

Linux Hands-on Session Day-4

1) Copy one file from one linux machine to another linux machine using scp command.

scp filename username@ip:/destinationpath

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ cat Sample.txt  
Hello, this is the first line.  
Hello, this is the second line.  
hello, this is the third line.  
jsanghavi@ip-10-50-1-21:~$  
jsanghavi@ip-10-50-1-21:~$ scp Sample.txt Bansilpatel@10.50.1.21:/home/Bansilpatel  
Sample.txt                               100% 95 150.1KB/s 00:00  
jsanghavi@ip-10-50-1-21:~$  
jsanghavi@ip-10-50-1-21:~$ ssh Bansilpatel@10.50.1.21  
Last login: Thu Jan 20 08:49:03 2022 from 10.50.1.21  
$ bahs  
-sh: 1: bahs: not found  
$ bash  
Bansilpatel@ip-10-50-1-21:~$ ls  
combined.txt  familymembers.txt      file_list.txt  java.java      package.txt  
combin.txt    familymembers.txt.save  friend_list.txt Jsanghavi@10.50.1.21 Sample.txt  
Bansilpatel@ip-10-50-1-21:~$ cat Sample.txt  
  
Hello, this is the first line.  
Hello, this is the second line.  
hello, this is the third line.  
Bansilpatel@ip-10-50-1-21:~$ ssh jsanghavi@10.50.1.21  
Last login: Thu Jan 20 08:52:11 2022 from 10.50.0.1  
$ bash  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 08:54:58 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

2) Find the location of files that have the specific word.

-R for recursive search and -w for finding exact words and -e for pattern.

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ grep -Rw /home/jsanghavi/ -e 'Jainil'  
/home/jsanghavi/.bash_history:mkdir Jainil  
/home/jsanghavi/friends_list.txt:Jainil  
/home/jsanghavi/family.txt:Jainil  
/home/jsanghavi/combined.txt:Jainil  
/home/jsanghavi/combined.txt:Jainil  
jsanghavi@ip-10-50-1-21:~$  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 09:00:14 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

3) How to find the process id which is running on a specific port?

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ netstat -nptl | grep -w ':22' | ps  
(Not all processes could be identified, non-owned process info  
will not be shown, you would have to be root to see it all.)  
    PID TTY          TIME CMD  
  64672 pts/3        00:00:00 sh  
  64675 pts/3        00:00:00 bash  
  64719 pts/3        00:00:00 ps  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 09:03:07 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

4) Find the lines which have specific words from the log files using grep command.

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ cat Sample.log  
  
Hello, this is the first line.  
Hello, this is the second line.  
hello, this is the third line.  
  
jsanghavi@ip-10-50-1-21:~$ cat Sample.log | grep -w "line"  
Hello, this is the first line.  
Hello, this is the second line.  
hello, this is the third line.  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 09:06:50 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

5) How to provide file permissions to file, user and directory?

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ ls -al | tail  
-rw-r--r-- 1 jsanghavi jsanghavi 22 Jan 13 15:35 sample.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 95 Jan 18 18:21 Sample.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 19 00:12 .Sample.txt.swm  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:36 .Sample.txt.swn  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:26 .Sample.txt.swo  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:23 .Sample.txt.swp  
drwx----- 2 jsanghavi jsanghavi 4096 Jan 13 15:39 .ssh  
-rw-r--r-- 1 jsanghavi jsanghavi 66 Jan 13 12:11 student0.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 48 Jan 13 12:08 Test0.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 8837 Jan 20 09:06 .viminfo  
jsanghavi@ip-10-50-1-21:~$  
jsanghavi@ip-10-50-1-21:~$ chmod u+x Sample.txt student0.txt  
jsanghavi@ip-10-50-1-21:~$ ls -al | tail  
-rw-r--r-- 1 jsanghavi jsanghavi 22 Jan 13 15:35 sample.txt  
-rwxr--r-- 1 jsanghavi jsanghavi 95 Jan 18 18:21 Sample.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 19 00:12 .Sample.txt.swm  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:36 .Sample.txt.swn  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:26 .Sample.txt.swo  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:23 .Sample.txt.swp  
drwx----- 2 jsanghavi jsanghavi 4096 Jan 13 15:39 .ssh  
-rwxr--r-- 1 jsanghavi jsanghavi 66 Jan 13 12:11 student0.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 48 Jan 13 12:08 Test0.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 8837 Jan 20 09:06 .viminfo  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:17:23 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

6) How to do Archiving and Compression of any folder?

