

ITW1 ASSIGNMENT3

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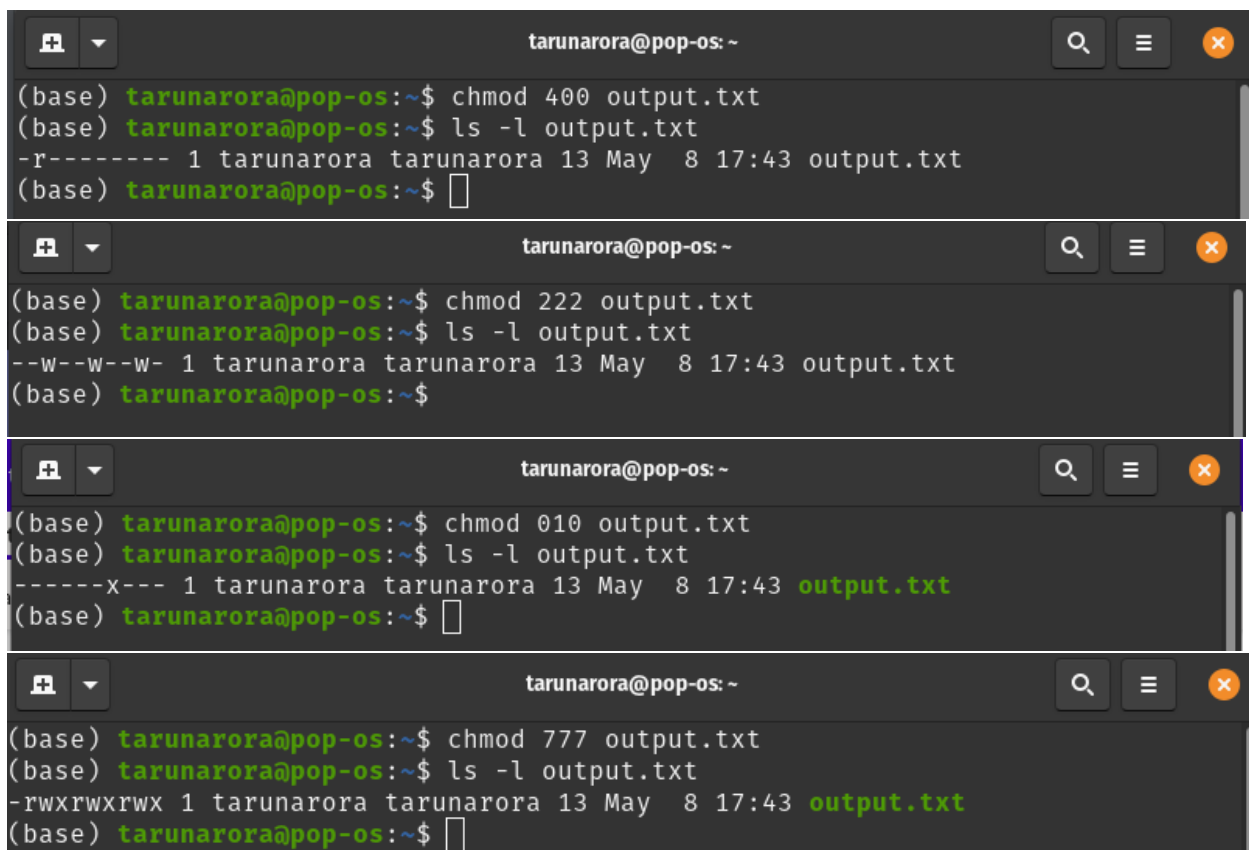
Roll No.: 20075092

Branch: CSE

Date: May 9, 2021

Q1. Write the command to provide permission on a file for the following:

- (a) Read by owner only
- (b) Write by anyone
- (c) Execute by group only
- (d) Allow everyone to read, write, and execute the file.



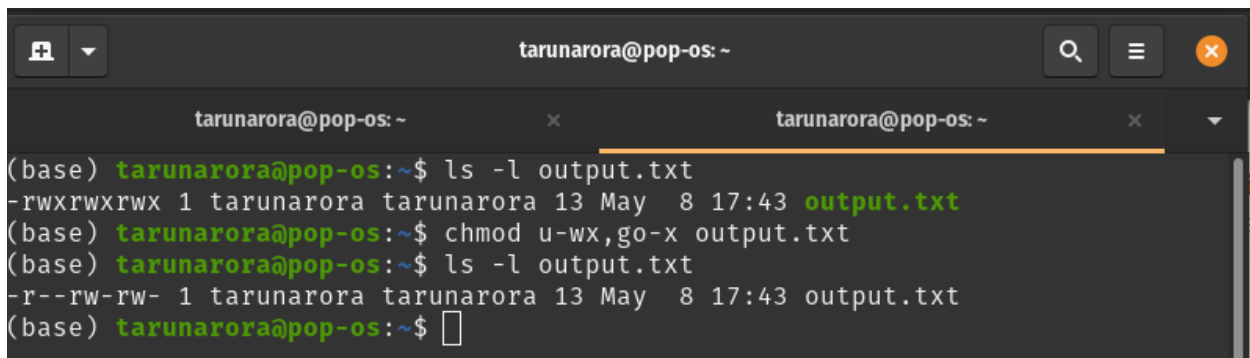
```
(base) tarunarora@pop-os: ~  
(base) tarunarora@pop-os:~$ chmod 400 output.txt  
(base) tarunarora@pop-os:~$ ls -l output.txt  
-r----- 1 tarunarora tarunarora 13 May  8 17:43 output.txt  
(base) tarunarora@pop-os:~$  
  
(base) tarunarora@pop-os:~$ chmod 222 output.txt  
(base) tarunarora@pop-os:~$ ls -l output.txt  
--w--w--w- 1 tarunarora tarunarora 13 May  8 17:43 output.txt  
(base) tarunarora@pop-os:~$  
  
(base) tarunarora@pop-os:~$ chmod 010 output.txt  
(base) tarunarora@pop-os:~$ ls -l output.txt  
-----x--- 1 tarunarora tarunarora 13 May  8 17:43 output.txt  
(base) tarunarora@pop-os:~$  
  
(base) tarunarora@pop-os:~$ chmod 777 output.txt  
(base) tarunarora@pop-os:~$ ls -l output.txt  
-rwxrwxrwx 1 tarunarora tarunarora 13 May  8 17:43 output.txt  
(base) tarunarora@pop-os:~$
```

Q2. Write a command to removes Permissions of Write, Execute for User and Execute for Group & Others from a file. Also create a read-only file in your home directory?

Solution: -

Code: -

```
chmod u-wx,go-x output.txt
```

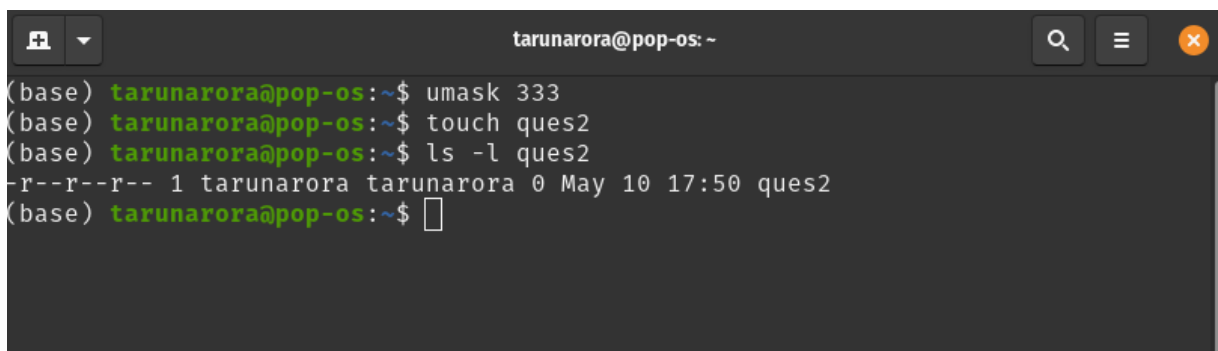


```
tarunarora@pop-os: ~  
(base) tarunarora@pop-os:~$ ls -l output.txt  
-rwxrwxrwx 1 tarunarora tarunarora 13 May  8 17:43 output.txt  
(base) tarunarora@pop-os:~$ chmod u-wx,go-x output.txt  
(base) tarunarora@pop-os:~$ ls -l output.txt  
-r--rw-rw- 1 tarunarora tarunarora 13 May  8 17:43 output.txt  
(base) tarunarora@pop-os:~$
```

Code: -

```
umask 333
```

```
touch {file_name}
```



```
tarunarora@pop-os: ~  
(base) tarunarora@pop-os:~$ umask 333  
(base) tarunarora@pop-os:~$ touch ques2  
(base) tarunarora@pop-os:~$ ls -l ques2  
-r--r--r-- 1 tarunarora tarunarora 0 May 10 17:50 ques2  
(base) tarunarora@pop-os:~$
```

Q3. Write a shell script to get current date, time, user name and current working directory.

