2          2024-01-28 16:45 (tty2)
```

84.w>Show who is logged on and what they are doing.

Syntax:w

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ w
18:58:26 up 2:13, 1 user, load average: 0.47, 0.47, 0.55
USER   TTY      FROM           LOGIN@    IDLE   JCPU   PCPU WHAT
abhi   tty2          16:45 2:12m 0.01s 0.01s /usr/libexec/gnome-session-binary --session=ubuntu
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

85.passwd username:Change the password for a user.

Syntax:passwd username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ passwd abhi
Changing password for abhi.
Current password:
New password:
BAD PASSWORD: The password is the same as the old one
New password:
```

86.cat /etc/passwd:Display information about user accounts.

Syntax:cat /etc/passwd

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/nologin
bin:x:2:2:bin:/bin:/nologin
sys:x:3:3:sys:/dev:/nologin
sync:x:4:65534:sync:/bin:/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:3:www-data:/var/www:/usr/sbin/nologin
```

87.getent passwd username: Display user account information using getent.

getent passwd username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ getent passwd abhi
abhi:x:1000:1000:Abhi Mehta,,,:/home/abhi:/bin/bash
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

88.chage -l username:Display password expiration information for a user.

Syntax:chage -l username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ chage -l abhi
Last password change : Jan 19, 2023
Password expires : never
Password inactive : never
Account expires : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ getent passwd abhi
abhi:x:1000:1000:Abhi Mehta,,,:/home/abhi:/bin/bash
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $
```

89.last username:Display information about a user's login history.

Syntax:last username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA: $ last abhi
abhi  tty2      tty2      Sun Jan 28 16:45  still logged in
abhi  tty2      tty2      Sun Jan 28 17:24 - down  (-00:39)
abhi  tty2      tty2      Thu Jan 25 04:10 - down  (12:41)
abhi  tty2      tty2      Tue Jan 16 22:30 - down  (-5:28)
abhi  tty2      tty2      Mon Jan 15 20:35 - down  (03:00)
abhi  tty2      tty2      Sun Jan  7 19:51 - down  (-3:56)
abhi  tty2      tty2      Wed Jan  3 21:51 - down  (00:00)
abhi  tty2      tty2      Thu Dec 28 21:43 - down  (1+02:33)
abhi  tty2      tty2      Thu Dec 28 21:41 - down  (00:01)
abhi  tty2      tty2      Fri Dec 29 03:05 - down  (-5:24)
abhi  tty2      tty2      Wed Dec 27 19:39 - down  (01:03)
abhi  tty2      tty2      Wed Dec 27 04:00 - down  (-4:32)
abhi  tty2      tty2      Wed Dec 27 01:42 - down  (00:00)
abhi  tty2      tty2      Tue Dec 26 11:46 - down  (00:02)
abhi  tty2      tty2      Tue Dec 26 09:45 - 09:55  (00:09)
abhi  tty2      tty2      Mon Dec 25 14:30 - down  (13:50)
abhi  tty2      tty2      Sun Dec 24 04:06 - down  (21:15)
abhi  tty2      tty2      Sun Dec 24 03:30 - down  (-5:21)
abhi  tty2      tty2      Fri Dec 15 23:02 - down  (13:56)
abhi  tty2      tty2      Fri Dec 15 16:50 - down  (06:04)
abhi  tty2      tty2      Fri Dec 15 15:55 - down  (00:54)
abhi  tty2      tty2      Thu Dec 14 22:50 - down  (17:04)
abhi  tty2      tty2      Fri Dec 15 04:03 - down  (-5:13)
abhi  tty2      tty2      Thu Dec  7 18:02 - down  (01:19)
abhi  tty2      tty2      Wed Dec  6 17:02 - 17:08  (1+06:05)
abhi  tty2      tty2      Tue Dec  5 20:34 - 17:00  (20:25)
abhi  tty2      tty2      Mon Dec  4 22:37 - down  (03:35)
abhi  tty2      tty2      Mon Dec  4 21:09 - down  (01:13)
abhi  tty2      tty2      Mon Dec  4 09:00 - down  (06:26)
abhi  tty2      tty2      Sun Dec  3 14:02 - down  (16:25)
abhi  tty2      tty2      Sat Dec  2 14:05 - down  (11:53)
abhi  tty2      tty2      Fri Dec  1 20:56 - down  (16:53)
abhi  tty2      tty2      Thu Nov 30 04:17 - down  (-1:16)
abhi  tty2      tty2      Wed Nov 29 16:20 - down  (06:14)
```

90.lastlog:Display the last login times for all users.

Syntax:lastlog

Username	Port	From	Latest
root			*Never logged in**
daemon			*Never logged in**
bin			*Never logged in**
sys			*Never logged in**
sync			*Never logged in**
games			*Never logged in**
nag			*Never logged in**
lp			*Never logged in**
mail			*Never logged in**
news			*Never logged in**
uucp			*Never logged in**
proxy			*Never logged in**
www-data			*Never logged in**
abhi@P			*Never logged in**
list			*Never logged in**
irc			*Never logged in**
gnats			*Never logged in**
nobody			*Never logged in**
systemd-network			*Never logged in**
systemd-resolve			*Never logged in**
messagebus			*Never logged in**
systemd-timesync			*Never logged in**
syslog			*Never logged in**
_apt			*Never logged in**
tss			*Never logged in**
uudd			*Never logged in**
systemd-oom			*Never logged in**
tcpdump			*Never logged in**
avahi-autoipd			*Never logged in**
ibus			*Never logged in**
dnsdnsq			*Never logged in**
kernoops			*Never logged in**
avahi			*Never logged in**
cups-ok-helper			*Never logged in**

91.pwck:Check the integrity of password files.

Syntax:sudo pwck