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ tar cvf file.tar *.txt  
combined.txt  
Demo0.txt  
Demo1.txt  
Demo2.txt  
empl.txt  
emp2.txt  
emp3.txt  
example.txt  
f1.txt  
f2.txt  
family.txt  
friends_list.txt  
installed_package.txt  
marks.txt  
nos.txt  
sample.txt  
Sample.txt  
student0.txt  
Test0.txt  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 17:05:33 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ tar xvf file.tar  
combined.txt  
Demo0.txt  
Demo1.txt  
Demo2.txt  
empl.txt  
emp2.txt  
emp3.txt  
example.txt  
f1.txt  
f2.txt  
family.txt  
friends_list.txt  
installed_package.txt  
marks.txt  
nos.txt  
sample.txt  
Sample.txt  
student0.txt  
Test0.txt  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 17:07:47 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

7) Any other 10 commands not discussed in the session.

tac: Displays file content in a reverse order.

sleep: Used to hold the terminal for a specified amount of time.

sed: Used to edit streams using regular expressions.

awk: Used for text processing in Linux.

fdisk: To display partition information on a Linux system.

whereis: Looks through a list of standard directories and works independently of your search path.

type: Displays information about the command.

locate: Locates the files and directories in the local file system.

exec: Executes a shell script or the program in place of current process.

unset: Removes a variable or the function.

cmp: Compare two files.

comm: Compare two sorted files.

yes: Output a string repeatedly until killed.

nl: number the lines in the file.

8) How to find hidden files in a directory?

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ ls -al  
total 328  
drwxr-xr-x  7 jsanghavi jsanghavi 4096 Jan 20 15:18 .  
drwxr-xr-x 43 root      root      4096 Jan 19 10:07 ..  
-rw-rw-r--  1 jsanghavi jsanghavi  95 Jan 20 08:53 Bansilpatel@10.50.1.21  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 15:59 bansilfile  
-rw-----  1 jsanghavi jsanghavi 6559 Jan 20 09:21 .bash_history  
-rw-r--r--  1 jsanghavi jsanghavi 220 Apr  5 2018 .bash_logout  
-rw-r--r--  1 jsanghavi jsanghavi 3771 Apr  5 2018 .bashrc  
-rw-rw-r--  1 jsanghavi jsanghavi  73 Jan 19 11:13 combined.txt  
-rw-rw-r--  1 jsanghavi jsanghavi  24 Jan 13 11:19 Demo0.pdf  
-rw-rw-r--  1 jsanghavi jsanghavi 2189 Jan 18 18:06 Demo0.txt  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 11:19 Demo1.pdf  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 11:17 Demo1.txt  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 11:19 Demo2.pdf  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 11:17 Demo2.txt  
drwxrwxr-x  2 jsanghavi jsanghavi 4096 Jan 13 13:16 devansh  
-rw-rw-r--  1 jsanghavi jsanghavi  66 Jan 13 13:07 dtadhani@10.50.1.21  
-rw-rw-r--  1 jsanghavi jsanghavi  17 Jan 13 11:24 empl.txt  
-rw-rw-r--  1 jsanghavi jsanghavi  18 Jan 13 11:25 emp2.txt  
-rw-rw-r--  1 jsanghavi jsanghavi  12 Jan 13 11:25 emp3.txt  
-rw-rw-r--  1 jsanghavi jsanghavi  99 Jan 18 13:28 example.txt  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 13:16 f1.txt  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 15:26 f2.txt  
-rw-rw-r--  1 jsanghavi jsanghavi  29 Jan 18 18:53 family.txt  
-rw-rw-r--  1 jsanghavi jsanghavi  44 Jan 18 18:49 friends_list.txt  
drwx-----  3 jsanghavi jsanghavi 4096 Jan 13 11:12 .gnupg  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 15:50 hello  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 15:51 hellojainilbhai  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 18 23:36 installed_package.txt  
-rw-rw-r--  1 jsanghavi jsanghavi   0 Jan 13 15:50 jainil  
drwxrwxr-x  2 jsanghavi jsanghavi 4096 Jan 18 18:40 Jainil
```

