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20BCY10091

Assignment -1
Kali
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
cd: Change directory
pwd: Print working directory
mkdir: Make directory
touch: Create an empty file
cp: Copy files and directories
mv: Move or rename files and directories
rm: Remove files and directories

find: Search for files and directories

```
┌──(kali㊀kali)-[~/Documents]
└─$ ls
aesout.txt  embedaes.jpg  embed.jpg  enc.txt  FAT  File  JS  new.txt  old.txt

┌──(kali㊀kali)-[~/Documents]
└─$ cd File

┌──(kali㊀kali)-[~/Documents/File]
└─$ pwd
/home/kali/Documents/File

┌──(kali㊀kali)-[~/Documents/File]
└─$ mkdir dir

┌──(kali㊀kali)-[~/Documents/File]
└─$ ls
dir

┌──(kali㊀kali)-[~/Documents/File]
└─$ cd dir

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ touch text.txt

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ cp text.txt dir

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ ls
dir  text.txt

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ mv dir text2.txt

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ ls
text2.txt  text.txt

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ rm text2.txt

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ ls
text.txt

┌──(kali㊀kali)-[~/Documents/File/dir]
└─$ find text.txt
text.txt
```

File Viewing and Editing:

cat: Concatenate and display file content

```
┌──(kali㉿kali)-[~/Documents/File/dir]
└─$ cat text.txt
This is the text file sample created by Shantanu Nimat
```

less: View file content with pagination

```
This is the text file sample created by Shantanu Nimat
text.txt (END)
```
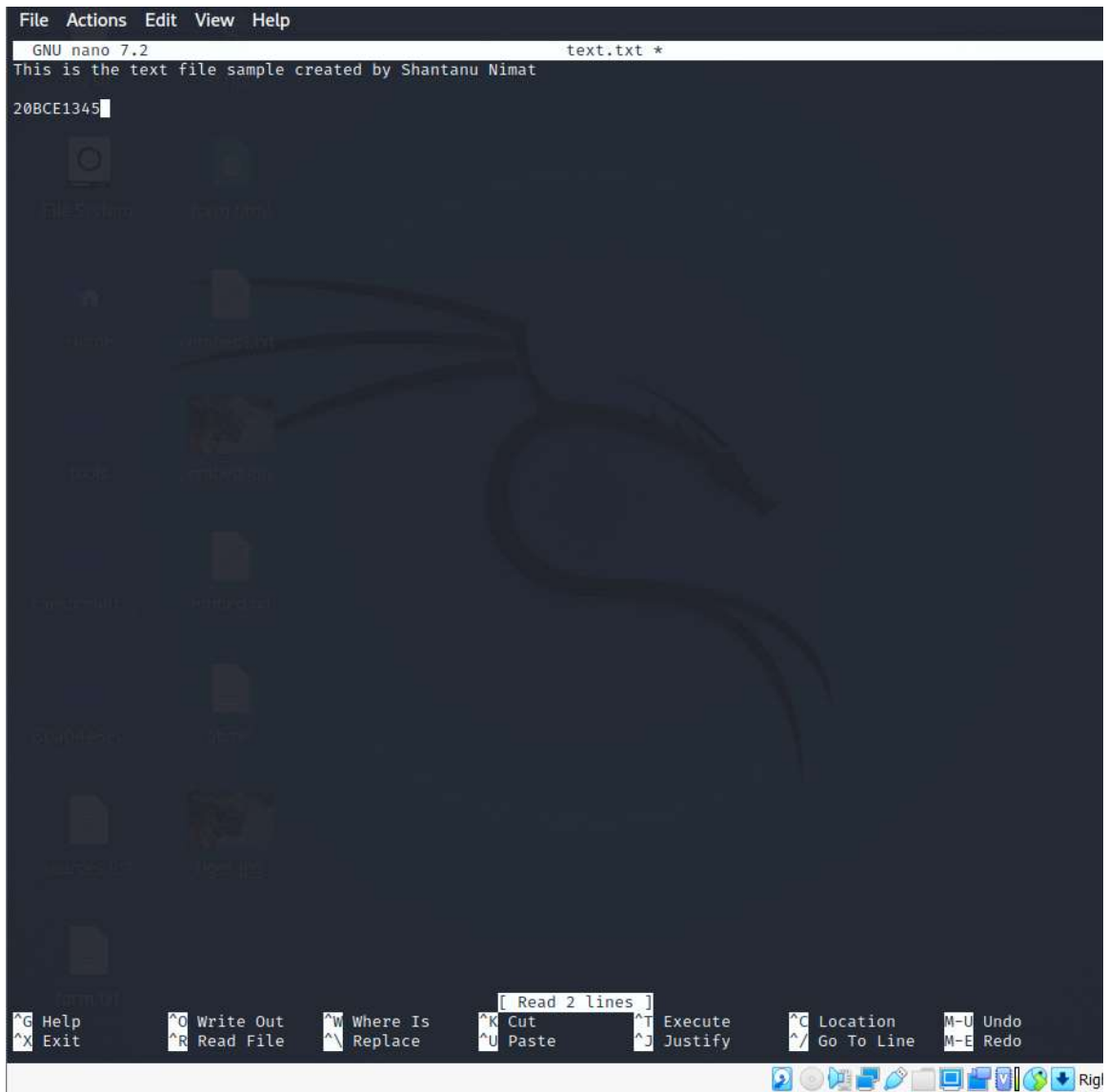
head: Display the beginning of a file

```
┌──(kali㉿kali)-[~/Documents/File/dir]
└─$ head text.txt
This is the text file sample created by Shantanu Nimat
```

