Database Choices

Which DB to choose ??

- Based on the team knowledge, we can also prioritise a particular db.

- If we need a graph like structure, graph databases like neo4j, infinitegraph etc can be opted

- If you have unstructured data, which is probably schemaless and you can store it in the form of documents, then document based DBs like MongoDB , firebase are very useful.

- If you want to store key-value pairs, redis, dynamodb are a good choice. redis can be used for caching purpose as well.

- Sometimes geolocation data is the use case then geo spatial dbs like redis geo spatial db, firebase geo spatial db etc are useful.

- If you have relational data, which is structured also then RDBMS is good.

- If you have transactional data, then also RDBMS is good.

- For storing complex data like images, pdfs, videos, we should go for Blob storages like AWS S3.

Transaction

Transactions are logical unit of work which comprises of multiple steps in itself. In a transaction all the sequence of steps should either complete successfully or none of them should complete. There cannot be a partial completion stage.

In DB terms, if all the steps of a transaction has completed we call it as a COMMIT and if some of them completed and few fails, then DB rollbacks all the operation and this situation is called as ABORT.

```
START TRANSACTION;

-- WRITE TYOUR STEPS
```

```
COMMIT;
```

ACID - ATOMICITY, CONSISTENCY, ISOLATION, DURABILITY

Any db following all the acid properties properly is called acid compliant and is very good for transactions.

Atomicity guarantee the db executes a transaction completely or rollback any partial completions. Atomicity ensures no partial update. A good way to implement this is log based recovery.

Consistency is a property with which your data moves from a valid state to another valid state, DBs having high consistency will never leave your data in an inconsistent state.

Isolation is a transaction property that defines how concurrent transactions should be handled.

🌐https://en.wikipedia.org/wiki/Isolation_(database_systems)#Serializable

Durability is a guarantee provided by db, such that if a txn is commited all the changes done by it will persist even if there is a db crash.