Basic Linux Commands
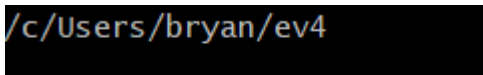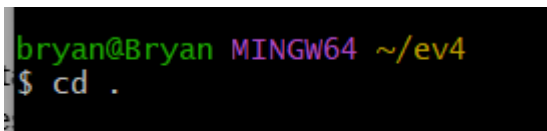
Usefullink-
https://itworkshopktu2024.blogspot.com/2024/11/familiarization-of-basic-linux-commands.html
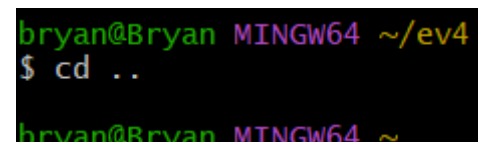
Do the following in the order given
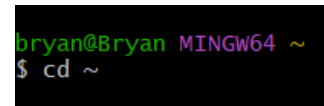a) Create a directory EV2. (*mkdir ev4*)
b) Navigate to that directory (*cd ev4*)
c) Create a directory with your roll number
d) Navigate to that
e) Type the following commands and write the resultant directory path(use *pwd* if required) . Also pen down your understanding of the result
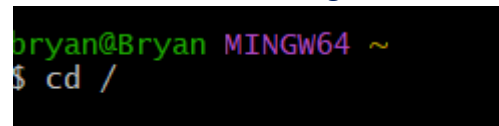
i. *cd -* go to the required folder.

ii. *cd -* go to previous directory

iii. *cd .* no change

iv. *cd ..* go to previous directory

v. *cd ~* go to home directory

vi. *cd /* root directory

vii. *ls-l* **Lists files and directories in long format, showing permissions, owner, size, and modification time**

```
bryan@Bryan MINGW64 /
$ ls -l
total 8392
-rw-r--r-- 1 bryan 197609    18765 Feb  2 17:59 LICENSE.txt
-rw-r--r-- 1 bryan 197609   300037 Feb  2 17:59 ReleaseNotes.html
drwxr-xr-x 1 bryan 197609        0 Feb  8 18:51 bin/
drwxr-xr-x 1 bryan 197609        0 Feb  8 18:51 cmd/
drwxr-xr-x 1 bryan 197609        0 Feb  8 18:51 dev/
drwxr-xr-x 1 bryan 197609        0 Feb  8 18:51 etc/
-rwxr-xr-x 1 bryan 197609   138656 Feb  2 17:39 git-bash.exe*
-rwxr-xr-x 1 bryan 197609   138128 Feb  2 17:39 git-cmd.exe*
drwxr-xr-x 1 bryan 197609        0 Feb  8 18:51 mingw64/
dr-xr-xr-x 9 bryan 197609        0 Feb  8 19:29 proc/
drwxr-xr-x 1 bryan 197609        0 Feb  8 19:28 tmp/
-rw-r--r-- 1 bryan 197609  1792316 Feb  8 18:51 unins000.dat
-rwxr-xr-x 1 bryan 197609  4441856 Feb  8 18:51 unins000.exe*
-rw-r--r-- 1 bryan 197609    25388 Feb  8 18:51 unins000.msg
drwxr-xr-x 1 bryan 197609        0 Feb  8 18:51 usr/
```

viii. *cd   media*

```
bryan@Bryan MINGW64 /
$ cd media
bash: cd: media: No such file or directory

bryan@Bryan MINGW64 /
$ cd

bryan@Bryan MINGW64 ~
$
```

ix. *cd* *go back to home directory*

```
bryan@Bryan MINGW64 ~
$ pwd
/c/Users/bryan
```

x. *pwd* *shows current path*

```
bryan@Bryan MINGW64 ~
$ cd media
bash: cd: media: No such file or directory
```

xi. *cd media*

```
bryan@Bryan MINGW64 ~
$ cd /media
bash: cd: /media: No such file or directory
```

xii. *cd   /media* *Moves   to   the system-wide /media directory, where removable drives are mounted*

