# Read Chapter 4 Assignment

Read Chapter 4 and answer the following questions:

Pick five file-related commands from the chapter and explain what you would use them to do on a linux system.

1 . ls  
ls is a Linux shell command that lists directory contents of files and directories of current working directory. With some clever pipes, you can list on filenames, sub-directories, links, etc.

2 . cp  
cp stands for copy. This command is used to copy files or group of files or directory. It creates an exact image of a file on a disk with different file name. cp command require at least two filenames in its arguments. I use this one A LOT especially for backups of files and/or directories before I do something permanent, like rm -Rf of a directory tree.

3 . mv  
mv stands for move. mv is used to move one or more files or directories from one place to another in file system like UNIX. It has two distinct functions:  
(i) It rename a file or folder.  
(ii) It moves group of files to different directory.No additional space is consumed on a disk during renaming. This command normally works silently means no prompt for confirmation.  
I use this one for RENAMING files or directories mostly.

4 . tar  
The Linux ‘tar’ stands for tape archive, is used to create Archive and extract the Archive files. tar command in Linux is one of the important command which provides archiving functionality in Linux. We can use Linux tar command to create compressed or uncompressed Archive files and also maintain and modify them.  
I use mostly the following options in two scenarios:  
(i) options “ cvf “  
$ tar -cvf ARCHIVE\_FILE.tar ./SUB-DIR  
This will create and uncompressed a “tarball” file called ARCHIVE\_FILE.tar . The contents of the newly created ARCHIVE\_FILE.tar tarball is all files and subdirectories inside of pwd’s SUB-DIR folder. I prefer to do the compression separate depending upon available/better/slower-or-faster compression tools. Hence, why there is no “ z ” option invoked.  
(ii) options “ xvf “  
$ tar -xvf ARCHIVE\_FILE.tar  
This command extracts files from Archives. This will extract all contents of “tarball” file called ARCHIVE\_FILE.tar and place into current working directory. Again, I prefer to do the compression separate depending upon available/better/slower-or-faster compression tools. Hence, why there is no “ z ” option invoked.

5 . find / locate / tree (yes not in chapter 4 but STILL relevant)   
. find:  
The find command in UNIX is a command line utility for walking a file hierarchy. It can be used to find files and directories and perform subsequent operations on them. It supports searching by file, folder, name, creation date, modification date, owner and permissions. By using the ‘-exec’ other UNIX commands can be executed on files or folders found.  
 EXAMPLE with POWER OF -exec OPTION:  
$ find ./ -type f -name "\*.txt" -exec grep -l 'Geek' {} \;  
This will search text within multiple files.  
OUTPUT:  
FILE ###: Hello Geek!  
FILE xyz: This is a sample Geeks for Geeks documents.  
  
. locate:  
The locate command is often the simplest and quickest way to find the locations of files and directories on Linux and other Unix-like operating systems.  
The locate command is faster vs. find command. However, there is a cost.  
Cost 1. “The locate tool is far less sophisticated in its search options. You normally use it to search only filenames. The program returns all files that contain the specified string. For instance, when searching for “rpm”, locate will return other programs, like gnorpm and rpm2cpio. [FROM TEXTBOOK]”  
Cost 2. “The locate program works from a database that it maintains. Most distributions include a cron job that calls utilities to update the locate database. This jobs runs periodically, such as once a night or once a week. For this reason, locate may not find recent files, or it my return that names of files that no longer exist. However, you can use the updatedb command, which is configured via the /etc/updatedb.conf file, to do this task at any time. Keep in mind, if the database-update utilities omit certain directories, files in those directories won’t be returned by a locate query. [FROM TEXTBOOK]”  
However, below is details of why using locate command is WORTH THE COSTS…  
WHY TO USE locate. “Because located works from a database, it’s typically MUCH FASTER than find, particularly on system-wide searches. It’s likely to return many false alarms, though, especially if you want to find a file with a short name. To use, type locate search-string, where search-string is the string that appears in the filename.  
  
. tree (yes not in chapter 4 but STILL relevant):  
This produces visual tree-text picture of the file structure hierarchy in tree format.  
In UNIX/LINUX systems, as well as MS-DOS and Microsoft Windows, tree is a recursive directory listing program that produces a depth-indented listing of files. With no arguments, tree lists the files in the current directory. When directory arguments are given, tree lists all the files or directories found in the given directories each in turn. Upon completion of listing all files and directories found, tree returns the total number of files and directories listed. There are options to change the characters used in the output, and to use color output.

See next page for example.

EXAMPLE BELOW OF tree USAGE:  
$ tree -a ./GFG   
./GFG  
|  
+---- demo1/  
| |  
| +---- sample1.txt  
| |  
| +---- sample2.txt  
|  
+---- demo2/  
| |  
| +---- demo.txt  
| |  
| +---- sample.txt  
|  
+---- demo3/  
 |  
 +---- demo1.txt  
 |  
 +---- demo2.txt  
  
  
  
Also, one could use Midnight Commander instead for tree command.  
GNU Midnight Commander is a visual file manager, licensed under GNU General Public License and therefore qualifies as Free Software. It's a feature rich full-screen text mode application that allows you to copy, move and delete files and whole directory trees, search for files and run commands in the subshell. Internal viewer and editor are included.  
  
Midnight Commander is based on versatile text interfaces, such as Ncurses or S-Lang, which allows it to work on a regular console, inside an X Window terminal, over SSH connections and all kinds of remote shells.  
  
This site hosts the new home of the Midnight Commander. The main project repository has been moved from Savannah to a new Git repository hosted on GitHub.  
See: <https://midnight-commander.org/>

SO…..

If I am doing BIG system-wide stuff: use locate command  
  
If I am doing local development 5 levels of directory tree depth-ness: use find command  
  
If I am doing between small-local and BIG system-wide stuff: use tree command and Midnight Commander