

Assessment -1

Title: Linux Command List Assessment

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.

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

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File and Directory Operations:

```
dev@DevsPredator:~$ pwd
/home/dev
dev@DevsPredator:~$ cd
dev@DevsPredator:~$ ls
CSE4001_PDC_Project  instructions.txt
dev@DevsPredator:~$ |
```

pwd: Print working directory

As shown the current working directory is home and the user is dev.

cd: Change directory

Changed directory from user home directory to root

ls: List files and directories

lists the files and directories present in the root directory

```

dev@DevsPredator:~$ mkdir newdirectory
dev@DevsPredator:~$ ls
CSE4001_PDC_Project  instructions.txt  newdirectory
dev@DevsPredator:~$ cd newdirectory/
dev@DevsPredator:~/newdirectory$ ls
dev@DevsPredator:~/newdirectory$ pwd
/home/dev/newdirectory
dev@DevsPredator:~/newdirectory$ touch newfile.txt
dev@DevsPredator:~/newdirectory$ ls
newfile.txt
dev@DevsPredator:~/newdirectory$ cd ..
dev@DevsPredator:~$ touch textfile.txt
dev@DevsPredator:~$ ls
CSE4001_PDC_Project  instructions.txt  newdirectory  textfile.txt
dev@DevsPredator:~$ cp textfile.txt newdirectory
dev@DevsPredator:~$ cd newdirectory
dev@DevsPredator:~/newdirectory$ ls
newfile.txt  textfile.txt
dev@DevsPredator:~/newdirectory$ mv newfile.txt abc.txt
dev@DevsPredator:~/newdirectory$ ls
abc.txt  textfile.txt
dev@DevsPredator:~/newdirectory$ cd ..
dev@DevsPredator:~$ touch file
dev@DevsPredator:~$ mv file newdirectory
dev@DevsPredator:~$ cd newdirectory
dev@DevsPredator:~/newdirectory$ ls
abc.txt  file  textfile.txt

```

mkdir: Make directory

Created new directory inside user home directory as newdirectory

touch: Create an empty file

Created a file named textfile.txt inside home and a file newfile.txt in newdirectory.

cp: Copy files and directories

Copies textfile.txt into newdirectory

mv: Move or rename files and directories

Renames newfile.txt as abc.txt

Moves a file named “file” from user home directory to newdirectory.

```
dev@DevsPredator:~$ rm -rf newdirectory && rm textfile.txt
dev@DevsPredator:~$ ls
CSE4001_PDC_Project  instructions.txt
```

rm: Remove files and directories

Removes directory “newdirectory” -rf deletes subdirectories if any and deletes file “textfile.txt”

```
dev@DevsPredator:~$ ls
CSE4001_PDC_Project  instructions.txt
dev@DevsPredator:~$ find abc.txt
find: 'abc.txt': No such file or directory
dev@DevsPredator:~$ find instructions.txt
instructions.txt
dev@DevsPredator:~$ |
```

find: Search for files and directories

instructions.txt is present and is shown; while abc.txt is not present in the Directory

File Viewing and Editing:

```
dev@DevsPredator:~$ cat instructions.txt
1) open terminal
2) open ubuntu
3) cd CSE4001_PDC_Project
4) g++ main.cpp -o main -fopenmp && ./main <no_of_threads> p2p-Gnutella08.txt -v
```

cat: Concatenate and display file content

Displays the content of the file instructions.txt

```
dev@DevsPredator:~$ less instructions.txt
```

```
[1]+  Stopped                  less instructions.txt
dev@DevsPredator:~$ |
```

```
1) open terminal
2) open ubuntu
3) cd CSE4001_PDC_Project
4) g++ main.cpp -o main -fopenmp && ./main <no_of_threads> p2p-Gnutella08.txt -v
5) ouiiiiiiiiiiiiiii
instructions.txt (END)
```

less: View file content with pagination

Opens instructions.txt with pagination

```
dev@DevsPredator:~$ head instructions.txt
1) open terminal
2) open ubuntu
3) cd CSE4001_PDC_Project
4) g++ main.cpp -o main -fopenmp && ./main <no_of_threads> p2p-Gnutella08.txt -v
5) ouiiiiiiiiiiiiiii
dev@DevsPredator:~$ tail instructions.txt
1) open terminal
2) open ubuntu
3) cd CSE4001_PDC_Project
4) g++ main.cpp -o main -fopenmp && ./main <no_of_threads> p2p-Gnutella08.txt -v
5) ouiiiiiiiiiiiiiii
```

