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### **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.

#### **File and Directory Operations:**

**ls:** List files and directories

```
File Actions Edit View Help
(kali@kali)-[~]
└─$ ls
Desktop  Documents  Downloads  LabQn4.txt  Music  Pictures  Public  Templates  Videos

(kali@kali)-[~]
└─$ ls -al
total 156
drwxr-xr-x 18 kali kali 4096 May 19 13:24 .
drwxr-xr-x  3 root root 4096 May 12 2022 ..
-rw-r--r--  1 kali kali   1 May 12 2022 .bash_history
-rw-r--r--  1 kali kali 220 May 12 2022 .bash_logout
-rw-r--r--  1 kali kali 5551 May 12 2022 .bashrc
-rw-r--r--  1 kali kali 3526 May 12 2022 .bashrc.original
drwx-----  4 kali kali 4096 Jan 12 23:03 .BurpSuite
drwx----- 12 kali kali 4096 Jan 12 23:03 .cache
drwxr-xr-x 14 kali kali 4096 Feb 16 12:17 .config
drwxr-xr-x  2 kali kali 4096 May 12 2022 Desktop
-rw-r--r--  1 kali kali  35 May 12 2022 .dmrc
drwxr-xr-x  2 kali kali 4096 May 12 2022 Documents
drwxr-xr-x  2 kali kali 4096 Mar 24 04:24 Downloads
-rw-r--r--  1 kali kali 11759 May 12 2022 .face
lrwxrwxrwx  1 kali kali   5 May 12 2022 .face.icon -> .face
drwx-----  3 kali kali 4096 May 12 2022 .gnupg
-rw-----  1 kali kali   0 May 12 2022 .ICEauthority
drwxr-xr-x  4 kali kali 4096 Jan 12 22:45 .java
-rw-r--r--  1 kali kali 5843 Dec 22 22:32 LabQn4.txt
drwx-----  4 kali kali 4096 May 12 2022 .local
drwx-----  5 kali kali 4096 Dec 15 11:39 .mozilla
drwxr-xr-x 10 kali kali 4096 Jan 20 10:44 .msf4
drwxr-xr-x  2 kali kali 4096 May 12 2022 Music
drwxr-xr-x  2 kali kali 4096 Mar  1 03:37 Pictures
-rw-r--r--  1 kali kali 807 May 12 2022 .profile
drwxr-xr-x  2 kali kali 4096 May 12 2022 Public
-rw-r--r--  1 kali kali   0 May 12 2022 .sudo_as_admin_successful
drwxr-xr-x  2 kali kali 4096 May 12 2022 Templates
```

**cd:** Change directory

```
kali@kali: ~/Desktop
File Actions Edit View Help
(kali@kali)-[~]
└─$ cd Desktop

(kali@kali)-[~/Desktop]
└─$
```

**pwd:** Print working directory

```
File Actions Edit View Help
(kali@kali)-[~]
└─$ pwd
/home/kali

(kali@kali)-[~]
└─$
```

**mkdir:** Make directory

```
File Actions Edit View Help
(kali@kali)-[~]
$ cd Documents
(kali@kali)-[~/Documents]
$ mkdir Penetration testing
(kali@kali)-[~/Documents]
$ ls
Penetration testing
(kali@kali)-[~/Documents]
$
```

**touch:** Create an empty file

```
File Actions Edit View Help
(kali@kali)-[~]
$ touch file1.txt
(kali@kali)-[~]
$ ls
Desktop Documents Downloads file1.txt Lab0n4.txt Music Pictures Public Templates Videos
(kali@kali)-[~]
$
```

**cp:** Copy files and directories

```
File Actions Edit View Help
(kali@kali)-[~]
$ cd Downloads
(kali@kali)-[~/Downloads]
$ ls
'20BIT0302 metasploit scan_ikqosz.pdf' kalamegam.jpg Nessus-10.4.2-ubuntu1404_amd64.deb
(kali@kali)-[~/Downloads]
$ cp kalamegam.png files
cp: cannot stat 'kalamegam.png': No such file or directory
(kali@kali)-[~/Downloads]
$ cp kalamegam.jpg files
(kali@kali)-[~/Downloads]
$
```

**mv:** Move or rename files and directories



```
File Actions Edit View Help
(kali@kali)-[~]
$ find Documents
find: 'Documents': No such file or directory

(kali@kali)-[~]
$ find Downloads
Downloads
Downloads/files
Downloads/Nessus-10.4.2-ubuntu1404_amd64.deb
Downloads/20BIT0302 metasploit scan_ikqosz.pdf
Downloads/Files

(kali@kali)-[~]
$ cd Downloads

(kali@kali)-[~/Downloads]
$ find files
files

(kali@kali)-[~/Downloads]
$
```

## File Viewing and Editing:

cat: Concatenate and display file content

```
File Actions Edit View Help
(kali@kali)-[~]
$ echo "Welcome to Cyber Security" > file1.txt

(kali@kali)-[~]
$ cat file1.txt
Welcome to Cyber Security

(kali@kali)-[~]
$
```

