

NAME: RUCHIRA NASKAR

ROLL NO.: 21075072

**DEPARTMENT: COMPUTER SCIENCE AND
ENGINEERING**

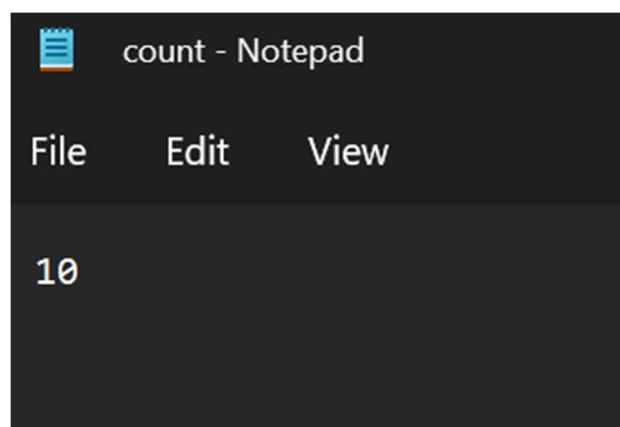
SUBMITTED ON: MAY 1, 2022

EMAIL ID:

ruchira.naskar.cse21@iitbhu.ac.in

1) Count the total number of files in the directory /usr/lib starting with 'lib' and print output in a count.txt file.

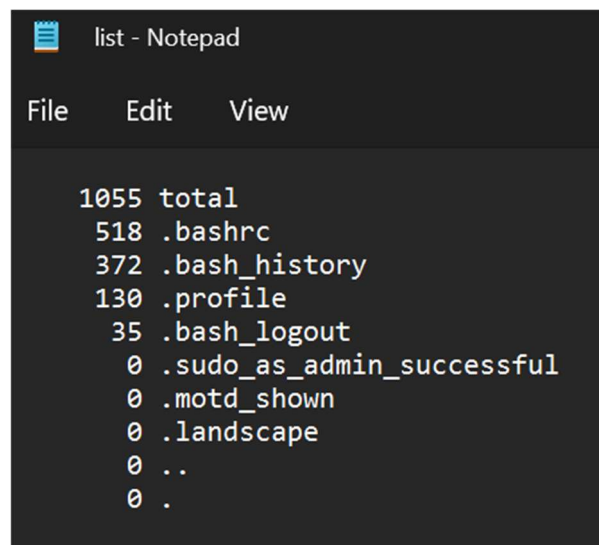
```
ruchpottah@LAPTOP-DS9NCF3C:/$ cd /usr/lib
ruchpottah@LAPTOP-DS9NCF3C:/usr/lib$ ls lib* -d -l
lrwxrwxrwx 1 root root 21 Mar 9 2020 libDeployPkg.so.0 -> libDeployPkg.so.0.0.0
-rw-r--r-- 1 root root 39648 Mar 9 2020 libDeployPkg.so.0.0.0
lrwxrwxrwx 1 root root 16 Apr 6 2020 libdmp.so -> libdmp.so.0.2.0
-rw-r--r-- 1 root root 34888 Apr 6 2020 libdmp.so.0.2.0
lrwxrwxrwx 1 root root 20 Mar 9 2020 libguestlib.so.0 -> libguestlib.so.0.0.0
-rw-r--r-- 1 root root 26904 Mar 9 2020 libguestlib.so.0.0.0
lrwxrwxrwx 1 root root 18 Mar 4 2020 libhandle.so.1 -> libhandle.so.1.0.3
-rw-r--r-- 1 root root 14416 Mar 4 2020 libhandle.so.1.0.3
lrwxrwxrwx 1 root root 16 Mar 9 2020 libhgfs.so.0 -> libhgfs.so.0.0.0
-rw-r--r-- 1 root root 171496 Mar 9 2020 libhgfs.so.0.0.0
drwxr-xr-x 2 root root 4096 Mar 25 03:11 libqmi
lrwxrwxrwx 1 root root 16 Apr 6 2020 libpathcmd.so -> libpathcmd.so.0
-rw-r--r-- 1 root root 14328 Apr 6 2020 libpathcmd.so.0
lrwxrwxrwx 1 root root 20 Apr 6 2020 libpathpersist.so -> libpathpersist.so.0
-rw-r--r-- 1 root root 34808 Apr 6 2020 libpathpersist.so.0
lrwxrwxrwx 1 root root 17 Apr 6 2020 libmultipath.so -> libmultipath.so.0
-rw-r--r-- 1 root root 384848 Apr 6 2020 libmultipath.so.0
drwxr-xr-x 2 root root 4096 Mar 25 03:11 libqmi
lrwxrwxrwx 1 root root 18 Mar 9 2020 libvgauth.so.0 -> libvgauth.so.0.0.0
-rw-r--r-- 1 root root 93488 Mar 9 2020 libvgauth.so.0.0.0
lrwxrwxrwx 1 root root 19 Mar 9 2020 libvmtools.so.0 -> libvmtools.so.0.0.0
-rw-r--r-- 1 root root 652120 Mar 9 2020 libvmtools.so.0.0.0
ruchpottah@LAPTOP-DS9NCF3C:/usr/lib$ ls lib* -d -l | grep '^-'
-rw-r--r-- 1 root root 39648 Mar 9 2020 libDeployPkg.so.0.0.0
-rw-r--r-- 1 root root 34888 Apr 6 2020 libdmp.so.0.2.0
-rw-r--r-- 1 root root 26904 Mar 9 2020 libguestlib.so.0.0.0
-rw-r--r-- 1 root root 14416 Mar 4 2020 libhandle.so.1.0.3
-rw-r--r-- 1 root root 171496 Mar 9 2020 libhgfs.so.0.0.0
-rw-r--r-- 1 root root 14328 Apr 6 2020 libpathcmd.so.0
-rw-r--r-- 1 root root 34808 Apr 6 2020 libpathpersist.so.0
-rw-r--r-- 1 root root 384848 Apr 6 2020 libmultipath.so.0
-rw-r--r-- 1 root root 93488 Mar 9 2020 libvgauth.so.0.0.0
-rw-r--r-- 1 root root 652120 Mar 9 2020 libvmtools.so.0.0.0
ruchpottah@LAPTOP-DS9NCF3C:/usr/lib$ ls lib* -d -l | grep '^-' -c > /mnt/c/users/91933/onedrive/documents/itw1/count.txt
ruchpottah@LAPTOP-DS9NCF3C:/usr/lib$ cat /mnt/c/users/91933/onedrive/documents/itw1/count.txt
10
ruchpottah@LAPTOP-DS9NCF3C:/usr/lib$
```



