

2. Basic Linux Commands

Study of a terminal based text editor such as Vim or Emacs. (By the end of the course, students are expected to acquire following skills in using the editor: cursor operations, manipulate text, search for patterns, global search and replace)

Basic Linux commands, familiarity with following commands/operations expected

1. man
2. ls, echo, read
3. more, less, cat,
4. cd, mkdir, pwd, find
5. mv, cp, rm ,tar
6. wc, cut, paste
7. head, tail, grep, expr
8. chmod, chown
9. Redirections & Piping
10. useradd, usermod, userdel, passwd
11. df,top, ps
12. ssh, scp, ssh-keygen, ssh-copy-id

1. pwd (Print Working Directory): Use the pwd command to find out the path of the current working directory (folder) you're in. The command will return an absolute (full) path, which is basically a path of all the directories that starts with a forward slash (/). An example of an absolute path is /home/username.

```
mits@mits-H610M-H-V2-DDR4:~$ pwd
/home/mits
```

2. history : When you have been using Linux for a certain period of time, you will quickly notice that you can run hundreds of commands every day. As such, running history command is particularly useful if you want to review the commands you have entered before.

```
mits@mits-H610M-H-V2-DDR4:~$ history
```

```
2033 clear
2034 cat -n india
2035 cat -n india | head -6 | tail -2
2036 echo "god is love"
2037 man echo
2038 echo -n "god is love"
2039 man echo
2040 echo -e "god\nis\nlove"
2041 history
2042 pwd
2043 man ls
2044 ls
2045 clear
2046 History
```

3. man :by using this command you can easily learn how to use

```
mits@mits-H610M-H-V2-DDR4:~$ man ls
```

NAME

ls - list directory contents

SYNOPSIS

ls [OPTION]... [FILE]...

DESCRIPTION

List information about the FILES (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort

is specified.

Mandatory arguments to long options are mandatory for short options too.

-a, --all

do not ignore entries starting with .

-A, --almost-all

do not list implied . and ..

--author

with -l, print the author of each file

-b, --escape

print C-style escapes for nongraphic characters

--block-size=SIZE

with -l, scale sizes by SIZE when printing them; e.g., '--block-size=M'; see SIZE format below

-B, --ignore-backups

do not list implied entries ending with ~

-c with -lt: sort by, and show, ctime (time of last modification of file status information); with -l: show ctime and sort by

name; otherwise: sort by ctime, newest first

-C list entries by columns

4. cd : To navigate through the Linux files and directories, use the cd .It requires either the full path or the name of the directory, depending on the current working directory that you're in.

```
mits@ mits-H610M-H-V2-DDR4:~$ cd s1mca
```

```
mits@mits-H610M-H-V2-DDR4:~/s1mca$ cd s2mca
```

```
mits@mits-H610M-H-V2-DDR4:~/s1mca/s2mca$ cd ..
```

```
mits@mits-H610M-H-V2-DDR4:~/s1mca$ cd ..
```

```
mits@ mits-H610M-H-V2-DDR4:~$
```

5. ls: The ls command is used to view the contents of a directory. By default, this command will display the contents of your current working directory.If you want to see the content of other directories, type ls and then the directory's path.

```
mits@mits-H610M-H-V2-DDR4:~$ ls
document.docx document.pdf india snap
```

There are variations you can use with the ls command:

- ls -R will list all the files in the sub-directories aswell

```
mits@mits-H610M-H-V2-DDR4:~$ ls -R
.:
document.docx document.pdf india snap
```

- ls -l – long listing

```
mits@mits-H610M-H-V2-DDR4:~$ ls -l
total 252
-rw-rw-r-- 1 mits mits 26431 Feb  5 11:36 document.docx
-rw-rw-r-- 1 mits mits 218271 Feb  5 10:16 document.pdf
-rw-rw-r-- 1 mits mits  454 Feb  5 10:48 india
drwx----- 4 mits mits 4096 Feb  5 10:08 snap
```

