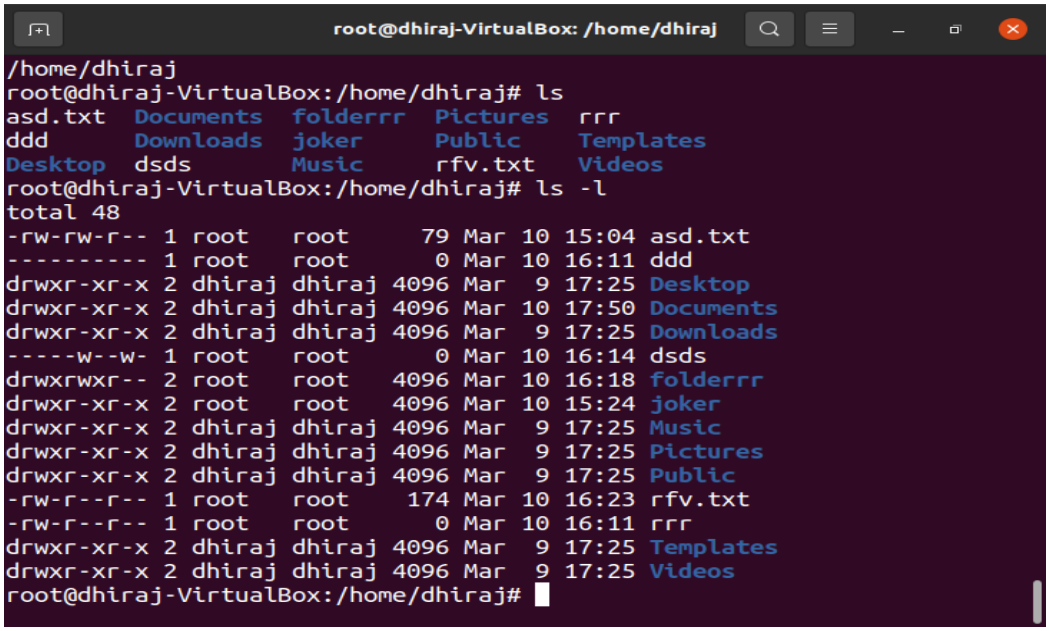
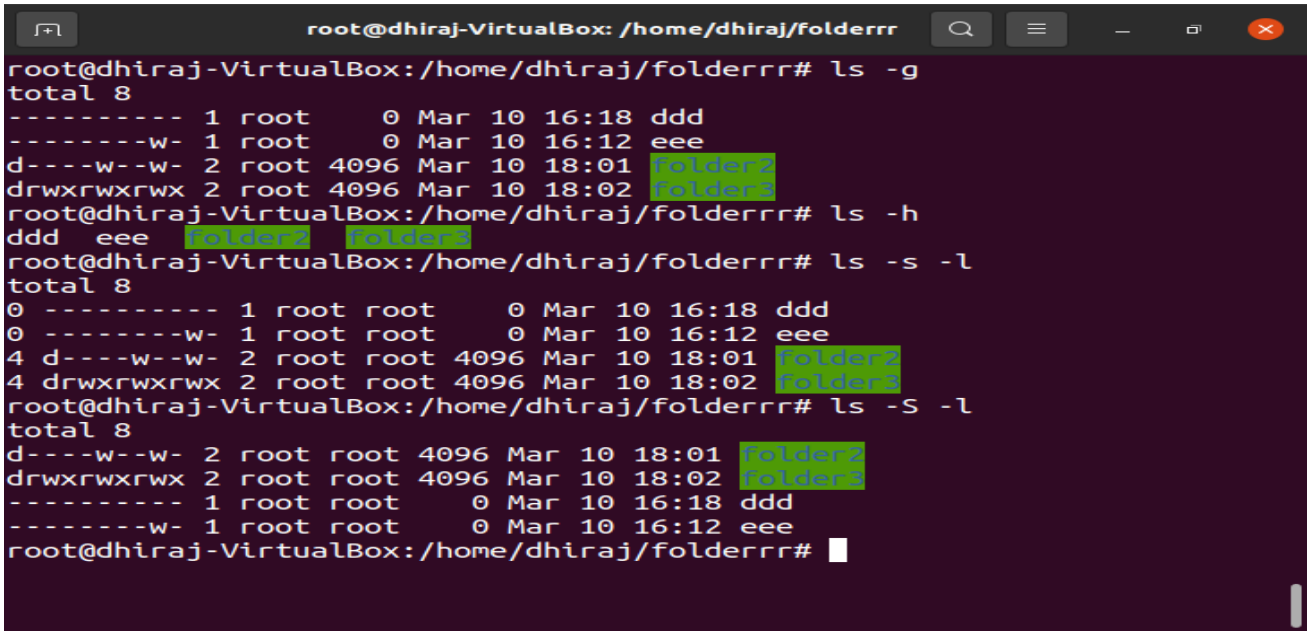
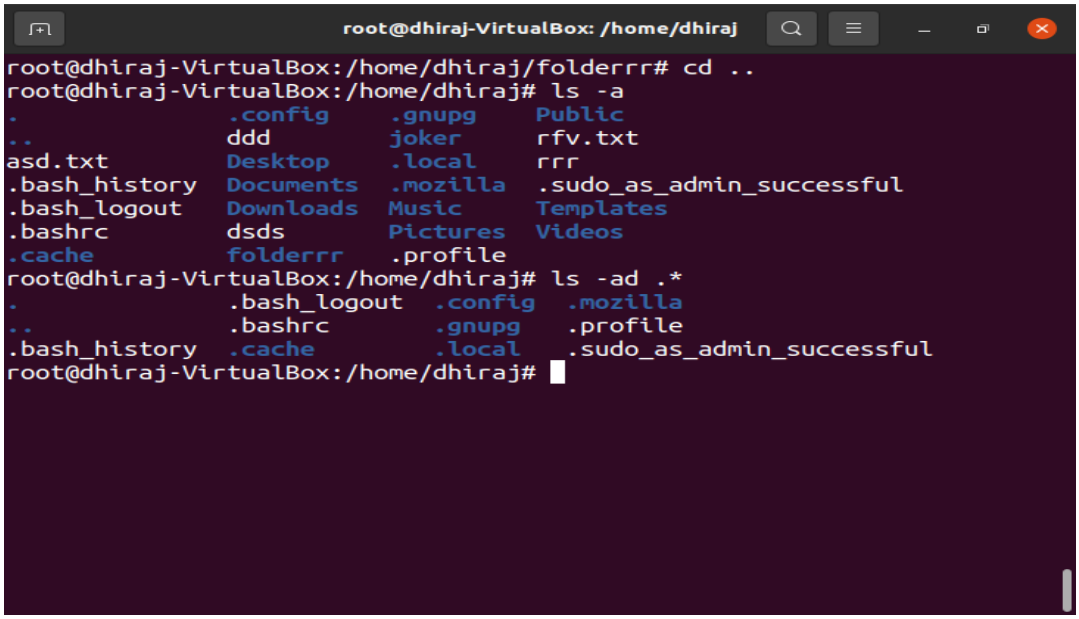
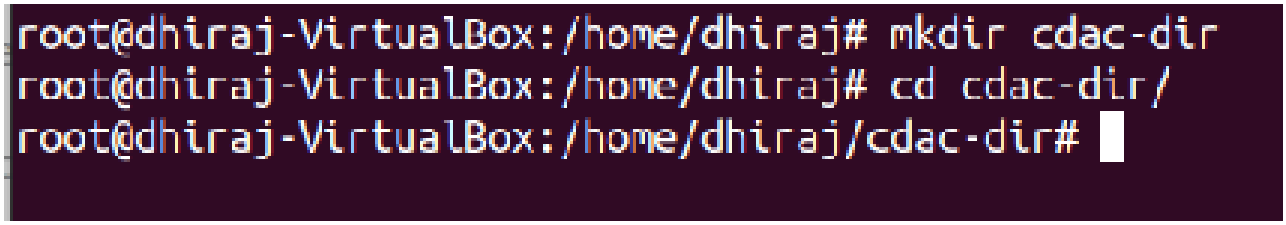
1. - use a command to show the current working directory - list the directory contents in the short and long format (with file permissions,owner,size etc,.). Explore attributes given in long format e.g. file type, file permissions, file size, file owner etc. - list all files along with hidden files in current working directory. - list only hidden files in the directory

