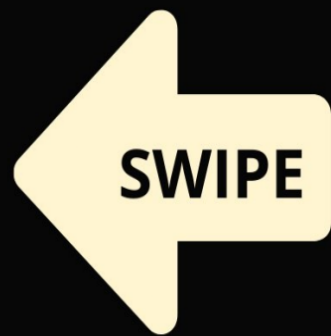




**#ASLI ENGINEERING**

# Non Relational Databases



**BY**

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## Non-Relational Databases

It is a very broad generalization of databases

that are non-relational (MySQL, PostgreSQL, etc)

But this does not mean all non-relational databases are similar

What makes Non-Relational databases interesting?

Most non-relational databases shard out-of-the box !!

=

↗ =

Horizontal Scalability

We talk about 3 most important types of NoSQL databases

Document DBs MongoDB, Elasticsearch.

- Mostly JSON based
  - Supports complex queries → almost like relational (sql) databases
  - Partial updates to documents possible
  - closest to relational database
- ↓  
can do  $\text{total\_posts} \pm 1$   
without re-writing the entire document

{  
 "user\_id": —,  
 "total\_posts": 270  
}
- in-app notification service, catalog service

## Key Value Stores (Redis, DynamoDB, Aerospike)

- Extremely simple databases
- Limited functionalities (GET, PUT, DEL)
- Meant for key-based access pattern
- Does not support complex queries (aggregations)
- Can be heavily sharded and partitioned
- Use case: profile data, order data, auth data, messages, etc

GET (k)

PUT (k, v)

DEL (k)

most of the  
↑ usecases

\* You can use relational databases and document DBs as KV stores

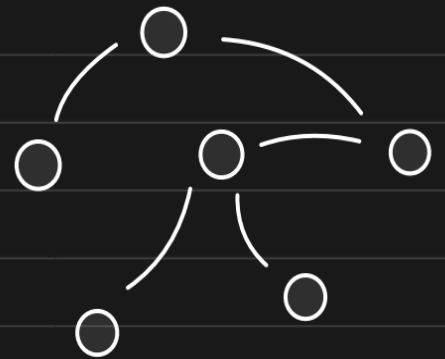
## Graph Databases (Neo4j, Neptune, DGraph)

\* What if our graph data structure had a database

- it stores data that are represented as nodes, edges, and relations

eg: A  $\xrightarrow{\text{FOLLOWS}}$  B

Arpit  $\xrightarrow{\text{BOUGHT}}$  iPad



- Great for running complex graph algorithms
- Powerful to model Social Networks, Recommendations & Fraud Detection

## Exercise

On your local machine, spin up MongoDB, Redis and Nockj and play around with them