- ls -a will show the hidden files

```
mits@mits-H610M-H-V2-DDR4:~$ ls -a
.          .bash_logout .config    .fontconfig .lessht      .mca.swp
.profile  .sudo_as_admin_successful
..         .bashrc      document.docx .gnupg      .local       .mca.txt.swp
snap      .thunderbird
.bash_history .cache      document.pdf india      .~lock.document.docx#
.mozilla    .ssh
```

- ls -al will list the files and directories with detailed information like the permission, size, owner, etc.

```
mits@mits-H610M-H-V2-DDR4:~$ ls -al
total 364
-rw-rw-r-- 1 mits mits  84 Feb  5 11:36 .~lock.document.docx#
```

```

-rw----- 1 mits mits 12288 Apr 15 2024 .mca.swp
-rw----- 1 mits mits 12288 Apr 15 2024 .mca.txt.swp
drwx----- 3 mits mits 4096 Oct 10 15:30 .mozilla
-rw-r--r-- 1 mits mits 807 Jan 24 2024 .profile
drwx----- 4 mits mits 4096 Feb 5 10:08 snap
drwx----- 2 mits mits 4096 Mar 4 2024 .ssh
-rw-r--r-- 1 mits mits 0 Jan 24 2024 .sudo_as_admin_successful
drwx----- 6 mits mits 4096 Oct 10 15:30 .thunderbird

```

- `ls -t` lists files sorted in the order of “lastmodified”

```
mits@mits-H610M-H-V2-DDR4:~$ ls -t
document.docx india document.pdf snap
```
- `ls -r` option will reverse the natural sorting order. Usually used in combination with other switches such as `ls -tr`. This will reverse the time-wise listing.

```
mits@mits-H610M-H-V2-DDR4:~$ ls -r
snap india document.pdf document.docx
```

6. mkdir : Use `mkdir` command to make a new directory — if you type `mkdir Music` it will create a directory called `Music`. To generate a new directory inside another directory, use this Linux basic command

```

mits@mits-H610M-H-V2-DDR4:~$ ls
document.docx f1 india kerala linuxtext snap
mits@mits-H610M-H-V2-DDR4:~/$ mkdir s1mca
mits@mits-H610M-H-V2-DDR4:~/$ mkdir s2mca
mits@mits-H610M-H-V2-DDR4:~$ ls
document.docx f1 india kerala linuxtext snap s1mca s2mca

```

7. rmdir: If you need to delete a directory, use the `rmdir` command. However, `rmdir` only allows you to delete empty directories.

```
mits@mits-H610M-H-V2-DDR4:~$ ls
```

```
document.docx f1 india kerala linuxtext snap s1mca s2mca
mits@mits-H610M-H-V2-DDR4:~/$ rmdir s2mca
mits@mits-H610M-H-V2-DDR4:~$ ls
document.docx f1 india kerala linuxtext snap s1mca
```

8. touch: The touch command allows you to create a blank new file through the Linux command line.

```
mits@mits-H610M-H-V2-DDR4:~/s2mca$ ls
f1 linux new
mits@mits-H610M-H-V2-DDR4:~/s2mca$ touch apple orange
mits@mits-H610M-H-V2-DDR4:~/s2mca$ ls
apple f1 linux new orange
```

9. rm : The rm command is used to delete directories and the contents within them. If you only want to delete the directory —as an alternative to rmdir — use rm -r. Be very careful with this command and double-check which directory you are in. This will delete everything and there is no undo. To remove a file use rm filename.

```
mits@mits-H610M-H-V2-DDR4:~$ ls
document.docx grapes india kerala linuxtext mca mint s2mca snap yellow
mits@mits-H610M-H-V2-DDR4:~$ rm mca
rm: cannot remove 'mca': Is a directory
mits@mits-H610M-H-V2-DDR4:~$ rm -r mca
mits@mits-H610M-H-V2-DDR4:~$ ls
document.docx grapes india kerala linuxtext mint s2mca snap yellow
```

10. Cat: cat (short for concatenate) is one of the most frequently used commands in Linux. It is used to list the contents of a file on the standard output stdout . To run this command, type cat followed by the file's name and its extension.

```
mits@mits-H610M-H-V2-DDR4:~$ cat > india
india is my country
i love my country
```

all indians are my brothers and sisters

india, officially the Republic of India,[j][20] is a country in South Asia.

