Question-1.

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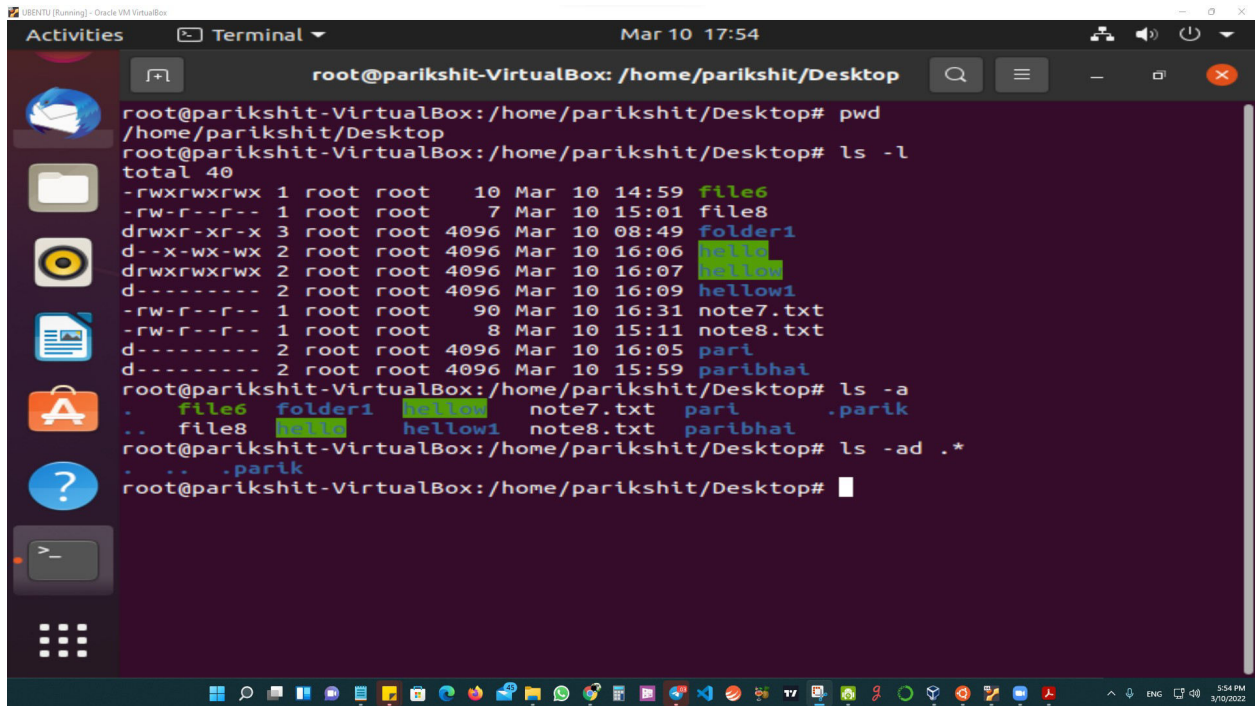(with file permissions,owner,size etc,.).
Explore attributes given in long format e.g. file type, file permissions, file size, file owner etc.
- list all files along with hidden files in current working directory.
- list only hidden files in the directory
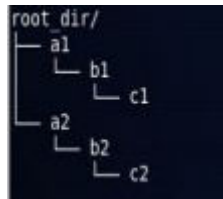(Hint : use pwd , ls, echo commands)

