



Course Bulk RNA-seq

Ubuntu and Basic Linux commands

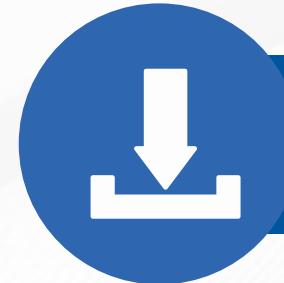
Presenter: Le Van Hieu
8nd May, 2023



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install ubuntu



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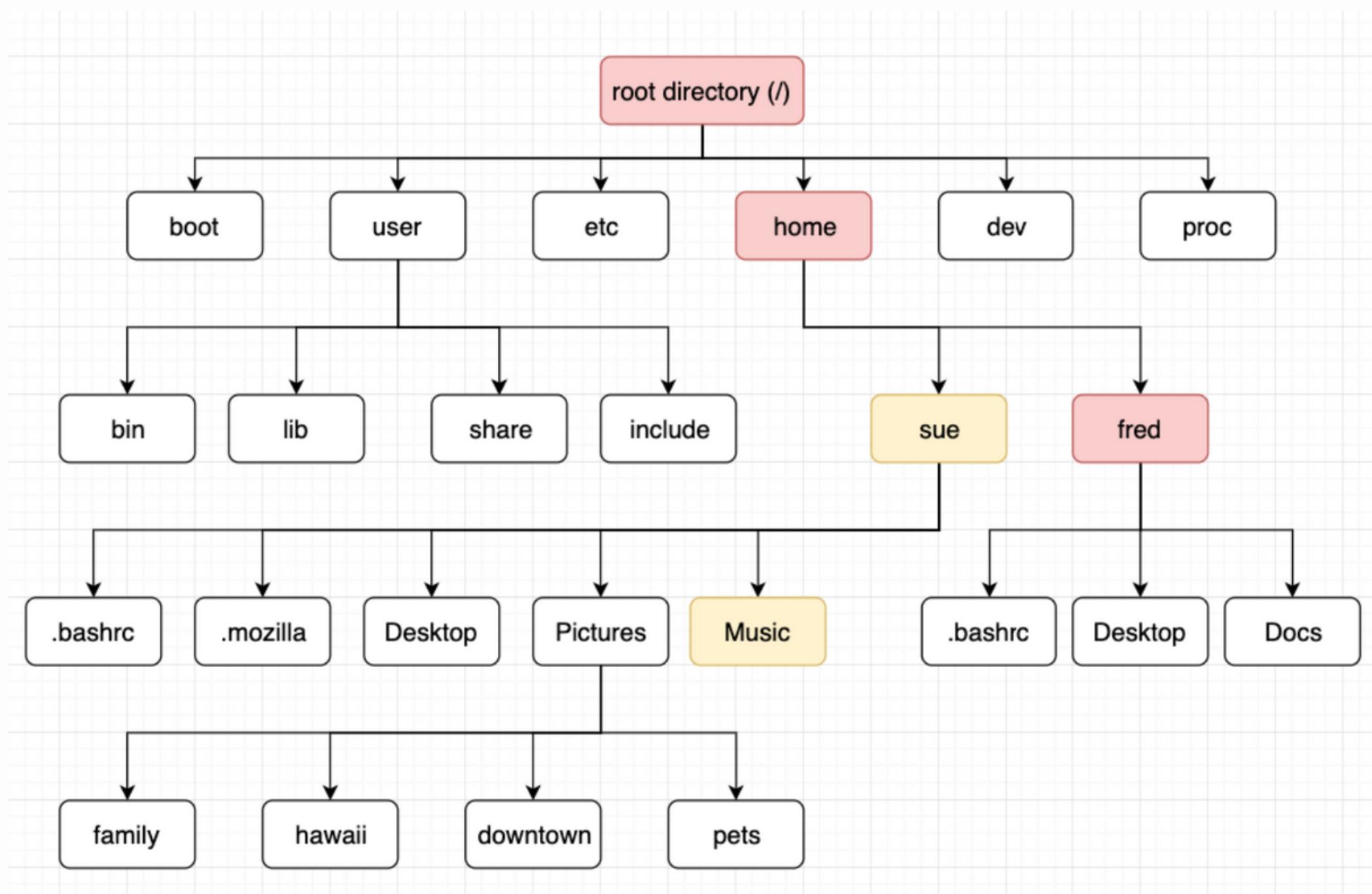


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FILES AND FOLDER SYSTEMS



Absolute path

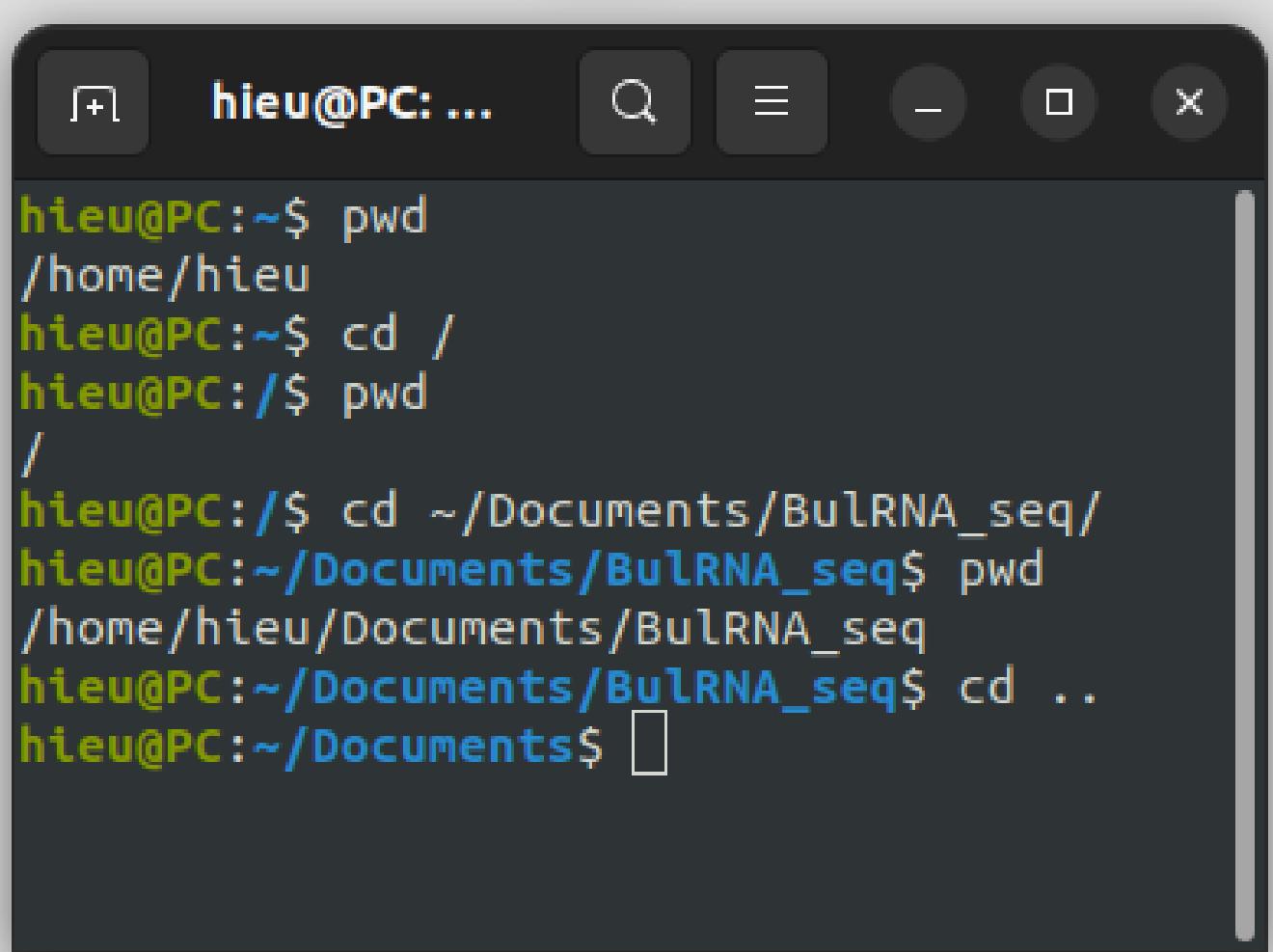
```
>_ $ cd /home/fred
```

Relative path

```
>_ $ cd ../sue/Music
```

```
>_ $ cd /  
$ cd ~ , $ cd  
$ cd -  
$ cd ..  
$ cd ../../..
```