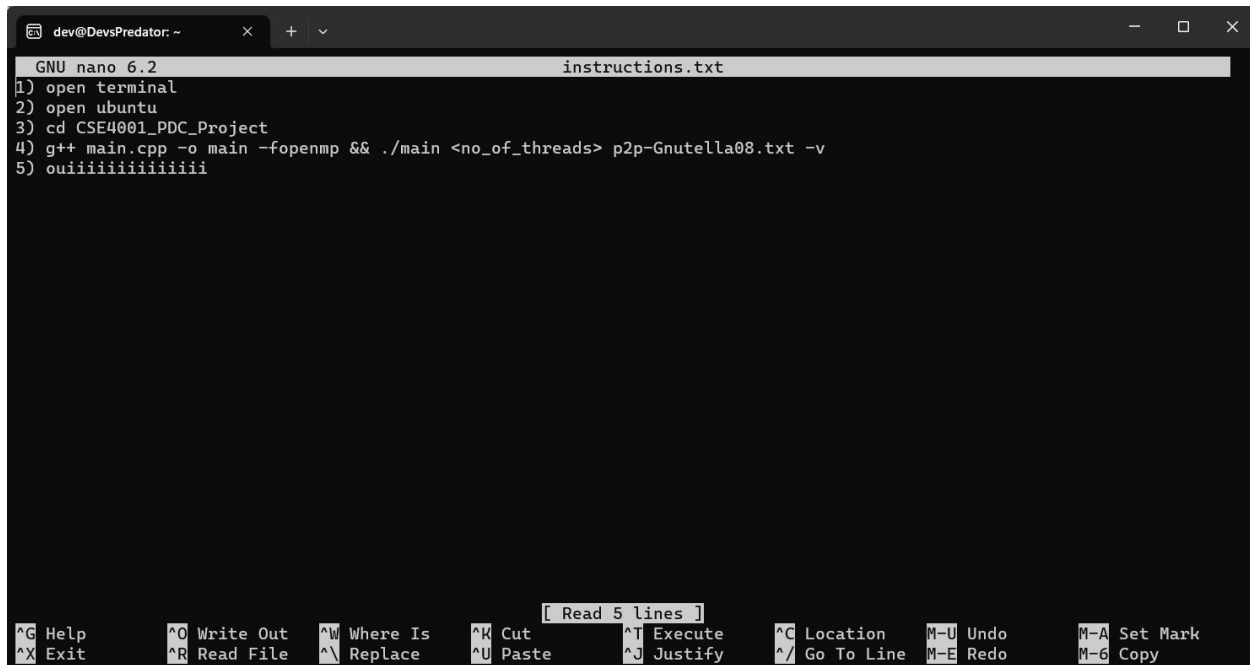
head: Display the beginning of a file

tail: Display the end of a file

```
dev@DevsPredator:~$ nano instructions.txt
```

```
Use "fg" to return to nano.
```

```
[2]+  Stopped nano instructions.txt
```



The screenshot shows a terminal window with the nano text editor open. The editor's title bar reads "GNU nano 6.2" and the file name "instructions.txt" is displayed. The content of the file is as follows:

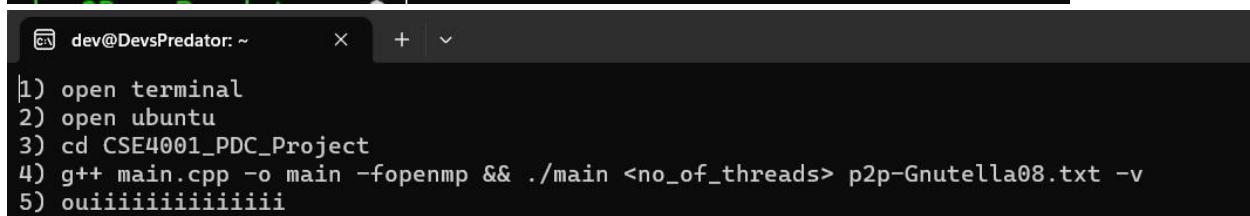
```
1) open terminal
2) open ubuntu
3) cd CSE4001_PDC_Project
4) g++ main.cpp -o main -fopenmp && ./main <no_of_threads> p2p-Gnutella08.txt -v
5) ouiiiiiiiiiiiiiii
```

