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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.

ls: List files and directories

cd: Change directory

pwd: Print working directory

```
(kali㉿kali)-[~/sevanth]
$ pwd
/home/kali/sevanth
```

mkdir: Make directory

```
(kali@kali)-[~/sevanth]  
$ mkdir sevanth1
```

touch: Create an empty file

```
(kali@kali)-[~/sevanth]  
$ touch sevanth.txt
```

cp: Copy files and directories

```
(kali@kali)-[~]  
$ cp sevanth.txt /home/kali/sevanth
```

mv: Move or rename files and directories

```
(kali@kali)-[~/sevanth]  
$ mv s1.txt sevanth
```

rm: Remove files and directories

```
(kali@kali)-[~/sevanth]  
$ rm sevanth.txt
```

find: Search for files and directories

```
(kali@kali)-[~/sevanth]  
$ find /home -name server.py  
/home/kali/server.py  
/home/kali/.local/lib/python3.9/site-packages/engineio/server.py  
/home/kali/.local/lib/python3.9/site-packages/eventlet/green/http/server.py  
/home/kali/.local/lib/python3.9/site-packages/socketio/server.py
```

## File Viewing and Editing:

cat: Concatenate and display file content

```
(kali@kali)-[~/sevanth]  
$ cat s2.txt  
hi this is sevanth
```

less: View file content with pagination

```
(kali@kali)-[~]  
$ less s2.txt
```

```
hi this is sevanth  
s2.txt (END)
```

head: Display the beginning of a file

```
(kali@kali)-[~/sevanth]  
$ head s2.txt  
hi this is sevanth
```

tail: Display the end of a file

```
(kali@kali)-[~/sevanth]  
$ tail s2.txt  
hi this is sevanth
```

nano: Text editor for creating and editing files

```
(kali@kali)-[~/sevanth]  
$ nano s2.txt
```



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

[illegible]

## File Permissions:

chmod: Change file permissions

```
(kali@kali)-[~/sevanth]
$ chmod -w s2.txt
```

chown: Change file owner

```
(kali㉿kali)-[~/sevanth]
$ chown kali s2.txt
```

chgrp: Change file group

```
(kali@kali)-[~/sevanth]
$ chgrp kali s2.txt
```

## File Compression and Archiving:

tar: Archive files

```
(kali@kali)~[/sevanth]  
$ tar -cvf archive.tar sevanth.txt
```

gzip: Compress files

```
(kali@kali)~[/sevanth]  
$ gzip s2.txt
```

unzip: Extract files from a ZIP archive

```
(kali@kali)~[/sevanth]  
$ unzip s2
```