Solution: -

The following should be the code in the script: -

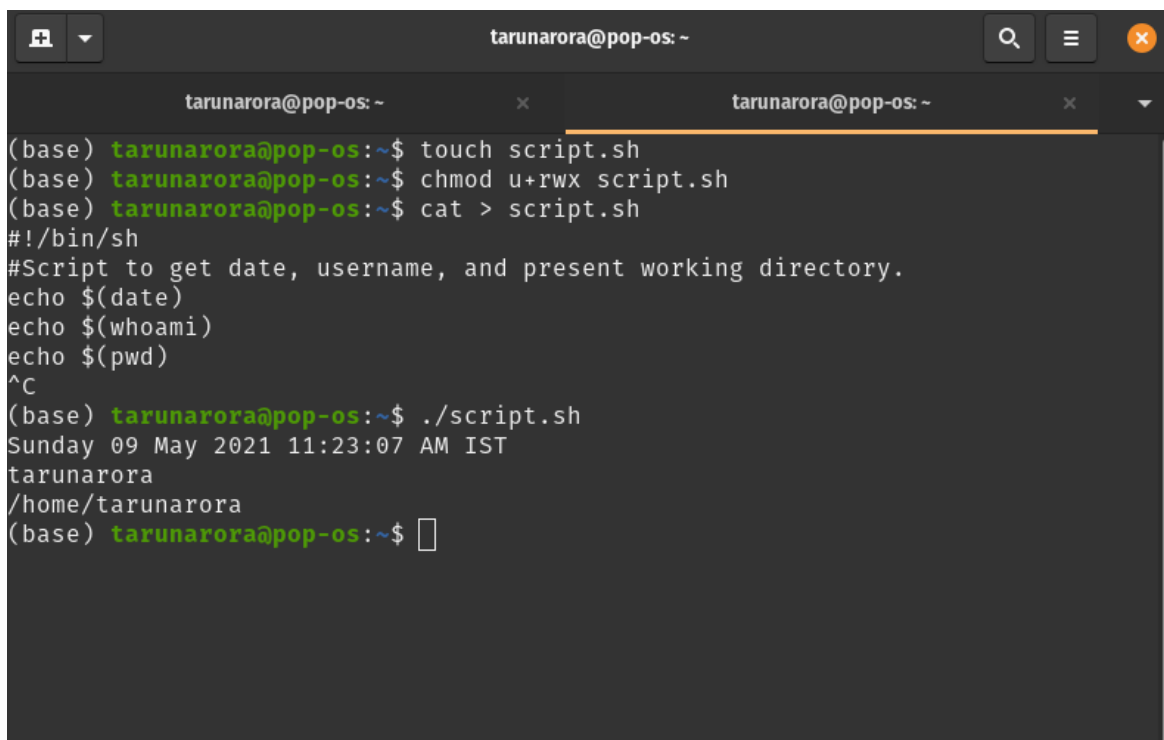
```
#!/bin/sh

#Script to get date, username, and present working directory.

echo $(date)

echo $(whoami)

echo $(pwd)
```

A terminal window titled 'tarunarora@pop-os: ~' with search, menu, and close buttons. It shows two tabs, both with the same title. The terminal content is as follows:

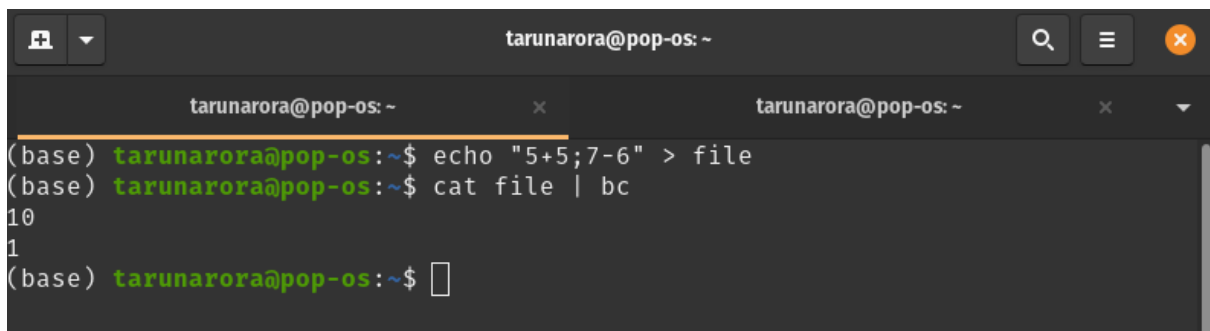
```
(base) tarunarora@pop-os:~$ touch script.sh
(base) tarunarora@pop-os:~$ chmod u+rw script.sh
(base) tarunarora@pop-os:~$ cat > script.sh
#!/bin/sh
#Script to get date, username, and present working directory.
echo $(date)
echo $(whoami)
echo $(pwd)
^C
(base) tarunarora@pop-os:~$ ./script.sh
Sunday 09 May 2021 11:23:07 AM IST
tarunarora
/home/tarunarora
(base) tarunarora@pop-os:~$
```

Q4. Write a command to perform calculations of expression (5+5, 7-6) in file by directing the file to bc. How to print numbers from [1-9] without using script and for loop statement.

Solution: -.

Code: -

```
echo "5+5;7-6" > file
cat file | bc
```

A terminal window titled 'tarunarora@pop-os: ~' with search, menu, and close icons. It shows two tabs, both titled 'tarunarora@pop-os: ~'. The active tab contains the following commands and output:

```
(base) tarunarora@pop-os:~$ echo "5+5;7-6" > file
(base) tarunarora@pop-os:~$ cat file | bc
10
1
(base) tarunarora@pop-os:~$
```

Code: -

```
seq 1 9
```

A terminal window titled 'tarunarora@pop-os: ~' with search, menu, and close icons. It shows two tabs, both titled 'tarunarora@pop-os: ~'. The active tab contains the following command and output:

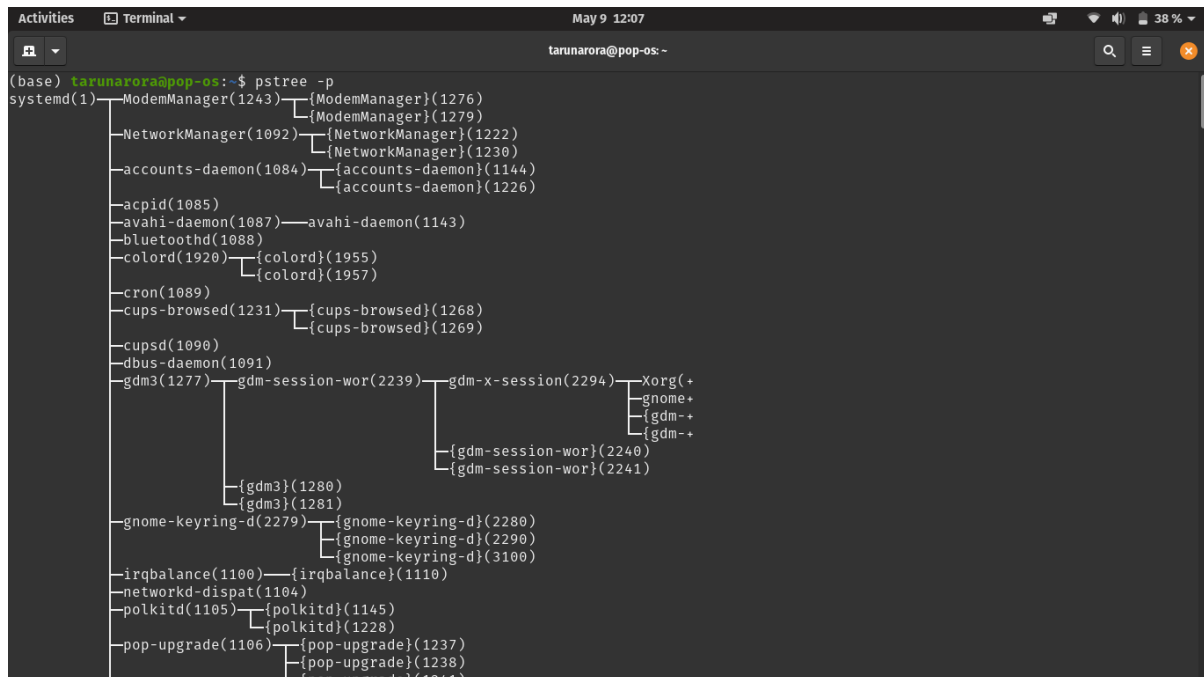
```
(base) tarunarora@pop-os:~$ seq 1 9
1
2
3
4
5
6
7
8
9
(base) tarunarora@pop-os:~$
```

Q5. How processes on the system are linked to each other write a command to print the structure. Also write the command to check the execution time of a process.