count.txt

2) List all hidden files in your home directory and save it in a list.txt file in decreasing order of their word count.

```
ruchpottah@LAPTOP-DS9NCF3C:~$ ls -a
.  .bash_history  .bashrc  .motd_shown  .sudo_as_admin_successful  itw1
.. .bash_logout  .landscape  .profile  chapter1  ls
ruchpottah@LAPTOP-DS9NCF3C:~$ wc -w .* | sort -r > /mnt/c/users/91933/onedrive/documents/itw1/list.txt
wc: .: Is a directory
wc: ..: Is a directory
wc: .landscape: Is a directory
ruchpottah@LAPTOP-DS9NCF3C:~$ cat /mnt/c/users/91933/onedrive/documents/itw1/list.txt
1055 total
518 .bashrc
372 .bash_history
130 .profile
35 .bash_logout
0 .sudo_as_admin_successful
0 .motd_shown
0 .landscape
0 ..
0 .
ruchpottah@LAPTOP-DS9NCF3C:~$
```



```
list - Notepad
File Edit View
1055 total
518 .bashrc
372 .bash_history
130 .profile
35 .bash_logout
0 .sudo_as_admin_successful
0 .motd_shown
0 .landscape
0 ..
0 .
```

list.txt

3) List all the processes belonging to root & output in a processes.txt file.

```
ruchpottah@LAPTOP-DS9NCF3C:~$ ps -U root -u root u
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.0   1768  1060 ?        S1   11:04    0:00 /init
root       135  0.0  0.0   2116   356 ?        Ss  13:17    0:00 /init
root       136  0.0  0.0   2116   356 ?        R   13:17    0:00 /init
ruchpottah@LAPTOP-DS9NCF3C:~$ ps -U root -u root u > /mnt/c/users/91933/onedrive/documents/itw1/processes.txt
ruchpottah@LAPTOP-DS9NCF3C:~$ cat /mnt/c/users/91933/onedrive/documents/itw1/processes.txt
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.0   1768  1060 ?        S1   11:04    0:00 /init
root       135  0.0  0.0   2116   356 ?        Ss  13:17    0:00 /init
root       136  0.0  0.0   2116   356 ?        S   13:17    0:00 /init
ruchpottah@LAPTOP-DS9NCF3C:~$
```