tail: Display the end of a file

```
┌──(kali㉿kali)-[~/Documents/File/dir]
└─$ tail text.txt
This is the text file sample created by Shantanu Nimat
```

nano: Text editor for creating and editing files

```
File  Actions  Edit  View  Help
 GNU nano 7.2                                    text.txt *
This is the text file sample created by Shantanu Nimat

20BCE1345█
```

```
                           [ Read 2 lines ]
^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute    ^C Location    M-U Undo
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify    ^/ Go To Line  M-E Redo
```

vi/vim: Powerful text editor for experienced users

```
File  Actions  Edit  View  Help
This is the text file sample created by Shantanu Nimat

20BCE1345
```

"text.txt" 3L, 66B   1,1
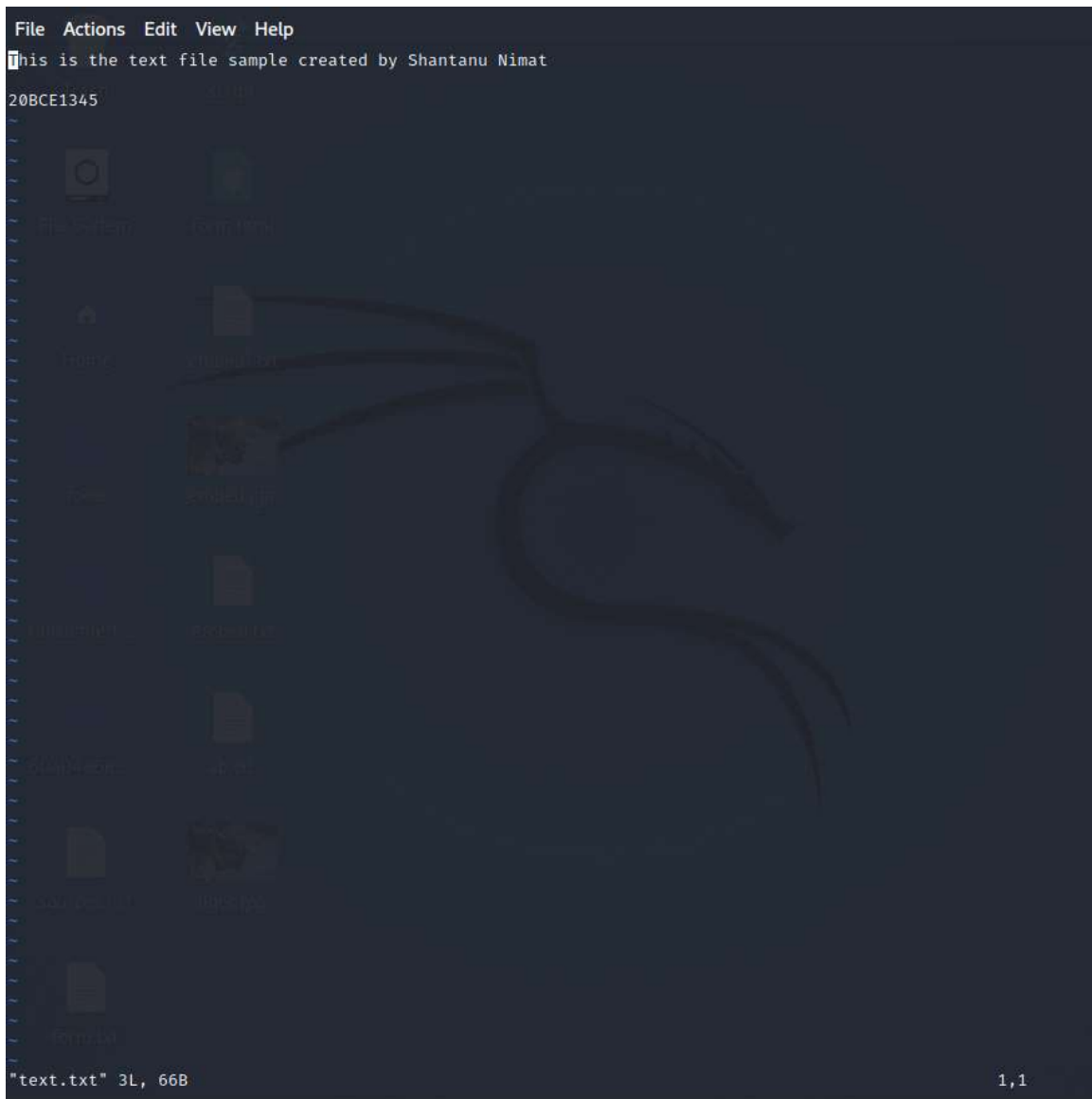
File Permissions:

chmod: Change file permissions

It will set the read and write permission for other users of the text files

```
┌──(kali㉿kali)-[~/Documents/File/dir]
└─$ chmod o+w text.txt
```

```
┌──(kali㉿kali)-[~/Documents/File/dir]
└─$ ls -l text.txt
-rw-rw-rw- 1 kali kali 66 May 20 12:15 text.txt
```

chown: Change file owner

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ls -l text.txt
-rw-rw-rw- 1 kali kali 66 May 20 12:15 text.txt
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# chown root text.txt
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ls -l text.txt
-rw-rw-rw- 1 root kali 66 May 20 12:15 text.txt
```

chgrp: Change file group

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ls -l text.txt
-rw-rw-rw- 1 root kali 66 May 20 12:15 text.txt
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# sudo chgrp root text.txt
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ls -l text.txt
-rw-rw-rw- 1 root root 66 May 20 12:15 text.txt
```

File Compression and Archiving:

tar: Archive files

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# tar cvf file.tar *.txt
text1.txt/
text2.txt/
text.txt

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# tar xvf file.tar
text1.txt/
text2.txt/
text.txt
```

Compressed

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# tar cvzf file.tar.gz *.txt
text1.txt/
text2.txt/
text.txt

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# tar xvzf file.tar.gz
text1.txt/
text2.txt/
text.txt
```

gzip: Compress files

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# gzip text.txt

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ls
file.tar  file.tar.gz  text1.txt  text2.txt  text.txt.gz
```

Unzip gzip

```
┌──(kali㉿kali)-[~/Documents/File/dir]
└─$ gzip -d text.txt.gz

┌──(kali㉿kali)-[~/Documents/File/dir]
└─$ ls
dl  file.tar  file.tar.gz  gerardus-mercators-503rd-birthday  text1.txt  text2.txt
```

Zip and unzip: Extract files from a ZIP archive

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# zip my_arc.zip my_file.txt
  adding: my_file.txt/ (stored 0%)

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ls
dl         file.tar.gz   gerardus-mercators-503rd-birthday  my_arc.zip   t
file.tar  file_text.zip  my_archive.zip                     my_file.txt  t

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# unzip my_arc.zip
Archive:  my_arc.zip
```