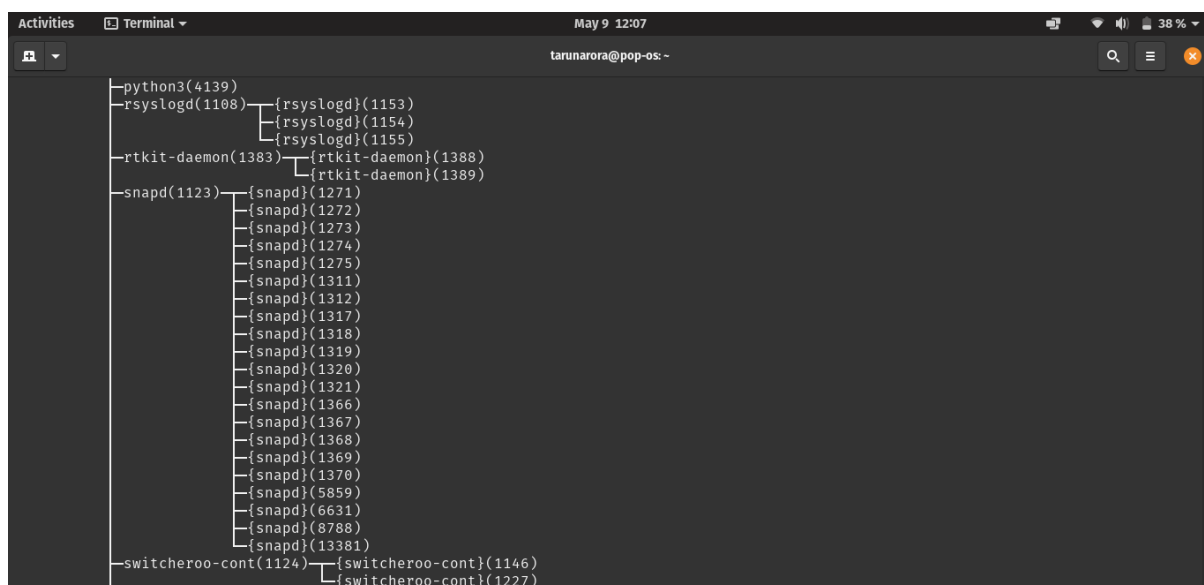
Solution: -

Interlinking of the processes on a system: -

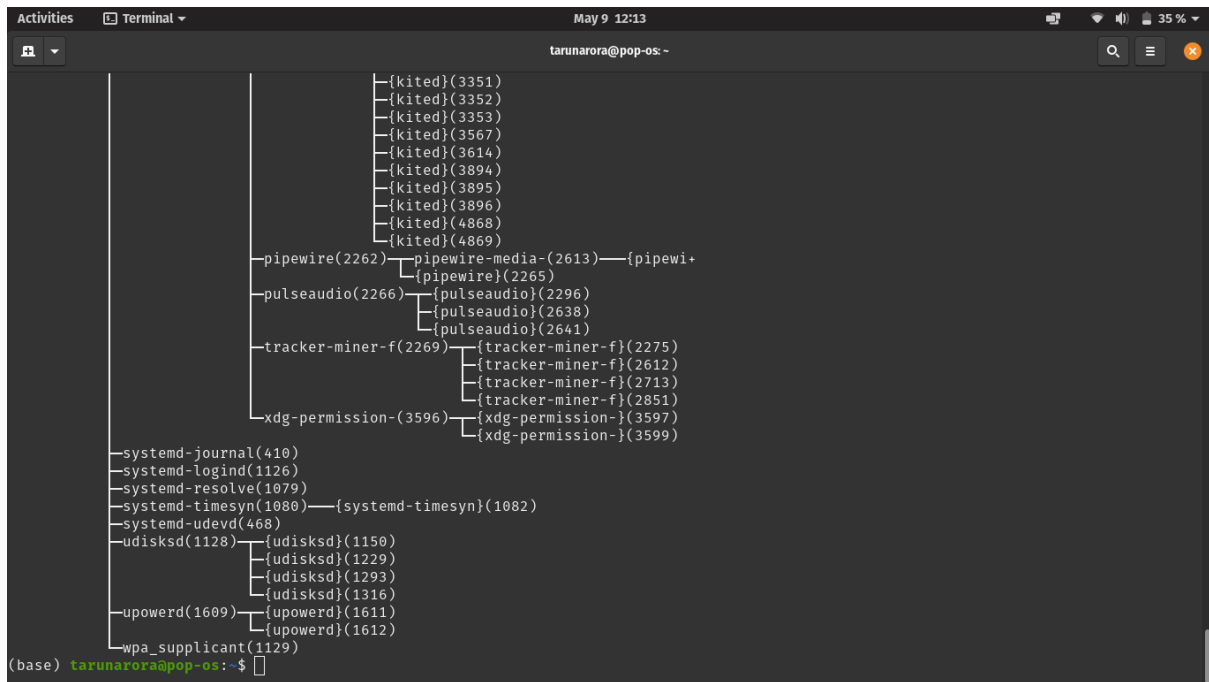
`ps-tree -p`



```
(base) tarunarora@pop-os:~$ ps-tree -p
systemd(1)─ModemManager(1243)─{ModemManager}(1276)
          │                  │{ModemManager}(1279)
          │
          └─NetworkManager(1092)─{NetworkManager}(1222)
                                   │{NetworkManager}(1230)
                                   └─accounts-daemon(1144)
                                       │{accounts-daemon}(1226)
                                       └─accounts-daemon(1144)
acpid(1085)
avahi-daemon(1087)─avahi-daemon(1143)
bluetoothd(1088)
colord(1920)─{colord}(1955)
             │{colord}(1957)
             └─colord(1957)
cron(1089)
cups-browsed(1231)─{cups-browsed}(1268)
                  │{cups-browsed}(1269)
                  └─cups-browsed(1269)
cupsd(1090)
dbus-daemon(1091)
gdm3(1277)─gdm-session-wor(2239)─gdm-x-session(2294)─Xorg(+)
          │                  │{gdm-session-wor}(2240)
          │                  │{gdm-session-wor}(2241)
          │                  └─gdm-session-wor(2241)
          │
          └─{gdm3}(1280)
              │{gdm3}(1281)
              └─gdm3(1281)
gnome-keyring-d(2279)─{gnome-keyring-d}(2280)
                    │{gnome-keyring-d}(2290)
                    │{gnome-keyring-d}(3100)
                    └─gnome-keyring-d(2290)
irqbalance(1100)─{irqbalance}(1110)
networkd-dispatcher(1104)
polkitd(1105)─{polkitd}(1145)
              │{polkitd}(1228)
              └─polkitd(1228)
pop-upgrade(1106)─{pop-upgrade}(1237)
                  │{pop-upgrade}(1238)
                  └─pop-upgrade(1241)
```



```
python3(4139)
rsyslogd(1108)─{rsyslogd}(1153)
              │{rsyslogd}(1154)
              └─{rsyslogd}(1155)
rtkit-daemon(1383)─{rtkit-daemon}(1388)
                  │{rtkit-daemon}(1389)
                  └─rtkit-daemon(1389)
snapd(1123)─{snapd}(1271)
            │{snapd}(1272)
            │{snapd}(1273)
            │{snapd}(1274)
            │{snapd}(1275)
            │{snapd}(1311)
            │{snapd}(1312)
            │{snapd}(1317)
            │{snapd}(1318)
            │{snapd}(1319)
            │{snapd}(1320)
            │{snapd}(1321)
            │{snapd}(1366)
            │{snapd}(1367)
            │{snapd}(1368)
            │{snapd}(1369)
            │{snapd}(1370)
            │{snapd}(5859)
            │{snapd}(6631)
            │{snapd}(8788)
            └─{snapd}(13381)
switcheroo-cont(1124)─{switcheroo-cont}(1146)
                    │{switcheroo-cont}(1227)
                    └─switcheroo-cont(1227)
```



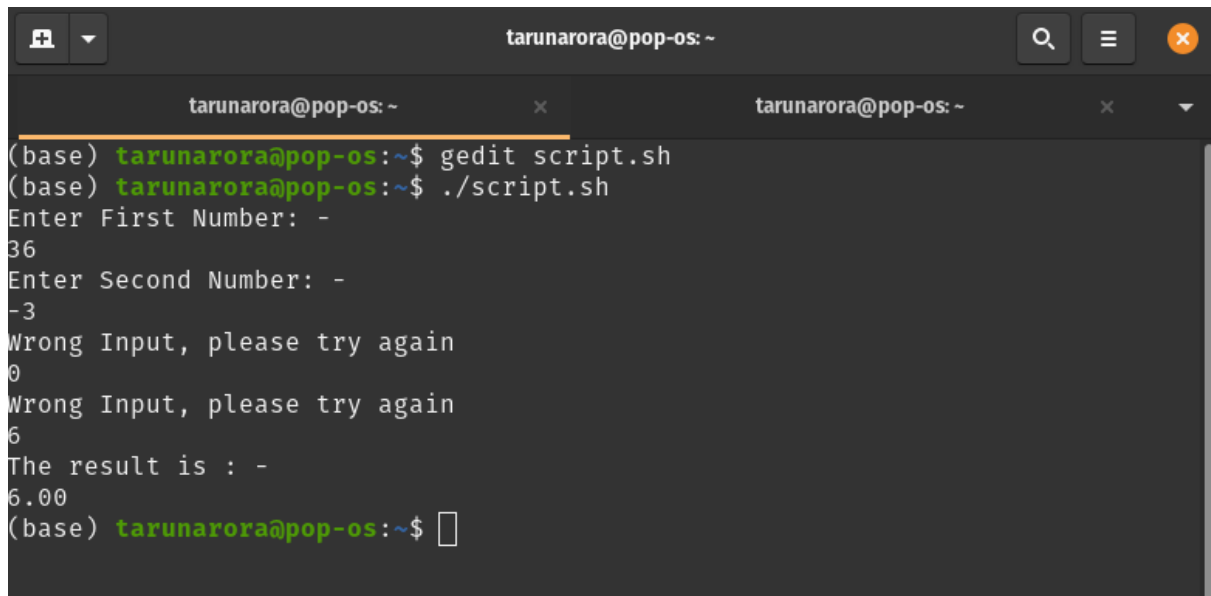
Command to check execution time of a process:

```
ps -p {pid} -o etime
```

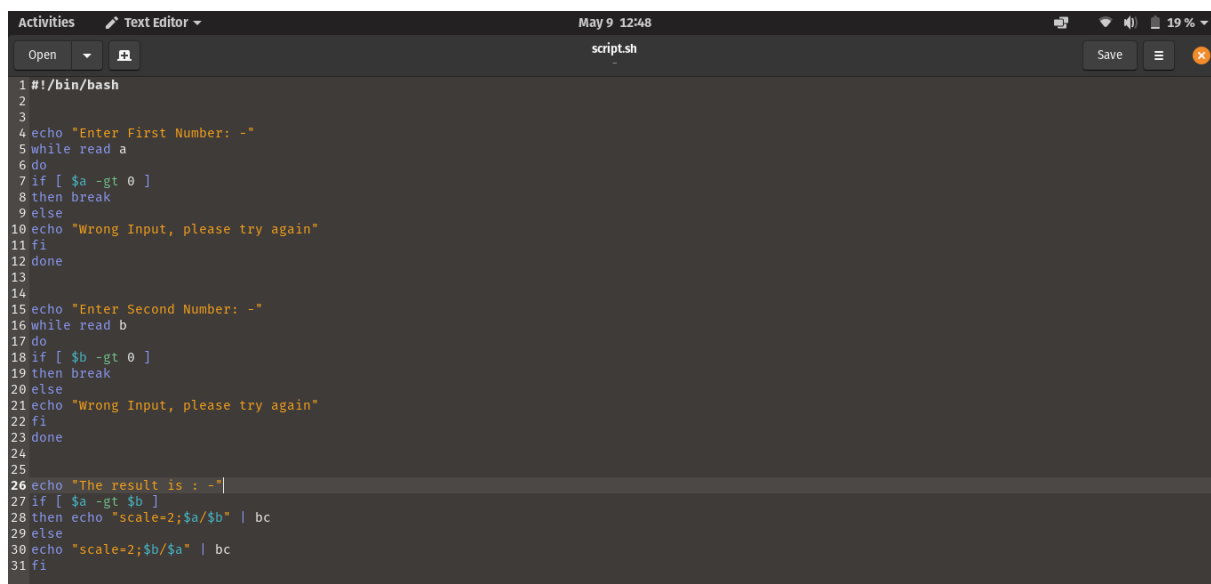
```
(base) tarunarora@pop-os:~$ pidof chrome
17308 17033 17028 17015 17002 16917 16826 16714 16653 16605 16600 16599 16532
16415 16383 16382 16362 16356 16354 16331 16327 16326 16315
(base) tarunarora@pop-os:~$ ps -p 17308 -o etime
ELAPSED
06:44
(base) tarunarora@pop-os:~$
```

Q6. Write a shell script to take two numbers from the command line and show the result of dividing a small number with a bigger number. Also note that it should not accept zero or a negative number. If the user enters zero or negative a number then it should prompt to input the correct number after displaying the proper message.

