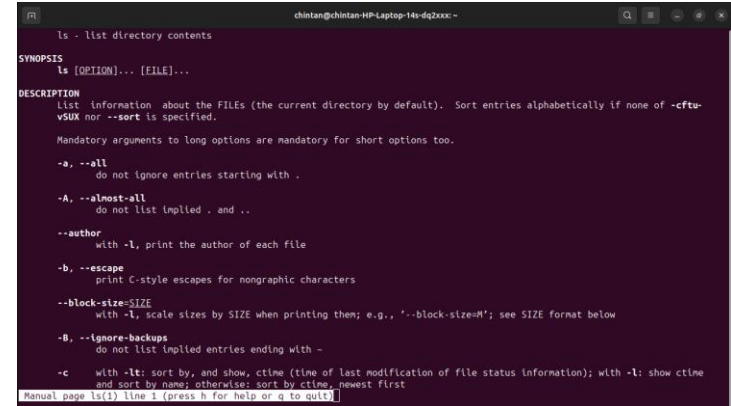


## Topic Name:

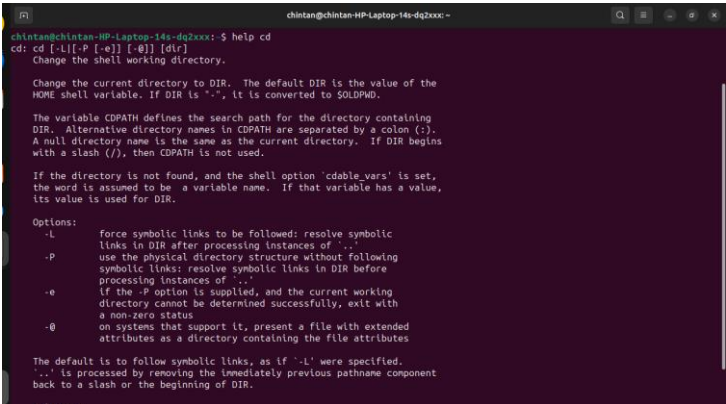
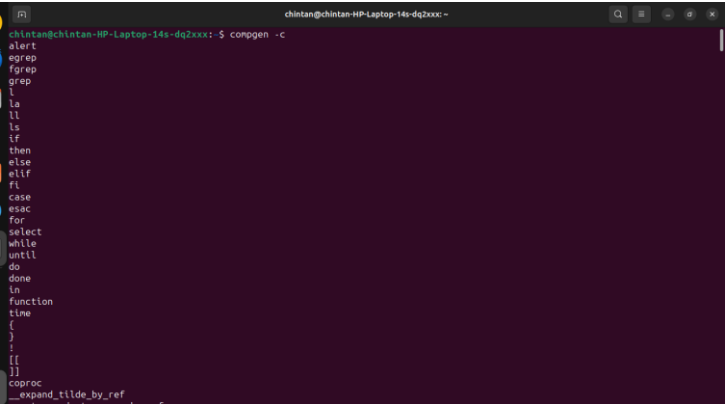
The main aim of this lab session is to provide hands-on experience on

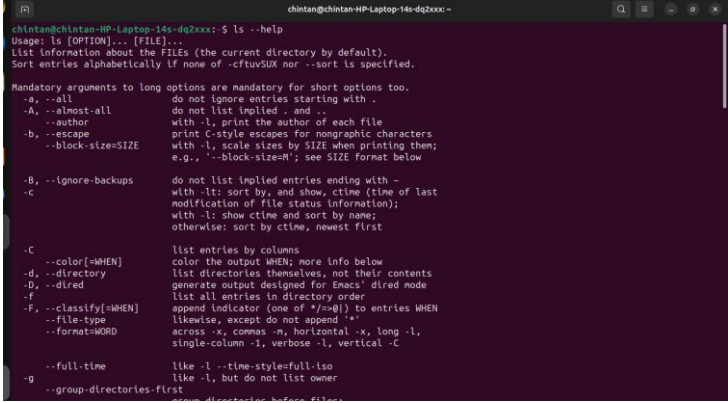
- Getting Help
- Basic Commands
- Navigation
- File System
- simple shell script

### 1. Getting Help

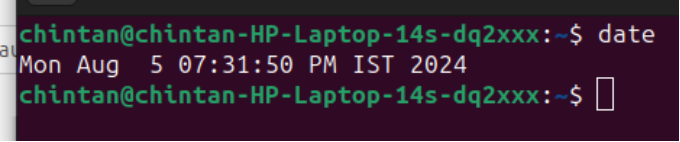
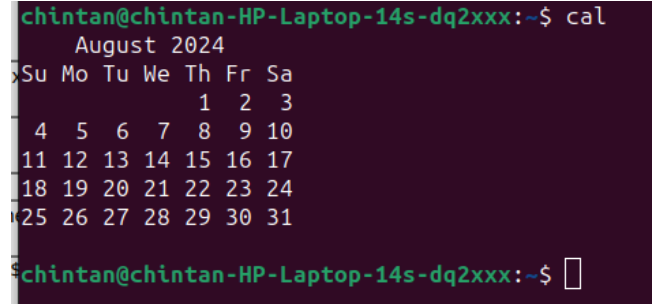
Task	Command Name	Syntax	Example	Screenshots
To get manual page for the known command	man	man <command>	man ls	 A screenshot of a terminal window showing the manual page for the 'ls' command. The terminal title is 'chintan@chintan-HP-Laptop-14s-dq2xxx: ~'. The content shows the synopsis 'ls [OPTION]... [FILE]...', a description of the command, and a list of options including -a, -A, --author, -b, --escape, --block-size=SIZE, -B, --ignore-backups, and -c. The bottom of the screen indicates 'Manual page ls(1) line 1 (press h for help or q to quit)'.

To get manual page for the unknown command	apropos	apropos <command_name>	apropos ls	
To know the source file binary	which	which <command>	which ls	
To know the path of the command	whereis	whereis <command>	whereis ls	
To know the command is external or internal	type	type <command>	type ls	