^C

mits@mits-H610M-H-V2-DDR4:~\$ cat india

india is my country

i love my country

all indians are my brothers and sisters

india, officially the Republic of India,[j][20] is a country in South Asia

mits@mits-H610M-H-V2-DDR4:~\$ cat -n india

1 india is my country

2 i love my country

3 all indians are my brothers and sisters

4 india, officially the Republic of India,[j][20] is a country in South Asia.

11. echo: echo command is used to move some data into a file. If you want to add the text, “Hello, my name is John” into a file called name.txt, you would type echo Hello, my name is John >> name.txt 2. head.

mits@mits-H610M-H-V2-DDR4:~\$ echo "god is love"

god is love

mits@mits-H610M-H-V2-DDR4:~\$ echo -e "god\nis\nlove"

god

is

love

12. head: The head command is used to view the first lines of any text file. By default, it will show the first ten lines, but you can change this number to your liking. If you only want to show the first five lines, type head -n 5 filename.txt.

mits@mits-H610M-H-V2-DDR4:~\$ head india

india is my country

i love my country

all indians are my brothers and sisters

india, officially the Republic of India,[j][20] is a country in South Asia.

It is the seventh-largest country by area

since its independence in 1947, the world's most populous democracy

Bounded by the Indian Ocean on the south

he Arabian Sea on the southwest

Bay of Bengal on the southeast

shares land borders with Pakistan to the west

```
mits@mits-H610M-H-V2-DDR4:~$ head -5 india
```

india is my country

i love my country

all indians are my brothers and sisters

india, officially the Republic of India,[j][20] is a country in South Asia.

It is the seventh-largest country by area

13. tail: This one has a similar function to the head command, but instead of showing the first lines, the tail command will display the last ten lines of a text file. tail -n filename.txt.

```
mits@mits-H610M-H-V2-DDR4:~$ tail india
```

i love my country

all indians are my brothers and sisters

india, officially the Republic of India,[j][20] is a country in South Asia.

It is the seventh-largest country by area

since its independence in 1947, the world's most populous democracy

Bounded by the Indian Ocean on the south

he Arabian Sea on the southwest

Bay of Bengal on the southeast

shares land borders with Pakistan to the west

China, Nepal, and Bhutan to the north

```
mits@mits-H610M-H-V2-DDR4:~$ tail -5 india
```


Bounded by the Indian Ocean on the south
 he Arabian Sea on the southwest
 Bay of Bengal on the southeast
 shares land borders with Pakistan to the west
 China, Nepal, and Bhutan to the north

14.read: read the contents of a line into a variable. The read command can be used with and without arguments. read command is used to read [options] [name...] . \$read \$read var1 var2 var3. \$echo "[\$var1] [\$var2] [\$var3].

```
mits@mits-H610M-H-V2-DDR4:~$ echo "Enter your name: "; read;
```

Enter your name:

Gokul

```
mits@mits-H610M-H-V2-DDR4:~$ echo "Enter your name: "; read name;
```

```
echo "hello" $name;
```

Enter your name:

gokul

hello gokul

15.more: Like cat command, more command displays the content of a file. Only difference is that, in case of larger files, ' cat' command output will scroll off your screen while ' more' command displays output one screenful at a time. Enter key

```
mits@mits-H610M-H-V2-DDR4:~$ more -p india
```

india is my country

i love my country

all indians are my brothers and sisters

india, officially the Republic of India,[j][20] is a country in South Asia.

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since its independence in 1947, the world's most populous democracy

Bounded by the Indian Ocean on the south
he Arabian Sea on the southwest
Bay of Bengal on the southeast
shares land borders with Pakistan to the west
China, Nepal, and Bhutan to the north

15.less: The 'less' command is same as 'more' command but include some more features.
It automatically adjusts with the width and height of the terminal window, while 'more'
command cuts the content as the width of the terminal window get shorter
mits@mits-H610M-H-V2-DDR4:~\$ less india

india is my country

i love my country

all indians are my brothers and sisters

india, officially the Republic of India,[j][20] is a country in South Asia.