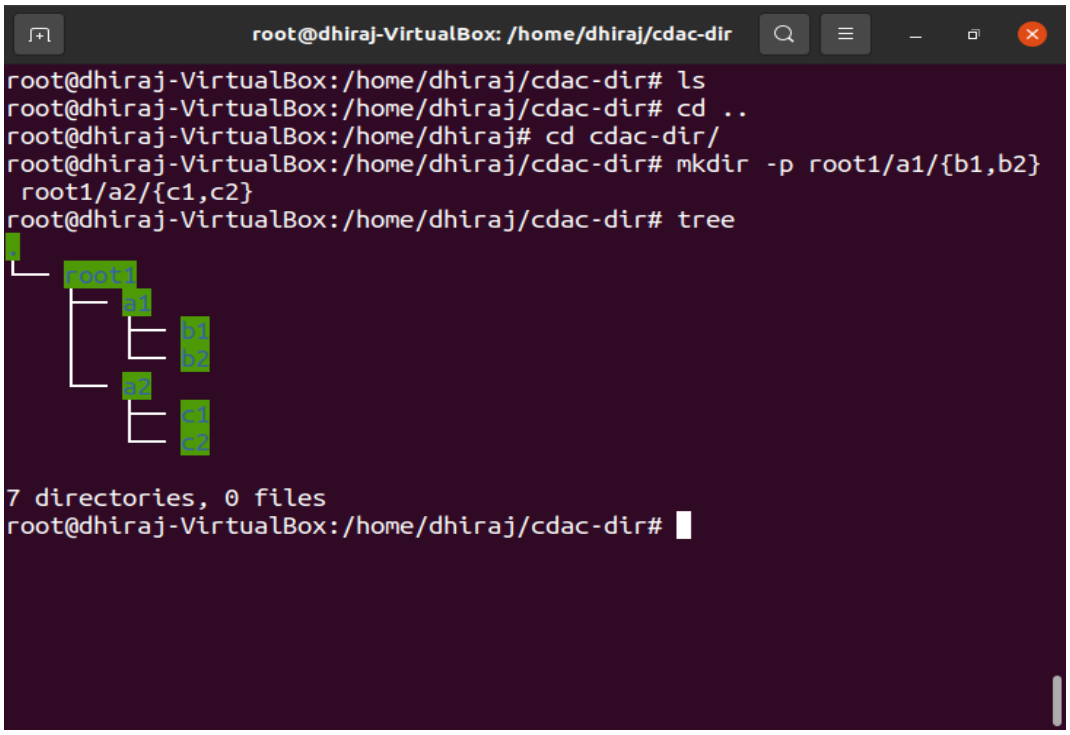


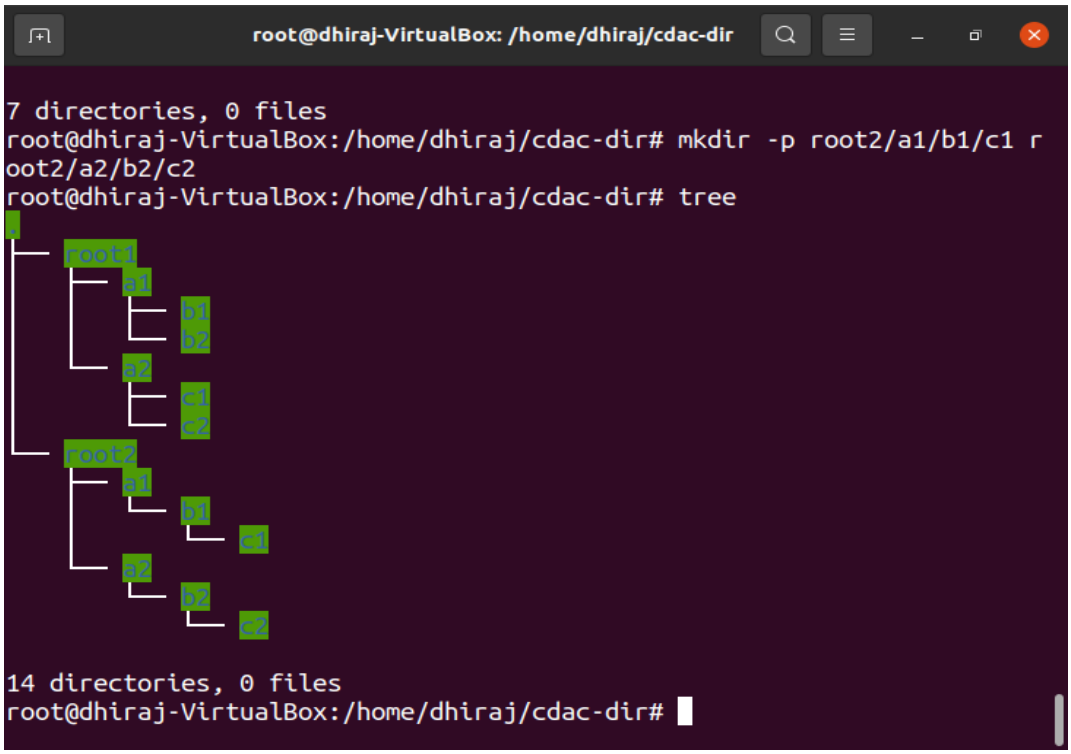


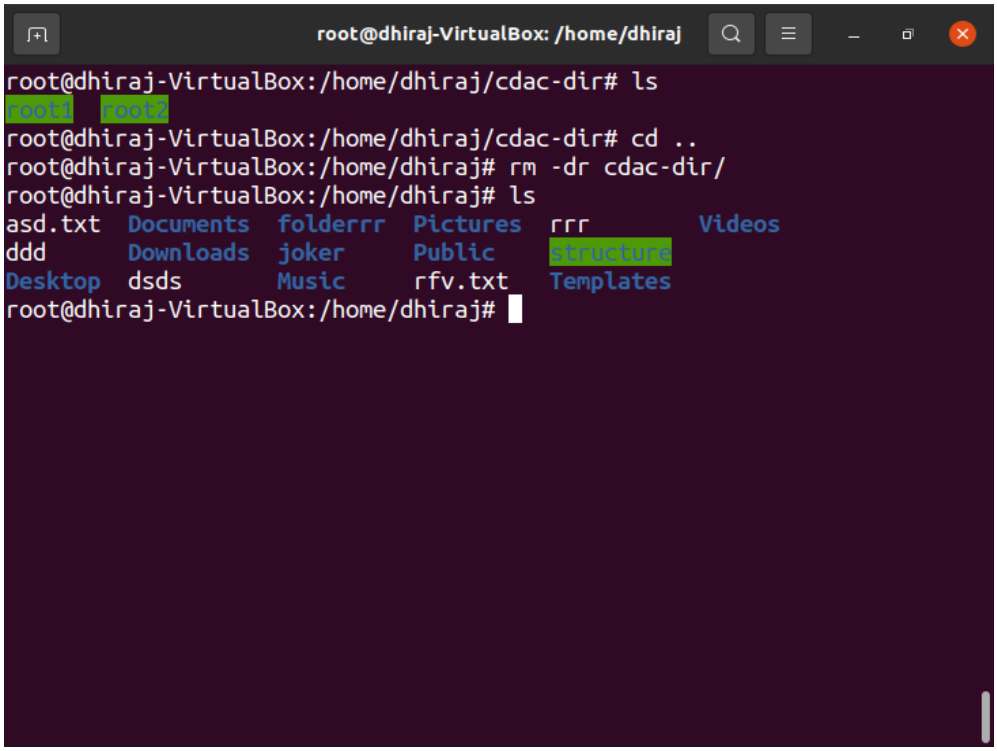


2. Make a directory and name it as cdac-dir and change the current working directory to the new directory.(Hint : use mkdir,cd commands). 3. Create following nested directories inside current directory by invoking single command for only one time. Note : here root_dir is current directory. 4. List the directories(folders), then remove the cdac-dir directory and list the folders again to show that it is no longer present.(Hint : use rm, ls command).