Process Management:

ps: List running processes

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ps
  PID TTY          TIME CMD
 2175 pts/0    00:00:01 zsh
 2684 pts/0    00:00:00 ps
```

top: Display real-time system information and processes

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# top
top - 12:43:02 up 50 min,  1 user,  load average: 0.11, 0.10, 0.09
Tasks: 155 total,   1 running, 154 sleeping,   0 stopped,   0 zombie
%Cpu(s):  2.0 us,  0.8 sy,  0.0 ni, 97.0 id,  0.0 wa,  0.0 hi,  0.2 si,  0.0 st
MiB Mem :   1982.8 total,    887.1 free,    488.8 used,    606.8 buff/cache
MiB Swap:    975.0 total,    975.0 free,      0.0 used.   1311.2 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
    683 root      20   0  985976 107828  54176 S   3.0   5.3   0:13.15 Xorg
   2171 root      20   0  984716  82164  60916 S   1.7   4.0   0:01.63 qterminal
    880 kali      20   0  265792  24064  17448 S   0.3   1.2   0:00.86 xfce4-session
    954 kali      20   0  153068   2816   2340 S   0.3   0.1   0:03.33 VBoxClient
   1030 kali      20   0  228700  26568  19432 S   0.3   1.3   0:01.05 xfsettingsd
   1103 kali      20   0  486172  52732  39216 S   0.3   2.6   0:05.98 Thunar
   1270 kali      20   0  357116  40760  24152 S   0.3   2.0   0:00.94 blueman-tray
   2053 root      20   0  558668  49560  35984 S   0.3   2.4   0:00.68 thunar
      1 root      20   0  166036  11076   8156 S   0.0   0.5   0:01.80 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
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_
      9 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 mm_percpu_wq
     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
     12 root      20   0       0      0      0 S   0.0   0.0   0:00.06 ksoftirqd/0
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.20 rcu_sched
     14 root      rt   0       0      0      0 S   0.0   0.0   0:00.00 migration/0
     15 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     16 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/1
     17 root      rt   0       0      0      0 S   0.0   0.0   0:00.22 migration/1
     18 root      20   0       0      0      0 S   0.0   0.0   0:00.02 ksoftirqd/1
     20 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/1:0H-events
```

kill: Terminate processes

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# kill -l
 HUP INT QUIT ILL TRAP IOT BUS FPE KILL USR1 SEGV USR2 PIPE ALRM TERM STKFLT CHLD CONT STOP T
 SZ VTALRM PROF WINCH POLL PWR SYS
```

bg: Run processes in the background

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# jobs

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# sleep 500
^Z
zsh: suspended  sleep 500

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# jobs
[1]  + suspended  sleep 500

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# bg %1
[1]  + continued  sleep 500
```

fg: Bring background processes to the foreground

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# jobs
[1]  + running    sleep 500

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# fg %1
[1]  + running    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

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# uname
Linux

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# df
Filesystem     1K-blocks     Used Available Use% Mounted on
udev             977316        0    977316   0% /dev
tmpfs            203036     1008    202028   1% /run
/dev/sda1      81000912 20002704  56837596  27% /
tmpfs           1015168        0   1015168   0% /dev/shm
tmpfs              5120        0      5120   0% /run/lock
tmpfs            203032       64    202968   1% /run/user/1000

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# free
              total        used        free      shared  buff/cache   ava
Mem:        2030336      501336      904012       18620      624988    1
Swap:        998396           0      998396

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# uptime
 12:57:10 up  1:04,  1 user,  load average: 0.21, 0.15, 0.11

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# who
kali     tty7         2023-05-20 11:55 (:0)

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# w
 12:57:20 up  1:04,  1 user,  load average: 0.18, 0.14, 0.10
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
kali     tty7     :0               11:55    1:04m 14.50s  0.95s xfce4-sess
```

Networking:
ifconfig: Configure network interfaces
ping: Send ICMP echo requests to a network host

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.163  netmask 255.255.255.0  broadcast 192.168.1.255
        inet6 fe80::a00:27ff:fe0e:348d  prefixlen 64  scopeid 0×20<link>
        ether 08:00:27:0e:34:8d  txqueuelen 1000  (Ethernet)
        RX packets 1200  bytes 95747 (93.5 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 23  bytes 2634 (2.5 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 8  bytes 400 (400.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 8  bytes 400 (400.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0


┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=53 time=55.3 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=53 time=51.4 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=53 time=89.8 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=53 time=59.1 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=53 time=53.4 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=53 time=53.7 ms
^Z
zsh: suspended  ping 8.8.8.8
```