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.
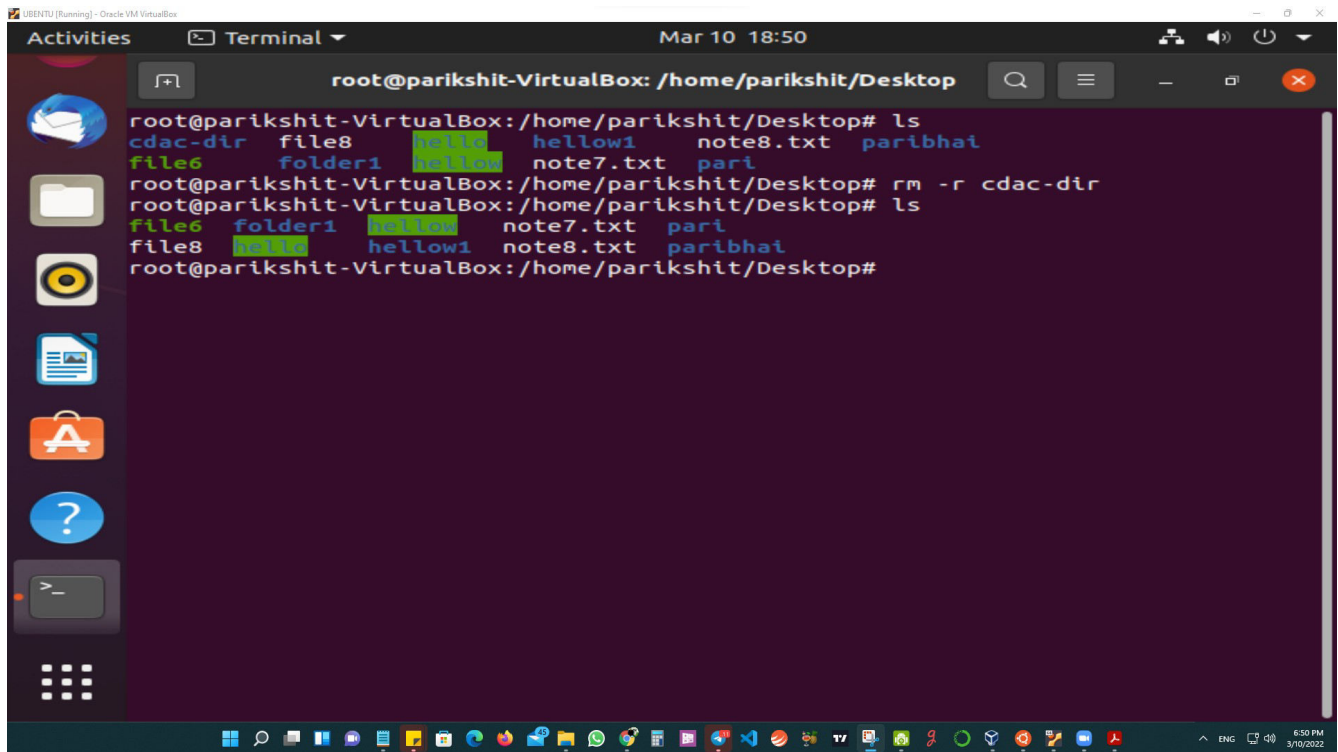
Directory structure 1 Directory structure 2
(Hint : explore man page of **mkdir**).

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).