processes - Notepad

File Edit View

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
root	1	0.0	0.0	1768	1060	?	S1	11:04	0:00	/init
root	135	0.0	0.0	2116	356	?	Ss	13:17	0:00	/init
root	136	0.0	0.0	2116	356	?	S	13:17	0:00	/init

processes.txt

4) What is the difference between \$* and \$@?

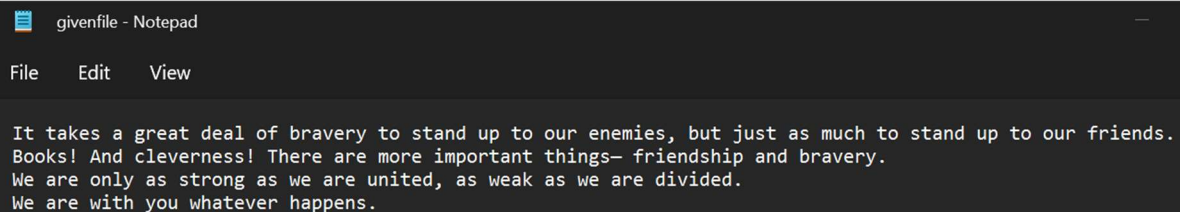
\$* and \$@ can be used with or without double quotes. When used with double quotes, "\$*", it expands to all the positional parameters as a single word delimited by the first character of the internal field separator variable. For example, "\$1 \$2 \$3 \$4" (here, the internal field separator is a space). When used with double quotes, "\$@", it expands all the positional parameters as different words. For example, "\$1" "\$2" "\$3" "\$4". However, both \$* and \$@ act in the same manner when no double quotes are used.

[* and @ are special parameters which hold the positional parameters (command line arguments passed to a shell script) starting from the first.]

5) Given a file, write a command sequence to find the count of each word.

```
ruchpottah@LAPTOP-DS9NCF3C:/$ cd /mnt/c/users/91933/onedrive/documents/itw1
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat givenfile.txt
It takes a great deal of bravery to stand up to our enemies, but just as much to stand up to our friends.
Books! And cleverness! There are more important things- friendship and bravery.
We are only as strong as we are united, as weak as we are divided.
We are with you whatever happens.

ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat givenfile.txt | tr ' ' '\n' | sort | uniq -c
 1 And
 1 Books!
 1 It
 1 There
 2 We
 1 a
 1 and
 5 are
 5 as
 1 bravery
 1 bravery.
 1 but
 1 cleverness!
 1 deal
 1 divided.
 1 enemies,
 1 friends.
 1 friendship
 1 great
 1 happens.
 1 important
 1 just
 1 more
 1 much
 1 of
 1 only
 2 our
 2 stand
 1 strong
 1 takes
 1 things-
 4 to
 1 united,
 2 up
 2 we
 1 weak
 1 whatever
 1 with
 1 you
```



givenfile - Notepad

File Edit View

It takes a great deal of bravery to stand up to our enemies, but just as much to stand up to our friends.
Books! And cleverness! There are more important things- friendship and bravery.
We are only as strong as we are united, as weak as we are divided.
We are with you whatever happens.

givenfile.txt

6) How will you print the login names of all users on a system?

```
ruchpottah@LAPTOP-DS9NCF3C:~$ cut -d : -f1 /etc/passwd
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
systemd-timesync
messagebus
syslog
_apt
tss
uidd
tcpdump
sshd
landscape
pollinate
ruchpottah
ruchpottah@LAPTOP-DS9NCF3C:~$
```

