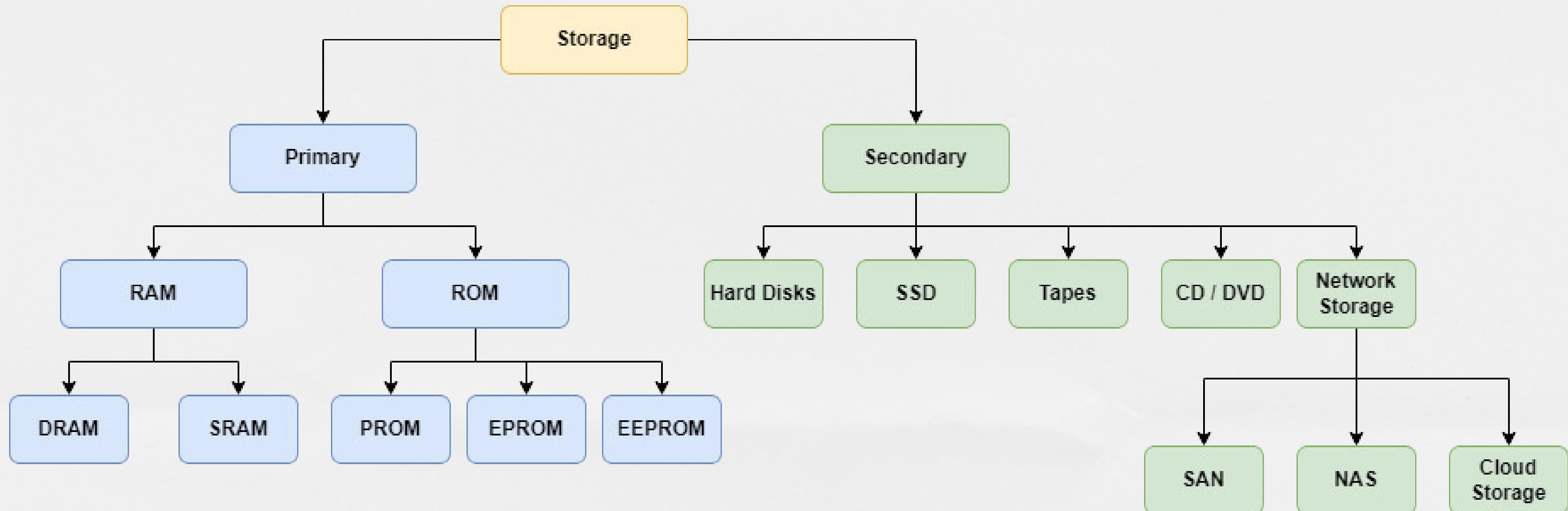


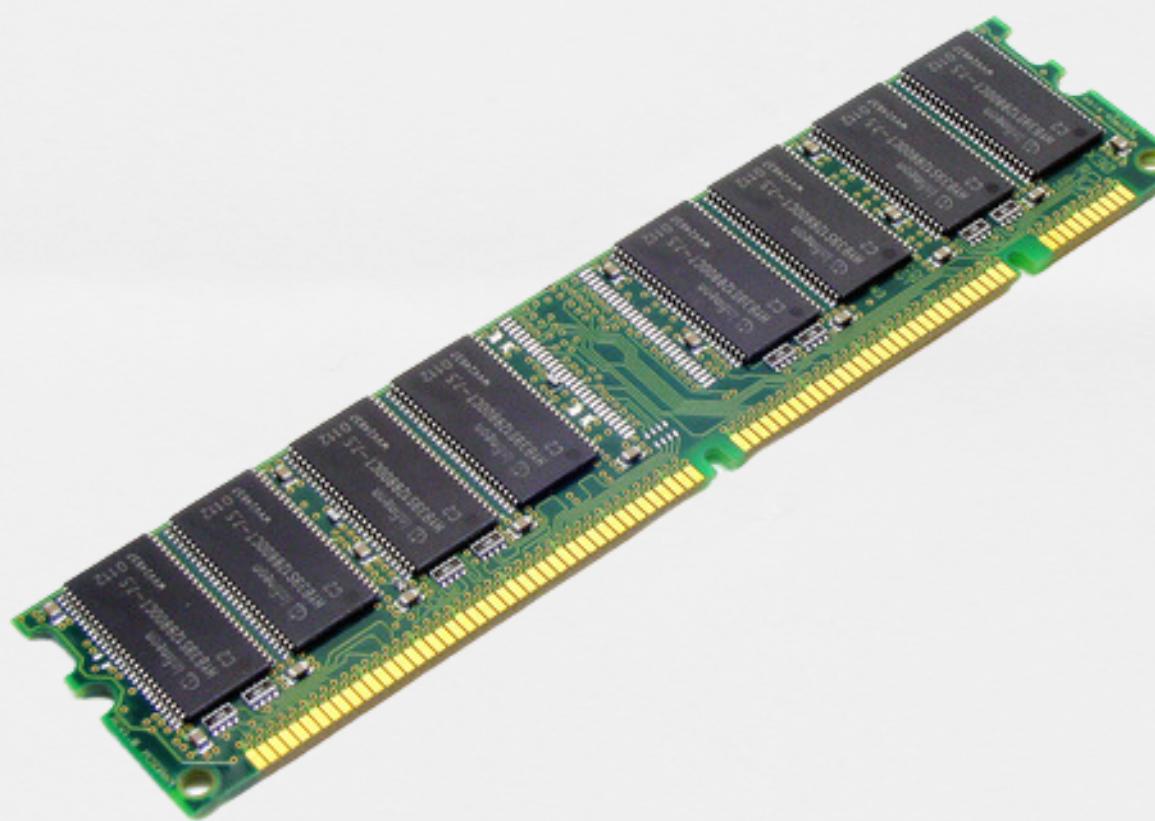
