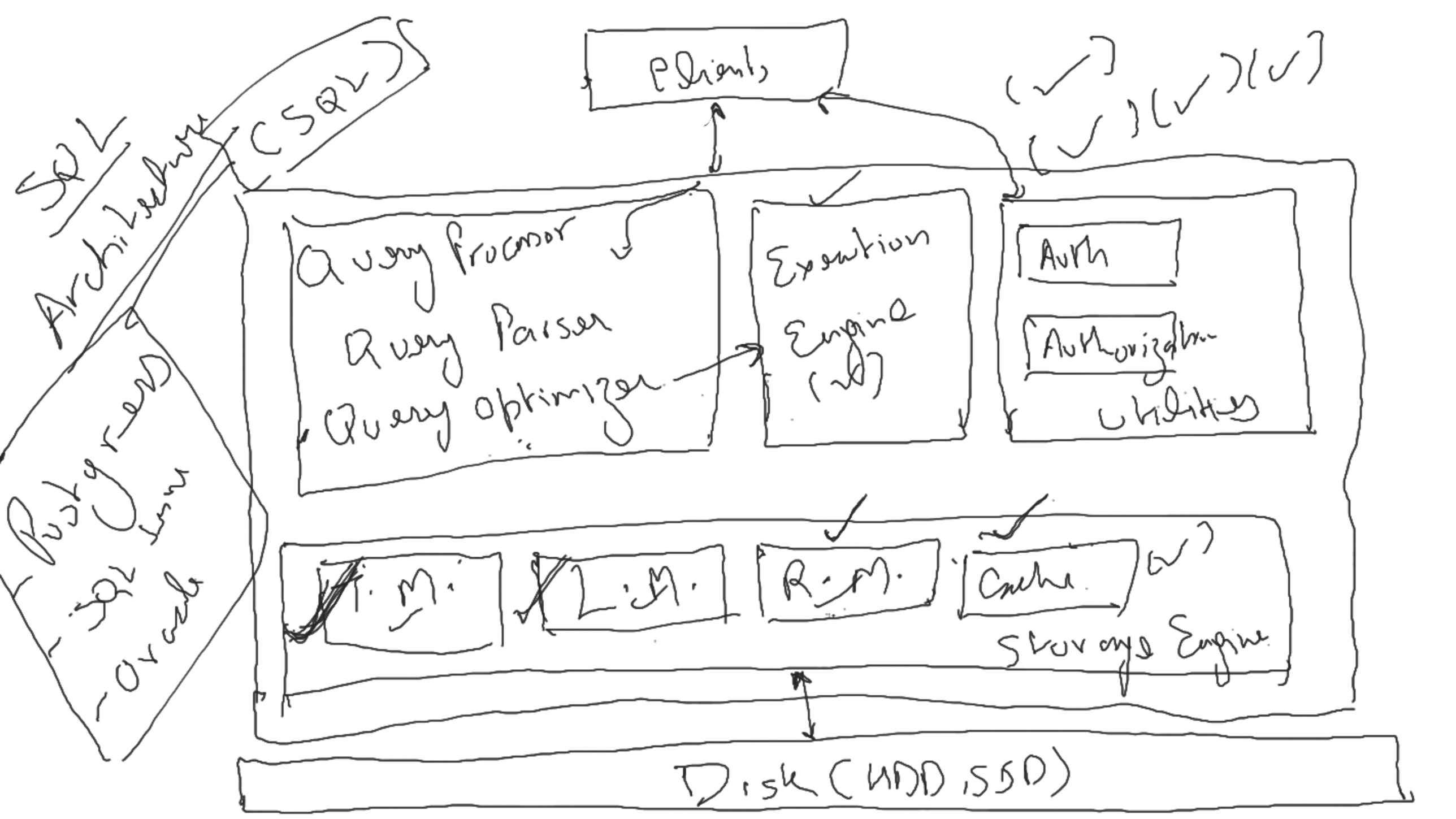
Topics:

7:05 IST
19:05
We will start.

1. Core Components of Database (✓)
2. Binary Search Tree
3. Balanced Binary Search Tree.
4. B-Tree
5. WAL
6. Indexing in Databases.

⑦ Tiny URL System Design.

