Linux Practical

1. Manipulating Files and Directories

We can create, delete, copy or move any file or directory using below command:

a) **mkdir:** We can create any directory using **'mkdir'** command.
   Syntax: *mkdir `folder_name`*

b) **touch:** We can create any file using **'touch'** command.
   Syntax: *touch `file_name`*

For example:

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ mkdir this
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 4
drwxrwsr-x 2 denis installation 4096 Mar 27 09:57 this
denis@sf-cpu-387:~/Denis Shingala/Linux$ touch file1.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 4
-rw-rw-r-- 1 denis installation    0 Mar 27 10:02 file1.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 09:57 this
```

c) **cp:** We can copy any file and past it anywhere using **'cp'** command.
Syntax: *cp 'target_file' 'directory_name'*

d) **mv:** We can cut any file or folder and past it anywhere using **'mv'** command.
Syntax: *mv `target_file' 'directory_file'*

Note: When you are working with **folder or directory** that time some time it's throw an error that **'Directory is not empty'** so that time you have to add **'r'** option in both **'cp' and 'mv'** command. It will do whole operation recursively.

For example:

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ cp ./file1.txt ./this/
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -R
.:
file1.txt  this

./this:
file1.txt
```

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ touch file2.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ mv ./file2.txt ./this/
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -R
.:
file1.txt  this

./this:
file1.txt  file2.txt
```

e) **rmdir:** We can delete directory using **'rmdir'** command.

f) **rm:** We can delete file or folder using **'rm'** command. when we used this command to remove directory that time we havr to add **'r'** flag for recursively work.

For example:

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ mkdir this-dummy
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls
file-new.txt  this  this-dummy
denis@sf-cpu-387:~/Denis Shingala/Linux$ rmdir ./this-dummy/
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 4
-rw-rw-r-- 1 denis installation    0 Mar 27 10:02 file-new.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 10:06 this
denis@sf-cpu-387:~/Denis Shingala/Linux$ rmdir ./this
rmdir: failed to remove './this': Directory not empty
denis@sf-cpu-387:~/Denis Shingala/Linux$ rm -r ./this
denis@sf-cpu-387:~/Denis Shingala/Linux$ rm file-new.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 0
```

2. List all file permissions with example

If you want to see permission of any file in current directory that time you have to use **'l'** flag in **ls** command.

In below example **'this'** folder's first column is 'drwxrwsr-x'**.** It is a permission of that file to user.

Here, First let is show that, is it folder or directory? here, 'd' stand for directory. after that first 3 letter use for user, after that 3 letter use for group and remaining are use for other user.