```
jsanghavi@ip-10-50-1-21: ~  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 15:26 f2.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 29 Jan 18 18:53 family.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 44 Jan 18 18:49 friends_list.txt  
drwx----- 3 jsanghavi jsanghavi 4096 Jan 13 11:12 .gnupg  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 15:50 hello  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 15:51 hellojainilbhai  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 18 23:36 installed_package.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 15:50 jainil  
drwxrwxr-x 2 jsanghavi jsanghavi 4096 Jan 18 18:40 Jainil  
-rw----- 1 jsanghavi jsanghavi 1675 Jan 13 15:52 keyjaini  
-rw-r--r-- 1 jsanghavi jsanghavi 405 Jan 13 15:52 keyjaini.pub  
-rw-rw-r-- 1 jsanghavi jsanghavi 73757 Jan 19 12:55 linux-tutorial  
drwxrwxr-x 3 jsanghavi jsanghavi 4096 Jan 18 13:07 .local  
-rw-rw-r-- 1 jsanghavi jsanghavi 55032 Jan 18 17:14 marks.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 40 Jan 13 11:21 nos.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 807 Apr 5 2018 .profile  
-rw-rw-r-- 1 jsanghavi jsanghavi 96 Jan 20 09:06 Sample.log  
-rw-rw-r-- 1 jsanghavi jsanghavi 22 Jan 13 15:35 sample.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 95 Jan 18 18:21 Sample.txt  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 19 00:12 .Sample.txt.swm  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:36 .Sample.txt.swn  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:26 .Sample.txt.swo  
-rw-r--r-- 1 jsanghavi jsanghavi 12288 Jan 18 18:23 .Sample.txt.swp  
drwx----- 2 jsanghavi jsanghavi 4096 Jan 13 15:39 .ssh  
-rwxrwxr-- 1 jsanghavi jsanghavi 66 Jan 13 12:11 student0.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 10240 Jan 20 15:18 tarl.tar  
-rw-rw-r-- 1 jsanghavi jsanghavi 48 Jan 13 12:08 Test0.txt  
-rw----- 1 jsanghavi jsanghavi 8837 Jan 20 09:06 .viminfo  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:20:19 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

9) How can you find out how much memory Linux is using?

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ vmstat -s  
4015804 K total memory  
399400 K used memory  
2337720 K active memory  
746256 K inactive memory  
295092 K free memory  
267704 K buffer memory  
3053608 K swap cache  
1003516 K total swap  
780 K used swap  
1002736 K free swap  
7293930 non-nice user cpu ticks  
1888 nice user cpu ticks  
111848 system cpu ticks  
121787023 idle cpu ticks  
5221 IO-wait cpu ticks  
0 IRQ cpu ticks  
2223 softirq cpu ticks  
0 stolen cpu ticks  
3234778 pages paged in  
5582328 pages paged out  
2 pages swapped in  
13 pages swapped out  
43679468 interrupts  
39834691 CPU context switches  
1642349019 boot time  
520688 forks  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:19:17 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ free  
              total        used          free      shared  buff/cache   available  
Mem:           4015804      403996        290440         1448       3321368       3321064  
Swap:          1003516           780        1002736  
jsanghavi@ip-10-50-1-21:~$ free -m  
              total        used          free      shared  buff/cache   available  
Mem:           3921         394           283           1         3243         3243  
Swap:           979           0           979  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:21:38 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

10) Write a command that will display all .txt files, including its original permissions.

