TRIBHUVAN UNIVERSITY

INSTITUTE OF SCIENCE AND TECHNOLOGY

HIMALAYA COLLEGE OF ENGINEERING

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Lab Report No:- 2

Title:- Exploring Basic's file system commands.

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TITLE: Exploring Basic file system commands

OBJECTIVE:

→ To understand & use basic file system commands in ubuntu, including directory navigation, file manipulation and understanding the concepts of relative and absolute paths.

THEORY:

→ In Unix-like operating systems such as Ubuntu, the command line interface is a powerful tool for interacting with the file system. The commands used in this lab exercise allow users to perform essential tasks like listing files, navigating the directories, creating & removing files and the directories and understanding file paths.

- 'ls' command:

↳ The 'ls' command is used to list the contents of directory. It shows files and directories in the current directory by default. The '-l' option provides a detailed list, including file permissions, number of links, owner, group, size and last the modification time.

- 'pwd' command:

↳ The 'pwd' (print working directory) command displays the current directory's absolute path. It's useful for confirming your location within the file system.

- 'echo' command:

↳ The 'echo' command displays a line of text. when combined with '>', it can be used to create or overwrite a file with provided text.

• cd - command:

→ The 'cd' (change directory) command is used to navigate between directories. The '~' symbol represents the current and parent directories, respectively.

• 'touch' - command:

↳ The 'touch' command is used to create empty files or update the timestamp of the existing files.

• 'mkdir' command:

↳ The 'mkdir' (make directory) command is used to create directories. The '-p' option allows creating nested directories in a single command.

• 'rm' - command:

↳ The 'rm' (remove) command is used to delete files. The '-r' option allows the deletion of directories and their contents recursively.

• 'nano' - command:

→ 'nano' is a text editor used to create & modify text files directly from the terminal.

Relative & Absolute Paths:

• Absolute path:

→ An absolute path is a complete path to a file or directory from the root directory ('/'). It always starts with a '/', which signifies the root of file system. No matter where you are in file system, an absolute path will always

point to the same location. It is like a full address of a location, including the country, state, city and street number.

Example:
suppose you have a file named 'report.txt' located in the 'Documents' directory within your home directory ('/home/surajanshrestha/Documents/').
The absolute path to this file would be:
/home/surajanshrestha/Documents/report.txt

- Relative path:

↳ A relative path, on the other hand, is a path that is relative to the current working directory. It does not start with a '/' and can vary depending on where you are in the file system. Relative paths are useful for navigating the file system without specifying the full path, making commands shorter and more flexible.

Example:
If you are currently in the 'Documents' directory ('/home/surajanshrestha/Documents') and you want to access the 'report.txt' file you can simply use the relative path:-

report.txt

If you are in the 'home' directory ('~/home/surajan shrestha/~'), you can access the 'report.txt' file using relative path:

Documents/report.txt

OBSERVATIONS:-

1, List files:

```
surajan-shrestha@Surajan-Shrestha: $ ls
date.txt                                    xy.txt
          error.txt          surajan
          input.txt          surajan.save
```

- Lists files & directories in current directory.

2, Detailed listing:

```
surajan-shrestha@Surajan-Shrestha: $ ls -l
total 56
-rw-rw-r-- 1 surajan-shrestha surajan-shrestha   34 Jul 12 09:48 date.txt
drwxr-xr-x 4 surajan-shrestha surajan-shrestha 4096 Jul  3 07:46
drwxr-xr-x 2 surajan-shrestha surajan-shrestha 4096 Jun 23 20:06
drwxr-xr-x 2 surajan-shrestha surajan-shrestha 4096 Jun 29 12:49
-rw-rw-r-- 1 surajan-shrestha surajan-shrestha    0 Jul 12 09:40 error.txt
-rw-rw-r-- 1 surajan-shrestha surajan-shrestha    0 Jul 12 09:40 input.txt
drwxr-xr-x 2 surajan-shrestha surajan-shrestha 4096 Jun 23 20:06
drwxr-xr-x 3 surajan-shrestha surajan-shrestha 4096 Jun 29 15:41
drwxr-xr-x 2 surajan-shrestha surajan-shrestha 4096 Jun 23 20:06
drwx------ 7 surajan-shrestha surajan-shrestha 4096 Jun 29 09:00
-rw-rw-r-- 1 surajan-shrestha surajan-shrestha   94 Jul 12 09:32 surajan
-rw-rw-r-- 1 surajan-shrestha surajan-shrestha    4 Jul 12 09:26 surajan.save
drwxr-xr-x 2 surajan-shrestha surajan-shrestha 4096 Jun 23 20:06
drwxr-xr-x 2 surajan-shrestha surajan-shrestha 4096 Jun 23 20:06
drwxrwxr-x 3 surajan-shrestha surajan-shrestha 4096 Jun 23 15:14
-rw-rw-r-- 1 surajan-shrestha surajan-shrestha   34 Jul 12 09:42 xy.txt
```

- provides a detailed listing of files & directories.

