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

```
┌──(kodhai㉿kali)-[~]
└─$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
```

cd: Change directory

```
┌──(kodhai㉿kali)-[~]
└─$ cd Documents

┌──(kodhai㉿kali)-[~/Documents]
└─$
```

pwd: Print working directory

```
┌──(kodhai㉿kali)-[~/Documents]
└─$ pwd
/home/kodhai/Documents
```

mkdir: Make directory

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

┌──(kodhai㉿kali)-[~/Documents]
└─$ ls
folder
```

touch: Create an empty file

```
┌──(kodhai㉿kali)-[~/Documents]
└─$ touch file

┌──(kodhai㉿kali)-[~/Documents]
└─$ ls
file  folder
```

cp: Copy files and directories

```
┌──(kodhai㉿kali)-[~/Documents]
└─$ cp file folder

┌──(kodhai㉿kali)-[~/Documents]
└─$ ls
file  folder

┌──(kodhai㉿kali)-[~/Documents]
└─$ cd folder

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ ls
file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ 
```

mv: Move or rename files and directories

```
┌──(kodhai㉿kali)-[~/Documents]
└─$ mv file folder

┌──(kodhai㉿kali)-[~/Documents]
└─$ ls
folder

┌──(kodhai㉿kali)-[~/Documents]
└─$ cd folder

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ ls
file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ 
```

rm: Remove files and directories

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ rm file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ ls

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ █
```

find: Search for files and directories

```
┌──(kodhai㉿kali)-[~/Documents]
└─$ find folder
folder
folder/file
```

File Viewing and Editing:

cat: Concatenate and display file content

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ cat file
Hello there, Hacker!
Kodhai here
```

less: View file content with pagination

```
⊡                      kodhai@kali: ~/Documents/folder

File  Actions  Edit  View  Help
Hello there, Hacker!
Kodhai here
file (END)█
```

head: Display the beginning of a file

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ head file
Hello there, Hacker!
Kodhai here
```
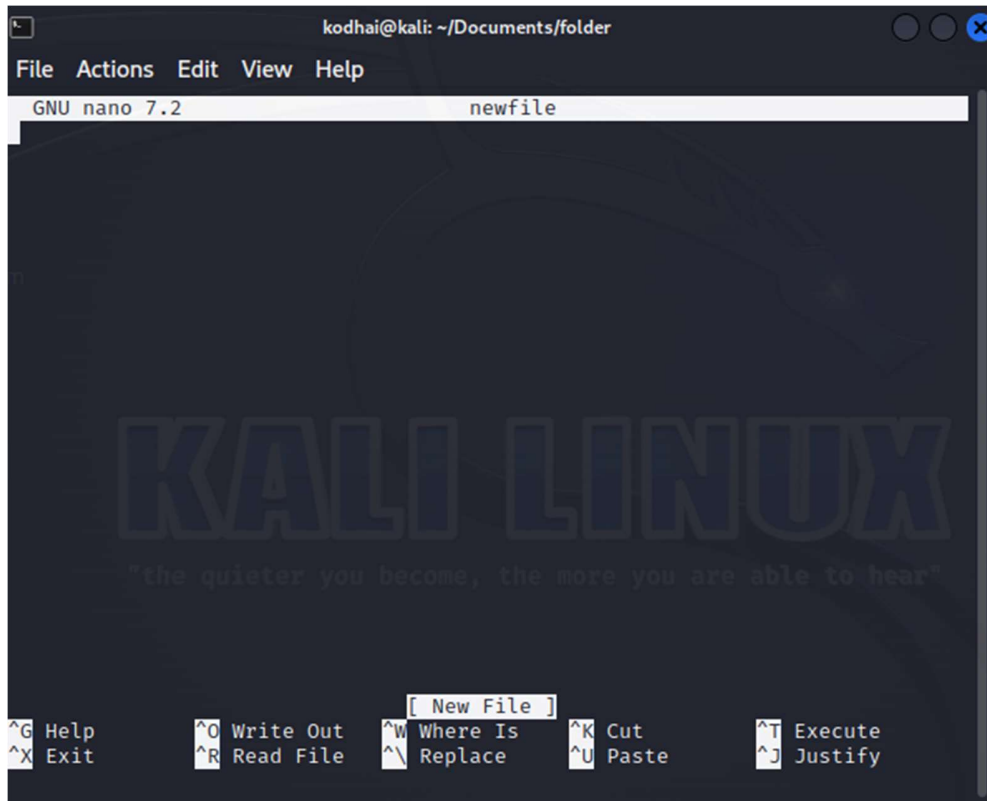
tail: Display the end of a file

