

# Data Storage & Indexing

(1). Disk Structure

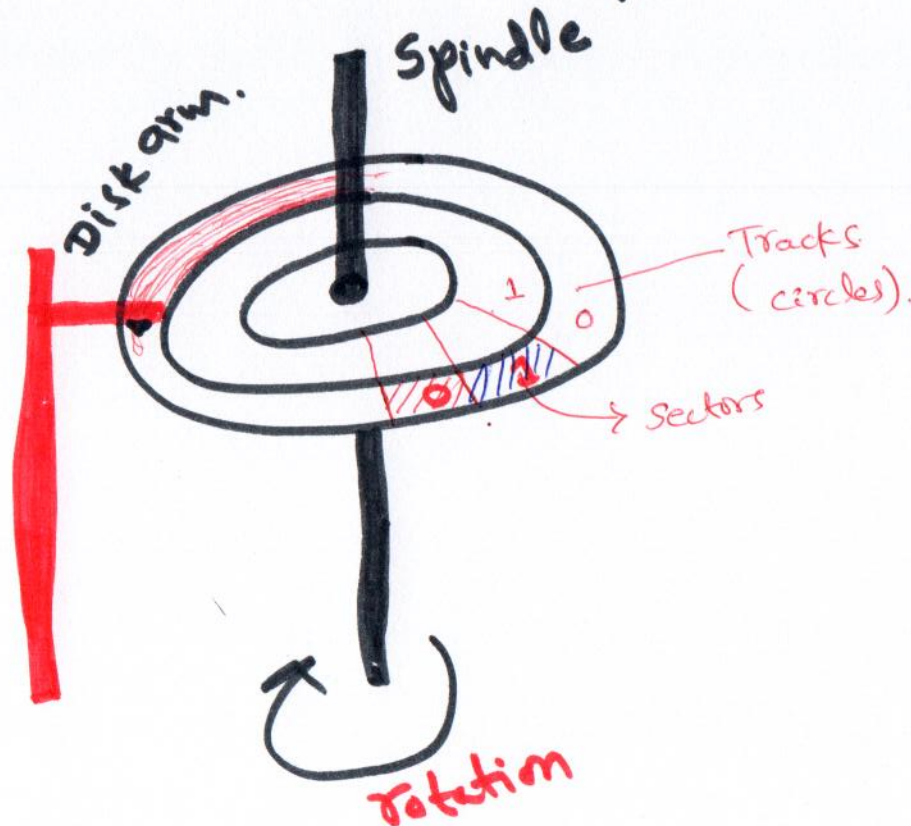
(2). Indexing

(3). B<sup>+</sup> tree

(4). Hashing

## Disk Structure:

Each disk platter has a flat, circular shape.



sector - 512 bytes

tracks - 50,000 - 1,00,000

platter - 1 to 5.

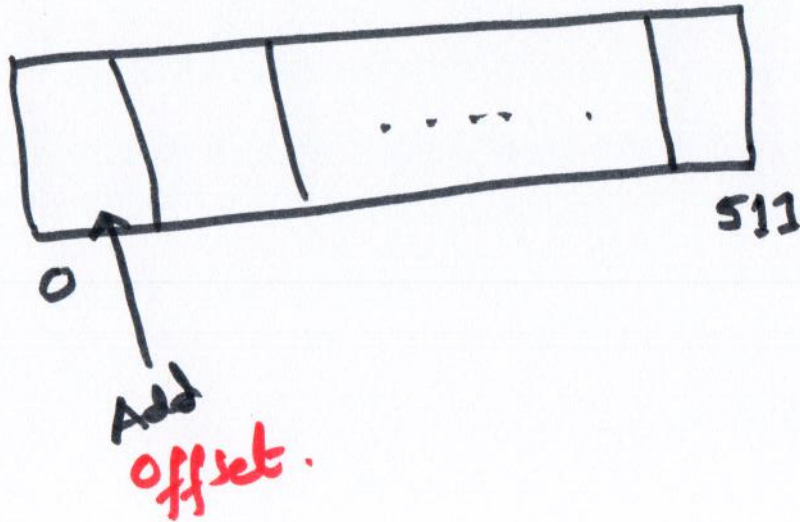
Note: Block

Contiguous sectors

R/W in terms of blocks.