OPEN A TERMINAL



A screenshot of a terminal window titled "hieu@PC: ...". The window shows the following command-line session:

```
hieu@PC:~$ pwd  
/home/hieu  
hieu@PC:~$ cd /  
hieu@PC:/$ pwd  
/  
hieu@PC:/$ cd ~/Documents/BulRNA_seq/  
hieu@PC:~/Documents/BulRNA_seq$ pwd  
/home/hieu/Documents/BulRNA_seq  
hieu@PC:~/Documents/BulRNA_seq$ cd ..  
hieu@PC:~/Documents$
```

cd

cd command is going to land you in the current home directory

- Syntax: cd [dir]

For example you want to go to somewhere:

- cd / *change to the root directory.*
- cd .. *it means we want to go to the parent directory of the current working.*
- cd Documents *change to the Documents directory.*
- cd ~/Documents/BulRNA_seq/ *change to the BulRNA_seq directory by absolute path.*

pwd

pwd (print working directory) command shows you in which directory you are currently

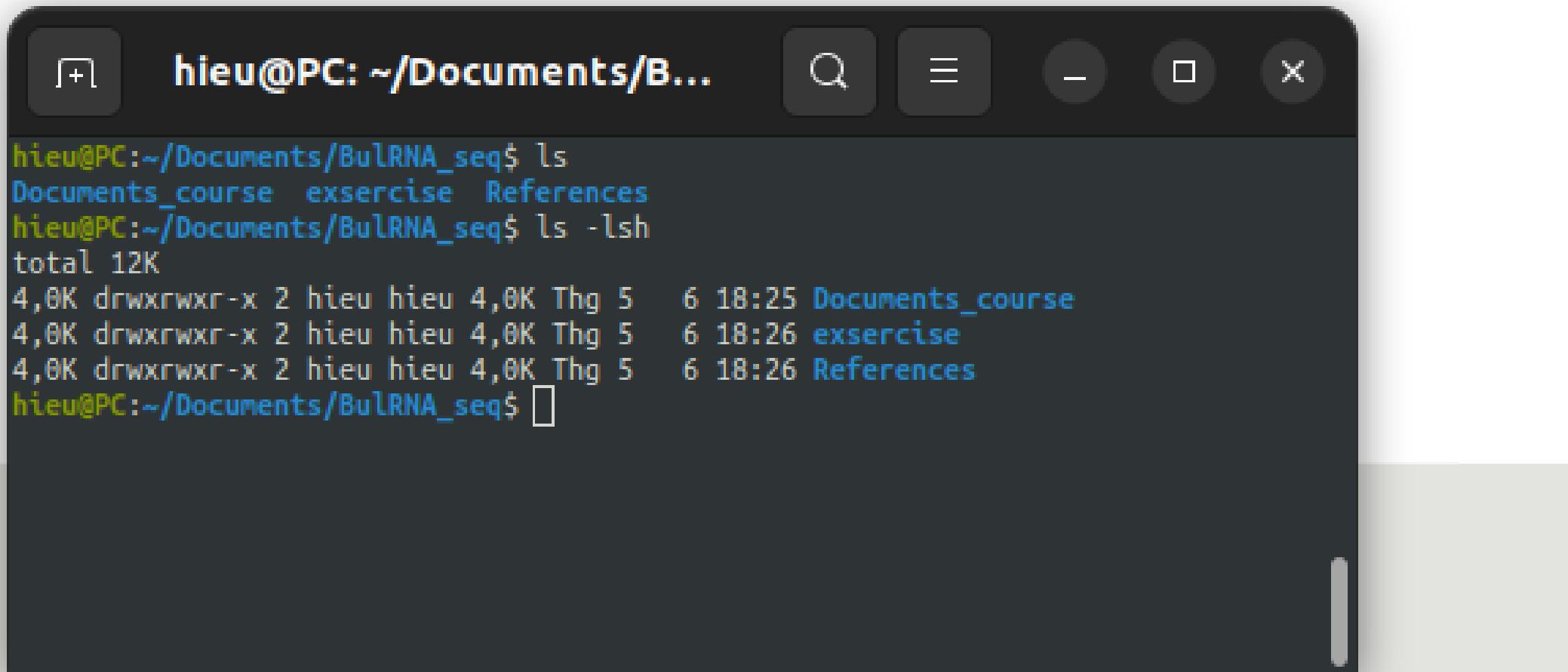
- Syntax: pwd

WORK WITH FOLDERS AND FILES

ls

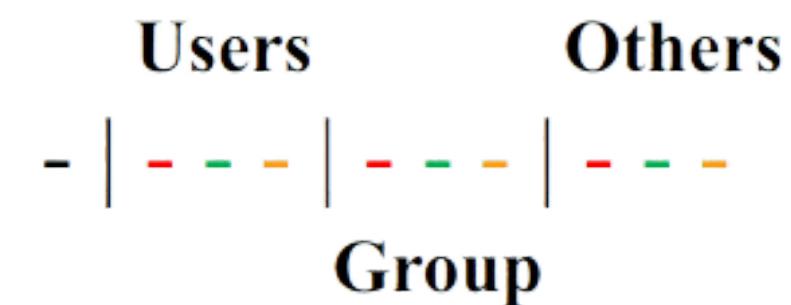
To list the files and directories in the current working directory.

ls command syntax: **ls [option] [fd]**



A screenshot of a terminal window titled "hieu@PC: ~/Documents/B...". The window shows a file listing with the command "ls" and "-lsh". The output includes three files: "Documents_course", "exsercise", and "References". The permissions for each file are shown as "drwxrwxr-x" (directory) followed by ownership information and file size.

```
hieu@PC:~/Documents/BulRNA_seq$ ls
Documents_course  exsercise  References
hieu@PC:~/Documents/BulRNA_seq$ ls -lsh
total 12K
4,0K drwxrwxr-x 2 hieu hieu 4,0K Thg 5   6 18:25 Documents_course
4,0K drwxrwxr-x 2 hieu hieu 4,0K Thg 5   6 18:26 exsercise
4,0K drwxrwxr-x 2 hieu hieu 4,0K Thg 5   6 18:26 References
hieu@PC:~/Documents/BulRNA_seq$ 
```