root@dhiraj-VirtualBox: /home/dhiraj/cdac-dir
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# ls
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# cd ..
root@dhiraj-VirtualBox:/home/dhiraj# cd cdac-dir/
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# mkdir -p root1/a1/{b1,b2}
root1/a2/{c1,c2}
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# tree
.
root1
a1
b1
b2
a2
c1
c2
7 directories, 0 files
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir#


root@dhiraj-VirtualBox: /home/dhiraj/cdac-dir
7 directories, 0 files
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# mkdir -p root2/a1/b1/c1 r
oot2/a2/b2/c2
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# tree
.
root1
a1
b1
b2
a2
c1
c2
root2
a1
b1
c1
a2
b2
c2
14 directories, 0 files
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir#


root@dhiraj-VirtualBox: /home/dhiraj
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# ls
root1 root2
root@dhiraj-VirtualBox:/home/dhiraj/cdac-dir# cd ..
root@dhiraj-VirtualBox:/home/dhiraj# rm -dr cdac-dir/
root@dhiraj-VirtualBox:/home/dhiraj# ls
asd.txt Documents folderrr Pictures rrr Videos
ddd Downloads joker Public structure
Desktop dsds Music rfv.txt Templates
root@dhiraj-VirtualBox:/home/dhiraj#

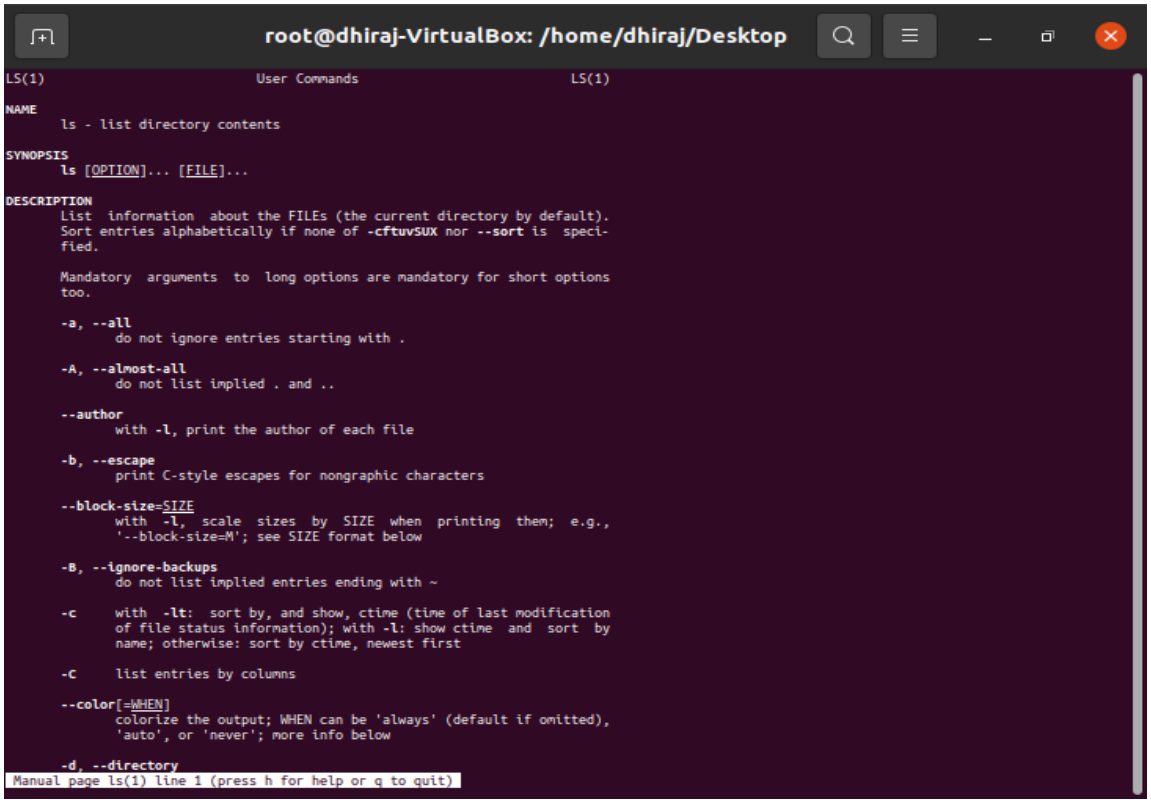
Question-2. 1. Display the man-page for ls, but redirect the output into temp.txt, then use the cat, less, and more commands to display the new file.