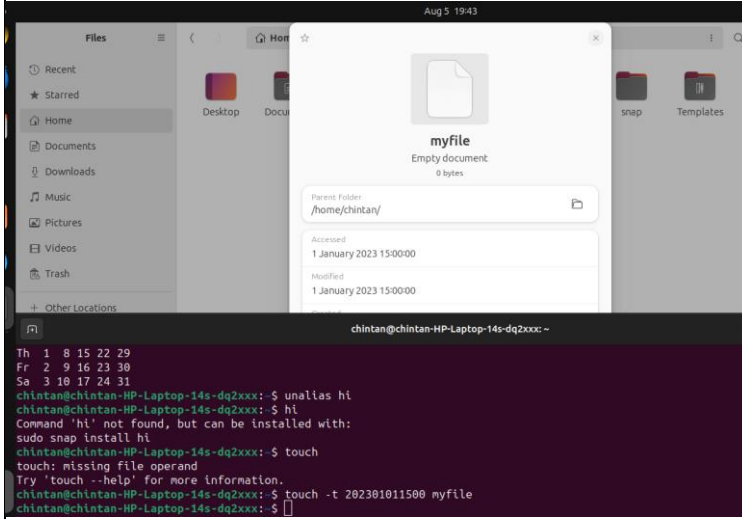
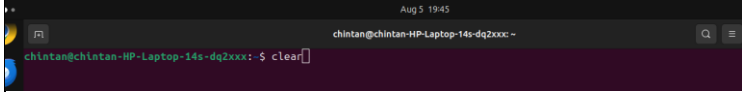
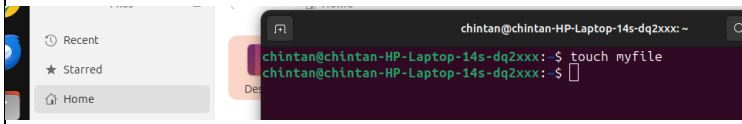
To get help for the internal command	help	help <command>	help cd	 <pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ help cd cd: cd [-L -P [-e]] [-0] [dir] Change the shell working directory.  Change the current directory to DIR. The default DIR is the value of the HOME shell variable. If DIR is ".", it is converted to \$OLDPWD.  The variable CDPATH defines the search path for the directory containing DIR. Alternative directory names in CDPATH are separated by a colon (:). A null directory name is the same as the current directory. If DIR begins with a slash (/), then CDPATH is not used.  If the directory is not found, and the shell option 'cdable_vars' is set, the word is assumed to be a variable name. If that variable has a value, its value is used for DIR.  Options: -L      force symbolic links to be followed: resolve symbolic         links in DIR after processing instances of '..' -P      use the physical directory structure without following         symbolic links: resolve symbolic links in DIR before         processing instances of '..' -e      if the -P option is supplied, and the current working         directory cannot be determined successfully, exit with         a non-zero status -O      on systems that support it, present a file with extended         attributes as a directory containing the file attributes  The default is to follow symbolic links, as if '-L' were specified. '..' is processed by removing the immediately previous pathname component back to a slash or the beginning of DIR. </pre>
To list out bash commands	compgen	compgen -c	compgen -c	 <pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ compgen -c alert egrep fgrep grep _ la ll ls if then else elif fi case esac for select while until do done in function time { } [ ]] coproc __expand_tilde_by_ref __expand_tilde_by_ref </pre>

To know the usage of the command	<command> --help	<command> --help	ls --help	
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## 2. Basic Commands

Task	Command Name	Syntax	Example	Screenshots
To know today's date	date	date	date	
To print calendar	cal	cal	cal	

To print kernel version	uname	uname -r	uname -r	<pre> try. sudo apt install &lt;deb name&gt; chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ uname -r 6.5.0-44-generic chintan@chintan-HP-Laptop-14s-dq2xxx:~\$  </pre>
To print default shell	echo	echo \$SHELL	echo \$SHELL	<pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ echo \$SHELL /bin/bash chintan@chintan-HP-Laptop-14s-dq2xxx:~\$  </pre>
To print currently logged in user	whoami	whoami	whoami	<pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ whoami chintan chintan@chintan-HP-Laptop-14s-dq2xxx:~\$  </pre>
To create shortcut for command	alias	alias <shortcut_name>=<command>	alias hi =ncal	<pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ alias hi=ncal chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ hi August 2024 Su   4 11 18 25 Mo   5 12 19 26 Tu   6 13 20 27 We   7 14 21 28 Th   1  8 15 22 29 Fr   2  9 16 23 30 Sa   3 10 17 24 31 chintan@chintan-HP-Laptop-14s-dq2xxx:~\$  </pre>
To delete shortcut	unalias	unalias <shortcut_name>	unalias hi	<pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ hi August 2024 Su   4 11 18 25 Mo   5 12 19 26 Tu   6 13 20 27 We   7 14 21 28 Th   1  8 15 22 29 Fr   2  9 16 23 30 Sa   3 10 17 24 31 chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ unalias hi chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ hi Command 'hi' not found, but can be installed with: sudo snap install hi chintan@chintan-HP-Laptop-14s-dq2xxx:~\$  </pre>

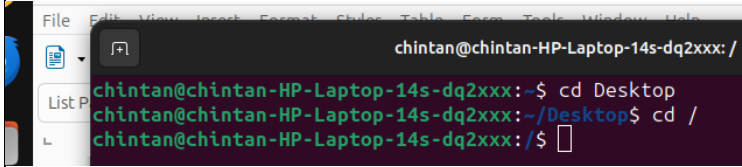
To change the timestamp of the file	touch	touch -t <timestamp> <file>	touch -t 2301011500 myfile	 <pre> chintan@chintan-HP-Laptop-14s-dq2xxx: ~ Th  1  8 15 22 29 Fr  2  9 16 23 30 Sa  3 10 17 24 31 chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ unalias hi chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ hi Command 'hi' not found, but can be installed with: sudo snap install hi chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ touch touch: missing file operand Try 'touch --help' for more information. chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ touch -t 202301011500 myfile chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ </pre>
To clear the screen	clear	clear	clear	 <pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ clear </pre>
To create empty files	touch	touch <file>	touch myfile	 <pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ touch myfile chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ </pre>

To know disk usage	du	du -h	du -h	<pre> Aug 5 19:46 chintan@chintan-HP-Laptop-14s-dq2xxx: ~ chintan@chintan-HP-Laptop-14s-dq2xxx: \$ touch myfile chintan@chintan-HP-Laptop-14s-dq2xxx: \$ du -h 4.0K    ./Music 4.0K    ./Desktop 4.0K    ./Documents 4.0K    ./ssh 4.0K    ./Templates 352K    ./Pictures/Screenshots 356K    ./Pictures 16K     ./config/dconf 4.0K    ./config/update-notifier 4.1M    ./config/google-chrome/BrowserMetrics 8.0K    ./config/google-chrome/WidevineCdm 1.5M    ./config/google-chrome/GrShaderCache 124K    ./config/google-chrome/segmentation_platform 4.0K    ./config/google-chrome/MEIPreload 8.0K    ./config/google-chrome/OptimizationHints/458/_metadata 68K     ./config/google-chrome/OptimizationHints/458 72K     ./config/google-chrome/OptimizationHints 12K     ./config/google-chrome/hyphen-data/120.0.6050.0/_metadata 1.9M    ./config/google-chrome/hyphen-data/120.0.6050.0 1.9M    ./config/google-chrome/hyphen-data 8.0K    ./config/google-chrome/SafetyTips/3036/_metadata 176K    ./config/google-chrome/SafetyTips/3036 180K    ./config/google-chrome/SafetyTips 8.0K    ./config/google-chrome/TrustTokenKeyCommitments/2024.7.26.1/_metadata 32K     ./config/google-chrome/TrustTokenKeyCommitments/2024.7.26.1 36K     ./config/google-chrome/TrustTokenKeyCommitments 4.0K    ./config/google-chrome/NativeMessagingHosts 448K    ./config/google-chrome/Dictionaries 8.0K    ./config/google-chrome/PKIMetadata/1024/_metadata 224K    ./config/google-chrome/PKIMetadata/1024 228K    ./config/google-chrome/PKIMetadata </pre>
To know free space in the system	df	df -h	df -h	<pre> chintan@chintan-HP-Laptop-14s-dq2xxx: ~ chintan@chintan-HP-Laptop-14s-dq2xxx: \$ df -h Filesystem      Size  Used Avail Use% Mounted on tmpfs           758M  1.9M  756M   1% /run /dev/nvme0n1p7  97G   11G   82G  12% / tmpfs           3.7G   0  3.7G   0% /dev/shm tmpfs           5.0M  12K   5.0M   1% /run/lock efivarfs       192K  109K   79K  59% /sys/firmware/efi/efivars /dev/nvme0n1p1  256M   93M  164M  37% /boot/efi tmpfs           758M  120K  758M   1% /run/user/1000 /dev/nvme0n1p5  120G   26G   95G  21% /media/chintan/New Volume chintan@chintan-HP-Laptop-14s-dq2xxx: ~ </pre>
To know about the Linux release	lsb_release	lsb_release	lsb_release	<pre> chintan@chintan-HP-Laptop-14s-dq2xxx: ~ chintan@chintan-HP-Laptop-14s-dq2xxx: ~ \$ lsb_release -a No LSB modules are available. Distributor ID: Ubuntu Description:    Ubuntu 23.10 Release:        23.10 Codename:       mantic chintan@chintan-HP-Laptop-14s-dq2xxx: ~ </pre>