d - directory

r - read

w - write

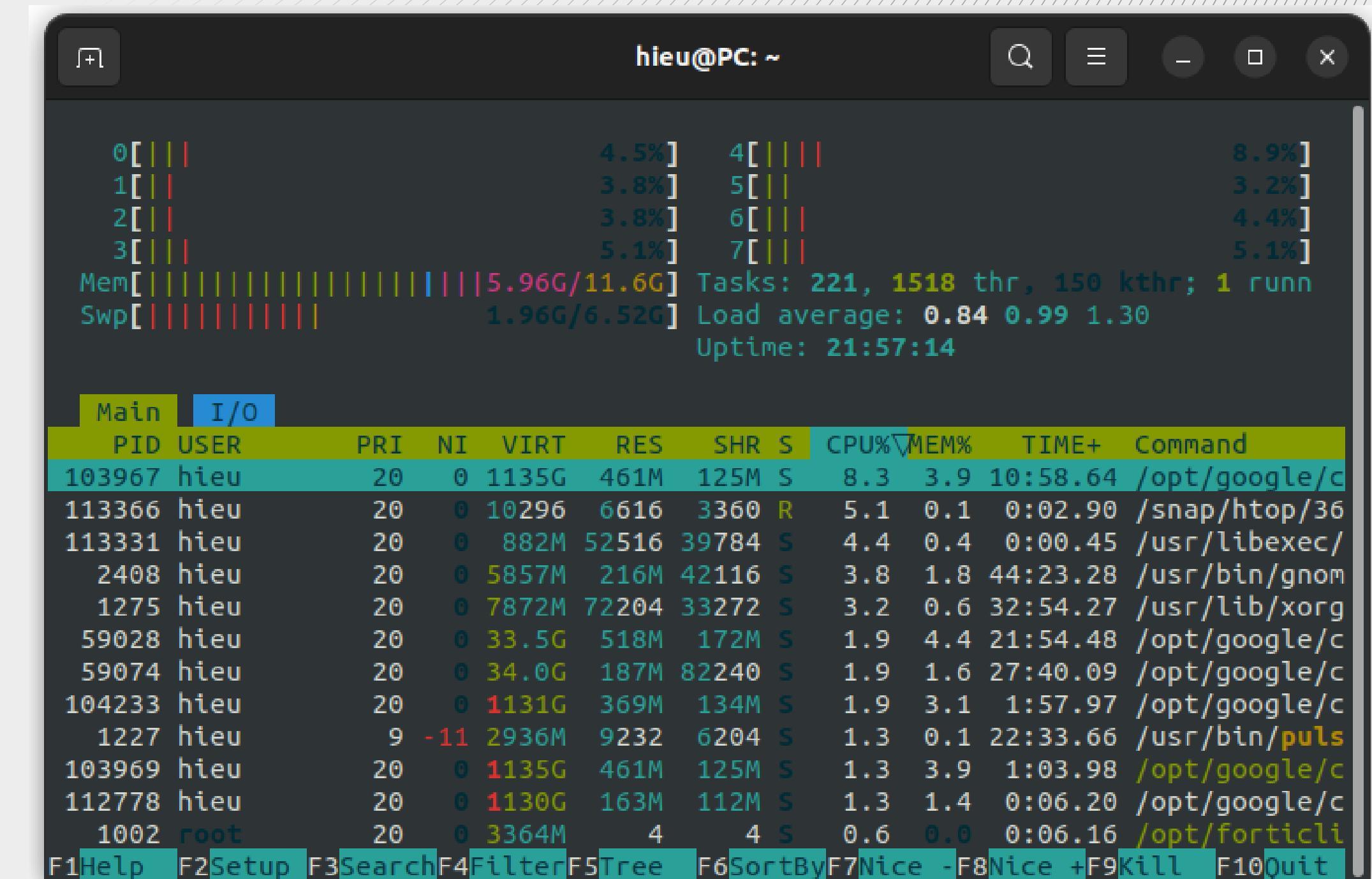
x - execute

htop

htop program is user interface is ncurses based and the information representation is really clean and nice. It is a great tool for Linux system administrators.

```
> $ sudo apt-get install htop
//install htop

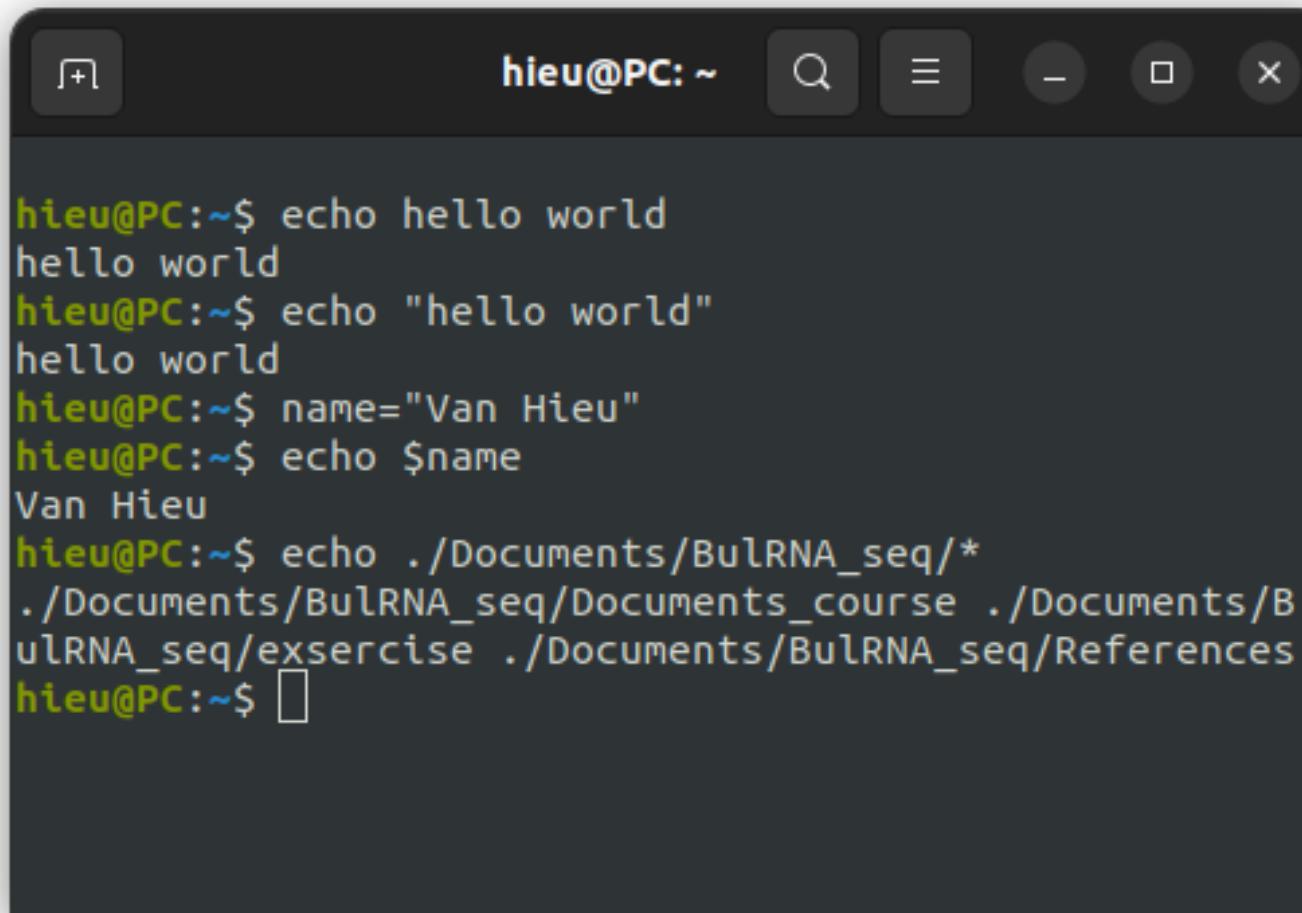
$htop
//run htop
```