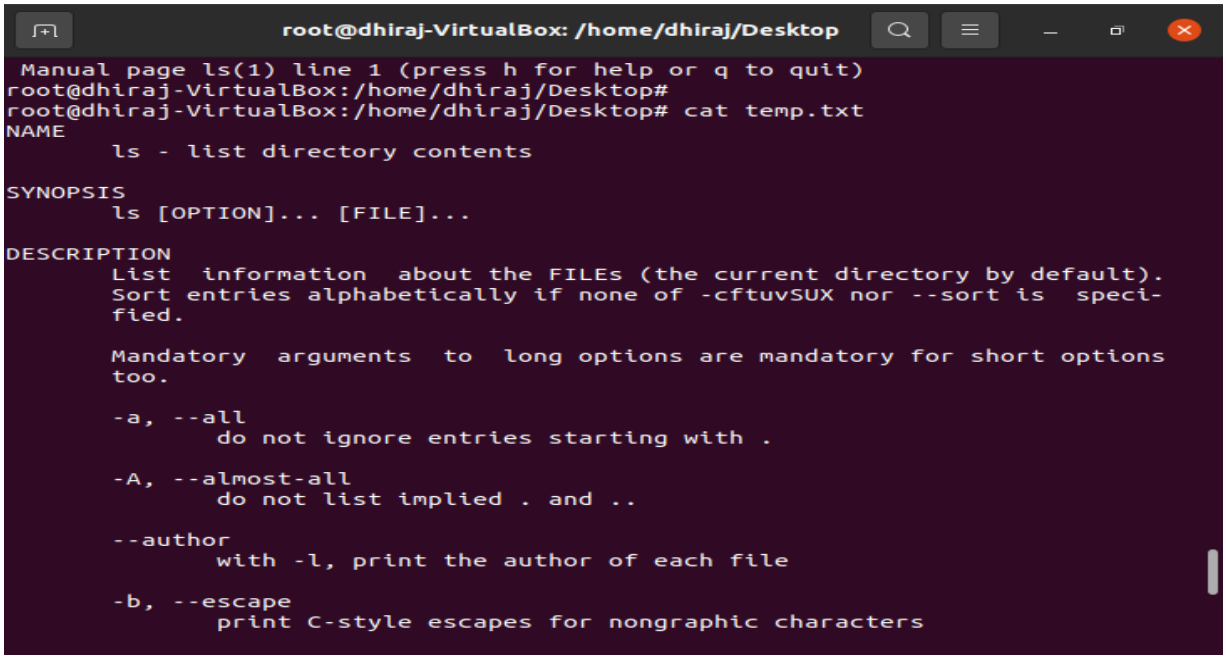
2. Display the initial 10 lines and final 5 lines of temp.txt with the obvious Linux commands.(Hint: use head and tail commands).

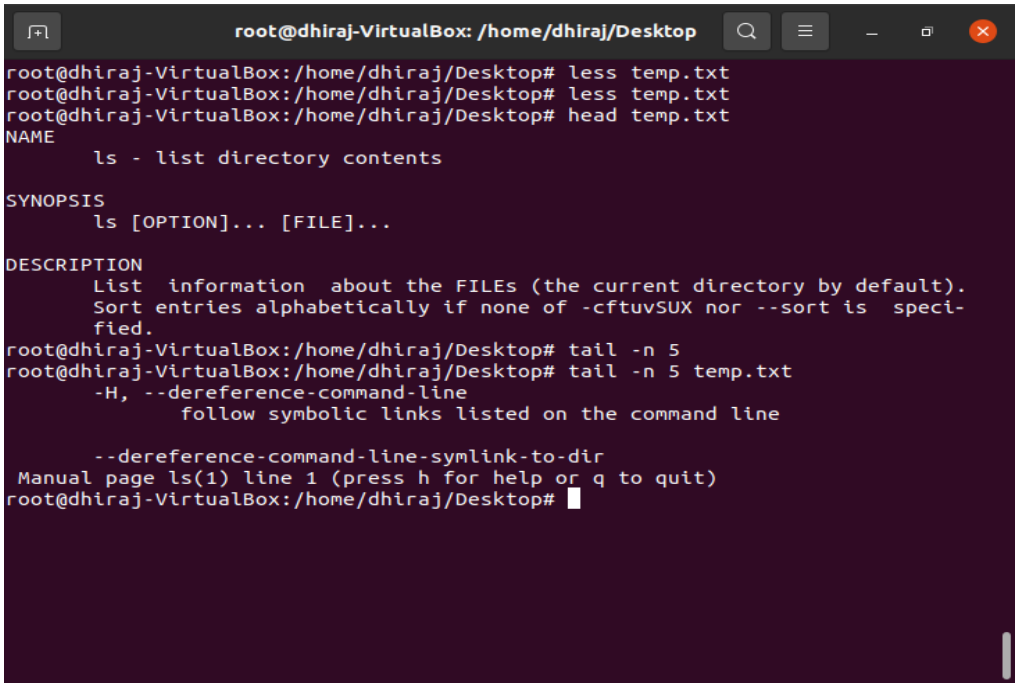
3. Copy temp.txt to another directory and rename it there. (Hint: use cp to copy and mv command to rename).

