

# FOSS LAB

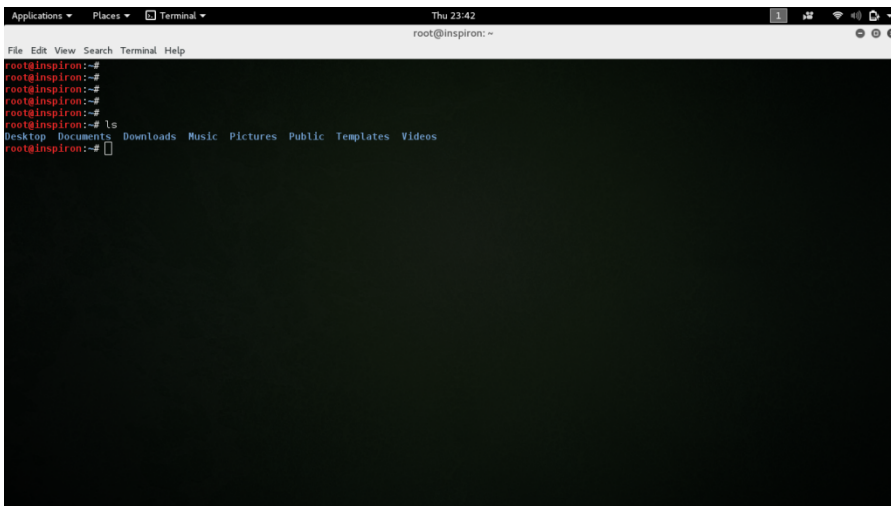
## EXPERIMENT NO: 1

Date : 15/2/2017

### BASIC LINUX COMMANDS , DIRECTORY STRUCTURE AND OPERATIONS

#### LISTING DIRECTORIES :

ls : this command is used to list all the folders and files in the present working directory.

A screenshot of a Linux terminal window. The window title is "Applications ▾ Places ▾ Terminal ▾" and the status bar shows "Thu 23:42" and "root@inspiron: ~". The terminal content shows a series of prompts "root@inspiron:~#" followed by the command "ls". The output of the command is "Desktop Documents Downloads Music Pictures Public Templates Videos".

```
Applications ▾ Places ▾ Terminal ▾ Thu 23:42 root@inspiron: ~
File Edit View Search Terminal Help
root@inspiron:~#
root@inspiron:~#
root@inspiron:~#
root@inspiron:~#
root@inspiron:~# ls
Desktop Documents Downloads Music Pictures Public Templates Videos
root@inspiron:~#
```

The options for ls command are

ls -l : long listing of current directory contents including their permissions.

ls -F : lists the executables and directories separately.

ls -a : lists the hidden directories as well.

