

Title: Linux Command List Assessment

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Instructions:-

The following assessment aims to test your understanding and practical knowledge of various Linux commands. Perform the tasks given below using the appropriate commands. Write down the command(s) used to complete each task. You can use any Linux distribution or command-line interface of your choice. Ensure that you provide the correct output or results for each task.

Note: It is recommended to perform this assessment on a Linux machine or virtual environment.

File and Directory Operations:

ls: List files and directories

```
(sabarish@Sabarish)-[~]  
$ ls  
a.out      copyin.c  Documents  lprivate.c  my_directory  new_file.txt.save  Public  shared.c  time.c  
backdoor.exe  data.c    dot.c       mergesort.c  my_script.sh  pc.c               reduction.c  Templates  Videos  
backup       default.c Downloads  mpi.c        naive.c      Pictures          reductionp.c  thread2.c  
binary.c     Desktop   fprivate.c Music         naive.cpp     private.c         script.sh     thread.c
```

```
(sabarish@Sabarish)-[~]  
$
```

cd: Change directory

```
(sabarish@Sabarish)-[~]  
$ cd my_directory
```

pwd: Print working directory

```
(sabarish@Sabarish)-[~/my_directory]
$ pwd
/home/sabarish/my_directory
```

mkdir: Make directory

```
(sabarish@Sabarish)-[~/my_directory]
$ mkdir vit
```

touch: Create an empty file

```
(sabarish@Sabarish)-[~/my_directory]
$ touch my_assignment
```

cp: Copy files and directories

```
(sabarish@Sabarish)-[~/my_directory]
$ cp vit my_directory
cp: -r not specified; omitting directory 'vit'
```

mv: Move or rename files and directories

```
(sabarish@Sabarish)-[~/my_directory]
$ mv my_assignment my_da1
mv: target 'da1' is not a directory
```

rm: Remove files and directories

```
(sabarish@Sabarish)-[~/my_directory]
$ rm my_da1
```

find: Search for files and directories

```
(sabarish@Sabarish)-[~/my_directory]
$ find my_da1
find: 'my_da1': No such file or directory
```

File Viewing and Editing:

cat: Concatenate and display file content

```
(sabarish@Sabarish)-[~/my_directory]
$ cat random.txt
Hello World
this is sabarish
studying in vit vellore
currently purshing my 4th year in cse core
```

less: View file content with pagination

```
Hello World
this is sabarish
studying in vit vellore
currently purshing my 4th year in cse core

random.txt (END)
```

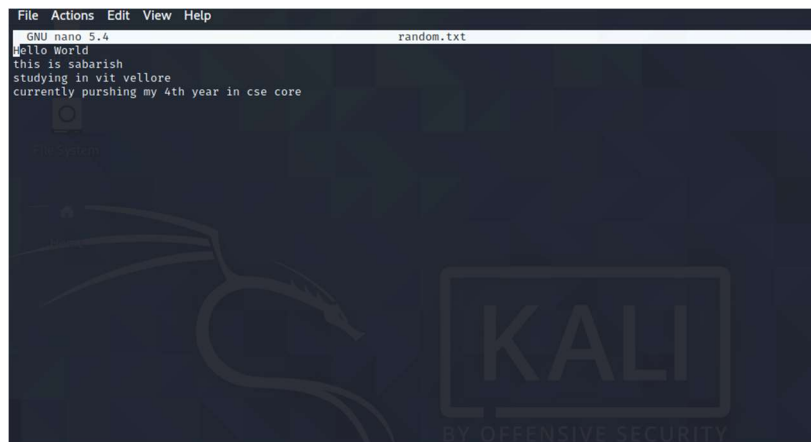
head: Display the beginning of a file

```
(sabarish@Sabarish)-[~/my_directory]
$ head random.txt
Hello World
this is sabarish
studying in vit vellore
currently purshing my 4th year in cse core
```

tail: Display the end of a file

```
(sabarish@Sabarish)-[~/my_directory]
$ tail random.txt
Hello World
this is sabarish
studying in vit vellore
currently purshing my 4th year in cse core
```

nano: Text editor for creating and editing files



vi/vim: Powerful text editor for experienced users

File Permissions:

chmod: Change file permissions

```
(sabarish@Sabarish)-[~/my_directory]  
$ chmod 755 random.txt
```

chown: Change file owner

```
(sabarish@Sabarish)-[~/my_directory]  
$ chown random.txt
```

chgrp: Change file group

```
(sabarish@Sabarish)-[~/my_directory]  
$ chgrp staff random.txt
```