xiii. *ls-l*

```
-rw-r--r-- 1 bryan 197609       6579 Sep 19  2024   -1.14-windows.xml
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025   AppData/
lrwxrwxrwx 1 bryan 197609         30 Apr 21  2025  'Application Data' -> /c/Users/b
ryan/AppData/Roaming/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025   Contacts/
lrwxrwxrwx 1 bryan 197609         58 Apr 21  2025   Cookies -> /c/Users/bryan/AppDa
ta/Local/Microsoft/Windows/INetCookies/
drwxr-xr-x 1 bryan 197609          0 May 25  2025   CrossDevice/
drwxr-xr-x 1 bryan 197609          0 Jun 25  2024   Documents/
drwxr-xr-x 1 bryan 197609          0 Feb  8 18:56   Downloads/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025   Favorites/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00   Fulladder/
drwxr-xr-x 1 bryan 197609          0 Oct 22  2024   Jedi/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025   Links/
lrwxrwxrwx 1 bryan 197609         28 Apr 21  2025  'Local Settings' -> /c/Users/bry
an/AppData/Local/
drwxr-xr-x 1 bryan 197609          0 Oct 29 14:05   Music/
lrwxrwxrwx 1 bryan 197609         24 Apr 21  2025  'My Documents' -> /c/Users/bryan
/Documents/
-rw-r--r-- 1 bryan 197609   12582912 Feb  6 11:35   NTUSER.DAT
-rw-r--r-- 1 bryan 197609      65536 Apr 21  2025   NTUSER.DAT{c4f0c404-1e17-11f0-a
f29-a85dd84f91e2}.TM.blf
-rw-r--r-- 1 bryan 197609     524288 Apr 21  2025   NTUSER.DAT{c4f0c404-1e17-11f0-a
f29-a85dd84f91e2}.TMContainer00000000000000000001.regtrans-ms
-rw-r--r-- 1 bryan 197609     524288 Apr 21  2025   NTUSER.DAT{c4f0c404-1e17-11f0-a
f29-a85dd84f91e2}.TMContainer00000000000000000002.regtrans-ms
lrwxrwxrwx 1 bryan 197609         66 Apr 21  2025   NetHood -> '/c/Users/bryan/AppD
ata/Roaming/Microsoft/Windows/Network Shortcuts'/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025   OneDrive/
lrwxrwxrwx 1 bryan 197609         66 Apr 21  2025   PrintHood -> '/c/Users/bryan/Ap
pData/Roaming/Microsoft/Windows/Printer Shortcuts'/
lrwxrwxrwx 1 bryan 197609         55 Apr 21  2025   Recent -> /c/Users/bryan/AppDat
a/Roaming/Microsoft/Windows/Recent/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  'Saved Games'/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025   Searches/
lrwxrwxrwx 1 bryan 197609         55 Apr 21  2025   SendTo -> /c/Users/bryan/AppDat
a/Roaming/Microsoft/Windows/SendTo/
lrwxrwxrwx 1 bryan 197609         59 Apr 21  2025  'Start Menu' -> '/c/Users/bryan/
AppData/Roaming/Microsoft/Windows/Start Menu'/
drwxr-xr-x 1 bryan 197609          0 Sep 15  2024   Sync/
lrwxrwxrwx 1 bryan 197609         58 Apr 21  2025   Templates -> /c/Users/bryan/App
Data/Roaming/Microsoft/Windows/Templates/
drwxr-xr-x 1 bryan 197609          0 Oct 29 14:37   Videos/
-rw-r--r-- 1 bryan 197609        783 Dec 15  2024   edge-impulse-config.json
drwxr-xr-x 1 bryan 197609          0 Feb  8 19:00   ev4/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00   fulladdernew/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00   halfadder/
drwxr-xr-x 1 bryan 197609          0 Oct 27 19:44   lcdexfa/
drwxr-xr-x 1 bryan 197609          0 Sep 12 14:13   lhalf/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00  'lhalf adder'/
-rw-r--r-- 1 bryan 197609    1900544 Apr 21  2025   ntuser.dat.LOG1
-rw-r--r-- 1 bryan 197609    3108864 Apr 21  2025   ntuser.dat.LOG2
-rw-r--r-- 1 bryan 197609         20 Apr 21  2025   ntuser.ini
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00   obstacledetector/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00   project_1/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00   project_2/
drwxr-xr-x 1 bryan 197609          0 Feb  8 18:58   rollno21/
drwxr-xr-x 1 bryan 197609          0 Dec 15  2024   source/
```