# CHANGING DIRECTORIES

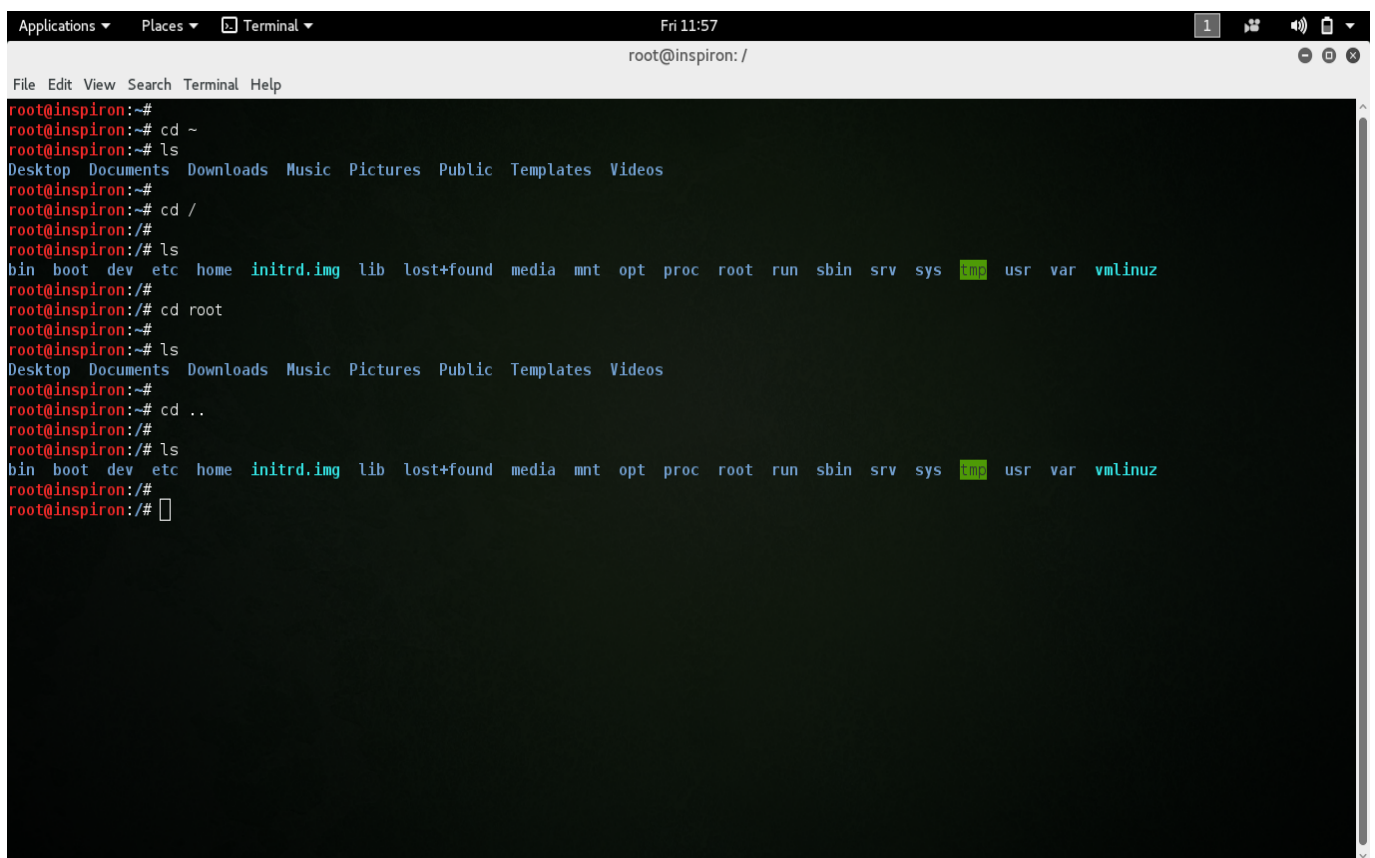
cd : this command is used to change between directories

cd <directory name > - changes the directory

cd .. -changes to the parent directory

cd ~ -changes to the home directory

cd / -changes to the root directory

A screenshot of a Linux terminal window. The window title bar shows 'Applications', 'Places', 'Terminal', and the time 'Fri 11:57'. The terminal content shows a user at the 'root@inspiron:~' prompt. The user enters 'cd ~' and 'ls', which lists standard Linux directories. Then, the user enters 'cd /' and 'ls', which lists system directories like 'bin', 'boot', 'dev', etc. Finally, the user enters 'cd root' and 'ls', which again lists the system directories. The terminal output is as follows:

```
root@inspiron:~#  
root@inspiron:~# cd ~  
root@inspiron:~# ls  
Desktop Documents Downloads Music Pictures Public Templates Videos  
root@inspiron:~#  
root@inspiron:~# cd /  
root@inspiron:~#  
root@inspiron:~# ls  
bin boot dev etc home initrd.img lib lost+found media mnt opt proc root run sbin srv sys tmp usr var vmlinuz  
root@inspiron:~#  
root@inspiron:~# cd root  
root@inspiron:~#  
root@inspiron:~# ls  
Desktop Documents Downloads Music Pictures Public Templates Videos  
root@inspiron:~#  
root@inspiron:~# cd ..  
root@inspiron:~#  
root@inspiron:~# ls  
bin boot dev etc home initrd.img lib lost+found media mnt opt proc root run sbin srv sys tmp usr var vmlinuz  
root@inspiron:~#  
root@inspiron:~#
```

touch : this command is used to create a new file into the directory

mkdir : this command is used to create a new directory into the present working directory

rm            - this command removes a file  
rmdir        - this command removes an empty directory  
rm -r        -this removes a full directory

