1. Command to show directory contents

I:

ls

O:

Bui Desktop Documents Downloads examples.desktop Music Pictures Public Templates Videos

2. Get directory listing showing all files in long format

I:

ls -a -l

O:

total 156

drwxr-xr-x 21 cong cong 4096 Feb 23 20:06 .

drwxr-xr-x 3 root root 4096 Feb 22 09:13 ..

-rw------- 1 cong cong 8767 Feb 22 21:54 .bash\_history

-rw-r--r-- 1 cong cong 220 Feb 15 16:53 .bash\_logout

-rw-r--r-- 1 cong cong 3771 Feb 15 16:53 .bashrc

drwxrwxr-x 4 cong cong 4096 Feb 22 21:24 Bui

drwx------ 12 cong cong 4096 Feb 15 17:19 .cache

drwx------ 14 cong cong 4096 Feb 22 20:45 .config

drwxr-xr-x 2 cong cong 4096 Feb 15 18:46 Desktop

drwxr-xr-x 4 cong cong 4096 Feb 22 19:36 Documents

drwxr-xr-x 5 cong cong 4096 Feb 22 21:34 Downloads

-rw-r--r-- 1 cong cong 8980 Feb 15 16:53 examples.desktop

drwx------ 3 cong cong 4096 Feb 23 20:25 .gconf

-rw-rw-r-- 1 cong cong 85 Feb 22 21:50 .gitconfig

drwx------ 3 cong cong 4096 Feb 23 20:06 .gnupg

-rw------- 1 cong cong 2832 Feb 23 20:06 .ICEauthority

drwxrwxr-x 3 cong cong 4096 Feb 15 18:43 .java

drwx------ 3 cong cong 4096 Feb 15 17:07 .local

drwxrwxr-x 3 cong cong 4096 Feb 15 18:42 .matlab

drwx------ 4 cong cong 4096 Feb 15 17:13 .mozilla

drwxr-xr-x 2 cong cong 4096 Feb 15 17:07 Music

drwxrwxr-x 2 cong cong 4096 Feb 20 10:40 .nano

drwxr-xr-x 2 cong cong 4096 Feb 15 17:07 Pictures

-rw-r--r-- 1 cong cong 655 Feb 15 16:53 .profile

drwxr-xr-x 2 cong cong 4096 Feb 15 17:07 Public

drwxrwxr-x 3 cong cong 4096 Feb 15 18:45 .subversion

-rw-r--r-- 1 cong cong 0 Feb 15 17:36 .sudo\_as\_admin\_successful

drwxr-xr-x 2 cong cong 4096 Feb 15 17:07 Templates

-rw-r----- 1 cong cong 5 Feb 23 20:06 .vboxclient-clipboard.pid

-rw-r----- 1 cong cong 5 Feb 23 20:06 .vboxclient-display.pid

-rw-r----- 1 cong cong 5 Feb 23 20:06 .vboxclient-draganddrop.pid

-rw-r----- 1 cong cong 5 Feb 23 20:06 .vboxclient-seamless.pid

drwxr-xr-x 2 cong cong 4096 Feb 15 17:07 Videos

-rw------- 1 cong cong 60 Feb 23 20:06 .Xauthority

-rw------- 1 cong cong 82 Feb 23 20:06 .xsession-errors

-rw------- 1 cong cong 1156 Feb 22 21:54 .xsession-errors.old

3. What do first ten characters represent?

Types and access right to files

4. Assess file system disk usage in human readable format

I:

du

O:

4 ./Public

48 ./.java/fonts/1.7.0\_60

52 ./.java/fonts

56 ./.java

4 ./Desktop

4 ./Music

4 ./.nano

4 ./.config/upstart

4 ./.config/unity

8 ./.config/gtk-3.0

8 ./.config/ibus/bus

12 ./.config/ibus

20 ./.config/dconf

16 ./.config/libaccounts-glib

4 ./.config/gnome-session/saved-session

8 ./.config/gnome-session

20 ./.config/nautilus

84 ./.config/pulse

4 ./.config/update-notifier

8 ./.config/evolution/sources

12 ./.config/evolution

12 ./.config/compiz-1/compizconfig

16 ./.config/compiz-1

224 ./.config

4 ./Templates

4 ./.gnupg/private-keys-v1.d

8 ./.gnupg

4 ./.mozilla/firefox/Crash Reports/events

12 ./.mozilla/firefox/Crash Reports

100 ./.mozilla/firefox/nh5fijj0.default/datareporting/archived/2017-02

104 ./.mozilla/firefox/nh5fijj0.default/datareporting/archived

128 ./.mozilla/firefox/nh5fijj0.default/datareporting

4 ./.mozilla/firefox/nh5fijj0.default/minidumps

1352 ./.mozilla/firefox/nh5fijj0.default/gmp-gmpopenh264/1.6

1356 ./.mozilla/firefox/nh5fijj0.default/gmp-gmpopenh264

4 ./.mozilla/firefox/nh5fijj0.default/storage/permanent/chrome/idb/2918063365piupsah.files

56 ./.mozilla/firefox/nh5fijj0.default/storage/permanent/chrome/idb

64 ./.mozilla/firefox/nh5fijj0.default/storage/permanent/chrome

68 ./.mozilla/firefox/nh5fijj0.default/storage/permanent

4 ./.mozilla/firefox/nh5fijj0.default/storage/default/https+++drive.google.com/idb/830257170ceeglalroo\_ts.files

52 ./.mozilla/firefox/nh5fijj0.default/storage/default/https+++drive.google.com/idb

60 ./.mozilla/firefox/nh5fijj0.default/storage/default/https+++drive.google.com

64 ./.mozilla/firefox/nh5fijj0.default/storage/default

4 ./.mozilla/firefox/nh5fijj0.default/storage/temporary

140 ./.mozilla/firefox/nh5fijj0.default/storage

848 ./.mozilla/firefox/nh5fijj0.default/features/{5ff38c5e-cdd2-4eef-bd53-d7bfe35fd174}