less: View file content with pagination

```
File Actions Edit View Help
(kali@kali)-[~]
$ less - LabQn4.txt

(kali@kali)-[~]
$
```

```

File Actions Edit View Help
- Nikto v2.1.6/2.1.5
+ Target Host: 192.168.50.129
+ Target Port: 80
+ GET Retrieved x-powered-by header: PHP/5.2.4-2ubuntu5.10
+ GET The anti-clickjacking X-Frame-Options header is not present.
+ GET The X-XSS-Protection header is not defined. This header can hint to the user agent to protect against some forms of XSS
+ GET The X-Content-Type-Options header is not set. This could allow the user agent to render the content of the site in a different fashion to the MIME type
+ GET Uncommon header 'tcn' found, with contents: list
+ GET Apache mod_negotiation is enabled with MultiViews, which allows attackers to easily brute force file names. See http://www.wisec.it/sectou.php?id=4698ebdc59d15.
The following alternatives for 'index' were found: index.php
+ HEAD Apache/2.2.8 appears to be outdated (current is at least Apache/2.4.37). Apache 2.2.34 is the EOL for the 2.x branch.
+ ZXSTAXFW Web Server returns a valid response with junk HTTP methods, this may cause false positives.
+ OSVDB-877: TRACE HTTP TRACE method is active, suggesting the host is vulnerable to XST
+ GET /phpinfo.php: Output from the phpinfo() function was found.
+ OSVDB-3268: GET /doc/: Directory indexing found.
+ OSVDB-48: GET /doc/: The /doc/ directory is browsable. This may be /usr/doc.
+ OSVDB-12184: GET />=PHP9568F2A0-3C92-11d3-A3A9-4C7B08C10000: PHP reveals potentially sensitive information via certain HTTP requests that contain specific QUERY str
ings.
+ OSVDB-12184: GET />=PHP9568F36-D428-11d2-A769-00AA001ACF42: PHP reveals potentially sensitive information via certain HTTP requests that contain specific QUERY str
ings.
+ OSVDB-12184: GET />=PHP9568F34-D428-11d2-A769-00AA001ACF42: PHP reveals potentially sensitive information via certain HTTP requests that contain specific QUERY str
ings.
+ OSVDB-12184: GET />=PHP9568F35-D428-11d2-A769-00AA001ACF42: PHP reveals potentially sensitive information via certain HTTP requests that contain specific QUERY str
ings.
+ OSVDB-3092: GET /phpMyAdmin/changelog.php: phpMyAdmin is for managing MySQL databases, and should be protected or limited to authorized hosts.
+ GET Server may leak inodes via ETags, header found with file /phpMyAdmin/ChangeLog, inode: 92462, size: 40540, mtime: Tue Dec 9 12:24:00 2008
+ OSVDB-3092: GET /phpMyAdmin/ChangeLog: phpMyAdmin is for managing MySQL databases, and should be protected or limited to authorized hosts.
+ OSVDB-3268: GET /test/: Directory indexing found.
+ OSVDB-3092: GET /test/: This might be interesting...
+ OSVDB-3233: GET /phpinfo.php: PHP is installed, and a test script which runs phpinfo() was found. This gives a lot of system information.
+ OSVDB-3268: GET /icons/: Directory indexing found.
+ OSVDB-3233: GET /icons/README: Apache default file found.
+ GET /phpMyAdmin/: phpMyAdmin directory found
+ OSVDB-3092: GET /phpMyAdmin/Documentation.html: phpMyAdmin is for managing MySQL databases, and should be protected or limited to authorized hosts.
LabQn4.txt

```

head: Display the beginning of a file

```

File Actions Edit View Help
(kali@kali)-[~]
$ head -n LabQn4.txt
- Nikto v2.1.6/2.1.5
+ Target Host: 192.168.50.129
+ Target Port: 80
+ GET Retrieved x-powered-by header: PHP/5.2.4-2ubuntu5.10
+ GET The anti-clickjacking X-Frame-Options header is not present.
+ GET The X-XSS-Protection header is not defined. This header can hint to the user agent to protect against some forms of XSS
+ GET The X-Content-Type-Options header is not set. This could allow the user agent to render the content of the site in a different fashion to the MIME type
+ GET Uncommon header 'tcn' found, with contents: list
+ GET Apache mod_negotiation is enabled with MultiViews, which allows attackers to easily brute force file names. See http://www.wisec.it/sectou.php?id=4698ebdc59d15.
The following alternatives for 'index' were found: index.php
+ HEAD Apache/2.2.8 appears to be outdated (current is at least Apache/2.4.37). Apache 2.2.34 is the EOL for the 2.x branch.
(kali@kali)-[~]
$

```

tail: Display the end of a file

```

(kali@kali)-[~]
$ tail -n LabQn4.txt
+ OSVDB-12184: GET />=PHP9568F34-D428-11d2-A769-00AA001ACF42: PHP reveals potentially sensitive information via certain HTTP requests that contain specific QUERY str
ings.
+ OSVDB-12184: GET />=PHP9568F35-D428-11d2-A769-00AA001ACF42: PHP reveals potentially sensitive information via certain HTTP requests that contain specific QUERY str
ings.
+ OSVDB-3092: GET /phpMyAdmin/changelog.php: phpMyAdmin is for managing MySQL databases, and should be protected or limited to authorized hosts.
+ GET Server may leak inodes via ETags, header found with file /phpMyAdmin/ChangeLog, inode: 92462, size: 40540, mtime: Tue Dec 9 12:24:00 2008
+ OSVDB-3092: GET /phpMyAdmin/ChangeLog: phpMyAdmin is for managing MySQL databases, and should be protected or limited to authorized hosts.
+ OSVDB-3268: GET /test/: Directory indexing found.
+ OSVDB-3092: GET /test/: This might be interesting...
+ OSVDB-3233: GET /phpinfo.php: PHP is installed, and a test script which runs phpinfo() was found. This gives a lot of system information.
+ OSVDB-3268: GET /icons/: Directory indexing found.
+ OSVDB-3233: GET /icons/README: Apache default file found.
(kali@kali)-[~]
$