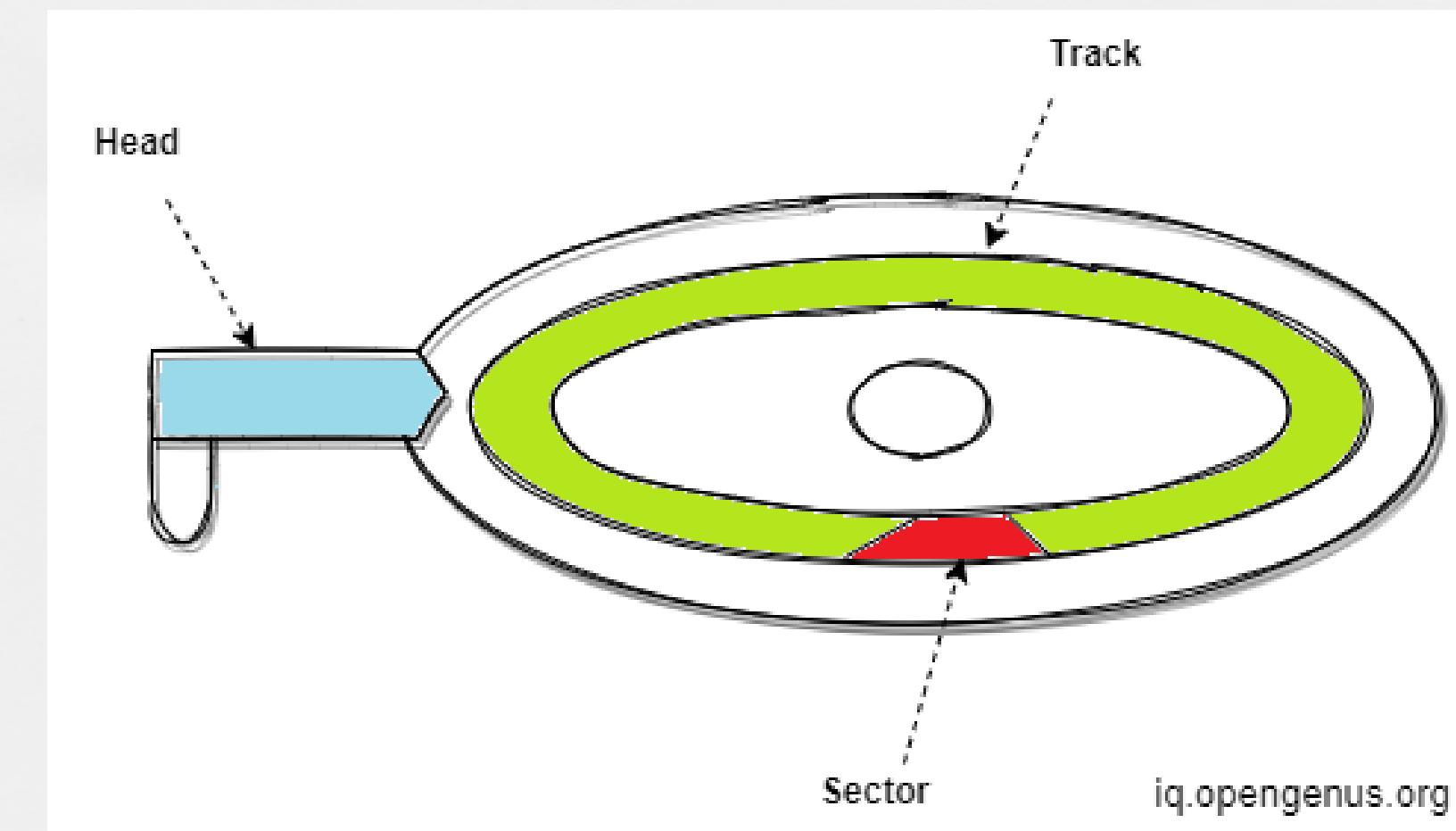
DECODING DATABASES

