

filesystems.

Quiz 4. 2nd Nov.
8.30 am
CC 101, 103, 105
Ans. 1, 3
xv6 + lectures
+ filesystems

block allocation policies/techniques.

dynamic sizing
min. access time
fragmentation!

(1) contiguous allocation

metadata.

	Start block	Size (#blocks)
f1	6	6
f2	12	2
f3	14	7

sequential layout
(+) good for block identification & seek times.

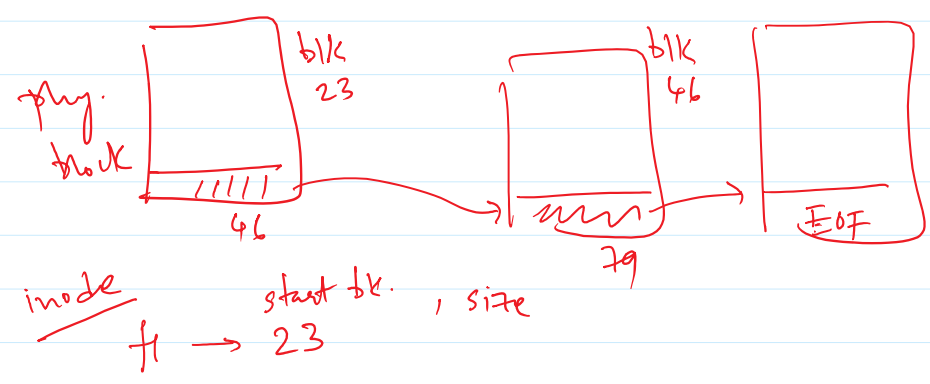
(-) pre-allocate physical blocks
- efficiency problem
- large resizing overheads.

(-) fragmentation issues!

(2) linked allocation

- every block stores address of next block.

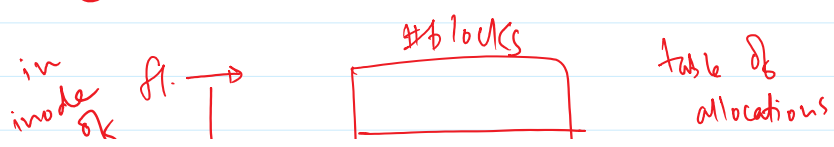
(+) low resize overhead.



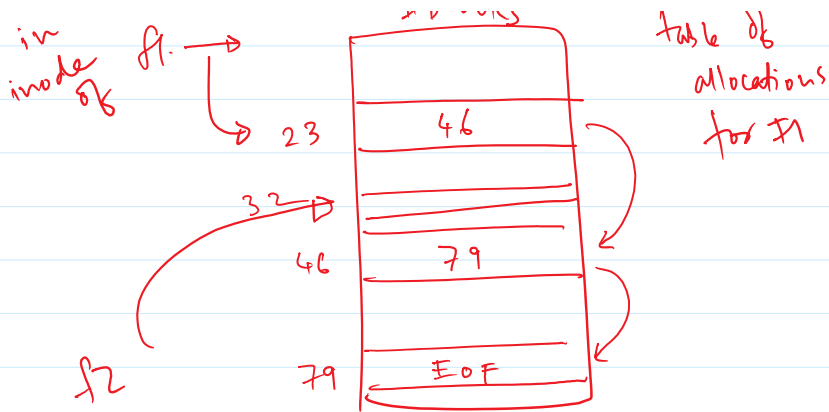
(-) offset to block translation requires disk accesses.
(increases overhead)

(+) low fragmentation.

(3) FAT - File Allocation Table



(+) can load table in



① can load table in memory.
- list walk in memory & not disk!

② on-demand allocations, no external frag.

③ still needs a walk!

④ Indexed allocation

~ maintain a separate index-block per inode.

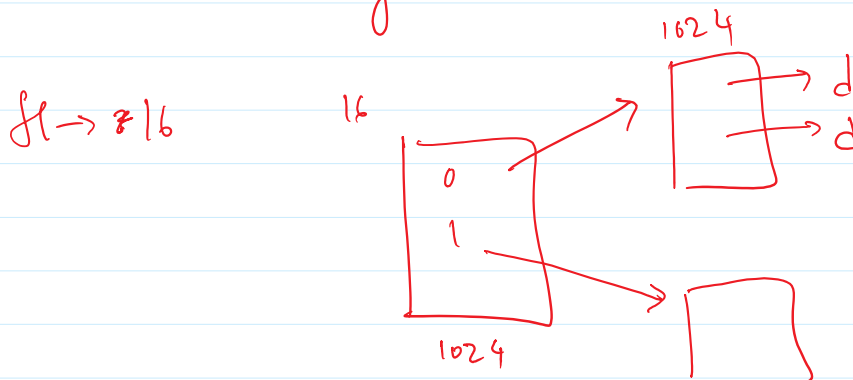
f1 → index block.
entries in block pt. to allocated blocks.

f1 → 16

blk. 16	data block
23	
46	1
79	2

4 byte entries file size
1024 4 MB (max.)
4096 — ~~the~~ bytes block size.

⑤ - multi-level indexing.



inode

name
owner
timestamps
...

