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Course:	Operating System Laboratory
Course Code:	DJ19CEL403
Experiment No.:	02

AIM: SYSTEM CALLS FOR FILE MANIPULATION

THEORY:

A Linux command is a program or utility that runs on the command line. A command line is an interface that accepts lines of text and processes them into instructions for your computer.

CODE / OUTPUT:

1. pwd

- pwd, short for the print working directory, is a command that prints out the current working directory in a hierarchical order, beginning with the topmost root directory (/).
- To check your current working directory, simply invoke the pwd command as shown.

```
student@ubuntu: ~
student@ubuntu:~$ pwd
/home/student
student@ubuntu:~$ pwd -L
/home/student
student@ubuntu:~$ pwd -P
/home/student
student@ubuntu:~$
```

2. mkdir

- To create a new directory, use the mkdir (make directory) command as follows:

```
student@ubuntu: ~
student@ubuntu:~$ ls
abc      Downloads  file3      meetpatel.txt  os11.txt~  Pictures  Templates
abc~     examples.desktop  file.txt    Music          os12      pqr      test.txt
abc.txt  exp2.png    fruits     nam_1.15-10-ubuntu14_amd64.deb  os_file   Public   Videos
Desktop  file1      home       os1            os_file.txt  sample
Documents file2      lmn.txt    os112.txt~    Os_file.txt  student

student@ubuntu:~$ mkdir my_directory
student@ubuntu:~$
student@ubuntu:~$ ls
abc      Downloads  file3      meetpatel.txt  os112.txt~  Os_file.txt  student
abc~     examples.desktop  file.txt    Music          os11.txt~  Pictures     Templates
abc.txt  exp2.png    fruits     my_directory   os12      pqr         test.txt
Desktop  file1      home       nam_1.15-10-ubuntu14_amd64.deb  os_file   Public      Videos
Documents file2      lmn.txt    os1            os_file.txt  sample

student@ubuntu:~$ mkdir -v -m a=rwx my_directory2
mkdir: created directory 'my_directory2'
student@ubuntu:~$
```



