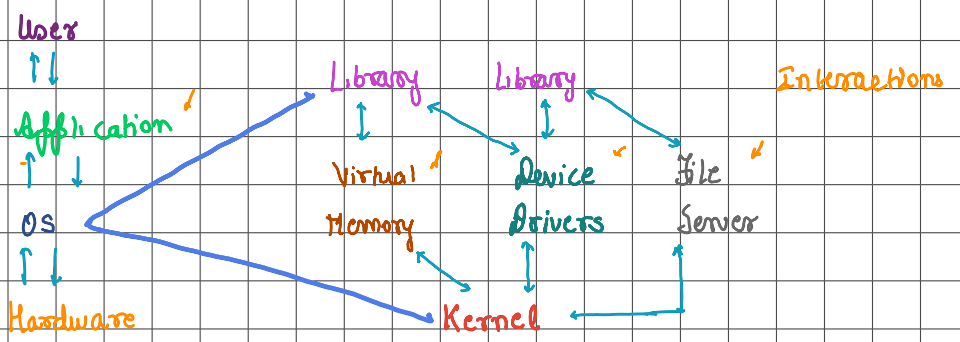
Intro to Linux Shell

- Kernel is the 1st layer of abstrac^n that insulates software from hardware. Shell is a program used to access the kernel.



GNOME file manager = Nautilus (Ubuntu)

Linux kernel & github = Linus Torvalds

- A Terminal is a wrapper program that runs a shell that allows us to enter cmnds. Shell is the outermost layer around the OS.

- 1st version of Unix was developed by Ken Thompson & Dennis Ritchie at bell labs in 1969

- C lang was developed for creating unix like OS.
- Multitasking OS, supports simultaneous multi-user
- Built to simultaneously run thousands of programs
- The variant of unix is a/a Linux (Linus Torvalds)
- Mac & iOS r based on BSD (unix variant) = Berkeley Software Dist^n
- Android is Linux derivant

Owner user/grp others

③ ② ②

- Gives Granular control

- Everything is a file in Linux

- drwxrwxr-x 2 her her 4096 Jan 20 14:47 sample

links, owner, size, date, time of creation, name of dir, grp owner

d → dir

rwx → read, write, execute (owner permissions)

rwx → r,w,e (users permissions)

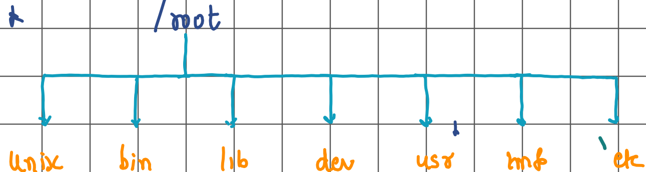
r-x → r, e (other's permissions)

- mkdir, rmdir, cd, ls, touch, cat, vi, rm, mv, cp, wc, sort, cut

- Abs path = Starting from root till target

Relative " = " " that current folder where you're

- /root

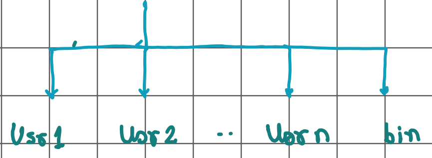


bin: binary executable files

lib library func file

dev: related to I/O devices like printer, terminal, disk drives

usr: sub-dirs associated with particular user Contains bin dir



which contain additional UNIX cmnd file
tmp temp files created by OS or by users
etc: binary executable files related to sys admin
unix: files related to kernel

Week - 02

Library ⇒ Each
1 book = 1 file

Hard Links = It's like having multiple copies of the same book placed in diff spots in the library. These 'copies' r actually jst extra entries in the library's catalog (dir), that all point to the same physical book. If u del one 'copy', the book is still available through other entries.
All hard links to a file share the same content. Deleting one hard link doesn't remove the content as long as other hard links exist.

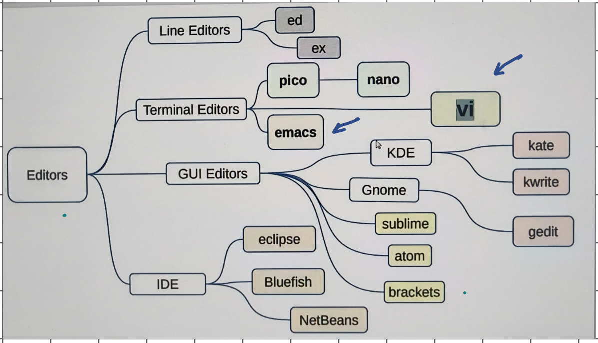
Soft / Symbolic Links = It's like having a magical note that points to a specific book's loc. in the lib. If we follow this note, you'll find the book. If the book is moved or removed, the note (soft link) won't find the book anymore & becomes a dead link.
→ It's a shortcut to the org file. If the file is moved or deleted, the soft link breaks.

Inodes = It's like a detailed card in the lib's catalog that keeps all the imp info abt a book, author, #pages, where it's stored. Each file (book) has its own inode card; which doesn't include the file's name but has its metadata (details).
It stores metadata abt files, not their names. The dir. entries link file names to their resp. inodes.

Summary ⇒ **Hard Link** = Multiple dir entries (catalog) pointing to the same inode (book's info card). Deleting an entry doesn't affect the actual file.

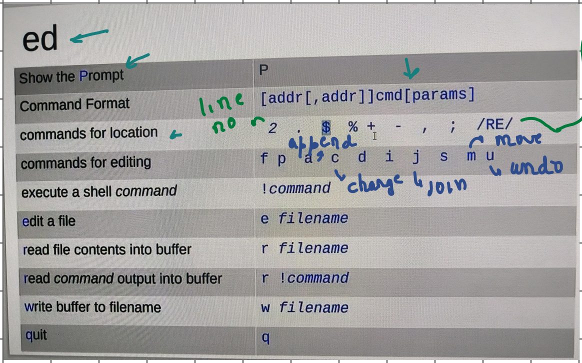
Soft Link = A shortcut that points to the file name. If the og file moves / deleted, the shortcut breaks.

Inode = The info card storing details abt the file (without the name).



* Create file using echo ⇒
echo "Hello world" > test txt → will overwrite if already ext.
echo "Hello 2" >> test txt → append at end.

http://www.nano-editor.org/dist/latest/cheatsheet.html



ed

Show the Prompt	P
Command Format	[addr[,addr]]cmd[params]
commands for location	2 . $ % + - , ; /RE/
commands for editing	f p a c d i j s m u
execute a shell *command*	!*command*
edit a file	e *filename*
read file contents into buffer	r *filename*
read *command* output into buffer	r !*command*
write buffer to filename	w *filename*
quit	q

. = curr line
$ = last "
% = all lines
+ = next line
- = prev "
, =
; =
/RE/ = /regular expressn/

Vi editor ⇒ :w = Save, don't quit / write out   :q = quit (if write out is over)
:s/word/replace with = search & replace in curr line   :q! = ignore changes & quit
→ :x / :wq = Save & quit

⇒ :%s/word/replace with/g = search & replace throughout file.

k/ up-arrow

h/ backspace / lt. arrow ← Moving around → l/ space / rt- arrow

j/ return / down - arrow

:set numbers = set line numbering
" no " = del. —"—

nyy = yank line (copy)   ndd = del lines from curr cursor pos^n
p = paste   u = undo