It is the seventh-largest country by area

since its independence in 1947, the world's most populous democracy

Bounded by the Indian Ocean on the south

he Arabian Sea on the southwest

Bay of Bengal on the southeast

shares land borders with Pakistan to the west

China, Nepal, and Bhutan to the north

india (END)

17.cut : The cut command is used for cutting out the sections from each line offiles and
writing the result to standard output. It can be used to cut parts of aline by byte position,
character and file.

```
mits@mits-H610M-H-V2-DDR4:~$ cat > state
```

andhra pradesh

arunachal pradesh

assam

bihar

Chhattisgarh

india

^C

```
mits@mits-H610M-H-V2-DDR4:~$ cut -b 1,2,3,4 state
```

andh

arun

assa

biha

Chha

indi

```
mits@mits-H610M-H-V2-DDR4:~$ cut -b 1-3,6-7 state
```

anda

aruch

ass

bih

Chhti

ind

```
mits@mits-H610M-H-V2-DDR4:~$ cut -b 3- state
```

dhra pradesh

unachal pradesh

sam

har

hattisgarh

dia

18.paste : It is used to join files horizontally (parallel merging) by outputting lines consisting of lines from each file specified, separated by tab as delimiter, to the standard output. `paste [OPTION]... [FILES]...$ paste state.txt capital.txt.`

```
mits@mits-H610M-H-V2-DDR4:~$ cat number
```

```
1
```

```
2
```

```
3
```

```
4
```

```
5
```

```
mits@mits-H610M-H-V2-DDR4:~$ cat state
```

```
arunachal pradesh
```

```
assam
```

```
andhra pradesh
```

```
bihar
```

```
chattisgrah
```

```
mits@mits-H610M-H-V2-DDR4:~$ cat capital
```

```
itanagar
```

```
dispur
```

```
hyderabad
```

```
patna
```

```
raipur
```

```
mits@mits-H610M-H-V2-DDR4:~$ paste number state capital
```

```
1 arunachal pradesh itanagar
```

```
2 assam dispur
```

```
3 andhra pradesh hyderabad
```

```
4 bihar patna
```

```
5 chattisgrah raipur
```

```
mits@mits-H610M-H-V2-DDR4:~$ paste -d "|" number state capital
```

```
1|arunachal pradesh|itanagar
```

2|assam|dispur

3|andhra pradesh|hyderabad

4|bihar|patna

5|chattisgrah|raipur

mits@mits-H610M-H-V2-DDR4:~\$ paste -d "," number state capital

1,arunachal pradesh,itanagar

2,assam,dispur

3,andhra pradesh,hyderabad

4,bihar,patna

5,chattisgrah,raipur

mits@mits-H610M-H-V2-DDR4:~\$ paste -d "|," number state capital

1|arunachal pradesh,itanagar

2|assam,dispur

3|andhra pradesh,hyderabad

4|bihar,patna

5|chattisgrah,raipur

mits@mits-H610M-H-V2-DDR4:~\$ paste -s number state capital

1 2 3 4 5

arunachal pradesh assam andhra pradesh bihar chattisgrah

itanagar dispur hyderabad patna raipur

mits@mits-H610M-H-V2-DDR4:~\$ paste -s -d ":" number state capital

1:2:3:4:5

arunachal pradesh:assam:andhra pradesh:bihar:chattisgrah

itanagar:dispur:hyderabad:patna:raipur

19. uname : The uname command, short for Unix Name, will print detailed information about your Linux system like the machine name, operating system, kernel, and so on
\$uname, \$uname-r

20.cp : cp command issued to copy files from the current directory to a different directory.