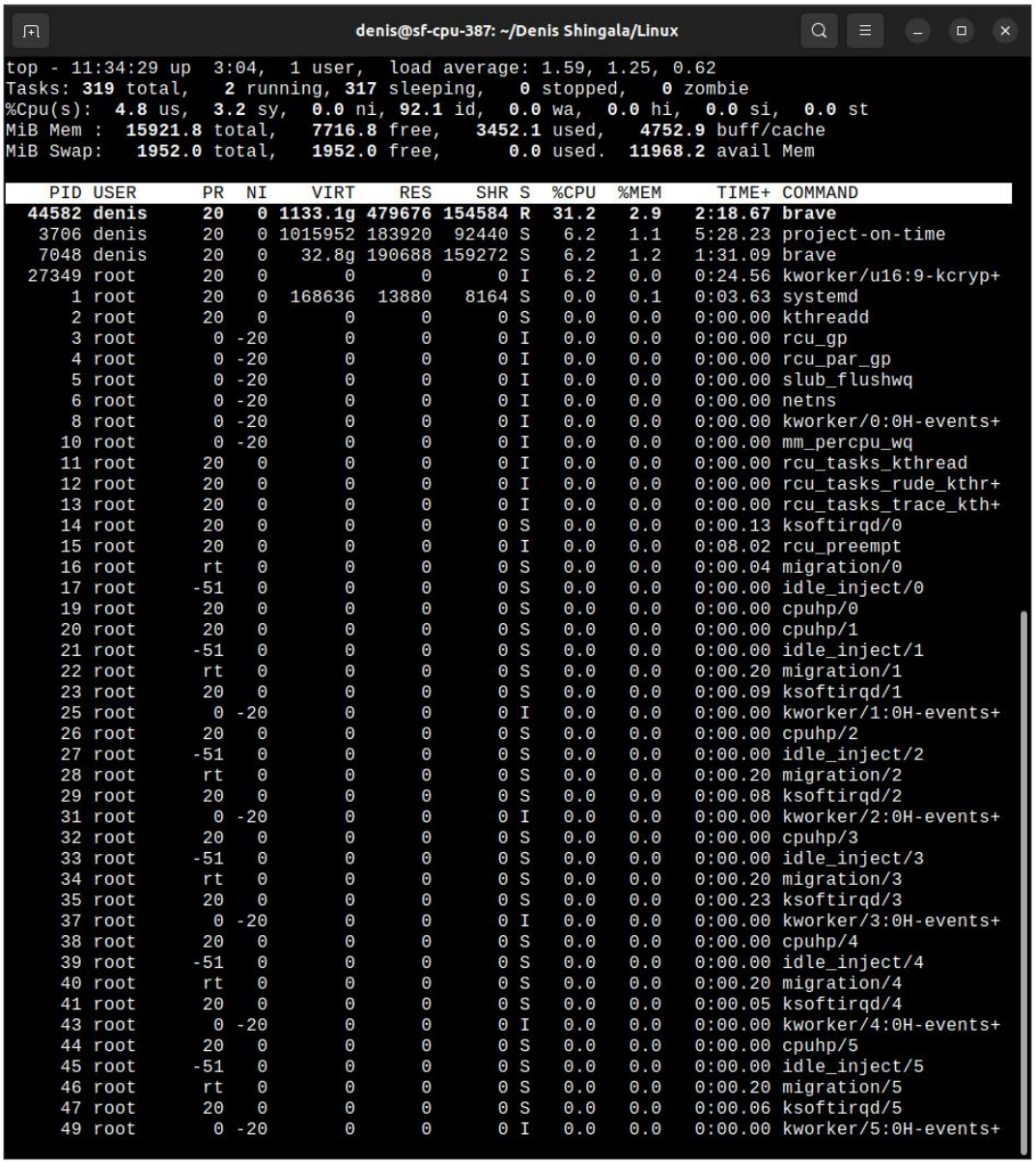
```
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 4
-rw-rw-r-- 1 denis installation    0 Mar 27 11:05 file.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 11:05 this
```

3. List all running process

The ps command allows you to display information about running processes.

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ ps
    PID TTY          TIME CMD
   6805 pts/0    00:00:00 bash
  44182 pts/0    00:00:00 ps
```

Here, it will show static data but if you want to see dynamic data then use **'top'** command for see the all processes of cpu.



4. Find particular process by it's name

You can find the particular process by it's name using **'pidof'** command.It will return all pid(Process id) of that process.

Now, if you want to show it inside all process which is running inside CPU so that you can add filter inside **'top'** command using **'grep'** command.

For example,

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ pidof brave
44630 44596 44582 43205 32516 22851 16367 8164 7301 7199 7048 7006 6990 6909 6897 6886 6861
6859 6858 6847
denis@sf-cpu-387:~/Denis Shingala/Linux$ top | grep 6847
   6847 denis     20   0   32.6g 432844 236928 S   0.3   2.7   2:19.71 brave
```

5. How to kill any particular process

We can kill any process via terminal using **'kill'** command.

Here, is example of kill command. so first of all we have to find the pid of particular process then kill it using kill command.