xiv.   *ls-al*   *list*   *all*   *files*   *incl*   *hidden*

```
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  ../
drwxr-xr-x 1 bryan 197609          0 Aug 19 11:22  .Xilinx/
drwxr-xr-x 1 bryan 197609          0 Sep 25 23:22  .android/
drwxr-xr-x 1 bryan 197609          0 Dec 14  2024  .arduinoIDE/
-rw-r--r-- 1 bryan 197609          9 Aug  1  2025  .bash_history
drwxr-xr-x 1 bryan 197609          0 Aug  1  2025  .cursor/
-rw-r--r-- 1 bryan 197609        186 Aug  1  2025  .gitconfig
drwxr-xr-x 1 bryan 197609          0 Oct 22  2024  .idlerc/
drwxr-xr-x 1 bryan 197609          0 Oct 22  2024  .ipython/
drwxr-xr-x 1 bryan 197609          0 Oct 22  2024  .matplotlib/
drwxr-xr-x 1 bryan 197609          0 Jun 25  2024  .ms-ad/
drwxr-xr-x 1 bryan 197609          0 Oct  6 10:28  .spyder-py3/
drwxr-xr-x 1 bryan 197609          0 Aug  1  2025  .streamlit/
drwxr-xr-x 1 bryan 197609          0 Aug  1  2025  .vscode/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  AppData/
lrwxrwxrwx 1 bryan 197609         30 Apr 21  2025 'Application Data' -> /c/Users/bryan/AppData/Roaming/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  Contacts/
lrwxrwxrwx 1 bryan 197609         58 Apr 21  2025  Cookies -> /c/Users/bryan/AppData/Local/Microsoft/Windows/INetCookies/
drwxr-xr-x 1 bryan 197609          0 May 25  2024  CrossDevice/
drwxr-xr-x 1 bryan 197609          0 Jun 25  2024  Documents/
drwxr-xr-x 1 bryan 197609          0 Feb  8 18:56  Downloads/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  Favorites/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00  Fulladder/
drwxr-xr-x 1 bryan 197609          0 Oct 22  2024  Jedi/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  Links/
lrwxrwxrwx 1 bryan 197609         28 Apr 21  2025 'Local Settings' -> /c/Users/bryan/AppData/Local/
drwxr-xr-x 1 bryan 197609          0 Oct 29 14:05  Music/
lrwxrwxrwx 1 bryan 197609         24 Apr 21  2025 'My Documents' -> /c/Users/bryan/Documents/
-rw-r--r-- 1 bryan 197609   12582912 Feb  6 11:35  NTUSER.DAT
-rw-r--r-- 1 bryan 197609      65536 Apr 21  2025  NTUSER.DAT{c4f0c404-1e17-11f0-af29-a85dd84f91e2}.TM.blf
-rw-r--r-- 1 bryan 197609     524288 Apr 21  2025  NTUSER.DAT{c4f0c404-1e17-11f0-af29-a85dd84f91e2}.TMContainer00000000000000000001.regtrans-ms
-rw-r--r-- 1 bryan 197609     524288 Apr 21  2025  NTUSER.DAT{c4f0c404-1e17-11f0-af29-a85dd84f91e2}.TMContainer00000000000000000002.regtrans-ms
lrwxrwxrwx 1 bryan 197609         66 Apr 21  2025  NetHood -> '/c/Users/bryan/AppData/Roaming/Microsoft/Windows/Network Shortcuts'/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  OneDrive/
lrwxrwxrwx 1 bryan 197609         66 Apr 21  2025  PrintHood -> '/c/Users/bryan/AppData/Roaming/Microsoft/Windows/Printer Shortcuts'/
lrwxrwxrwx 1 bryan 197609         55 Apr 21  2025  Recent -> /c/Users/bryan/AppData/Roaming/Microsoft/Windows/Recent/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025 'Saved Games'/
drwxr-xr-x 1 bryan 197609          0 Apr 21  2025  Searches/
lrwxrwxrwx 1 bryan 197609         55 Apr 21  2025  SendTo -> /c/Users/bryan/AppData/Roaming/Microsoft/Windows/SendTo/
lrwxrwxrwx 1 bryan 197609         59 Apr 21  2025 'Start Menu' -> '/c/Users/bryan/AppData/Roaming/Microsoft/Windows/Start Menu'/
drwxr-xr-x 1 bryan 197609          0 Sep 15  2024  Sync/
lrwxrwxrwx 1 bryan 197609         58 Apr 21  2025  Templates -> /c/Users/bryan/AppData/Roaming/Microsoft/Windows/Templates/
drwxr-xr-x 1 bryan 197609          0 Oct 29 14:37  Videos/
-rw-r--r-- 1 bryan 197609        783 Dec 15  2024  edge-impulse-config.json
drwxr-xr-x 1 bryan 197609          0 Feb  8 19:00  ev4/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00  fulladdernew/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00  halfadder/
drwxr-xr-x 1 bryan 197609          0 Oct 27 19:44  lcdexfa/
drwxr-xr-x 1 bryan 197609          0 Sep 12 14:13  lhalf/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00 'lhalf adder'/
-rw-r--r-- 1 bryan 197609    1900544 Apr 21  2025  ntuser.dat.LOG1
-rw-r--r-- 1 bryan 197609    3108864 Apr 21  2025  ntuser.dat.LOG2
-rw-r--r-- 1 bryan 197609         20 Apr 21  2025  ntuser.ini
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00  obstacledetector/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00  project_1/
drwxr-xr-x 1 bryan 197609          0 Oct 29 13:00  project_2/
drwxr-xr-x 1 bryan 197609          0 Feb  8 18:58  rollno21/
drwxr-xr-x 1 bryan 197609          0 Dec 15  2024  source/
```