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.

```
parikshit@parikshit-VirtualBox:~/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
parikshit@parikshit-VirtualBox:~/Desktop$ less temp.txt
parikshit@parikshit-VirtualBox:~/Desktop$ less temp.txt
parikshit@parikshit-VirtualBox:~/Desktop$
```
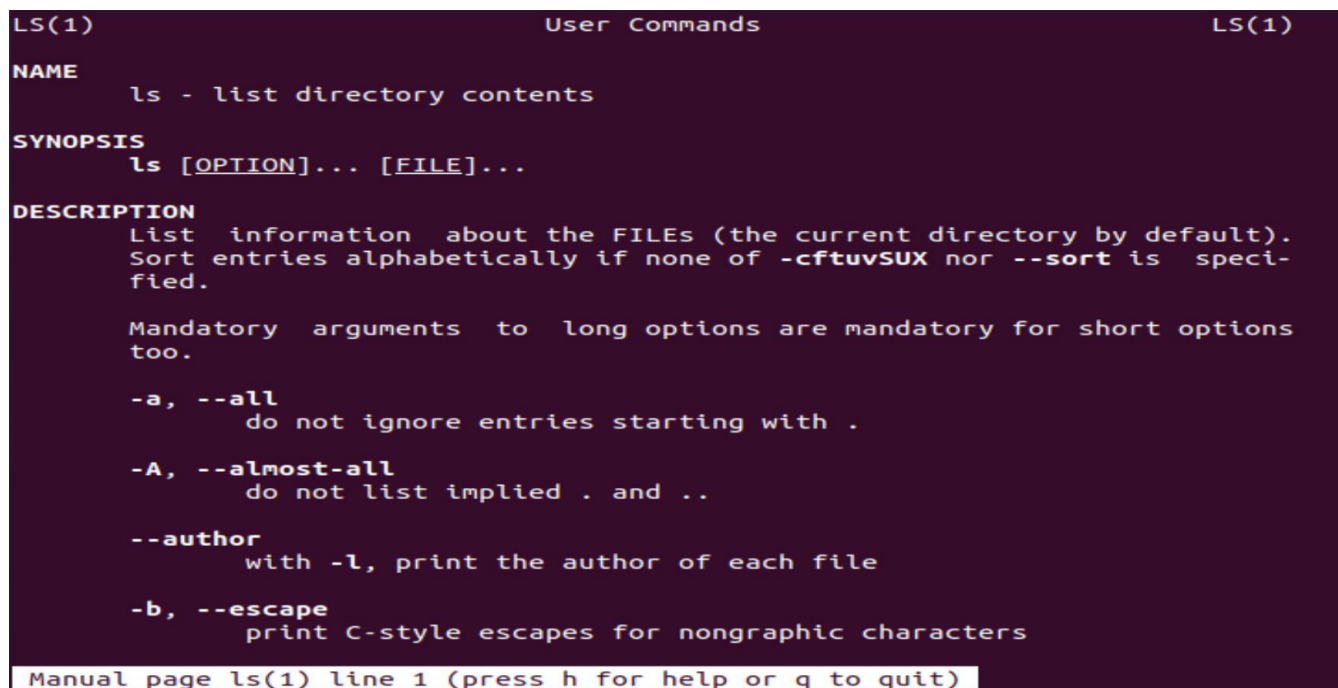
2. Display the initial 10 lines and final 5 lines of **temp.txt** with the obvious Linux commands.(Hint: use **head** and **tail** commands).

```
parikshit@parikshit-VirtualBox:~/Desktop$ head -n 10 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.
parikshit@parikshit-VirtualBox:~/Desktop$
```

```
parikshit@parikshit-VirtualBox:~/Desktop$ tail -n 5 temp.txt
       --author
              with -l, print the author of each file


       -b, --escape
              print C-style escapes for nongraphic characters
parikshit@parikshit-VirtualBox:~/Desktop$
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# cp temp.txt folder1
root@parikshit-VirtualBox:/home/parikshit/Desktop# cd folder1
root@parikshit-VirtualBox:/home/parikshit/Desktop/folder1# ls
folder2  note2.txt  note3.txt  note7.txt  note8.txt  note.txt  temp.txt
root@parikshit-VirtualBox:/home/parikshit/Desktop/folder1# mv temp.txt nottemp.
txt
root@parikshit-VirtualBox:/home/parikshit/Desktop/folder1# ls
folder2  note2.txt  note3.txt  note7.txt  note8.txt  note.txt  nottemp.txt
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop/folder1# wc nottemp.txt
 25  79 649 nottemp.txt
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop/folder1# history 10
  376  ls
  377  rm -r cdac-dir
  378  ls
  379  cp temp.txt folder1
  380  cd folder1
  381  ls
  382  mv temp.txt nottemp.txt
  383  ls
  384  wc nottemp.txt
  385  history 10
root@parikshit-VirtualBox:/home/parikshit/Desktop/folder1#
```

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.

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# tar -tf mytar
folder1/
folder1/nottemp.txt
folder1/note.txt
folder1/note8.txt
folder1/note7.txt
folder1/note2.txt
folder1/note3.txt
folder1/folder2/
folder1/folder2/note1.txt
folder1/folder2/folder3/
folder1/folder2/note.txt
root@parikshit-VirtualBox:/home/parikshit/Desktop#
```

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# tar -cvf mytar folder1
folder1/
folder1/nottemp.txt
folder1/note.txt
folder1/note8.txt
folder1/note7.txt
folder1/note2.txt
folder1/note3.txt
folder1/folder2/
folder1/folder2/note1.txt
folder1/folder2/folder3/
folder1/folder2/note.txt
root@parikshit-VirtualBox:/home/parikshit/Desktop# ls
file6  folder1  hellow    mytar       note8.txt  paribhai
file8  hello    hellow1  note7.txt  pari        temp.txt
root@parikshit-VirtualBox:/home/parikshit/Desktop#
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# zip -r zip folder1/
  adding: folder1/ (stored 0%)
  adding: folder1/nottemp.txt (deflated 46%)
  adding: folder1/note.txt (deflated 11%)
  adding: folder1/note8.txt (deflated 28%)
  adding: folder1/note7.txt (deflated 22%)
  adding: folder1/note2.txt (deflated 7%)
  adding: folder1/note3.txt (stored 0%)
  adding: folder1/folder2/ (stored 0%)
  adding: folder1/folder2/note1.txt (deflated 11%)
  adding: folder1/folder2/folder3/ (stored 0%)
  adding: folder1/folder2/note.txt (stored 0%)
root@parikshit-VirtualBox:/home/parikshit/Desktop# 
```

