

→ OLTP
 ↘
 Transaction (large)

↘

(select *
from table (large)
where city = 'Pune')

||
||
||
||
||
||

↘

Table scan → Optimize

- ✓ GB + Join is better than

Join + GB

2)

✓ Select *,

Select Column ✓

3)

Windows function Vs Self

✓

id	a	b
1 -	<u>Ag</u>	<u>B</u>
2	Au	Be
3	Al	Br
4 ✓	Ar	Br

Note

4 ✓

- 11 -

- 11 -

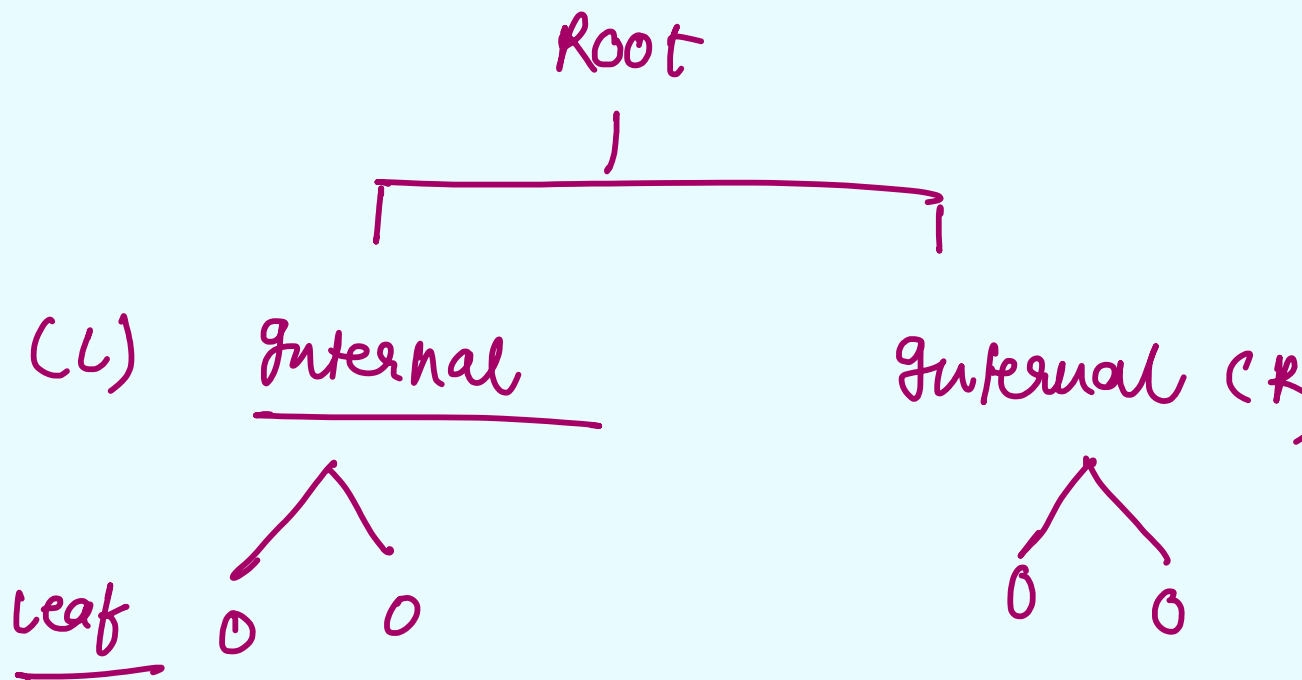
Book

→

Chapter - 17

Index Page

MySQL → B+ Tree Index



- Root → entry point

(No data)

Key → 104 → id

Internal,

select *
from orders
where 'id = 4'



Range

where id between

left 2 → left 3 — left 4

Library

→ Root (A to Z)