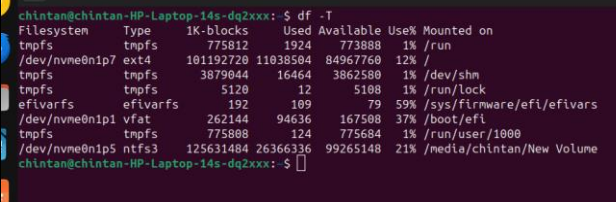
### 3. Navigation

Task	Command	Syntax	Screenshots
To navigate home directory	cd	cd	 <pre>chintan@chintan-HP-Laptop-14s-dq2xxx: ~ chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ cd chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ cd Desktop chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$ cd chintan@chintan-HP-Laptop-14s-dq2xxx:~\$</pre>
To navigate to the parent directory	cd ..	cd ..	 <pre>chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ cd Desktop chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$ cd .. chintan@chintan-HP-Laptop-14s-dq2xxx:~\$</pre>
To navigate to the child directory	cd <directory_name>	cd file	 <pre>chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ cd Desktop chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$ cd CY5_2024 chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CY5_2024\$</pre>
Alternate command to cd	pushd <directory>	pushd file	 <pre>chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ cd Desktop chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$ pushd CY5_2024 ~/Desktop/CY5_2024 ~/Desktop chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CY5_2024\$</pre>
To go back to the previous directory	cd -	cd -	 <pre>chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$ cd Desktop bash: cd: Desktop: No such file or directory chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$ cd - /home/chintan/Desktop/CY5_2024 chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CY5_2024\$ cd - /home/chintan/Desktop chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$</pre>

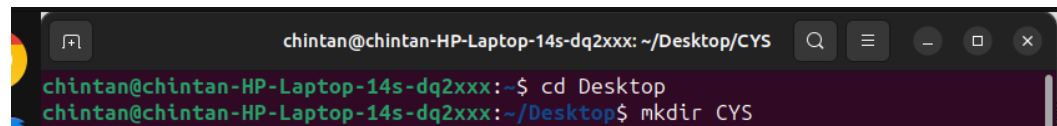


To go to the root directory	cd /	cd /	 <pre> chintan@chintan-HP-Laptop-14s-dq2xxx: / chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ cd Desktop chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop\$ cd / chintan@chintan-HP-Laptop-14s-dq2xxx:/\$ </pre>
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#### 4. File System

Task	Syntax	Command
How to identify the file system	df -T	df -T   <pre> chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ df -T Filesystem      Type  1K-blocks    Used Available Use% Mounted on tmpfs            tmpfs   775812      1924    773888   1% /run /dev/nvme0n1p7  ext4 101192720 11038504 84967760 12% / tmpfs            tmpfs  3879044    16464   3862580   1% /dev/shm tmpfs            tmpfs    5120         12     5108    1% /run/lock efivarfs         efivarfs    192      109       79   59% /sys/firmware/efi/efivars /dev/nvme0n1p1  vfat   262144    94636   167508   37% /boot/efi tmpfs            tmpfs    775808      124    775684   1% /run/user/1000 /dev/nvme0n1p5  ntfs3 125631484 26366336 99265148 21% /media/chintan/New Volume chintan@chintan-HP-Laptop-14s-dq2xxx:~\$ </pre>

##### a. Create Folder "CYS"



```

chintan@chintan-HP-Laptop-14s-dq2xxx: ~/Desktop/CYS
chintan@chintan-HP-Laptop-14s-dq2xxx:~$ cd Desktop
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop$ mkdir CYS

```

- b. Navigate to CYS

```
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop$ cd CYS
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$
```

- c. Create folder LS1 and LS2 under CYS

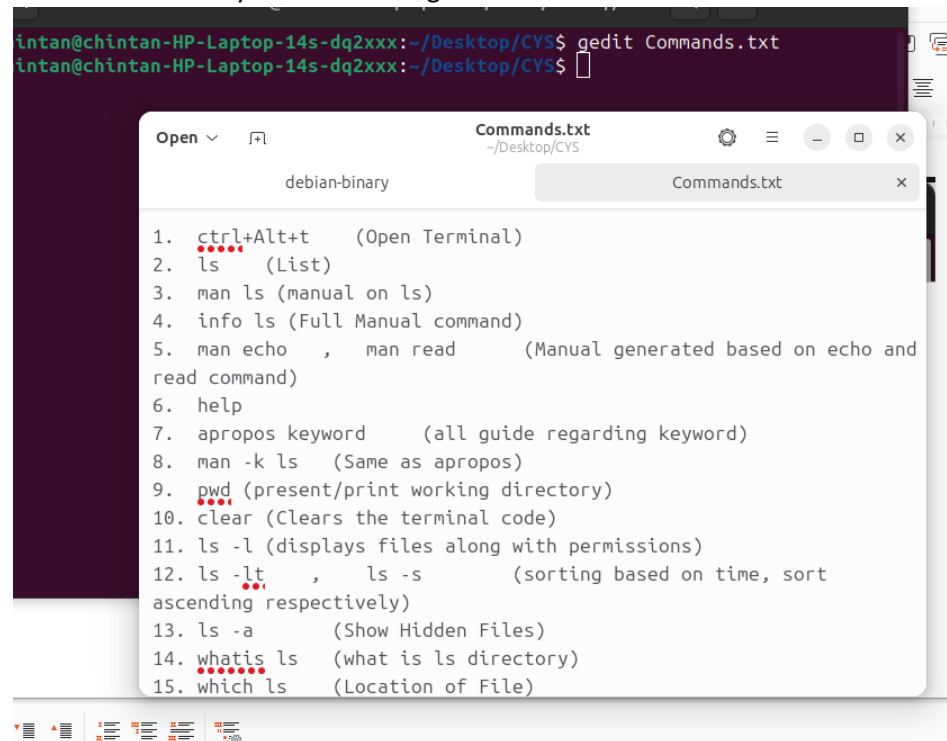
```
chintan@chintan-HP-Laptop-14s-dq2xxx: ~/Desktop/CYS
chintan@chintan-HP-Laptop-14s-dq2xxx:~$ cd Desktop
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop$ cd CYS
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mkdir LS1
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mkdir LS2
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$
```