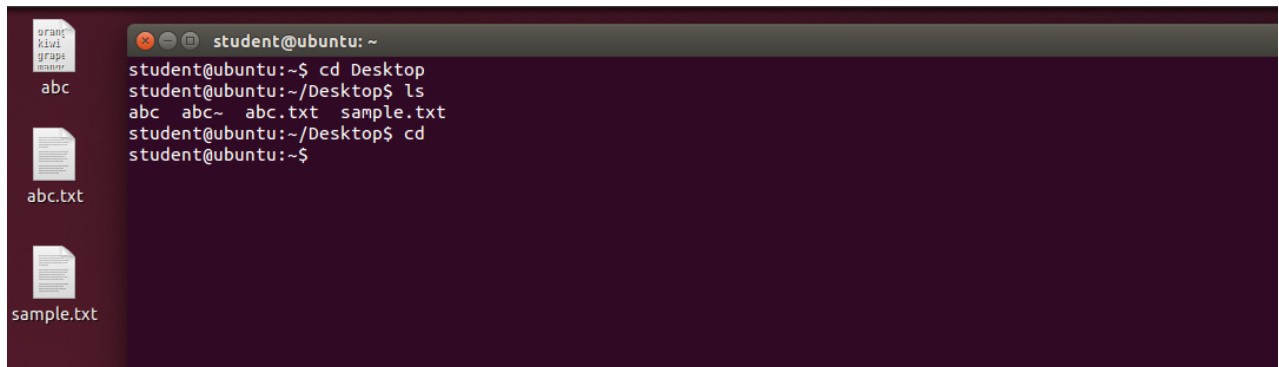
3. ls

- The ls command is a command used for listing existing files or folders in a directory.
- For example, to list all the contents in the home directory, we will run the command.

```
student@ubuntu:~$ ls -F -lh
total 2.7M
-rw-rw-r-- 1 student student 36 Feb 23 02:59 abc
-rw-rw-r-- 1 student student 0 Feb 21 07:05 abc~
-rw-rw-r-- 1 student student 17 Feb 23 02:31 abc.txt
drwxr-xr-x 2 student student 4.0K Feb 21 08:01 Desktop/
drwxr-xr-x 2 student student 4.0K May 19 2022 Documents/
drwxr-xr-x 2 student student 4.0K May 19 2022 Downloads/
-rw-r--r-- 1 student student 8.8K May 19 2022 examples.desktop
-rw-rw-r-- 1 student student 275K Feb 21 00:41 exp2.png
-rw-rw-r-- 1 student student 19 Feb 23 02:09 file1
-rw-rw-r-- 1 student student 21 Feb 23 02:09 file2
-rw-rw-r-- 1 student student 40 Feb 23 02:09 file3
-rw-rw-r-- 1 student student 0 Feb 20 06:27 file.txt
-rw-rw-r-- 1 student student 36 Feb 23 02:58 fruits
drwxrwxr-x 2 student student 4.0K Feb 20 06:06 home/
-rw-rw-r-- 1 student student 26 Feb 22 18:32 lmn.txt
-rw-rw-r-- 1 student student 0 Feb 22 18:39 meetpatel.txt
drwxr-xr-x 2 student student 4.0K May 19 2022 Music/
drwxrwxr-x 2 student student 4.0K Feb 23 03:07 my_directory/
drwxrwxr-x 2 student student 4.0K Feb 23 03:11 my_directory2/
-rw-rw-r-- 1 student student 2.3M Apr 27 2022 nam_1.15-10-ubuntu14_amd64.deb
drwxrwxr-x 2 student student 4.0K Feb 20 06:43 os1/
-rw-rw-r-- 1 student student 0 Feb 21 00:33 os112.txt~
-rw-rw-r-- 1 student student 0 Feb 20 06:26 os11.txt~
drwxrwxr-x 2 student student 4.0K Feb 21 00:37 os12/
-rw-rw-r-- 1 student student 12 Feb 23 02:04 os_file
-rw-rw-r-- 1 student student 9 Feb 23 02:06 os_file.txt
-rw-rw-r-- 1 student student 0 Feb 23 02:02 os_file.txt
drwxr-xr-x 2 student student 4.0K Feb 21 00:22 Pictures/
-rw-rw-r-- 1 student student 9 Feb 23 02:32 pqr
drwxr-xr-x 2 student student 4.0K May 19 2022 Public/
-rw-rw-r-- 1 student student 0 Feb 21 07:57 sample
drwxrwxr-x 2 student student 4.0K Feb 20 06:06 student/
drwxr-xr-x 2 student student 4.0K May 19 2022 Templates/
-rw-rw-r-- 1 student student 11 Feb 23 02:25 test.txt
drwxr-xr-x 2 student student 4.0K May 19 2022 Videos/
student@ubuntu:~$
```

4. cd

- To change or navigate directories, use the cd command which is short for change directory.
- For instance, to navigate to particular directory run the command:
\$ cd *directory_name*
- To go a directory up append two dots or periods in the end.
\$ cd ..
- To go back to the home directory run the cd command without any arguments.
\$ cd



```
student@ubuntu: ~  
student@ubuntu:~$ cd Desktop  
student@ubuntu:~/Desktop$ ls  
abc abc~ abc.txt sample.txt  
student@ubuntu:~/Desktop$ cd  
student@ubuntu:~$
```