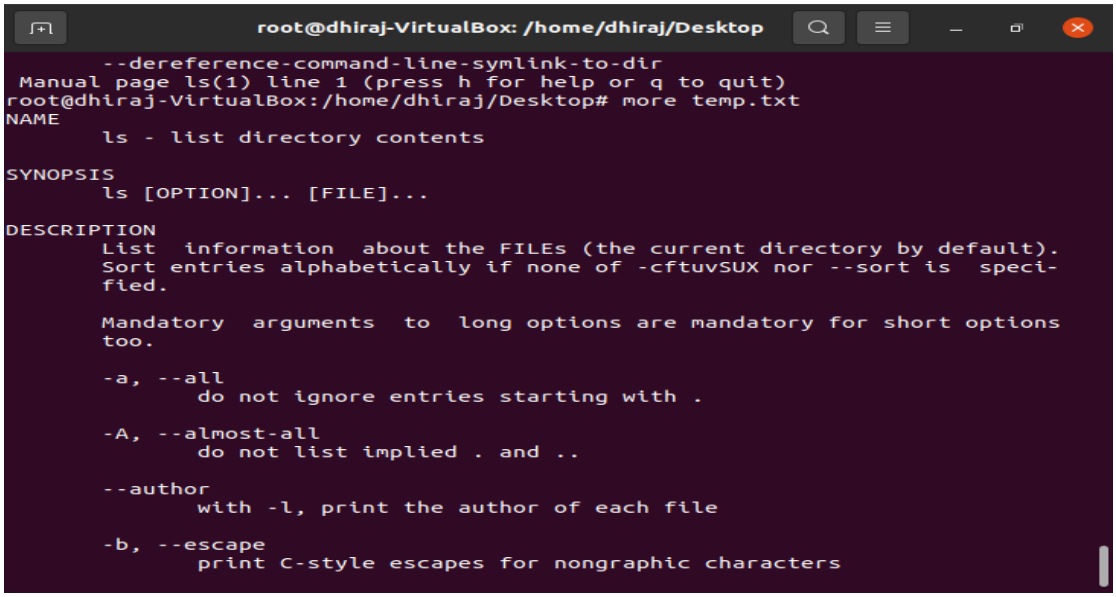
4. Display the number of lines, words and characters in file using Linux command (Hint: use wc command).

5. Use history command to display last 10 commands used. (Hint: use history command).




root@dhiraj-VirtualBox: /home/dhiraj/Desktop
Manual page ls(1) line 1 (press h for help or q to quit)
root@dhiraj-VirtualBox:/home/dhiraj/Desktop#
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# cat temp.txt
NAME
ls - list directory contents
SYNOPSIS
ls [OPTION]... [FILE]...
DESCRIPTION
List information about the FILEs (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is speci-
fied.
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


root@dhiraj-VirtualBox: /home/dhiraj/Desktop
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# less temp.txt
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# less temp.txt
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# head temp.txt
NAME
ls - list directory contents
SYNOPSIS
ls [OPTION]... [FILE]...
DESCRIPTION
List information about the FILEs (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is speci-
fied.
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# tail -n 5
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# tail -n 5 temp.txt
-H, --dereference-command-line
follow symbolic links listed on the command line
--dereference-command-line-symlink-to-dir
Manual page ls(1) line 1 (press h for help or q to quit)
root@dhiraj-VirtualBox:/home/dhiraj/Desktop#




```
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# ls
temp.txt
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# mv temp.txt dhiraj
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# ls
dhiraj
root@dhiraj-VirtualBox:/home/dhiraj/Desktop#  man wc
root@dhiraj-VirtualBox:/home/dhiraj/Desktop# wc dhiraj
  85  302 2570 dhiraj
root@dhiraj-VirtualBox:/home/dhiraj/Desktop#
```

```
root@dhiraj-VirtualBox:/home/dhiraj# history 10
  465  cat > dsds
  466  tar dsds
  467  tar -cf dsds
  468  tar --usage
  469  tar -c dsds
  470  tar -fc dsds
  471  tar -cf dsdsd dsds
  472  ls
  473  ls -l
  474  history 10
root@dhiraj-VirtualBox:/home/dhiraj#
```

Question-3. 1. Create tar archive file of any directory present in your home directory. (Hint: use tar command) - list the contents of the archive file without extracting.

2. Create zip file of another directory. (Hint: use zip command) - list the contents of the zip file without extracting.

3. Give read, write & execute permissions to your file. (Hint: use chmod command)

4. Change ownership of that file.(Hint: use chown command)

5. List processes running in shell, all running processes(Hint: use man page of ps command) and show top processes in decreasing order of their resource utilization.(Hint: use top command).

```
root@dhiraj-VirtualBox:/home/dhiraj# tar -cvf tarfile folderrr/
folderrr/
folderrr/dsdsd
folderrr/ddd
folderrr/folder3/
folderrr/folder2/
folderrr/dsds
folderrr/eee
root@dhiraj-VirtualBox:/home/dhiraj# ls
asd.txt  Desktop    Downloads  joker  Pictures  rfv.txt  structure  Templates
ddd      Documents  folderrr   Music  Public    rrr      tarfile    Videos
root@dhiraj-VirtualBox:/home/dhiraj# man tar
root@dhiraj-VirtualBox:/home/dhiraj# tar -tf tarfile
folderrr/
folderrr/dsdsd
folderrr/ddd
folderrr/folder3/
folderrr/folder2/
folderrr/dsds
folderrr/eee
root@dhiraj-VirtualBox:/home/dhiraj#
```