852 ./.mozilla/firefox/nh5fijj0.default/features

4 ./.mozilla/firefox/nh5fijj0.default/crashes/events

12 ./.mozilla/firefox/nh5fijj0.default/crashes

8 ./.mozilla/firefox/nh5fijj0.default/webapps

52 ./.mozilla/firefox/nh5fijj0.default/sessionstore-backups

4 ./.mozilla/firefox/nh5fijj0.default/extensions

4 ./.mozilla/firefox/nh5fijj0.default/saved-telemetry-pings

4 ./.mozilla/firefox/nh5fijj0.default/gmp/Linux\_x86\_64-gcc3

8 ./.mozilla/firefox/nh5fijj0.default/gmp

8 ./.mozilla/firefox/nh5fijj0.default/bookmarkbackups

15468 ./.mozilla/firefox/nh5fijj0.default

15488 ./.mozilla/firefox

4 ./.mozilla/extensions

15496 ./.mozilla

4 ./Videos

4 ./Pictures

360 ./.cache/upstart

20 ./.cache/ibus/bus

24 ./.cache/ibus

1596 ./.cache/mozilla/firefox/nh5fijj0.default/startupCache

4 ./.cache/mozilla/firefox/nh5fijj0.default/cache2/doomed

25356 ./.cache/mozilla/firefox/nh5fijj0.default/cache2/entries

25396 ./.cache/mozilla/firefox/nh5fijj0.default/cache2

36 ./.cache/mozilla/firefox/nh5fijj0.default/thumbnails

8412 ./.cache/mozilla/firefox/nh5fijj0.default/safebrowsing

35452 ./.cache/mozilla/firefox/nh5fijj0.default

35456 ./.cache/mozilla/firefox

35460 ./.cache/mozilla

24 ./.cache/gnome-software/3.20/firmware

28 ./.cache/gnome-software/3.20

32 ./.cache/gnome-software

272 ./.cache/gstreamer-1.0

648 ./.cache/wallpaper

464 ./.cache/thumbnails/large

468 ./.cache/thumbnails

8 ./.cache/logrotate

128 ./.cache/compizconfig-1

4 ./.cache/evolution/tasks/trash

8 ./.cache/evolution/tasks

4 ./.cache/evolution/calendar/trash

8 ./.cache/evolution/calendar

4 ./.cache/evolution/sources/trash

8 ./.cache/evolution/sources

4 ./.cache/evolution/addressbook/trash

8 ./.cache/evolution/addressbook

4 ./.cache/evolution/mail/trash

8 ./.cache/evolution/mail

4 ./.cache/evolution/memos/trash

8 ./.cache/evolution/memos

52 ./.cache/evolution

37476 ./.cache

32 ./Downloads/Assignment 1

20868 ./Downloads/Assignment3

656 ./Downloads/ASEN4057Assignment2

39700 ./Downloads

4 ./Documents/ASEN4519

4 ./Documents/MATLAB

80 ./Documents

4 ./.matlab/R2016a/HtmlPanel

1336 ./.matlab/R2016a

1340 ./.matlab

4 ./.local/share/unity-settings-daemon

284 ./.local/share/zeitgeist/fts.index

1428 ./.local/share/zeitgeist

24 ./.local/share/mime/application

24 ./.local/share/mime/packages

80 ./.local/share/mime

12 ./.local/share/keyrings

4 ./.local/share/nautilus/scripts

8 ./.local/share/nautilus

4 ./.local/share/Trash/expunged

4 ./.local/share/Trash/info

4 ./.local/share/Trash/files

16 ./.local/share/Trash

4 ./.local/share/sounds

4 ./.local/share/previews

24 ./.local/share/icc

76 ./.local/share/gvfs-metadata

4 ./.local/share/evolution/tasks/trash

8 ./.local/share/evolution/tasks/system

16 ./.local/share/evolution/tasks

4 ./.local/share/evolution/calendar/trash

8 ./.local/share/evolution/calendar/system

16 ./.local/share/evolution/calendar

4 ./.local/share/evolution/addressbook/trash

4 ./.local/share/evolution/addressbook/system/photos

32 ./.local/share/evolution/addressbook/system

40 ./.local/share/evolution/addressbook

4 ./.local/share/evolution/mail/trash

8 ./.local/share/evolution/mail

4 ./.local/share/evolution/memos/trash

8 ./.local/share/evolution/memos

92 ./.local/share/evolution

4 ./.local/share/applications

1768 ./.local/share

1772 ./.local

592 ./Bui/Assignments/Assignment\_2/Part\_2/Submission

596 ./Bui/Assignments/Assignment\_2/Part\_2

68 ./Bui/Assignments/Assignment\_2/Part\_1/Submission

72 ./Bui/Assignments/Assignment\_2/Part\_1

672 ./Bui/Assignments/Assignment\_2

4 ./Bui/Assignments/Assignment\_4/Part\_3/Submission

8 ./Bui/Assignments/Assignment\_4/Part\_3

4 ./Bui/Assignments/Assignment\_4/Part\_2/Submission

8 ./Bui/Assignments/Assignment\_4/Part\_2

20 ./Bui/Assignments/Assignment\_4

20868 ./Bui/Assignments/Assignment\_3/Submission

20872 ./Bui/Assignments/Assignment\_3

32 ./Bui/Assignments/Assignment\_1/Submission

36 ./Bui/Assignments/Assignment\_1

21604 ./Bui/Assignments

8 ./Bui/.git/info

12 ./Bui/.git/logs/refs/remotes/origin

16 ./Bui/.git/logs/refs/remotes

8 ./Bui/.git/logs/refs/heads

28 ./Bui/.git/logs/refs

36 ./Bui/.git/logs

44 ./Bui/.git/hooks

8 ./Bui/.git/objects/3c

8 ./Bui/.git/objects/bc

8 ./Bui/.git/objects/d4