7) What is the command to find remaining disk space in unix server? Also find the method to see command line history?

```
ruchpottah@LAPTOP-DS9NCF3C:~$ df
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
/dev/sdc	263174212	1472824	248263232	1%	/
none	1930200	28	1930172	1%	/mnt/wslg
none	1930200	4	1930196	1%	/mnt/wsl
tools	396481532	107942356	288539176	28%	/init
none	1927772	0	1927772	0%	/dev
none	1930200	0	1930200	0%	/run
none	1930200	0	1930200	0%	/run/lock
none	1930200	0	1930200	0%	/run/shm
none	1930200	0	1930200	0%	/run/user
tmpfs	1930200	0	1930200	0%	/sys/fs/cgroup
drivers	396481532	107942356	288539176	28%	/usr/lib/wsl/drivers
lib	396481532	107942356	288539176	28%	/usr/lib/wsl/lib
none	1930200	76	1930124	1%	/mnt/wslg/versions.txt
none	1930200	76	1930124	1%	/mnt/wslg/doc
drvfs	396481532	107942356	288539176	28%	/mnt/c

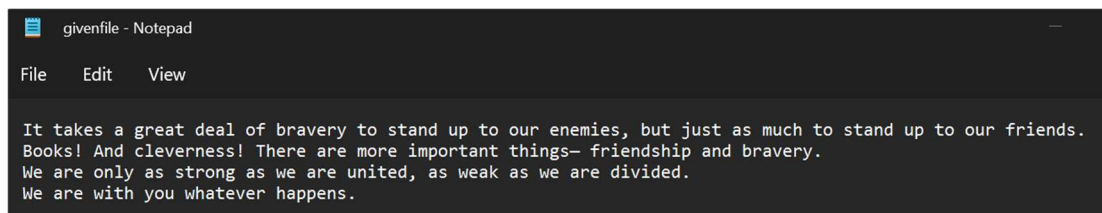
```
ruchpottah@LAPTOP-DS9NCF3C:~$ history
```

```
1  sudo apt-get update
2  wc list
3  ls | wc
4  echo
5  echo man
6  x=5
7  echo $x
8  echo $PATH
9  mkdir chapter1
10 mkdir chapter2
11 cd chapter1
12 cd ..
13 ls chap*
14 ls -l chap*
15 man echo
16 ls>list
17 gedit list
18 sudo apt install gedit
19 rm list
20 []
21 rmdir chapter2
22 open history.txt
23 sudo apt-get update
24 sudo -h
25 sudo apt-get install
26 date
27 banner Good Morning India
```

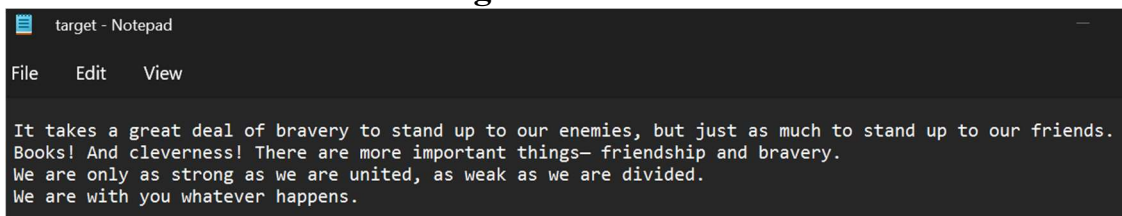

8) Write a command to copy one file into another? Also find, how to concatenate the files.