For example,

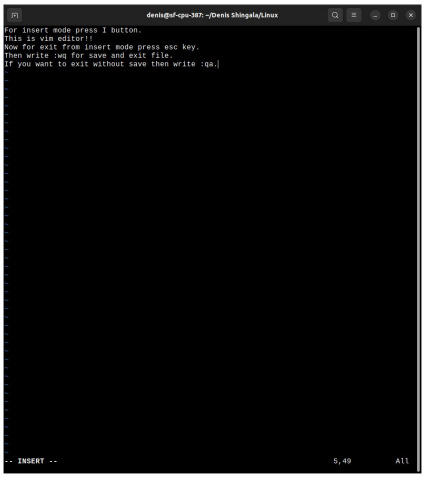
```
denis@sf-cpu-387:~/Denis Shingala/Linux$ pidof brave
47904 44630 44582 43205 32516 22851 16367 8164 7301 7199 7048 7006 6990 6909 6897 6886 6861
6859 6858 6847
denis@sf-cpu-387:~/Denis Shingala/Linux$ kill 6847
```

6. Vi or Vim for file editing

If we want to read or update file then Vim is best tool to manipule file.

We can open file in Vim editor using **'vim'** command.
Here, is a example of vim editor. when you enter inside the vim editor you have to press 'I' for insert mode and write whatever you want.

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ vim file.txt
```



7. Change file owner and group

If you want to change the permission of file then use **'chmod'** command.
Here, is a one file if we want change it's user permission that user should be only read that file then we have use **'chmod u-wx+r {file/directory name}'.**

Syntax: *chmod {person -/+ permission} {file name}*
here, person might be u(user)/ o(other)/ a(all)/ g(group) and 'r' stand for read, 'w' stand for write, 'x' stand for executable.

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ chmod u-x file.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 8
-rw-rw-r-- 1 denis installation  186 Mar 27 12:54 file.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 11:05 this
denis@sf-cpu-387:~/Denis Shingala/Linux$ chmod u-w file.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 8
-r--rw-r-- 1 denis installation  186 Mar 27 12:54 file.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 11:05 this
```

If you want to change the file owner and group then use **'chown'** command in linux.
Note: For that we have to give administrator level permission.

For example,

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 8
-r--rw-r-- 1 denis installation  186 Mar 27 12:54 file.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 11:05 this
denis@sf-cpu-387:~/Denis Shingala/Linux$ chmod u+w file.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 8
-rw-rw-r-- 1 denis installation  186 Mar 27 12:54 file.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 11:05 this
denis@sf-cpu-387:~/Denis Shingala/Linux$ chown install file.txt
chown: changing ownership of 'file.txt': Operation not permitted
denis@sf-cpu-387:~/Denis Shingala/Linux$ sudo chown install file.txt
[sudo] password for denis:
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 8
-rw-rw-r-- 1 install installation  186 Mar 27 12:54 file.txt
drwxrwsr-x 2 denis   installation 4096 Mar 27 11:05 this
```

8. Change group ownership

We can change it using **'chown'** command but we have to write group name after ':' we will see it via example.
Syntax: *chown {user : group} {file name}*

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 8
-rw-rw-r-- 1 denis installation  186 Mar 27 12:54 file.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 11:05 this
denis@sf-cpu-387:~/Denis Shingala/Linux$ sudo chown :denis file.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -l
total 8
-rw-rw-r-- 1 denis denis         186 Mar 27 12:54 file.txt
drwxrwsr-x 2 denis installation 4096 Mar 27 11:05 this
```

9. Moving and Renaming Files

We can cut any file or folder and past it anywhere using **'mv'** command.
Syntax: *mv `target_file' 'directory_file'*

Note: When you are working with **folder or directory** that time some time it's throw an error that **'Directory is not empty'** so that time you have to add **'r'** option in both **'cp' and 'mv'** command. It will do whole operation recursively.

For example:

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls
file.txt  this
denis@sf-cpu-387:~/Denis Shingala/Linux$ mv ./file.txt ./this/moved-file.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -R
.:
this

./this:
moved-file.txt
```

10. Remove Files and Directories

We can rename any file or directory using **'mv'** command.
Here, is a example of that.

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ mv ./file1.txt ./file-new.txt
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -a
.  ..  file-new.txt  this
```

11. List the directory contents

If we want to show the all details of current directory's file then we can see it using **'ls'** command.
Syntax: *ls {option} {directory name}*

There many flag in ls command below you can see.