For instance, the command `cp scenery.jpg`

`/home/username/Pictures` would create a copy of `scenery.jpg` (from your current directory) into the Pictures directory. `cp -i` will ask for user's consent in case of a potential file overwrite. `cp -p` will preserve source files' mode, ownership and timestamp. `cp -r` will copy directories recursively. `cp -u` copies files only if the destination file is not existing or the source file is newer than the destination file.

21.mv : The primary use of the `mv` command is to move files, it can also be used to rename files. The arguments in `mv` are similar to the `cp` command. You need to type `mv`, the file's name, and the destination's directory. `mv file.txt`

`/home/username/Documents`. To rename files, the Linux is `mv oldname.ext newname.ext`.

```
mits@mits-H610M-H-V2-DDR4:~/s2mca$ ls
```

```
apple f1 linux new orange
```

```
mits@mits-H610M-H-V2-DDR4:~/s2mca$ mv f1 f2
```

```
mits@mits-H610M-H-V2-DDR4:~/s2mca$ ls
```

```
apple f2 linux new orange
```

22.locate : To locate a file, just like the search command in Windows. What's more, using the `-i` argument along with this command will make it case insensitive, so you can search for a file even if you don't remember its exact name. To search for a file that contains two or more words, use an asterisk (*). For example, `locate -i school*note` command will search for any file that contains the word "school" and "note", whether it is uppercase or lowercase.

23.Find: Similar to the `locate` command, using `find` also searches for files and directories. The difference is, you use the `find` command to locate files within a given directory. As an example, `find /home/ -name notes.txt` command will search for a file called `notes.txt` within the home directory and its subdirectories. Other variations when

using the find are: To find files in the current directory use, `find . -name notes.txt`. To look for directories use, `/ -type d -name notes`. Txt

```
mits@mits-H610M-H-V2-DDR4:~$ find ./ -name *.txt
```

```
./sample.txt
```

```
./mca/sample.txt
```

```
mits@mits-H610M-H-V2-DDR4:~$ find ./mca -name sample.txt -exec rm -i {} \;
```

```
rm: remove regular empty file './mca/sample.txt'? y
```

```
mits@mits-H610M-H-V2-DDR4:~$ find ./ -name sample.txt
```

```
./sample.txt
```

```
mits@mits-H610M-H-V2-DDR4:~$ find ./ -empty
```

```
./s2mca/orange
```

```
./s2mca/new
```

```
./s2mca/apple
```

24.grep : Another basic Linux command that is undoubtedly helpful for everyday use is `grep`. It lets you search through all the text in a given file. To illustrate, `grep blue notepad.txt` will search for the word `blue` in the `notepad` file. Lines that contain the searched word will be displayed fully. Usually output of a previous command is piped into the `grep` command. For example, `ls -l |grep "kernel"`.

```
mits@mits-H610M-H-V2-DDR4:~$ cat exmple
```

```
unix is great os. unix was developed in Bell labs.
```

```
learn operating system.
```

```
Unix linux which one you choose.
```

```
uNix is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful.
```

```
mits@mits-H610M-H-V2-DDR4:~$ grep -c "unix" exmple
```

```
2
```

```
mits@mits-H610M-H-V2-DDR4:~$ grep -h "unix" exmple
```

```
unix is great os. unix was developed in Bell labs.
```

```
uNix is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful.
```

```
mits@mits-H610M-H-V2-DDR4:~$ grep -i "unix" exmple
```

unix is great os. unix was developed in Bell labs.

Unix linux which one you choose.

uNix is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful.

```
mits@mits-H610M-H-V2-DDR4:~$ grep -l "unix" exmple
```

exmple

```
mits@mits-H610M-H-V2-DDR4:~$ grep -n "unix" exmple
```

1:unix is great os. unix was developed in Bell labs.

4:uNix is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful.

