Left window — Ubuntu terminal (islam@DESKTOP-D8BECR5: ~):

```
islam@DESKTOP-D8BECR5:~$ pwd          #current working directory path
/home/islam
islam@DESKTOP-D8BECR5:~$ ls           #list content of current directory
aws    awscliv2.zip   known_hosts    practice
islam@DESKTOP-D8BECR5:~$ ls -a        #list content with hidden files
.              .bash_logout   .lesshst         .ssh                      known_hosts
..             .bashrc        .motd_shown      .sudo_as_admin_successful  practice
.aws           .docker        .npm             .viminfo
.azure         .forever       .nvm             aws
.bash_history  .gitconfig     .profile         awscliv2.zip
islam@DESKTOP-D8BECR5:~$ ls -l        #list content in details
total 46268
drwxr-xr-x 3 islam islam     4096 Nov 11 19:04 aws
-rw-r--r-- 1 islam islam 47365408 Nov 14 18:26 awscliv2.zip
-rw------- 1 islam islam     1120 Nov 15 23:30 known_hosts
drwxr-xr-x 4 islam islam     4096 Mar 30 14:19 practice
islam@DESKTOP-D8BECR5:~$ ls -al       #list content with hiddin file in details
total 46352
drwxr-x--- 9 islam islam     4096 Mar 30 17:05 .
drwxr-xr-x 3 root  root      4096 Mar 30 17:18 ..
lrwxrwxrwx 1 islam islam       23 Nov 11 22:45 .aws -> /mnt/c/Users/Islam/.aws
lrwxrwxrwx 1 islam islam       25 Nov 11 22:45 .azure -> /mnt/c/Users/Islam/.azure
-rw------- 1 islam islam    19170 Mar 31 14:49 .bash_history
-rw-r--r-- 1 islam islam      220 Nov 11 22:41 .bash_logout
-rw-r--r-- 1 islam islam     3968 Nov 14 18:07 .bashrc
drwxr-xr-x 5 islam islam     4096 Nov 15 22:14 .docker
drwx------ 4 islam islam     4096 Nov 13 22:58 .forever
-rw-r--r-- 1 islam islam       62 Dec 13 19:55 .gitconfig
-rw------- 1 islam islam       20 Mar 30 17:05 .lesshst
-rw-r--r-- 1 islam islam        0 Mar 31 00:28 .motd_shown
drwxr-xr-x 4 islam islam     4096 Nov 12 23:51 .npm
drwxr-xr-x 8 islam islam     4096 Nov 12 23:49 .nvm
-rw-r--r-- 1 islam islam      807 Nov 11 22:41 .profile
drwx------ 2 islam islam     4096 Nov 24 00:29 .ssh
-rw-r--r-- 1 islam islam        0 Nov 11 22:48 .sudo_as_admin_successful
-rw------- 1 islam islam    10277 Mar 30 14:37 .viminfo
drwxr-xr-x 3 islam islam     4096 Nov 11 19:04 aws
-rw-r--r-- 1 islam islam 47365408 Nov 14 18:26 awscliv2.zip
-rw------- 1 islam islam     1120 Nov 15 23:30 known_hosts
drwxr-xr-x 4 islam islam     4096 Mar 30 14:19 practice
islam@DESKTOP-D8BECR5:~$
```

Right window — Windows File Explorer (Ubuntu-22.04 > home > islam):

Name	Date modified	Type	Size
.docker	11/15/2022 10:14 PM	File folder	
.forever	11/13/2022 10:58 PM	File folder	
.npm	11/12/2022 11:51 PM	File folder	
.nvm	11/12/2022 11:49 PM	File folder	
.ssh	11/24/2022 12:29 AM	File folder	
aws	11/11/2022 7:04 PM	File folder	
practice	3/30/2023 2:19 PM	File folder	
.aws	11/11/2022 10:45 PM	AWS File	1 KB
.azure	11/11/2022 10:45 PM	AZURE File	1 KB
.bash_history	3/31/2023 2:29 PM	BASH_HISTORY File	19 KB
.bash_logout	11/11/2022 10:41 PM	Bash Logout Sourc...	1 KB
.bashrc	11/14/2022 6:07 PM	BASHRC File	4 KB
.gitconfig	12/13/2022 7:55 PM	Git Config Source ...	1 KB
.lesshst	3/30/2023 5:05 PM	LESSHST File	1 KB
.motd_shown	3/31/2023 12:28 AM	MOTD_SHOWN File	0 KB
.profile	11/11/2022 10:41 PM	Profile Source File	1 KB
.sudo_as_admin_successful	11/11/2022 10:48 PM	SUDO_AS_ADMIN...	0 KB
.viminfo	3/30/2023 2:37 PM	VIMINFO File	11 KB
awscliv2.zip	11/14/2022 6:26 PM	WinRAR ZIP archive	46,256 KB
known_hosts	11/15/2022 11:30 PM	File	2 KB