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ tail file
Hello there, Hacker!
Kodhai here




Bye bye
```
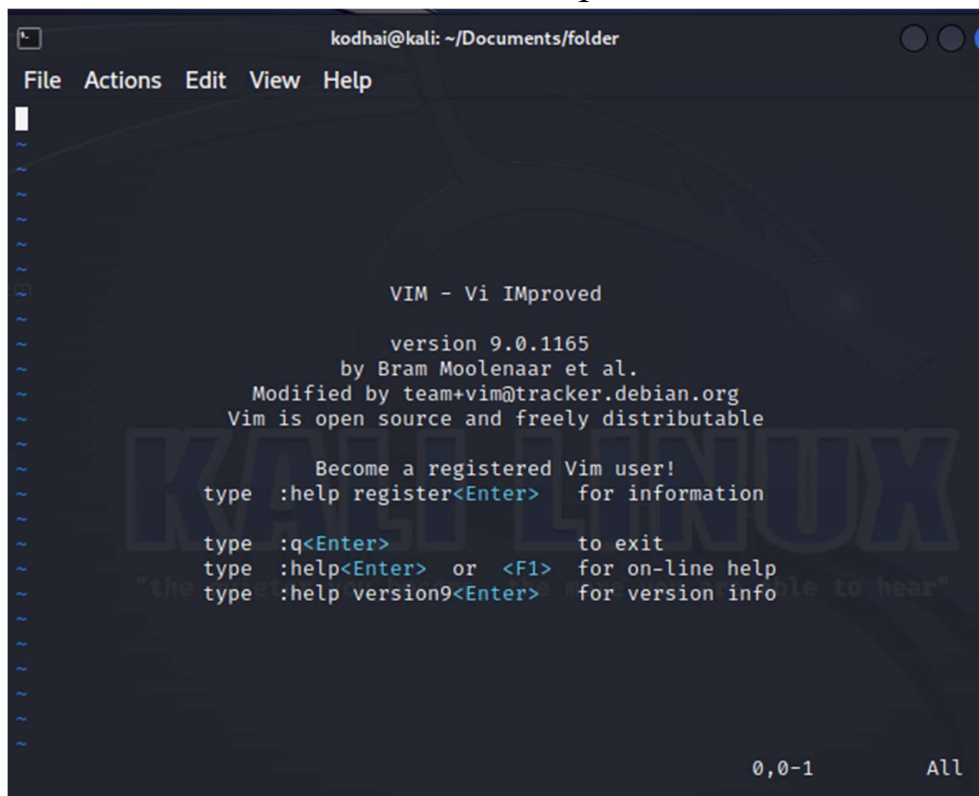
nano: Text editor for creating and editing files

vi/vim: Powerful text editor for experienced users

File Permissions:

chmod: Change file permissions

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ chmod a+x file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$
```

chown: Change file owner

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ chown kodhai file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$
```

chgrp: Change file group

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ chown kodhai file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ sudo addgroup gkodhai
[sudo] password for kodhai:
Adding group `gkodhai' (GID 1001) ...
Done.

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ sudo chgrp gkodhai file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$
```

File Compression and Archiving:

tar: Archive files

gzip: Compress files

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ gzip file file1

┌──(kodhai㉿kali)-[~/Documents/folder]
```

unzip: Extract files from a ZIP archive

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ gunzip file file1

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$
```