Block Add =  $\langle \text{Track No, Sector No} \rangle$

Block size 512 bytes.



# Student

SID	SName	Course	Dept	add
1	S1	.	.	.
2	S2	.	.	.
3	S3	.	.	.
4	S4	.	.	.
5	S5	.	.	.
6	S6	.	.	.
:	:	.	.	.
100	S100	...	...	...

## Student

SID - 10 bytes

SName - 50 bytes

Course - 8 bytes

Dept - 10 bytes

Add - 50 bytes.

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128 bytes.

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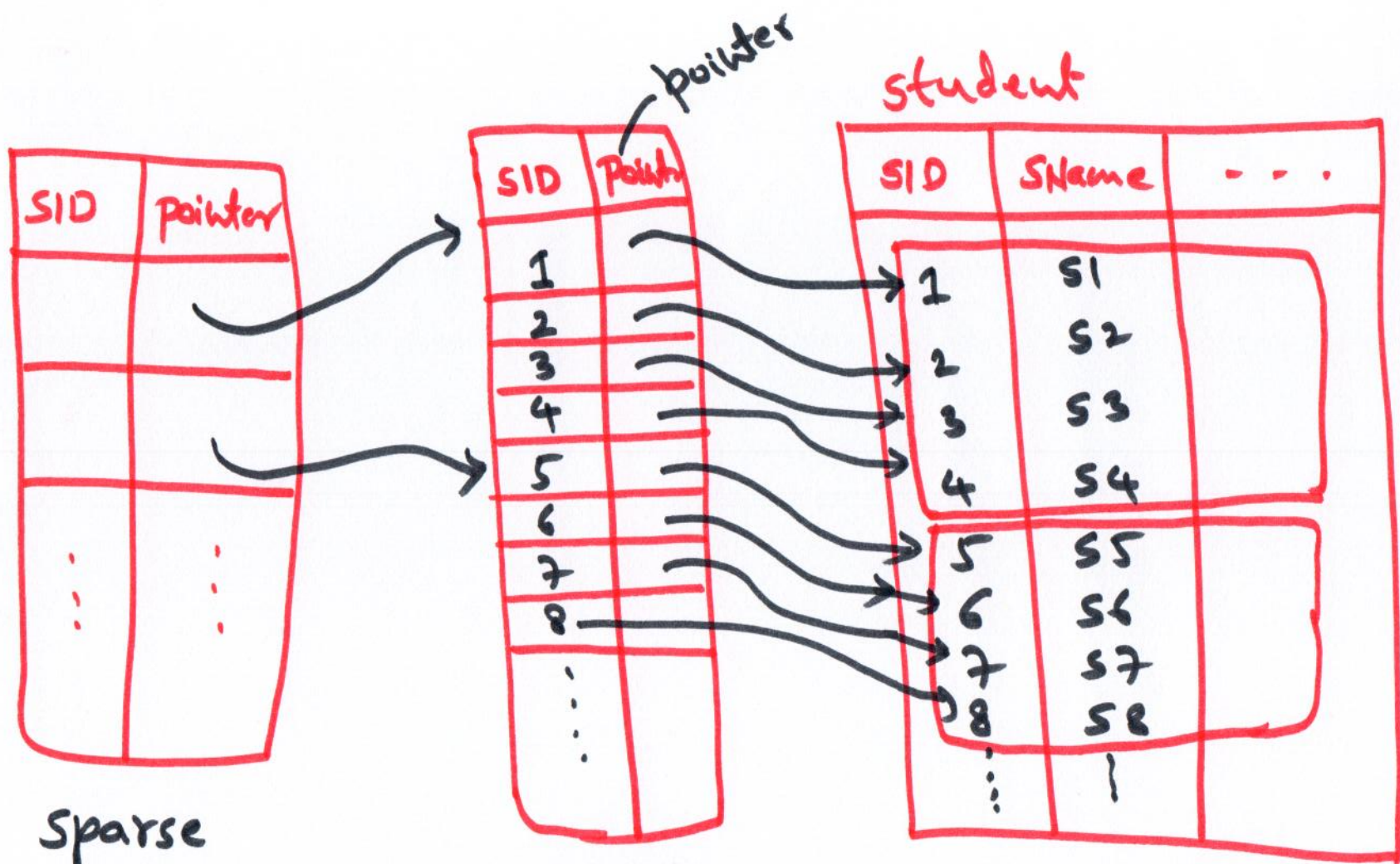
Assume block size - 512 bytes.