```

## nano: Text editor for creating and editing files

```
File Actions Edit View Help
(kali@kali)-[~]
└─$ nano --version
GNU nano, version 6.2
(C) 1999-2011, 2013-2022 Free Software Foundation, Inc.
(C) 2014-2022 the contributors to nano
Compiled options: --disable-libmagic --enable-utf8

(kali@kali)-[~]
└─$ nano file2
(kali@kali)-[~]
└─$
```

```
File Actions Edit View Help
GNU nano 6.2 file2
# This file is a template for a nano file. It contains some
# information about nano and how to use it.
#
# nano is a simple text editor. It is designed to be
# easy to use and to be a good replacement for
# vi and emacs.
#
# nano is a free software program. It is licensed
# under the GNU General Public License.
#
# nano is a good choice for people who want a
# simple text editor. It is easy to learn and
# easy to use. It is also a good choice for
# people who want a text editor that is
# compatible with vi and emacs.
```

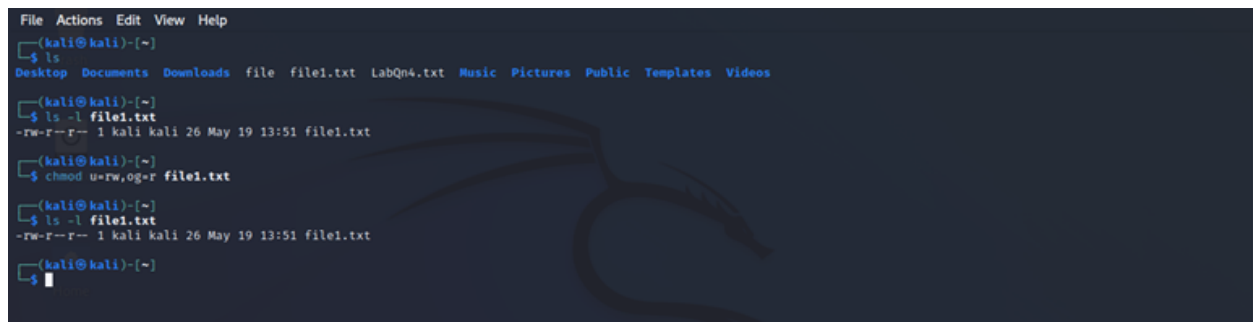
## vi/vim: Powerful text editor for experienced users

```
File Actions Edit View Help
(kali@kali)-[~]
└─$ vi file1.txt
```



## File Permissions:

chmod: Change file permissions



chown: Change file owner



```
File Actions Edit View Help
root@kali:~# cd /home/kali/
root@kali:~/home/kali# ls
Desktop  Documents  Downloads  file  file1.txt  index.html  LabQn4.txt  Music  Pictures  Public  Templates  Videos
root@kali:~/home/kali# cd Downloads
root@kali:~/Downloads# ls -l file1.txt
-rw-r--r-- 1 kali kali 26 May 19 13:51 file1.txt
root@kali:~/Downloads# chown master file1.txt
chown: invalid user: 'master'
root@kali:~/Downloads# chown root file1.txt
root@kali:~/Downloads# ls -l file1.txt
-rw-r--r-- 1 root kali 26 May 19 13:51 file1.txt
root@kali:~/Downloads# chown kali file1.txt
root@kali:~/Downloads# ls -l file1.txt
-rw-r--r-- 1 kali kali 26 May 19 13:51 file1.txt
root@kali:~/Downloads#
```

## chgrp: Change file group

```
File Actions Edit View Help
kali@kali:~# sudo addgroup cybersecurity
[sudo] password for kali:
Sorry, try again.
[sudo] password for kali:
Adding group 'cybersecurity' (GID 1001) ...
Done.
kali@kali:~# cd Downloads
kali@kali:~/Downloads# ls -l file1.txt
-rw-r--r-- 1 kali kali 26 May 19 13:51 file1.txt
kali@kali:~/Downloads# sudo chgrp cybersecurity file1.txt
kali@kali:~/Downloads# ls -l file1.txt
-rw-r--r-- 1 kali cybersecurity 26 May 19 13:51 file1.txt
kali@kali:~/Downloads#
```

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## File Compression and Archiving:

### tar: Archive files

#### Commands:

- tar cvf f.tar
- tar xvf f.tar
- tar tvf f.tar

```
File Actions Edit View Help
(kali@kali)~$
$ tar xvf f.tar
Desktop/
Documents/
Documents/Penetration/
Documents/testing/
Downloads/
Downloads/files
Downloads/Nessus-10.4.2-ubuntu1404_amd64.deb
Downloads/20BIT0302 .pdf
Downloads/Files
file
file1.txt
index.html
LabQn4.txt
Music/
Pictures/
Pictures/Screenshot_2022-12-21_10_51_50.png
Pictures/Screenshot_2023-01-20_10_04_08.png
Pictures/Screenshot_2023-01-20_10_28_02.png
Pictures/Screenshot_2022-12-21_10_55_53.png
Pictures/Screenshot_2023-01-20_10_02_49.png
Pictures/Screenshot_2023-01-19_22_14_56.png
Pictures/Screenshot_2023-03-01_03_36_11.png
Pictures/Screenshot_2023-01-20_10_28_26.png
Pictures/Screenshot_2022-12-15_11_52_04.png
Pictures/Screenshot_2022-12-21_10_42_23.png
Pictures/Screenshot_2023-01-20_10_34_46.png
Pictures/Screenshot_2023-01-20_08_51_28.png
Pictures/Screenshot_2023-01-20_10_43_13.png
Pictures/Screenshot_2023-01-19_22_18_02.png
Pictures/Screenshot_2023-01-20_10_41_59.png
Pictures/Screenshot_2023-01-19_22_28_49.png
Pictures/Screenshot_2022-12-20_10_51_05.png
Pictures/Screenshot_2023-01-20_10_27_51.png
```

```
File Actions Edit View Help
(kali@kali)~$
$ tar tvf f.tar
drwxr-xr-x kali/kali 0 2022-05-12 12:19 Desktop/
drwxr-xr-x kali/kali 0 2023-05-19 13:32 Documents/
drwxr-xr-x kali/kali 0 2023-05-19 13:32 Documents/Penetration/
drwxr-xr-x kali/kali 0 2023-05-19 13:32 Documents/testing/
drwxr-xr-x kali/kali 0 2023-05-19 13:57 Downloads/
-rw-r--r-- kali/kali 4079120 2023-05-19 13:39 Downloads/files
-rwxr-xr-x kali/kali 5891886 2023-02-16 11:52 Downloads/Nessus-10.4.2-ubuntu1404_amd64.deb
-rw-r--r-- kali/kali 74986 2023-03-24 04:23 Downloads/20BIT0302 .pdf
-rw-r--r-- kali/kali 4079120 2021-12-30 02:25 Downloads/Files
-rw-r--r-- kali/kali 2 2023-05-19 14:11 file
-rw-r--r-- kali/cybersecurity 26 2023-05-19 13:51 file1.txt
-rw-r--r-- kali/kali 50674 2023-05-19 14:51 index.html
-rw-r--r-- kali/kali 5843 2022-12-22 22:32 LabQn4.txt
drwxr-xr-x kali/kali 0 2022-05-12 12:19 Music/
drwxr-xr-x kali/kali 0 2023-05-19 13:47 Pictures/
-rw-r--r-- kali/kali 186553 2022-12-21 10:51 Pictures/Screenshot_2022-12-21_10_51_50.png
-rw-r--r-- kali/kali 164579 2023-01-20 10:04 Pictures/Screenshot_2023-01-20_10_04_08.png
-rw-r--r-- kali/kali 126538 2023-01-20 10:28 Pictures/Screenshot_2023-01-20_10_28_02.png
-rw-r--r-- kali/kali 203809 2022-12-21 10:56 Pictures/Screenshot_2022-12-21_10_55_53.png
-rw-r--r-- kali/kali 105780 2023-01-20 10:02 Pictures/Screenshot_2023-01-20_10_02_49.png
-rw-r--r-- kali/kali 148675 2023-01-19 22:15 Pictures/Screenshot_2023-01-19_22_14_56.png
-rw-r--r-- kali/kali 129243 2023-03-01 03:36 Pictures/Screenshot_2023-03-01_03_36_11.png
-rw-r--r-- kali/kali 132316 2023-01-20 10:28 Pictures/Screenshot_2023-01-20_10_28_26.png
-rw-r--r-- kali/kali 139293 2022-12-15 11:52 Pictures/Screenshot_2022-12-15_11_52_04.png
-rw-r--r-- kali/kali 184916 2022-12-21 10:42 Pictures/Screenshot_2022-12-21_10_42_23.png
-rw-r--r-- kali/kali 178667 2023-01-20 10:34 Pictures/Screenshot_2023-01-20_10_34_46.png
-rw-r--r-- kali/kali 138635 2023-01-20 08:51 Pictures/Screenshot_2023-01-20_08_51_28.png
-rw-r--r-- kali/kali 124645 2023-01-20 10:43 Pictures/Screenshot_2023-01-20_10_43_13.png
-rw-r--r-- kali/kali 124916 2023-01-19 22:18 Pictures/Screenshot_2023-01-19_22_18_02.png
-rw-r--r-- kali/kali 137102 2023-01-20 10:42 Pictures/Screenshot_2023-01-20_10_41_59.png
-rw-r--r-- kali/kali 146222 2023-01-19 22:28 Pictures/Screenshot_2023-01-19_22_28_49.png
-rw-r--r-- kali/kali 154371 2022-12-20 10:51 Pictures/Screenshot_2022-12-20_10_51_05.png
```

## gzip: Compress files

```
File Actions Edit View Help
(kali@kali)-[~]
└─$ gzip file1.txt
/home/kali
(kali@kali)-[~]
└─$ gzip -f myfile1.txt
gzip: myfile1.txt: No such file or directory
/home/kali
(kali@kali)-[~]
└─$ gzip -f file1.txt
gzip: file1.txt: No such file or directory
(kali@kali)-[~]
└─$ ls -l file1.txt
ls: cannot access 'file1.txt': No such file or directory
(kali@kali)-[~]
└─$ gzip -k file1.txt
gzip: file1.txt: No such file or directory
(kali@kali)-[~]
└─$ ls -l file1.txt
ls: cannot access 'file1.txt': No such file or directory
(kali@kali)-[~]
└─$ gzip -f LabQn4.txt kali
(kali@kali)-[~]
└─$ gzip -k file1.txt
gzip: file1.txt: No such file or directory
(kali@kali)-[~]
└─$ gzip -k file1.txt.gz
gzip: file1.txt.gz already has .gz suffix -- unchanged
```