xv. **cd   ~/ev4/**<ur   roll   number>

```
bryan@Bryan MINGW64 ~
$ cd ~/ev4/rollno21

bryan@Bryan MINGW64 ~/ev4/rollno21
$
```

go to the following directory

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ mkdir emptydummy
```

xvi. **mkdir   emptydummy**

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ ls
emptydummy/
```

creates a dummy folder

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ mkdir dummy

bryan@Bryan MINGW64 ~/ev4/rollno21
$ ls
dummy/   emptydummy/
```

xvii. **mkdir   dummy**   ***creates   another   directory dummy***

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ cd dummy

bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$
```

xviii. **cd dummy**   ***go to that newly created dummy folder***

```
bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ touch file 1

bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ pwd
/c/Users/bryan/ev4/rollno21/dummy

bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ ls -1
1
file
```

xix. ***touch file1*** ***create empty file named file1 inside dummy***

```
bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ touch file2

bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ ls
1  file  file2
```

xx. ***touch file2*** ***create empty file named file2 inside dummy***

```
bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ ls -l
total 0
-rw-r--r-- 1 bryan 197609 0 Feb  8 19:40 1
-rw-r--r-- 1 bryan 197609 0 Feb  8 19:40 file
-rw-r--r-- 1 bryan 197609 0 Feb  8 19:41 file2
```

xxi. ***ls -l*** ***shows all the files***

```
bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ rm -i file2
rm: remove regular empty file 'file2'? y
```

xxii. ***rm -i file2*** ***Deletes file2 after user confirmation***

```
bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ ls -l
total 0
-rw-r--r-- 1 bryan 197609 0 Feb  8 19:40 1
-rw-r--r-- 1 bryan 197609 0 Feb  8 19:40 file
```

xxiii. ***ls -l*** ***shows items***

```
bryan@Bryan MINGW64 ~/ev4/rollno21/dummy
$ cd ..

bryan@Bryan MINGW64 ~/ev4/rollno21
$
```

xxiv. *cd ..* ***moves 1 directory backward***

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ rm emptydummy
rm: cannot remove 'emptydummy': Is a directory
```

xxv. ***rm emptydummy*** ***rm cannot remove directories without options.***

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ rmdir emptydummy
```

xxvi. ***rmdir emptydummy***
Successfully removes the directory because it is empty. – only empty dirs removed with rmdir

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ rmdir dummy
rmdir: failed to remove 'dummy': Directory not empty
```

xxvii. ***rmdir dummy*** –
will give an error since not empty

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ rm -r dummy

bryan@Bryan MINGW64 ~/ev4/rollno21
$
```

xxviii. ***rm -r dummy*** ***force delete***

2.cat >file1.txt -- You can use cat to create a file and input text directly from the terminal. Type the content'***My first line***', and press CTRL+D to save and exit

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ cat >file1.txt
My first line
```

3.cat >file2.txt   --   Type the content '***Hello Second line***', and press CTRL+D to save

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ cat >file2.txt
Hello Second line
```

and exit

4.cat > file3.txt   --   Write '***Hello line***' as input and save the file

5.cat file1.txt file2.txt > file_combined.txt   --   > overwrites, >> appends

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ cat file1.txt file2.txt > file_combined.txt
```

6.cat file_combined.txt   --Need not type the entire filename…Write file_c and press

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ cat file_combined.txt
My first lineHello Second line
```

Tab to see how it autocompletes

7.cat file3.txt >> file_combined.txt
```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ cat file3.txt >> file_combined.txt
```
Appends content of file3.txt to the existing combined file.