The bottom status bar of the nano editor shows various keyboard shortcuts: **^G** Help, **^O** Write Out, **^W** Where Is, **^K** Cut, **^T** Execute, **^C** Location, **M-U** Undo, **M-A** Set Mark, **^X** Exit, **^R** Read File, **^_** Replace, **^U** Paste, **^J** Justify, **^_** Go To Line, **M-E** Redo, and **M-6** Copy. A small indicator "[Read 5 lines]" is also visible.

nano: Text editor for creating and editing files

```
dev@DevsPredator:~$ vim instructions.txt
```

```
[3]+  Stopped vim instructions.txt
```



The screenshot shows a terminal window with the vim text editor open. The editor's title bar reads "dev@DevsPredator: ~" and the file name "instructions.txt" is displayed. The content of the file is identical to the one shown in the nano editor screenshot:

```
1) open terminal
2) open ubuntu
3) cd CSE4001_PDC_Project
4) g++ main.cpp -o main -fopenmp && ./main <no_of_threads> p2p-Gnutella08.txt -v
5) ouiiiiiiiiiiiiiii
```

vi/vim: Powerful text editor for experienced users

File Permissions:

```
dev@DevsPredator:~$ touch demo.txt
dev@DevsPredator:~$ chmod 644 demo.txt
dev@DevsPredator:~$ ls -l
total 8
drwxr-xr-x 3 dev dev 4096 Apr  3 12:14 CSE4001_PDC_Project
-rw-r--r-- 1 dev dev   0 May 29 16:37 demo.txt
-rw-r--r-- 1 dev dev  159 Mar  9 21:39 instructions.txt
dev@DevsPredator:~$ chmod 755 demo.txt
dev@DevsPredator:~$ ls -l
total 8
drwxr-xr-x 3 dev dev 4096 Apr  3 12:14 CSE4001_PDC_Project
-rwxr-xr-x 1 dev dev   0 May 29 16:37 demo.txt
-rw-r--r-- 1 dev dev  159 Mar  9 21:39 instructions.txt
```

chmod: Change file permissions

Permission of demo.txt changed to owner can read write and execute.

```
dev@DevsPredator:~$ sudo chown devendra demo.txt
[sudo] password for dev:
```

chown: Change file owner

Owner is changed from “dev” to “devendra”

```
dev@DevsPredator:~/new$ sudo addgroup ethical
Adding group 'ethical' (GID 1001) ...
Done.
dev@DevsPredator:~/new$ sudo chgrp ethical demo.txt
dev@DevsPredator:~/new$ ls -l
total 0
-rw-r--r-- 1 dev ethical 0 May 29 16:41 demo.txt
```

chgrp: Change file group

Created a group using addgroup “ethical” and changed the group for demo.txt from dev to ethical.

File Compression and Archiving:

```
dev@DevsPredator:~/new$ tar -czvf compress.tar.gz demo.txt
demo.txt
dev@DevsPredator:~/new$ ls
compress.tar.gz  demo.txt
```

tar: Archive files

```
(cyborg@kali)-[~/newdirectory]
$ ls
arch.zip.gz  compress.tar.gz  file.tar  newfile.txt

(cyborg@kali)-[~/newdirectory]
$ gzip newfile.txt

(cyborg@kali)-[~/newdirectory]
$ ls
arch.zip.gz  compress.tar.gz  file.tar  newfile.txt.gz
```