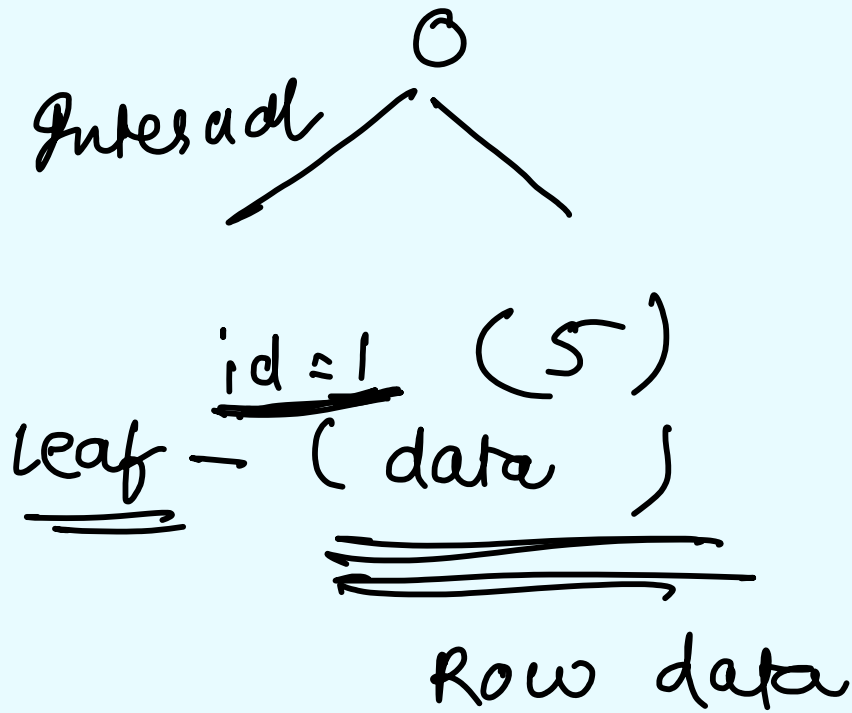
Internal

✓ A-D

E-H

DA
I-T

cluster index



non gr

index

leaf id:
poi

C

1. leaf contain All rows
2. steps (look up) 1 ✓
3. (Primary)

Apply Indexing on Multip

yes ?

{
select *
from order
where cust-id = 101
and order-date >= ('10/10/2017')

→ create index id-cust on
order (cust-id, order-date)

New stock

eggs

→

S₁₆ in table (10 gb)

↘

Index

(30 gb)

Target → ecommerce



(Brazil)

Place order

Invoice

orders



order id:

cust-id

status:

Time:



order-item-id

Product

Price

order-items

Customers

cust.id | zip | city | state

Product

prod.id | category | Name | Price

Payment

order | Payment | No of inst

Reviews

order_id | Review | score | co

seller

→ Trans
↓

OLTP
(RDBMS)

(MySQL,
Oracle)

→ ETL →

Data
h

[
C

Indexes
/

(B+ Tree)

↓

(Primary keys) → (id: ↑)

→ fast data Retrieval

OLTP (Trans)

Query → few rows

→ Quick Result (low latency)

→ Concurrency

→ [B-Tree Index]

Select sum(sales)

from orders (24 crs)

{ where region = 'west'

B+ Tree!

& category = 'Home'

(BITMAP)

→ orade ↗

→ Customers + Orders

→ Analyse of
gender

Row id	Gender	order-amount	Re
1	M	100	X
2	f	200	X
3	M	400	X
4	M	700	X
5	f	300	X

↓
(Row no)

select count(*)

from orders

where gender = 'Male'

and Region = 'Y'

