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

pwd: Print working directory

mkdir: Make directory

```
┌──(nikhil㉿kali)-[~/Documents]
└─$ mkdir my_directory
```

touch: Create an empty file

```
┌──(nikhil㉿kali)-[~/Documents]
└─$ touch myfile.txt
```

cp: Copy files and directories

```
┌──(nikhil㉿kali)-[~/Documents]
└─$ cp myfile.txt /home/nikhil/Downloads
```

```
┌──(nikhil㉿kali)-[~/Documents]
└─$ cp -r my_directory /home/nikhil/Downloads
```

mv: Move or rename files and directories

```
┌──(nikhil㉿kali)-[~/Documents]
└─$ mv myfile.txt /home/nikhil/Downloads
```

```
┌──(nikhil㉿kali)-[~/Documents]
└─$ mv my_directory /home/nikhil/Downloads
```

rm: Remove files and directories

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ rm myfile.txt
```

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ rm -r  my_directory
```

find: Search for files and directories

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ find /home -name myfile.txt
```
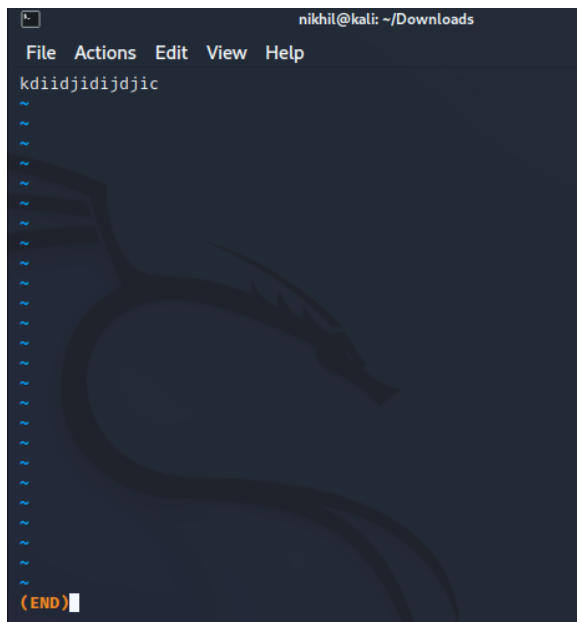
File Viewing and Editing:

cat: Concatenate and display file content

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ cat myfile.txt
kdiidjidijdjic
```

less: View file content with pagination

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ less myfile.txt
```

```
                          nikhil@kali: ~/Downloads
File  Actions  Edit  View  Help
kdiidjidijdjic
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
(END)
```

head: Display the beginning of a file
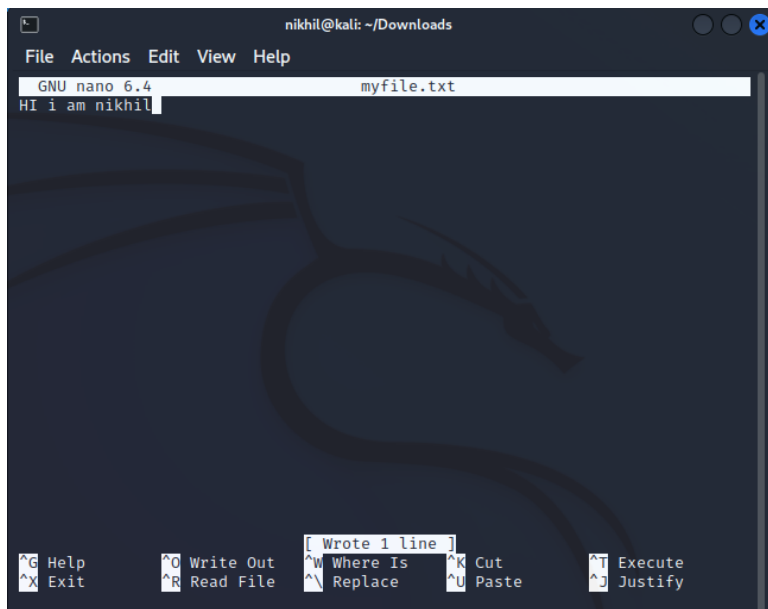
```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ head myfile.txt
kdiidjidijdjic
```

tail: Display the end of a file

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ tail myfile.txt
kdiidjidijdjic
```

nano: Text editor for creating and editing files

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ nano myfile.txt
```

vi/vim: Powerful text editor for experienced users

File Permissions:

chmod: Change file permissions

chown: Change file owner

chgrp: Change file group

File Compression and Archiving:

tar: Archive files

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ tar -cvf archive.tar myfile.txt
myfile.txt
```

gzip: Compress files

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ gzip myfile.txt
```

unzip: Extract files from a ZIP archive

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ unzip myfilee
Archive:  myfilee
  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.
Archive:  myfilee.zip
replace myfilee? [y]es, [n]o, [A]ll, [N]one, [r]ename: r
new name: mfyyf
 extracting: mfyyf
```