- d. Go back to CYS

```
chintan@chintan-HP-Laptop-14s-dq2xxx: ~/Desktop/CYS
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$
```

e. Working with Files

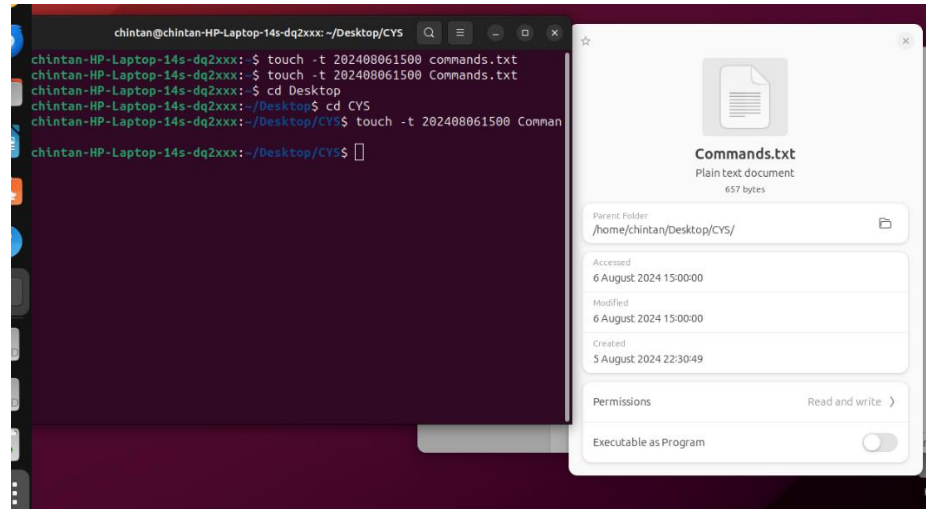
- i. Add commands which you learnt during lab session in the file commands.txt



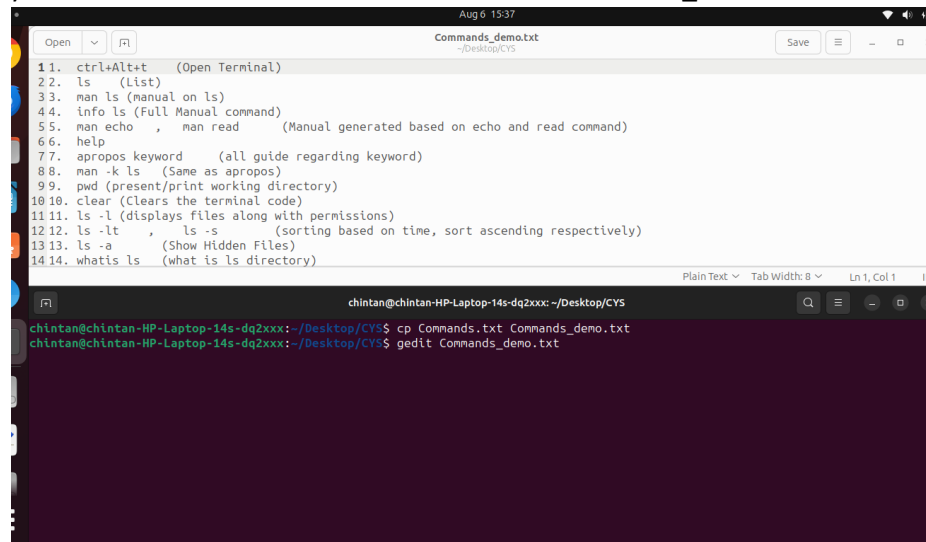
The screenshot shows a terminal window with the prompt `intan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$` and a text editor window titled `Commands.txt` at `~/Desktop/CYS`. The text editor contains a list of 15 Linux commands with their descriptions:

```
1. ctrl+Alt+t (Open Terminal)
2. ls (List)
3. man ls (manual on ls)
4. info ls (Full Manual command)
5. man echo , man read (Manual generated based on echo and read command)
6. help
7. apropos keyword (all guide regarding keyword)
8. man -k ls (Same as apropos)
9. pwd (present/print working directory)
10. clear (Clears the terminal code)
11. ls -l (displays files along with permissions)
12. ls -lt , ls -s (sorting based on time, sort ascending respectively)
13. ls -a (Show Hidden Files)
14. whatis ls (what is ls directory)
15. which ls (Location of File)
```

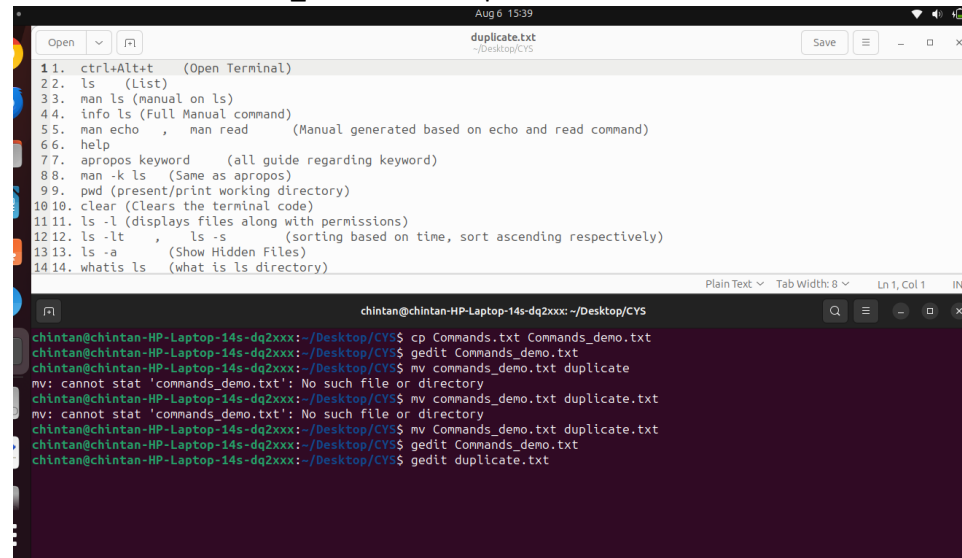
- ii. Change the timestamp of the file to yesterday



- iii. Copy the contents from the file commands.txt to commands\_demo.txt



iv. Rename the file `commands_demo.txt` to `duplicate`

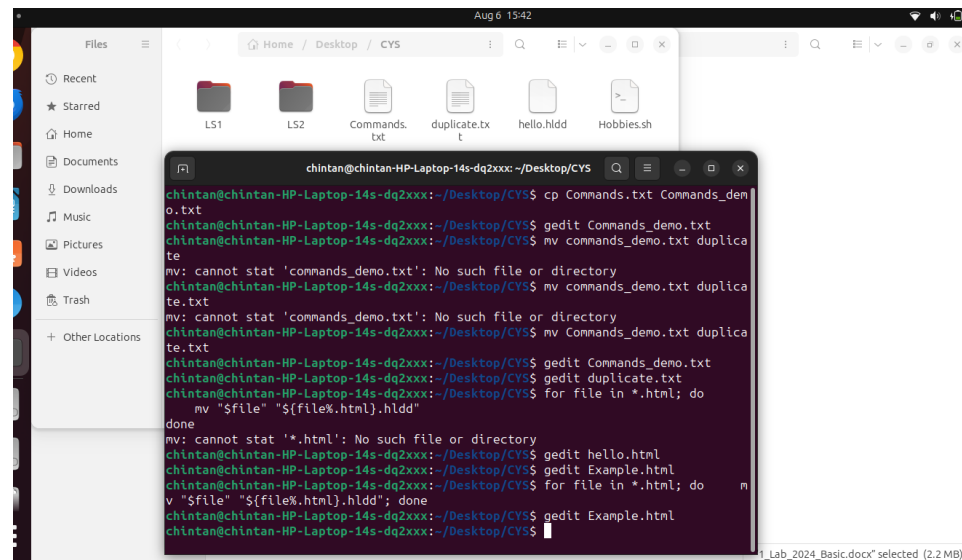


```
Aug 6 15:39
duplicate.txt
~/Desktop/CYS

11. ctrl+Alt+t (Open Terminal)
12. ls (List)
13. man ls (manual on ls)
14. info ls (Full Manual command)
15. man echo , man read (Manual generated based on echo and read command)
16. help
17. apropos keyword (all guide regarding keyword)
18. man -k ls (Same as apropos)
19. pwd (present/print working directory)
20. clear (Clears the terminal code)
21. ls -l (displays files along with permissions)
22. ls -lt , ls -s (sorting based on time, sort ascending respectively)
23. ls -a , (Show Hidden Files)
24. whatis ls (what is ls directory)

chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ cp Commands.txt Commands_demo.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Commands_demo.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mv commands_demo.txt duplicate
mv: cannot stat 'commands_demo.txt': No such file or directory
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mv commands_demo.txt duplicate.txt
mv: cannot stat 'commands_demo.txt': No such file or directory
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mv Commands_demo.txt duplicate.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Commands_demo.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit duplicate.txt
```