Figure 16

gzip: Compress files

```
dev@DevsPredator:~/new$ zip deve.zip demo.txt
adding: demo.txt (stored 0%)
dev@DevsPredator:~/new$ ls
compress.tar.gz  demo.txt  deve.zip
dev@DevsPredator:~/new$ unzip deve.zip
Archive:  deve.zip
replace demo.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: y
extracting: demo.txt
dev@DevsPredator:~/new$ ls
compress.tar.gz  demo.txt  deve.zip
```

unzip: Extract files from a ZIP archive

Process Management:

```
dev@DevsPredator:~$ ps
  PID TTY          TIME CMD
    9 pts/0        00:00:00 bash
   75 pts/0        00:00:00 less
   91 pts/0        00:00:00 nano
  108 pts/0        00:00:00 vim
  248 pts/0        00:00:00 ps
```

ps: List running processes

```
dev@DevsPredator: ~
top - 16:47:55 up 2:43, 0 users, load average: 0.00, 0.00, 0.00
Tasks: 9 total, 1 running, 5 sleeping, 3 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7863.1 total, 7216.4 free, 339.3 used, 307.4 buff/cache
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used, 7297.0 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
    1 root        20   0   2324  1504  1404 S   0.0   0.0   0:00.00 init(Ubuntu)
    4 root        20   0   2324    4     0 S   0.0   0.0   0:00.00 init
    7 root        20   0   2328   108     0 S   0.0   0.0   0:00.00 SessionLeader
    8 root        20   0   2344   112     0 S   0.0   0.0   0:00.14 Relay(9)
    9 dev        20   0   6300  5336  3516 S   0.0   0.1   0:00.38 bash
   75 dev        20   0   3592  2448  2152 T   0.0   0.0   0:00.00 less
   91 dev        20   0   4816  4036  2816 T   0.0   0.1   0:00.01 nano
  108 dev        20   0  18504  9984  6284 T   0.0   0.1   0:00.02 vim
  249 dev        20   0   7792  3736  3148 R   0.0   0.0   0:00.00 top
```

top: Display real-time system information and processes details.

```
dev@DevsPredator:~$ kill
kill: usage: kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill -l [sigspec]
dev@DevsPredator:~$ kill 10
-bash: kill: (10) - No such process
dev@DevsPredator:~$
```

kill: Terminate processes

kill 10 doesn't execute because there is no process with ID 10.

```
dev@DevsPredator:~$ bg
[4]+ top &
dev@DevsPredator:~$ sleep 1000
^Z
[4]-  Stopped                  top

[5]+  Stopped                  sleep 1000
dev@DevsPredator:~$ jobs
[1]  Stopped                  less instructions.txt
[2]  Stopped                  nano instructions.txt
[3]  Stopped                  vim instructions.txt
[4]- Stopped                  top
[5]+ Stopped                  sleep 1000
dev@DevsPredator:~$ fg
sleep 1000
^Z
[5]+  Stopped                  sleep 1000
```

bg: Run processes in the background

fg: Bring background processes to the foreground

System Information:

```
dev@DevsPredator: ~  
dev@DevsPredator:~$ uname  
Linux  
dev@DevsPredator:~$ df  
Filesystem      1K-blocks      Used Available Use% Mounted on  
none            4025908         4    4025904   1% /mnt/wsl  
none           248882172 94545188 154336984 38% /usr/lib/wsl/drivers  
none            4025908         0    4025908   0% /usr/lib/wsl/lib  
/dev/sdc        1055762868 2209476 999849920   1% /  
none            4025908         92    4025816   1% /mnt/wslg  
rootfs          4022664       1936    4020728   1% /init  
none            4025908         4    4025904   1% /run  
none            4025908         0    4025908   0% /run/lock  
none            4025908         0    4025908   0% /run/shm  
none            4025908         0    4025908   0% /run/user  
tmpfs           4025908         0    4025908   0% /sys/fs/cgroup  
none            4025908         76    4025832   1% /mnt/wslg/versions.txt  
none            4025908         76    4025832   1% /mnt/wslg/doc  
drvfs           248882172 94545188 154336984 38% /mnt/c  
drvfs           976759804 3140752 973619052   1% /mnt/d  
dev@DevsPredator:~$ free  
              total        used        free      shared  buff/cache   available  
Mem:           8051820       354236       7382692        2332       314892       7465356  
Swap:          2097152           0       2097152  
dev@DevsPredator:~$ uptime  
16:52:13 up 2:47, 0 users, load average: 0.00, 0.00, 0.00  
dev@DevsPredator:~$ who  
dev@DevsPredator:~$ w  
16:52:27 up 2:48, 0 users, load average: 0.00, 0.00, 0.00  
USER      TTY      FROM          LOGIN@  IDLE   JCPU   PCPU WHAT  
dev@DevsPredator:~$ |
```