25.df : Use df command to get a report on the system's disk space usage, shown in percentage and KBs. If you want to see the report in megabytes, type df - m.

```
mits@mits-H610M-H-V2-DDR4:~$ df
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
tmpfs	789976	2284	787692	1%	/run
/dev/sda5	216888480	16665692	189132664	9%	/
tmpfs	3949860	0	3949860	0%	/dev/shm
tmpfs	5120	4	5116	1%	/run/lock
efivarfs	256	125	127	50%	/sys/firmware/efi/efivars
/dev/sda1	98304	31816	66488	33%	/boot/efi
tmpfs	789972	108	789864	1%	/run/user/1000

26.du : If you want to check how much space a file or a directory takes, the du (Disk Usage) command is the answer. However, the disk usage summary will show disk block numbers instead of the usual size format. If you want to see it in bytes, kilobytes, and megabytes, add the -h argument to the command line.

```
mits@mits-H610M-H-V2-DDR4:~$ du
```

```
4    ./snap/firefox/5783/.config/gtk-3.0
4    ./snap/firefox/5783/.config/ibus
4    ./snap/firefox/5783/.config/dconf
```



```

4    ./snap/firefox/5783/.config/gtk-2.0
8    ./snap/firefox/5783/.config/pulse
8    ./snap/firefox/5783/.config/fontconfig
52   ./snap/firefox/5783/.config
4    ./snap/firefox/5783/.local/share/icons
4    ./snap/firefox/5783/.local/share/glib-2.0/schemas
8    ./snap/firefox/5783/.local/share/glib-2.0
24   ./snap/firefox/5783/.local/share
28   ./snap/firefox/5783/.local
88   ./snap/firefox/5783
4    ./snap/firefox/5751/.config/gtk-3.0
4    ./snap/firefox/5751/.config/ibus
4    ./snap/firefox/5751/.config/dconf
4    ./snap/firefox/5751/.config/gtk-2.0

```

27.useradd : This is available only to system admins .Since Linux is a multi- user system, this means more than one person can interact with the same system at the same time. useradd is used to create a new user, while passwd is adding a password to that user's account. To add a new person named John type, useradd John and then to add his password type, passwd 123456789

```
mits@mits-H610M-H-V2-DDR4:~$ sudo useradd gokul
```

```
[sudo] password for mits:
```

```
mits@mits-H610M-H-V2-DDR4:~$ cat /etc/passwd | grep gokul
```

```
gokul:x:1003:1003::/home/gokul:/bin/sh
```

```
mits@mits-H610M-H-V2-DDR4:~$ cat /etc/passwd | grep "gokul"
```

```
gokul:x:1003:1003::/home/gokul:/bin/sh
```

28.userdel :Remove a user is very similar to adding a new user. To delete the users account type, userdel UserName

```
mits@mits-H610M-H-V2-DDR4:~$ sudo userdel gokul
mits@mits-H610M-H-V2-DDR4:~$ cat /etc/passwd | tail -3
mca:x:1001:1001::/home/mca:/bin/sh
mysql:x:128:136:MySQL Server,,,:/nonexistent:/bin/false
exam:x:1002:1002:Exam,,,:/home/exam:/bin/bash
```

29.sudo : Short for “SuperUser Do”, this command enables you to perform tasks that require administrative or root permissions. You must have sufficient permissions to use this command.

```
mits@mits-H610M-H-V2-DDR4:~$ chown gokul myfile1.txt
chown: changing ownership of 'myfile1.txt': Operation not permitted
mits@mits-H610M-H-V2-DDR4:~$ sudo chown gokul myfile1.txt
```

30.passwd : Changes passwords for user accounts. A normal user may only change the password for their own account, while the superuser may change the password for any account.

31.usermod : usermod command is used to change the properties of a user in Linux through the command line command-line utility that allows you to modify a user’s login information.