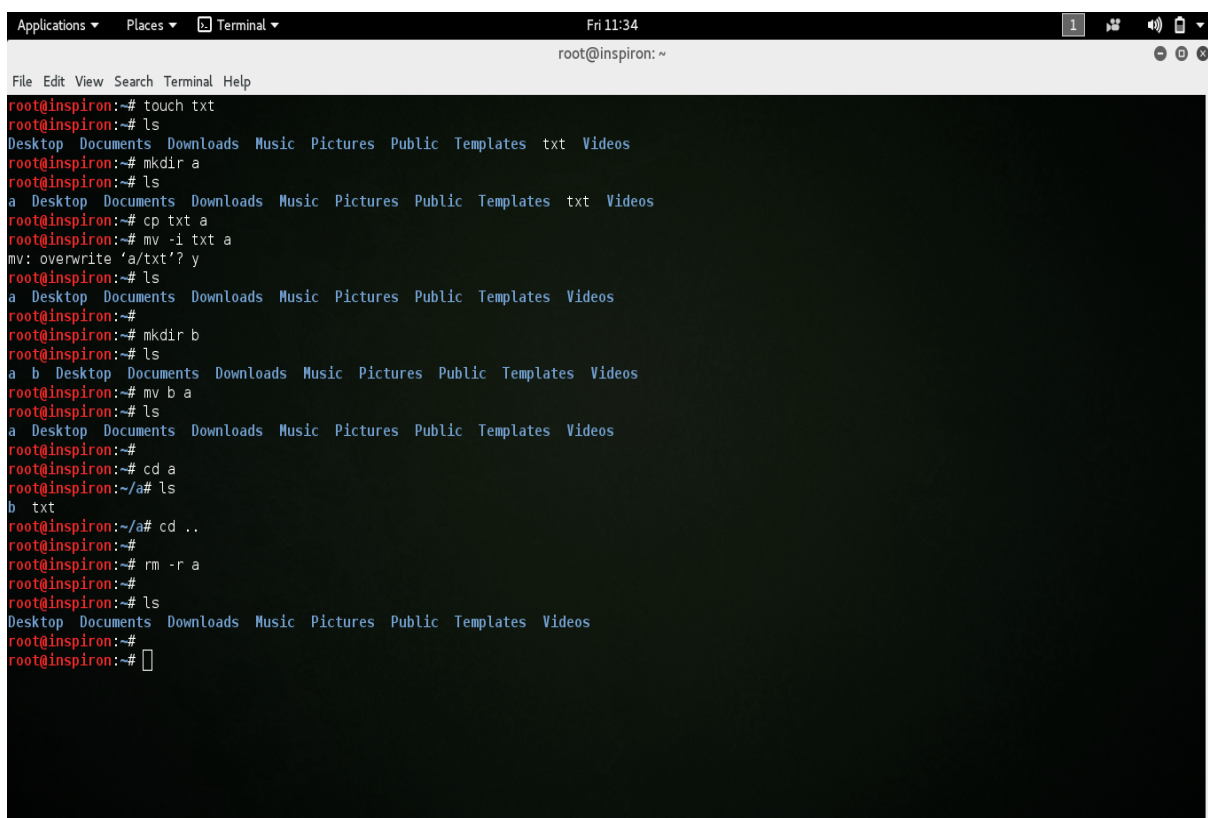
## COPYING AND MOVING DIRECTORIES AND FILES

cp          : this command is used to copy a file into a directory  
cp -r       : this option is used to copy a directory into another directory

mv          : this is used to move a file into a directory. Also used to rename files and folders.