WORK WITH FOLDERS AND FILES

echo

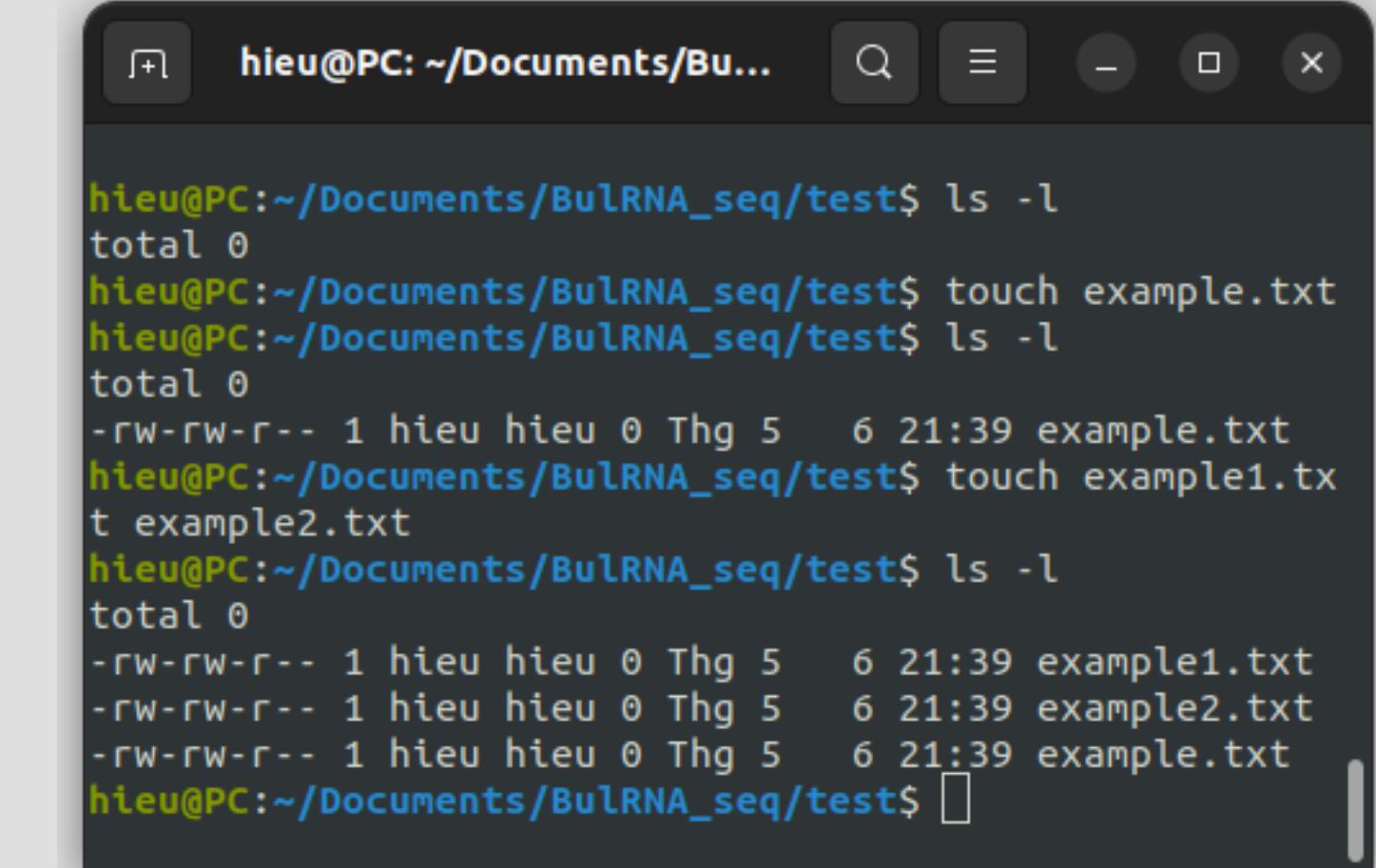
echo is a shell builtin that performs a very simple task. It prints out its text arguments on standard output.



```
hieu@PC:~$ echo hello world
hello world
hieu@PC:~$ echo "hello world"
hello world
hieu@PC:~$ name="Van Hieu"
hieu@PC:~$ echo $name
Van Hieu
hieu@PC:~$ echo ./Documents/BulRNA_seq/*
./Documents/BulRNA_seq/Documents_course ./Documents/BulRNA_seq/exercise ./Documents/BulRNA_seq/References
hieu@PC:~$
```

touch

touch command is the easiest way to create new empty files in Linux. It is also used to change the timestamps on existing files or directories.



```
hieu@PC:~/Documents/BulRNA_seq/test$ ls -l
total 0
hieu@PC:~/Documents/BulRNA_seq/test$ touch example.txt
hieu@PC:~/Documents/BulRNA_seq/test$ ls -l
total 0
-rw-rw-r-- 1 hieu hieu 0 Thg 5   6 21:39 example.txt
hieu@PC:~/Documents/BulRNA_seq/test$ touch example1.txt
example2.txt
hieu@PC:~/Documents/BulRNA_seq/test$ ls -l
total 0
-rw-rw-r-- 1 hieu hieu 0 Thg 5   6 21:39 example1.txt
-rw-rw-r-- 1 hieu hieu 0 Thg 5   6 21:39 example2.txt
-rw-rw-r-- 1 hieu hieu 0 Thg 5   6 21:39 example.txt
hieu@PC:~/Documents/BulRNA_seq/test$
```

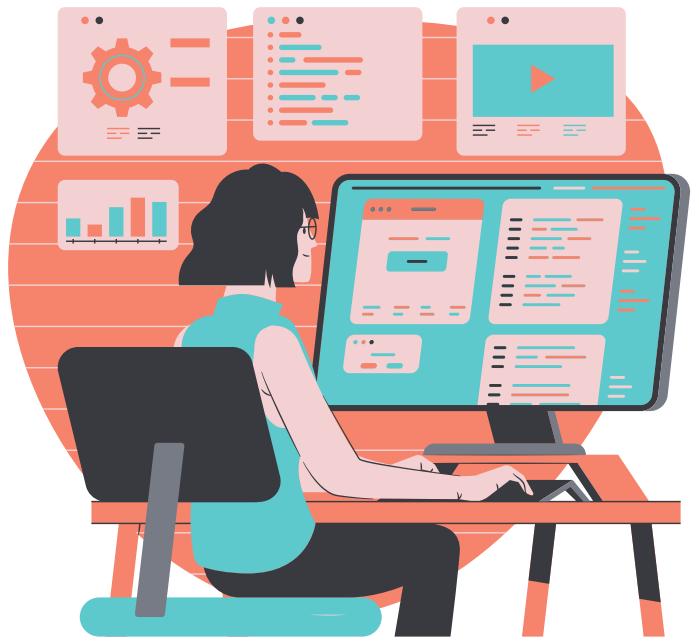


WORK WITH FOLDERS AND FILES

ln

Make links between files.

- Syntax: **ln -s [options] FILE LINK**



```
(base) hieu@PC:~/devisers$ ls -ls
total 0
(base) hieu@PC:~/devisers$ ln -s ~/Documents/BulRNA_seq/welcome.txt ~/devisers/welcome.txt
(base) hieu@PC:~/devisers$ ls -ls
total 0
0 lrwxrwxrwx 1 hieu hieu 43 Thg 5   8 11:31 welcome.txt -> /home/hieu/Documents/BulRNA_seq/welcome.txt
(base) hieu@PC:~/devisers$ rm -f ~/devisers/welcome.txt
(base) hieu@PC:~/devisers$ ls -ls
total 0
(base) hieu@PC:~/devisers$ 
```

EXAMPLE

cat

cat is one of the most frequently used command on linux it has three related function with regard to text files.