Solution: -



```
tarunarora@pop-os: ~  
(base) tarunarora@pop-os:~$ gedit script.sh  
(base) tarunarora@pop-os:~$ ./script.sh  
Enter First Number: -  
36  
Enter Second Number: -  
-3  
Wrong Input, please try again  
0  
Wrong Input, please try again  
6  
The result is : -  
6.00  
(base) tarunarora@pop-os:~$
```



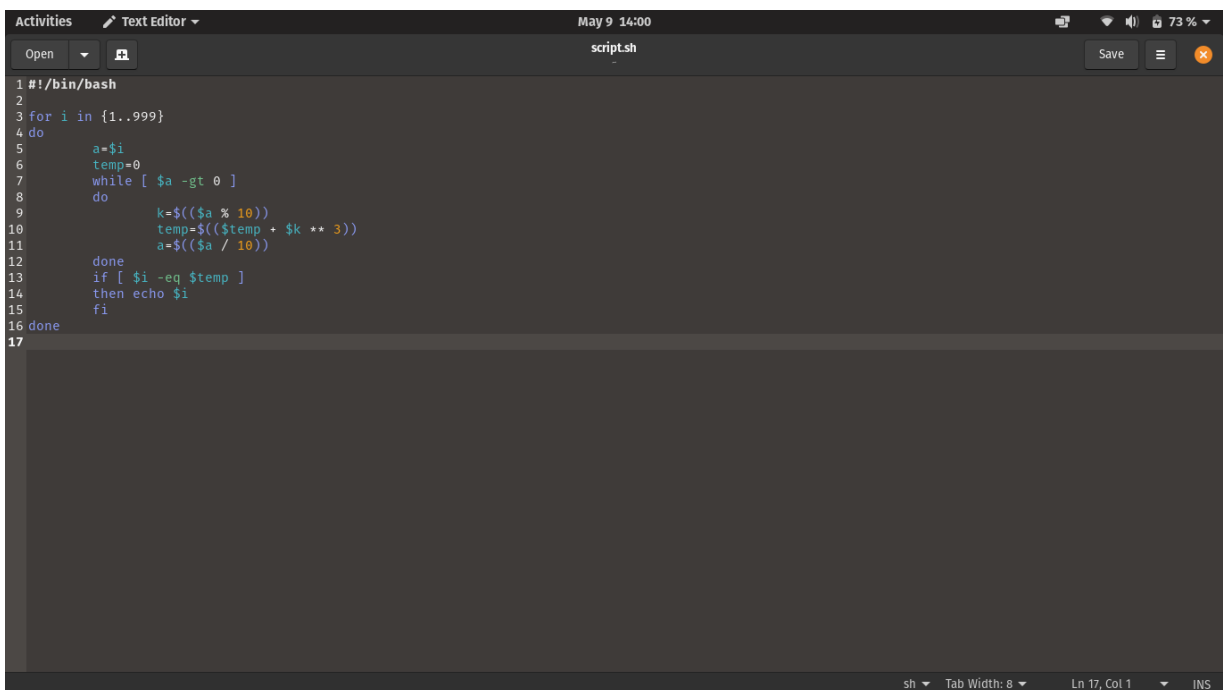
```
Activities Text Editor May 9 12:48  
script.sh  
1 #!/bin/bash  
2  
3  
4 echo "Enter First Number: -"  
5 while read a  
6 do  
7 if [ $a -gt 0 ]  
8 then break  
9 else  
10 echo "Wrong Input, please try again"  
11 fi  
12 done  
13  
14  
15 echo "Enter Second Number: -"  
16 while read b  
17 do  
18 if [ $b -gt 0 ]  
19 then break  
20 else  
21 echo "Wrong Input, please try again"  
22 fi  
23 done  
24  
25  
26 echo "The result is : -"  
27 if [ $a -gt $b ]  
28 then echo "scale=2;$a/$b" | bc  
29 else  
30 echo "scale=2;$b/$a" | bc  
31 fi
```

Q7. Write a shell script to examine all the number from 1 to 999 and display all those number whose sum of cube of the digit is equal to the number. E.g.,
 $371 = 3*3*3 + 7*7*7 + 1*1*1$.

Solution: -



```
(base) tarunarora@pop-os:~$ gedit script.sh
(base) tarunarora@pop-os:~$ ./script.sh
1
153
370
371
407
(base) tarunarora@pop-os:~$
```



```
Activities Text Editor May 9 14:00
script.sh
1 #!/bin/bash
2
3 for i in {1..999}
4 do
5     a=$i
6     temp=0
7     while [ $a -gt 0 ]
8     do
9         k=$((a % 10))
10        temp=$((temp + $k ** 3))
11        a=$((a / 10))
12    done
13    if [ $i -eq $temp ]
14    then echo $i
15    fi
16 done
17
```

Q8. Write a shell script to check if name given is file or directory and if it is file then it should display content and if it is a directory then it should display the list. Also list all the files of the current directory having read and write permission to the user.

Solution: -

```
script.sh
1 #!/bin/bash
2 if [[ -d $1 ]]; then
3 echo $(ls $1)
4 elif [[ -f $1 ]]; then
5 echo $(cat $1)
6 else
7 echo "No file/directory of this name exists"
8 fi
```

```
tarunarora@pop-os: ~
(base) tarunarora@pop-os:~$ gedit script.sh
(base) tarunarora@pop-os:~$ ./script.sh
No file/directory of this name exists
(base) tarunarora@pop-os:~$ ./script.sh new
this file would be clean after next comand
(base) tarunarora@pop-os:~$ ./script.sh Desktop
ans.txt ArrayJS1.html ArrayJS2.html book.pdf day2.pptx day3.pptx Etch-a-sketch G
it Basics | The Odin Project_files Git Basics | The Odin Project.html itw.pdf.od
t list.txt odin_project p1 rough WEBDEV
(base) tarunarora@pop-os:~$
```

To list all the files of the current directory having read and write permission to the user.

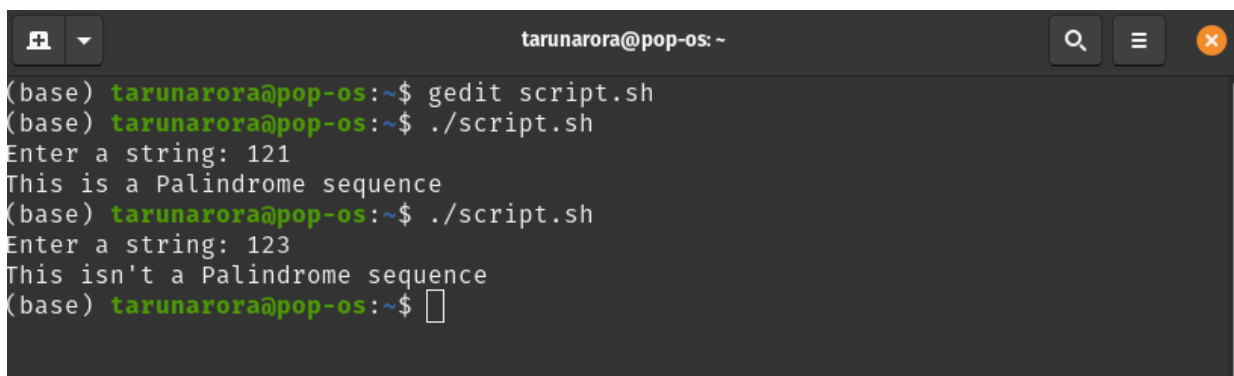
```
tarunarora@pop-os: ~
(base) tarunarora@pop-os:~$ ls -l | grep ^-rw
-rw-rw-r-- 1 tarunarora tarunarora 0 May 9 11:04 !
-rw-rw-r-- 1 tarunarora tarunarora 3 May 4 13:43 f2
-rw-rw-r-- 1 tarunarora tarunarora 35 May 3 00:39 f3
-rw-rw-r-- 1 tarunarora tarunarora 51 May 9 18:17 file
-rw-rw-r-- 1 tarunarora tarunarora 43 May 9 17:07 filw
-rw-rw-r-- 1 tarunarora tarunarora 51 May 8 18:04 f.sh
-rwxrwxrwx 1 tarunarora tarunarora 0 May 3 17:10 julyisgood
-rw-rw-r-- 1 tarunarora tarunarora 43 May 9 17:15 new
-rw-rw-r-- 1 tarunarora tarunarora 31 May 4 13:02 Number.txt
-rw-rw-r-- 1 tarunarora tarunarora 0 May 3 17:11 okjuly
-rwx---w- 1 tarunarora tarunarora 139 May 10 23:45 script.sh
-rw-rw-r-- 1 tarunarora tarunarora 9 May 9 17:20 student-marks
(base) tarunarora@pop-os:~$
```

Q9. Write a shell script which takes input as a string on a terminal and check whether it's palindrome or not a palindrome.