$$\frac{512}{128} = 4 \text{ records.}$$

Q: How many student record  
we can store in one block?

∴ We need 25 block  
for 100 records.

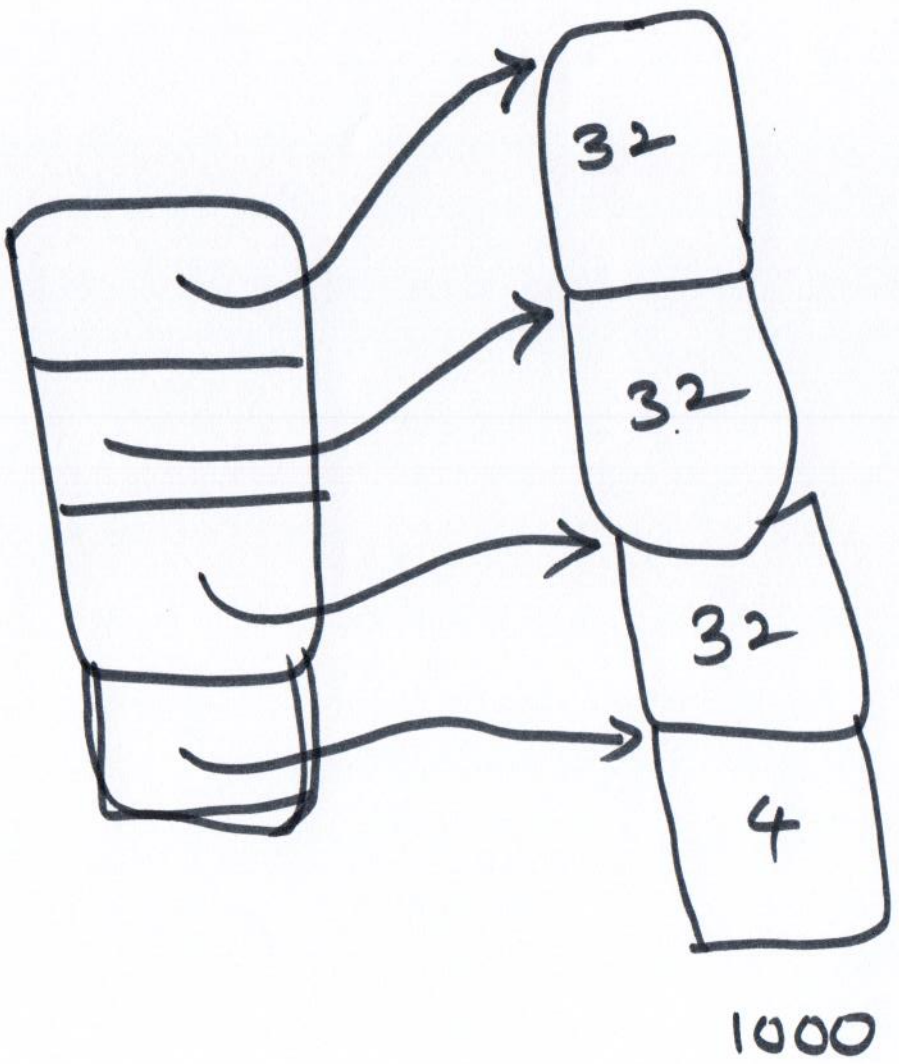




100 records.

$\frac{512}{16} = 32$  SID - 10 bytes  
pointer - 6 bytes  
4 blocks. 16 bytes.

$\frac{100}{4} = 25$



# Index Sequential Access Model (ISAM)