```
mits@mits-H610M-H-V2-DDR4:~$ sudo usermod -l gookul gokul
mits@mits-H610M-H-V2-DDR4:~$ cat /etc/passwd | grep "gookul"
gookul:x:1003:1004::/home/gookul:/bin/sh
```

32.Groupadd : groupadd command creates a new group account using the values specified on the command line and the default values from the system.

Syntax:

```
groupadd [option] group_name
```

```
mits@mits-H610M-H-V2-DDR4:~$ sudo groupadd s2mca
```

```
mits@mits-H610M-H-V2-DDR4:~$ cat /etc/group | grep "s2mca"
s2mca:x:1004:
```

33.groups : print the groups a user is in#groups alice.

Syntax:

```
groups [username]...
```

```
mits@mits-H610M-H-V2-DDR4:~$ groups mits
mits : mits adm cdrom sudo dip plugdev lpadmin lxd sambashare
```

34.groupdel : groupdel command modifies the system account files, deleting all entries that refer to group. The named group must exist #groupdel marketin.

Syntax:

```
groupdel [options] GROUP
```

```
mits@mits-H610M-H-V2-DDR4:~$ sudo groupdel s1mca
mits@mits-H610M-H-V2-DDR4:~$ cat /etc/group | tail -3
mysql:x:136:
exam:x:1002:
gokul:x:1003:
```

35.groupmod : The groupmod command modifies the definition of the specified group by modifying the appropriate entry in the group database. # groupmod -n group1 group2.

Syntax:

```
groupmod [option] GROUP
```

```
mits@mits-H610M-H-V2-DDR4:~$ sudo groupmod -n s1mca s2mca
[sudo] password for mits:
mits@mits-H610M-H-V2-DDR4:~$ cat /etc/group | tail -3
exam:x:1002:
gokul:x:1003:
s1mca:x:1004:
```

36.chmod : To change directory permissions of file/ Directory in Linux. #chmod who what which file/directory chmod +rwx filename to add permissions. chmod -rwx directory name to remove permissions. chmod +x filename to allow executable permissions. chmod -wx filename to take out write and executable permissions. #chmod u+x test #chmod g- rwx test #chmod o-r test 4

```
mits@mits-H610M-H-V2-DDR4:~$ ls -l
```

```
drwxrwxr-x 2 mits mits 4096 Feb 20 11:47 mca
-rw-rw-r-- 1 mits mits 18 Feb 6 14:16 mint
-rw-rw-r-- 1 mits mits 148 Mar 5 11:22 myfile1.txt
-rw-rw-r-- 1 mits mits 148 Mar 5 11:22 myfile2.txt
```

```
mits@mits-H610M-H-V2-DDR4:~$ chmod 777 myfile1.txt
```

```
mits@mits-H610M-H-V2-DDR4:~$ ls -l
```

```
drwxrwxr-x 2 mits mits 4096 Feb 20 11:47 mca
-rw-rw-r-- 1 mits mits 18 Feb 6 14:16 mint
-rwxrwxrwx 1 mits mits 148 Mar 5 11:22 myfile1.txt
-rw-rw-r-- 1 mits mits 148 Mar 5 11:22 myfile2.txt
```

37.chown : The chown command allows you to change the user and/or group ownership of a given file, directory. #chownTom Test

```
mits@mits-H610M-H-V2-DDR4:~$ ls -l
```

```
-rw-rw-r-- 1 mits mits 148 Mar 5 11:22 myfile1.txt
-rw-rw-r-- 1 mits mits 148 Mar 5 11:22 myfile2.txt
```

```
mits@mits-H610M-H-V2-DDR4:~$ sudo chown gokul myfile1.txt
```

```
mits@mits-H610M-H-V2-DDR4:~$ ls -l
```

```
-rwxrwxrwx 1 gokul mits 148 Mar 5 11:22 myfile1.txt
-rw-rw-r-- 1 mits mits 148 Mar 5 11:22 myfile2.txt
```

38.id : id command in Linux is used to find out user and group names and numeric ID's (UID or group ID) of the current user.