## unzip: Extract files from a ZIP archive

```
File Actions Edit View Help
(root@kali)-[/home/kali]
└─$ gzip -d demo.txt
gzip: demo.txt: unknown suffix -- ignored
(root@kali)-[/home/kali]
└─$ gzip -d demo.txt.gz
gzip: demo.txt.gz: No such file or directory
(root@kali)-[/home/kali]
└─$ gzip -d file1.gz
gzip: file1.gz: No such file or directory
(root@kali)-[/home/kali]
└─$ gunzip file1.gz
gzip: file1.gz: No such file or directory
(root@kali)-[/home/kali]
└─$ tar -xf archive.tar.gz
tar: archive.tar.gz: Cannot open: No such file or directory
tar: Error is not recoverable: exiting now
(root@kali)-[/home/kali]
└─$
```

## Process Management:

ps: List running processes

```
File Actions Edit View Help
(kali@kali)-[~]
$ ps
  PID TTY          TIME CMD
 15618 pts/1    00:00:10 zsh
 19970 pts/1    00:00:00 ps
(kali@kali)-[~]
$
```

top: Display real-time system information and processes

```
File Actions Edit View Help
(kali@kali)-[~]
$ top
```

```
File Actions Edit View Help
top - 14:34:19 up 1:14, 1 user, load average: 7.97, 5.39, 4.17
Tasks: 183 total, 1 running, 182 sleeping, 0 stopped, 0 zombie
%Cpu(s): 44.4 us, 18.7 sy, 0.0 ni, 1.3 id, 33.5 wa, 0.0 hi, 2.1 si, 0.0 st
MiB Mem : 1973.0 total, 69.2 free, 807.5 used, 1096.3 buff/cache
MiB Swap: 975.0 total, 757.1 free, 217.9 used, 970.2 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     TIME+ COMMAND
 564 root        20   0 707164 227560 4984 S  72.6  11.3   79:14.57 nssu
 604 root        20   0 407196 96808 49340 S  36.0   4.8   4:18.39 Xorg
1017 kali        20   0 207292 24796 13824 S   6.9   1.2   3:02:18 panel-13-cpugra
147 root        0  -20    0      0      0 I   6.3   0.0   0:48:00 kworker/1:1H-kblockd
20181 kali       20   0 427196 95556 77084 S   4.3   4.7   0:01:07 qterminal
 497 root        20   0 239532 7968 5108 S   4.0   0.4   0:17:64 vmttoolsd
 970 kali        20   0 926084 58252 49220 S   2.3   2.9   0:54.39 xfw
 13 root         20   0      0      0      0 I   1.3   0.0   0:51:86 rcu_preempt
1019 kali       20   0 295884 21316 14332 S   1.3   1.1   0:39:07 panel-15-genmon
13998 root        20   0      0      0      0 D   1.3   0.0   0:02:51 kworker/u64:2+flush-8:0
 12 root         20   0      0      0      0 S   0.3   0.0   0:03:17 ksoftirqd/0
 19 root         20   0      0      0      0 S   0.3   0.0   0:02:63 ksoftirqd/1
 957 kali        20   0 167036 9436 6516 S   0.3   0.5   0:00:91 at-spi2-registr
1020 kali        20   0 662064 23712 16452 S   0.3   1.2   0:09:66 panel-16-pulsea
1066 kali        20   0 313672 43644 18136 S   0.3   2.2   0:22:17 vmttoolsd
20333 kali       20   0 10240 3596 3048 R   0.3   0.2   0:00:11 top
  1 root         20   0 165556 9352 6468 S   0.0   0.5   0:05:16 systemd
  2 root         20   0      0      0      0 S   0.0   0.0   0:00:02 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/0:10H-events_highpri
  8 root         0  -20    0      0      0 I   0.0   0.0   0:00:00 mm_percpu_wq
  9 root         20   0      0      0      0 S   0.0   0.0   0:00:00 rcu_tasks_kthre
 10 root         20   0      0      0      0 S   0.0   0.0   0:00:00 rcu_tasks_rude_
 11 root         20   0      0      0      0 S   0.0   0.0   0:00:00 rcu_tasks_trace
 14 root         rt   0      0      0      0 S   0.0   0.0   0:00:12 migration/0
 16 root         20   0      0      0      0 S   0.0   0.0   0:00:00 cpuphp/0
 17 root         20   0      0      0      0 S   0.0   0.0   0:00:00 cpuphp/1
```

## kill: Terminate processes

```
File Actions Edit View Help
(kali@kali)-[~]
$ ps
  PID TTY          TIME CMD
  4322 pts/0    00:00:00 zsh
  4386 pts/0    00:00:00 ps
(kali@kali)-[~]
$ kill -CONT 4386
kill: kill 4386 failed: no such process
(kali@kali)-[~]
$ kill -CONT 4322
```

## bg: Run processes in the background

```
File Actions Edit View Help
(root@kali)-[~]
$ bg --help
bg: job not found: --help
(root@kali)-[~]
$ jobs
[1]  + suspended sleep 500
^Z
zsh: suspended sleep 500
(root@kali)-[~]
$ jobs
[1]  + suspended sleep 500
(root@kali)-[~]
$ bg %1
[1]  + continued sleep 500
(root@kali)-[~]
$ jobs
[1]  + running sleep 500
(root@kali)-[~]
$ bg --help
bg: job not found: --help
(root@kali)-[~]
$
```

## fg: Bring background processes to the foreground

```
bg: job not found: --help
(root@kali)-[~]
$ fg
[1]  + running sleep 500
fg %1
^Z
zsh: suspended sleep 500
(root@kali)-[~]
$ fg %1
[1]  + continued sleep 500
```