Process Management:

ps: List running processes

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ ps
   PID TTY          TIME CMD
  1528 pts/0    00:00:00 zsh
  4122 pts/0    00:00:00 ps
```

top: Display real-time system information and processes

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ top
top - 03:23:54 up 7 min,  1 user,  load average: 0.02, 0.14, 0.09
Tasks: 157 total,   1 running, 156 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.2 us,   0.6 sy,  0.0 ni, 99.2 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   3920.4 total,   2845.4 free,    875.7 used,    428.2 buff/cache
MiB Swap:    975.0 total,    975.0 free,      0.0 used.   3044.8 avail Mem

   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   827 root      20   0  460392 143608  66896 S   1.7   3.6   0:02.70 Xorg
  1045 kodhai    20   0  217980   2332   1964 S   0.7   0.1   0:00.56 VBoxClient
  1070 kodhai    20   0    9236   4844   4316 S   0.3   0.1   0:00.02 dbus-daemon
  1137 kodhai    20   0  341204  28636  17296 S   0.3   0.7   0:00.07 Thunar
  1148 kodhai    20   0  207096  27740  18520 S   0.3   0.7   0:00.53 panel-13-cpugra
  1525 kodhai    20   0  445788 109412  89624 S   0.3   2.7   0:00.72 qterminal
  4312 kodhai    20   0   11740   5312   3176 R   0.3   0.1   0:00.02 top
     1 root      20   0  167800  12244   9056 S   0.0   0.3   0:01.76 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_gp
     5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 slub_flushwq
     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/0:0H-events_highpri
     9 root      20   0       0      0      0 I   0.0   0.0   0:01.22 kworker/u6:0-flush-8:0
top - 03:23:57 up 7 min,  1 user,  load average: 0.01, 0.13, 0.09
Tasks: 158 total,   1 running, 157 sleeping,   0 stopped,   0 zombie
%Cpu(s):  1.4 us,   0.7 sy,  0.0 ni, 98.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   3920.4 total,   2883.6 free,    837.4 used,    423.8 buff/cache
MiB Swap:    975.0 total,    975.0 free,      0.0 used.   3083.0 avail Mem
```

kill: Terminate processes

bg: Run processes in the background

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ bg
[1]  + continued  top

[1]  + suspended (signal)  top
```

fg: Bring background processes to the foreground

System Information:

uname: Print system information

```
┌──(kodhai☸kali)-[~/Documents/folder]
└─$ uname
Linux
```

df: Display disk space usage

```
┌──(kodhai☸kali)-[~/Documents/folder]
└─$ df
Filesystem     1K-blocks      Used Available Use% Mounted on
udev             1966708         0   1966708   0% /dev
tmpfs             401456       960    400496   1% /run
/dev/sda1       19480400  12568360   5897156  69% /
tmpfs            2007264         0   2007264   0% /dev/shm
tmpfs               5120         0      5120   0% /run/lock
tmpfs             401452        80    401372   1% /run/user/1000
```

free: Display memory usage

```
┌──(kodhai☸kali)-[~/Documents/folder]
└─$ free
              total        used        free      shared  buff/cache   available
Mem:        4014532      901584     2907916       18856      442304     3112948
Swap:        998396           0      998396
```

uptime: Show system uptime

```
┌──(kodhai☸kali)-[~/Documents/folder]
└─$ uptime
 03:29:19 up 13 min,  1 user,  load average: 0.11, 0.09, 0.08
```

who: Display logged-in users

```
┌──(kodhai☸kali)-[~/Documents/folder]
└─$ who
kodhai    tty7         2023-06-10 03:18 (:0)
```

w: Display logged-in users and their activities