EPISODE 1



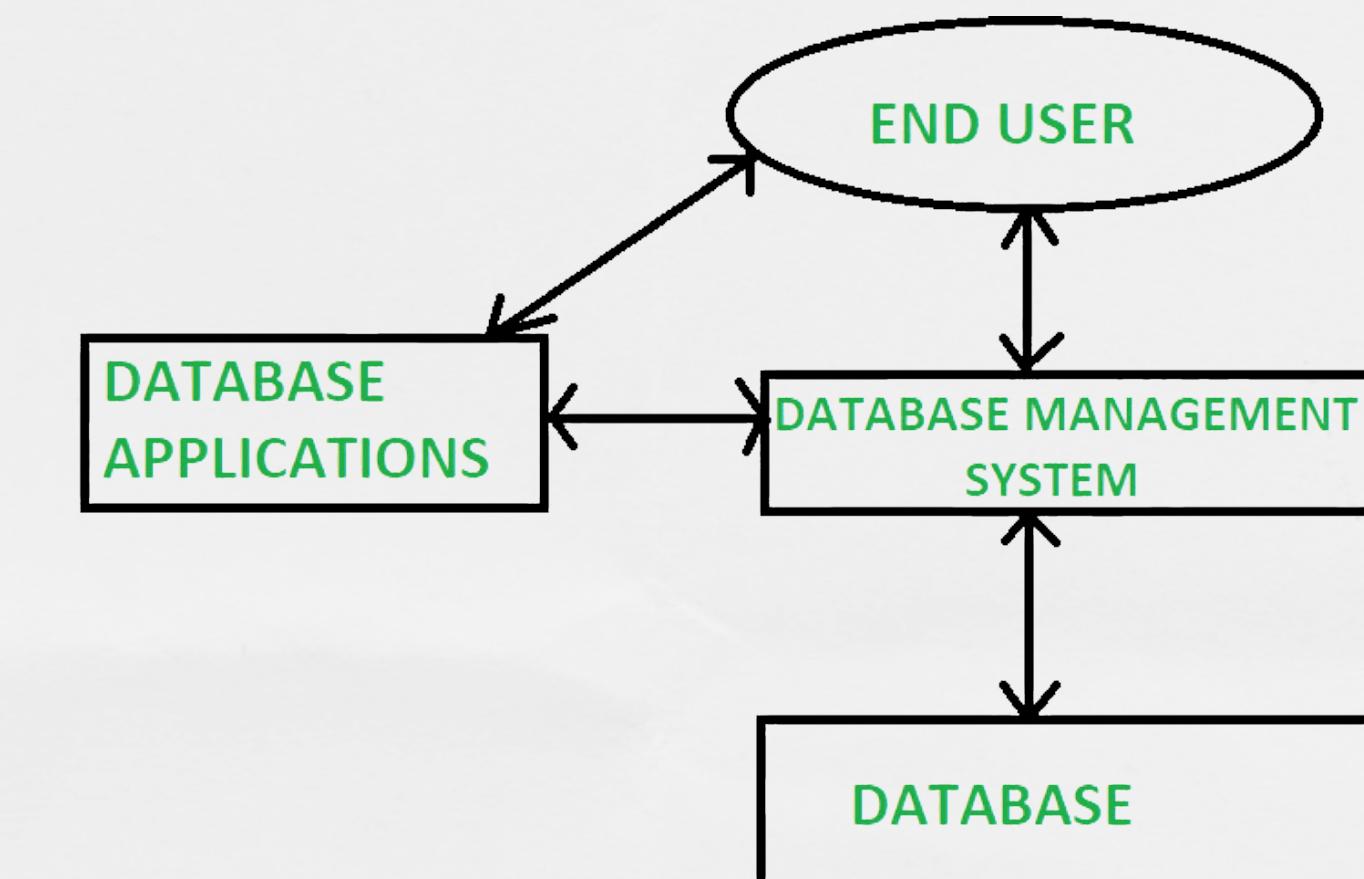