Option	Long Option	Description
`-a`	`--all`	List all files, even those with names that begin with a period, which are normally not listed (that is, hidden).
`-A`	`--almost-all`	Like the `-a` option above except it does not list `.` (current directory) and `..` (parent directory).
`-d`	`--directory`	Ordinarily, if a directory is specified, `ls` will list the contents of the directory, not the directory itself. Use this option in conjunction with the `-l` option to see details about the directory rather than its contents.
`-F`	`--classify`	This option will append an indicator character to the end of each listed name. For example, a forward slash (/) if the name is a directory.
`-h`	`--human-readable`	In long format listings, display file sizes in human readable format rather than in bytes.
`-l`		Display results in long format.
`-r`	`--reverse`	Display the results in reverse order. Normally, `ls` displays its results in ascending alphabetical order.
`-S`		Sort results by file size.
`-t`		Sort by modification time.

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ ls -lAsh
total 8.0K
4.0K -rw-rw-r-- 1 denis installation  186 Mar 27 12:54 new-file.txt
4.0K drwxrwsr-x 2 denis installation 4.0K Mar 27 13:53 this
```

12. How I can get the path of working directory

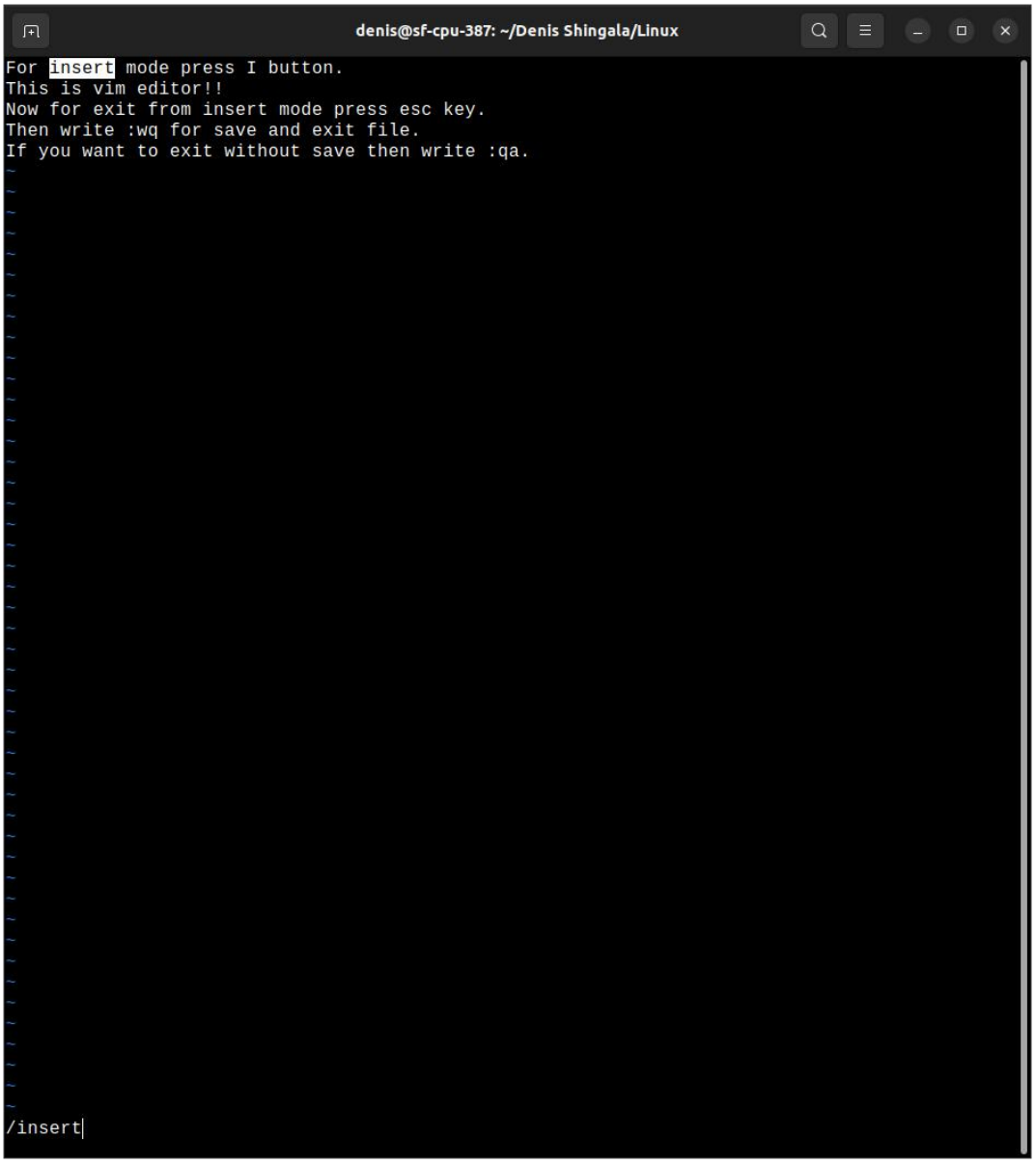
We can see it using **'pwd'** command.