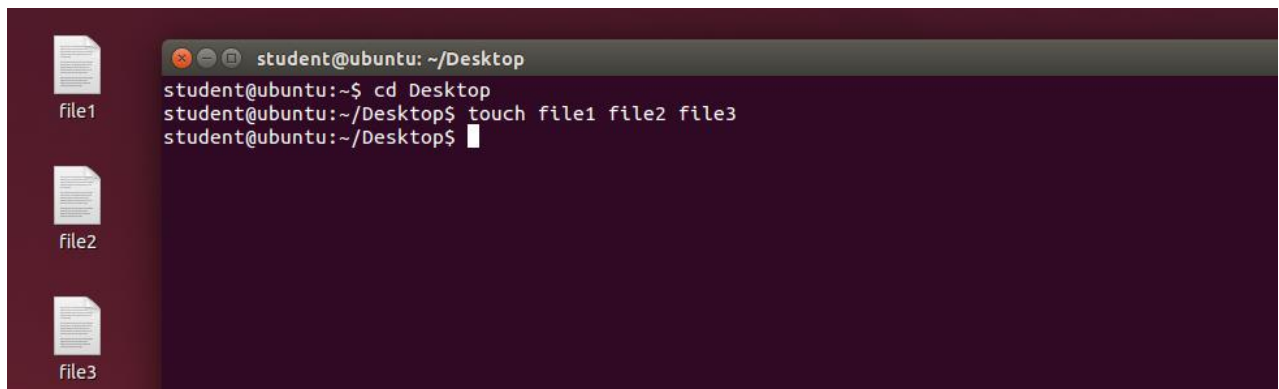
5. rmdir

- The **rmdir** command deletes an empty directory.
- For example, to delete or remove the tutorials directory, run the command:

```
student@ubuntu:~$ rmdir -v my_directory  
rmdir: removing directory, 'my_directory'  
student@ubuntu:~$
```

6. touch

- The touch command is used for creating simple files on a Linux system.



```
student@ubuntu: ~/Desktop  
student@ubuntu:~$ cd Desktop  
student@ubuntu:~/Desktop$ touch file1 file2 file3  
student@ubuntu:~/Desktop$
```

7. cat

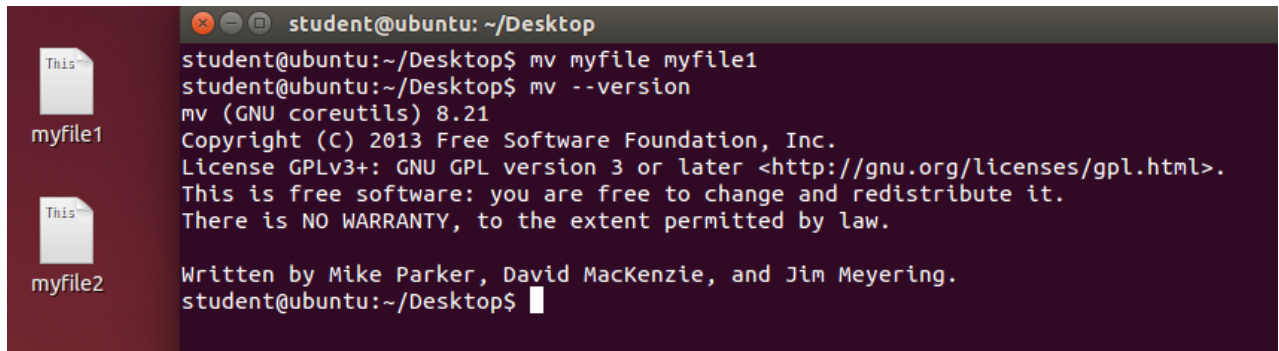
- To view the contents of a file, use the cat command as follows:

```
student@ubuntu: ~/Desktop  
student@ubuntu:~/Desktop$ cat > myfile  
This is file 1  
student@ubuntu:~/Desktop$ cat > myfile2  
This is file2  
student@ubuntu:~/Desktop$ cat myfile myfile2>file3  
student@ubuntu:~/Desktop$ cat file3  
This is file 1  
This is file2  
student@ubuntu:~/Desktop$
```



8. mv

- The mv command is quite a versatile command.
- Depending on how it is used, it can rename a file or move it from one location to another.