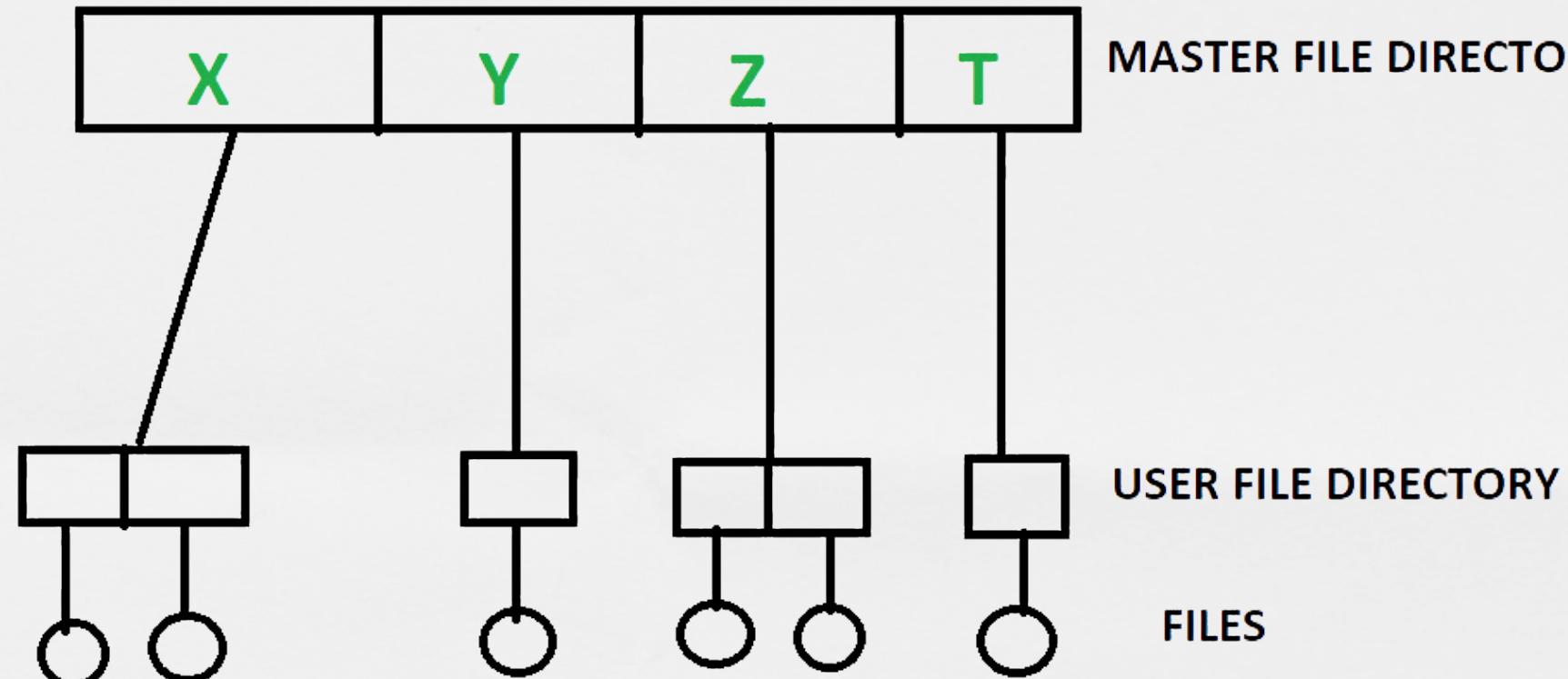
Storage devices