```
Enter type an answer to save the key (/, none, dont, yes, no_just). [c] abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo pwck user 'lp': directory '/var/spool/lpd' does not exist user 'news': directory '/var/spool/news' does not exist user 'uucp': directory '/var/spool/uucp' does not exist user 'list': directory '/var/list' does not exist user 'irc': directory '/run/ircd' does not exist user 'gnats': directory '/var/lib/gnats' does not exist user 'nobody': directory '/nonexistent' does not exist user 'snapd-range-524288-root': directory '/nonexistent' does not exist user 'snap_daemon': directory '/nonexistent' does not exist pwck: no changes abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$
```

92.whoami:Display the current username.

Syntax:whoami

```
pwck: no changes abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ whoami abhi
```

93.groups username:Display the groups a user belongs to.

Syntax:groups username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ groups abhi abhi : abhi adm cdrom sudo dip plugdev lpadmin lxd sambashare
```

94.logname:Display the user's login name.

Syntax:logname

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ logname abhi
```

95.lastb:Displays last failed login attempt.

Syntax:sudo lastb

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ sudo lastb btmp begins Wed Jan 3 21:51:06 2024
```

96.journalctl \_COMM=sshd:View SSH daemon logs.

Syntax:journalctl \_COMM=sshd

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ journalctl _COMM=sshd
-- No entries --
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

97.ulimit -a:Display user-level resource limits.

Syntax:ulimit -a

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size (blocks, -c) 0
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 61229
max locked memory (kbytes, -l) 1968896
max memory size (kbytes, -m) unlimited
open files (-n) 1024
pipe size (512 bytes, -p) 8
POSIX message queues (bytes, -q) 819200
real-time priority (-r) 0
stack size (kbytes, -s) 8192
cpu time (seconds, -t) unlimited
max user processes (-u) 61229
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```

98.chfn username:Change the user's full name and other information.

Syntax:chfn username

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ chfn abhi
Password:
Changing the user information for abhi
Enter the new value, or press ENTER for the default
      Full Name: Abhi Mehta
      Room Number []:
```

99.echo \$SHELL:Display the user's default shell.

Syntax:echo \$SHELL

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ echo $SHELL
/bin/bash
```

100.echo \$PATH:Display the user's executable search path.

Syntax:echo \$PATH

```
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ echo $PATH
/home/abhi/anaconda3/bin:/home/abhi/.local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin
abhi@abhi-VivoBook-ASUSLaptop-M3400QA-M3400QA:~$ █
```