```
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cd /mnt/c/users/91933/onedrive/documents/itw1
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat givenfile.txt
It takes a great deal of bravery to stand up to our enemies, but just as much to stand up to our friends.
Books! And cleverness! There are more important things- friendship and bravery.
We are only as strong as we are united, as weak as we are divided.
We are with you whatever happens.
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cp givenfile.txt target.txt
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat target.txt
It takes a great deal of bravery to stand up to our enemies, but just as much to stand up to our friends.
Books! And cleverness! There are more important things- friendship and bravery.
We are only as strong as we are united, as weak as we are divided.
We are with you whatever happens.
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$
```

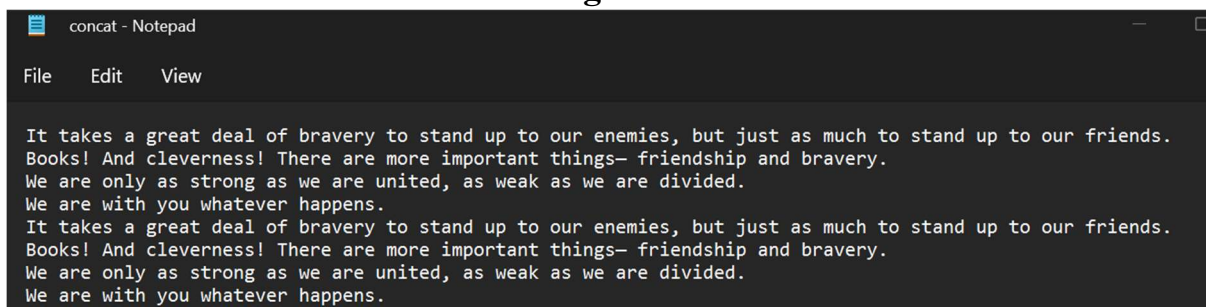
```
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat givenfile.txt
It takes a great deal of bravery to stand up to our enemies, but just as much to stand up to our friends.
Books! And cleverness! There are more important things- friendship and bravery.
We are only as strong as we are united, as weak as we are divided.
We are with you whatever happens.
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat givenfile.txt target.txt > concat.txt
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat concat.txt
It takes a great deal of bravery to stand up to our enemies, but just as much to stand up to our friends.
Books! And cleverness! There are more important things- friendship and bravery.
We are only as strong as we are united, as weak as we are divided.
We are with you whatever happens.
It takes a great deal of bravery to stand up to our enemies, but just as much to stand up to our friends.
Books! And cleverness! There are more important things- friendship and bravery.
We are only as strong as we are united, as weak as we are divided.
We are with you whatever happens.
```



givenfile.txt



target.txt



concat.txt

9) What are the commands in the unix for file system commands, processes control command, and utilities programmes command?

File System Commands:

- ls
- cd
- mkdir
- pushd
- cat
- cp
- popd
- mv

Processes Control Commands:

- jobs
- bg
- kill
- fg

Utilities Commands:

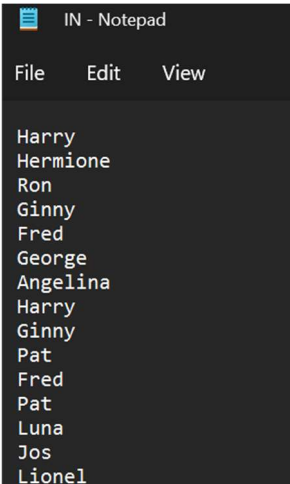
- pwd
- less
- sudo
- ls
- su
- chown
- emacs
- chmod

10) Write a command to find the list of all the files in the current directory in long format, sorted by size, and smallest first.

```
ruchpottah@LAPTOP-DS9NCF3C:/$ cd /mnt/c/users/91933/onedrive/documents/itw1
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ ls -l -S -r | grep '^-'
-rwxrwxrwx 1 ruchpottah ruchpottah    3 Apr 30 07:58 count.txt
-rwxrwxrwx 1 ruchpottah ruchpottah   77 May  1 04:10 OUT.txt
-rwxrwxrwx 1 ruchpottah ruchpottah  102 May  1 04:09 IN.txt
-rwxrwxrwx 1 ruchpottah ruchpottah  286 Apr 30 14:12 processes.txt
-rwxrwxrwx 1 ruchpottah ruchpottah  286 Apr 30 14:11 list.txt
-rwxrwxrwx 1 ruchpottah ruchpottah  293 May  1 03:55 target.txt
-rwxrwxrwx 1 ruchpottah ruchpottah  293 May  1 03:27 givenfile.txt
-rwxrwxrwx 1 ruchpottah ruchpottah  586 May  1 03:57 concat.txt
-rwxrwxrwx 1 ruchpottah ruchpottah 25424 Apr 30 10:36 Assignment-1 (2).pdf
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$
```

11) Write a command that will output the sorted contents of a file named IN.TXT and place the output in another file named OUT.TXT, while at the same time excluding duplicate entries.