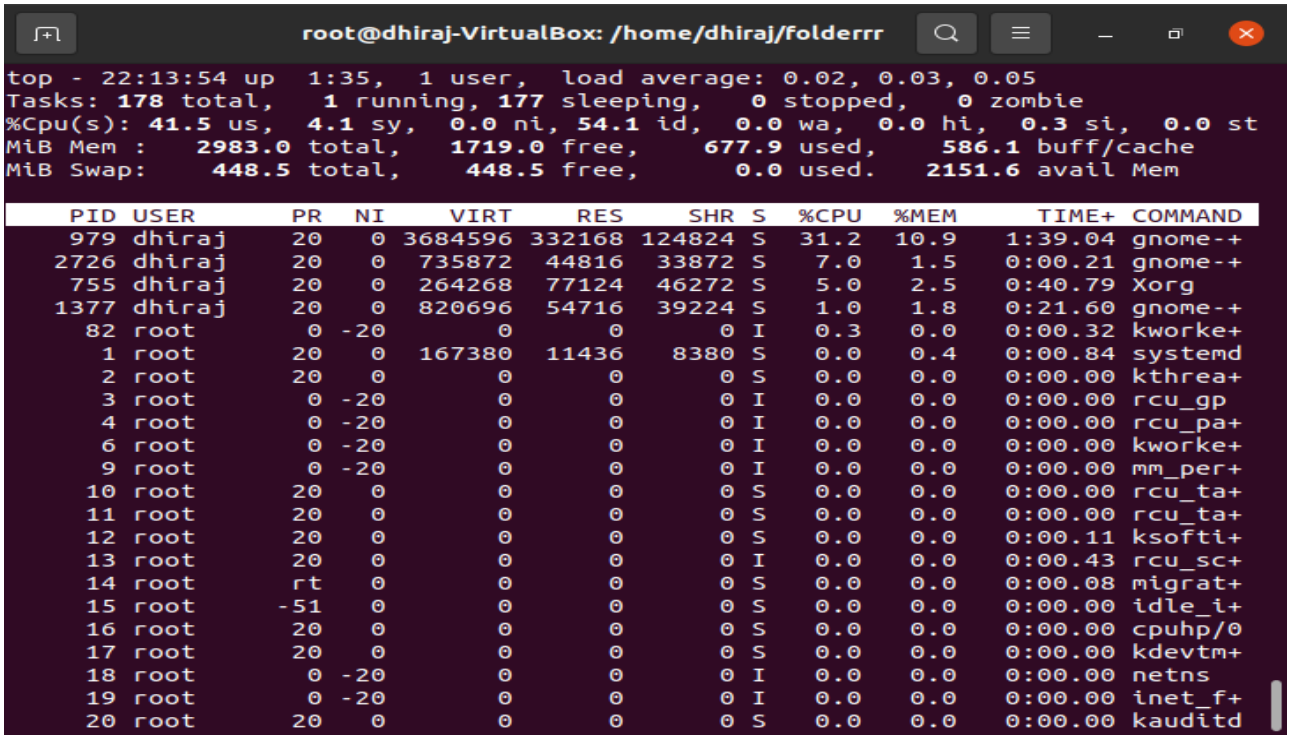
```
root@dhiraj-VirtualBox:/home/dhiraj# zip -r zipfile folderrr/
  adding: folderrr/ (stored 0%)
  adding: folderrr/dsdsd (deflated 99%)
  adding: folderrr/ddd (stored 0%)
  adding: folderrr/folder3/ (stored 0%)
  adding: folderrr/folder2/ (stored 0%)
  adding: folderrr/dsds (deflated 38%)
  adding: folderrr/eee (stored 0%)
root@dhiraj-VirtualBox:/home/dhiraj# ls
asd.txt  Documents  joker     Public   structure  Videos
ddd      Downloads  Music     rfv.txt  tarfile    zipfile.zip
Desktop  folderrr   Pictures  rrr      Templates
```

```
root@dhiraj-VirtualBox:/home/dhiraj# unzip -l zipfile.zip
Archive:  zipfile.zip
  Length      Date    Time    Name
---------  ---------- -----   ----
        0  2022-03-10 21:42   folderrr/
    10240  2022-03-10 21:36   folderrr/dsdsd
        0  2022-03-10 16:18   folderrr/ddd
        0  2022-03-10 18:02   folderrr/folder3/
        0  2022-03-10 18:01   folderrr/folder2/
       29  2022-03-10 21:34   folderrr/dsds
        0  2022-03-10 16:12   folderrr/eee
---------                     -------
    10269                     7 files
root@dhiraj-VirtualBox:/home/dhiraj#
```

```
root@dhiraj-VirtualBox:/home/dhiraj# chmod 777 rfv.txt
root@dhiraj-VirtualBox:/home/dhiraj# ls -l
total 76
-rw-rw-r-- 1 root   root       79 Mar 10 15:04 asd.txt
---------- 1 root   root        0 Mar 10 16:11 ddd
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar 10 21:13 Desktop
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar 10 17:50 Documents
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar  9 17:25 Downloads
drwxrwxr-- 4 root   root    4096 Mar 10 21:42 folderrr
drwxr-xr-x 2 root   root    4096 Mar 10 15:24 joker
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar  9 17:25 Music
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar 10 21:58 Pictures
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar  9 17:25 Public
-rwxrwxrwx 1 root   root     174 Mar 10 16:23 rfv.txt
-rw-r--r-- 1 root   root       0 Mar 10 16:11 rrr
drwxrwxrwx 2 root   root    4096 Mar 10 18:24 structure
-rw-r--r-- 1 root   root   20480 Mar 10 21:43 tarfile
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar  9 17:25 Templates
drwxr-xr-x 2 dhiraj dhiraj  4096 Mar  9 17:25 Videos
-rw-r--r-- 1 root   root    1233 Mar 10 21:51 zipfile.zip
```

```
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# ls -l
total 24
---------- 1 root root     0 Mar 10 16:18 ddd
-----w--w- 1 root root    29 Mar 10 21:34 dsds
-rw-r--r-- 1 root root 10240 Mar 10 21:36 dsdsd
--------w- 1 root root     0 Mar 10 16:12 eee
d----w--w- 2 root root  4096 Mar 10 18:01 folder2
drwxrwxrwx 2 root root  4096 Mar 10 18:02 folder3
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# chown dhiraj ddd
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# ls -l
total 24
---------- 1 dhiraj root     0 Mar 10 16:18 ddd
-----w--w- 1 root   root    29 Mar 10 21:34 dsds
-rw-r--r-- 1 root   root 10240 Mar 10 21:36 dsdsd
--------w- 1 root   root     0 Mar 10 16:12 eee
d----w--w- 2 root   root  4096 Mar 10 18:01 folder2
drwxrwxrwx 2 root   root  4096 Mar 10 18:02 folder3
root@dhiraj-VirtualBox:/home/dhiraj/folderrr#
```

```
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# ps -e
    PID TTY          TIME CMD
      1 ?        00:00:00 systemd
      2 ?        00:00:00 kthreadd
      3 ?        00:00:00 rcu_gp
      4 ?        00:00:00 rcu_par_gp
      6 ?        00:00:00 kworker/0:0H-events_highpri
      9 ?        00:00:00 mm_percpu_wq
     10 ?        00:00:00 rcu_tasks_rude_
     11 ?        00:00:00 rcu_tasks_trace
     12 ?        00:00:00 ksoftirqd/0
     13 ?        00:00:00 rcu_sched
     14 ?        00:00:00 migration/0
     15 ?        00:00:00 idle_inject/0
     16 ?        00:00:00 cpuhp/0
     17 ?        00:00:00 kdevtmpfs
     18 ?        00:00:00 netns
     19 ?        00:00:00 inet_frag_wq
     20 ?        00:00:00 kauditd
     21 ?        00:00:00 khungtaskd
     22 ?        00:00:00 oom_reaper
     23 ?        00:00:00 writeback
     24 ?        00:00:00 kcompactd0
     25 ?        00:00:00 ksmd
     26 ?        00:00:00 khugepaged
     72 ?        00:00:00 kintegrityd
     73 ?        00:00:00 kblockd
     74 ?        00:00:00 blkcg_punt_bio
```