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ ls -al | find . name '\.txt'  
.  
./hello  
./f2.txt  
./bash_logout  
./Jainil  
./local  
./local/share  
./local/share/nano  
./tar1.tar  
./keyjaini  
./Demo1.pdf  
./ssh  
./ssh/known_hosts  
./ssh/id_rsa  
./ssh/authorized_keys  
./ssh/id_rsa.pub  
./installed.package.txt  
./Test0.txt  
./profile  
./hellojainilbhai  
./Demo2.pdf  
./emp2.txt  
./Sample.txt  
./bash_history  
./jainil  
./bansilsfile  
./devansh  
./devansh/f2.txt  
./devansh/f4.txt  
./devansh/f3.txt  
./devansh/f1.txt
```

```
jsanghavi@ip-10-50-1-21: ~  
./keyjaini.pub  
./student0.txt  
./friends_list.txt  
./family.txt  
./dtadhani@10.50.1.21  
./gnupg  
./gnupg/private-keys-v1.d  
./combined.txt  
./empl.txt  
./Sample.txt.swn  
./Sample.txt.swp  
./f1.txt  
./sample.txt  
./viminfo  
./Demo0.pdf  
./Sample.log  
./emp3.txt  
./nos.txt  
./Demo1.txt  
./Sample.txt.swo  
./bashrc  
./linux-tutorial  
./example.txt  
./Sample.txt.swm  
./Demo0.txt  
./Bansilpatel@10.50.1.21  
./marks.txt  
./Demo2.txt  
find: 'name': No such file or directory  
find: '\.txt': No such file or directory  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:22:27 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ ls -l | grep -i ".txt"  
-rw-rw-r-- 1 jsanghavi jsanghavi 73 Jan 19 11:13 combined.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 2189 Jan 18 18:06 Demo0.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 11:17 Demo1.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 11:17 Demo2.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 17 Jan 13 11:24 empl.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 18 Jan 13 11:25 emp2.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 12 Jan 13 11:25 emp3.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 99 Jan 18 13:28 example.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 13:16 f1.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 13 15:26 f2.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 29 Jan 18 18:53 family.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 44 Jan 18 18:49 friends_list.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 0 Jan 18 23:36 installed_package.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 55032 Jan 18 17:14 marks.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 40 Jan 13 11:21 nos.txt  
-rwx----- 1 jsanghavi jsanghavi 22 Jan 13 15:35 sample.txt  
-rwxrw-r-- 1 jsanghavi jsanghavi 95 Jan 18 18:21 Sample.txt  
-rwxrw-r-- 1 jsanghavi jsanghavi 66 Jan 13 12:11 student0.txt  
-rw-rw-r-- 1 jsanghavi jsanghavi 48 Jan 13 12:08 Test0.txt  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:23:28 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

11) How can you find out the status of a process?

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ ps -gv  
  PID TTY          STAT       TIME MAJFL   TRS    DRS    RSS %MEM  COMMAND  
128590 pts/3      Ss           0:00      0   108   4527   860   0.0  -sh  
128593 pts/3      S            0:00      0  1037  21794  5408   0.1  bash  
128938 pts/3      R+           0:00      0   109  39562  3684   0.0  ps -gv  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:23:47 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

12) How can you check the memory status?