## Process Management:

ps: List running processes

```

(kali@kali)-[~/sevanth]
$ ps aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.6 119900 13872 ?        Ss   10:13   0:03 /sbin/init splash
root         2  0.0  0.0      0     0 ?        S    10:13   0:00 [kthreadd]
root         3  0.0  0.0      0     0 ?        I<   10:13   0:00 [rcu_gp]
root         4  0.0  0.0      0     0 ?        I<   10:13   0:00 [rcu_par_gp]
root         6  0.0  0.0      0     0 ?        I<   10:13   0:00 [kworker/0:0H-kblockd]
root         8  0.0  0.0      0     0 ?        I    10:13   0:00 [kworker/u4:0-events_unbound]
root         9  0.0  0.0      0     0 ?        I<   10:13   0:00 [mm_percpu_wq]
root        10  0.0  0.0      0     0 ?        S    10:13   0:00 [ksoftirqd/0]
root        11  0.0  0.0      0     0 ?        I    10:13   0:01 [rcu_sched]
root        12  0.0  0.0      0     0 ?        S    10:13   0:00 [migration/0]
root        13  0.0  0.0      0     0 ?        S    10:13   0:00 [cpuhp/0]
root        14  0.0  0.0      0     0 ?        S    10:13   0:00 [cpuhp/1]
root        15  0.0  0.0      0     0 ?        S    10:13   0:00 [migration/1]
root        16  0.0  0.0      0     0 ?        S    10:13   0:00 [ksoftirqd/1]
root        18  0.0  0.0      0     0 ?        I<   10:13   0:00 [kworker/1:0H-kblockd]
root        21  0.0  0.0      0     0 ?        S    10:13   0:00 [kdevtmpfs]
root        22  0.0  0.0      0     0 ?        I<   10:13   0:00 [netns]
root        23  0.0  0.0      0     0 ?        S    10:13   0:00 [rcu_tasks_rude_]
root        24  0.0  0.0      0     0 ?        S    10:13   0:00 [kauditd]
root        26  0.0  0.0      0     0 ?        S    10:13   0:00 [khungtaskd]
root        27  0.0  0.0      0     0 ?        S    10:13   0:00 [oom_reaper]
root        28  0.0  0.0      0     0 ?        I<   10:13   0:00 [writeback]
root        29  0.0  0.0      0     0 ?        S    10:13   0:00 [kcompactd0]
root        30  0.0  0.0      0     0 ?        SN   10:13   0:00 [ksmd]
root        31  0.0  0.0      0     0 ?        SN   10:13   0:00 [khugepaged]
root        49  0.0  0.0      0     0 ?        I<   10:13   0:00 [kintegrityd]
root        50  0.0  0.0      0     0 ?        I<   10:13   0:00 [kblockd]
root        51  0.0  0.0      0     0 ?        I<   10:13   0:00 [blkcg_punt_bio]
root        52  0.0  0.0      0     0 ?        I<   10:13   0:00 [edac-poller]
root        53  0.0  0.0      0     0 ?        I<   10:13   0:00 [devfreq_wq]
root        55  0.0  0.0      0     0 ?        S    10:13   0:00 [kswapd0]
root        56  0.0  0.0      0     0 ?        I<   10:13   0:00 [kthrotld]
root        57  0.0  0.0      0     0 ?        I<   10:13   0:00 [acpi_thermal_pm]
root        58  0.0  0.0      0     0 ?        I<   10:13   0:00 [ipv6_addrconf]
root        67  0.0  0.0      0     0 ?        I<   10:13   0:00 [kstrp]
root        70  0.0  0.0      0     0 ?        I<   10:13   0:00 [zswap-shrink]
root        71  0.0  0.0      0     0 ?        I<   10:13   0:00 [kworker/u5:0]
root       114  0.0  0.0      0     0 ?        I<   10:13   0:00 [ata_sff]
root       116  0.0  0.0      0     0 ?        S    10:13   0:00 [scsi_eh_0]
root       117  0.0  0.0      0     0 ?        I<   10:13   0:00 [scsi_tmf_0]
root       118  0.0  0.0      0     0 ?        S    10:13   0:00 [scsi_eh_1]
root       119  0.0  0.0      0     0 ?        S    10:13   0:00 [scsi_eh_2]
root       120  0.0  0.0      0     0 ?        I<   10:13   0:00 [cryptd]

```

top: Display real-time system information and processes



```
(kali㉿kali)-[~/sevanth]
$ top
top - 11:07:35 up 54 min, 1 user, load average: 0.05, 0.08, 0.09
Tasks: 147 total, 1 running, 146 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.7 us, 0.5 sy, 0.0 ni, 97.6 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
MiB Mem : 1989.9 total, 549.7 free, 537.0 used, 903.2 buff/cache
MiB Swap: 975.0 total, 975.0 free, 0.0 used. 1281.0 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
674	root	20	0	702832	132492	53632	S	3.3	6.5	0:24.86	Xorg
23366	kali	20	0	707012	90740	74172	S	1.7	4.5	0:03.08	qterminal
4943	kali	20	0	169964	9092	6336	S	0.7	0.4	0:00.27	at-spi2-registr
4873	kali	20	0	157064	2748	2288	S	0.3	0.1	0:06.39	VBoxClient
23494	kali	20	0	10084	3692	3128	R	0.3	0.2	0:00.01	top
1	root	20	0	119900	13872	8680	S	0.0	0.7	0:03.03	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-kblockd
8	root	20	0	0	0	0	I	0.0	0.0	0:00.23	kworker/u4:0-events_unbound
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	0:00.07	ksoftirqd/0
11	root	20	0	0	0	0	I	0.0	0.0	0:01.22	rcu_sched
12	root	rt	0	0	0	0	S	0.0	0.0	0:00.01	migration/0
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
14	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
15	root	rt	0	0	0	0	S	0.0	0.0	0:00.22	migration/1
16	root	20	0	0	0	0	S	0.0	0.0	0:00.15	ksoftirqd/1
18	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/1:0H-kblockd
21	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs
22	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns
23	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_rude_
24	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kauditd
26	root	20	0	0	0	0	S	0.0	0.0	0:00.00	khungtaskd
27	root	20	0	0	0	0	S	0.0	0.0	0:00.00	oom_reaper
28	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	writeback
29	root	20	0	0	0	0	S	0.0	0.0	0:00.14	kcompactd0
30	root	25	5	0	0	0	S	0.0	0.0	0:00.00	ksmd

kill: Terminate processes