✓ M
8
R-Y

1 0 1 1 0

0 0 0 1 1

0 0 0 1 0

Count

✓

Row-4

Row no

1

2

3

4

Male

1

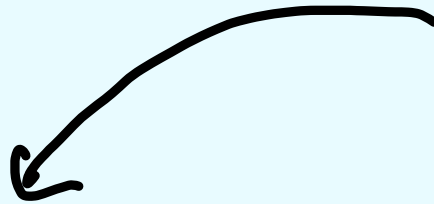
0

0

$$\begin{array}{r} 1011 \\ \hline 134 \end{array}$$

OLAP

OLTP



OLAP

Index

B+

(Bit)

unique

Agg

Red : - 1 0 0 1 0 1

Blue : 0 1 1 0 1 0

small : 1 0 1 0 0 0 1

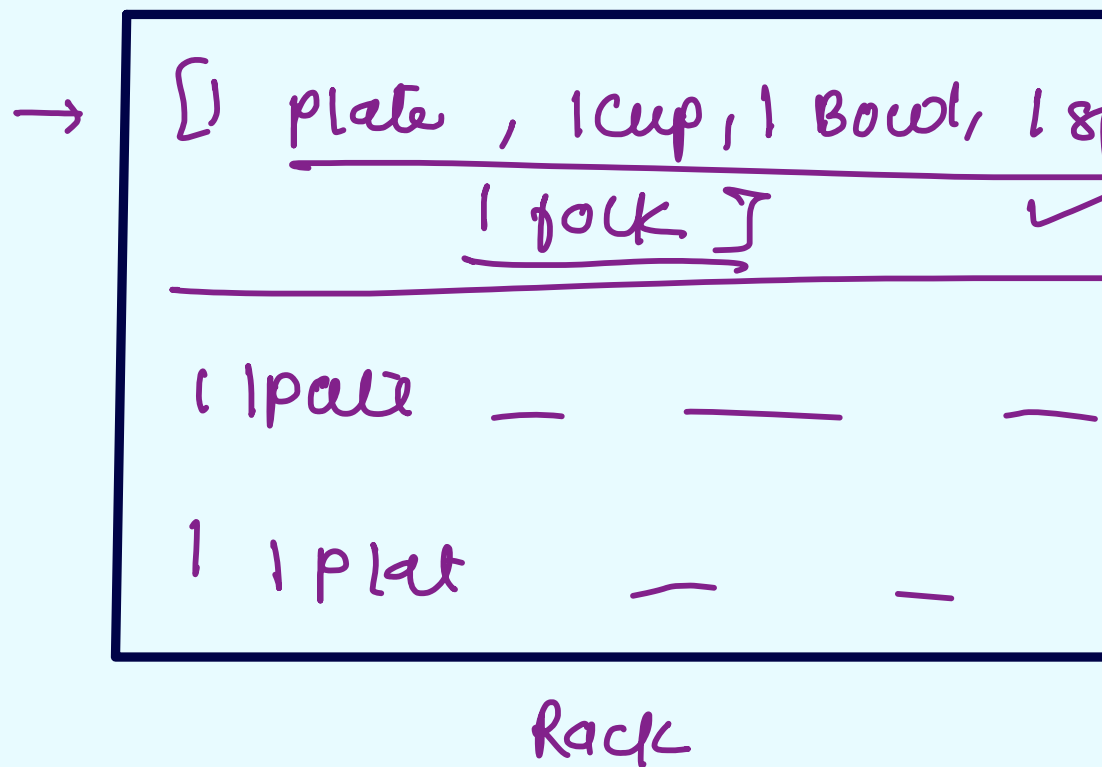
Red

How we store data → How
to R

Rows

or

columns



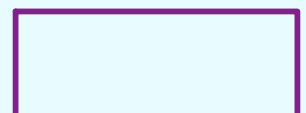
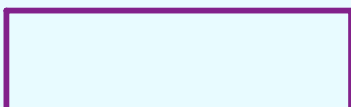
Column

5 item → Plate , cup , Bowl

Plate

Cup

Bowl



→ 1 guest - 5 item

→ Count of all item

How many cups, Bowl

OLAP + Column

OLTP → Rows

Row oriented (OLTP)

Data org

Row 1 : Data

Row 2 : Data

⋮

OLAP

→ Col: Data

sweet	→	<input type="checkbox"/>	x
veg	→	<input type="checkbox"/>	x
Rice	→	<input type="checkbox"/>	✓
{ Dal	—	<input type="checkbox"/>	✓



(Partitions)

Storage

view

No data
(code)

Material
vi

Phy