So why we need database ?

When there is already a file system



Storing & Retrieving

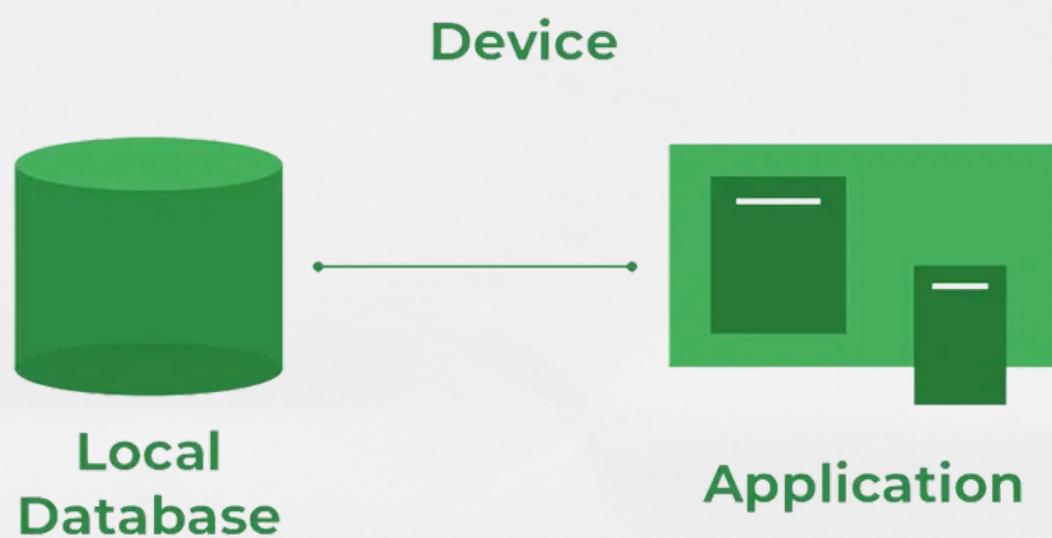
Aspect	Databases	File Systems	Aspect	Databases	File Systems
Data Structures	Structured tables with schemas	Unstructured files and folders	Retrieval Method	Structured queries using SQL	Manual file access
Data Normalisation	Typically normalised to eliminate redundancy	Redundancy May occur	Query Optimisation	Database management system optimises queries	No query optimisation
Indexing	Use of indexes for efficient data retrieval	No built-in indexing	Security	Enforces access control with granular permissions	Basic access control
ACID Properties	Ensures data integrity and consistency with ACID guarantees	No ACID guarantees			
Query Language	SQL for data retrieval, manipulation and management	NO query language			

Advantages of Database

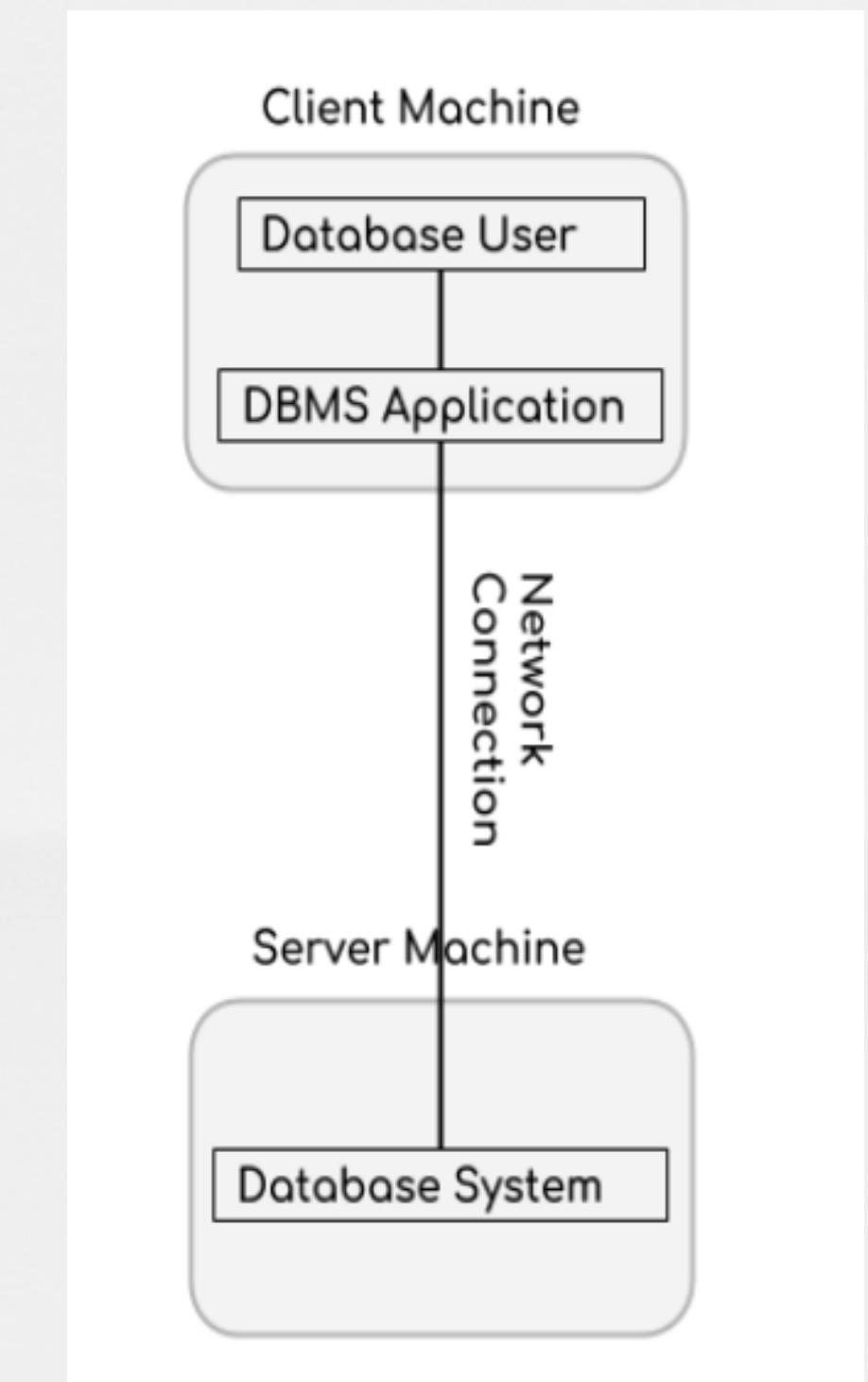
- Resolves Data redundancy issue
- Backup and Recovery methods
- Consistency of data
- Integrity constraints are easy to implement
- Security Mechanism
- Data Independence
- Multiple User Access
- Data Abstraction