```
(kali㉿kali)-[~/sevanth]
$ kill -l
HUP INT QUIT ILL TRAP ABRT BUS FPE KILL USR1 SEGV USR2 PIPE
```

bg: Run processes in the background

```
(kali㉿kali)-[~/sevanth]
$ command &
[1] 23559
[1] + done      command
```

fg: Bring background processes to the foreground

```
(kali㉿kali)-[~/sevanth]
$ fg
fg: no current job
```

## System Information:

uname: Print system information

```
(kali㉿kali)-[~/sevanth]
$ uname -a
Linux kali 5.9.0-kali1-amd64 #1 SMP Debian 5.9.1-1kali2 (2020-10-29) x86_64 GNU/Linux
```

df: Display disk space usage

```
(kali㉿kali)-[~/sevanth]
$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            963M   0    963M   0% /dev
tmpfs           199M  964K   199M   1% /run
/dev/sda1       78G   13G   61G   17% /
tmpfs           995M   0    995M   0% /dev/shm
tmpfs           5.0M   0    5.0M   0% /run/lock
tmpfs           4.0M   0    4.0M   0% /sys/fs/cgroup
/dev/loop0      50M   50M    0 100% /snap/snapd/18596
/dev/loop1      83M   83M    0 100% /snap/scrcpy/394
/dev/loop4      56M   56M    0 100% /snap/core18/2721
/dev/loop3      84M   84M    0 100% /snap/scrcpy/399
tmpfs           199M   56K   199M   1% /run/user/1000
/dev/loop6      54M   54M    0 100% /snap/snapd/19122
/dev/loop5      56M   56M    0 100% /snap/core18/2745
```

free: Display memory usage

```
(kali㉿kali)-[~/sevanth]
$ free -m
              total        used        free      shared  buff/cache   available
Mem:          1989         537         546          26         905        1280
Swap:           974           0         974
```

uptime: Show system uptime

```
(kali㉿kali)-[~/sevanth]
$ uptime
11:14:09 up 1:00, 1 user, load average: 0.04, 0.05, 0.07
```

who: Display logged-in users

```
(kali㉿kali)-[~/sevanth]
$ who
kali      tty7          2023-05-28 10:13 (:0)
```



w: Display logged-in users and their activities

```
(kali@kali)~[/sevanth]
$ w
11:14:54 up 1:01, 1 user, load average: 0.18, 0.09, 0.08
USER      TTY      FROM          LOGIN@      IDLE        JCPU   PCPU   WHAT
kali      tty7      :0            10:13       1:01m      27.52s  0.23s  xfce4-session
```

## Networking:

ifconfig: Configure network interfaces

```
(kali@kali)~[/sevanth]
$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet6 2401:4900:60fd:5d94:a00:27ff:feab:81c prefixlen 64 scopeid 0x0<global>
    inet6 fe80::a00:27ff:feab:81c prefixlen 64 scopeid 0x20<link>
    inet6 2401:4900:60fd:5d94:ee23:e131:26fa:1823 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:ab:08:1c txqueuelen 1000 (Ethernet)
    RX packets 38716 bytes 55455797 (52.8 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 6479 bytes 520250 (508.0 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 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 16 bytes 756 (756.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 16 bytes 756 (756.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ping: Send ICMP echo requests to a network host

```

(kali㉿kali)-[~/sevanth]
$ ping google.com
PING google.com(bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e)) 56 data bytes
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=1 ttl=58 time=81.8 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=2 ttl=58 time=398 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=3 ttl=58 time=94.1 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=4 ttl=58 time=104 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=5 ttl=58 time=80.1 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=6 ttl=58 time=97.1 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=7 ttl=58 time=97.0 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=8 ttl=58 time=94.4 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=9 ttl=58 time=104 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=10 ttl=58 time=105 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=11 ttl=58 time=104 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=12 ttl=58 time=1051 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=13 ttl=58 time=101 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=14 ttl=58 time=183 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=15 ttl=58 time=109 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=16 ttl=58 time=190 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=17 ttl=58 time=87.2 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=18 ttl=58 time=80.6 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=19 ttl=58 time=144 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=20 ttl=58 time=101 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=21 ttl=58 time=67.0 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=22 ttl=58 time=661 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=23 ttl=58 time=97.1 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=24 ttl=58 time=93.3 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=25 ttl=58 time=77.2 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=26 ttl=58 time=82.9 ms
64 bytes from bom07s25-in-x0e.1e100.net (2404:6800:4009:815::200e): icmp_seq=27 ttl=58 time=101 ms