Solution: -



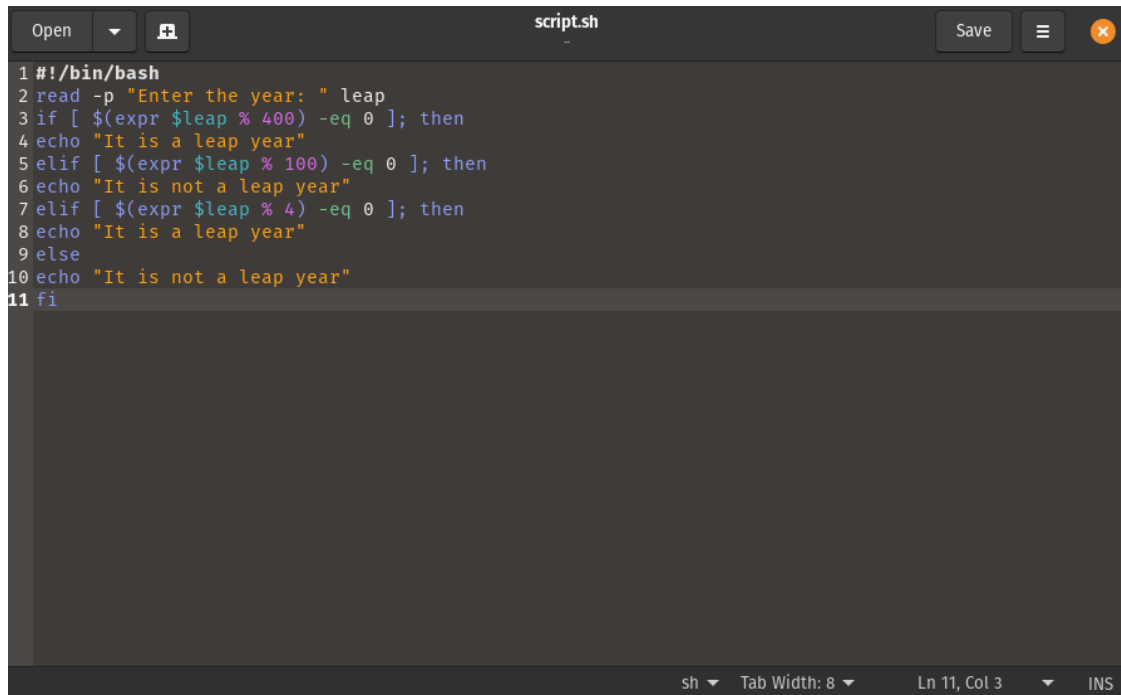
```
1#!/bin/bash
2read -p "Enter a string: " string
3if [[ $(rev <<<"$string") == "$string" ]]; then
4echo "This is a Palindrome sequence"
5else echo "This isn't a Palindrome sequence"
6fi
```



```
(base) tarunarora@pop-os:~$ gedit script.sh
(base) tarunarora@pop-os:~$ ./script.sh
Enter a string: 121
This is a Palindrome sequence
(base) tarunarora@pop-os:~$ ./script.sh
Enter a string: 123
This isn't a Palindrome sequence
(base) tarunarora@pop-os:~$
```

Q10. Write a shell script to check the given year is leap year or not a leap year.

Solution: -



```
1#!/bin/bash
2read -p "Enter the year: " leap
3if [ $(expr $leap % 400) -eq 0 ]; then
4echo "It is a leap year"
5elif [ $(expr $leap % 100) -eq 0 ]; then
6echo "It is not a leap year"
7elif [ $(expr $leap % 4) -eq 0 ]; then
8echo "It is a leap year"
9else
10echo "It is not a leap year"
11fi
```

The screenshot shows a text editor window with a dark theme. The title bar says 'script.sh'. The script content is as follows: Line 1: `#!/bin/bash`; Line 2: `read -p "Enter the year: " leap`; Line 3: `if [$(expr $leap % 400) -eq 0]; then`; Line 4: `echo "It is a leap year"`; Line 5: `elif [$(expr $leap % 100) -eq 0]; then`; Line 6: `echo "It is not a leap year"`; Line 7: `elif [$(expr $leap % 4) -eq 0]; then`; Line 8: `echo "It is a leap year"`; Line 9: `else`; Line 10: `echo "It is not a leap year"`; Line 11: `fi`. The status bar at the bottom indicates 'sh', 'Tab Width: 8', 'Ln 11, Col 3', and 'INS'.



```
(base) tarunarora@pop-os:~$ gedit script.sh
(base) tarunarora@pop-os:~$ ./script.sh
Enter the year: 1256
It is a leap year
(base) tarunarora@pop-os:~$
```

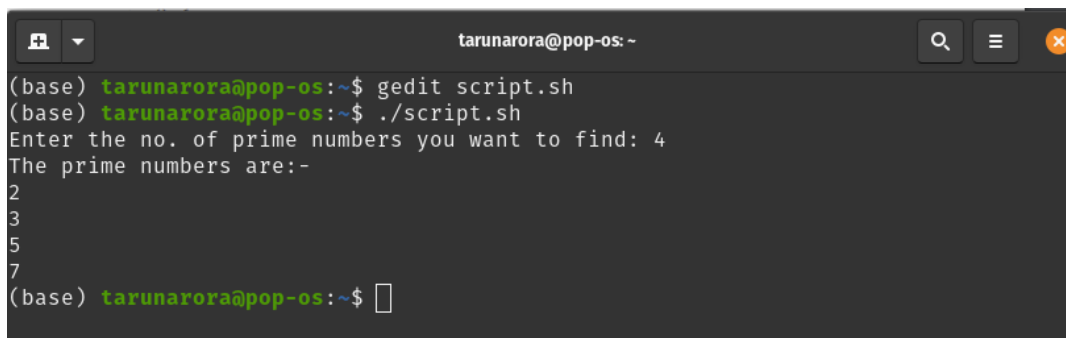
The screenshot shows a terminal window with a dark theme. The title bar says 'tarunarora@pop-os: ~'. The terminal output is as follows: Line 1: `(base) tarunarora@pop-os:~$ gedit script.sh`; Line 2: `(base) tarunarora@pop-os:~$./script.sh`; Line 3: `Enter the year: 1256`; Line 4: `It is a leap year`; Line 5: `(base) tarunarora@pop-os:~$` followed by a cursor. The status bar at the bottom is empty.

Q11. Write a shell script to display the list of prime number. It takes input as "How many prime numbers:" from the user. E.g.: How many prime numbers: 4 then it displays 2,3,5,7.

Solution: -



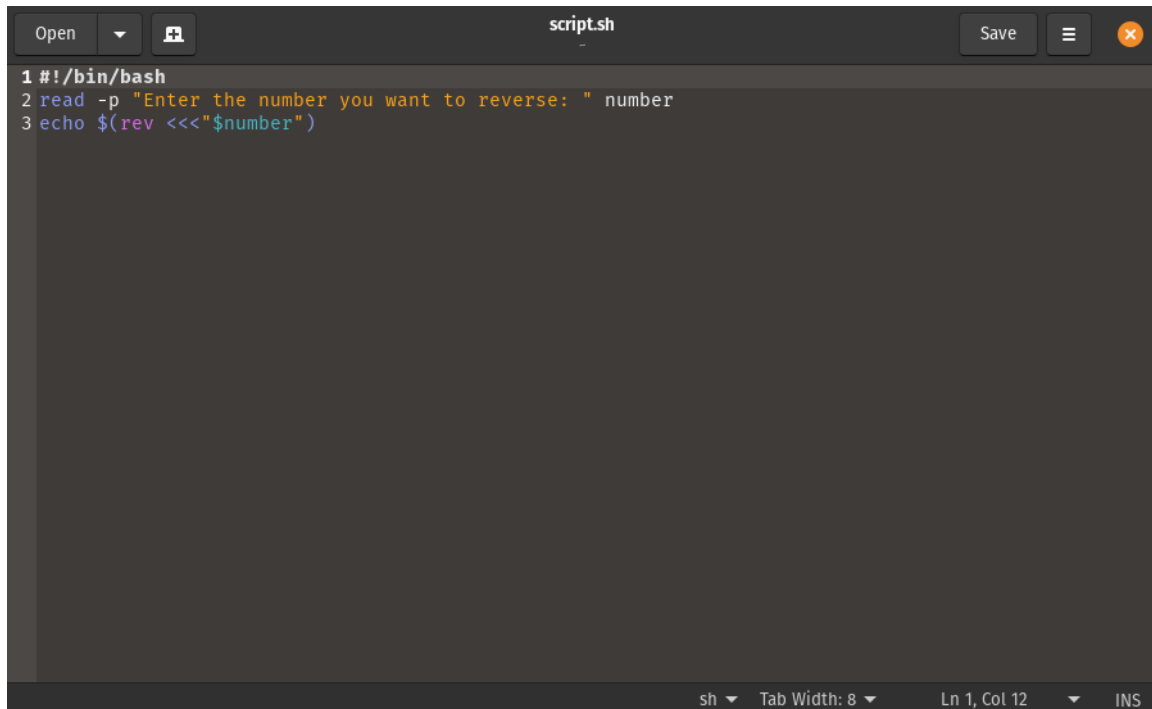
```
1 #!/bin/bash
2 flag=0
3 counter=0
4 var=1
5 read -p "Enter the no. of prime numbers you want to find: " count
6
7 prime() {
8   flag=1
9   for ((i = 2; i <= $var / 2; i++)); do
10    ans=$((var % i))
11    if [ $ans -eq 0 ]; then
12      flag=0
13    fi
14  done
15 }
16
17 echo "The prime numbers are:- "
18 while [ $counter -lt $count ]; do
19   var=$((var + 1))
20   prime
21   if [ $flag -eq 1 ]; then
22     echo "$var"
23     counter=$((counter + 1))
24   fi
25 done
```



```
(base) tarunarora@pop-os:~$ gedit script.sh
(base) tarunarora@pop-os:~$ ./script.sh
Enter the no. of prime numbers you want to find: 4
The prime numbers are:-
2
3
5
7
(base) tarunarora@pop-os:~$
```

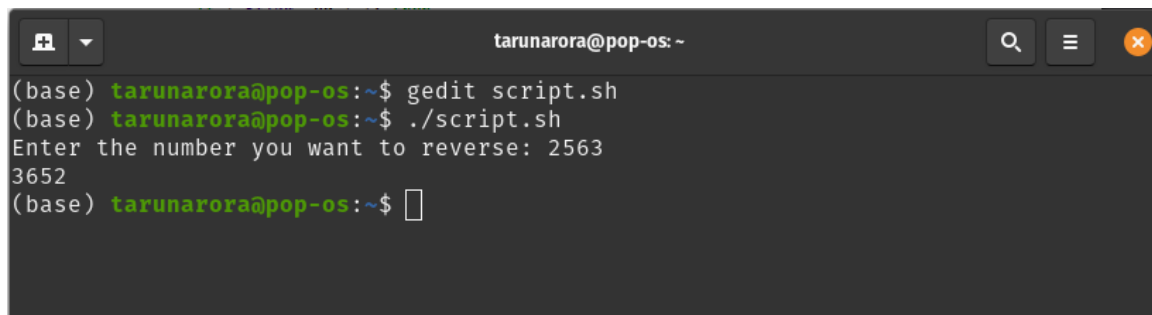
Q12. Write a shell script to reverse the input digits.