## System Information:

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

```
File Actions Edit View Help
(kali@kali)-[~]
$ uname
Linux
(kali@kali)-[~]
$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
udev            966200         0   966200  0% /dev
tmpfs           202040      1176   200864  1% /run
/dev/sda1       81000912 15299908 61540392 20% /
tmpfs           1010184         0   1010184  0% /dev/shm
tmpfs            5120         0     5120  0% /run/lock
tmpfs           202036         76   201960  1% /run/user/1000
(kali@kali)-[~]
$ free
              total        used        free      shared  buff/cache   available
Mem:        2020372      894892      68028        22188     1057452     915556
Swap:      998396         245568       752828
(kali@kali)-[~]
$ uptime
14:42:54 up 1:23,  1 user,  load average: 3.96, 3.67, 3.75
(kali@kali)-[~]
$ who
kali    tty7      2023-05-19 13:21 (:0)
(kali@kali)-[~]
$ w
14:43:05 up 1:23,  1 user,  load average: 3.96, 3.68, 3.76
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
kali      tty7      :0            13:21    1:22m  4:49   3.12s  xfce4-session
```

## Networking:

ifconfig: Configure network interfaces

```

File Actions Edit View Help
(kali@kali)-[~]
$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.50.128 netmask 255.255.255.0 broadcast 192.168.50.255
    inet6 fe80::20c:29ff:febd:d154 prefixlen 64 scopeid 0<link>
    ether 08:00:c2:29:bd:d1:54 txqueuelen 1000 (Ethernet)
    RX packets 177 bytes 12888 (12.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 2218 bytes 194314 (189.7 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<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

(kali@kali)-[~]
$

```

ping: Send **ICMP** echo requests to a network host

```

File Actions Edit View Help
(kali@kali)-[~]
$ ping 192.168.50.129
PING 192.168.50.129 (192.168.50.129) 56(84) bytes of data:
64 bytes from 192.168.50.129: icmp_seq=1 ttl=64 time=3.49 ms
64 bytes from 192.168.50.129: icmp_seq=2 ttl=64 time=0.645 ms
64 bytes from 192.168.50.129: icmp_seq=3 ttl=64 time=0.898 ms
64 bytes from 192.168.50.129: icmp_seq=4 ttl=64 time=0.735 ms
64 bytes from 192.168.50.129: icmp_seq=5 ttl=64 time=0.732 ms
64 bytes from 192.168.50.129: icmp_seq=6 ttl=64 time=0.646 ms
64 bytes from 192.168.50.129: icmp_seq=7 ttl=64 time=0.660 ms
64 bytes from 192.168.50.129: icmp_seq=8 ttl=64 time=1.50 ms
64 bytes from 192.168.50.129: icmp_seq=9 ttl=64 time=1.81 ms
64 bytes from 192.168.50.129: icmp_seq=10 ttl=64 time=0.674 ms
64 bytes from 192.168.50.129: icmp_seq=11 ttl=64 time=0.759 ms
64 bytes from 192.168.50.129: icmp_seq=12 ttl=64 time=0.725 ms
64 bytes from 192.168.50.129: icmp_seq=13 ttl=64 time=0.735 ms
64 bytes from 192.168.50.129: icmp_seq=14 ttl=64 time=0.695 ms
64 bytes from 192.168.50.129: icmp_seq=15 ttl=64 time=0.691 ms
64 bytes from 192.168.50.129: icmp_seq=16 ttl=64 time=0.778 ms
64 bytes from 192.168.50.129: icmp_seq=17 ttl=64 time=1.80 ms
64 bytes from 192.168.50.129: icmp_seq=18 ttl=64 time=8.23 ms
64 bytes from 192.168.50.129: icmp_seq=19 ttl=64 time=0.743 ms
64 bytes from 192.168.50.129: icmp_seq=20 ttl=64 time=0.757 ms
64 bytes from 192.168.50.129: icmp_seq=21 ttl=64 time=0.725 ms
64 bytes from 192.168.50.129: icmp_seq=22 ttl=64 time=5.47 ms
64 bytes from 192.168.50.129: icmp_seq=23 ttl=64 time=1.02 ms
64 bytes from 192.168.50.129: icmp_seq=24 ttl=64 time=0.968 ms
64 bytes from 192.168.50.129: icmp_seq=25 ttl=64 time=0.672 ms
64 bytes from 192.168.50.129: icmp_seq=26 ttl=64 time=0.723 ms
64 bytes from 192.168.50.129: icmp_seq=27 ttl=64 time=1.40 ms
64 bytes from 192.168.50.129: icmp_seq=28 ttl=64 time=0.802 ms
64 bytes from 192.168.50.129: icmp_seq=29 ttl=64 time=1.19 ms
64 bytes from 192.168.50.129: icmp_seq=30 ttl=64 time=0.697 ms
64 bytes from 192.168.50.129: icmp_seq=31 ttl=64 time=0.722 ms
64 bytes from 192.168.50.129: icmp_seq=32 ttl=64 time=0.985 ms

```

ssh: Securely connect to a remote system

```

(kali@kali)-[~]
$ ssh
usage: ssh [-46AaCfGgKkMmNnqstTvVxXyY] [-B bind_interface]
          [-b bind_address] [-c cipher_spec] [-D [bind_address]:port]
          [-E log_file] [-e escape_char] [-F configfile] [-I pkcs11]
          [-i identity_file] [-j [user@]host[:port]] [-L address]
          [-l login_name] [-m mac_spec] [-O ctl_cmd] [-o option] [-p port]
          [-Q query_option] [-R address] [-S ctl_path] [-W host:port]
          [-w local_tun[:remote_tun]] destination [command [argument ...]]

(kali@kali)-[~]
$ ssh --version
unknown option --
usage: ssh [-46AaCfGgKkMmNnqstTvVxXyY] [-B bind_interface]
          [-b bind_address] [-c cipher_spec] [-D [bind_address]:port]
          [-E log_file] [-e escape_char] [-F configfile] [-I pkcs11]
          [-i identity_file] [-j [user@]host[:port]] [-L address]
          [-l login_name] [-m mac_spec] [-O ctl_cmd] [-o option] [-p port]
          [-Q query_option] [-R address] [-S ctl_path] [-W host:port]
          [-w local_tun[:remote_tun]] destination [command [argument ...]]

(kali@kali)-[~]
$