```
┌──(kodhai☸kali)-[~/Documents/folder]
└─$ w
 03:29:28 up 13 min,  1 user,  load average: 0.10, 0.08, 0.08
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
kodhai   tty7     :0               03:18   13:19   6.01s  0.22s xfce4-session
```

Networking:

ifconfig: Configure network interfaces

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ 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:fe81:2008  prefixlen 64  scopeid 0×20<link>
        ether 08:00:27:81:20:08  txqueuelen 1000  (Ethernet)
        RX packets 1  bytes 590 (590.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 25  bytes 3220 (3.1 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

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ ping 192.168.0.1
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
```

ssh: Securely connect to a remote system

scp: Securely copy files between systems

wget: Download files from the web

System Administration:

sudo: Execute commands with superuser privileges

```
┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ chown kodhai file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ sudo addgroup gkodhai
[sudo] password for kodhai:
Adding group `gkodhai' (GID 1001) ...
Done.

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$ sudo chgrp gkodhai file

┌──(kodhai㉿kali)-[~/Documents/folder]
└─$
```

apt-get: Package management for Debian-based distributionsyum

yum: Package management for Red Hat-based distributions

systemctl: Manage system services

```
  ┌──(kodhai㊉kali)-[~/Documents/folder]
  └─$ systemctl
  UNIT                                                                                          LOAD    ACTIVE SUB        >
  proc-sys-fs-binfmt_misc.automount                                                             loaded  active running    >
  sys-devices-pci0000:00-0000:00:01.1-ata2-host2-target2:0:0-2:0:0:0-block-sr0.device           loaded  active plugged    >
  sys-devices-pci0000:00-0000:00:03.0-net-eth0.device                                           loaded  active plugged    >
  sys-devices-pci0000:00-0000:00:05.0-sound-card0-controlC0.device                              loaded  active plugged    >
  sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda-sda1.device      loaded  active plugged    >
  sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda-sda2.device      loaded  active plugged    >
  sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda-sda5.device      loaded  active plugged    >
  sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda.device           loaded  active plugged    >
  sys-devices-platform-serial8250-tty-ttyS0.device                                              loaded  active plugged    >
  sys-devices-platform-serial8250-tty-ttyS1.device                                              loaded  active plugged    >
  sys-devices-platform-serial8250-tty-ttyS2.device                                              loaded  active plugged    >
  sys-devices-platform-serial8250-tty-ttyS3.device                                              loaded  active plugged    >
  sys-devices-virtual-misc-rfkill.device                                                        loaded  active plugged    >
  sys-module-configfs.device                                                                    loaded  active plugged    >
  sys-module-fuse.device                                                                        loaded  active plugged    >
  sys-subsystem-net-devices-eth0.device                                                         loaded  active plugged    >
  -.mount                                                                                       loaded  active mounted    >
  dev-hugepages.mount                                                                           loaded  active mounted    >
  dev-mqueue.mount                                                                              loaded  active mounted    >
  proc-sys-fs-binfmt_misc.mount                                                                 loaded  active mounted    >
  run-credentials-systemd\x2dsysctl.service.mount                                               loaded  active mounted    >
  run-credentials-systemd\x2dsysusers.service.mount                                             loaded  active mounted    >
  run-credentials-systemd\x2dtmpfiles\x2dsetup.service.mount                                     loaded  active mounted    >
  run-credentials-systemd\x2dtmpfiles\x2dsetup\x2ddev.service.mount                              loaded  active mounted    >
  run-rpc_pipefs.mount                                                                          loaded  active mounted    >
  run-user-1000-gvfs.mount                                                                      loaded  active mounted    >
  run-user-1000.mount                                                                           loaded  active mounted    >
  sys-fs-fuse-connections.mount                                                                 loaded  active mounted    >
  sys-kernel-config.mount                                                                       loaded  active mounted    >
  sys-kernel-debug.mount                                                                        loaded  active mounted    >
```

crontab: Schedule recurring tasks

useradd: Add a new user

```
  ┌──(kodhai㊉kali)-[~/Documents/folder]
  └─$ sudo useradd Sam
  [sudo] password for kodhai:

  ┌──(kodhai㊉kali)-[~/Documents/folder]
  └─$ ▊
```

passwd: Change user password

```
  ┌──(kodhai㊉kali)-[~/Documents/folder]
  └─$ passwd
  Changing password for kodhai.
  Current password:
  New password:
  Retype new password:
  passwd: password updated successfully

  ┌──(kodhai㊉kali)-[~/Documents/folder]
  └─$ ▊
```