Solution: -



```
1#!/bin/bash
2read -p "Enter the number you want to reverse: " number
3echo ${rev <<<"$number"}
```

The screenshot shows a gedit editor window with the title 'script.sh'. The editor contains three lines of a shell script. The first line is the shebang '#!/bin/bash'. The second line is 'read -p "Enter the number you want to reverse: " number'. The third line is 'echo \${rev <<<"\$number"}'. The status bar at the bottom indicates 'sh', 'Tab Width: 8', 'Ln 1, Col 12', and 'INS'.



```
(base) tarunarora@pop-os:~$ gedit script.sh
(base) tarunarora@pop-os:~$ ./script.sh
Enter the number you want to reverse: 2563
3652
(base) tarunarora@pop-os:~$
```

The screenshot shows a terminal window with the prompt 'tarunarora@pop-os: ~'. The user enters 'gedit script.sh' to create the script. Then, they enter './script.sh' to run it. The script prompts 'Enter the number you want to reverse: ' and the user enters '2563'. The script outputs '3652'. The prompt returns to '(base) tarunarora@pop-os: ~\$'.

Q13. Write a script to generate a password of minimum length of 8. It must be alphanumeric, containing at least one upper case and one lower case character.

Solution: -

```
script.sh
1 #!/bin/bash
2 choose() {
3 echo -n ${1:RANDOM%${#1}:1}
4 }
5 echo -n "Enter Password length: "
6 while read length; do
7 if [ $length -ge 8 ]; then
8 break
9 else
10 echo -n "Too small(minimum length=8), enter again: "
11 fi
12 done
13 length=$((length - 2))
14 echo "The randomly generated password is: -"
15 choose 'abcdefghijklmnopqrstuvwxyz'
16 choose 'ABCDEFGHIJKLMNOPQRSTUVWXYZ'
17 echo $(tr </dev/urandom -dc _A-Z-a-z-0-9 | head -c$length)
18
```

Saving file "/home/tarunarora/script.sh"...

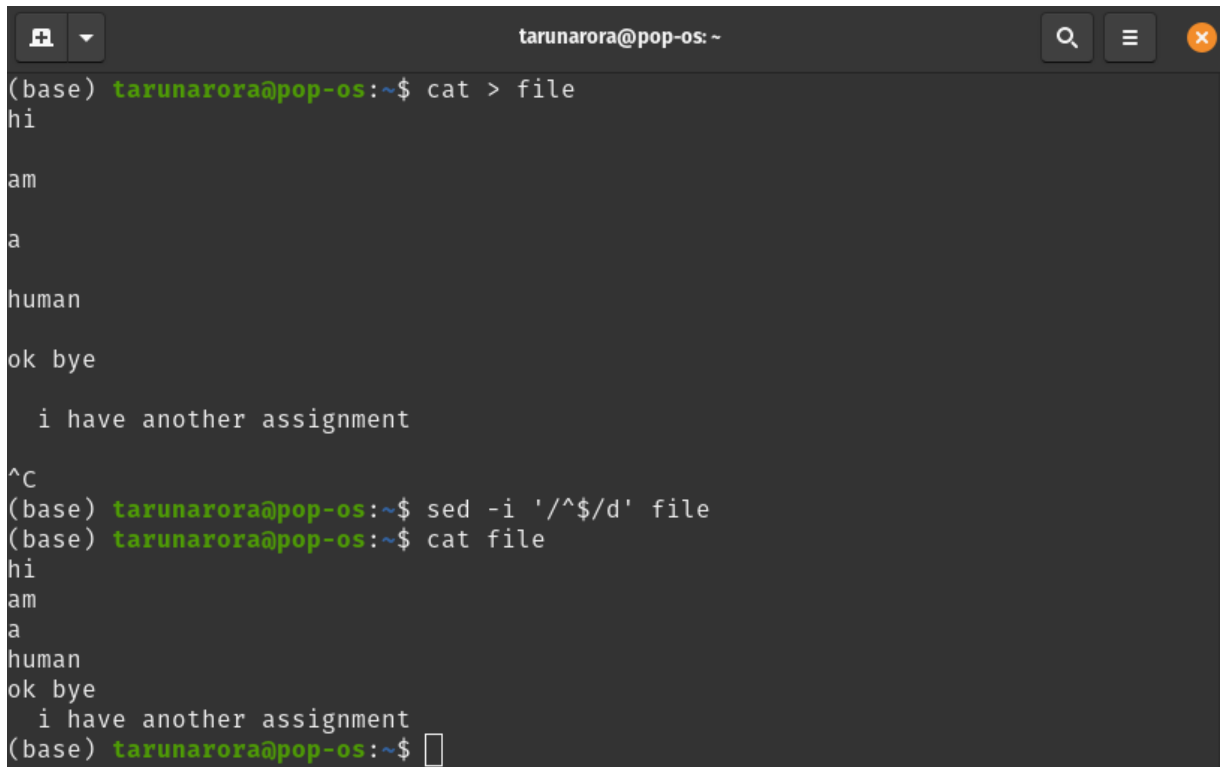
```
tarunarora@pop-os: ~
base) tarunarora@pop-os:~$ gedit script.sh
base) tarunarora@pop-os:~$ ./script.sh
Enter Password length: 7
Too small(minimum length=8), enter again: 15
The randomly generated password is: -
pZBTkS5t40GtMtS
base) tarunarora@pop-os:~$
```

Q14. Write a command to remove blank lines in a file.
Write a command to find the total number of lines in a file?

Solution: -

Code:-

```
sed -i '/^$/d' {file}
```

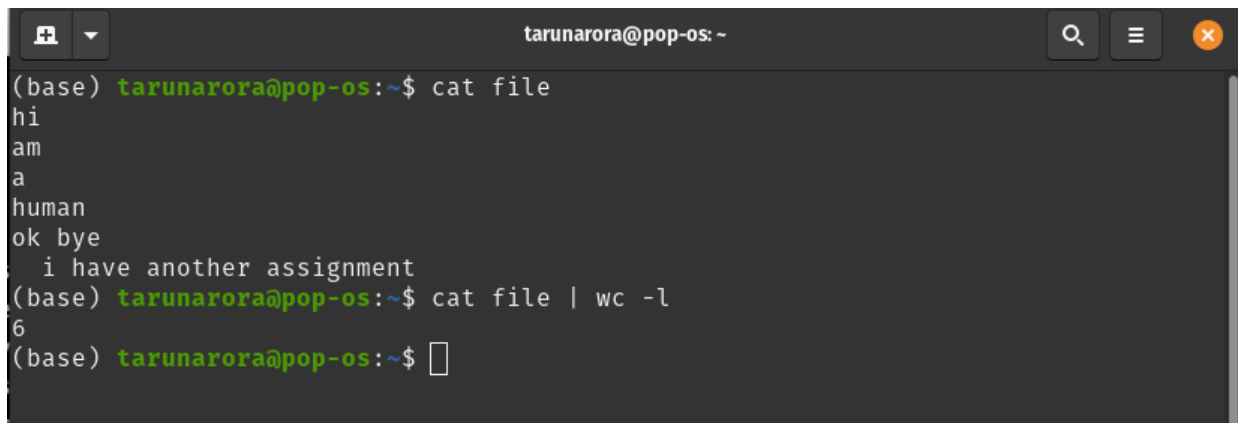


A terminal window titled 'tarunarora@pop-os: ~' showing the process of removing blank lines from a file named 'file'. The user first uses 'cat > file' to create the file with the following content: 'hi', 'am', 'a', 'human', 'ok bye', and a blank line followed by 'i have another assignment'. Then, the user runs 'sed -i '/^\$/d' file' to remove the blank line. Finally, the user runs 'cat file' to display the updated content, which now only contains the non-blank lines: 'hi', 'am', 'a', 'human', 'ok bye', and 'i have another assignment'.

```
(base) tarunarora@pop-os:~$ cat > file
hi
am
a
human
ok bye
i have another assignment
^C
(base) tarunarora@pop-os:~$ sed -i '/^$/d' file
(base) tarunarora@pop-os:~$ cat file
hi
am
a
human
ok bye
i have another assignment
(base) tarunarora@pop-os:~$
```

Code: -

```
cat {file} | wc -l
```



A terminal window titled 'tarunarora@pop-os: ~' showing the count of lines in the file 'file'. The user first runs 'cat file' to display the content: 'hi', 'am', 'a', 'human', 'ok bye', and 'i have another assignment'. Then, the user runs 'cat file | wc -l' to count the lines, which returns '6'.

```
(base) tarunarora@pop-os:~$ cat file
hi
am
a
human
ok bye
i have another assignment
(base) tarunarora@pop-os:~$ cat file | wc -l
6
(base) tarunarora@pop-os:~$
```

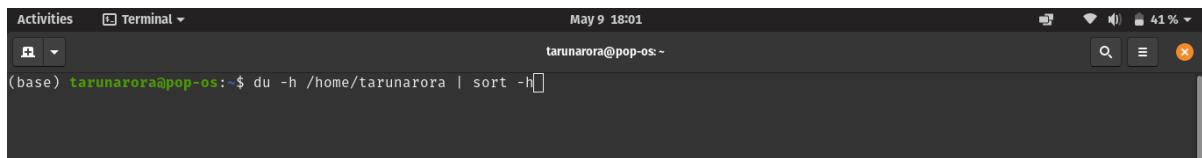
Q15. Sort the data that is in human readable format say 1K, 2M, 3G, 2T, where K, M, G, T represents Kilo, Mega, Giga, Tera from the /home/user file.