8.cat file_combined.txt
```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ cat file_combined.txt
My first lineHello Second lineHello line
```

```
My first lineHello Second lineHello line
bryan@Bryan MINGW64 ~/ev4/rollno21
$ grep -i hello file*
file2.txt:Hello Second line
file3.txt:Hello line
file_combined.txt:My first lineHello Second lineHello line
```

*9.grep -i hello file**

10. cp file1.txt ~/ev4 Copies the file to the ev4 directory in the home folder.

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$


cp file1.txt ~/ev4


bryan@Bryan MINGW64 ~/ev4/rollno21
$
```

11.mv file_combined.txt combined   -- check new file using **ls -l**

```
bryan@Bryan MINGW64 ~/ev4/rollno21
$ mv file_combined.txt combined

bryan@Bryan MINGW64 ~/ev4/rollno21
$ ls -l
total 4
-rw-r--r-- 1 bryan 197609 40 Feb  8 19:56 combined
-rw-r--r-- 1 bryan 197609 13 Feb  8 19:48 file1.txt
-rw-r--r-- 1 bryan 197609 17 Feb  8 19:50 file2.txt
-rw-r--r-- 1 bryan 197609 10 Feb  8 19:52 file3.txt
```
Renames file_combined.txt to combined.

Change permissions → chmod
You can do this in two ways.
Method A: Symbolic mode (easy to read)

Examples
1. Give execute permission to owner: ex: chmod u+x file.sh
2. Remove write permission from group: ex: chmod g-w file.txt
3. Add read permission to everyone: ex: chmod a+r file.txt
4. Set exact permissions:ex: chmod u=rwx,g=rx,o=r myfile

Method B: Numeric (octal) mode (most used)
Permission values for rwx = 421
Examples
1.   Owner: rwx, Group: r-x, Others: r-- => chmod 754 file.txt
2.   Read/write for owner only: => chmod 600 file.txt

Permissions meaning differ with ref to files and directories-

Permission	File	Directory
r	read file	list files (ls)
w	modify file	create/delete files
x	run file	enter directory (cd)

12. chmod u+x combined
--Grant execute permission to owner.   Check the new permission using **ls -l combined**

```
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ chmod u+x combined
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ ls -l combined
-rwxrw-r-- 1 bryan bryan 1 Feb  8 20:36 combined
```

13.   chmod g-r combined   -- Remove read permission from group

```
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ chmod g-r combined
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ ls -l combined
-rwx-w-r-- 1 bryan bryan 1 Feb  8 20:36 combined
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$
```

14. chmod 777 combined   -- *giving rwx= 111=7, full permission to all user, group and others*

```
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ chmod 777 combined
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ ls -l combined
-rwxrwxrwx 1 bryan bryan 1 Feb  8 20:36 combined
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$
```

```
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ ls -l combined
-rwxrwxrwx 1 bryan bryan 1 Feb  8 20:36 combined
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ sudo useradd alice
[sudo] password for bryan:
```

14. sudo useradd alice   --
new user created using sudo super user

15.   sudo   passwd   alice   --

```
bryan@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ sudo passwd alice
[sudo] password for bryan:
```

set   new password using passwd

16. sudo userdel alice

```
an@bryan-IdeaPad-5-15IAL7:~/ev4/rollno21$ sudo userdel alice
do] password for bryan:
y, try again.
```

If in a network server, write command can work like a "chat" with someone logged into the same system(server)

The write command sends a real-time message to another user.

Both the sender and receiver must be logged into the same system.

The message is displayed directly on the receiver's terminal

Syntax :   write username [tty]

username: The name of the user you want to send the message to.

tty (optional): Specifies the exact terminal session of the user (useful if the user has multiple sessions open).

Ex: *write alice*

There is also an option for the user to enable/block messaging using *mesg y* or *mesg n*