Software - Collection of programs and documentation
Program - Set of instructions.

shell → interactive command interpreter
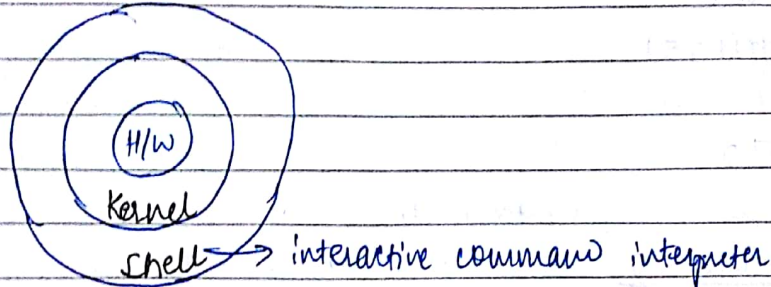
In windows, kernel and shell are distinguishable.

UNIX ⎰→ Bourne shell
     ⎱→ Korn shell
     ⎣→ C shell
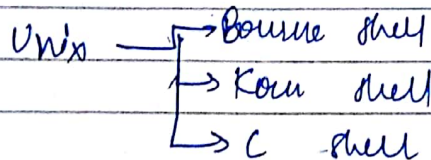
Linux → Bourne again shell (Bash)

$ - user
# - super user

Recommended Books
UNIX concepts - S-Das

$ date $ date ⌴ %h
$ cal ⌴ 2018 ↵
$ cal
$ cal ⌴ 6 ⌴ 2018
$ cal ⌴ June ⌴ 2018
         Jun

$ pwd
$ man
$ date --help
$ man ⌴ man
$ a=5
$ echo $a
$ echo "My⌴⌴name ⌴⌴⌴ is ⌴ Akshay" → with exact spaces
$ echo My⌴⌴ name ⌴⌴ ⌴ is ⌴ Akshay → squeezes multiple spaces to one.

Free → not in terms of cost
Free to use.
open source - free to use, but source code at a price.

$bc → basic calculator
5 + 7
12
sqrt(25)
5
5/2
2   ] → integer div
scale = 2 → to do floating pt. div
5/2

2.50
obase = 16
15   ↵
f

ibase = 2
1111 ↵
f

^d   → to exit

$ who ↵
$ whoami

File - file is a container that contains information.
Folder - Logic subdivision of hard disk space.
Drive - Physical subdivision of hard disk space.

$ mkdir abc ↵
$ cd $ abc
$ rmdir $ abc ↵
$ cd $ ..
$ cd / ↵
$ tree ↵
$ cat file.txt ↵   → catalogue   ] → 24 lines
$ cat file.txt | more ↵
$ echo "Today is " date ↵
$ cat > file ↵
    ~ redirection command   ^Z : save

$cat >> file ↵
    ↳appends

$ cat abc pqr xyz ↵
$ touch file ↵ → touching an existing file changes last
$ls ↵   modified time
$ ls -l ↵
$ cp abc xyz ↵
        src   dst

$ mv abc xyz ↵   }→rename
$ rm abc

Unix is highly case-sensitive, unlike windows.
$ wc /6 abc.txt ↵   word count
      no. of words   lines   chars

$ wc/6-c
  wc. -w   Program - textual
  wc -l   process - Executable

$ who | wc /6-l ↵
$ ls /6-l | wc /6 -l ↵

For file privileges → 9 byte data
      rwx/rwx/rwx   → unit
      user   group   other

& _ rwx/rwx/rwx →

d/rwx/rwxrwx →
            ↳can reach (not executable)

$ chmod u+a g+a o+a abc.txt
$ chmod o+w abc.txt → to give permission
         -w abc.txt → to take away

Octal method   rwx rw- r--
  r = 4   chmod 7 6 4 file
  w = 2   chmod 777 file → all permission
  x = 1
    7