ssh: Securely connect to a remote system

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# sudo service ssh status
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/lib/systemd/system/ssh.service; disabled; vendor pres
     Active: inactive (dead)
       Docs: man:sshd(8)
             man:sshd_config(5)
```

connecting to Metasploitable 2 using ssh

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# ssh msfadmin@192.168.1.118
msfadmin@192.168.1.118's password:
Linux metasploitable 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To access official Ubuntu documentation, please visit:
http://help.ubuntu.com/
No mail.
Last login: Sun May 28 05:31:38 2023
msfadmin@metasploitable:~$ whoami
msfadmin
msfadmin@metasploitable:~$ pwd
/home/msfadmin
msfadmin@metasploitable:~$ █
```

```
msfadmin@metasploitable:~$
msfadmin@metasploitable:~$
msfadmin@metasploitable:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:94:cc:5c
          inet addr:192.168.1.118  Bcast:192.168.1.255  Mask:255.25
          inet6 addr: fe80::a00:27ff:fe94:cc5c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:117 errors:0 dropped:0 overruns:0 frame:0
          TX packets:133 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:16518 (16.1 KB)  TX bytes:18130 (17.7 KB)
          Base address:0xd020 Memory:f0200000-f0220000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:104 errors:0 dropped:0 overruns:0 frame:0
          TX packets:104 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:25525 (24.9 KB)  TX bytes:25525 (24.9 KB)
```

scp: Securely copy files between systems

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# scp text.txt msfadmin@192.168.1.118:/home/msfadmin
msfadmin@192.168.1.118's password:
text.txt
```

wget: Download files from the web

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# wget https://www.google.com/doodles/gerardus-mercators-503rd-birthday
--2023-05-20 13:59:49--  https://www.google.com/doodles/gerardus-mercators-503rd-birthday
Resolving www.google.com (www.google.com)... 172.217.160.228, 2404:6800:4002:81a::2004
Connecting to www.google.com (www.google.com)|172.217.160.228|:443 ... connected.
HTTP request sent, awaiting response ... 200 OK
Length: 3831718 (3.7M) [text/html]
Saving to: 'gerardus-mercators-503rd-birthday'

gerardus-mercators-503rd-birt 100%[===================================>]   3.6

2023-05-20 14:00:04 (284 KB/s) - 'gerardus-mercators-503rd-birthday' saved [3831718/38317
```

System Administration:

sudo: Execute commands with superuser privileges

apt-get: Package management for Debian-based distributions

yum: Package management for Red Hat-based distributions

It is used for installing, updating, and managing software packages on the system. Here are some commonly used commands with yum:

Install a package:
sudo yum install <package_name>

Update all installed packages:
sudo yum update

Search for a package:
yum search <keyword>

List installed packages:
yum list installed

Remove a package:
sudo yum remove <package_name>

Clean the cache and free up disk space:

sudo yum clean all

Enable a repository:
sudo yum-config-manager --enable <repository_name>

Disable a repository:
sudo yum-config-manager --disable <repository_name>

systemctl: Manage system services

```
┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# sudo systemctl start mysql.service

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# sudo systemctl reload-or-restart mysql.service

┌──(root💀kali)-[/home/kali/Documents/File/dir]
└─# sudo systemctl status mysql.service
● mariadb.service – MariaDB 10.5.9 database server
     Loaded: loaded (/lib/systemd/system/mariadb.service; disabled; vendor preset: disabled
     Active: active (running) since Sat 2023-05-20 14:08:51 EDT; 15s ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
    Process: 4237 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/run/mysqld
    Process: 4238 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION
    Process: 4240 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR= ||   VA
    Process: 4301 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START_POSITIO
    Process: 4303 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUCCESS)
   Main PID: 4287 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 14 (limit: 2290)
     Memory: 68.0M
        CPU: 434ms
     CGroup: /system.slice/mariadb.service
             └─4287 /usr/sbin/mariadbd
```

crontab: Schedule recurring tasks

```
  ┌──(kali㉿kali)-[~]
  └─$ crontab -u kali -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
```

GNU nano 7.2   /tmp/crontab.h1VWLY/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
```

[Read 23 lines]

^G Help   ^O Write Out   ^W Where Is   ^K Cut   ^T Execute   ^C Location
^X Exit   ^R Read File   ^\ Replace   ^U Paste   ^J Justify   ^/ Go To Li

useradd: Add a new user

passwd: Change user 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