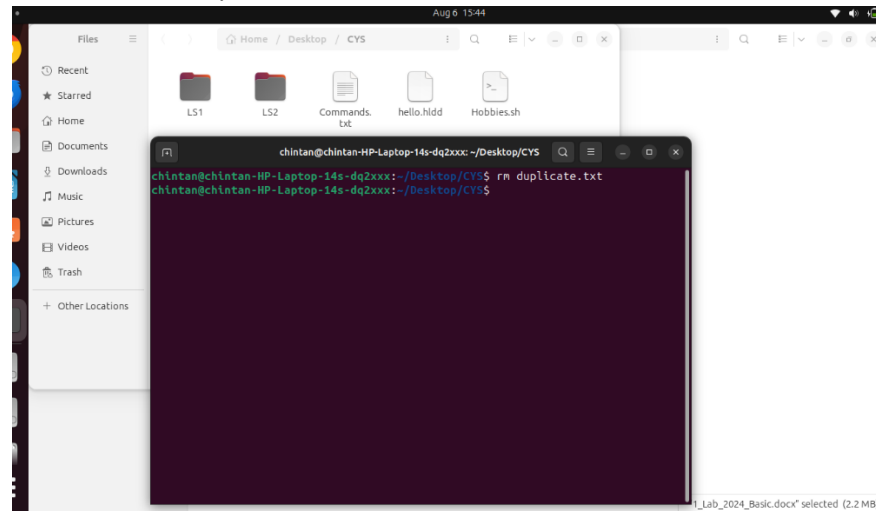
v. Rename all `.html` to `.hldd`



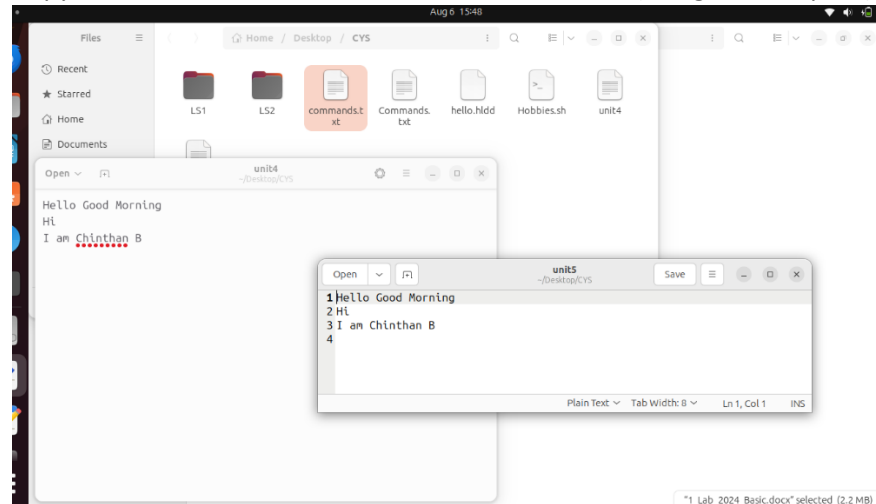
```
Aug 6 15:42
Files
Home / Desktop / CYS
L51 L52 Commands.txt duplicate.txt hello.hldd Hobbies.sh

chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ cp Commands.txt Commands_demo.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Commands_demo.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mv commands_demo.txt duplicate
mv: cannot stat 'commands_demo.txt': No such file or directory
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mv commands_demo.txt duplicate.txt
mv: cannot stat 'commands_demo.txt': No such file or directory
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ mv Commands_demo.txt duplicate.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Commands_demo.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit duplicate.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ for file in *.html; do
mv "$file" "${file%.html}.hldd"
done
mv: cannot stat '*.html': No such file or directory
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit hello.html
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Example.html
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ for file in *.html; do
mv "$file" "${file%.html}.hldd"; done
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Example.html
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$
```

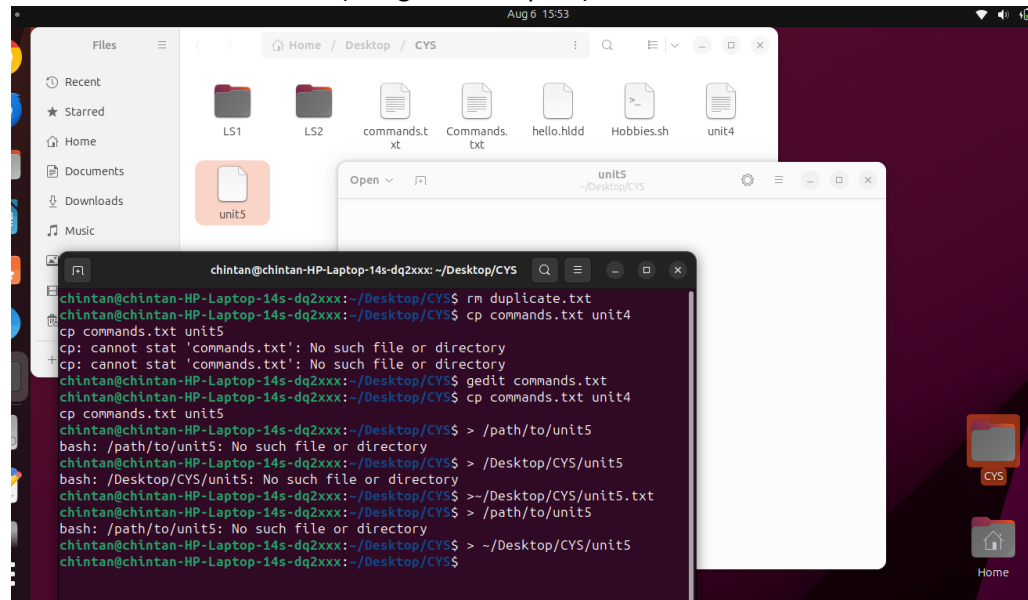
vi. Delete the file duplicate



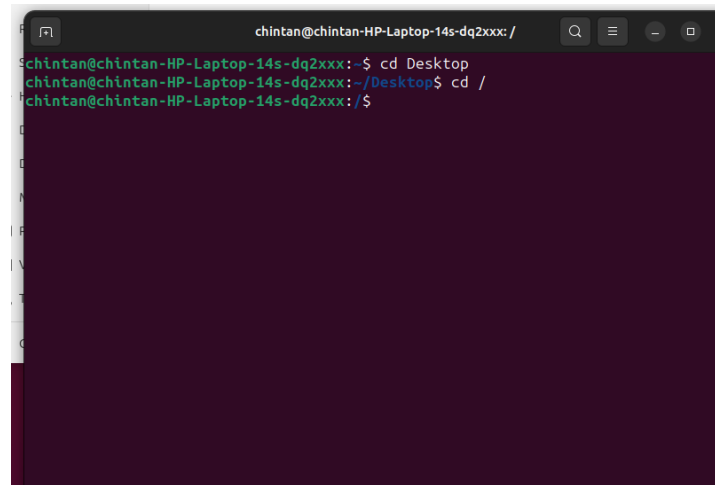
vii. Copy the contents `commands.txt` to `unit4` and `unit5` (using relative path)