Architecture

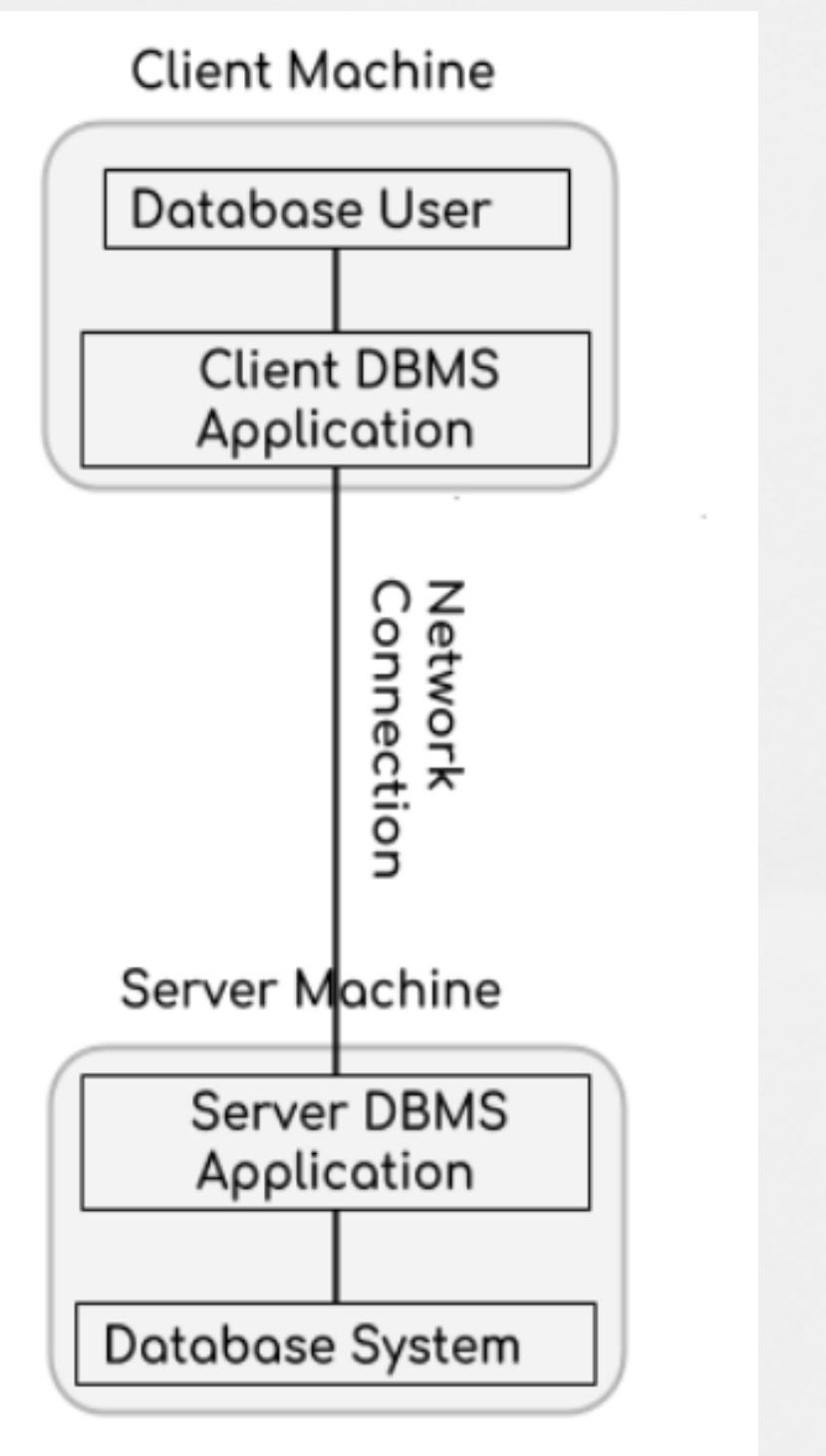
Single Tier



Two Tier



Three Tier

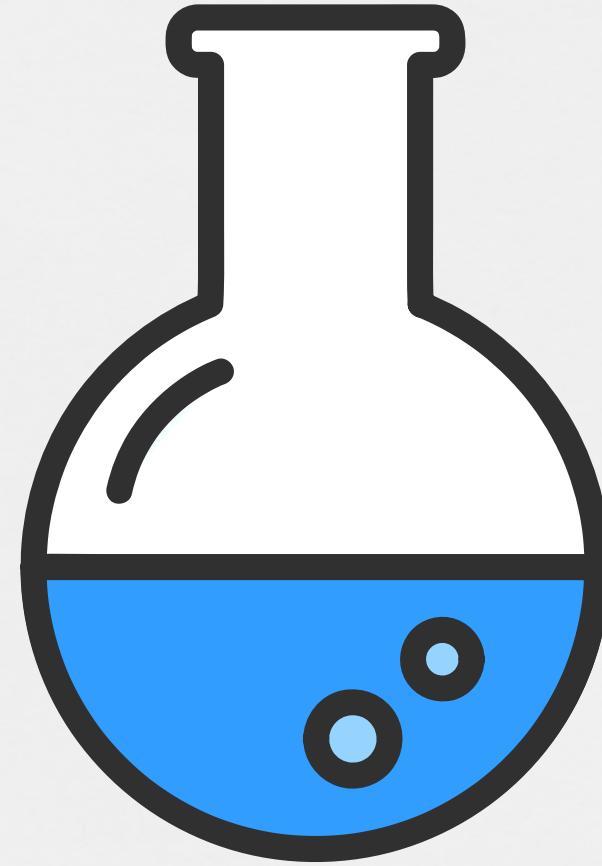