```

scp: Securely copy files between systems

```
File Actions Edit View Help
(kali@kali)-[~]
$ scp
usage: scp [-346ABCOpqRrsTv] [-c cipher] [-D sftp_server_path] [-F ssh_config]
[-i identity_file] [-J destination] [-l limit]
[-o ssh_option] [-P port] [-S program] source ... target
(kali@kali)-[~]
$
```

wget: Download files from the web

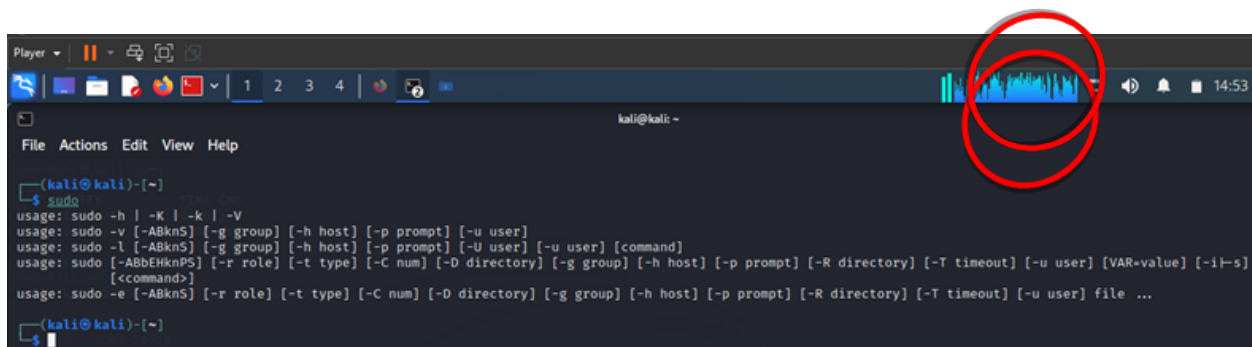
```
File Actions Edit View Help
(kali@kali)-[~]
$ wget file:///usr/share/kali-defaults/web/homepage.html
file:///usr/share/kali-defaults/web/homepage.html: Unsupported scheme 'file'.
(kali@kali)-[~]
$ wget https://www.facebook.com/
--2023-05-19 14:51:38-- https://www.facebook.com/
Resolving www.facebook.com (www.facebook.com)... 157.240.228.35, 2a03:2880:f168:81:face:b00c:0:25de
Connecting to www.facebook.com (www.facebook.com)|157.240.228.35|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://www.facebook.com/unsupportedbrowser [following]
--2023-05-19 14:51:39-- https://www.facebook.com/unsupportedbrowser
Reusing existing connection to www.facebook.com:443.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'

index.html                                     [  => ] 49.49K --.-KB/s  in 0.02s

2023-05-19 14:51:39 (2.70 MB/s) - 'index.html' saved [50674]
```

System Administration:

sudo: Execute commands with superuser privileges



```
Player [Icons] 1 2 3 4 [Icons] 14:53
kali@kali ~
File Actions Edit View Help
(kali@kali)-[~]
$ sudo
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABkNS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABkNS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
usage: sudo [-ABbEHknPS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] [VAR=value] [-i|-s]
[<command>]
usage: sudo -e [-ABkNS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] file ...
(kali@kali)-[~]
$
```



## apt-get: Package management for Debian-based distributions

```
File Actions Edit View Help
(kali@kali)-[~]
$ apt-get
apt 2.4.5 (amd64)
Usage: apt-get [options] command
       apt-get [options] install|remove pkg1 [pkg2 ...]
       apt-get [options] source pkg1 [pkg2 ...]

apt-get is a command line interface for retrieval of packages
and information about them from authenticated sources and
for installation, upgrade and removal of packages together
with their dependencies.

Most used commands:
update - Retrieve new lists of packages
upgrade - Perform an upgrade
install - Install new packages (pkg is libc6 not libc6.deb)
reinstall - Reinstall packages (pkg is libc6 not libc6.deb)
remove - Remove packages
purge - Remove packages and config files
autoremove - Remove automatically all unused packages
dist-upgrade - Distribution upgrade, see apt-get(8)
dselect-upgrade - Follow dselect selections
build-dep - Configure build-dependencies for source packages
satisfy - Satisfy dependency strings
clean - Erase downloaded archive files
autoclean - Erase old downloaded archive files
check - Verify that there are no broken dependencies
source - Download source archives
download - Download the binary package into the current directory
changelog - Download and display the changelog for the given package

See apt-get(8) for more information about the available commands.
Configuration options and syntax is detailed in apt.conf(5).
Information about how to configure sources can be found in sources.list(5).
Package and version choices can be expressed via apt_preferences(5).
```