- viii. Delete the contents from unit5 (using absolute path)



- ix. Navigate to root



- x. List all the files under root

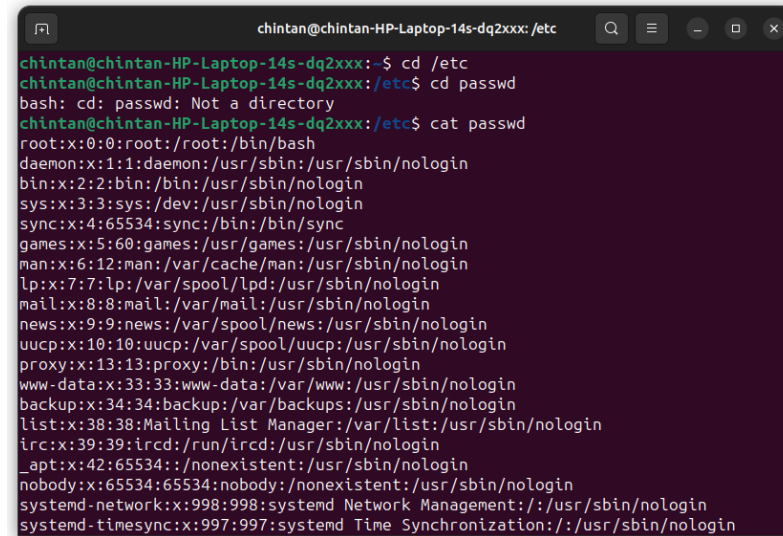
```
chintan@chintan-HP-Laptop-14s-dq2xxx: ~  
chintan@chintan-HP-Laptop-14s-dq2xxx:~$ ls -al  
total 88  
drwxr-x--- 17 chintan chintan 4096 Aug  5 23:04 .  
drwxr-xr-x  3 root    root    4096 Jul 27 16:24 ..  
-rw-----  1 chintan chintan 2507 Aug  6 15:55 .bash_history  
-rw-r--r--  1 chintan chintan 220 Jan  7 2023 .bash_logout  
-rw-r--r--  1 chintan chintan 3771 Jan  7 2023 .bashrc  
drwx----- 16 chintan chintan 4096 Jul 27 20:31 .cache  
-rw-rw-r--  1 chintan chintan   0 Aug  6 15:00 commands.txt  
-rw-rw-r--  1 chintan chintan   0 Aug  6 15:00 Commands.txt  
drwx----- 20 chintan chintan 4096 Aug  5 22:13 .config  
drwxr-xr-x  3 chintan chintan 4096 Aug  5 21:55 Desktop  
drwxr-xr-x  2 chintan chintan 4096 Jul 27 16:24 Documents  
drwxr-xr-x  2 chintan chintan 4096 Aug  5 23:02 Downloads  
drwx-----  2 chintan chintan 4096 Aug  5 22:47 .gnupg  
-rw-----  1 chintan chintan  20 Aug  5 19:19 .lessht  
drwx-----  4 chintan chintan 4096 Jul 27 16:24 .local  
drwxr-xr-x  2 chintan chintan 4096 Jul 27 16:24 Music  
drwxr-xr-x  3 chintan chintan 4096 Aug  5 19:17 Pictures  
drwx-----  3 chintan chintan 4096 Jul 27 20:31 .pki  
-rw-r--r--  1 chintan chintan 807 Jan  7 2023 .profile  
drwxr-xr-x  2 chintan chintan 4096 Jul 27 16:24 Public  
drwx-----  5 chintan chintan 4096 Jul 27 21:00 snap  
drwx-----  2 chintan chintan 4096 Jul 27 16:25 .ssh
```

- xi. Explore all the folders (Do not delete any folder)

```
chintan@chintan-HP-Laptop-14s-dq2xxx: ~  
chintan@chintan-HP-Laptop-14s-dq2xxx:~$ cd /path/to/folder  
ls -al  
bash: cd: /path/to/folder: No such file or directory  
total 88  
drwxr-x--- 17 chintan chintan 4096 Aug  5 23:04 .  
drwxr-xr-x  3 root    root    4096 Jul 27 16:24 ..  
-rw-----  1 chintan chintan 2507 Aug  6 15:55 .bash_history  
-rw-r--r--  1 chintan chintan 220 Jan  7 2023 .bash_logout  
-rw-r--r--  1 chintan chintan 3771 Jan  7 2023 .bashrc  
drwx----- 16 chintan chintan 4096 Jul 27 20:31 .cache  
-rw-rw-r--  1 chintan chintan   0 Aug  6 15:00 commands.txt  
-rw-rw-r--  1 chintan chintan   0 Aug  6 15:00 Commands.txt  
drwx----- 20 chintan chintan 4096 Aug  5 22:13 .config  
drwxr-xr-x  3 chintan chintan 4096 Aug  5 21:55 Desktop  
drwxr-xr-x  2 chintan chintan 4096 Jul 27 16:24 Documents  
drwxr-xr-x  2 chintan chintan 4096 Aug  5 23:02 Downloads  
drwx-----  2 chintan chintan 4096 Aug  5 22:47 .gnupg  
-rw-----  1 chintan chintan  20 Aug  5 19:19 .lessht  
drwx-----  4 chintan chintan 4096 Jul 27 16:24 .local  
drwxr-xr-x  2 chintan chintan 4096 Jul 27 16:24 Music  
drwxr-xr-x  3 chintan chintan 4096 Aug  5 19:17 Pictures  
drwx-----  3 chintan chintan 4096 Jul 27 20:31 .pki  
-rw-r--r--  1 chintan chintan 807 Jan  7 2023 .profile  
drwxr-xr-x  2 chintan chintan 4096 Jul 27 16:24 Public
```

