Title: Linux Command List Assessment
Assignment 1

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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.

File and Directory Operations:

ls: List files and directories

cd: Change directory and pwd: Print working directory

mkdir: Make directory and touch: Create an empty file

rm: Remove files and directories

```
csi@csi:~/Downloads$ rm myfile.txt
csi@csi:~/Downloads$ rm -r abc
```

find: Search for files and directories

```
csi@csi:~/Downloads$ touch myfile.txt
csi@csi:~/Downloads$ find /home -name myfile.txt
/home/csi/Downloads/myfile.txt
```

File Viewing and Editing:

cat: Concatenate and display file content

```
csi@csi:~/Downloads$ cat myfile.txt
abcgcgfjqu
```

less: View file content with pagination

```
csi@csi:~/Downloads$ less myfile.txt
```

```
abchsifeheofjwa;
~
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(END)
```
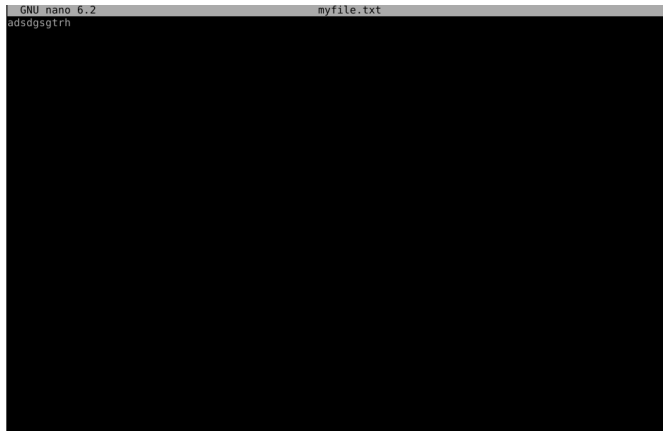
head: Display the beginning of a file and tail: Display the end of a file

```
csi@csi:~/Downloads$ head myfile.txt
abcgcgfjgu
csi@csi:~/Downloads$ tail myfile.txt
abcgcgfjgu
```

nano: Text editor for creating and editing files

```
csi@csi:~/Downloads$ nano myfile.txt
  GNU nano 6.2                    myfile.txt
adsdgsgtrh
```

vi/vim: Powerful text editor for experienced users

```
csi@csi:~/Downloads$ vi myfile.txt
```

File Permissions:

chmod: Change file permissions

```
csi@csi:~/Downloads$ chmod 755 myfile.txt
```

chown: Change file owner

```
csi@csi:~/Downloads$ chown csi myfile.txt
```

chgrp: Change file group

```
csi@csi:~/Downloads$ chgrp csi myfile.txt
```

File Compression and Archiving:

tar: Archive files

```
csi@csi:~/Downloads$ tar -cvf archive.tar myfile.txt
myfile.txt
```

gzip: Compress files

```
csi@csi:~/Downloads$ gzip myfile.txt
gzip: myfile.txt.gz already exists; do you wish to overwrite (y or n)? y
```

unzip: Extract files from a ZIP archive

```
csi@csi:~/Downloads$ unzip myfile
```

Process Management:

ps: List running processes

```
csi@csi:~/Downloads$ ps aux
USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root          1  0.0  0.2 101016 12020 ?        Ss   09:06   0:01 /sbin/init
root          2  0.0  0.0      0     0 ?        S    09:06   0:00 [kthreadd]
root          3  0.0  0.0      0     0 ?        I<   09:06   0:00 [rcu_gp]
root          4  0.0  0.0      0     0 ?        I<   09:06   0:00 [rcu_par_gp]
root          5  0.0  0.0      0     0 ?        I<   09:06   0:00 [netns]
root          7  0.0  0.0      0     0 ?        I<   09:06   0:00 [kworker/0:0H-events_highpri]
root          9  0.0  0.0      0     0 ?        I    09:06   0:01 [kworker/u4:0-events_power_efficient]
root         10  0.0  0.0      0     0 ?        I<   09:06   0:00 [mm_percpu_wq]
root         11  0.0  0.0      0     0 ?        S    09:06   0:00 [rcu_tasks_rude_]
root         12  0.0  0.0      0     0 ?        S    09:06   0:00 [rcu_tasks_trace]
root         13  0.0  0.0      0     0 ?        S    09:06   0:00 [ksoftirqd/0]
root         14  0.0  0.0      0     0 ?        I    09:06   0:00 [rcu_sched]
```

top: Display real-time system information and processes

```
csi@csi:~/Downloads$ top

top - 09:30:29 up 23 min,  0 users,  load average: 0.08, 0.07, 0.08
Tasks: 172 total,   1 running, 169 sleeping,   2 stopped,   0 zombie
%Cpu(s):  6.5 us,  0.0 sy,  0.0 ni, 93.5 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   3925.7 total,   2217.2 free,    611.3 used,   1097.2 buff/cache
MiB Swap:      0.0 total,      0.0 free,      0.0 used.   3055.5 avail Mem
```