## systemctl: Manage system services

```
File Actions Edit View Help
(kali@kali)-[~]
$ systemctl

UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
proc-sys-fs-binfmt-misc.automount  loaded active waiting Arbitrary Executable File Formats File System Automount>
sys-devices-pci0000:00-0000:00:07:1-ata-host1-target1:0:0-1:0:0:0-block-sr0.device loaded active plugged VMware_Virtual_IDE_CDROM_Drive
sys-devices-pci0000:00-0000:00:10:0-host2-target2:0:0-2:0:0:0-block-sda-sda1.device loaded active plugged VMware_Virtual_S_1
sys-devices-pci0000:00-0000:00:10:0-host2-target2:0:0-2:0:0:0-block-sda-sda2.device loaded active plugged VMware_Virtual_S_2
sys-devices-pci0000:00-0000:00:10:0-host2-target2:0:0-2:0:0:0-block-sda-sda5.device loaded active plugged VMware_Virtual_S_5
sys-devices-pci0000:00-0000:00:10:0-host2-target2:0:0-2:0:0:0-block-sda-sda.device loaded active plugged VMware_Virtual_S
sys-devices-pci0000:00-0000:00:11:0-0000:02:01:0-net-eth0.device loaded active plugged 82545EM Gigabit Ethernet Controller (Copper) (PRO/1000 >
sys-devices-pci0000:00-0000:00:11:0-0000:02:02:0-sound-card0-controlC0.device loaded active plugged /sys/devices/pci0000:00/0000:00:11:0/0000:02:02:0/sound>
sys-devices-platform-serial8250-tty-ttyS2.device loaded active plugged /sys/devices/platform/serial8250/tty/ttyS2
sys-devices-platform-serial8250-tty-ttyS3.device loaded active plugged /sys/devices/platform/serial8250/tty/ttyS3
sys-devices-pnp0-00:06-tty-ttyS0.device loaded active plugged /sys/devices/pnp0/00:06/tty/ttyS0
sys-devices-pnp0-00:07-tty-ttyS1.device loaded active plugged /sys/devices/pnp0/00:07/tty/ttyS1
sys-devices-virtual-misc-rfkill.device loaded active plugged /sys/devices/virtual/misc/rfkill
sys-module-configfs.device loaded active plugged /sys/module/configfs
sys-module-fuse.device loaded active plugged /sys/module/fuse
sys-subsystem-net-devices-eth0.device loaded active plugged 82545EM Gigabit Ethernet Controller (Copper) (PRO/1000 >
-.mount loaded active mounted Root Mount
dev-hugepages.mount loaded active mounted Huge Pages File System
dev-mqueue.mount loaded active mounted POSIX Message Queue File System
run-credentials-systemd\x2dsysusers.service.mount loaded active mounted /run/credentials/systemd-sysusers.service
run-rpc_pipefs.mount loaded active mounted RPC Pipe File System
run-user-1000-gvfs.mount loaded active mounted /run/user/1000/gvfs
run-user-1000.mount loaded active mounted /run/user/1000
run-vmblock\x2dfuse.mount loaded active mounted VMware vmblock fuse mount
sys-fs-fuse-connections.mount loaded active mounted FUSE Control File System
sys-kernel-config.mount loaded active mounted Kernel Configuration File System
sys-kernel-debug.mount loaded active mounted Kernel Debug File System
sys-kernel-tracing.mount loaded active mounted Kernel Trace File System
systemd-ask-password-plymouth.path loaded active waiting Forward Password Requests to Plymouth Directory Watch >
systemd-ask-password-wall.path loaded active waiting Forward Password Requests to Wall Directory Watch >
init.scope loaded active running System and Service Manager
session-2.scope loaded active running Session 2 of User kali >
```

## crontab: Schedule recurring tasks

```
File Actions Edit View Help
(kali@kali)-[~]
└─$ crontab -e
no crontab for kali - 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

(kali@kali)-[~]
└─$
```

```
File Actions Edit View Help
GNU nano 6.2 /tmp/crontab.wQLROu/crontab
# 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   command
```

## useradd: Add a new user

```
File Actions Edit View Help
└─$ useradd
Usage: useradd [options] LOGIN
       useradd -D
       useradd -D [options]

Options:
  --badnames          do not check for bad names
  -b, --base-dir BASE_DIR    base directory for the home directory of the
                           new account
  --btrfs-subvolume-home    use BTRFS subvolume for home directory
  -c, --comment COMMENT    GECOS field of the new account
  -d, --home-dir HOME_DIR   home directory of the new account
  -D, --defaults          print or change default useradd configuration
  -e, --expiredate EXPIRE_DATE    expiration date of the new account
  -f, --inactive INACTIVE    password inactivity period of the new account
  -g, --gid GROUP          name or ID of the primary group of the new
                           account
  -G, --groups GROUPS      list of supplementary groups of the new
                           account
  -h, --help              display this help message and exit
  -k, --skel SKEL_DIR      use this alternative skeleton directory
  -K, --key KEY=VALUE      override /etc/login.defs defaults
  -l, --no-log-init        do not add the user to the lastlog and
                           faillog databases
  -m, --create-home        create the user's home directory
  -M, --no-create-home     do not create the user's home directory
  -N, --no-user-group      do not create a group with the same name as
                           the user
  -o, --non-unique         allow to create users with duplicate
                           (non-unique) UID
  -p, --password PASSWORD  encrypted password of the new account
  -r, --system             create a system account
  -R, --root CHROOT_DIR    directory to chroot into
  -P, --prefix PREFIX_DIR  prefix directory where are located the /etc/* files
  -s, --shell SHELL        login shell of the new account
```

**passwd:** Change user password

```
(kali㉿kali)-[~]
└─$ passwd
Changing password for kali.
Current password: 
```

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