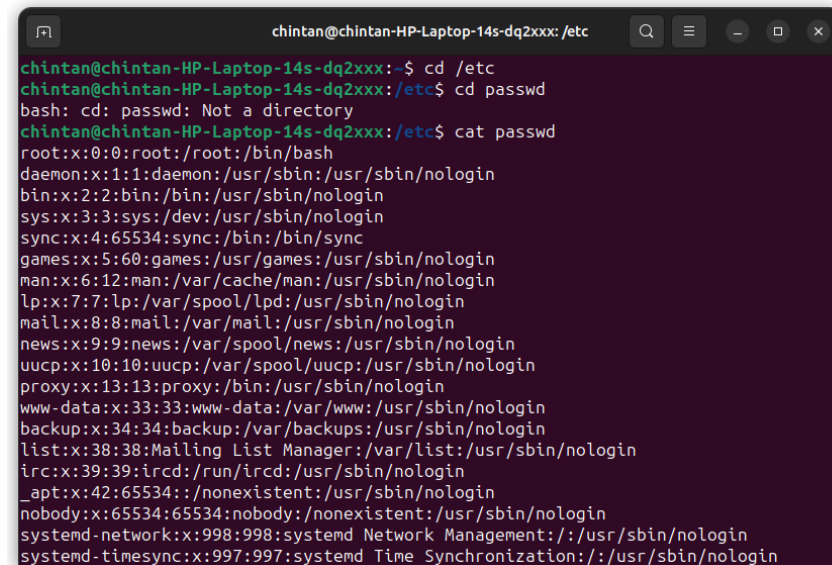


- xii. Navigate to /etc/passwd



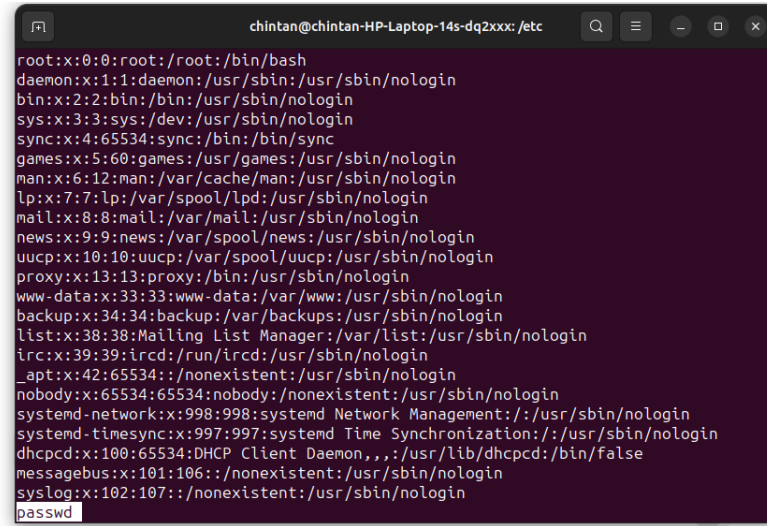
```
chintan@chintan-HP-Laptop-14s-dq2xxx:/etc
chintan@chintan-HP-Laptop-14s-dq2xxx:~$ cd /etc
chintan@chintan-HP-Laptop-14s-dq2xxx:/etc$ cd passwd
bash: cd: passwd: Not a directory
chintan@chintan-HP-Laptop-14s-dq2xxx:/etc$ cat passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailng List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534:/:nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:usr/sbin/nologin
systemd-timesync:x:997:997:systemd Time Synchronization:/:usr/sbin/nologin
```

- xiii. Open the file passwd



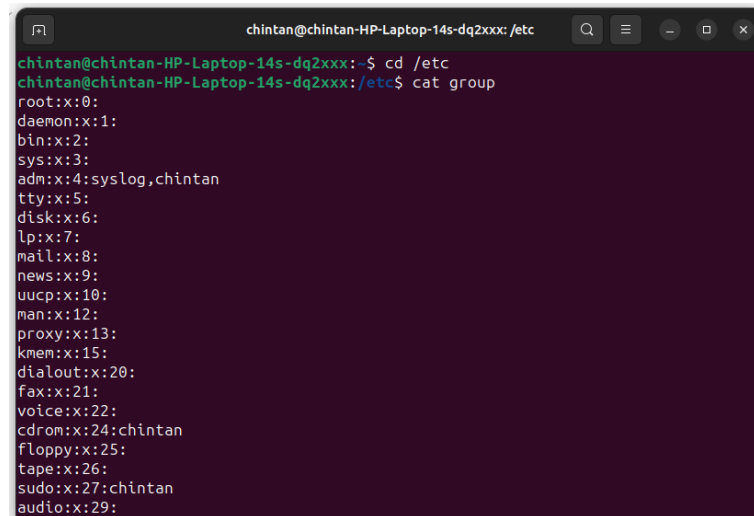
```
chintan@chintan-HP-Laptop-14s-dq2xxx:/etc
chintan@chintan-HP-Laptop-14s-dq2xxx:~$ cd /etc
chintan@chintan-HP-Laptop-14s-dq2xxx:/etc$ cd passwd
bash: cd: passwd: Not a directory
chintan@chintan-HP-Laptop-14s-dq2xxx:/etc$ cat passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailng List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534:/:nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:usr/sbin/nologin
systemd-timesync:x:997:997:systemd Time Synchronization:/:usr/sbin/nologin
```

xiv. Explore the file passwd



```
chintan@chintan-HP-Laptop-14s-dq2xxx: /etc
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
systemd-timesync:x:997:997:systemd Time Synchronization:/:/usr/sbin/nologin
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:106::/nonexistent:/usr/sbin/nologin
syslog:x:102:107::/nonexistent:/usr/sbin/nologin
passwd
```

xv. Navigate to /etc/group and explore



```
chintan@chintan-HP-Laptop-14s-dq2xxx: /etc
chintan@chintan-HP-Laptop-14s-dq2xxx:~$ cd /etc
chintan@chintan-HP-Laptop-14s-dq2xxx:/etc$ cat group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,chintan
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:
fax:x:21:
voice:x:22:
cdrom:x:24:chintan
floppy:x:25:
tape:x:26:
sudo:x:27:chintan
audio:x:29:
```

f. Difference between

i. GUI vs. CLI

**GUI (Graphical User Interface):**

- **Interface Type:** Uses graphical elements like windows, icons, and buttons.
- **User Interaction:** Primarily interacts with the system using a mouse and keyboard to click on visual elements.
- **Ease of Use:** Generally considered more intuitive and easier for beginners because of the visual representation of tasks and options.
- **Examples:** Windows Explorer, macOS Finder, GNOME desktop environment.

**CLI (Command Line Interface):**

- **Interface Type:** Uses text-based commands and output in a terminal or console window.
- **User Interaction:** Interacts with the system by typing commands into a terminal.
- **Power and Flexibility:** Offers more control and flexibility for advanced users and is often used for scripting and automation.
- **Examples:** Bash, PowerShell, Command Prompt.

ii. man vs info

**man (Manual):**

- **Purpose:** Provides a manual page for a command or function.
- **Content:** Usually includes a brief description, usage, options, and examples.
- **Format:** Traditional format with sections like NAME, SYNOPSIS, DESCRIPTION, OPTIONS, and EXAMPLES.
- **Usage:** `man command_name` (e.g., `man ls`).

**info:**

- **Purpose:** Provides a more detailed and structured documentation format, often including hypertext links.
- **Content:** More extensive than man pages, often organized in a hierarchical structure with cross-references and detailed explanations.
- **Format:** Uses a hypertext-like navigation system with nodes and links.
- **Usage:** info command\_name (e.g., info ls).

### iii. which vs. whereis

#### which:

- **Purpose:** Shows the full path of the executable file associated with a command.
- **Function:** Searches the directories listed in the PATH environment variable.
- **Usage:** which command\_name (e.g., which ls).

#### whereis:

- **Purpose:** Finds the locations of the binary, source, and manual page files for a command.
- **Function:** Searches standard directories and provides multiple locations, including binary files, source code, and documentation.
- **Usage:** whereis command\_name (e.g., whereis ls).

### iv. Terminal vs shell

#### Terminal:

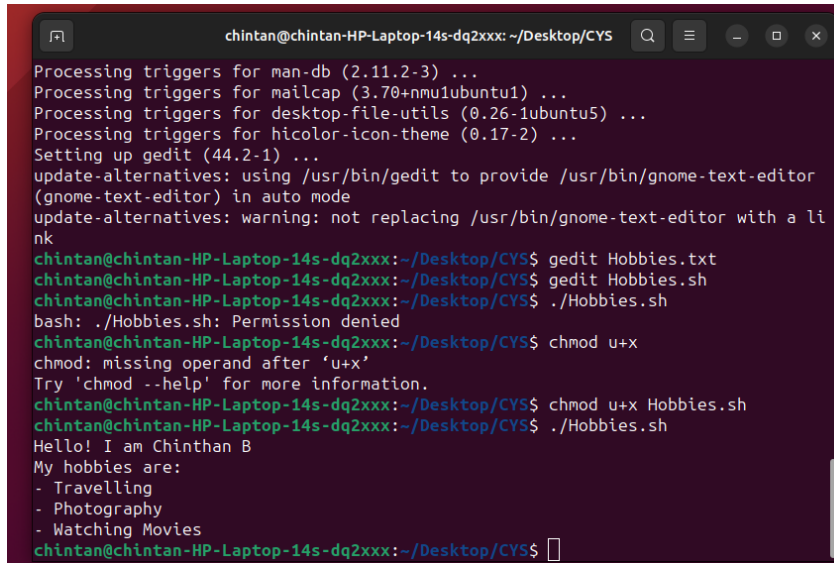
- **Purpose:** A program or window that provides a command-line interface to interact with the operating system.
- **Function:** Acts as an interface for inputting commands and displaying output.
- **Examples:** GNOME Terminal, xterm, macOS Terminal.