Process Management:

ps: List running processes

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ ps aux
USER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root            1  0.0  0.3 167624 12164 ?        Ss   10:09   0:00 /sbin/init
root            2  0.0  0.0      0     0 ?        S    10:09   0:00 [kthreadd]
root            3  0.0  0.0      0     0 ?        I<   10:09   0:00 [rcu_gp]
root            4  0.0  0.0      0     0 ?        I<   10:09   0:00 [rcu_par_g
root            5  0.0  0.0      0     0 ?        I<   10:09   0:00 [slub_flus
root            6  0.0  0.0      0     0 ?        I<   10:09   0:00 [netns]
root            8  0.0  0.0      0     0 ?        I<   10:09   0:00 [kworker/0
root           10  0.0  0.0      0     0 ?        I<   10:09   0:00 [mm_percpu
root           11  0.0  0.0      0     0 ?        I    10:09   0:00 [rcu_tasks
root           12  0.0  0.0      0     0 ?        I    10:09   0:00 [rcu_tasks
root           13  0.0  0.0      0     0 ?        I    10:09   0:00 [rcu_tasks
root           14  0.0  0.0      0     0 ?        S    10:09   0:00 [ksoftirqd
root           15  0.0  0.0      0     0 ?        I    10:09   0:01 [rcu_preem
root           16  0.0  0.0      0     0 ?        S    10:09   0:00 [migration
root           18  0.0  0.0      0     0 ?        S    10:09   0:00 [cpuhp/0]
root           19  0.0  0.0      0     0 ?        S    10:09   0:00 [cpuhp/1]
root           20  0.0  0.0      0     0 ?        S    10:09   0:00 [migration
root           21  0.0  0.0      0     0 ?        S    10:09   0:00 [ksoftirqd
root           23  0.0  0.0      0     0 ?        I<   10:09   0:00 [kworker/1
root           24  0.0  0.0      0     0 ?        S    10:09   0:00 [cpuhp/2]
root           25  0.0  0.0      0     0 ?        S    10:09   0:00 [migration
root           26  0.0  0.0      0     0 ?        S    10:09   0:00 [ksoftirqd
root           28  0.0  0.0      0     0 ?        I<   10:09   0:00 [kworker/2
root           29  0.0  0.0      0     0 ?        S    10:09   0:00 [cpuhp/3]
```

top: Display real-time system information and processes

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ top
top - 10:36:16 up 26 min,  1 user,  load average: 0.15, 0.13, 0.10
Tasks: 165 total,   1 running, 164 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.3 us,  0.6 sy,  0.0 ni, 98.9 id,  0.1 wa,  0.0 hi,  0.1 si,  0.0
MiB Mem :   3929.0 total,   2831.0 free,    662.7 used,    435.3 buff/cache
MiB Swap:    975.0 total,    975.0 free,      0.0 used.   3040.0 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+
    592 root      20   0  439728 121932  64532 S   1.0   3.0   0:15.42
    338 root      20   0   49428  16652  15380 S   0.3   0.4   0:00.19
    514 root      20   0   25224   7884   6852 S   0.3   0.2   0:00.09
    910 nikhil    20   0 1226004 105740  76872 S   0.3   2.6   0:06.04
    957 nikhil    20   0  527608 110536  43592 S   0.3   2.7   0:01.84
    963 nikhil    20   0  210100  35456  18148 S   0.3   0.9   0:08.24
    965 nikhil    20   0  358416  30284  20456 S   0.3   0.8   0:04.16
   3817 nikhil    20   0  463916 104844  84048 S   0.3   2.6   0:03.80
      1 root      20   0  167624  12164   8992 S   0.0   0.3   0:00.82
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.00
      3 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
      8 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
     10 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
```

kill: Terminate processes

```
┌──(nikhil㉿kali)-[~]
└─$ kill 965
```

bg: Run processes in the background

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ command &
[1] 8792
[1]  + done        command
```

fg: Bring background processes to the foreground

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ fg
fg: no current job
```

