Managing Linux Directories and files.

* Linux directory hierarchy -

* files and directories are arranged logically in an inverted tree structure.
* The root directory generally contains the following sub-directories.

/bin	Linux executable commands
/boot	Contains files required for the Linux boot process, including the kernel image(s)
/dev	system devices (terminals, disks, Tape etc)
/etc	system information and configuration
/home	Directories where individual accounts for local machine are stored.
/lib	programming and system libraries
/lost+found	When the file system can not properly identify files they are placed in this directory
/lu* (eg lu101, lu102, lu202, ...)	Directories where individual IT user accounts are stored. Note: these directories are actually mapped to the /m* directories (e.g: m1, m2, m3...)
/m* (eg. m1, m2, m3..)	Directories where individual IT user accounts are stored
/misc	Miscellaneous program
/mnt	Mounting point for temp. file systems

/opt — Contains random data that has no other logical destination

/proc — contains information about the kernel and running processes.

/root — The root user's (system administrator's) home directory

/sbin — Linux executable commands like /bin, but generally reserved for the root user (system administrator)

/scratch — Temporary work space for users.

/tmp — Temporary work space for programs

/usr — Directories containing additional commands, libraries, and system information

/var — contains files of variable file storage which are constantly being written to or changed (e.g. printing queues, mail spoolers, system logs, web pages)

Linux directories and file naming conventions

Rules:
* A file or directory name can have from 1 to 256 characters in length
* Linux is case sensitive - uppercase characters are different from lowercase characters
* file or directory names can include letters, numbers, and the following special characters:

period (.), underscore (_) and dash (-)

* The special character comma (,) quates (', '', or `) slash (/), blackslash (\) and space can be used in file or directory names

* Linux provides two wildcard characters to represent ambiguous characters or strings in file or directory names:

* The question mark (?) represents any single characters

  e.g. ls file?.txt

* The asterisk (*) represents any string of zero or more characters

  e.g. ls file*.txt

Linux directory -

* The directory you are working in at any given point is called your current or working directory.

Type: ← to print the name of your working directory

O/P → /lu101/username

pwd ← path name of your working directory

O/P → username

File locking → is a mechanism that restricts access to a computer file by only allowing one user or process access at any specific time.

ex.
1. process A reads a customer record from a file containing account information, including the customer's account and phone no.
2. process B now reads the same record from the same file so it has its own copy.
3. process A changes the account balance in its copy of the customer record and writes the record back to the file.
4. process B - which still has the original stale value for the account balance to the file, causing the changes made by the process A to be lost.
5. process B - which still has the original stale value for the account balance in its copy of customer record updates the customer's ph. No. and writes the customer record back to file.

Solution → * Serialization * record locking

Linux → * Linux 2.4 and later added notification of external changes to files with dnotify mechanism (through the F_NOTIFY parameter in fcntl).

* Linux also support mandatory locking through the special "mount(8) -o mand" parameter for filesystem mounting.