20 items

```
islam@DESKTOP-D8BECR5:~$ ls -R practice/        #list everything in a given relative path
practice/:
1  2

practice/1:
1.py   tst.txt

practice/2:
1.py
islam@DESKTOP-D8BECR5:~$ cd practice/            #change directory to practice
islam@DESKTOP-D8BECR5:practice$ pwd
/home/islam/practice
islam@DESKTOP-D8BECR5:practice$ ls 1
1.py   tst.txt
islam@DESKTOP-D8BECR5:practice$ ls 2
1.py
islam@DESKTOP-D8BECR5:practice$ cd ..            #one step back
islam@DESKTOP-D8BECR5:~$ pwd
/home/islam
islam@DESKTOP-D8BECR5:~$ cd /                     #go to root
islam@DESKTOP-D8BECR5:/$ ls
bin    dev   home   lib    lib64    lost+found   mnt   proc   run   snap   sys   usr
boot   etc   init   lib32  libx32   media        opt   root   sbin  srv    tmp   var
islam@DESKTOP-D8BECR5:/$ cd -                     #go to previous working directory
/home/islam
islam@DESKTOP-D8BECR5:~$ cd /bin                  #go to bin with absolute path
islam@DESKTOP-D8BECR5:bin$ pwd
/bin
islam@DESKTOP-D8BECR5:bin$ cd                     #home sweet home :)
islam@DESKTOP-D8BECR5:~$ pwd
/home/islam
islam@DESKTOP-D8BECR5:~$ ls
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ ls
aws   awscliv2.zip   known_hosts   practice
islam@DESKTOP-D8BECR5:~$ ls practice/1/
1.py   tst.txt
islam@DESKTOP-D8BECR5:~$
```
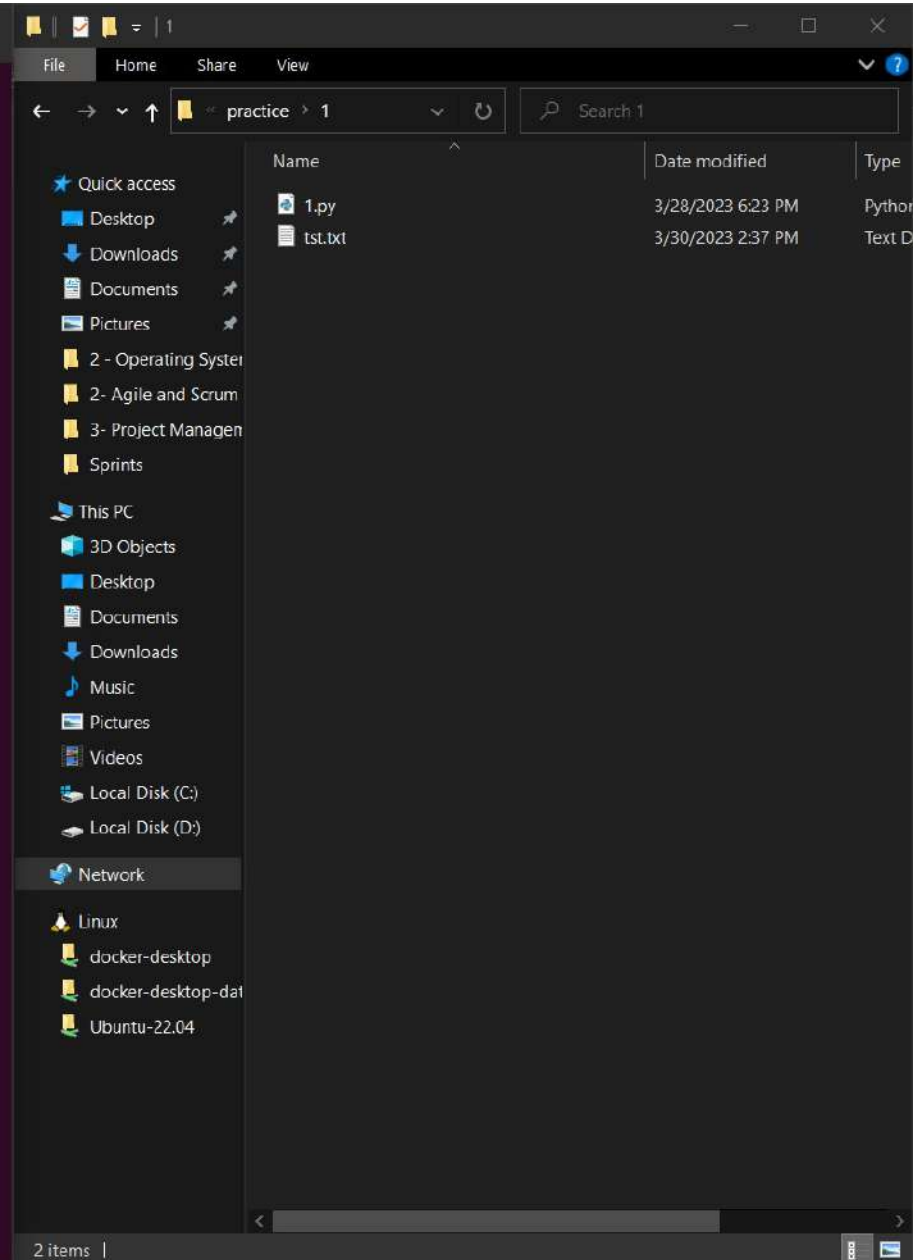
```
islam@DESKTOP-D8BECR5:~$ cd /
islam@DESKTOP-D8BECR5:/$ file ~/practice/1/tst.txt          #file info with abs path
/home/islam/practice/1/tst.txt: ASCII text
islam@DESKTOP-D8BECR5:/$ cd ~/practice/1/                   #go to file location
islam@DESKTOP-D8BECR5:1$ pwd
/home/islam/practice/1
islam@DESKTOP-D8BECR5:1$ ls -l
total 4
-rw-r--r-- 1 islam islam  0 Mar 28 18:23 1.py
-rw-r--r-- 1 islam islam 33 Mar 30 14:37 tst.txt
islam@DESKTOP-D8BECR5:1$ ls -r                              #reverse sorted
tst.txt  1.py
islam@DESKTOP-D8BECR5:1$ cat tst.txt                        #show file content
text

line

line
another linet
islam@DESKTOP-D8BECR5:1$ cat 1.py                           #show file content
islam@DESKTOP-D8BECR5:1$ file 1.py
1.py: empty
islam@DESKTOP-D8BECR5:1$
islam@DESKTOP-D8BECR5:1$
islam@DESKTOP-D8BECR5:1$ cd                                 #back to home
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ # I could've used less command but I didn't to include all previous
                                written commands in one screenshot!!
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ # file command determines file type.
islam@DESKTOP-D8BECR5:~$
```