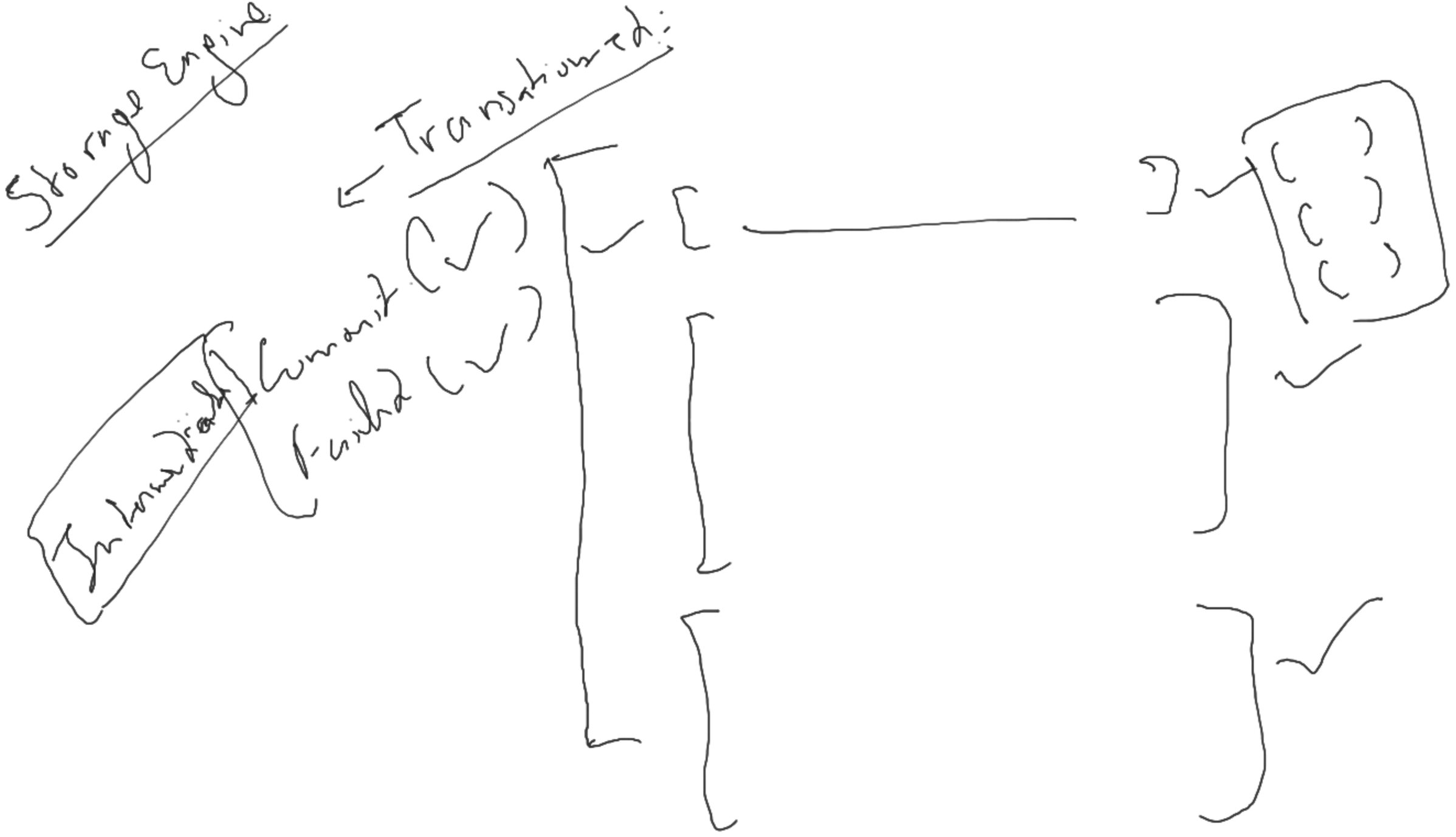

SQL Architecture
CSQL
Postgres SQL Server
Clients
Query Processor
Query Parser
Query optimizer
Execution Engine
Auth
Authorization
Utilities
T.M.
L.M.
R.M.
Cache
Storage Engine
Disk (HDD, SSD)

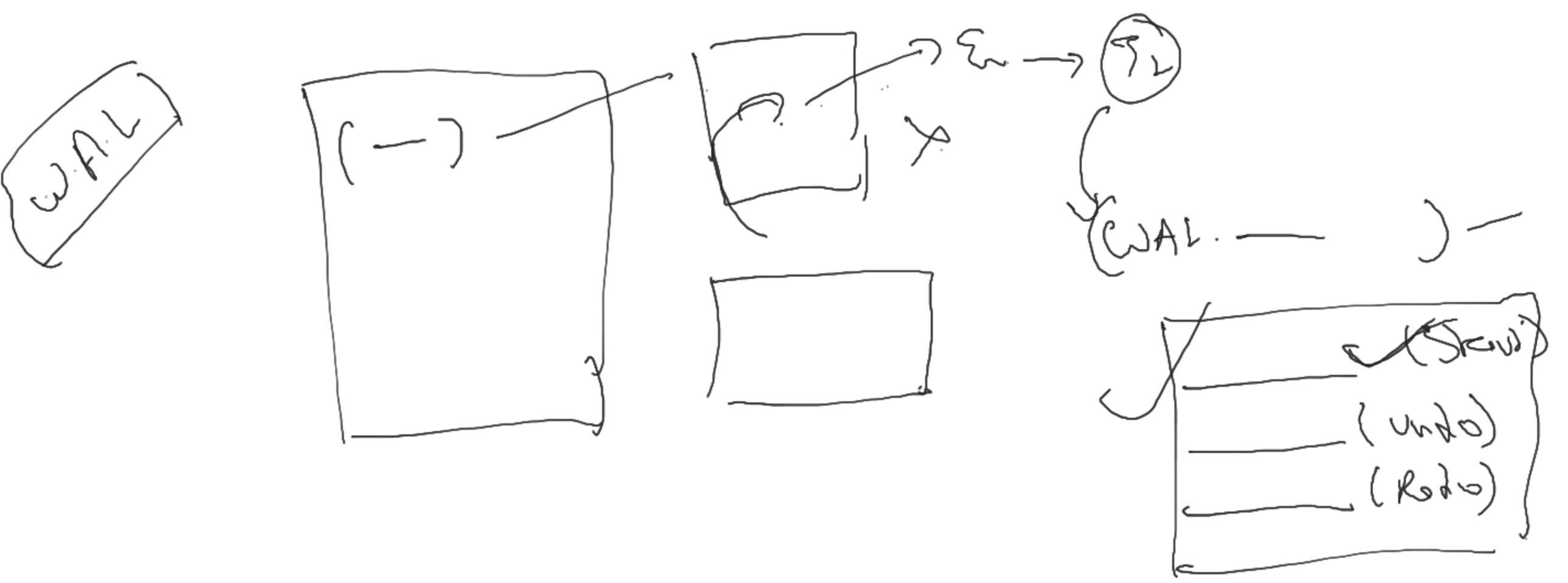
Query Processor :-

① Query Parser ✓

Select * table ;