mv -r       : this moves a directory and its subdirectories into another directory

mv -i       : this is used to ask for confirmation before overwriting a file



```
Applications ▾ Places ▾ Terminal ▾ Fri 11:34 1
root@inspiron: ~
File Edit View Search Terminal Help
root@inspiron:~# touch txt
root@inspiron:~# ls
Desktop Documents Downloads Music Pictures Public Templates txt Videos
root@inspiron:~# mkdir a
root@inspiron:~# ls
a Desktop Documents Downloads Music Pictures Public Templates txt Videos
root@inspiron:~# cp txt a
root@inspiron:~# mv -i txt a
mv: overwrite 'a/txt'? y
root@inspiron:~# ls
a Desktop Documents Downloads Music Pictures Public Templates Videos
root@inspiron:~# mkdir b
root@inspiron:~# ls
a b Desktop Documents Downloads Music Pictures Public Templates Videos
root@inspiron:~# mv b a
root@inspiron:~# ls
a Desktop Documents Downloads Music Pictures Public Templates Videos
root@inspiron:~# cd a
root@inspiron:~/a# ls
b txt
root@inspiron:~/a# cd ..
root@inspiron:~# rm -r a
root@inspiron:~# ls
Desktop Documents Downloads Music Pictures Public Templates Videos
root@inspiron:~#
```

# HELP AND MAN

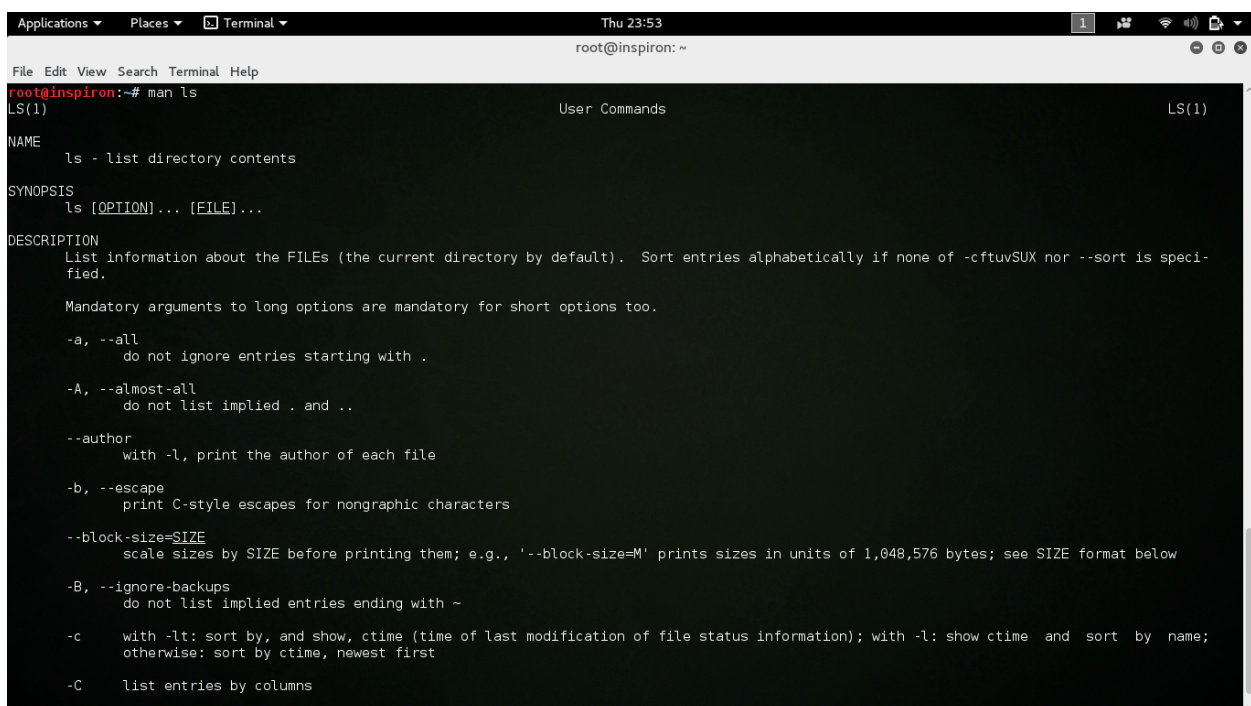
The help and man commands are used to get information about the built in commands in linux

```
root@inspiron:~# help
GNU bash, version 4.3.42(1)-release (i586-pc-linux-gnu)
These shell commands are defined internally.  Type 'help' to see this list.
Type 'help name' to find out more about the function 'name'.
Use 'info bash' to find out more about the shell in general.
Use 'man -k' or 'info' to find out more about commands not in this list.

A star (*) next to a name means that the command is disabled.

job_spec [S]
{[ expression ]}
. filename [arguments]
:
[ arg... ]
{[ expression ]}
alias [-p] [name=value] ... ]
bg [job_spec ...]
bind [-lpsvPSVX] [-m keymap] [-f filename] [-q name] [-u name] [-r keyse>
break [n]
builtin [shell-builtin [arg ...]]
caller [expr]
case WORD in [PATTERN] [PATTERN]...) COMMANDS ;;)... esac