- Displaying the text
- Combining copies of text files
- Creating new text



View the contents of a file:

- syntax: **cat filename.txt**



Combine multiple files into one new file

- syntax: **cat file1.txt file2.txt > newfile.txt**



Combine multiple files into an existing file.

- syntax: **cat file1.txt file2.txt >> existingfile.txt**



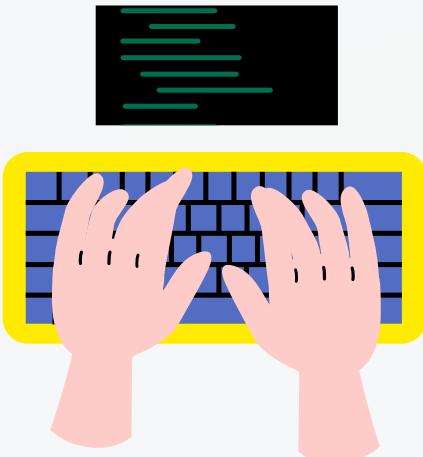
Create a new file and enter data from the keyboard.

- syntax: **cat > newfile.txt**



Use "cat" to connect the command in a string.

- syntax: **cat file1.txt | grep "keyword"**



```
ction: set and delete featured image  
  
int $post_ID  
void  
  
function kd_ajax_set_image() {  
    $post_ID;  
  
    $t_ID = intval( $_POST['post_id'] );  
    if( !current_user_can( 'edit_post', $post_ID ) ) {  
        die( '-1' );  
  
    $thumb_id = intval( $_POST['thumbnail_id'] );  
    check_ajax_referer( $this->nonce, $post_ID );  
    if( $thumb_id == '-1' ) {  
        delete_post_meta( $post_ID, $this->post_meta_key );  
        die( $this->kd_meta_box_output( NULL ) );  
    }  
    if( !get_post( $thumb_id ) ) {  
        $thumb_id = wp_get_attachment_image_id( $thumb_id );  
    }  
    if( !empty( $thumb_id ) ) {  
        update_post_meta( $post_ID, $this->post_meta_key, $thumb_id );  
        die( $this->kd_meta_box_output( $thumb_id ) );  
    }  
}
```

less

The less command is a program to view text files.

Syntax: **less [file]**

Command	Action
Page Up or b	Scroll back one page
Page Down or space	Scroll forward one page
Up Arrow	Scroll up one line
Down Arrow	Scroll down one line
G	Move to the end of the text file
1G or g	Move to the beginning of the text file
/characters	Search forward to the next occurrence of <i>characters</i>
n	Search for the next occurrence of the previous search
h	Display help screen
q	Quit less



nano

nano is a small and friendly text editor and beside the text editing nano offers many extra features like an interactive, search or replace,...

- Syntax: **nano [file]**

vim

Vim editor is more helpful in editing different kinds of plain text. This command is more used in editing programs.

- Syntax: **vim [file]**

references more:

CLICK HERE





mkdir

We can use mkdir command to create directories in Linux.

Syntax with mkdir command:

- `mkdir image` Create a directory called image
- `mkdir image/picture` Create a subdirectory inside this image directory
- `mkdir -p names/thanh`
- `mkdir --parents names/thanh`
- `mkdir --parents names/{thanh,lan,dat}` Create multiple subdirectory

rm

We can use rm command to remove the directory or directory structures

Syntax : **rm -options directory**

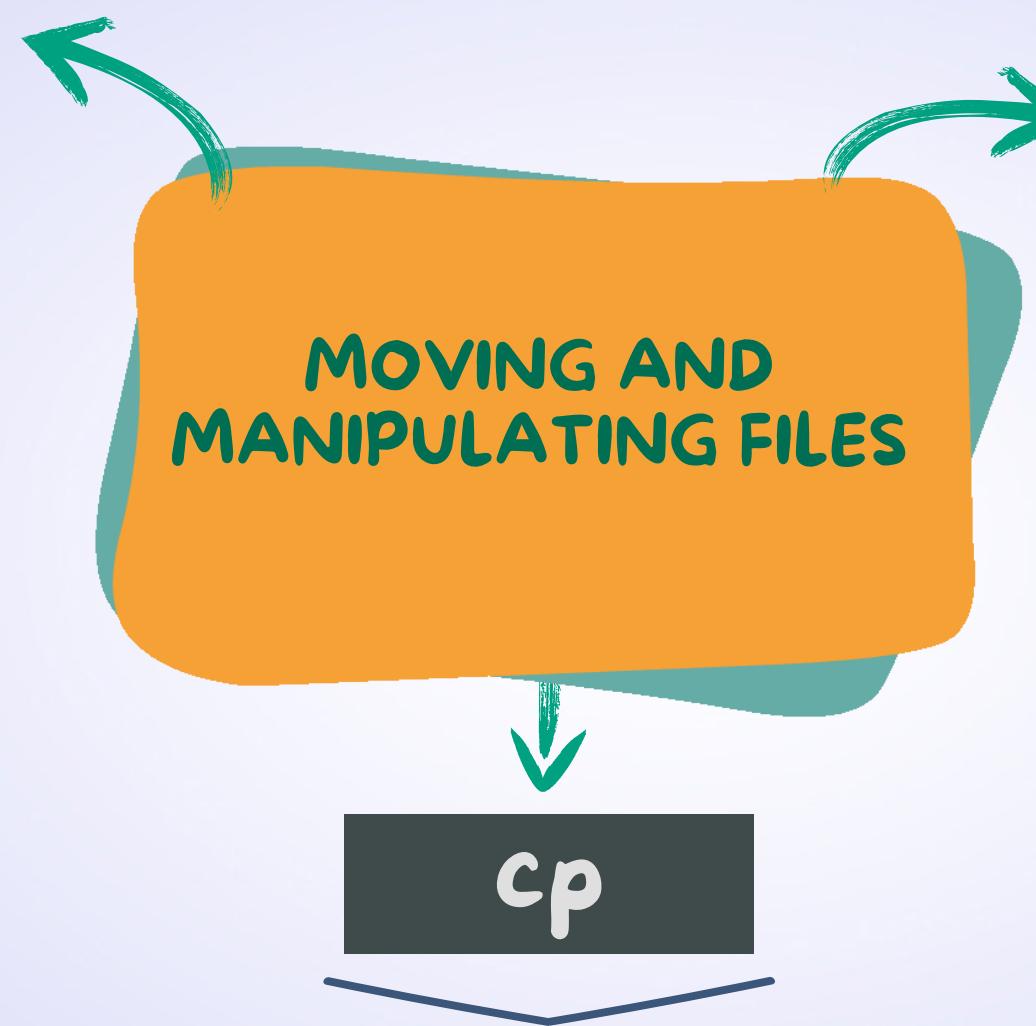
- **rm file.txt** Remove a file file.txt
- **rm -r hieu** Remove a directory hieu and subdirectory inside

mv

The mv command performs both file moving and file renaming, depending on how it is used. In either case, the original filename no longer exists after the operation. mv is used in much the same way as cp.

Syntax :

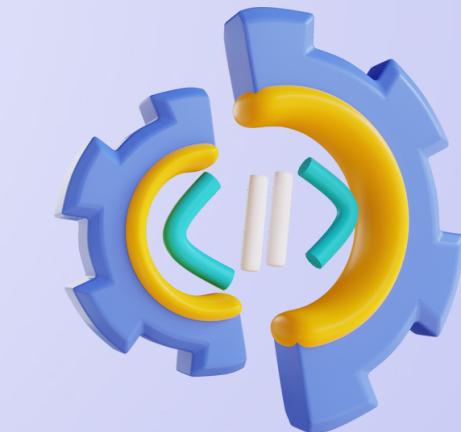
- **mv item1 item2**
- **mv item1 dir**



We can use cp command to copies files or directories.