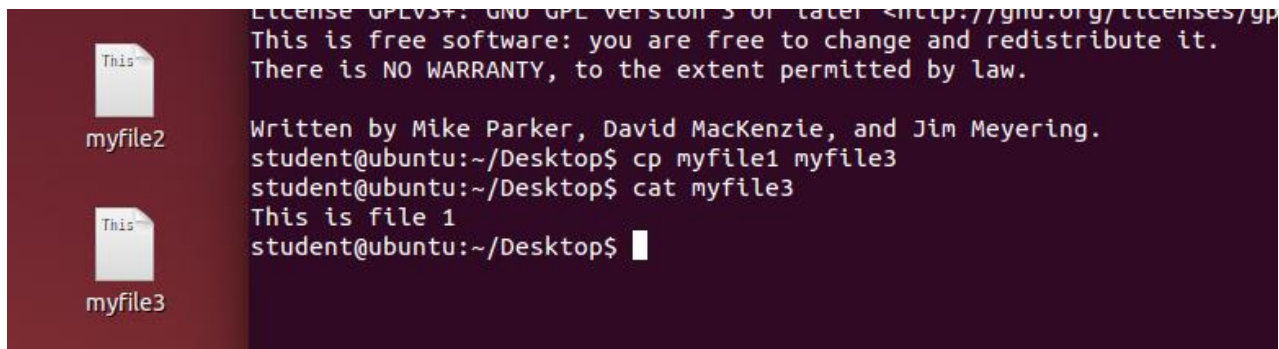


```
student@ubuntu: ~/Desktop
student@ubuntu:~/Desktop$ mv myfile1 myfile2
student@ubuntu:~/Desktop$ mv --version
mv (GNU coreutils) 8.21
Copyright (C) 2013 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Mike Parker, David MacKenzie, and Jim Meyering.
student@ubuntu:~/Desktop$
```

9. cp

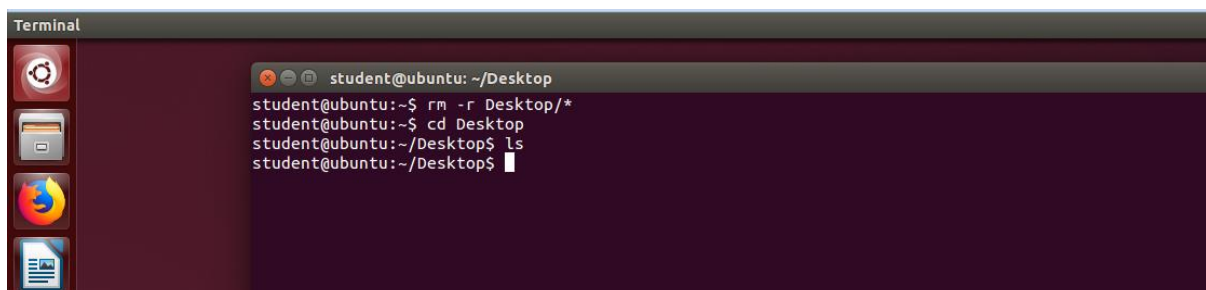
- The cp command, short for copy, copies a file from one file location to another.
- Unlike the move command, the cp command retains the original file in its current location and makes a duplicate copy in a different directory.



```
student@ubuntu:~/Desktop$ cp myfile1 myfile3
student@ubuntu:~/Desktop$ cat myfile3
This is file 1
student@ubuntu:~/Desktop$
```

10. rm

- rm command could be used to delete a file. It will remove the filename file from the directory.



```
student@ubuntu: ~/Desktop
student@ubuntu:~$ rm -r Desktop/*
student@ubuntu:~$ cd Desktop
student@ubuntu:~/Desktop$ ls
student@ubuntu:~/Desktop$
```



List of Commands:

Command	Description
cat	Print the contents of a file
chmod	Change the permissions of a file or directory
chown	Change the owner and group of a file or directory
diff	Show the difference between two files
file	Show the type of a file
less	Browse the contents of a file
locate	Find files with names matching a pattern
tail	Print the last few lines of a file
touch	Create a new file or update an existing one
nano	An interactive file editor

Making a new directory and listing it:

```
$ mkdir prerna diksha
mkdir prerna diksha

export "PS1=$ "

$ ls -l
total 8
drwxr-xr-x 2 webmaster webmaster 4096 Mar  2 22:29 diksha
drwxr-xr-x 2 webmaster webmaster 4096 Mar  2 22:29 prerna
```

Conclusion:

- ✚ Knowing commands and how to use them is important, making the difference between an OK script and a good script.
- ✚ It saves you time in coding if you know what text to extract in one command, instead of using three or four different commands to get the same result.