System Information:

uname: Print system information

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ uname -a
Linux kali 6.0.0-kali3-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.0.7-1kali1 (2022
-11-07) x86_64 GNU/Linux
```

df: Display disk space usage

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            1.9G     0  1.9G   0% /dev
tmpfs           393M  956K  392M   1% /run
/dev/sda1        25G   13G   11G  54% /
tmpfs           2.0G     0  2.0G   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           393M   88K  393M   1% /run/user/1000
```

free: Display memory usage

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ free -m
              total        used        free      shared  buff/cache   availa
ble
Mem:           3928         686        2801          15         440          3
014
Swap:           974           0         974
```

uptime: Show system uptime

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ uptime
 10:37:19 up 27 min,  1 user,  load average: 0.05, 0.10, 0.09
```

who: Display logged-in users

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ who
nikhil    tty7          2023-05-28 10:09 (:0)
```

w: Display logged-in users and their activities

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ w
 10:37:24 up 27 min,  1 user,  load average: 0.05, 0.10, 0.09
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
nikhil    tty7     :0              10:09    27:55  16.76s  0.34s xfce4-sessio
```

Networking:

ifconfig: Configure network interfaces

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ 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:fe5b:9e2f  prefixlen 64  scopeid 0×20<link>
        ether 08:00:27:5b:9e:2f  txqueuelen 1000  (Ethernet)
        RX packets 6  bytes 1226 (1.1 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 33  bytes 3804 (3.7 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 0×10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 4  bytes 240 (240.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4  bytes 240 (240.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ping: Send ICMP echo requests to a network host

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ ping google.com
PING google.com (142.250.195.78) 56(84) bytes of data.
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=1 ttl=116
time=16.6 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=2 ttl=116
time=14.1 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=3 ttl=116
time=13.5 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=4 ttl=116
time=13.1 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=5 ttl=116
time=15.3 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=6 ttl=116
time=13.4 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=7 ttl=116
time=15.6 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=8 ttl=116
time=13.2 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=9 ttl=116
```

ssh: Securely connect to a remote system

```
┌──(nikhil㉿kali)-[~/Downloads]
└─$ ssh nikhi@192.168.0.7
```

scp: Securely copy files between systems

```
┌──(nikhil㉿kali)-[~]
└─$ scp myfilee.txt nikhi@192.168.0.7:/C:/Windows/System32/
```

wget: Download files from the web

```
┌──(nikhil㊉kali)-[~/Downloads]
└─$ wget http://www.google.com/
--2023-05-28 11:08:50--  http://www.google.com/
Resolving www.google.com (www.google.com)... 142.250.196.164, 2404:6800:4007:
81f::2004
Connecting to www.google.com (www.google.com)|142.250.196.164|:80... connecte
d.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'

index.html                [ ⟺                ]  19.02K  --.-KB/s    in 0.01s

2023-05-28 11:08:50 (1.34 MB/s) - 'index.html' saved [19478]
```

System Administration:

sudo: Execute commands with superuser privileges

```
┌──(nikhil㊉kali)-[~/Downloads]
└─$ sudo su
┌──(root㊉kali)-[/home/nikhil/Downloads]
└─# █
```

apt-get: Package management for Debian-based distributions

```
┌──(root㊉kali)-[/home/nikhil/Downloads]
└─# apt-get update
Hit:1 http://kali.download/kali kali-rolling InRelease
Reading package lists... Done
```

yum: Package management for Red Hat-based distributions

```
┌──(root㊉kali)-[/home/nikhil/Downloads]
└─# yum info vsftpd
```

systemctl: Manage system services

```
┌──(root�s kali)-[/home/nikhil/Downloads]
└─# systemctl list-unit-files --type service -all
UNIT FILE                                        STATE      PRESET
apache-htcacheclean.service                      disabled   disabled
apache-htcacheclean@.service                     disabled   disabled
apache2.service                                  disabled   disabled
apache2@.service                                 disabled   disabled
apparmor.service                                 disabled   disabled
apt-daily-upgrade.service                        static     -
apt-daily.service                                static     -
atftpd.service                                   indirect   disabled
auth-rpcgss-module.service                       static     -
autovt@.service                                  alias      -
avahi-daemon.service                             disabled   disabled
blueman-mechanism.service                        disabled   disabled
bluetooth.service                                disabled   disabled
colord.service                                   static     -
console-getty.service                            disabled   disabled
console-setup.service                            enabled    enabled
container-getty@.service                         static     -
cron.service                                     enabled    enabled
cryptdisks-early.service                         masked     disabled
cryptdisks.service                               masked     disabled
dbus-org.freedesktop.hostname1.service           alias      -
dbus-org.freedesktop.locale1.service             alias      -
dbus-org.freedesktop.login1.service              alias      -
```

crontab: Schedule recurring tasks

```
┌──(root�s kali)-[/home/nikhil/Downloads]
└─# crontab -e
no crontab for root - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        ←── easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny

Choose 1-3 [1]: 1
No modification made
```

useradd: Add a new user

```
┌──(root�s kali)-[/home/nikhil/Downloads]
└─# useradd new
```

passwd: Change user password

```
┌──(root�s kali)-[/home/nikhil/Downloads]
└─# passwd new
New password:
Retype new password:
passwd: password updated successfully
```