root@dhiraj-VirtualBox: /home/dhiraj/folderrr
top - 22:13:54 up 1:35, 1 user, load average: 0.02, 0.03, 0.05
Tasks: 178 total, 1 running, 177 sleeping, 0 stopped, 0 zombie
%Cpu(s): 41.5 us, 4.1 sy, 0.0 ni, 54.1 id, 0.0 wa, 0.0 hi, 0.3 si, 0.0 st
MiB Mem : 2983.0 total, 1719.0 free, 677.9 used, 586.1 buff/cache
MiB Swap: 448.5 total, 448.5 free, 0.0 used. 2151.6 avail Mem
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
979 dhiraj 20 0 3684596 332168 124824 S 31.2 10.9 1:39.04 gnome-+
2726 dhiraj 20 0 735872 44816 33872 S 7.0 1.5 0:00.21 gnome-+
755 dhiraj 20 0 264268 77124 46272 S 5.0 2.5 0:40.79 Xorg
1377 dhiraj 20 0 820696 54716 39224 S 1.0 1.8 0:21.60 gnome-+
82 root 0 -20 0 0 0 I 0.3 0.0 0:00.32 kworke+
1 root 20 0 167380 11436 8380 S 0.0 0.4 0:00.84 systemd
2 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kthrea+
3 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 rcu_gp
4 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 rcu_pa+
6 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworke+
9 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 mm_per+
10 root 20 0 0 0 0 S 0.0 0.0 0:00.00 rcu_ta+
11 root 20 0 0 0 0 S 0.0 0.0 0:00.00 rcu_ta+
12 root 20 0 0 0 0 S 0.0 0.0 0:00.11 ksofti+
13 root 20 0 0 0 0 I 0.0 0.0 0:00.43 rcu_sc+
14 root rt 0 0 0 0 S 0.0 0.0 0:00.08 migrat+
15 root -51 0 0 0 0 S 0.0 0.0 0:00.00 idle_i+
16 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/0
17 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kdevtm+
18 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 netns
19 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 inet_f+
20 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kauditd

Question-4.

1. Display current time and calendar (Hint: use date, cal commands)

2. Change the current date and time of the system to following 14th March 2017, 10:10 AM

3. Explore following commands who, whoami, whatis, whereis, (Hint: use man pages)

```
root@dhiraj-VirtualBox:/home/dhiraj/folderrr#  date
Thursday 10 March 2022 10:15:28 PM IST
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# cal
     March 2022
Su Mo Tu We Th Fr Sa
        1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31
```

```
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# man date
root@dhiraj-VirtualBox:/home/dhiraj/folderrr#  date 031410102017
Tuesday 14 March 2017 10:10:00 AM IST
```

```
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# who
dhiraj   :0           2022-03-10 20:38 (:0)
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# whoami
root
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# whatis ls
ls (1)               - list directory contents
root@dhiraj-VirtualBox:/home/dhiraj/folderrr# whereis dhiraj
dhiraj:
root@dhiraj-VirtualBox:/home/dhiraj/folderrr#
```