File and Directory Navigation Commands

When you use a computer, you often have many folders (or directories) to organize your files, just like a filing cabinet with different drawers for different types of documents. To find your way around these folders, you can use commands in the terminal, which is like a command center for your computer. The **"ls" command** is like peeking into a drawer to see what's inside; it lists all the files and folders in the current directory. For example, if you type `ls` while in your home directory, it will show you everything stored there.

Now, if you want to move to a different folder, you use the **"cd" command**, which stands for "change directory." Think of it as walking from one room to another in your house. If you want to go to your Documents folder, you simply type `cd Documents`. If you want to go back to the previous room, you can use `cd ..`, which takes you up one level in the folder hierarchy. This way, you can easily navigate through your files and folders!

Listing your directory contents

`ls` (list) – list files and directories

```
$ ls
Documents Downloads Music Pictures
$ ls Downloads
download1.zip
download2.zip
download3.zip
```

- The ls or "list" command will list the files and directories within a directory. If you enter "ls" in your home directory, you will see all the files and directories that your home directory contains. You can also pass a directory name, such as "Downloads," as a parameter to ls, which will list the contents of your Downloads folder.

Listing your directory contents

ls (list) – list files and directories

```
$ ls -l
-rwxr-xr-x me staff 21 Sep 06:45 assignment-1.txt
-rwxr-xr-x me staff 09 Feb 03:27 assignment-2.txt
-rwxr-xr-x me staff  1 Jan 01:23 notes-1.txt
-rwxr-xr-x me staff  3 Aug 10:03 notes-2.txt
-rwxr-xr-x me staff  7 Nov 16:21 notes-3.txt
-rwxr-xr-x me staff 27 Sep 04:56 notes-4.txt
```

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- The ls command also supports options that will list additional information. Suppose you're currently working in your documents folder, and you want more information about the files within the directory. You can use the ls command with the -l option, which will show child files and directories in a longer, more detailed format. You can see that the terminal has listed all the child files, directories, and additional details, such as permissions, last-modified date, and owner.

Finding your working directory

pwd (print working directory) – get current working directory

```
$ pwd
/Users/me
```

- At times, you may need to know which directory you're currently working in. In these cases, you can use the "print working directory" command to get your current working directory. Enter "pwd" into the command line to use the command. Here you can see that you're currently working in your home directory, "/Users/me."

Navigating your directories

cd (change directory) – change directory

```
$ pwd
/Users/me
$ ls
Documents Downloads Music Pictures
$ cd Documents
$ pwd
/Users/me/Documents
```

- If you want to change your current working directory, you can use the "change directory" command. The "change directory," or cd command, is used to change the directory you are working in. Suppose you're in your home directory and wish to move to a subdirectory within it, such as the Documents folder. Simply enter "cd Documents" to change your working directory. Now, if you enter "pwd," you can see that you're now working in your Documents subdirectory. The cd command enables you to change directories with either a relative or an absolute path.

Relative and absolute navigation

cd (change directory) – change directory

```
$ pwd
/Users/me/Documents/Academics/Math/Notes
$ cd ..
$ pwd
/Users/me/Documents/Academics/Math
$ cd ~
$ pwd
/Users/me
$ cd /Users/me/Documents/Academics/Math/Notes
$ pwd
/Users/me/Documents/Academics/Math/Notes
```

- Let's say you're in a "Notes" folder within your "Documents" directory tree. To get to the parent directory relative to your current folder, enter the cd command with the relative path symbol ".." as its argument. Now your working directory is "Math," the immediate parent directory of your "Notes" folder. If you want to navigate directly to your home folder, use the tilde symbol with the cd command. This will take you to your home folder. In this case, the tilde symbol represents an absolute path to home. Finally, you can also provide a full path to a directory. Here you are referring to the absolute pathname for the original "Notes" directory. As expected, this command will take you back to the "Notes" folder where you started.

Finding files

`find` – find files in directory tree
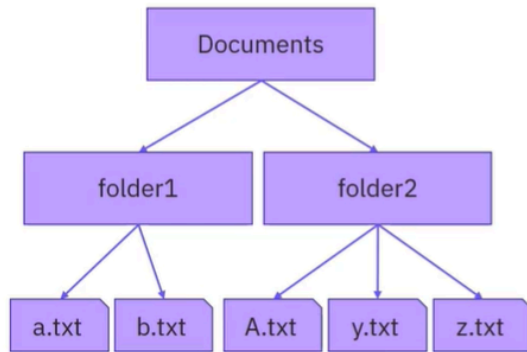

```
$ pwd
/Users/me/Documents
$ find . -name "a.txt"
./folder1/a.txt
$ find . -iname "a.txt"
./folder1/a.txt
./folder2/A.txt
```

- Lastly, the "find" command is a powerful tool that will return the path to every file that matches a user-specified criterion. Suppose your "Documents" folder has a file structure as shown, two subfolders, each containing a few files. Let's say you're working in your "Documents" folder and want to find the paths of all files named "a.txt" within your working directory. To do so, type "find . -name 'a.txt'." The "." argument means "search within here," so the command will only search within your current working directory. To perform a case-insensitive version of your search, you can use the "-iname" option instead. You'll see that you find the same file, plus another file with the same name but with an uppercase "A."