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# unzip -l zip.zip
Archive:  zip.zip
  Length      Date    Time    Name
---------  ---------- -----   ----
        0  2022-03-10 21:23   folder1/
      649  2022-03-10 21:22   folder1/nottemp.txt
       19  2022-03-09 17:53   folder1/note.txt
       46  2022-03-10 08:53   folder1/note8.txt
        9  2022-03-09 18:06   folder1/note7.txt
       30  2022-03-10 08:43   folder1/note2.txt
       16  2022-03-09 16:54   folder1/note3.txt
        0  2022-03-09 18:19   folder1/folder2/
       19  2022-03-09 16:52   folder1/folder2/note1.txt
        0  2022-03-09 18:18   folder1/folder2/folder3/
        3  2022-03-09 17:50   folder1/folder2/note.txt
---------                     -------
      791                     11 files
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# ls -l
total 68
-rwxrwxrwx 1 root        root         649 Mar 10 21:21 file6
-rw-r--r-- 1 root        root           7 Mar 10 15:01 file8
drwxr-xr-x 3 root        root        4096 Mar 10 21:23 folder1
d--x-wx-wx 2 root        root        4096 Mar 10 16:06 hello
drwxrwxrwx 2 root        root        4096 Mar 10 16:07 hellow
d--------- 2 root        root        4096 Mar 10 16:09 hellow1
-rw-r--r-- 1 root        root       20480 Mar 10 21:42 mytar
-rwxrwxrwx 1 parikshit root          90 Mar 10 16:31 note7.txt
-rw-r--r-- 1 root        root           8 Mar 10 15:11 note8.txt
d--------- 2 root        root        4096 Mar 10 16:05 pari
d--------- 2 root        root        4096 Mar 10 15:59 paribhai
-rw-rw-r-- 1 parikshit parikshit   649 Mar 10 21:14 temp.txt
-rw-r--r-- 1 root        root        2303 Mar 10 21:55 zip.zip
root@parikshit-VirtualBox:/home/parikshit/Desktop# chmod 777 pari
root@parikshit-VirtualBox:/home/parikshit/Desktop# ls -l
total 68
-rwxrwxrwx 1 root        root         649 Mar 10 21:21 file6
-rw-r--r-- 1 root        root           7 Mar 10 15:01 file8
drwxr-xr-x 3 root        root        4096 Mar 10 21:23 folder1
d--x-wx-wx 2 root        root        4096 Mar 10 16:06 hello
drwxrwxrwx 2 root        root        4096 Mar 10 16:07 hellow
d--------- 2 root        root        4096 Mar 10 16:09 hellow1
-rw-r--r-- 1 root        root       20480 Mar 10 21:42 mytar
-rwxrwxrwx 1 parikshit root          90 Mar 10 16:31 note7.txt
-rw-r--r-- 1 root        root           8 Mar 10 15:11 note8.txt
drwxrwxrwx 2 root        root        4096 Mar 10 16:05 pari
d--------- 2 root        root        4096 Mar 10 15:59 paribhai
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# chown parikshit note7.txt
root@parikshit-VirtualBox:/home/parikshit/Desktop# ls -l
total 68
-rwxrwxrwx 1 root        root         649 Mar 10 21:21 file6
-rw-r--r-- 1 root        root           7 Mar 10 15:01 file8
drwxr-xr-x 3 root        root        4096 Mar 10 21:23 folder1
d--x-wx-wx 2 root        root        4096 Mar 10 16:06 hello
drwxrwxrwx 2 root        root        4096 Mar 10 16:07 hellow
d--------- 2 root        root        4096 Mar 10 16:09 hellow1
-rw-r--r-- 1 root        root       20480 Mar 10 21:42 mytar
-rwxrwxrwx 1 parikshit root          90 Mar 10 16:31 note7.txt
-rw-r--r-- 1 root        root           8 Mar 10 15:11 note8.txt
d--------- 2 root        root        4096 Mar 10 16:05 pari
d--------- 2 root        root        4096 Mar 10 15:59 paribhai
-rw-rw-r-- 1 parikshit parikshit   649 Mar 10 21:14 temp.txt
-rw-r--r-- 1 root        root        2303 Mar 10 21:55 zip.zip
```

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@parikshit-VirtualBox:/home/parikshit/Desktop# ps -e
    PID TTY          TIME CMD
      1 ?        00:00:04 systemd
      2 ?        00:00:00 kthreadd
      3 ?        00:00:00 rcu_gp
      4 ?        00:00:00 rcu_par_gp
      5 ?        00:00:03 kworker/0:0-cgroup_destroy
      6 ?        00:00:00 kworker/0:0H-kblockd
      8 ?        00:00:00 mm_percpu_wq
      9 ?        00:00:00 rcu_tasks_rude_
     10 ?        00:00:00 rcu_tasks_trace
     11 ?        00:00:00 ksoftirqd/0
     12 ?        00:00:01 rcu_sched
     13 ?        00:00:00 migration/0
     14 ?        00:00:00 idle_inject/0
     16 ?        00:00:00 cpuhp/0
     17 ?        00:00:00 cpuhp/1
     18 ?        00:00:00 idle_inject/1
     19 ?        00:00:00 migration/1
     20 ?        00:00:00 ksoftirqd/1
     22 ?        00:00:00 kworker/1:0H-events_highpri
     23 ?        00:00:00 cpuhp/2
     24 ?        00:00:00 idle_inject/2
     25 ?        00:00:00 migration/2
     26 ?        00:00:00 ksoftirqd/2
     28 ?        00:00:00 kworker/2:0H-events_highpri
```