```
denis@sf-cpu-387:~/Denis Shingala/Linux$ pwd
/home/denis/Denis Shingala/Linux
```

13. How to Search in Vim/Vi

If we want to search some pattern inside the file using vim editor then use below syntax:
/{target pattern}

For example:



Note: If you want to search same pattern in whole document then press enter and then press n key it will search it in whole document.

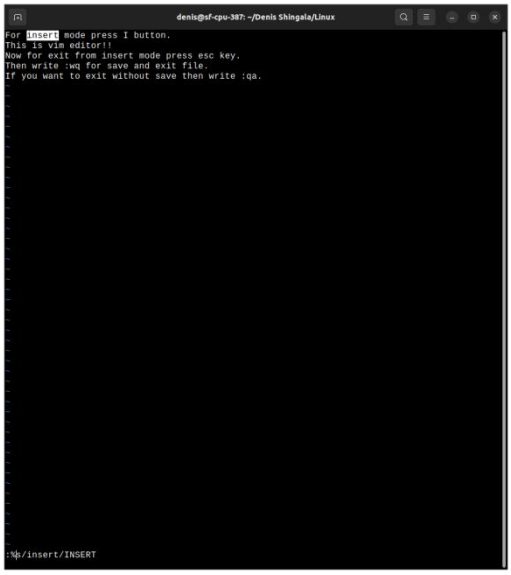
14. How do you do a search and replace in Vim/Vi

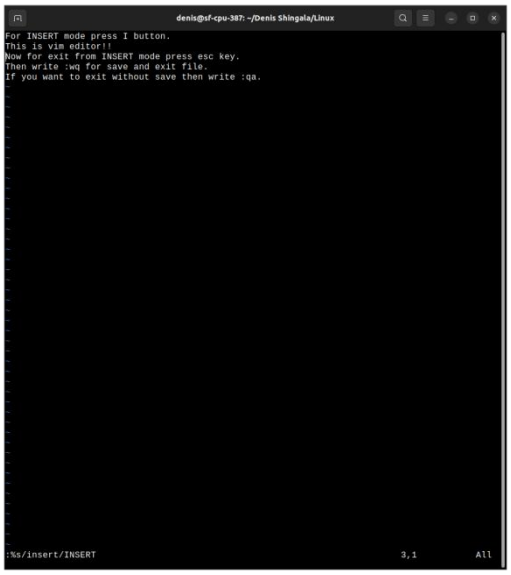
If we want to replace some pattern inside the file using vim editor then use below syntax:
:%s/{target-pattern}/{new-pattern}

here, % for whole document if you want to replace specific line then bring your cursor at that line and use below syntax:
:s/{target-pattern}/{new-pattern}

Press Enter!!

For example,





15. How we can save and exit from Vim/Vi file

If we want to exit with save current changes then use '**esc**' key and write '**:wq**' for save and exit from vim editor.