cd [-L][-P [-e]] [-@]] [dir]
command [-pVv] command [arg ...]
compgen [-abcdefgjkuv] [-o option] [-A action] [-G globpat] [-W wordli>
complete [-abcdefgjkuv] [-pr] [-DE] [-o option] [-A action] [-G globpat>
compropt [-o]o option] [-DE] [name ...]
continue [n]
coproc [NAME] command [redirections]
declare [-aAfFgIlNrtux] [-p] [name=value] ...]
dirs [-clpv] [+N] [-N]
disown [-h] [-ar] [jobspec ...]
echo [-neE] [arg ...]

history [-c] [-d offset] [n] or history -anrw [filename] or history -ps>
if COMMANDS; then COMMANDS; [ elif COMMANDS; then COMMANDS; ]... [ else>
jobs [-lnprs] [jobspec ...] or jobs -x command [args]
kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill -l [>
let arg [arg ...]
local [option] name[=value] ...
logout [n]
mapfile [-n count] [-O origin] [-s count] [-t] [-u fd] [-C callback] [->
popd [-n] [+N | -N]
printf [-v var] format [arguments]
pushd [-n] [+N | -N | dir]
pwd [-LP]
read [-ers] [-a array] [-d delim] [-i text] [-n nchars] [-N nchars] [-p>
readarray [-n count] [-O origin] [-s count] [-t] [-u fd] [-C callback] >
readonly [-aAf] [name=value] ...] or readonly -p
return [n]
select NAME [in WORDS ... ;] do COMMANDS; done
set [-abefhkmnptuvwx8CHP] [-o option-name] [--] [arg ...]
shift [n]
shopt [-psu] [-o] [optname ...]
source filename [arguments]
suspend [-f]
test [expr]
time [-p] pipeline
```



```
Applications ▾ Places ▾ Terminal ▾ Thu 23:53 1
root@inspiron: ~
File Edit View Search Terminal Help
root@inspiron:~# man ls
LS(1) User Commands LS(1)

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

--block-size=SIZE
scale sizes by SIZE before printing them; e.g., '--block-size=M' prints sizes in units of 1,048,576 bytes; see SIZE format below

-B, --ignore-backups
do not list implied entries ending with ~

-c with -lt: sort by, and show, ctime (time of last modification of file status information); with -l: show ctime and sort by name;
otherwise: sort by ctime, newest first

-C list entries by columns
```