② Query Optimizer


Storage Engine
Transactional
Isolation
Commit
Finish

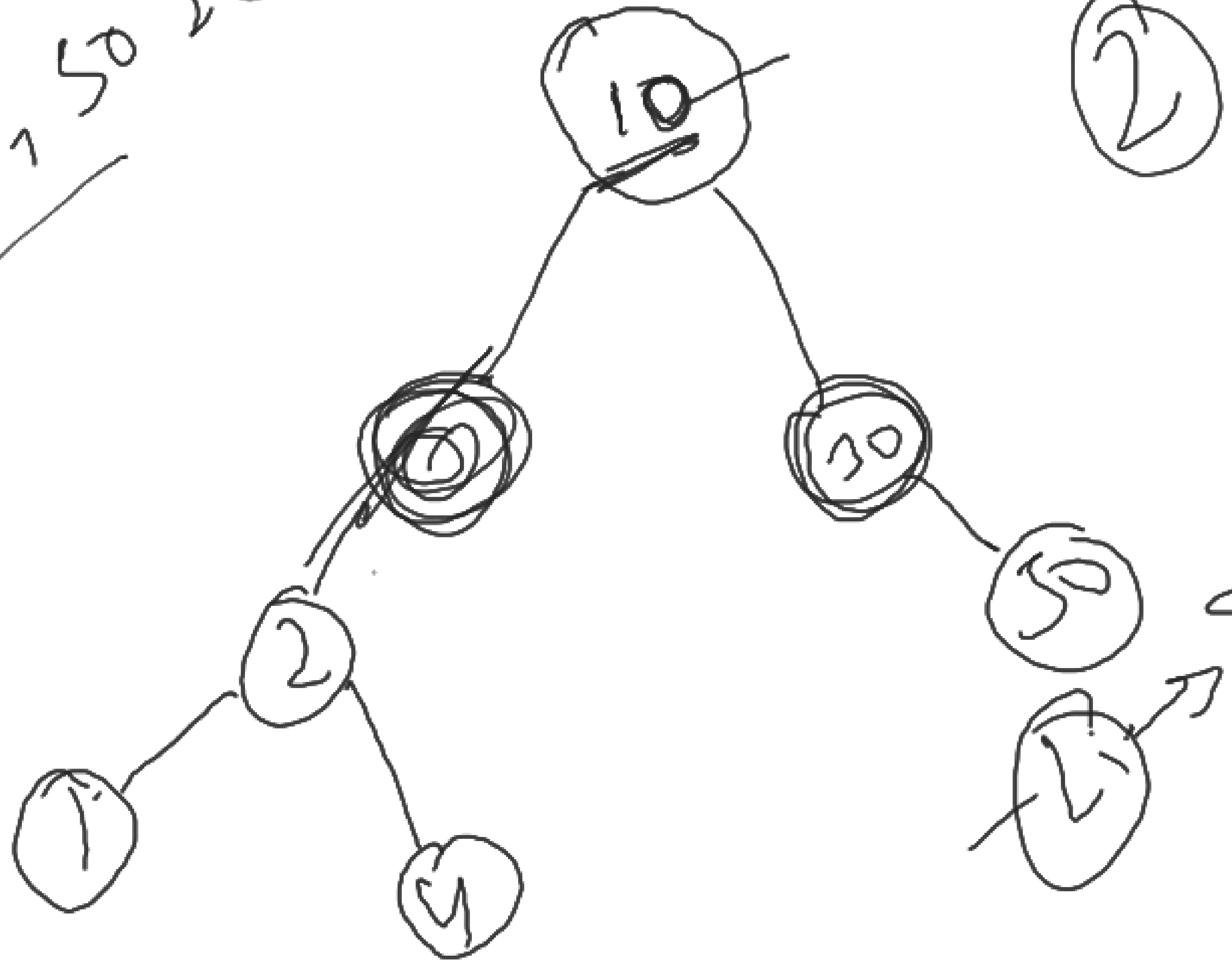

WAL
WAL
(Undo)
(Redo)

Datastructure

Used in to Orderlaves

10, 20, 30, 50, 2 (4)