ACID



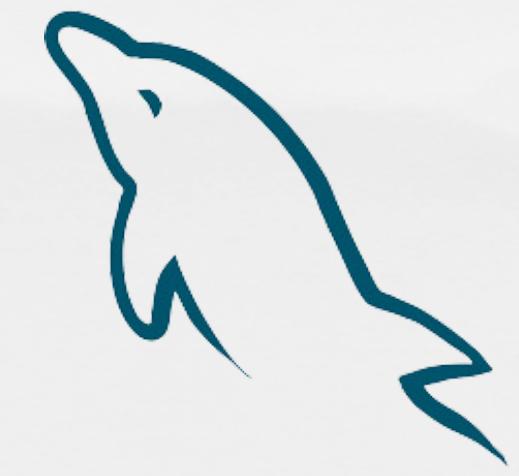
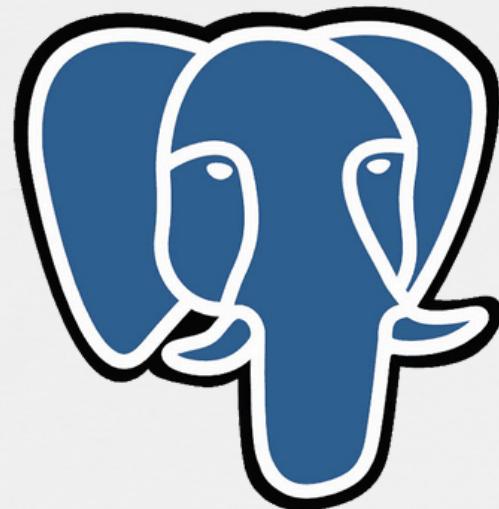
- Atomicity
- Consistency
- Isolation
- Durability