Solution: -

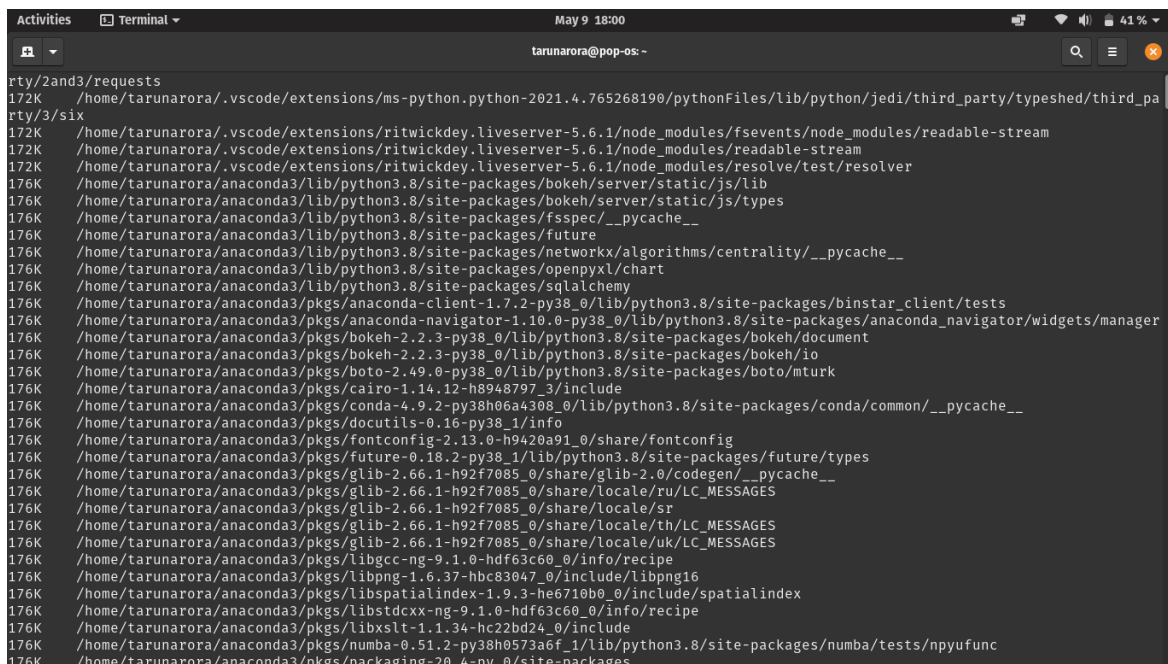
Code:-

```
du -h /home/tarunarora | sort -h
```

(Note:- In this command output is very large and terminal scroll buffer would be exhausted)



```
Activities Terminal May 9 18:01 tarunarora@pop-os: -
(base) tarunarora@pop-os:~$ du -h /home/tarunarora | sort -h
```



```
Activities Terminal May 9 18:00 tarunarora@pop-os: -
rty/2and3/requests
172K /home/tarunarora/.vscode/extensions/ms-python.python-2021.4.765268190/pythonFiles/lib/python/jedi/third_party/typedshed/third_pa
rty/3/six
172K /home/tarunarora/.vscode/extensions/ritwickdey.liveserver-5.6.1/node_modules/fsevents/node_modules/readable-stream
172K /home/tarunarora/.vscode/extensions/ritwickdey.liveserver-5.6.1/node_modules/readable-stream
172K /home/tarunarora/.vscode/extensions/ritwickdey.liveserver-5.6.1/node_modules/resolve/test/resolver
176K /home/tarunarora/anaconda3/lib/python3.8/site-packages/bokeh/server/static/js/lib
176K /home/tarunarora/anaconda3/lib/python3.8/site-packages/bokeh/server/static/js/types
176K /home/tarunarora/anaconda3/lib/python3.8/site-packages/fsspec/__pycache__
176K /home/tarunarora/anaconda3/lib/python3.8/site-packages/future
176K /home/tarunarora/anaconda3/lib/python3.8/site-packages/networkx/algorithms/centrality/__pycache__
176K /home/tarunarora/anaconda3/lib/python3.8/site-packages/openpyxl/chart
176K /home/tarunarora/anaconda3/lib/python3.8/site-packages/sqlalchemy
176K /home/tarunarora/anaconda3/pkgs/anaconda-client-1.7.2-py38_0/lib/python3.8/site-packages/binstar_client/tests
176K /home/tarunarora/anaconda3/pkgs/anaconda-navigator-1.10.0-py38_0/lib/python3.8/site-packages/anaconda_navigator/widgets/manager
176K /home/tarunarora/anaconda3/pkgs/bokeh-2.2.3-py38_0/lib/python3.8/site-packages/bokeh/document
176K /home/tarunarora/anaconda3/pkgs/bokeh-2.2.3-py38_0/lib/python3.8/site-packages/bokeh/io
176K /home/tarunarora/anaconda3/pkgs/boto-2.49.0-py38_0/lib/python3.8/site-packages/boto/mturk
176K /home/tarunarora/anaconda3/pkgs/cairo-1.14.12-h8948797_3/include
176K /home/tarunarora/anaconda3/pkgs/conda-4.9.2-py38h06a4308_0/lib/python3.8/site-packages/conda/common/__pycache__
176K /home/tarunarora/anaconda3/pkgs/docutils-0.16-py38_1/info
176K /home/tarunarora/anaconda3/pkgs/fontconfig-2.13.0-h9420a91_0/share/fontconfig
176K /home/tarunarora/anaconda3/pkgs/future-0.18.2-py38_1/lib/python3.8/site-packages/future/types
176K /home/tarunarora/anaconda3/pkgs/glib-2.66.1-h92f7085_0/share/glib-2.0/codegen/__pycache__
176K /home/tarunarora/anaconda3/pkgs/glib-2.66.1-h92f7085_0/share/locale/ru/LC_MESSAGES
176K /home/tarunarora/anaconda3/pkgs/glib-2.66.1-h92f7085_0/share/locale/sr
176K /home/tarunarora/anaconda3/pkgs/glib-2.66.1-h92f7085_0/share/locale/th/LC_MESSAGES
176K /home/tarunarora/anaconda3/pkgs/glib-2.66.1-h92f7085_0/share/locale/uk/LC_MESSAGES
176K /home/tarunarora/anaconda3/pkgs/libgcc-ng-9.1.0-hdf63c60_0/info/recipe
176K /home/tarunarora/anaconda3/pkgs/libpng-1.6.37-hbc83047_0/include/libpng16
176K /home/tarunarora/anaconda3/pkgs/libspatialindex-1.9.3-he6710b0_0/include/spatialindex
176K /home/tarunarora/anaconda3/pkgs/libstdcxx-ng-9.1.0-hdf63c60_0/info/recipe
176K /home/tarunarora/anaconda3/pkgs/libxslt-1.1.34-hc22bd24_0/include
176K /home/tarunarora/anaconda3/pkgs/numba-0.51.2-py38h0573a6f_1/lib/python3.8/site-packages/numba/tests/npufunc
176K /home/tarunarora/anaconda3/pkgs/packaging-20.4-py_0/site-packages
```

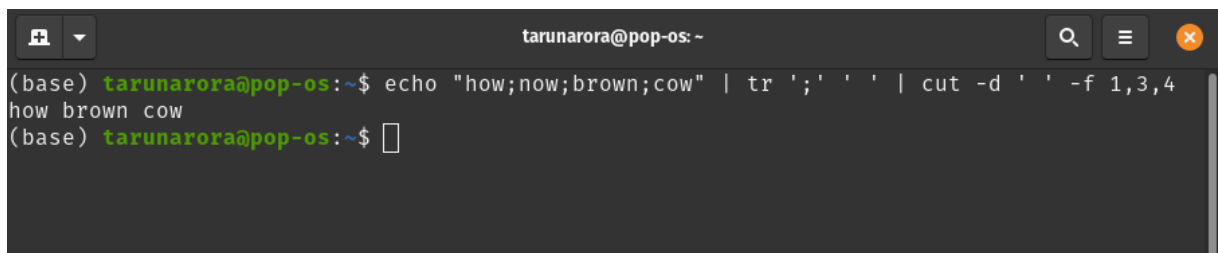


```
Activities Terminal May 9 18:00
tarunarora@pop-os: ~
1.6G /home/tarunarora/snap
1.6G /home/tarunarora/snap/flutter
1.6G /home/tarunarora/snap/flutter/common
1.6G /home/tarunarora/snap/flutter/common/flutter
2.0G /home/tarunarora/.local/share/flatpak/runtime
2.1G /home/tarunarora/.android
2.1G /home/tarunarora/.android/avd
2.1G /home/tarunarora/.android/avd/Pixel_2_API_28.avd
2.2G /home/tarunarora/.cache
2.2G /home/tarunarora/.local/share/flatpak
2.3G /home/tarunarora/.config
2.7G /home/tarunarora/Android/Sdk/system-images
2.7G /home/tarunarora/Android/Sdk/system-images/android-28
2.7G /home/tarunarora/Android/Sdk/system-images/android-28/google_api_playstore
2.7G /home/tarunarora/Android/Sdk/system-images/android-28/google_api_playstore/x86
2.7G /home/tarunarora/.local/share/Trash/files/Android/Sdk/system-images/android-28/google_api_playstore
2.7G /home/tarunarora/.local/share/Trash/files/Android/Sdk/system-images/android-28/google_api_playstore/x86
3.1G /home/tarunarora/anaconda3/pkgs
3.2G /home/tarunarora/.local/share/Trash/files/Android/Sdk/system-images/android-30
3.2G /home/tarunarora/.local/share/Trash/files/Android/Sdk/system-images/android-30/google_api
3.2G /home/tarunarora/.local/share/Trash/files/Android/Sdk/system-images/android-30/google_api/x86
3.3G /home/tarunarora/anaconda3
4.3G /home/tarunarora/Android
4.3G /home/tarunarora/Android/Sdk
5.9G /home/tarunarora/.local/share/Trash/files/Android/Sdk/system-images
7.7G /home/tarunarora/.local/share/Trash/files/Android
7.7G /home/tarunarora/.local/share/Trash/files/Android/Sdk
9.0G /home/tarunarora/.local/share/Trash
9.0G /home/tarunarora/.local/share/Trash/files
13G /home/tarunarora/.local
13G /home/tarunarora/.local/share
32G /home/tarunarora
(base) tarunarora@pop-os: ~$
```

Q16. In the example ('how;now;brown;cow') convert the semi-colon into a space and display the first, third and fourth fields on the terminal using "cut command".

Solution: -

```
echo "how;now;brown;cow" | tr ';' ' ' | cut -d ' ' -f 1,3,4
```

A terminal window with a dark background. The title bar shows 'tarunarora@pop-os: ~'. The prompt is '(base) tarunarora@pop-os:~\$'. The command entered is 'echo "how;now;brown;cow" | tr ';' ' ' | cut -d ' ' -f 1,3,4'. The output is 'how brown cow'. The prompt is now '(base) tarunarora@pop-os:~\$' with a cursor.

```
(base) tarunarora@pop-os:~$ echo "how;now;brown;cow" | tr ';' ' ' | cut -d ' ' -f 1,3,4
how brown cow
(base) tarunarora@pop-os:~$
```

Q17. Using cut command write a command to change the delimiter from input delimiter : (colon) to the output delimiter # (hash) in the field location 1, 6 and 7 from the /etc/passwd file where we have pattern `"/bin/bash"`.