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ cat /proc/meminfo  
MemTotal:      4015804 kB  
MemFree:       288500 kB  
MemAvailable:  3319320 kB  
Buffers:       267896 kB  
Cached:        2646156 kB  
SwapCached:    4 kB  
Active:        2343172 kB  
Inactive:      746032 kB  
Active(anon):  150212 kB  
Inactive(anon): 26384 kB  
Active(file):  2192960 kB  
Inactive(file): 719648 kB  
Unevictable:   0 kB  
Mlocked:       0 kB  
SwapTotal:     1003516 kB  
SwapFree:      1002736 kB  
Dirty:         72 kB  
Writeback:     0 kB  
AnonPages:     175212 kB  
Mapped:        166076 kB  
Shmem:         1448 kB  
Slab:          504352 kB  
SReclaimable:  407512 kB  
SUnreclaim:    96840 kB  
KernelStack:   7232 kB  
PageTables:    21988 kB  
NFS_Unstable:  0 kB  
Bounce:        0 kB  
WritebackTmp:  0 kB  
CommitLimit:   3011416 kB  
Committed_AS:  788036 kB
```

```
jsanghavi@ip-10-50-1-21: ~  
Shmem:         1448 kB  
Slab:          504352 kB  
SReclaimable:  407512 kB  
SUnreclaim:    96840 kB  
KernelStack:   7232 kB  
PageTables:    21988 kB  
NFS_Unstable:  0 kB  
Bounce:        0 kB  
WritebackTmp:  0 kB  
CommitLimit:   3011416 kB  
Committed_AS:  788036 kB  
VmallocTotal:  34359738367 kB  
VmallocUsed:    0 kB  
VmallocChunk:   0 kB  
HardwareCorrupted: 0 kB  
AnonHugePages: 0 kB  
ShmemHugePages: 0 kB  
ShmemFmdMapped: 0 kB  
CmaTotal:      0 kB  
CmaFree:       0 kB  
HugePages_Total: 0  
HugePages_Free: 0  
HugePages_Rsvd: 0  
HugePages_Surp: 0  
Hugepagesize:   2048 kB  
DirectMap4k:    249664 kB  
DirectMap2M:    3944448 kB  
DirectMap1G:    2097152 kB  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 15:25:40 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```


13) Write commands used to set a processor-intensive job to use less CPU time.

We can renice the value for a process.

Command: renice +10PID

cpulimit -l value -p PID

14) Explain how you can find a file using Terminal.

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ find . -type f  
./hello  
./f2.txt  
./bash_logout  
./tar1.tar  
./keyjaini  
./Demol.pdf  
./ssh/known_hosts  
./ssh/id_rsa  
./ssh/authorized_keys  
./ssh/id_rsa.pub  
./installed_package.txt  
./Test0.txt  
./profile  
./hellojainilbhai  
./Demo2.pdf  
./emp2.txt  
./Sample.txt  
./bash_history  
./jainil  
./bansilsfile  
./devansh/f2.txt  
./devansh/f4.txt  
./devansh/f3.txt  
./devansh/f1.txt  
./keyjaini.pub  
./student0.txt  
./friends_list.txt  
./family.txt  
./dtadhani@10.50.1.21  
./combined.txt  
./empl.txt
```

```

./empl.txt
./Sample.txt.swn
./Sample.txt.swp
./fl.txt
./sample.txt
./viminfo
./Demo0.pdf
./Sample.log
./emp3.txt
./nos.txt
./Demol.txt
./Sample.txt.swo
./bashrc
./linux-tutorial
./example.txt
./Sample.txt.swm
./Demo0.txt
./Bansilpatel@10.50.1.21
./marks.txt
./Demo2.txt
jsanghavi@ip-10-50-1-21:~$ hostname -f;date
ip-10-50-1-21.cdsys.local
Thu Jan 20 15:27:19 IST 2022
jsanghavi@ip-10-50-1-21:~$

```

15) Create an ssh key and add it's identity.