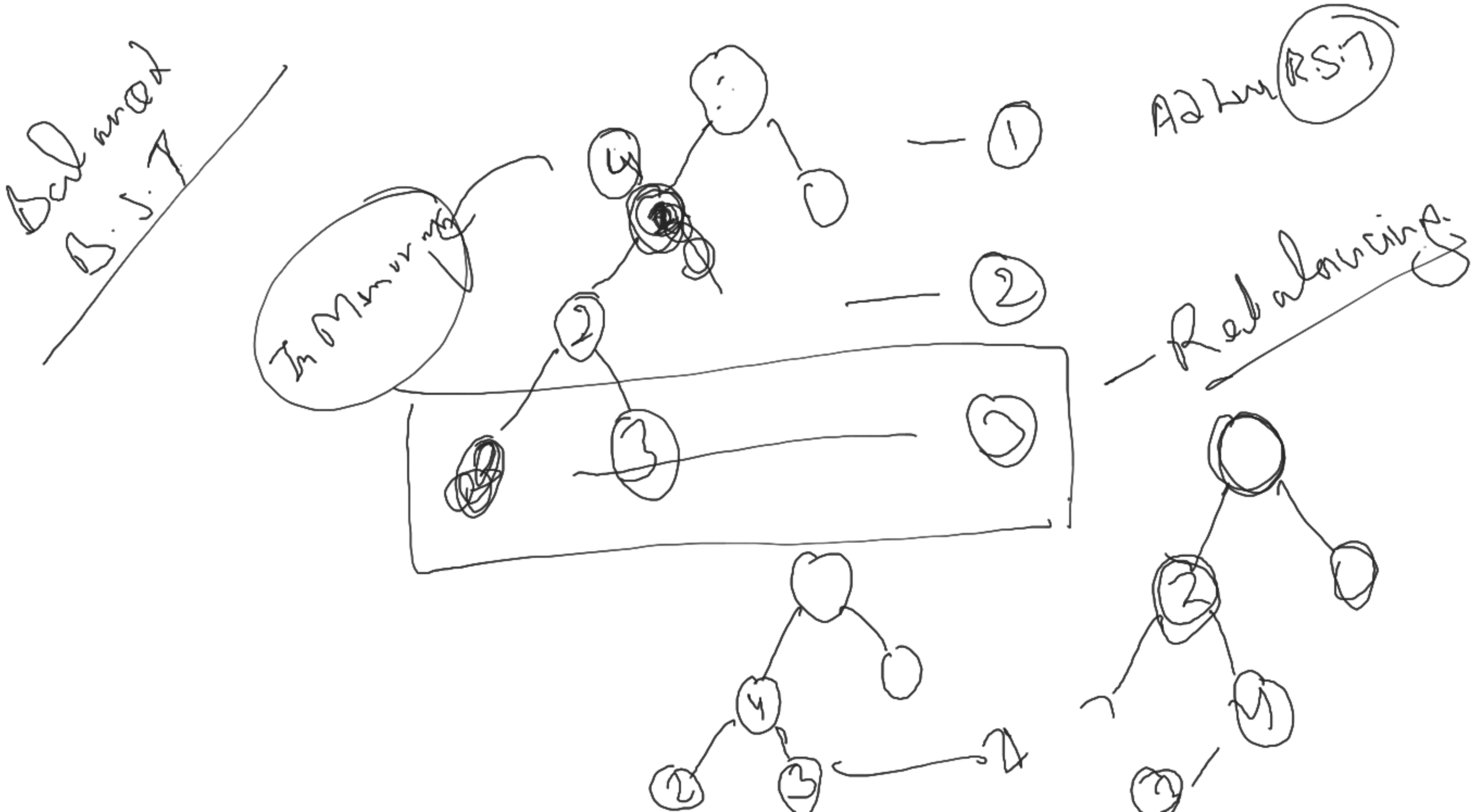
B.S.T. 10

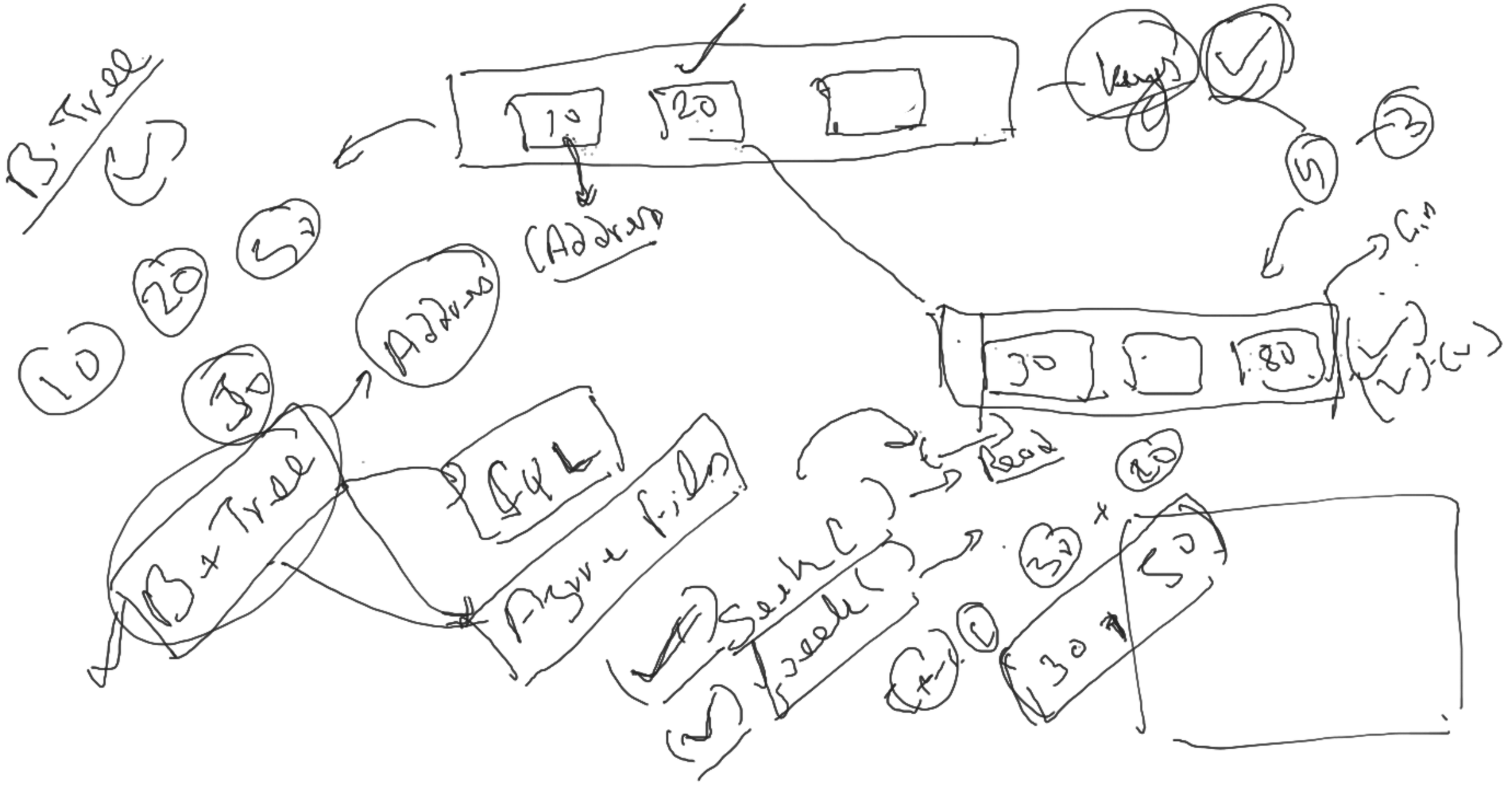


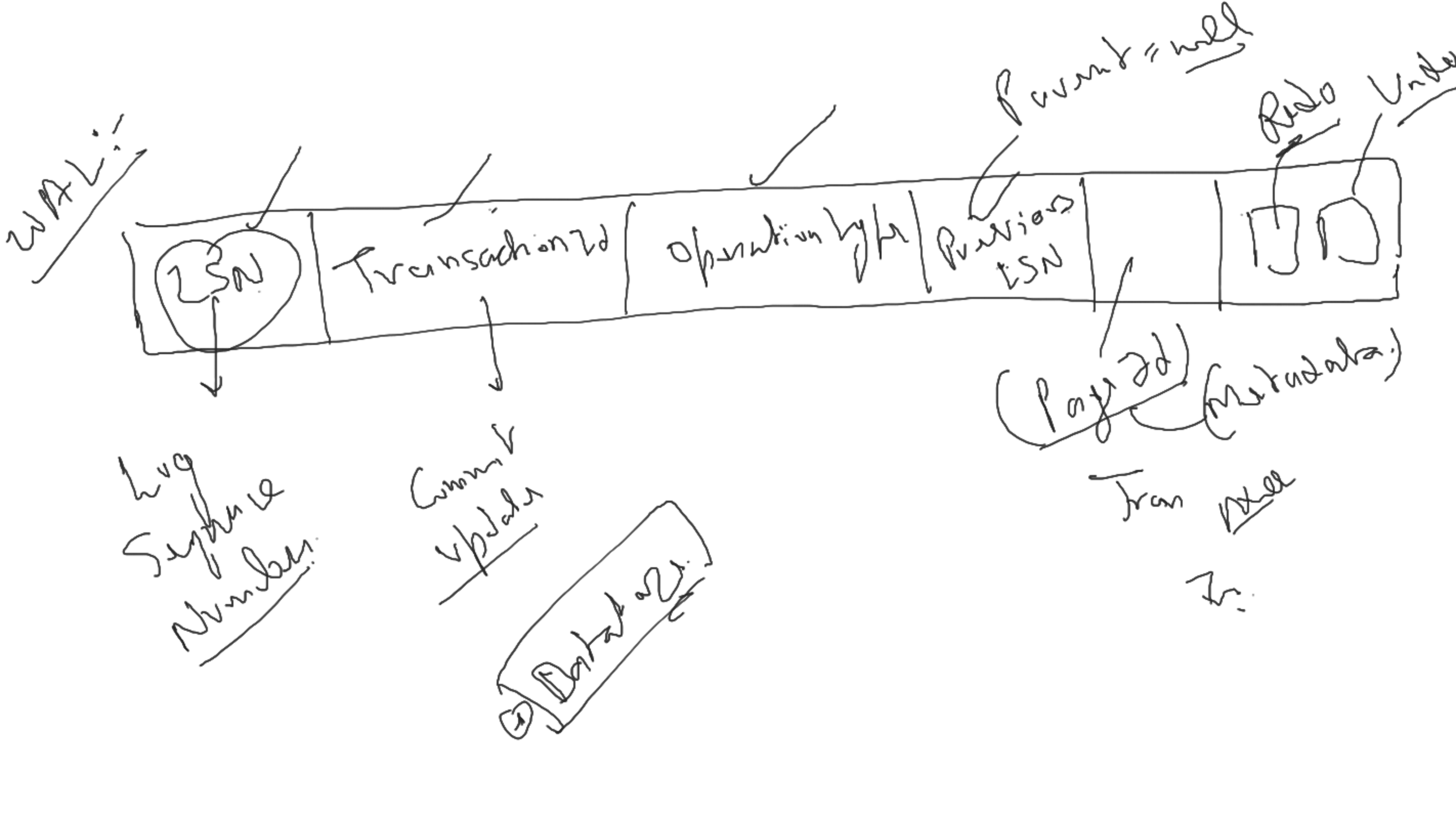
20

10, 8, 8, 7, 6, 5

Stardy


Balanced B.S.T
In Memory
1
2
Rebalancing
AVL/RST




WAL:
LSN
Transaction Id
Operation type