Solution: -

Code:-

```
cat /etc/passwd | grep "/bin/bash" | cut -d ':' -f 1,6,7 --output-delimiter='#'
```

A terminal window titled 'tarunarora@pop-os: ~' showing the execution of the command: `cat /etc/passwd | grep "/bin/bash" | cut -d ':' -f 1,6,7 --output-delimiter='#'`. The output shows the prompt changing from `(base) tarunarora@pop-os:~$` to `root#/root#/bin/bash`, then to `tarunarora#/home/tarunarora#/bin/bash`, and finally back to `(base) tarunarora@pop-os:~$` after pressing Enter.

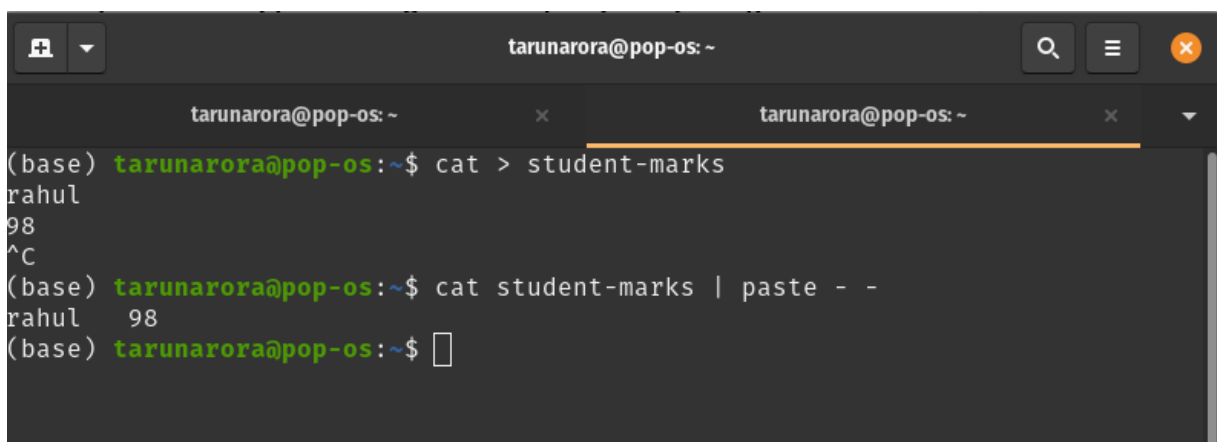
```
(base) tarunarora@pop-os:~$ cat /etc/passwd | grep "/bin/bash" | cut -d ':' -f 1,6,7 --output-delimiter='#'
root#/root#/bin/bash
tarunarora#/home/tarunarora#/bin/bash
(base) tarunarora@pop-os:~$
```

Q18. Write a paste command to merge 2 consecutive lines from the file student-marks into a single line.

Solution:-

Code: -

```
cat student-marks | paste - -
```

A terminal window titled 'tarunarora@pop-os: ~' with two tabs. The first tab shows the command 'cat > student-marks' being executed, resulting in the input 'rahul' and '98' being written to the file. The second tab shows the command 'cat student-marks | paste - -' being executed, which outputs 'rahul 98' on a single line. The prompt '(base) tarunarora@pop-os:~\$' is visible at the end of the command line in the second tab.

```
(base) tarunarora@pop-os:~$ cat > student-marks
rahul
98
^C
(base) tarunarora@pop-os:~$ cat student-marks | paste - -
rahul 98
(base) tarunarora@pop-os:~$
```

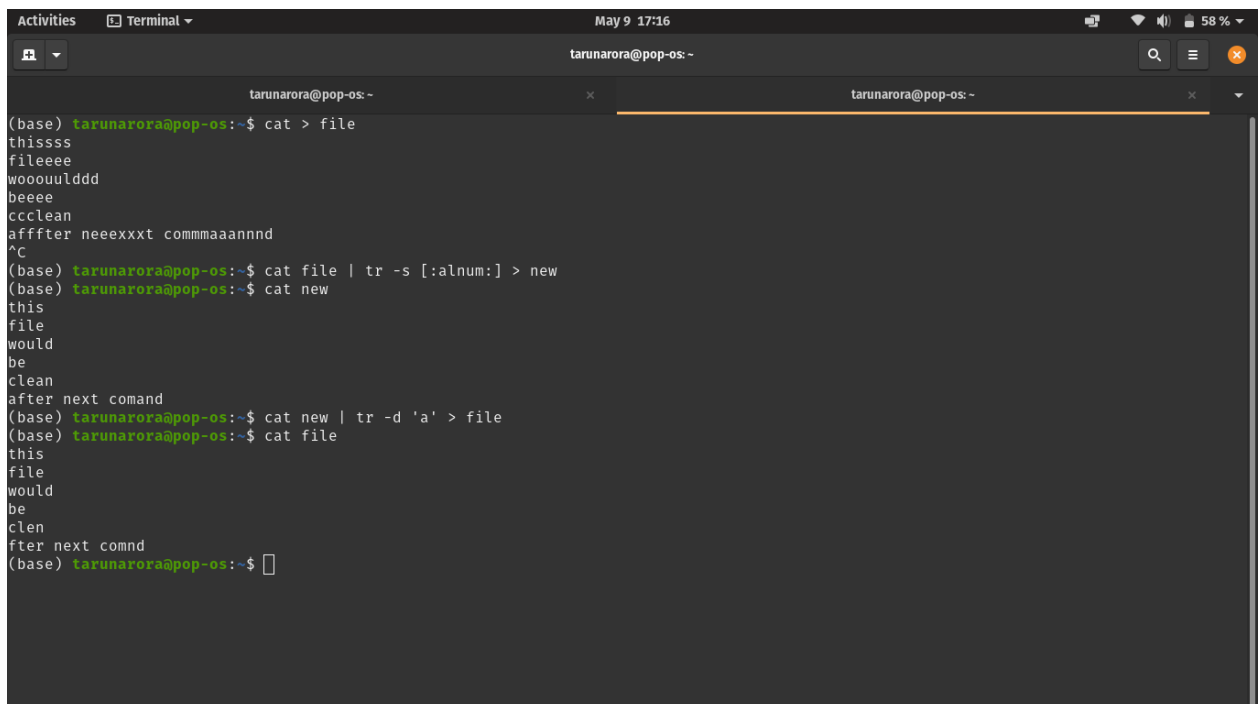
Q19. Write a command using `tr` to squeeze the repetition of characters from a file. Also remove the character "a" from the file.

Solution: -

Code:-

```
cat {file1} | tr -s [:alnum:] > {file2}
```

```
cat {file1} | tr -d 'a' > {file2}
```



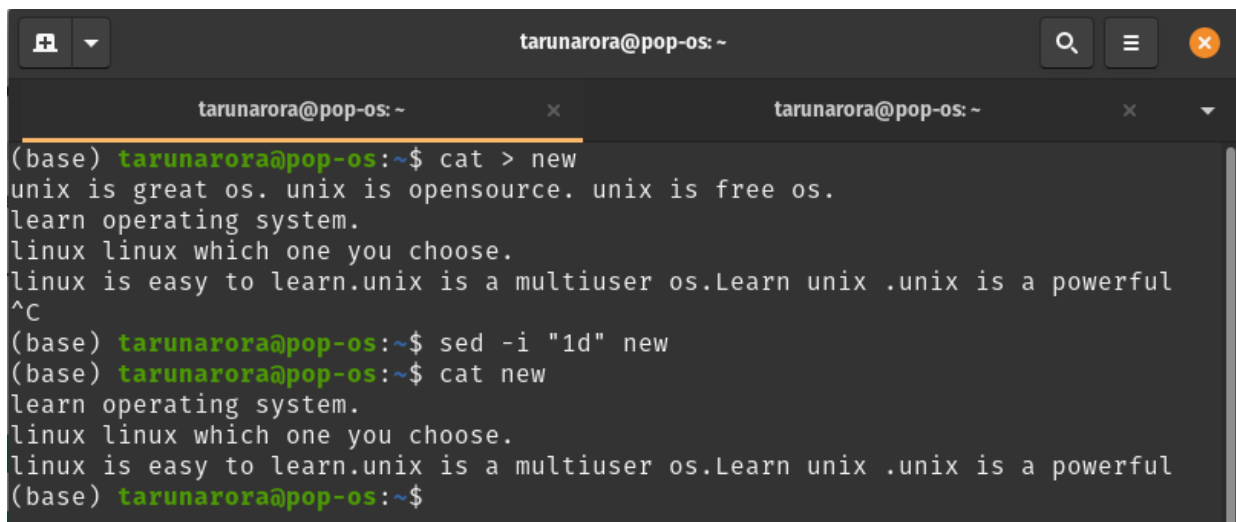
```
Activities Terminal May 9 17:16
tarunarora@pop-os: ~
tarunarora@pop-os: ~
(base) tarunarora@pop-os:~$ cat > file
thissss
fileeee
woouulddd
beeee
ccclean
afffter neeexxt commaaannnd
^C
(base) tarunarora@pop-os:~$ cat file | tr -s [:alnum:] > new
(base) tarunarora@pop-os:~$ cat new
this
file
would
be
clean
after next comand
(base) tarunarora@pop-os:~$ cat new | tr -d 'a' > file
(base) tarunarora@pop-os:~$ cat file
this
file
would
be
clen
fter next comnd
(base) tarunarora@pop-os:~$
```

Q20. How to remove the header from a file?

Solution: -

Code: -

```
sed -i "1d" {filename}
```



```
tarunarora@pop-os: ~  
(base) tarunarora@pop-os:~$ cat > new  
unix is great os. unix is opensource. unix is free os.  
learn operating system.  
linux linux which one you choose.  
linux is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful  
^C  
(base) tarunarora@pop-os:~$ sed -i "1d" new  
(base) tarunarora@pop-os:~$ cat new  
learn operating system.  
linux linux which one you choose.  
linux is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful  
(base) tarunarora@pop-os:~$
```

*****EOF*****