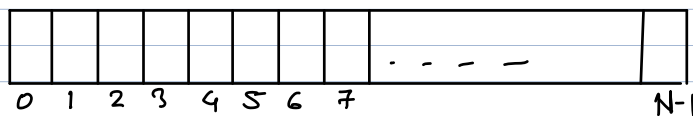(1) File   (2) Directory / Folder
(3) Process/Application   (4) File system   and
File system hierarchy (5) Path names : Absolute and
Relative (6) Standard Paths. (7) Console User Interface
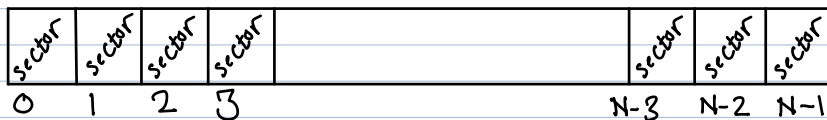(8) Graphical User Interface.
[I must learn power tools on command line and then
on GUI (for productivity purpose)]

(1) File: A unit of data that you permenantly want to
           Store, and therefore stored on secondary storage
           (disk, USB, etc)

Main Memory :


```
| | | | | | | | | - - - - - |        |
  0 1 2 3 4 5 6 7              N-1
```

Secondary Storage / Memory

```
| sector | sector | sector | sector |       | sector | sector | sector |
   0        1        2        3                N-3     N-2     N-1
```
                                                         PATA, SATA,
                                                            SSD

        512 bytes चा group = Sector of hard disk.

              $$80G = \dfrac{80 \times 2^{30} \text{ bytes}}{512 \text{ bytes}} = \text{Number of sectors.}$$

        International Standary System for measurements . SI units
           $10^3 = 1$ kilo.
           1000 bytes = 1 kilo byte.
           1024 bytes = 1 kilo byte

1 Kib = 1024 bytes | 1 Kb may mean 1024 bytes

1 KB = 1024 bytes | 1000 by.G.

80 Gb

Hardware designer:

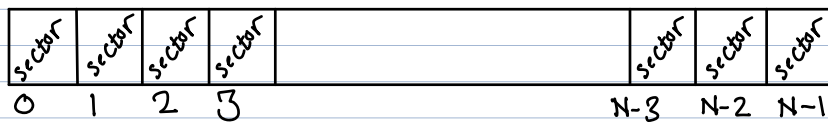1000 bytes = 1 kb.

1 kilo byte में 24 bytes loose

1 Mega byte में $2^{10} \cdot 24$ bytes

1 Giga byte में $2^{20} \cdot 24$ bytes.

80 GiB | 74 Gib   G.:

sector 0 | sector 1 | sector 2 | sector 3 ... sector N-3 | sector N-2 | sector N-1

Data unit store (say your resume)

800 bytes.

to store it on HDD, you will need two
sectors.

512 byte   512. 2^{21} sectors.

512 byte   288 $\dfrac{2^{30}}{2^{9}} = 2^{21}$
Data   Data

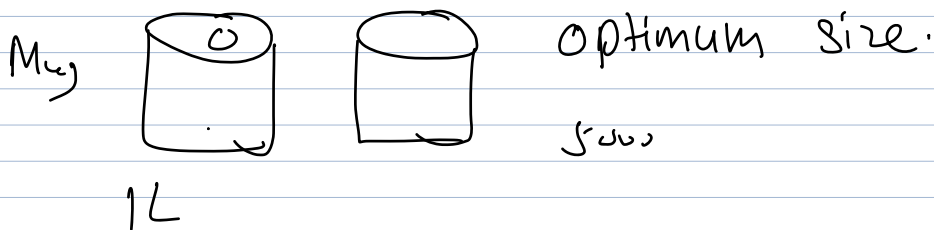800
- 512
——————
288

[512]   [   ] ←unused.   OOO

288

N bytes file, how many sectors.?

$$= \left\lceil \frac{N}{512} \right\rceil$$

Current file sizes: 1980's
With respect to current file sizes: 512 unit is
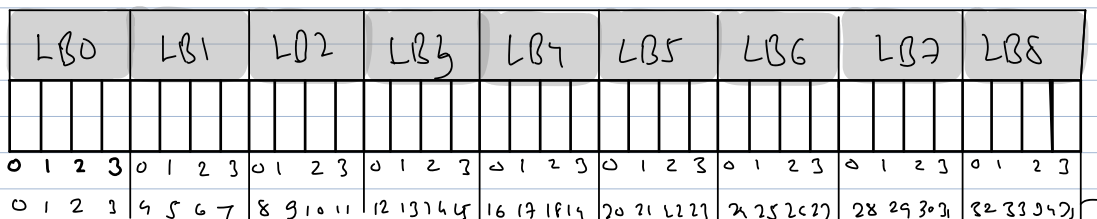too small to read/write efficiently.

My ⬚⬚   optimum size.

1L   5000

to form an optimal size for Data Transfer
= group multiple sectors together.
= Logical Block.

Logical Block ①				Logical Block								
sector	sector	sector	sector	sector	sector	sector	sector		sector	sector	sector
0	1	2	3	4	5	6	7		N-3	N-2	N-1

Sector = physical block

LB0				LB1				LB2				LB3				LB4				LB5				LB6				LB7				LB8					--
0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
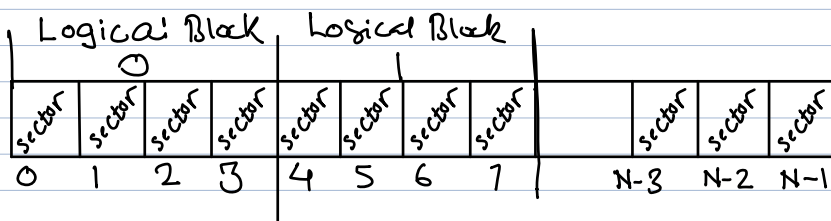
Programmer's view = Disk = collection of Logical blocks

· logical block Size: 4 kb = 8 sectors.

S# 0 to S# 7 = LB # 0   S = sector

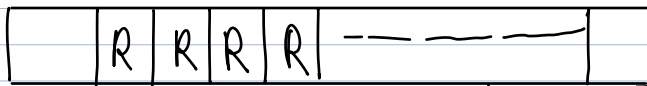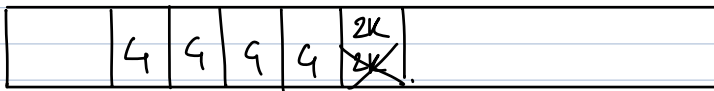8# 8 to S# 15 = LB # 1   LB = logical block.

S# 16 to S# 23 = LB # 2

\
:
:
:
:

Efficiency vs wastage

---

file = Non-contagious collection of logical blocks
belonging to single partition of disk;

---

18 kb.

256 i.s

R

files with data = Regular files =
Non-contagious collection of logical blocks
belonging to single partition of disk;

2) directory 3) char special dev. file.
4) block special dev. file. 5) symbolic link.

5) FIFO (named pipe) 6) Socket file.