```

ssh: Securely connect to a remote system

```

(kali㉿kali)-[~/sevanth]
$ ssh kali@192.168.205.166
ssh: connect to host 192.168.205.166 port 22: Network is unreachable

```

scp: Securely copy files between systems

```

(kali㉿kali)-[~/sevanth]
$ scp s2.txt kali@192.168.205.166:/c:/windows/system32
ssh: connect to host 192.168.205.166 port 22: Network is unreachable
lost connection

```

wget: Download files from the web

```
(kali@kali)~[/sevanth]
$ wget https://bin.equinox.io/c/4VmDzA7iaHb/ngrok-stable-linux-amd64.zip
--2023-05-28 11:21:21-- https://bin.equinox.io/c/4VmDzA7iaHb/ngrok-stable-linux-amd64.zip
Resolving bin.equinox.io (bin.equinox.io)... 18.205.222.128, 54.161.241.46, 54.237.133.81, ...
Connecting to bin.equinox.io (bin.equinox.io)|18.205.222.128|:443 ... failed: Network is unreachable.
Connecting to bin.equinox.io (bin.equinox.io)|54.161.241.46|:443 ... failed: Network is unreachable.
Connecting to bin.equinox.io (bin.equinox.io)|54.237.133.81|:443 ... failed: Network is unreachable.
Connecting to bin.equinox.io (bin.equinox.io)|52.202.168.65|:443 ... failed: Network is unreachable.
```

## System Administration:

sudo: Execute commands with superuser privileges

```
(kali@kali)~[/sevanth]
$ sudo su
[sudo] password for kali:
(root@kali)~[/home/kali/sevanth]
```

apt-get: Package management for Debian-based distributions

```
(kali@kali)~[/sevanth]
$ sudo su
[sudo] password for kali:
(root@kali)~[/home/kali/sevanth]
$ apt-get update
Ign:1 http://http.kali.org/kali kali-rolling InRelease
Ign:1 http://http.kali.org/kali kali-rolling InRelease
Ign:1 http://http.kali.org/kali kali-rolling InRelease
Err:1 http://http.kali.org/kali kali-rolling InRelease
      Could not resolve 'http.kali.org'
Reading package lists... Done
W: Failed to fetch http://http.kali.org/kali/dists/kali-rolling/InRelease Could not resolve 'http.kali.org'
W: Some index files failed to download. They have been ignored, or old ones used instead.
W: Target Packages (main/binary-and64/Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Packages (non-free/binary-and64/Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Packages (non-free/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Translations (non-free/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Translations (non-free/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Packages (contrib/binary-and64/Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Packages (contrib/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Translations (contrib/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
W: Target Translations (contrib/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:6
```

yum: Package management for Red Hat-based distributions

```
(root@kali)~[/home/kali/sevanth]
# yum info vsftpd
```



systemctl: Manage system services

```
(root@kali)~# systemctl list-unit-files --type=service --all
```

UNIT FILE	STATE	VENDOR PRESET
apache-htcacheclean.service	disabled	disabled
apache-htcacheclean@.service	disabled	disabled
apache2.service	disabled	disabled
apache2@.service	disabled	disabled
apparmor.service	enabled	disabled
apt-daily-upgrade.service	static	-
apt-daily.service	static	-
atftpd.service	generated	-
auth-rpcgss-module.service	static	-
autovt@.service	alias	-
avahi-daemon.service	disabled	disabled
bettercap.service	disabled	disabled
binfmt-support.service	enabled	enabled
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

crontab: Schedule recurring tasks

```
(root@kali)~# 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

useradd: Add a new user

```
(root@kali)~# useradd new
```

passwd: Change user password

```
(root@kali)~# passwd new
```

New password:

Retype new password:

passwd: password updated successfully