Previous LSN
Payload
Redo
Undo
Log Sequence Number
Commit Update
Data

Index :-

Searching (To be unique) → Index don't perform

Index perform well

(Heavy Read)

(Heavy Write)

(Index)

(Optimization)

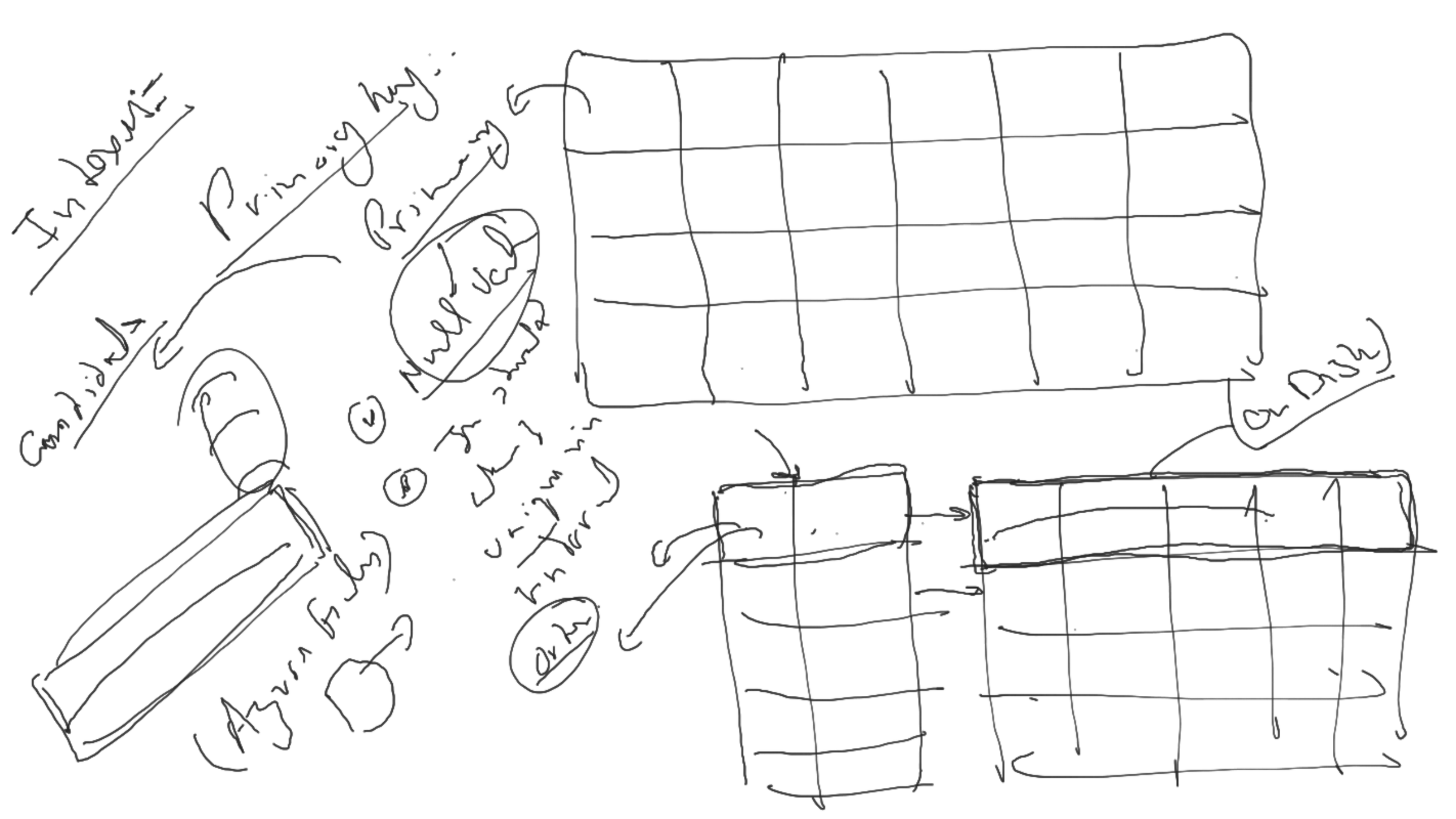
Update

(Explain)