```

jsanghavi@ip-10-50-1-21: ~
jsanghavi@ip-10-50-1-21:~$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/jsanghavi/.ssh/id_rsa):
/home/jsanghavi/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/jsanghavi/.ssh/id_rsa.
Your public key has been saved in /home/jsanghavi/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:i0o8Rm3B8aiNogglXlWtGrilOLgFUzGvYNUeX/StveA jsanghavi@ip-10-50-1-21
The key's randomart image is:
+---[RSA 2048]---+
|  oo..o.o.      |
|  oo.+ + o. .   |
|oo..+ * + . .   |
|=+.o O +  o     |
|o++ B * S  o .   |
|++.* o . . . .  |
|oo. = . . E .   |
|.  o o          |
|  .             |
+---[SHA256]-----+
jsanghavi@ip-10-50-1-21:~$ eval "$(ssh-agent -s)"
Agent pid 129429
jsanghavi@ip-10-50-1-21:~$ ssh-add ~/.ssh/id_rsa
Identity added: /home/jsanghavi/.ssh/id_rsa (/home/jsanghavi/.ssh/id_rsa)
jsanghavi@ip-10-50-1-21:~$ hostname -f;date
ip-10-50-1-21.cdsys.local
Thu Jan 20 15:30:46 IST 2022
jsanghavi@ip-10-50-1-21:~$

```

16) Create a bash script to find if a number is perfect or not.

```
jsanghavi@ip-10-50-1-21: ~  
echo Enter a number  
read no  
i=1  
ans=0  
while [ "$i" -le "$(expr $no / 2)" ]  
do  
    if [ `expr $no $i` -eq 0 ]  
    then  
        ans=`expr $ans + $i`  
    fi  
    i=`expr $i + 1`  
done  
if [ $no -eq $ans ]  
then  
    echo $no is a perfect number.  
else  
    echo $no is not a perfect number.  
fi  
~  
~  
~  
~  
"perfect.sh" 19L, 267C 12,1 All
```

```
Enter a number  
10  
10 is NOT perfect  
$ bash cmd16.sh  
Enter a number  
6  
6 is perfect  
$
```

17) Write a shell script to print a number in reverse order. It should support the following requirements:

- a) The script should accept the input from the command line.
- b) If you don't input any data, then display an error message to execute the script correctly.

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ vi reverse.sh  
jsanghavi@ip-10-50-1-21:~$ cat reverse.sh  
reverse=0  
rem=0  
n=$1  
  
if [ -z $n ]  
then  
    echo "Please enter argument!!"  
    exit  
else  
    while [ $n -gt 0 ]  
    do  
        rem=$(( $n % 10 ))  
        reverse=`expr $reverse \* 10 + $rem`  
        n=$(( $n / 10 ))  
    done  
  
    echo "Reversed number is: $reverse"  
fi  
jsanghavi@ip-10-50-1-21:~$ bash reverse.sh  
Please enter argument!!  
jsanghavi@ip-10-50-1-21:~$ bash reverse.sh 123  
Reversed number is: 321  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 18:12:09 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```

18) Write a shell script to validate password strength. Here are a few assumptions for the password string.

Length - minimum of 8 characters.

Contain both the alphabet and number.

Include both the small and capital letters.

If the password does not comply with any of the above conditions, then the script should report it as a <Weak Password>.

```
jsanghavi@ip-10-50-1-21: ~  
jsanghavi@ip-10-50-1-21:~$ cat password.sh  
echo "Enter your password: "  
read password  
len="${#password}"  
if test $len -ge 8  
then  
    echo "$password" | grep -q [0-9]  
    if test $? -eq 0  
    then  
        echo "$password" | grep -q [a-z]  
        if test $? -eq 0  
        then  
            echo "$password" | grep -q [A-Z]  
            if test $? -eq 0  
            then  
                echo "\e[1;32m Strong Password \e[0m"  
            else  
                echo "\e[1;31m Weak Password, include Lower characters \e[0m"  
            fi  
        else  
            echo "\e[1;31m Weak Password, include capital characters \e[0m"  
        fi  
    else  
        echo "\e[1;31m Weak Password, include capital characters \e[0m"  
    fi  
else  
    echo "\e[1;31m Weak Password, Password is too short, Length should be more than 8 \e[0m"  
fi  
jsanghavi@ip-10-50-1-21:~$ hostname -f;date  
ip-10-50-1-21.cdsys.local  
Thu Jan 20 18:36:17 IST 2022  
jsanghavi@ip-10-50-1-21:~$
```