#### Shell:

- **Purpose:** A command-line translator that translates user-inputted commands into action.

- **Function:** The application that decodes and executes commands from the terminal.
- **Examples:** Bash, Zsh, Fish, PowerShell.

g. Write a simple shell script to print your name and your hobbies!

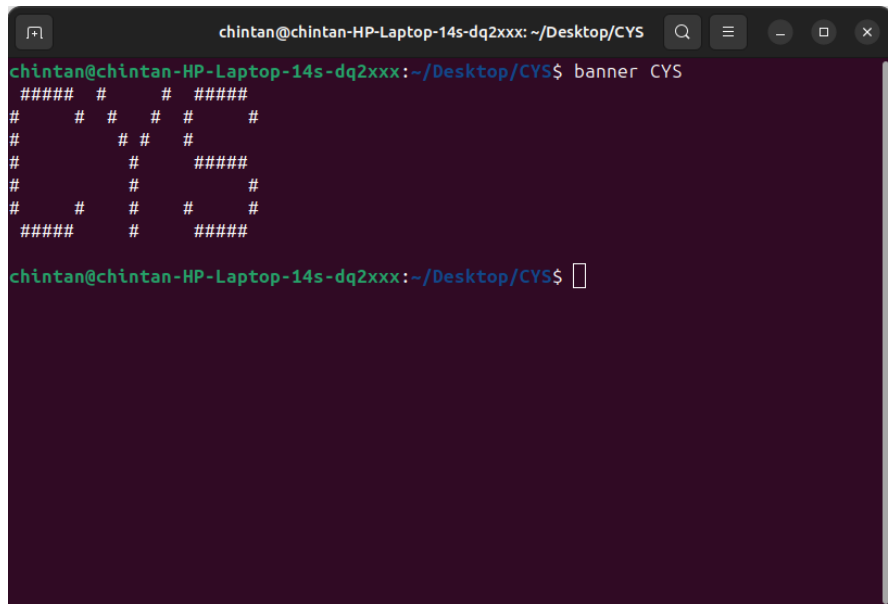
A terminal window with a dark purple background and light green text. The window title is 'chintan@chintan-HP-Laptop-14s-dq2xxx: ~/Desktop/CYS'. The terminal shows the execution of a shell script named 'Hobbies.sh'. The script prints 'Hello! I am Chinthan B' and 'My hobbies are:' followed by a list of hobbies: 'Travelling', 'Photography', and 'Watching Movies'. The user has also executed 'gedit Hobbies.txt', 'gedit Hobbies.sh', and 'chmod u+x Hobbies.sh' before running the script.

```
chintan@chintan-HP-Laptop-14s-dq2xxx: ~/Desktop/CYS
Processing triggers for man-db (2.11.2-3) ...
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu5) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Setting up gedit (44.2-1) ...
update-alternatives: using /usr/bin/gedit to provide /usr/bin/gnome-text-editor
(gnome-text-editor) in auto mode
update-alternatives: warning: not replacing /usr/bin/gnome-text-editor with a li
nk
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Hobbies.txt
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ gedit Hobbies.sh
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ ./Hobbies.sh
bash: ./Hobbies.sh: Permission denied
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ chmod u+x
chmod: missing operand after 'u+x'
Try 'chmod --help' for more information.
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ chmod u+x Hobbies.sh
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$ ./Hobbies.sh
Hello! I am Chinthan B
My hobbies are:
- Travelling
- Photography
- Watching Movies
chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS$
```

## Interesting commands to Explore

### Banner

Gives the Text in a Patterned format.

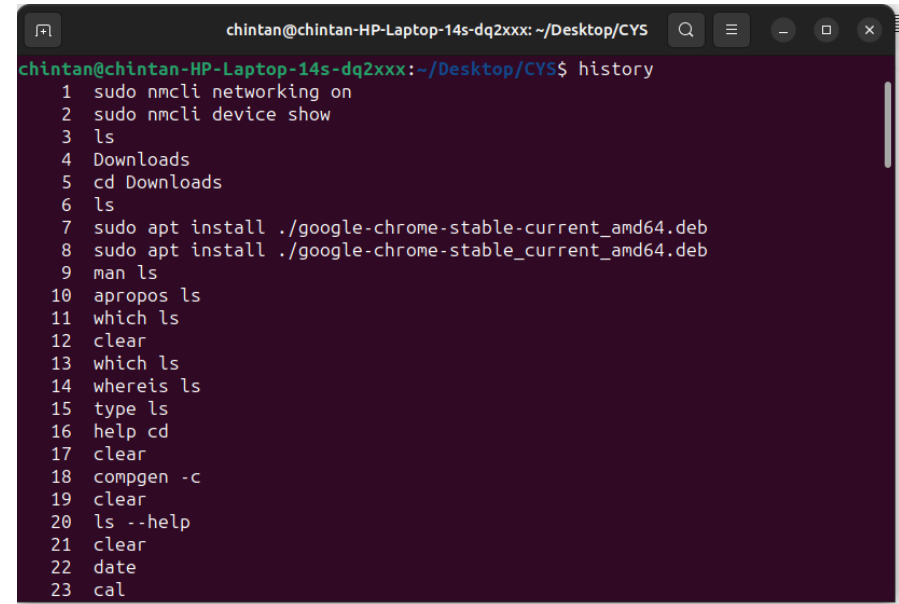
A terminal window with a dark purple background. The title bar shows 'chintan@chintan-HP-Laptop-14s-dq2xxx: ~/Desktop/CYS'. The prompt is 'chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS\$'. The command 'banner CYS' has been entered. The output is a pattern of '#' characters forming the word 'CYS' in a stylized, blocky font. The pattern is as follows:

```
##### # # #####
# # # # #
# # # #
# # #####
# # #
# # # #
##### # #####
```

The prompt is now 'chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS\$' with a cursor.

### History

Gives the History of Commands that you have executed.

A terminal window with a dark purple background. The title bar shows 'chintan@chintan-HP-Laptop-14s-dq2xxx: ~/Desktop/CYS'. The prompt is 'chintan@chintan-HP-Laptop-14s-dq2xxx:~/Desktop/CYS\$'. The command 'history' has been entered. The output is a numbered list of 23 commands:

```
1 sudo nmcli networking on
2 sudo nmcli device show
3 ls
4 Downloads
5 cd Downloads
6 ls
7 sudo apt install ./google-chrome-stable-current_amd64.deb
8 sudo apt install ./google-chrome-stable_current_amd64.deb
9 man ls
10 apropos ls
11 which ls
12 clear
13 which ls
14 whereis ls
15 type ls
16 help cd
17 clear
18 compgen -c
19 clear
20 ls --help
21 clear
22 date
23 cal
```

**Note:** Include your screenshots

Evaluation :

Marks : 10 (Deadline : 4 – Originality :3 – Completeness :3 )

Deadline: 06.08.2024

“All our dreams can come true if we have the courage to pursue them.” -- Walt Disney