Bloom

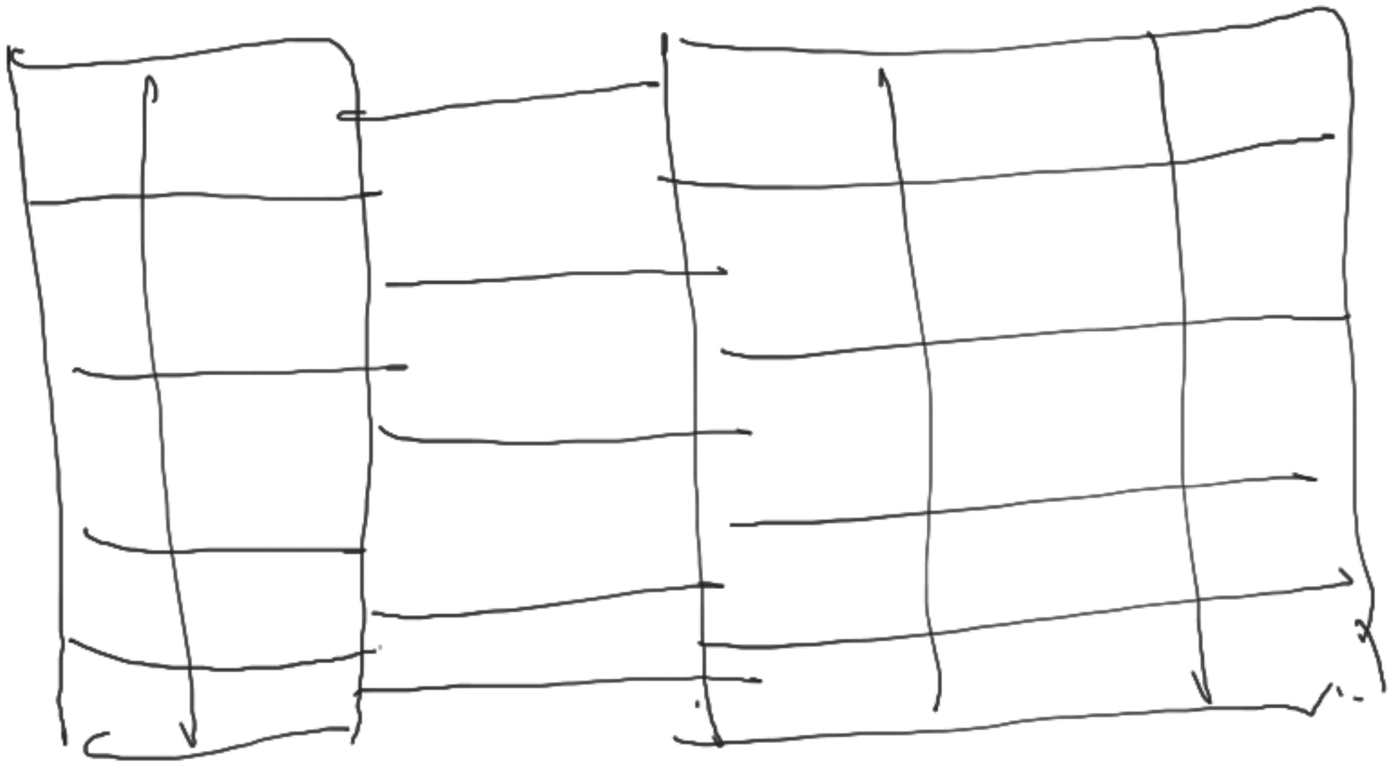
Index Bloom

Select *



① Dense Index

② Sparse Index



Optimistic
Pessimistic Locking:

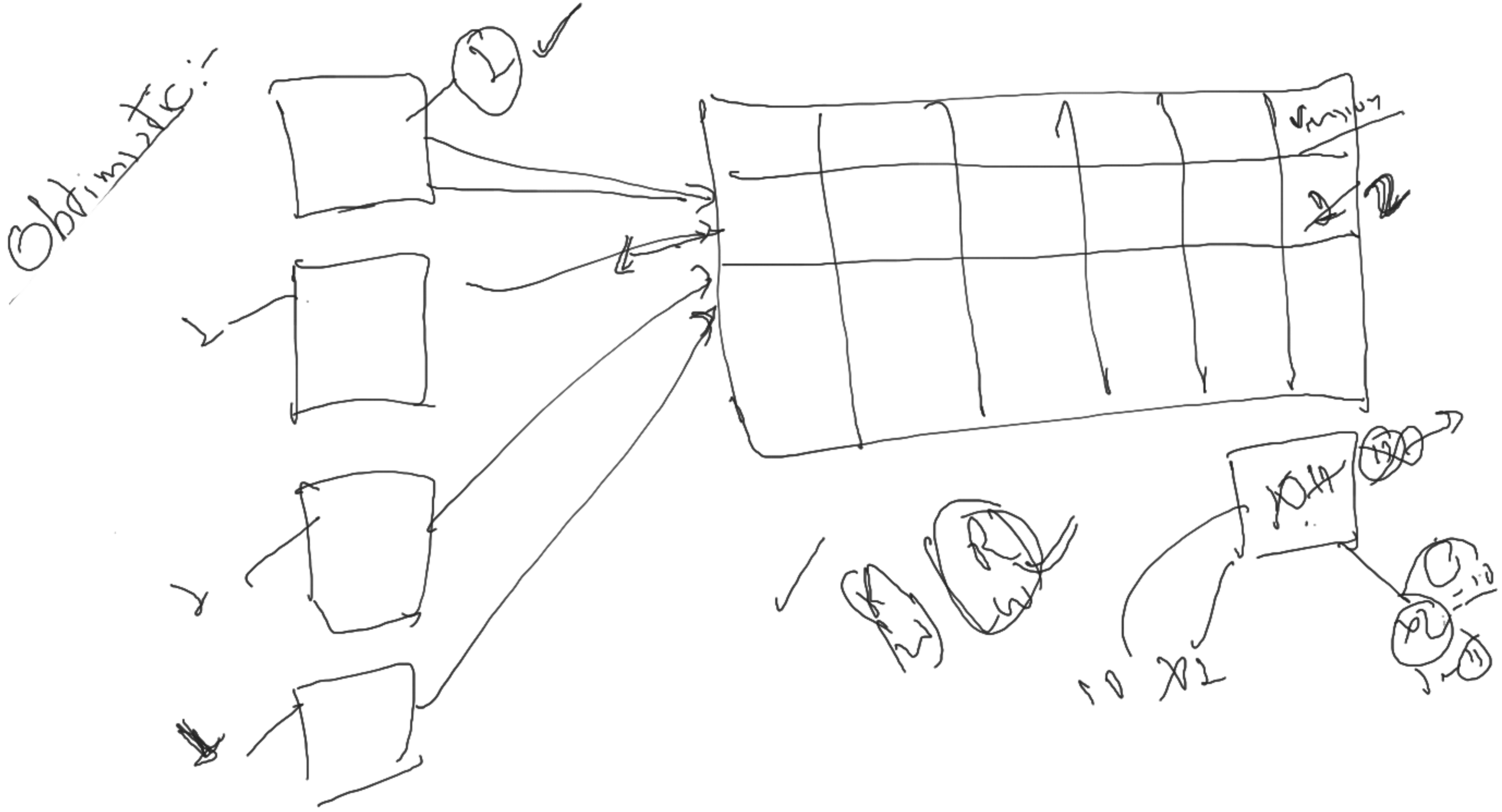
(Entity Class - GL)

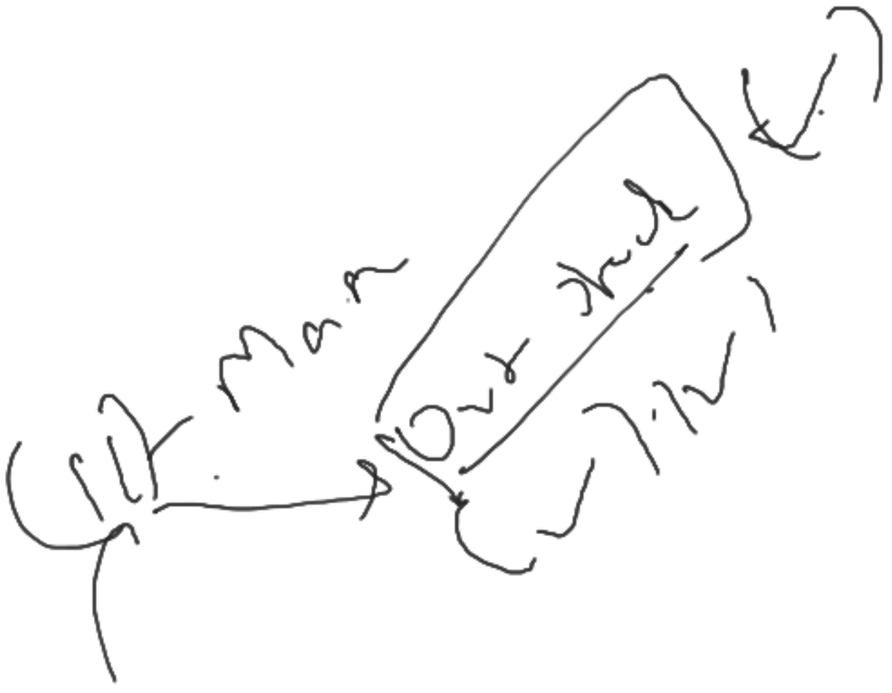
① Row level lock
② Table level lock
③ Range lock (Oracle)

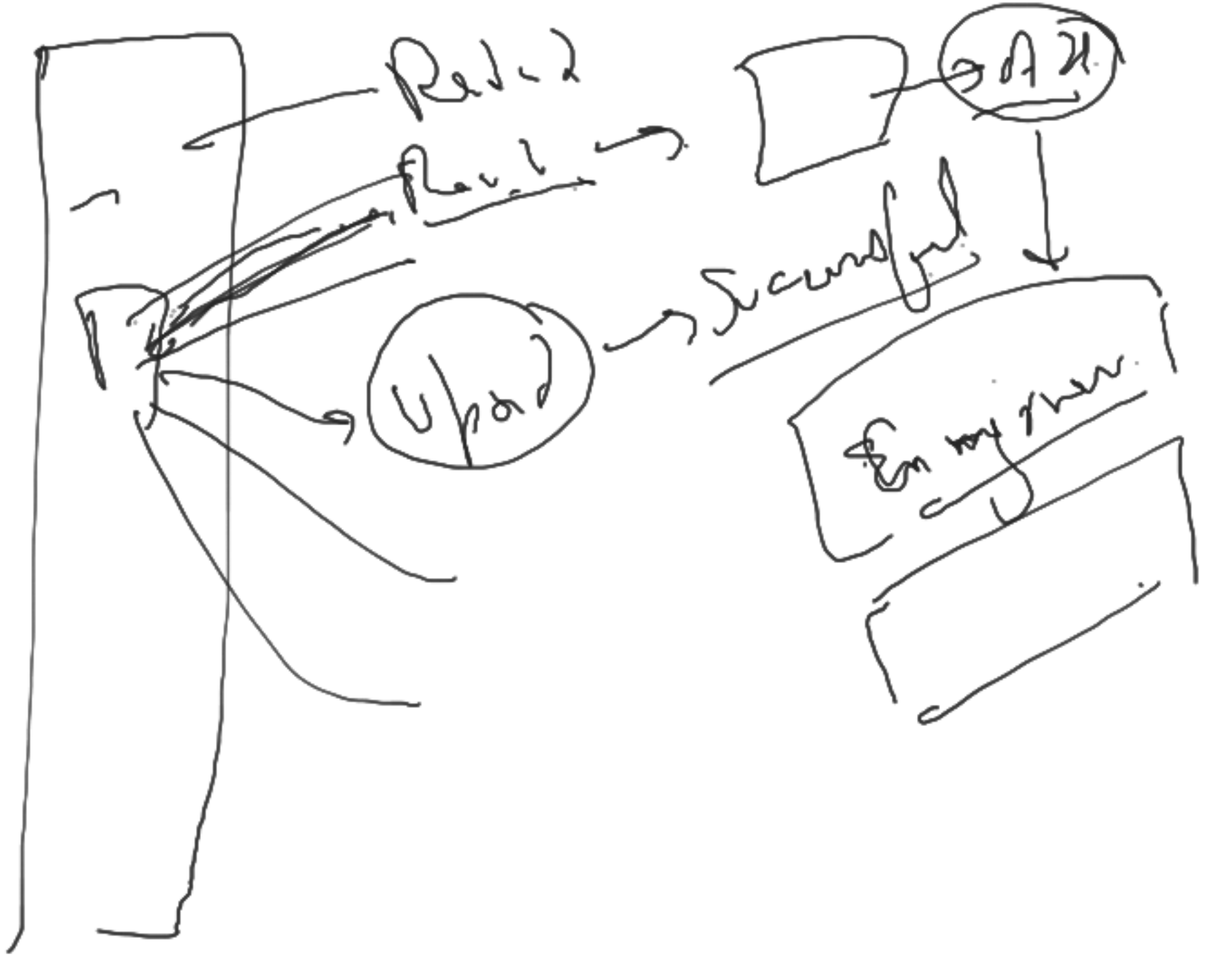
① - 2Ph
② - 3Phs
③ - Chubby
④ - Saga Pattern
⑤ Distributed Transactions