BASE



- Basically Available
- Soft State
- Eventually Consistent

Guess the database name



Types of db

1. Key Value



2. Wide Column



3. Document

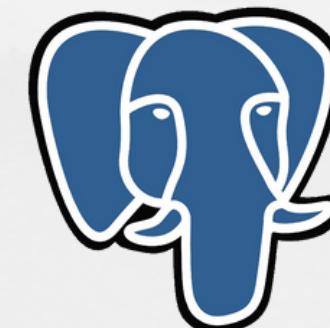


Firebase Firestore



mongoDB

4. Relational



PostgreSQL



Types of db 2

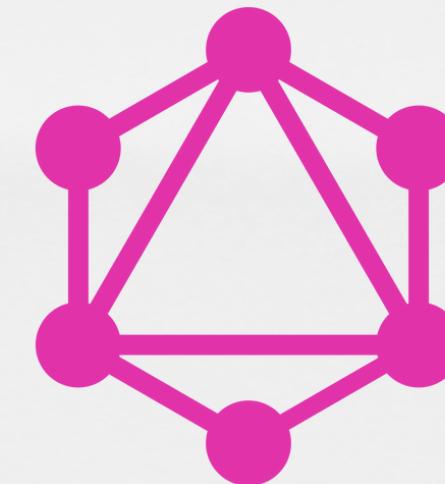
5. Graph



6. Search



7. Multi Model



Story of Discord

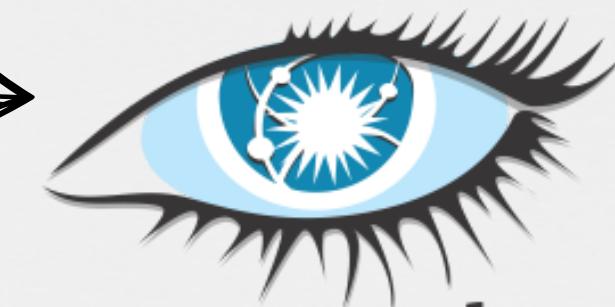
How Discord Stores TRILLIONS of Messages (Blog)

2017 -> 10 M



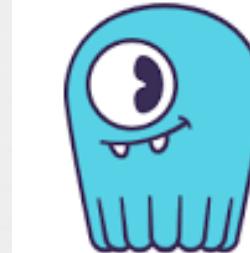
mongoDB

2021 -> 140 M



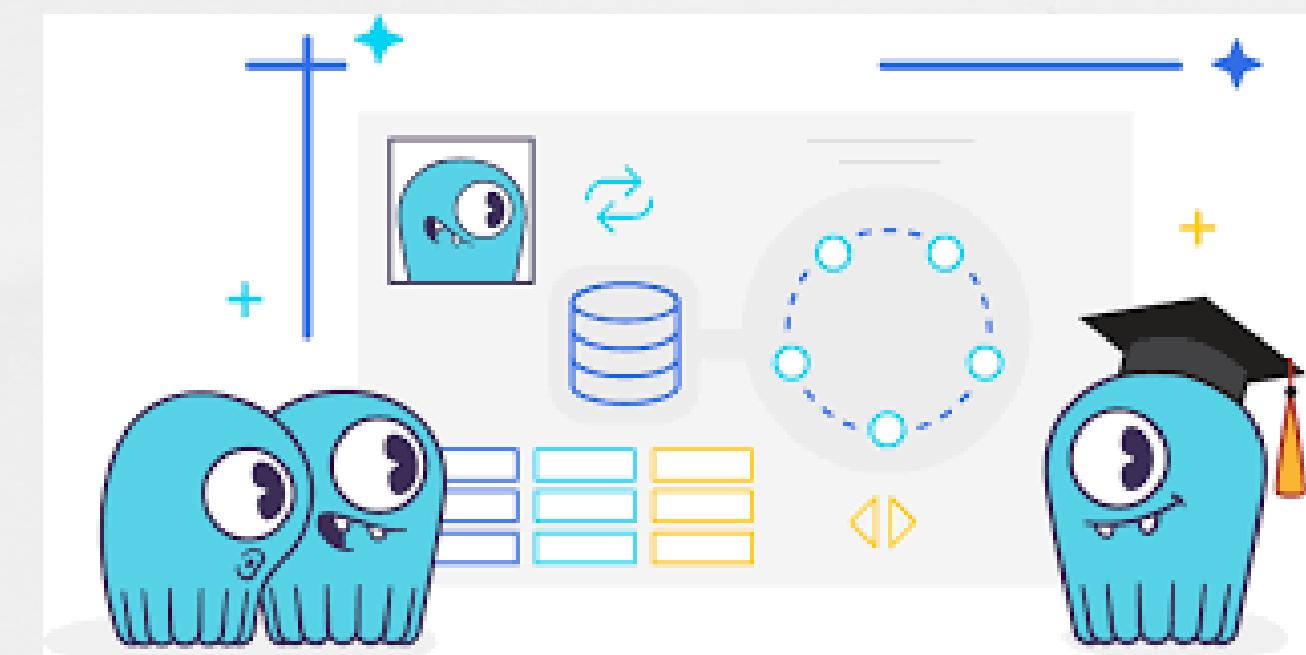
cassandra

Trillions of messages



SCYLLA

How Discord Stores TRILLIONS of Messages (Video)



**THANK
YOU**