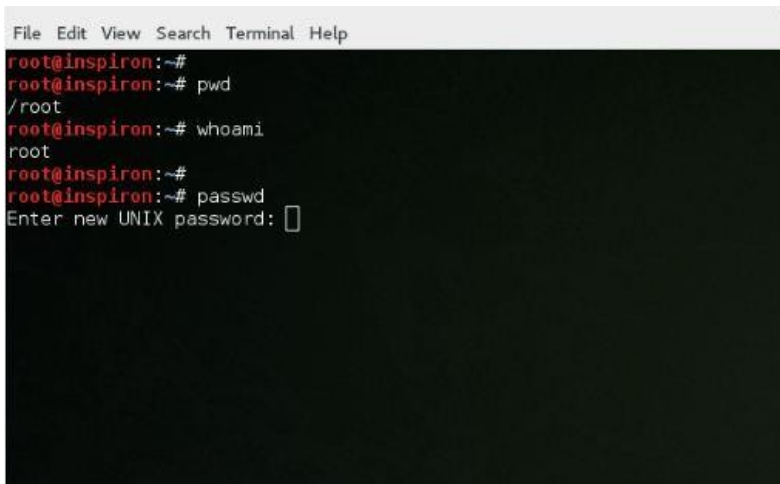
## OTHER COMMANDS

pwd : used to print the present working directory

passwd : used to change the users password

clear : clears the terminal screen

whoami : prints the currently logged in user

A terminal window with a menu bar (File, Edit, View, Search, Terminal, Help) and a dark background. The prompt is root@inspiron:~#. The user enters 'pwd' and the output is '/root'. Then the user enters 'whoami' and the output is 'root'. Finally, the user enters 'passwd' and the prompt changes to 'Enter new UNIX password:' followed by a cursor.

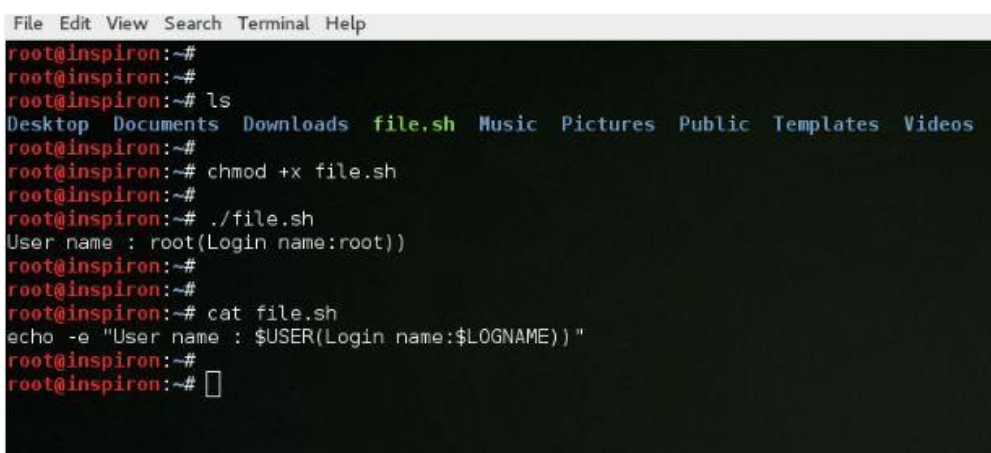
```
File Edit View Search Terminal Help
root@inspiron:~#
root@inspiron:~# pwd
/root
root@inspiron:~# whoami
root
root@inspiron:~#
root@inspiron:~# passwd
Enter new UNIX password: 
```

## EXECUTING A FILE/SHELL SCRIPT

→ cd to the directory containing the file

→ make the file executable using chmod command

→ execute the file

A terminal window with a menu bar (File, Edit, View, Search, Terminal, Help) and a dark background. The prompt is root@inspiron:~#. The user enters 'ls' and the output shows a list of directories including Desktop, Downloads, file.sh, Music, Pictures, Public, Templates, and Videos. Then the user enters 'chmod +x file.sh'. Next, the user enters './file.sh' and the output is 'User name : root(Login name:root)'. Finally, the user enters 'cat file.sh' and the output is 'echo -e "User name : \$USER(Login name:\$LOGNAME))"'.

```
File Edit View Search Terminal Help
root@inspiron:~#
root@inspiron:~#
root@inspiron:~# ls
Desktop Documents Downloads file.sh Music Pictures Public Templates Videos
root@inspiron:~#
root@inspiron:~# chmod +x file.sh
root@inspiron:~#
root@inspiron:~# ./file.sh
User name : root(Login name:root)
root@inspiron:~#
root@inspiron:~#
root@inspiron:~# cat file.sh
echo -e "User name : $USER(Login name:$LOGNAME))"
root@inspiron:~#
root@inspiron:~# 
```



# LINUX DIRECTORY HEIRARCHY

```
File Edit View Search Terminal Help
root@inspiren:/#
root@inspiren:/# cd /
root@inspiren:/#
root@inspiren:/# ls
bin boot dev etc home initrd.img lib lost+found media mnt opt proc root run sbin srv sys tmp usr var vmlinuz
root@inspiren:/#
```