tst.txt - Notepad

File Edit Format View Help

```
text

line

line
another linet
```

Ln 1, Col 1   100%   Unix (LF)   UTF-8

File Explorer — practice > 1

Name	Date modified	Type
1.py	3/28/2023 6:23 PM	Python
tst.txt	3/30/2023 2:37 PM	Text D

2 items

Terminal window (left):

```
islam@DESKTOP-D8BECR5:~$ cd practice/
islam@DESKTOP-D8BECR5:practice$ mkdir dir1 dir2 dir3          #makes three empty directories
islam@DESKTOP-D8BECR5:practice$ ls
1  2  3  4  dir1  dir2  dir3
islam@DESKTOP-D8BECR5:practice$ ls 1
1.py   tst.txt
islam@DESKTOP-D8BECR5:practice$ ls 2
1.py
islam@DESKTOP-D8BECR5:practice$ cp 2/* dir1                   #copy all 2 directory content in
                                                              into dir1 (1.py)
islam@DESKTOP-D8BECR5:practice$ ls dir1
1.py
islam@DESKTOP-D8BECR5:practice$ cp -uv 1/* dir1              #copy all updated 1 directory
                                                             content into dir1 with
                                                             informative messages

'1/tst.txt' → 'dir1/tst.txt'
islam@DESKTOP-D8BECR5:practice$ ls dir1
1.py   tst.txt
islam@DESKTOP-D8BECR5:practice$ # notice it didn't copr 1.py file as it was already there
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ cp -ar dir1 dir2            #copy dir1 with all its content
                                                            , ownerships and permissions
                                                            into dir2
islam@DESKTOP-D8BECR5:practice$ ls -R dir2
dir2:
dir1

dir2/dir1:
1.py   tst.txt
islam@DESKTOP-D8BECR5:practice$ mv dir1/1.py dir3            #move file to dir3
islam@DESKTOP-D8BECR5:practice$ ls dir1
tst.txt
islam@DESKTOP-D8BECR5:practice$ ls dir3
1.py
islam@DESKTOP-D8BECR5:practice$ mv dir3/1.py dir3/renamed.py
                                                            #rename file in dir3
islam@DESKTOP-D8BECR5:practice$ cd dir3
islam@DESKTOP-D8BECR5:dir3$ ls -l
total 0
-rw-r--r-- 1 islam islam 0 Mar 31 16:15 renamed.py
islam@DESKTOP-D8BECR5:dir3$
```

File Explorer window (right):

Address: home\islam\practice\dir3

Name	Date modified	Type
renamed.py	3/31/2023 4:15 PM	Pythor

Quick access
- Desktop
- Downloads
- Documents
- Pictures
- 2 - Operating System
- 2- Linux Commands
- 3- Project Managem
- Sprints

This PC
- 3D Objects
- Desktop
- Documents
- Downloads
- Music
- Pictures
- Videos
- Local Disk (C:)
- Local Disk (D:)