File Compression and Archiving:

tar: Archive files

```

(sabarish@Sabarish)-[~/my_directory]
$ touch file1.txt

(sabarish@Sabarish)-[~/my_directory]
$ touch file2.txt

(sabarish@Sabarish)-[~/my_directory]
$ touch my_directory

(sabarish@Sabarish)-[~/my_directory]
$ touch archive.zip

(sabarish@Sabarish)-[~/my_directory]
$ tar -cvf archive.tar file1.txt file2.txt my_directory
file1.txt
file2.txt
my_directory

(sabarish@Sabarish)-[~/my_directory]
$

```

gzip: Compress files

```

(sabarish@Sabarish)-[~/my_directory]
$ gzip file1.txt

(sabarish@Sabarish)-[~/my_directory]
$ gzip file2.txt

(sabarish@Sabarish)-[~/my_directory]
$ tar -czvf archive.tar.gz my_directory
my_directory

(sabarish@Sabarish)-[~/my_directory]
$

```

unzip: Extract files from a ZIP archive

```

(sabarish@Sabarish)-[~/my_directory]
$ unzip archive.zip
archive: archive.zip
End-of-central-directory signature not found. Either this file is not
a zipfile, or it constitutes one disk of a multi-part archive. In the
latter case the central directory and zipfile comment will be found on
the last disk(s) of this archive.
unzip: cannot find zipfile directory in one of archive.zip or
archive.zip.zip, and cannot find archive.zip.ZIP, period.

```

Process Management:

ps: List running processes

top: Display real-time system information and processes

```
sabarish@sabarish:~/my_directory
File Actions Edit View Help
top - 17:41:53 up 4:48, 1 user, load average: 0.22, 0.07, 0.02
Tasks: 163 total, 1 running, 160 sleeping, 2 stopped, 0 zombie
Cpu(s): 0.2 us, 0.3 sy, 0.0 ni, 99.3 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
Mem Mem : 1719.8 total, 738.1 free, 545.9 used, 435.7 buff/cache
Mem Swap: 976.0 total, 976.0 free, 0.0 used, 1003.9 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 547 root        20   0 1288388 136644 60200 S   1.6   7.8   2:33.89 Xorg
1259 sabarish    20   0 1270816 77496 62040 S   0.6   4.4   0:29.41 qterminal
 12 root        20   0   0     0   0 I   0.3   0.0   0:10.76 rcu_sched
731 sabarish    20   0  8556   5048 4048 S   0.3   0.3   0:11.04 dbus-daemon
907 sabarish    20   0 509348 39908 32196 S   0.3   2.3   0:33.42 panel-16-pulsea
2118 root        20   0   0     0   0 I   0.3   0.0   0:04.57 kworker/1:2-events
2528 root        20   0   0     0   0 I   0.3   0.0   0:01.90 kworker/3:2-events
2557 root        20   0   0     0   0 I   0.3   0.0   0:00:10 kworker/u8:0-flush-8:0
  1 root        20   0 164172 10488 7804 S   0.0   0.6   0:10.31 systemd
  2 root        20   0   0     0   0 S   0.0   0.0   0:00.16 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
  6 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 kworker/0:0H-events_highpri
  8 root        0 -20   0     0   0 I   0.0   0.0   0:00.01 mm_percpu_wq
  9 root        20   0   0     0   0 S   0.0   0.0   0:00.00 rcu_tasks_rude_
10 root        20   0   0     0   0 S   0.0   0.0   0:00.00 rcu_tasks_trace
11 root        20   0   0     0   0 S   0.0   0.0   0:00.11 ksoftirqd/0
13 root        rt   0   0     0   0 S   0.0   0.0   0:00.68 migration/0
15 root        20   0   0     0   0 S   0.0   0.0   0:00.00 cpuhp/0
16 root        20   0   0     0   0 S   0.0   0.0   0:00.00 cpuhp/1
17 root        rt   0   0     0   0 S   0.0   0.0   0:00.52 migration/1
18 root        20   0   0     0   0 S   0.0   0.0   0:00.23 ksoftirqd/1
20 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 kworker/1:0H-events_highpri
21 root        20   0   0     0   0 S   0.0   0.0   0:00.00 cpuhp/2
22 root        rt   0   0     0   0 S   0.0   0.0   0:00.97 migration/2
23 root        20   0   0     0   0 S   0.0   0.0   0:00.17 ksoftirqd/2
25 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 kworker/2:0H-events_highpri
26 root        20   0   0     0   0 S   0.0   0.0   0:00.00 cpuhp/3
27 root        rt   0   0     0   0 S   0.0   0.0   0:01.04 migration/3
28 root        20   0   0     0   0 S   0.0   0.0   0:00.72 ksoftirqd/3
30 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 kworker/3:0H-events_highpri
35 root        20   0   0     0   0 S   0.0   0.0   0:00.13 kdevtmpfs
36 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 netns
37 root        20   0   0     0   0 S   0.0   0.0   0:00.00 kauditd
40 root        20   0   0     0   0 S   0.0   0.0   0:00.04 khungtaskd
41 root        20   0   0     0   0 S   0.0   0.0   0:00.00 oom_reaper
42 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 writeback
43 root        20   0   0     0   0 S   0.0   0.0   0:01.63 kcompactd0
44 root        25   5   0     0   0 S   0.0   0.0   0:00.00 ksm
45 root        39  19   0     0   0 S   0.0   0.0   0:03.32 khugepaged
64 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 kintegrityd
65 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 kblockd
66 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 blkcg_punt_bio
67 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 edac-poller
68 root        0 -20   0     0   0 I   0.0   0.0   0:00.00 devfreq_wq
```