uname: Print system information

df: Display disk space usage

free: Display memory usage

uptime: Show system uptime

who: Display logged-in users

w: Display logged-in users and their activities

Networking:

```
dev@DevsPredator: ~  
dev@DevsPredator:~$ ifconfig  
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 172.19.2.1 netmask 255.255.240.0 broadcast 172.19.15.255  
    inet6 fe80::215:5dff:fe7b:ce9c prefixlen 64 scopeid 0x20<link>  
    ether 00:15:5d:7b:ce:9c txqueuelen 1000 (Ethernet)  
    RX packets 1039 bytes 685468 (685.4 KB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 282 bytes 19274 (19.2 KB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536  
    inet 127.0.0.1 netmask 255.0.0.0  
    inet6 ::1 prefixlen 128 scopeid 0x10<host>  
    loop txqueuelen 1000 (Local Loopback)  
    RX packets 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  
  
dev@DevsPredator:~$ ping www.google.com  
PING www.google.com (142.250.199.132) 56(84) bytes of data.  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=1 ttl=117 time=30.9 ms  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=4 ttl=117 time=29.4 ms  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=5 ttl=117 time=32.5 ms  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=6 ttl=117 time=35.4 ms  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=7 ttl=117 time=36.2 ms  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=8 ttl=117 time=28.9 ms  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=9 ttl=117 time=29.5 ms  
64 bytes from bom07s36-in-f4.1e100.net (142.250.199.132): icmp_seq=10 ttl=117 time=28.8 ms  
^Z  
[6]+  Stopped                  ping www.google.com  
dev@DevsPredator:~$ |
```

Figure 22

ifconfig: Configure network interfaces

ping: Send ICMP echo requests to a network host

ssh: Securely connect to a remote system

scp: Securely copy files between systems

```
dev@DevsPredator:~$ wget https://zoom.us/client/5.14.8.16213/ZoomInstallerFull.exe?archType=x64
--2023-05-29 17:11:20-- https://zoom.us/client/5.14.8.16213/ZoomInstallerFull.exe?archType=x64
Resolving zoom.us (zoom.us)... 170.114.52.2, 2407:30c0:182::aa72:3402
Connecting to zoom.us (zoom.us)|170.114.52.2|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://cdn.zoom.us/prod/5.14.8.16213/x64/ZoomInstallerFull.exe [following]
--2023-05-29 17:11:21-- https://cdn.zoom.us/prod/5.14.8.16213/x64/ZoomInstallerFull.exe
Resolving cdn.zoom.us (cdn.zoom.us)... 52.84.151.7, 52.84.151.9, 52.84.151.30, ...
Connecting to cdn.zoom.us (cdn.zoom.us)|52.84.151.7|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 72464024 (69M) [application/x-msdos-program]
Saving to: 'ZoomInstallerFull.exe?archType=x64'

ZoomInstallerFull.exe?archTyp 100%[=====>] 69.11M  9.69MB/s   in 7.5s
2023-05-29 17:11:29 (9.20 MB/s) - 'ZoomInstallerFull.exe?archType=x64' saved [72464024/72464024]
```

wget: Download files from the web by taking the url as input.

System Administration:

```
dev@DevsPredator:~$ sudo useradd -m devendra
[sudo] password for dev:
dev@DevsPredator:~$ cd ..
dev@DevsPredator:/home$ ls
dev  devendra
```

sudo: Execute commands with superuser privileges

useradd: Add a new user

```
dev@DevsPredator:/home$ sudo apt-get install unzip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
unzip is already the newest version (6.0-26ubuntu3.1).
unzip set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 62 not upgraded.
```

apt-get: Package management for Debian-based distributions

Virtual Box Kali Linux is Debian-based

yum: Package management for Red Hat-based distributions

```
dev@DevsPredator:/home$ systemctl
System has not been booted with systemd as init system (PID 1). Can't operate.
Failed to connect to bus: Host is down
dev@DevsPredator:/home$ crontab
^Z
^Cdev@DevsPredator:/home$ |
```

systemctl: Manage system services

crontab: Schedule recurring tasks


```
^Cdev@DevsPredator:/home$ passwd
Changing password for dev.
Current password:
New password:
Retype new password:
passwd: password updated successfully
dev@DevsPredator:/home$ |
```

passwd: Change user password