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# top

top - 22:13:59 up  1:04,  1 user,  load average: 0.01, 0.03, 0.00
Tasks: 218 total,   2 running, 214 sleeping,   2 stopped,   0 zombie
%Cpu(s):  1.4 us,  0.2 sy,  0.0 ni, 98.3 id,  0.1 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   3925.0 total,   2665.3 free,    661.6 used,    598.0 buff/cache
MiB Swap:    448.5 total,    448.5 free,      0.0 used.   3048.6 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   1465 pariksh+  20   0 5233968 335892 122920 S  26.2   8.4   2:44.00 gnome-+
   1296 pariksh+  20   0  250400  67900  43156 S  11.6   1.7   0:46.94 Xorg
   1798 pariksh+  20   0  816584  51952  38896 S   4.7   1.3   0:17.87 gnome-+
   2312 root      20   0       0      0      0 I   1.0   0.0   0:00.39 kworke+
   1529 pariksh+  20   0  162908   6500   5856 S   0.7   0.2   0:00.59 at-spi+
   1613 pariksh+  20   0  496132  30716  20460 S   0.7   0.8   0:00.69 gsd-po+
     12 root      20   0       0      0      0 I   0.3   0.0   0:02.01 rcu_sc+
   1505 pariksh+  20   0  278056  33148  19492 S   0.3   0.8   0:01.37 ibus-e+
   1601 pariksh+  20   0  570312  30680  20492 S   0.3   0.8   0:00.56 gsd-co+
   1609 pariksh+  20   0  348292  30204  20124 S   0.3   0.8   0:00.56 gsd-ke+
   1612 pariksh+  20   0  903476  32520  21924 S   0.3   0.8   0:00.79 gsd-me+
   1632 pariksh+  20   0  348924  31124  20508 S   0.3   0.8   0:00.59 gsd-xs+
   1683 pariksh+  20   0  640104  61508  45548 S   0.3   1.5   0:00.67 evolut+
   1861 pariksh+  20   0  423656  35972  26340 S   0.3   0.9   0:00.60 update+
   2348 root      20   0   11964   3832   3192 R   0.3   0.1   0:00.02 top
      1 root      20   0  167508  11164   8136 S   0.0   0.3   0:04.09 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.06 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+
```

Question-4.

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# 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@parikshit-VirtualBox:/home/parikshit/Desktop# date
Thursday 10 March 2022 10:15:40 PM IST
root@parikshit-VirtualBox:/home/parikshit/Desktop#
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# date 031410102017.00
Tuesday 14 March 2017 10:10:00 AM IST
root@parikshit-VirtualBox:/home/parikshit/Desktop# mar

Command 'mar' not found, but there are 31 similar ones.

root@parikshit-VirtualBox:/home/parikshit/Desktop# date
Tuesday 14 March 2017 10:10:13 AM IST
root@parikshit-VirtualBox:/home/parikshit/Desktop# █
```

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

```
root@parikshit-VirtualBox:/home/parikshit/Desktop# who
parikshit :0          2022-03-10 21:11 (:0)
root@parikshit-VirtualBox:/home/parikshit/Desktop# whoami
root
root@parikshit-VirtualBox:/home/parikshit/Desktop# whatis la
la: nothing appropriate.
root@parikshit-VirtualBox:/home/parikshit/Desktop# whatis ls
ls (1)               - list directory contents
root@parikshit-VirtualBox:/home/parikshit/Desktop# whereis mkdir
mkdir: /usr/bin/mkdir /usr/share/man/man1/mkdir.1.gz
root@parikshit-VirtualBox:/home/parikshit/Desktop#
```