Syntax: cp options source destination

- **cp file1.txt file2.txt** Copy a file1 into a new file called file2 and copy the content
- **cp file1.txt directory1** Copy a file1 to a directory1
- **cp file1.txt file2.txt directory2** Copy a multiple file to a directory2



WC

‘wc’ used to find out number of lines, word count and characters count in each file

- Syntax: `wc [OPTION] [FILE]`

The options below may be used to select which counts are printed, always in the following order: newline, word, character, byte, maximum line length.

```
-c, --bytes          print the byte counts
-m, --chars          print the character counts
-l, --lines          print the newline counts
--files0-from=F      read input from the files specified by
                     NUL-terminated names in file F;
                     If F is - then read names from standard input
-L, --max-line-length print the maximum display width
-W, --words           print the word counts
--help               display this help and exit
--version            output version information and exit
```

```
hieu@PC:~/Documents/BulRNA_seq$ wc example.sh
 355 1324 11661 example.sh
hieu@PC:~/Documents/BulRNA_seq$ wc -l example.sh
355 example.sh
hieu@PC:~/Documents/BulRNA_seq$ wc -m example.sh
11661 example.sh
hieu@PC:~/Documents/BulRNA_seq$ wc -w example.sh
1324 example.sh
hieu@PC:~/Documents/BulRNA_seq$ wc -L example.sh
160 example.sh
hieu@PC:~/Documents/BulRNA_seq$
```

tr

The tr command is a UNIX command-line utility for translating or deleting characters. It supports a range of transformations including uppercase to lowercase, squeezing repeating characters, deleting specific characters, and basic find and replace.

- Syntax: tr [OPTION] SET1 [SET2]



15



```
hieu@PC:~/Documents/BulRNA_seq$ cat welcome.txt
WELCOME TO Course
Bulk RNA-seq
hieu@PC:~/Documents/BulRNA_seq$ cat welcome.txt | tr [a-z] [A-Z]
WELCOME TO COURSE
BULK RNA-SEQ
hieu@PC:~/Documents/BulRNA_seq$ tr [:lower:] [:upper:] <welcome.txt
WELCOME TO COURSE
BULK RNA-SEQ
hieu@PC:~/Documents/BulRNA_seq$ echo "Welcome to course Bulk RNA-seq" |
    tr [:space:] "\t"
Welcome to      course  Bulk      RNA-seq hieu@PC:~/Documents/BulRNA_seq
$
```



Course Bulk RNA-seq

sort

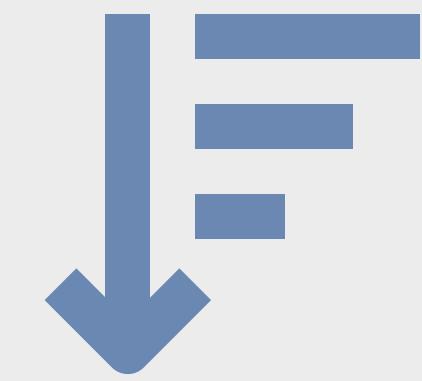
SORT command is used to sort a file, arranging the records in a particular order.

Syntax: **sort [options] filename**

```
>_ $ cat > file.txt  
abhishek  
chitransh  
satish  
rajan  
naveen  
divyam  
harsh
```

```
>_ $ sort file.txt  
abhishek  
chitransh  
divyam  
harsh  
naveen  
rajan  
satish
```

```
>_ $ sort -r file.txt  
satish  
rajan  
naveen  
harsh  
divyam  
chitransh  
abhishek
```



```
>_ $ sort inputfile.txt > filename.txt  
$ sort -o filename.txt inputfile.txt
```





```
$ cat state  
Arunachal Pradesh  
Assam  
Andhra Pradesh  
Bihar  
Chhattisgrah
```

```
$ cat capital  
Itanagar  
Dispur  
Hyderabad  
Patna  
Raipur
```

```
$ paste number state capital  
1 Arunachal Pradesh Itanagar  
2 Assam Dispur  
3 Andhra Pradesh Hyderabad  
4 Bihar Patna  
5 Chhattisgrah Raipur
```

```
$ paste -d "|" number state capital  
1|Arunachal Pradesh|Itanagar  
2|Assam|Dispur  
3|Andhra Pradesh|Hyderabad  
4|Bihar|Patna  
5|Chhattisgrah|Raipur
```

paste

Paste command 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.

Syntax: **paste [OPTION]... [FILES]...**

```
$ paste -s number state capital  
1 2 3 4 5  
Arunachal Pradesh Assam Andhra Pradesh Bihar Chhattisgrah  
Itanagar Dispur Hyderabad Patna Raipur
```

```
$ paste -s -d ":" number state capital  
1:2:3:4:5  
Arunachal Pradesh:Assam:Andhra Pradesh:Bihar:Chhattisgrah  
Itanagar:Dispur:Hyderabad:Patna:Raipur
```



uniq

The `uniq` command in Linux is a command-line utility that reports or filters out the repeated lines in a file.

- Syntax: **uniq [OPTION] [INPUT [OUTPUT]]**

```
>_ $cat kt.txt  
I love music.  
I love music.  
I love music.  
  
I love music  
of Kartik.  
I love music  
of Kartik.  
  
Thanks.
```

1	0	0	0	0	1	1	1	0	0	1	0	0	0	1	1	1	0	0
0	1	1	1	0	0	0	1	1	0	1	1	0	0	0	0	0	1	1
1	0	0	1	0	1	1	0	0	1	0	0	0	0	1	1	1	0	0
0	0	0	1	0	0	1	1	0	0	0	1	0	0	1	0	0	1	1
0	1	0	1	0	0	0	0	1	0	1	0	1	1	0	1	0	0	0
1	0	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1	0
1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	1	1	0	1
0	0	0	1	1	0	1	0	1	0	0	0	1	0	0	1	0	1	0
1	1	0	1	1	1	0	1	0	1	1	1	0	1	1	1	0	1	0
0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1
1	0	0	1	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
0	0	1	1	1	0	1	0	1	0	0	0	0	1	0	1	1	0	1
0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0
1	0	1	1	1	1	0	0	1	0	1	0	1	1	1	1	1	0	0
0	0	0	0	1	0	1	0	1	0	0	0	0	1	1	0	1	0	1
1	1	1	0	0	1	1	0	1	0	1	1	0	0	0	1	0	1	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
1	0	1	1	1	0	1	1	0	0	1	1	0	0	1	1	1	0	0
1	0	0	0	1	1	0	0	1	0	1	1	0	0	0	0	1	0	0
1	0	0	1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1
0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	1	1	1	0
0	0	1	1	1	1	0	1	1	0	0	1	1	1	0	1	1	0	1
0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0
1	1	1	1	1	0	0	0	0	1	1	0	1	1	0	1	0	1	0
0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0
1	1	0	0	1	0	0	0	1	1	1	1	0	0	1	0	0	0	0
0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	1	0	1	0
1	1	0	0	1	0	0	0	1	1	1	1	0	0	1	0	0	0	0

\$uniq kt.txt
I love music.

I love music of Kartik

Thanks.

```
>_ $uniq -d kt.txt  
I love music.  
I love music of Kartik
```

\$uniq -u kt.txt
Thanks.