16 ./Bui/.git/objects/12

8 ./Bui/.git/objects/40

8 ./Bui/.git/objects/91

4 ./Bui/.git/objects/info

8 ./Bui/.git/objects/c6

8 ./Bui/.git/objects/da

8 ./Bui/.git/objects/a5

152 ./Bui/.git/objects/f0

8 ./Bui/.git/objects/4a

8 ./Bui/.git/objects/98

8544 ./Bui/.git/objects/db

8 ./Bui/.git/objects/99

8 ./Bui/.git/objects/fa

8 ./Bui/.git/objects/88

8 ./Bui/.git/objects/2e

16 ./Bui/.git/objects/ff

8 ./Bui/.git/objects/71

4 ./Bui/.git/objects/pack

8 ./Bui/.git/objects/75

492 ./Bui/.git/objects/b7

8 ./Bui/.git/objects/fc

8 ./Bui/.git/objects/54

8 ./Bui/.git/objects/26

8 ./Bui/.git/objects/6a

8 ./Bui/.git/objects/cd

12 ./Bui/.git/objects/69

8 ./Bui/.git/objects/5e

8 ./Bui/.git/objects/95

68 ./Bui/.git/objects/59

8 ./Bui/.git/objects/e9

8 ./Bui/.git/objects/3d

72 ./Bui/.git/objects/37

8 ./Bui/.git/objects/48

8 ./Bui/.git/objects/93

8 ./Bui/.git/objects/96

8 ./Bui/.git/objects/94

12 ./Bui/.git/objects/b4

8 ./Bui/.git/objects/9f

8 ./Bui/.git/objects/d1

8 ./Bui/.git/objects/79

8 ./Bui/.git/objects/0b

8976 ./Bui/.git/objects/d7

8 ./Bui/.git/objects/87

8 ./Bui/.git/objects/a6

18652 ./Bui/.git/objects

4 ./Bui/.git/refs/tags

12 ./Bui/.git/refs/remotes/origin

16 ./Bui/.git/refs/remotes

8 ./Bui/.git/refs/heads

32 ./Bui/.git/refs

4 ./Bui/.git/branches

18808 ./Bui/.git

40420 ./Bui

8 ./.gconf/desktop/gnome/url-handlers/ftp

8 ./.gconf/desktop/gnome/url-handlers/http

8 ./.gconf/desktop/gnome/url-handlers/https

8 ./.gconf/desktop/gnome/url-handlers/chrome

36 ./.gconf/desktop/gnome/url-handlers

40 ./.gconf/desktop/gnome

44 ./.gconf/desktop

48 ./.gconf

4 ./.subversion/auth/svn.ssl.client-passphrase

4 ./.subversion/auth/svn.username

4 ./.subversion/auth/svn.simple

4 ./.subversion/auth/svn.ssl.server

20 ./.subversion/auth

48 ./.subversion

136772 .

5.

info sleep

info date

info echo

info less

info cat

6. Complete the following tasks:

cd Documents/

mkdir ASEN4519

touch asen4519test.txt

nano asen4519test.txt

chmod 755 asen4519test.txt

ls -al

cat asen4519test.txt

sudo mv asen4519test.txt /home/

cd /home/

ls

sudo mv asen4519test.txt asen4519.txt

ls

sudo rm asen4519.txt

ls

7. Start MATLAB from the command line as a background process.

Matlab &

Top

Once MATLAB has started, return to the command line and use the top com-

mand to assess the most computationally expensive processes running on your

VM. List what percentage of the CPU and memory MATLAB is utilizing. For

this last task, you may need to wait for top to refresh.

compiz

2723 cong 20 0 1257568 209780 72708 S 22.6 5.2 4:54.39 compiz

Return to the MATLAB session and enter the following at the command line:

\tic; a = rand(9973); b = fft(a); toc" List what percentage of the CPU and memory MATLAB is utilizing while MATLAB processing that line, and list the time it takes for MATLAB to run the

commands. Once MATLAB completes the computation, list what percentage of the CPU and memory MATLAB is now utilizing.

2.3% CPU 60% Memory

58.67 seconds

0.7% CPU 62% Memory

Quit MATLAB and restart MATLAB as a background process using the nice

command with a nice argument of \-15". Verify MATLAB is running with a

nice value of -15.

Nice -15 matlab &

Within the \nice'd" MATLAB session, again enter the commands:

\tic; a = rand(9973); b = fft(a); toc"

List how long it takes MATLAB to run the commands. How does this compare

to the run without nice? Is this what you expect? Why?

7.36 seconds

This was a lot faster than when I ran it without nice. This is what I expect because MATLAB is highest prioritized by the operating system.

8. Where is the actual executable for MATLAB? Why can you start it without full path?

/usr/local/MATLAB/R2016a/bin

Because we used symbolic link and this creates an alias in a local bin folder

9. In what directories does shell search for programs to run? Where is that information stored?

Can it be changed?

echo $PATH

/home/cong/bin:/home/cong/.local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin

This information is stored in environment variable $PATH. $PATH can be changed using:

export PATH=[input]

10.

ls /bin /usr/bin | sort -o ~/Documents/usefulprograms.txt

11.

Echo $TERM

Xterm-256color

12.

Echo $EDITOR

Export EDITOR=nano

Echo $EDITOR