Network

Linux
- docker-desktop
- docker-desktop-dat
- Ubuntu-22.04

1 item
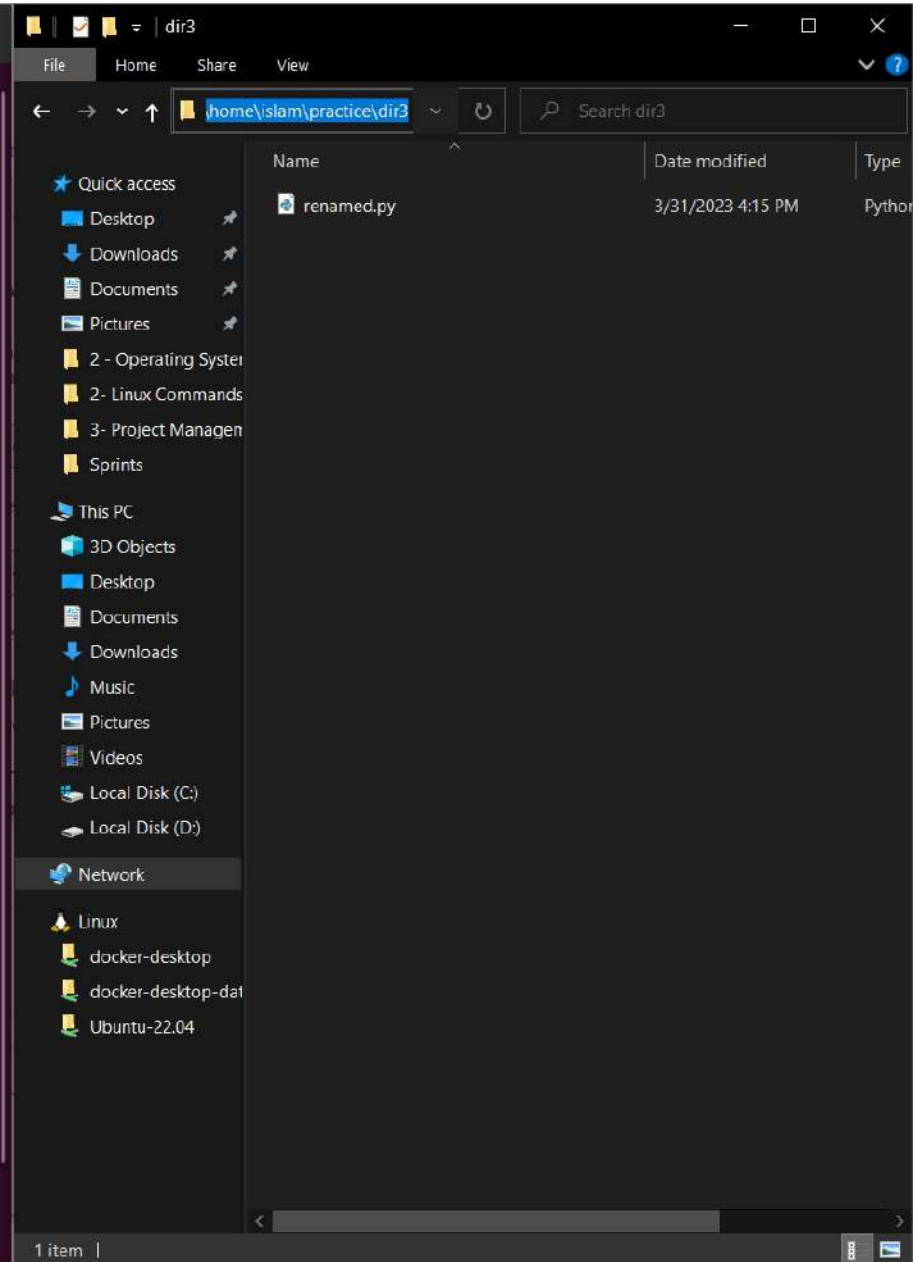
```
1.py   3
islam@DESKTOP-D8BECR5:practice$ rm 4/1.py                    #remove file
islam@DESKTOP-D8BECR5:practice$ ls 4
3
islam@DESKTOP-D8BECR5:practice$ ls dir2
dir1
islam@DESKTOP-D8BECR5:practice$ rm -ri dir2/dir1/            #remove dir2 inside dir1
                                                             recursivly with prompt
rm: descend into directory 'dir2/dir1/'? y
rm: remove regular empty file 'dir2/dir1/1.py'? y
rm: remove regular file 'dir2/dir1/tst.txt'? y
rm: remove directory 'dir2/dir1/'? y
islam@DESKTOP-D8BECR5:practice$ ls -R dir2                   #make sure it's empty
dir2:
islam@DESKTOP-D8BECR5:practice$ ls dir2
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ cd dir3
islam@DESKTOP-D8BECR5:dir3$ ls
renamed.py
islam@DESKTOP-D8BECR5:dir3$ ln renamed.py hard-ln-renamed.py
islam@DESKTOP-D8BECR5:dir3$ # hard link created
islam@DESKTOP-D8BECR5:dir3$ ls -l                            #checking inode number
total 0
-rw-r--r-- 2 islam islam 0 Mar 31 16:15 hard-ln-renamed.py
-rw-r--r-- 2 islam islam 0 Mar 31 16:15 renamed.py
islam@DESKTOP-D8BECR5:dir3$ ls -il                           #checking inode number
total 0
25695 -rw-r--r-- 2 islam islam 0 Mar 31 16:15 hard-ln-renamed.py
25695 -rw-r--r-- 2 islam islam 0 Mar 31 16:15 renamed.py
islam@DESKTOP-D8BECR5:dir3$ cd ..
islam@DESKTOP-D8BECR5:practice$ ls -s dir1/tst.txt dir2/     #create sympolic link
4 dir1/tst.txt

dir2/:
total 0
islam@DESKTOP-D8BECR5:practice$ ls -l dir2
total 0
islam@DESKTOP-D8BECR5:practice$ ln -s dir1/tst.txt dir2/     #create sympolic link
islam@DESKTOP-D8BECR5:practice$ ls -l dir2
total 0
lrwxrwxrwx 1 islam islam 12 Mar 31 16:43 tst.txt → dir1/tst.txt
```
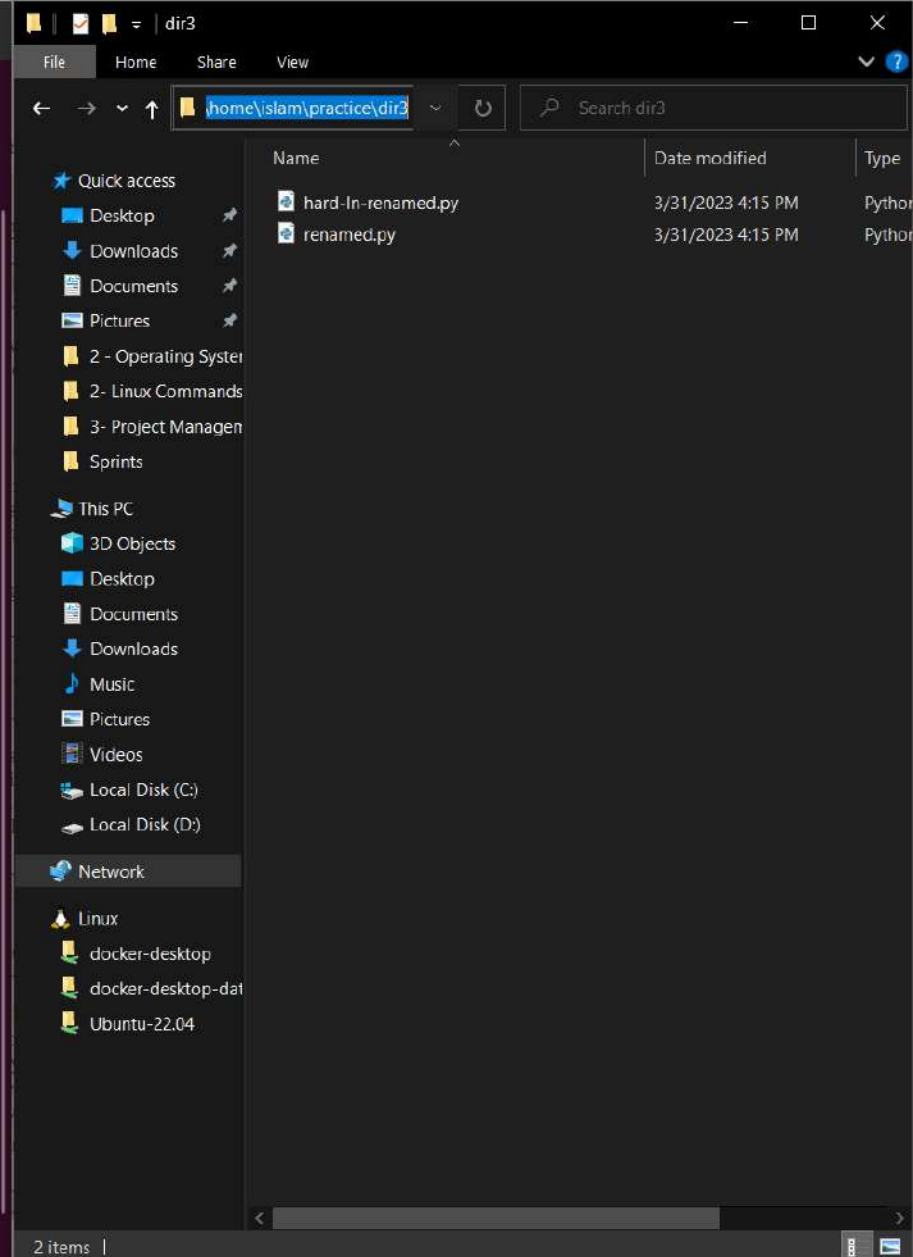
```
islam@DESKTOP-D8BECR5:~$ type cd                                    #display command type
cd is a shell builtin
islam@DESKTOP-D8BECR5:~$ type pwd
pwd is a shell builtin
islam@DESKTOP-D8BECR5:~$ type ls
ls is aliased to 'ls --color=auto'
islam@DESKTOP-D8BECR5:~$ type rm
rm is hashed (/usr/bin/rm)
islam@DESKTOP-D8BECR5:~$ which pwd                                   #display executable location
/usr/bin/pwd
islam@DESKTOP-D8BECR5:~$ which ls
/usr/bin/ls
islam@DESKTOP-D8BECR5:~$ which mv
/usr/bin/mv
islam@DESKTOP-D8BECR5:~$ help ls
-bash: help: no help topics match 'ls'.  Try 'help help' or 'man -k ls' or 'info ls'.
islam@DESKTOP-D8BECR5:~$ #ls not a shell builtin command
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ help pwd                                    #get help for shell builtin
pwd: pwd [-LP]
    Print the name of the current working directory.

    Options:
      -L        print the value of $PWD if it names the current working
                directory
      -P        print the physical directory, without any symbolic links

    By default, 'pwd' behaves as if '-L' were specified.

    Exit Status:
    Returns 0 unless an invalid option is given or the current directory
    cannot be read.
islam@DESKTOP-D8BECR5:~$ ls --help
Usage: ls [OPTION]... [FILE]...
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
```

```
islam@DESKTOP-D8BECR5:~$ man cat                              #diaplay manual page for cat commant