A small icon representing a terminal window or command line interface.

```
$uniq -D kt.txt  
I love music.  
I love music.  
I love music.  
I love music of Kartik.  
I love music of Kartik.
```



man

man command in ubuntu is used to display the user manual of any command that we can run on the terminal.

- Syntax: **man [OPTION]... [COMMAND NAME]...**





A screenshot of a terminal window with a dark theme. The title bar at the top shows the user 'hieu...' and the command 'ls'. The main area of the terminal displays the command 'hieu@PC:~\$ man ls' followed by a large white rectangular cursor placeholder.

```
hieu@PC:~$ man ls
```

```
LS(1)           User Commands          LS(1)

NAME
    ls - list directory contents

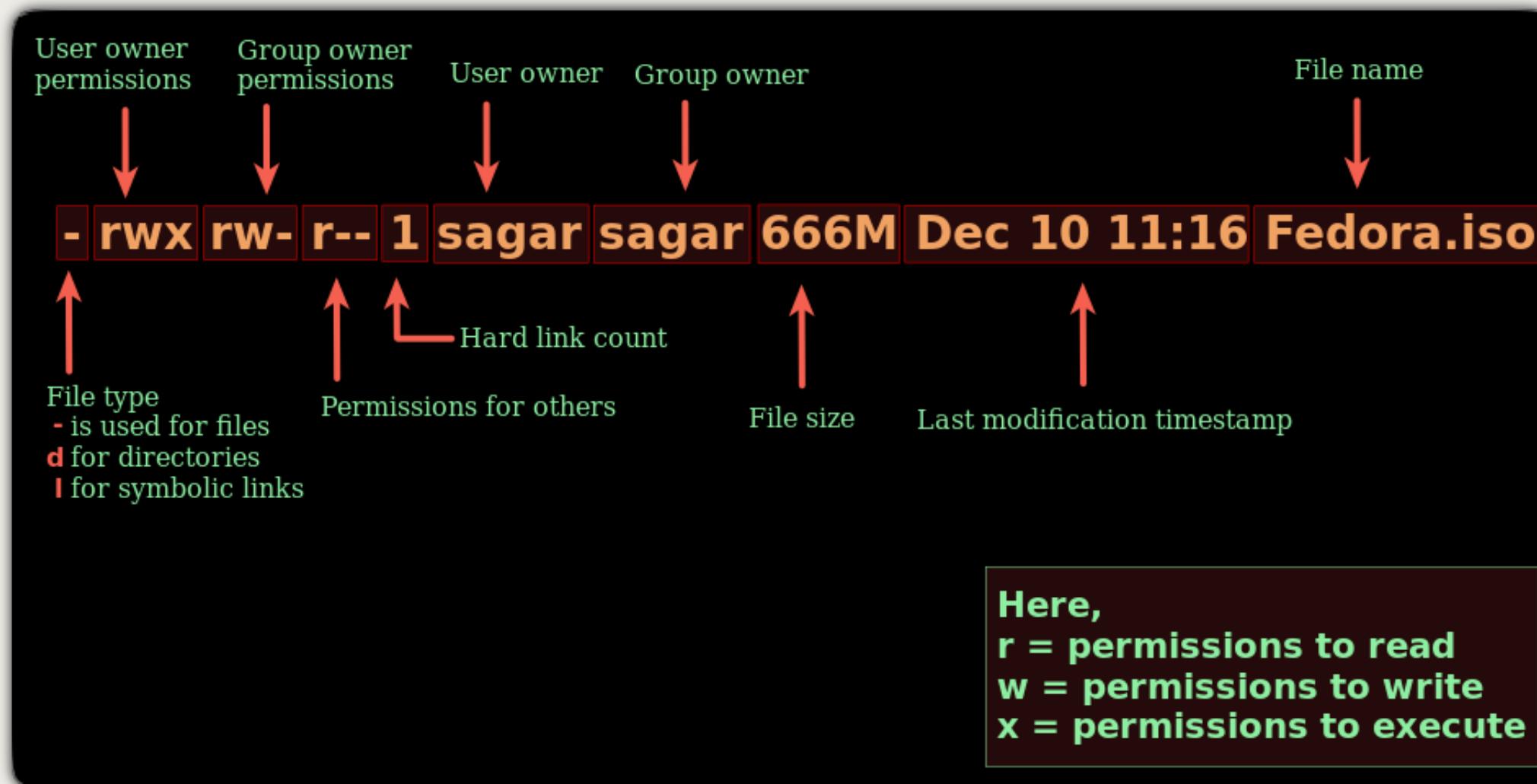
SYNOPSIS
    ls [OPTION]... [FILE]...

DESCRIPTION
    List information about the FILEs (the current directory by default).
    Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.
```



```
$ls -lh filename
```

```
sagar@Learnubuntu:~$ ls -lh Fedora.iso
-rw-rw-r-- 1 sagar sagar 666M Dec 10 11:16 Fedora.iso
sagar@Learnubuntu:~$
```



chmod

To change the mode (permissions) of a file or directory.

`chmod` supports two distinct ways of specifying mode changes: octal number representation, or symbolic representation.

- Syntax: **chmod option filename**

Octal	Binary	File Mode
0	000	---
1	001	--x
2	010	-w-
3	011	-wx
4	100	r--
5	101	r-x
6	110	rwx
7	111	rwx



chmod



```
sagar@Learnubuntu:~$ chmod -R 777 LU
sagar@Learnubuntu:~$ ls -la LU/
total 4
drwxrwxrwx  2 sagar sagar  59 Jan 30 19:09 .
drwxr-x--- 26 sagar sagar 4096 Jan 30 19:08 ..
-rwxrwxrwx  1 sagar sagar   0 Jan 30 19:09 helloworld
-rwxrwxrwx  1 sagar sagar   0 Jan 30 19:09 passwords
-rwxrwxrwx  1 sagar sagar   0 Jan 30 19:09 samplefile
sagar@Learnubuntu:~$ |
```

Symbol	Meaning
u	Short for "user" but means the file or directory owner.
g	Group owner.
o	Short for "others," but means world.
a	Short for "all." The combination of "u", "g", and "o".

Notation	Meaning
u+x	Add execute permission for the owner.
u-X	Remove execute permission from the owner.
+x	Add execute permission for the owner, group, and world. Equivalent to a+x.
o-rw	Remove the read and write permission from anyone besides the owner and group owner.
go=rw	Set the group owner and anyone besides the owner to have read and write permission. If either the group owner or world previously had execute permissions, they are removed.
u+x, go=rx	Add execute permission for the owner and set the permissions for the group and others to read and execute. Multiple specifications may be separated by commas.

sudo

super user command allows you to execute some command with the superuser or perform some tasks most probably it will ask you for this super user privileges

- Syntax: sudo [option]



```
$sudo apt-get update  
$sudo mkdir hieu
```

Chown

‘chown’ command is used to change the file owner or group.

Syntax: **chown [OPTION]... [OWNER] [: [GROUP]] FILE**



```
$chown USER FILE  
$chown USER:GROUP FILE  
$ chown:GROUP FILE
```



find

'find' command is used to search for files in a directory hierarchy.

- Syntax: find [path...] [options] [expression]
- -name: Find a single file by name
- type: Find files based on their type



```
hieu@PC: ~/Documents/exercise2$ find . -name output.*  
../fasta/output.phy  
../fasta/output.sto  
(base) hieu@PC:~/Documents/exercise2$ find . -name Output.*  
(base) hieu@PC:~/Documents/exercise2$ find . -iname Output.*  
../fasta/output.phy  
../fasta/output.sto  
(base) hieu@PC:~/Documents/exercise2$ find . -type f -size +500M  
../fasta/NIST7035_TAAGGCGA_L001_R1_001.fastq.gz  
(base) hieu@PC:~/Documents/exercise2$ 
```

grep

'grep' command used to search text and strings in a given file.