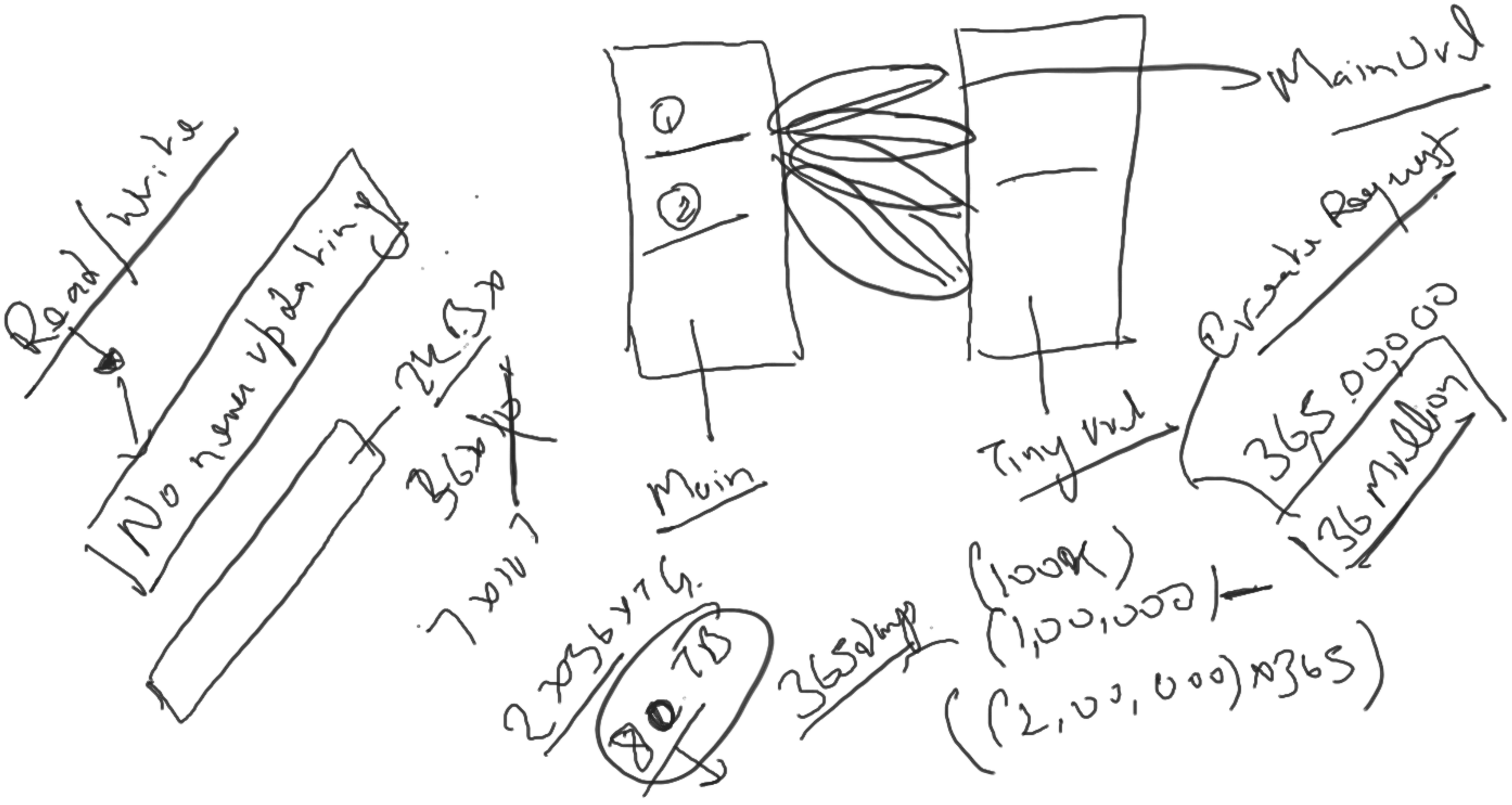
Graph QL
mongo
Cassandra
Dynamo DB

① Comparisions
② Different


Optimistic






Read / write
No new updating
Main
Tiny url
Main Url
Create Request
365 000 00
36 million
(100K)
(1,00,000)
(2,00,000) x365

yoy: → 20, , 20, , 20.