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$  # Rediricted to it's manual page >> pressed q to quit
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ apropos pwd                          #search man pages for pwd maches and display result
pwd (1)              - print name of current/working directory
pwdx (1)             - report current working directory of a process
unix_chkpwd (8)      - Helper binary that verifies the password of the current user
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ apropos cd
apt-cdrom (8)        - APT CD-ROM management utility
EVP_KEYEXCH-ECDH (7ssl) - ECDH Key Exchange algorithm support
EVP_SIGNATURE-ECDSA (7ssl) - The EVP_PKEY ECDSA signature implementation.
rsyncd.conf (5)      - configuration file for rsync in daemon mode
systemd-timesyncd (8) - Network Time Synchronization
systemd-timesyncd.service (8) - Network Time Synchronization
timesyncd.conf (5)   - Network Time Synchronization configuration files
timesyncd.conf.d (5) - Network Time Synchronization configuration files
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ whatis sudo rm cat less nothing cd        #display a very brief description of specified commands
sudo (8)             - execute a command as another user
rm (1)               - remove files or directories
cat (1)              - concatenate files and print on the standard output
less (1)             - opposite of more
nothing: nothing appropriate.
cd: nothing appropriate.
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ pwd
/home/islam
islam@DESKTOP-D8BECR5:~$ ls
aws  awscliv2.zip  known_hosts  practice
islam@DESKTOP-D8BECR5:~$ rm -rv practice/3 practice/4
removed 'practice/3/1.py'
removed directory 'practice/3'
removed 'practice/4/3/1.py'
removed directory 'practice/4/3'
removed directory 'practice/4'
islam@DESKTOP-D8BECR5:~$ ls practice/
1  2  dir1  dir2  dir3
islam@DESKTOP-D8BECR5:~$
```

```
islam@DESKTOP-D8BECR5:~$ type foo
-bash: type: foo: not found
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$  alias foo='cd /; pwd; cd; pwd; ls practice; cd practice; pwd; cat 1/tst.txt; cd; pwd'
                                                              #working with alias > making my own command
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ foo                                  #display what foo do
/
/home/islam
1  2  dir1  dir2  dir3
/home/islam/practice
text

line

line
another linet
/home/islam
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ type foo                             #display foo type
foo is aliased to `cd /; pwd; cd; pwd; ls practice; cd practice; pwd; cat 1/tst.txt; cd; pwd'
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ alias
alias alert='notify-send --urgency=low -i "$([ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&|]\s*alert$/
/'\'')"'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias foo='cd /; pwd; cd; pwd; ls practice; cd practice; pwd; cat 1/tst.txt; cd; pwd'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -alF'
alias ls='ls --color=auto'
islam@DESKTOP-D8BECR5:~$ unalias foo
islam@DESKTOP-D8BECR5:~$ type foo                             #display foo type
-bash: type: foo: not found
islam@DESKTOP-D8BECR5:~$
```

```
islam@DESKTOP-D8BECR5:practice$ ls -l
total 28
drwxr-xr-x 2 islam islam 4096 Mar 30 14:37 1
drwxr-xr-x 2 islam islam 4096 Mar 28 18:23 2