```
mits@mits-H610M-H-V2-DDR4:~$ id
uid=1000(mits)                                gid=1000(mits)
groups=1000(mits),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),122(lpadmin),13
4(lxd),135(sambashare)
mits@mits-H610M-H-V2-DDR4:~$ ps
  PID TTY          TIME CMD
  9099 pts/0    00:00:00 bash
 11662 pts/0    00:00:00 ps
```

39.ps : The ps command, short for Process Status, is a command line utility that is used to display or view information related to the processes running in a Linux system. PID – This is the unique process ID TTY– This is the type of terminal that the user is logged in to . TIME – This is the time in minutes and seconds that the process has been running .CMD – The command that launched the process

Syntax:

```
ps [options]
```

40.top: top command is used to show the Linux processes. It provides a dynamic real- time view of the running system

Syntax:

```
top [options]
```

```
mits@mits-H610M-H-V2-DDR4:~$ top
top - 14:35:28 up 1:28, 1 user, load average: 0.52, 0.44, 0.39
Tasks: 337 total, 1 running, 336 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.0 us, 0.7 sy, 0.0 ni, 98.2 id, 0.0 wa, 0.0 hi, 0.1 si, 0.0 st
MiB Mem : 7714.6 total, 447.0 free, 3179.0 used, 4088.6 buff/cache
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used. 3508.2 avail Mem
```

41.wc : wc stands for word count. Used for counting purpose. It is used to find out number of lines, word count, byte and characters count in the files specified in the file arguments. #wc state.txt 6 8 54 state.tx . #wc state.txt capital.txt wc -l state.txt wc

```
-w state.txt capital.txt wc -c state.txt .wc -m state.txt
```

```
mits@mits-H610M-H-V2-DDR4:~$ cat state
```

```
Kerala
```

```
Tamil nadu
```

```
Goa
```

```
mits@mits-H610M-H-V2-DDR4:~$ wc state
```

```
3 4 22 state
```

```
mits@mits-H610M-H-V2-DDR4:~$ wc -l state
```

```
3 state
```

```
mits@mits-H610M-H-V2-DDR4:~$ wc -c state
```

```
22 state
```

```
mits@mits-H610M-H-V2-DDR4:~$ wc -w state
```

```
4
```

42.tar : The Linux ‘tar’ stands for tape archive, is used to create Archive and extract the Archive files Linux tar command to create compressed or uncompressed Archive files

43.expr : The expr command evaluates a given expression and displays its corresponding output. It is used for: . Basic operations like addition, subtraction, multiplication, division, and modulus on integers. Evaluating regular expressions, string operations like substring, length of strings etc. Performing operations on variables inside a shell script.

```
mits@mits-H610M-H-V2-DDR4:~$ a="20"
```

```
mits@mits-H610M-H-V2-DDR4:~$ b="4"
```

```
mits@mits-H610M-H-V2-DDR4:~$ expr $a + $b
```

```
24
```

```
mits@mits-H610M-H-V2-DDR4:~$ expr $a - $b
```

```
16
```

```
mits@mits-H610M-H-V2-DDR4:~$ expr $a \* $b
```

```
80
```

```
mits@mits-H610M-H-V2-DDR4:~$ expr $a / $b
```

```
5
```

44.Redirections & Piping : A pipe is a form of redirection to send the output of one command/program/process to another command/program/process for further processing. Pipe is used to combine two or more commands, the output of one command acts as input to another command, and this command's output may act as input to the next command and so on.

45.ssh : ssh stands for "Secure Shell". It is a protocol used to securely connect to a remote server/system. ssh is secure in the sense that it transfers the data in encrypted form between the host and the client. It transfers inputs from the client to the host and relays back the output. ssh runs at TCP/IP port 22

46.scp : SCP (secure copy) is a command-line utility that allows you to securely copy files and directories between two locations. With scp, you can copy a file or directory: From your local system to a remote system. From a remote system to your local system. Between two remote systems from your local system. Remote file system locations are specified in format [user@]host:/path Syntax: scp [OPTION] [user@]SRC_HOST:]file1 [user@]DEST_HOST:]file2 \$scp /etc/yum.config /etc/hosts ServerX:/home/student \$scp ServerX:/etc/hostname/home/student

47.ssh-keygen : ssh-keygen command to generate a public/private authentication key pair. Authentication keys allow a user to connect to a remote system without supplying a password. Keys must be generated for each user separately. If you generate key pairs as the root user, only the root can use the keys. \$ssh-keygen -t rsa