/***/

Explore CLI of Linux

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Target: Learn or Revise at least 5 commands everyday

Please feel free to modify this file.

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/***/

Explore CLI of Linux-1: man, help, uname, clear, pwd, cd, ls [7 commands]
Explore CLI of Linux-2: touch, echo, >, cat, less, cp, vi, su, id, whoami, who, w, exit [13 commands]

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Types: There are 3 kinds of users in Linux:

1. superuser: can do almost everything.
2. general user: can do its own tasks and has full control only on its own resources.
3. sudoers: some general users who can perform tasks permitted by superuser or other users

Name:

1. superuser is labeled as 'root'.
2. general users are labeled by userName.
3. sudoers are also labeled by userName but need to write 'sudo' to perform a task

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1. touch: create an empty file.

Command:

```
$ touch fileName
```

Examples:

```
$ touch ExploreLinux/Commands.docx
```

****

2. echo: display a line of text.

Command:

```
$ echo [OPTION] variable/string
```

Examples:

```
$ X=100   [Be Careful!! There will be no space in X=100 ]
$ echo $X
100

$ echo "Linux"
Linux

$ echo X
X
```

****

3. re-directional operator (>): directs the output of a command into a file.

Command:

```
$ command > out.txt
```

Examples:

```
$ echo 'Bangladesh is my motherland.' > file1.txt
$ cat file1.txt
```

Bangladesh is my motherland.

****

4. cat: concatenate files and print on the standard output

Command:

```
$ cat fileName                    [display content of a file]
$ cat file1 file2 file3.... fileN  [concatenate contents of multiple files and display]
```

Examples:

```
$ echo "Bangladesh" > file1.txt
$ echo "Green land" > file2.txt

/**** To display the contents of a file ***/
$ cat file1.txt
Bangladesh

/**** To concatenate two files and display their contents  ***/
$ cat file1.txt file2.txt
Bangladesh
Green land
```

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5. less: view any file and any section of a file quickly

Command:

```
$ less fileName
```

Examples:

```
$ less ExploreLinux/Command.docx
```

Notes:

1. Press 'q' for quit.
2. 'less' does not require the whole file to be loaded in memory to view parts of it.
   Therefore it starts up faster on large files than editors.
3. It can scroll backward and forward.

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6. cp: copy files and directories

Command:

```
$ cp [OPTION] SOURCE DESTINATION
```

Examples:

```
/**** To copy a file from a directory to another directory ****/
$ ls -l Test1
total 4
658458 -rw-rw-r-- 1 sangeeta sangeeta 125 Sep  5 08:59 file1.txt
.....
….....
$ mkdir Test2
$ ls Test2
total 0
$ cp Test1/file1.txt Test2/
$ ls -l Test2
total 4
680312 -rw-rw-r-- 1 sangeeta sangeeta 125 Sep  5 09:26 file1.txt

/**** To make a copy of a directory ****/
$ cp Test2 Test3
cp: omitting directory 'Test2'
```

```
$ cp -r Test2 Test3
$ ls Test3
total 4
-rw-rw-r-- 1 sangeeta sangeeta 125 Sep 12 03:21 file1.txt
```

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7. vi (vim): Vi iMproved, a programmers text editor.

Command:

```
$ vi                [open vi editor for an unnamed file]
$ vi fileName
```

Examples:

```
$ vi ExploreLinux/Commands.docx
```

Notes:

1. A file can be edited only in insert mode. The following characters put us in insert mode as well as:
   (a) i --> Insert at cursor.
   (b) I --> Insert before the cursor.
   (c) a --> Append after cursor.
   (d) A --> Append at end of line.
   (e) o --> Open a new line below the current cursor position.
   (f) O --> Open a new line above the current line.

2. ESC key terminates insert mode.

3. Terminate session:
   (a) :w --> Save (write) changes to current file without quitting.
   (b) :wq --> Save changes to current file and quit.
   (c) :w! --> Save changes to current file overriding the file permissions.
   (d) :q! --> Ignore changes and quit. No changes from last write will be saved.
   (e) :qa --> Quit all files opened.
   (f) :w fileName --> Save changes to a new file of name "fileName" without quitting.
   (g) :e --> Start new edit session on specified file name without closing current vi / vim editor process.

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8. su: become superuser or another user during a login session.

Command:

```
$ su userName
```

Examples:

```
/*** To substitute to a specific user ***/
$ su cse123       [become user 'cse123']
Password:
$ exit

/*** To substitute to the superuser ***/
$ sudo su      [in Ubuntu; no password is necessary]
$ su           [in CentOS; a password is necessary]
```

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9. id: print real and effective user and group IDs.

Command:

```
$ id [OPTION] [USERNAME]
```

Examples:

/**** To show UID and GID of the current logged in user ****/

```
$ id
uid=1000(sangeeta) gid=1000(sangeeta) groups=1000(sangeeta),4(adm),
24(cdrom),27(sudo),30(dip),46(plugdev),113(lpadmin),128(sambashare)
```

/**** To show UID and GID of a specific user****/

```
$ id puchku
uid=1002(puchku) gid=1002(puchku) groups=1002(puchku),27(sudo), 1000(sangeeta)
```

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10. whoami: print active user

Command:

```
$ whoami [OPTIONS]
```

Examples:

```
$ whoami
sangeeta
```

****

11. who: show who are logged on

Command:

```
$ who [OPTION]... [ FILE | ARG1 ARG2 ]
```

Examples:

/********** To show who is logged in **********/

```
sangeeta@sangeeta-Aspire-one-1-131:~/ExploreLinux/NecessaryDocs$ who -a
system boot  2017-09-19 20:23
sangeeta + tty7         2017-09-19 20:23 01:20        1013 (:0)
run-level 5  2017-09-19 20:23
LOGIN      tty1         2017-09-19 20:23              970 id=tty1
ushnika  + tty8         2017-09-19 21:43 01:20       2664 (:1)
puchku   + tty9         2017-09-19 21:43 01:20       3485 (:2)
```

/*** To show the difference between 'who' and 'whoami' ***/

```
sangeeta@sangeeta-Aspire-one-1-131:~$ who
sangeeta tty7         2017-09-19 20:23 (:0)
ushnika  tty8         2017-09-19 21:43 (:1)
puchku   tty9         2017-09-19 21:43 (:2)
sangeeta@sangeeta-Aspire-one-1-131:~$ whoami
sangeeta
sangeeta@sangeeta-Aspire-one-1-131:~$ su puchku
Password:
puchku@sangeeta-Aspire-one-1-131:/home/sangeeta$ who
sangeeta tty7         2017-09-19 20:23 (:0)
ushnika  tty8         2017-09-19 21:43 (:1)
puchku   tty9         2017-09-19 21:43 (:2)
puchku@sangeeta-Aspire-one-1-131:/home/sangeeta$ whoami
puchku
```

Note:

1. 'whoami' shows which user is currently logged on to the active GUI or terminal, whereas 'who' is showing which user(s) is/are logged on to the OS.

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12. w: show who are logged on and what they are doing.

Command:

$ w [OPTIONS] user [...]

Examples:

```
$ w
03:05:55 up 45 min,  1 user,  load average: 0.89, 1.11, 1.01
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
sangeeta tty7     :0               02:20   45:21   2:09   0.37s /sbin/upstart -
```

Notes:

1. From the left to the right, the numbers after 'load average' show the average load over the last one minute, the last five minutes, and the last fifteen minutes.

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13. exit: close a terminal

Command:

```
$ exit
```

SHORT-CUT:

Ctrl + D [in Ubuntu]

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