System Information:

uname: Print system information

```
csi@csi:~/Downloads$ uname -a
Linux csi 5.15.0-35-generic #36-Ubuntu SMP Sat May 21 02:24:07 UTC 2022 x86_64 x86_64 x86_64 G
```

df: Display disk space usage

```
csi@csi:~/Downloads$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           393M  6.1M  387M   2% /run
/dev/sda2        49G   13G   34G  28% /
tmpfs           2.0G  4.0K  2.0G   1% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           2.0G     0  2.0G   0% /run/qemu
tmpfs           393M   64K  393M   1% /run/user/1000
```

free: Display memory usage

```
csi@csi:~/Downloads$ free -m
               total        used        free      shared  buff/cache   available
Mem:            3925         602        2226          21        1097        3064
Swap:              0           0           0
```

uptime: Show system uptime

```
csi@csi:~/Downloads$ uptime
 09:32:59 up 26 min,  0 users,  load average: 0.15, 0.09, 0.09
```

who: Display logged-in users

```
csi@csi:~/Downloads$ who
```

w: Display logged-in users and their activities

```
csi@csi:~/Downloads$ w
 09:33:14 up 26 min,  0 users,  load average: 0.12, 0.09, 0.09
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
```

Networking:

ifconfig: Configure network interfaces

```
csi@csi:~/Downloads$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a00:27ff:fe9d:8952  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:9d:89:52  txqueuelen 1000  (Ethernet)
        RX packets 5204  bytes 6520077 (6.5 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 1598  bytes 690978 (690.9 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

enp0s8: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        ether 08:00:27:c4:3c:21  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        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
```

ping: Send ICMP echo requests to a network host

```
csi@csi:~/Downloads$ ping google.com
PING google.com (142.250.193.142): 56 data bytes
64 bytes from 142.250.193.142: icmp_seq=0 ttl=56 time=25.552 ms
64 bytes from 142.250.193.142: icmp_seq=1 ttl=56 time=46.138 ms
64 bytes from 142.250.193.142: icmp_seq=2 ttl=56 time=27.294 ms
64 bytes from 142.250.193.142: icmp_seq=3 ttl=56 time=34.188 ms
64 bytes from 142.250.193.142: icmp_seq=4 ttl=56 time=30.887 ms
```

ssh: Securely connect to a remote system

```
csi@csi:~/Downloads$ ssh csi@192.168.0.7
```

scp: Securely copy files between systems

```
csi@csi:~/Downloads$ scp myfile.txt csi@192.168.0.7:/C:/Windows/System32/
^Z
[6]+  Stopped                 scp myfile.txt csi@192.168.0.7:/C:/Windows/System32/
```

wget: Download files from the web

```
csi@csi:~/Downloads$ wget http://www.google.com/
--2023-05-28 09:35:39--  http://www.google.com/
Resolving www.google.com (www.google.com)... 142.250.205.228, 2404:6800:4007:810::2004
Connecting to www.google.com (www.google.com)|142.250.205.228|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'

index.html                    [ <=>                           ]  19.01K  --.-KB/s    in 0.03s

2023-05-28 09:35:39 (646 KB/s) - 'index.html' saved [19471]
```

System Administration:

sudo: Execute commands with superuser privileges and apt-get: Package
management for Debian-based distributions

```
csi@csi:~/Downloads$ sudo su
[sudo] password for csi:
csSorry, try again.
[sudo] password for csi:
root@csi:/home/csi/Downloads# apt-get update
Get:1 http://dl.winehq.org/wine-builds/ubuntu jammy InRelease [8041 B]
Get:2 https://dl.google.com/linux/chrome/deb stable InRelease [1825 B]
Get:3 http://dl.winehq.org/wine-builds/ubuntu jammy/main amd64 Packages [118 kB]
Get:4 https://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1075 B]
Get:5 http://dl.winehq.org/wine-builds/ubuntu jammy/main i386 Packages [118 kB]
```

yum: Package management for Red Hat-based distributions

```
root@csi:/home/csi/Downloads# yum info vsftpd
```

systemctl: Manage system services

```
root@csi:/home/csi/Downloads# systemctl list-unit-files --type service -all
UNIT FILE                          STATE       VENDOR PRESET
apache-htcacheclean.service        disabled    enabled
apache-htcacheclean@.service       disabled    enabled
apache2.service                    disabled    enabled
apache2@.service                   disabled    enabled
apparmor.service                   enabled     enabled
apport-autoreport.service          static      -
apport-forward@.service            static      -
apport.service                     generated   -
apt-daily-upgrade.service          static      -
apt-daily.service                  static      -
auth-rpcgss-module.service         static      -
autovt@.service                    alias       -
```

crontab: Schedule recurring tasks

```
root@csi:/home/csi/Downloads# contrab -e
```

useradd: Add a new user

```
root@csi:/home/csi/Downloads# useradd new
```

passwd: Change user password

```
root@csi:/home/csi/Downloads# passwd new
New password:
Retype new password:
passwd: password updated successfully
```