- Syntax: **grep [options] pattern [files]**



```
>_ $cat > geekfile.txt
 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.
```

```
>_ $grep -i "UNix" geekfile.txt
 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.
```

grep

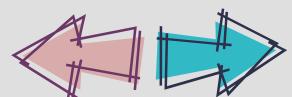
```
>_ $cat > geekfile.txt  
 unix is great os. unix was developed in Bell labs.  
 learn operating system.  
 Unix linux which one you choose.  
 uNix is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful.
```

```
>_ $grep -c "unix" geekfile.txt  
2  
// We can find the number of lines that matches the given string/pattern
```

```
>_ $grep -l "unix" *\ngeekfile.txt  
  
//We can just display the files that contains the given string/pattern.
```



head



tail

The head command, as the name implies, print the top N number of data of the given input.

- Syntax: head [OPTION]... [FILE]...

Short Options	Long Options
-n	--lines
-c	--bytes
-q	--quiet
-v	--verbose

```
$ head state.txt
```

Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chhattisgarh
Goa

```
Gujarat
```

Haryana
Himachal Pradesh
Jammu and Kashmir

```
$ head -c 6 state.txt
```

Andhra

With using -q option

```
$ head -q state.txt capital.txt
```

Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chhattisgarh
Goa
Gujarat
Haryana
Himachal Pradesh
Jammu and Kashmir
Hyderabad
Itanagar
Dispur
Patna
Raipur
Panaji
Gandhinagar
Chandigarh
Shimla
Srinagar



df

To view disc space usage, run the df command without any arguments. It will display disc space consumption in tabular format.

- Syntax: **df**



du

The du (disk usage) command measures the disk space occupied by files or directories. By default, it measures the current directory and all its subdirectories, printing totals in blocks for each, with a grand total at the bottom.

- Syntax: **du [OPTIONS] [DIR]**
- example: **du -sh**



free

To view disc space usage, run the df command without any arguments. It will display disc space consumption in tabular format.

- Syntax: **free [OPTIONS]**



```
hieu@PC:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:       11Gi       6,8Gi     604Mi     2,9Gi       4,2Gi     1,5Gi
Swap:      6,5Gi      4,1Gi     2,4Gi
hieu@PC:~$
```

tar

The Linux ‘tar’ stands for tape archive, is used to create Archive and extract the Archive files.

- Syntax: **tar [options] [archive-file] [file or directory to be archived]**

>_ \$tar xvf file.tar

>_ \$ tar xvzf file.tar.gz

bc

'bc' command is used for command line calculator. It is similar to basic calculator by using which we can do basic mathematical calculations.

Syntax: bc [option] [expression]

```
>_ $ echo "12+5" | bc  
17
```

```
$ echo "10^2" | bc  
100
```

```
>_ $ x='echo "12+5" | bc'  
$ echo $x  
17
```

```
>_ $ echo "var=10;var" | bc  
Output: 10
```

```
>_ $ x='echo  
"var=500;var%=7;var" | bc'  
$ echo $x
```



wget

Wget is the non-interactive network downloader.

- Syntax: **wget [option] [URL]**

```
>_ $wget http://example.com/sample.php
```

```
>_ $wget http://www.example.com/filename.txt  
-o /path/filename.txt
```



curl

Tool to download or transfer files/data from

- Syntax: **curl [option] [URL]**

```
>_ $sudo apt install curl  
//install curl
```

```
>_ $curl https://gnu.org
```

```
>_ $curl -o linux.tar.xz  
https://cdn.kernel.org/pub/linux/kernel/v5.x/li  
nux-5.0.5.tar.xz
```





which

"which" command is used to know paths in the \$PATH. \$PATH is a environment variable that is file location-related.

- Syntax: which -a [argument]

```
hieu@... ~ % which python
/home/hieu/anaconda3/bin/python
hieu@PC:~ %
```



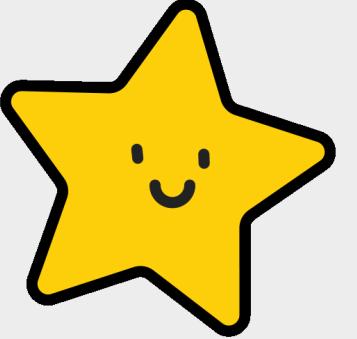
mount !

"mount" is the command used to mount the file system or storage device into the system.

```
>_ $ sudo mkdir /media/Name_of_directory
$ sudo fdisk -l
$ sudo mount /dev/sda# /media/Name_of_directory
```



SUMMARY



Basic command

Basic command	
ls	List directory contents
cd	Change directory
pwd	Print name of current working directory
htop	view information representation

SUMMARY



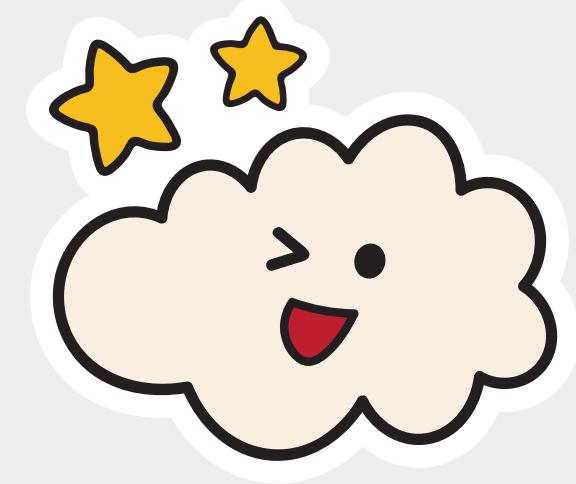
Creating folders and files

mkdir	Create directories
cat	Create, Concatenate files
echo	Display a line of text
touch	Create file, change file times
less	View file contents
nano, vim	Text editors
ln	Make links between files.

SUMMARY

Moving and manipulating files

mv	Move/rename files and directories.
cp	Copy files and directories.
rm	Remove files and directories.





SUMMARY

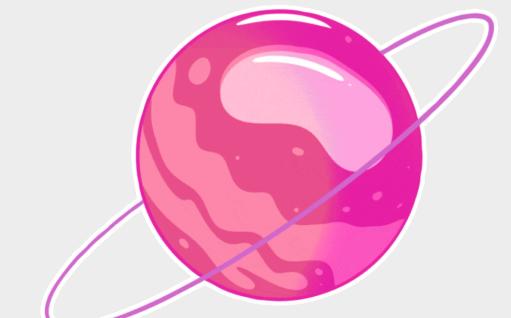
A bit of plumbing

wc	find out number of lines, word count and characters count in each file.
man	manual of any command.
uniq	filters out the repeated lines in a file.
sort	Sort a file, arranging the records in a particular order.
paste	Used to join files.
tr	find and replace words.

SUMMARY

The superuser

sudo	super user command.
chmod	To change the mode (permissions) of a file or directory.
chown	Change the file owner or group.



SUMMARY

Some command line to manipulate other files

find	Search for files in a directory hierarchy.
grep	Search text and strings in a given file.
head, tail	Print the top and last lines of the given input file.
df	Report the amount of "available disk space" being used by filesystem.
du	Estimate and display the disk space used by "files".



SUMMARY

Some command line to manipulate other files

free	Displays the total amount of memory.
tar	Used to compress and extract
wget, curl	Download file.
which	know paths in the \$PATH
mount	"mount" is the command used to mount the file system or storage device into the system.
bc	Calculator.



**THANK
YOU**