3, print working Directory:

```
surajan-shrestha@Surajan-Shrestha: $ pwd
/home/surajan-shrestha
```

- Displays the current directory's absolute path.

4, Create a file with Text:

```
surajan-shrestha@Surajan-Shrestha: $ echo "hello">file.txt
```

- Creates a file named 'file.txt' containing the text "Hello".

5, Change to Home Directory:

```
cd ~
```

- Navigates to the home directory.

6, Change to Downloads Directory:

```
cd downloads.
```

- Navigates to the 'downloads' directory.

7, List all files (including Hidden):

```
surajan-shrestha@Surajan-Shrestha: $ ls -a

.apport-ignore.xml
.bash_history
.bash_logout
.bashrc                 .profile

date.txt
                        .sudo_as_admin_successful
                        surajan
                        surajan.save

error.txt
file.txt

input.txt               xy.txt
```

- Lists all files, including hidden ones (those starting with '.').

8, Navigate and print Directory paths:

```
surajan-shrestha@Surajan-Shrestha: $ pwd
/home/surajan-shrestha
surajan-shrestha@Surajan-Shrestha: $ cd .
surajan-shrestha@Surajan-Shrestha: $ pwd
/home/surajan-shrestha
surajan-shrestha@Surajan-Shrestha: $ cd ..
surajan-shrestha@Surajan-Shrestha:     $ pwd
/home
surajan-shrestha@Surajan-Shrestha:     $ cd ..
surajan-shrestha@Surajan-Shrestha: $ cd ~/Documents
surajan-shrestha@Surajan-Shrestha:          $ pwd
/home/surajan-shrestha/Documents
surajan-shrestha@Surajan-Shrestha:          $
```

- Demonstrates directory navigation using '.' (current directory), '..' (parent directory), and an absolute path to 'Documents'.

9, Create files and Directories:

```
surajan-shrestha@Surajan-Shrestha:          $ touch file1.txt
surajan-shrestha@Surajan-Shrestha:          $ touch ~/Documents/file1.txt
surajan-shrestha@Surajan-Shrestha:          $ touch file{A,B,C}.txt
surajan-shrestha@Surajan-Shrestha:          $ mkdir new_folder
surajan-shrestha@Surajan-Shrestha:          $ mkdir -p x/y/z
surajan-shrestha@Surajan-Shrestha:          $ mkdir "project work"
surajan-shrestha@Surajan-Shrestha:          $ mkdir {Jan,Feb,Mar}_{2020,2021,2022}
```

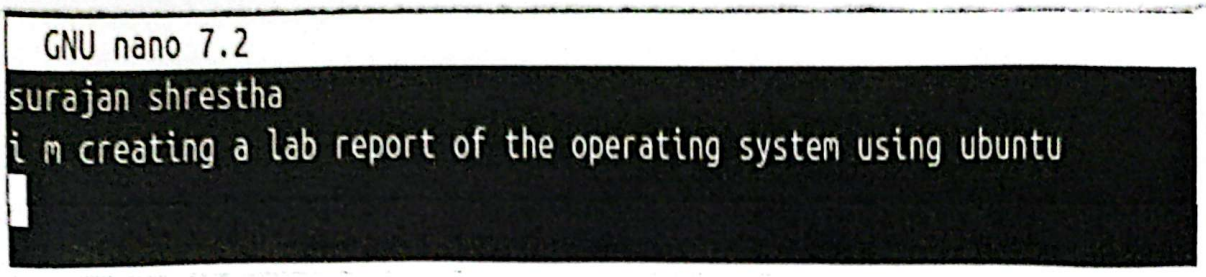
- Creates files and directories using relative and absolute paths, including batch file creation using curly braces {}.

10, Remove files and Directories:

↳ rm deleteme
rm -r deletefolder

- Deletes a file and a directory recursively.

11> Edit a file with Nano:



- open 'old.txt' for editing using the 'nano' text editor.

DISCUSSION:

→ This lab exercise provided hands-on experience with essential file system commands in ubuntu. understanding the difference between relative and absolute paths is crucial for effective navigation & file management. The use of commands like 'ls', 'pwd' and 'cd' allows users to interact with the file system efficiently, while commands like 'touch', 'mkdir' and 'rm' enable file and directory manipulation. Additionally using 'nano' demonstrates how to create and edit text files directly from the terminal.

CONCLUSION:

→ By completing this lab, we gained practical knowledge of file system navigation, file creation and directory management in ubuntu. The ability to differentiate between relative and absolute paths enhances our understanding of file system structure, which is fundamental for any advanced operation in linux based systems.