```
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat IN.txt
Harry
Hermione
Ron
Ginny
Fred
George
Angelina
Harry
Ginny
Pat
Fred
Pat
Luna
Jos
Lionel
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat IN.txt | sort | uniq > OUT.txt
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cat OUT.txt
Angelina
Fred
George
Ginny
Harry
Hermione
Jos
Lionel
Luna
Pat
Ron
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$
```


A screenshot of a Notepad window titled "IN - Notepad". The window shows the contents of the IN.txt file, which is a list of names: Harry, Hermione, Ron, Ginny, Fred, George, Angelina, Harry, Ginny, Pat, Fred, Pat, Luna, Jos, and Lionel. The text is displayed in a monospaced font on a dark background.

IN - Notepad

File Edit View

Harry
Hermione
Ron
Ginny
Fred
George
Angelina
Harry
Ginny
Pat
Fred
Pat
Luna
Jos
Lionel

IN.txt

A screenshot of a Notepad window titled "OUT - Notepad". The window shows the contents of the OUT.txt file, which is a sorted and deduplicated list of names: Angelina, Fred, George, Ginny, Harry, Hermione, Jos, Lionel, Luna, Pat, and Ron. The text is displayed in a monospaced font on a dark background.

OUT - Notepad

File Edit View

Angelina
Fred
George
Ginny
Harry
Hermione
Jos
Lionel
Luna
Pat
Ron

OUT.txt

12) You have three subdirectories "test1", "test2", "test3" within directory "program". Remove all the subdirectories from the "program" directory using the single command.

```
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1$ cd /mnt/c/users/91933/onedrive/documents/itw1/assignment1/
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1/assignment1$ mkdir test1
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1/assignment1$ mkdir test2
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1/assignment1$ mkdir test3
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1/assignment1$ ls
test1  test2  test3
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1/assignment1$ rmdir test{1..3}
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1/assignment1$ ls
ruchpottah@LAPTOP-DS9NCF3C:/mnt/c/users/91933/onedrive/documents/itw1/assignment1$
```


13) Which command is used to calculate the remaining disk space also show the remaining space in human readable form.

```
ruchpottah@LAPTOP-DS9NCF3C:/$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/sdc        263174212  1472824 248263232   1% /
none            1930200      28    1930172   1% /mnt/wslg
none            1930200       4    1930196   1% /mnt/wsl
tools           396481532 107175444 289306088  28% /init
none            1927772       0    1927772   0% /dev
none            1930200       0    1930200   0% /run
none            1930200       0    1930200   0% /run/lock
none            1930200       0    1930200   0% /run/shm
none            1930200       0    1930200   0% /run/user
tmpfs           1930200       0    1930200   0% /sys/fs/cgroup
drivers         396481532 107175444 289306088  28% /usr/lib/wsl/drivers
lib             396481532 107175444 289306088  28% /usr/lib/wsl/lib
none            1930200       76    1930124   1% /mnt/wslg/versions.txt
none            1930200       76    1930124   1% /mnt/wslg/doc
drvfs           396481532 107175444 289306088  28% /mnt/c
```

```
ruchpottah@LAPTOP-DS9NCF3C:/$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sdc        251G  1.5G  237G   1% /
none            1.9G   28K  1.9G   1% /mnt/wslg
none            1.9G   4.0K  1.9G   1% /mnt/wsl
tools           379G  103G  276G  28% /init
none            1.9G     0  1.9G   0% /dev
none            1.9G     0  1.9G   0% /run
none            1.9G     0  1.9G   0% /run/lock
none            1.9G     0  1.9G   0% /run/shm
none            1.9G     0  1.9G   0% /run/user
tmpfs           1.9G     0  1.9G   0% /sys/fs/cgroup
drivers         379G  103G  276G  28% /usr/lib/wsl/drivers
lib             379G  103G  276G  28% /usr/lib/wsl/lib
none            1.9G   76K  1.9G   1% /mnt/wslg/versions.txt
none            1.9G   76K  1.9G   1% /mnt/wslg/doc
drvfs           379G  103G  276G  28% /mnt/c
ruchpottah@LAPTOP-DS9NCF3C:/$
```

14) How will you control the output of 'ls' command to be colorful or no-color?

```
ruchpottah@LAPTOP-DS9NCF3C:~$ cd /
ruchpottah@LAPTOP-DS9NCF3C:/$ 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
ruchpottah@LAPTOP-DS9NCF3C:/$ ls --color
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
ruchpottah@LAPTOP-DS9NCF3C:/$ ls --color=always
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
ruchpottah@LAPTOP-DS9NCF3C:/$ ls --color=never
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
ruchpottah@LAPTOP-DS9NCF3C:/$
```