kill: Terminate processes

```
(sabarish@sabarish)-[~]
$ kill 1096
```

bg: Run processes in the background

```
(sabarish@sabarish)-[~]
$ bg 1096
```

fg: Bring background processes to the foreground

```
(sabarish@sabarish)-[~]
$ fg 829
```

System Information:

uname: Print system information

```
(sabarish@Sabarish)-[~]  
$ uname  
Linux
```

df: Display disk space usage

```
(sabarish@Sabarish)-[~]  
$ df  
Filesystem      1K-blocks    Used Available Use% Mounted on  
udev             845644         0    845644   0% /dev  
tmpfs            176108         952    175156   1% /run  
/dev/sda2       18964304 9941576    8034056  56% /  
tmpfs            880532         0    880532   0% /dev/shm  
tmpfs            5120          0      5120   0% /run/lock  
/dev/sda1       523248         140    523108   1% /boot/efi  
tmpfs            176104         56    176048   1% /run/user/1000
```

free: Display memory usage

```
(sabarish@Sabarish)-[~]  
$ free  
              total        used        free      shared  buff/cache   available  
Mem:          1761068      526212      835260        17776      399596     1073172  
Swap:           999420           0      999420
```

uptime: Show system uptime

```
(sabarish@Sabarish)-[~]  
$ uptime  
22:39:50 up 3:13, 1 user, load average: 0.11, 0.12, 0.07
```

who: Display logged-in users

```
(sabarish@Sabarish)-[~]  
$ who  
sabarish tty7      2023-05-29 22:34 (:0)
```

w: Display logged-in users and their activities

```
(sabarish@Sabarish)-[~]  
$ w  
22:39:59 up 3:14, 1 user, load average: 0.09, 0.12, 0.07  
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT  
sabarish  tty7      :0             22:34    3:13m 29.46s 0.89s xfce4-session
```

Networking:

ifconfig: Configure network interfaces

```
(sabarish@Sabarish)-[~]
$ ifconfig
eth0: 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::a00:27ff:fe22:5680 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:22:56:80 txqueuelen 1000 (Ethernet)
    RX packets 14 bytes 5934 (5.7 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 25 bytes 3338 (3.2 KiB)
    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 12 bytes 600 (600.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 12 bytes 600 (600.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ping: Send ICMP echo requests to a network host

```
(sabarish@Sabarish)-[~]
$ ping C8E26522E5BB
```

ssh: Securely connect to a remote system

```
(sabarish@Sabarish)-[~]
$ ssh C8E26522E5BB
```

scp: Securely copy files between systems

--- scp <source_file> <user>@<host_id>:<destination_path>

wget: Download files from the web

--- wget <URL>

System Administration:

sudo: Execute commands with superuser privileges

```
(sabarish@Sabarish)-[~]
$ sudo su
[sudo] password for sabarish:
(root@Sabarish)-[/home/sabarish]
# sudo apt-get
```

apt-get: Package management for Debian-based distributions

```
(sabarish@Sabarish)-[~]
$ sudo su
[sudo] password for sabarish:
(root@Sabarish)-[/home/sabarish]
# sudo apt-get
```

yum: Package management for Red Hat-based distributions

```
(root@Sabarish)-[/home/sabarish]
# yum remove dal
```

systemctl: Manage system services

```
(root@Sabarish)-[/home/sabarish]
# sudo systemctl start search
```

crontab: Schedule recurring tasks

```
# 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 u command
#
# ...
# ...
# ...
"/tmp/crontab.TLVKjI/crontab" 23L, 889B 1,1 All
```

passwd: Change user password

```
(sabarish@Sabarish)-[~]  
$ passwd  
Changing password for sabarish.  
Current password:  
New password:  
Retype new password:  
passwd: password updated successfully
```

Ensure that you provide the correct command(s) used to accomplish each task. Write your answers below each task.

Once you have completed the assessment, review your answers and verify that the output or results are correct.

Make this in document format and send them with images