-rw-r--r-- 1 islam islam 4044 Mar 31 20:02 cpuinfo.txt
drwxr-xr-x 2 islam islam 4096 Mar 31 16:23 dir1
drwxr-xr-x 2 islam islam 4096 Mar 31 16:43 dir2
drwxr-xr-x 2 islam islam 4096 Mar 31 16:39 dir3
-rw-r--r-- 1 islam islam  119 Mar 31 19:57 ls.txt
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ ls /bin/use > cpuinfo.txt          #error
ls: cannot access '/bin/use': No such file or directory
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ cat cpuinfo.txt
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ # file became empty as no result was generated on std output
,                           result generated on std error.
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ ls /bin/use 2> cpuinfo.txt          #rdirect std error
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ cat cpuinfo.txt
ls: cannot access '/bin/use': No such file or directory
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ # error redirection successful
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ ls 2> cpuinfo.txt                   #let's try this
1 2   cpuinfo.txt  dir1  dir2  dir3   ls.txt
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ cat cpuinfo.txt
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ # as excpected, std output displayed, file is empty as there
                            was no error on std error to write.
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$ ls
1 2   cpuinfo.txt  dir1  dir2  dir3   ls.txt
islam@DESKTOP-D8BECR5:practice$
islam@DESKTOP-D8BECR5:practice$
```

```
islam@DESKTOP-D8BECR5:~$ ls /bin /usr/bin | sort | uniq | grep gi
                    #list 2 directories, sort output, no duplicates then display
                    output that contain gi pattern
ginstall-info
gio
gio-querymodules
git
git-receive-pack
git-shell
git-upload-archive
git-upload-pack
login
loginctl
lslogins
rlogin
slogin
islam@DESKTOP-D8BECR5:~$ ls /bin /usr/bin | sort | uniq | wc
                    #list 2 directories, sort output, no duplicates then display
                    outout line, words and bytes

  796      795     7333
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ ls /bin /usr/bin | sort | uniq | wc -l
                        #list 2 directories, sort output, no duplicates then display
                        outout lines                                               796

islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ # this is the pipeline concept as the output from a command
                        goes as an input to the next command
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$


islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ ls /bin /usr/bin | sort | uniq | grep gi | head 2
                        #display the first 2 lines of the final output
head: cannot open '2' for reading: No such file or directory
islam@DESKTOP-D8BECR5:~$ ls /bin /usr/bin | sort | uniq | grep gi | head -n 2
                        #display the first 2 lines of the final output
ginstall-info
gio
```
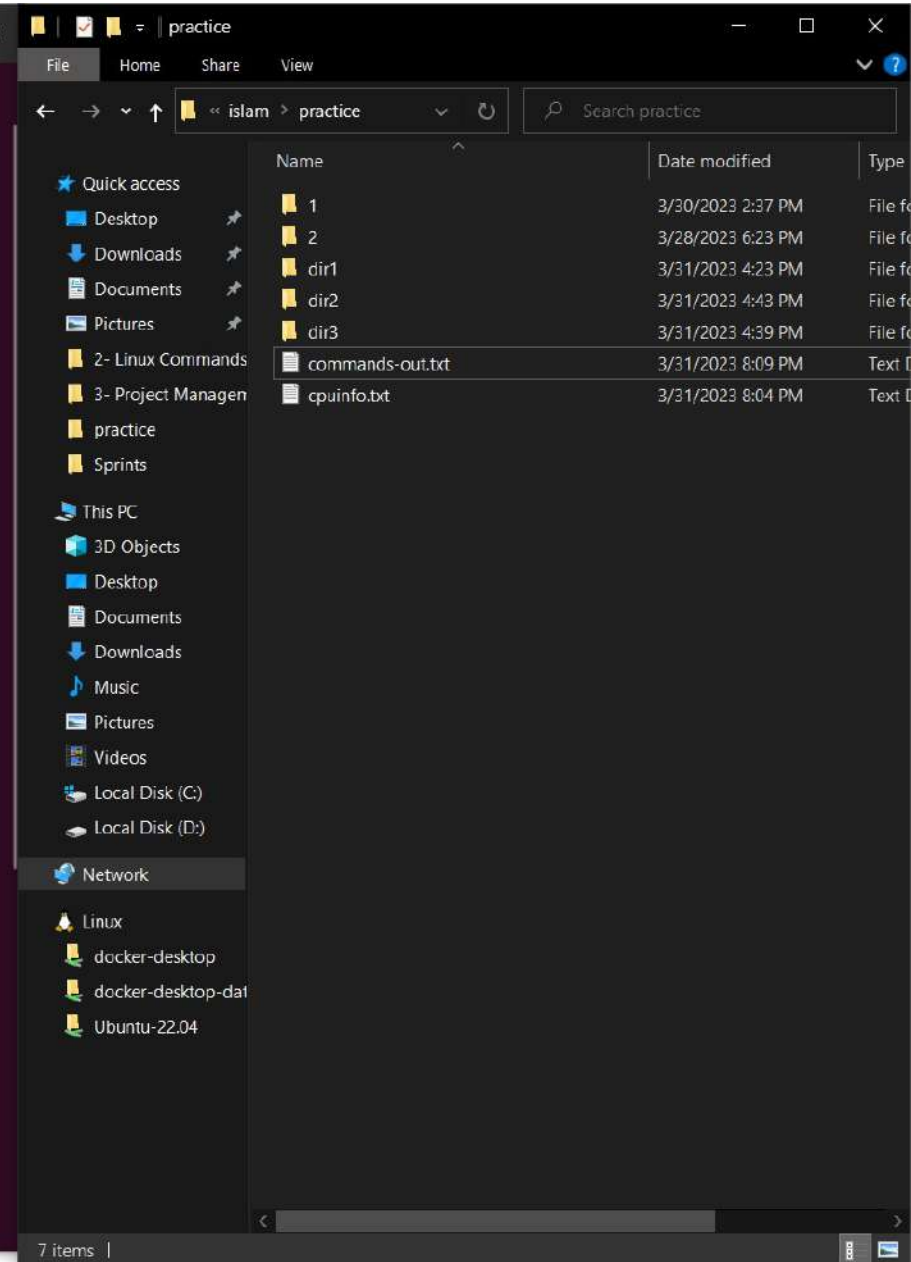
```
islam@DESKTOP-D8BECR5:~$ echo testing echo                                    #display a text
testing echo
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ ls
aws  awscliv2.zip  known_hosts  practice
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo *
aws awscliv2.zip known_hosts practice
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ #displayed all just like ls but in text format
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo /proc/* > practice/echo-output.txt          #display proc dir content in text format and redirct output to a file
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ ls practice/
1  2   commands-out.txt  cpuinfo.txt  dir1  dir2  dir3  echo-output.txt
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ cat practice/echo-output.txt
/proc/1 /proc/4 /proc/412 /proc/413 /proc/414 /proc/662 /proc/663 /proc/664 /proc/acpi /proc/buddyinfo /proc/bus /proc/cgroups /proc/cmdline /proc/config.gz
 /proc/consoles /proc/cpuinfo /proc/crypto /proc/devices /proc/diskstats /proc/dma /proc/driver /proc/execdomains /proc/filesystems /proc/fs /proc/interrupt
s /proc/iomem /proc/ioports /proc/irq /proc/kallsyms /proc/kcore /proc/key-users /proc/keys /proc/kmsg /proc/kpagecgroup /proc/kpagecount /proc/kpageflags /
proc/loadavg /proc/locks /proc/mdstat /proc/meminfo /proc/misc /proc/modules /proc/mounts /proc/mtrr /proc/net /proc/pagetypeinfo /proc/partitions /proc/sch
edstat /proc/self /proc/softirqs /proc/stat /proc/swaps /proc/sys /proc/sysvipc /proc/thread-self /proc/timer_list /proc/tty /proc/uptime /proc/version /pro
c/vmallocinfo /proc/vmstat /proc/zoneinfo
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo $(($((4**2)) * 10))                              #4^2 * 10
160
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$  echo Five divided by two equals $((5/2))            #more explained
Five divided by two equals 2
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo let's try more on next slide!
> ^C
islam@DESKTOP-D8BECR5:~$ echo let's try more on next slide
>
> ^C
islam@DESKTOP-D8BECR5:~$ echo 'let's try more on next slide'
> ^C
islam@DESKTOP-D8BECR5:~$ echo "let's try more on next slide"
let's try more on next slide
islam@DESKTOP-D8BECR5:~$ # it didn't work first bcause of the ' in let's .. but we can resolve it as shown!
```

```
islam@DESKTOP-D8BECR5:~$ echo Display-{A..C}-alone-please
Display-A-alone-please Display-B-alone-please Display-C-alone-please
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ #it will not work without the - as it will be a phrase not a single word
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo Display {A..C} alone please
Display A B C alone please
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo counter-{1..20}
counter-1 counter-2 counter-3 counter-4 counter-5 counter-6 counter-7 counter-8 counter-9 counter-10 counter-11 counter-12 counter-13 counter-14 counter-15
counter-16 counter-17 counter-18 counter-19 counter-20
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo x{A{1,2,3},B{1,5,10}}y                #nested brace expression
xA1y xA2y xA3y xB1y xB5y xB10y
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ touch practice/dir1/{2021..2023}-{1..10}      #anothr very useful cause to use brace expressions is t make file or dirs
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ ls practice/dir1
2021-1   2021-2   2021-4   2021-6   2021-8   2022-1   2022-2   2022-4   2022-6   2022-8   2023-1    2023-2   2023-4   2023-6   2023-8   tst.txt
2021-10  2021-3   2021-5   2021-7   2021-9   2022-10  2022-3   2022-5   2022-7   2022-9   2023-10   2023-3   2023-5   2023-7   2023-9
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo $USER                                #display environmental variable value
islam
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ which pwd
/usr/bin/pwd
islam@DESKTOP-D8BECR5:~$ ls -l $(which pwd)                        #passing pwd location as an argument
-rwxr-xr-x 1 root root 35328 Feb  7  2022 /usr/bin/pwd
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ file $(ls -d /usr/bin/* | grep zip)       #easier way to get a specific file type rather than searching for it
/usr/bin/funzip:    ELF 64-bit LSB pie executable, x86-64, version 1 (SYSV), dynamically linked, interpreter /lib64/ld-linux-x86-64.so.2, BuildID[sha1]=ef5
29e62a1f289091aafa10a4cbd603cb45d9351, for GNU/Linux 3.2.0, stripped
/usr/bin/gpg-zip:    POSIX shell script, ASCII text executable
/usr/bin/gunzip:    POSIX shell script, ASCII text executable
/usr/bin/gzip:      ELF 64-bit LSB pie executable, x86-64, version 1 (SYSV), dynamically linked, interpreter /lib64/ld-linux-x86-64.so.2, BuildID[sha1]=a76
68faa2322e181773d5cba4bc5d8fd41e9b7c9, for GNU/Linux 3.2.0, stripped
/usr/bin/streamzip:  Perl script text executable
/usr/bin/unzip:     ELF 64-bit LSB pie executable, x86-64, version 1 (SYSV), dynamically linked, interpreter /lib64/ld-linux-x86-64.so.2, BuildID[sha1]=410
6d53017564c3c40ab5688ee70b9d86c5d837a, for GNU/Linux 3.2.0, stripped
/usr/bin/unzipsfx:  ELF 64-bit LSB pie executable, x86-64, version 1 (SYSV), dynamically linked, interpreter /lib64/ld-linux-x86-64.so.2, BuildID[sha1]=fd9
```

```
islam@DESKTOP-D8BECR5:~$  echo this is a                test
this is a test
islam@DESKTOP-D8BECR5:~$  echo "this is a                test"
this is a                test
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo "hello  {a..z} $(echo hello again) $((2+2)) $USER"          #excutes verything between ""
hello  {a..z} hello again 4 islam
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo 'hello  {a..z} $(echo hello again) $((2+2)) $USER'          #print evrything as it is
hello  {a..z} $(echo hello again) $((2+2)) $USER
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ # What if we want to print $ as a dollar sign?
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ # Tow ways to do so..
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ # Two ways sorry!
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo "$100,000"                                      # not successful!
00,000
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo "\$100,000"                                     #we should use escape character \
$100,000
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ echo '$100,000'                                      #or simply use single quotes ''
$100,000
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ #————————————————————DONE————————————————————
————————————————————————FINALLY————————————————————————
————————————————Manipulating terminal is easy————————————————
————————————————Documinting it is exhausting o.o————————————————
————————————————————————REGARDS!————————————————————————
————————————————————————————————————————————————————————

islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$
islam@DESKTOP-D8BECR5:~$ # I tried my best, hope that was enough :)
```