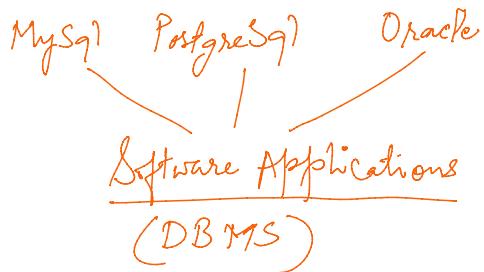


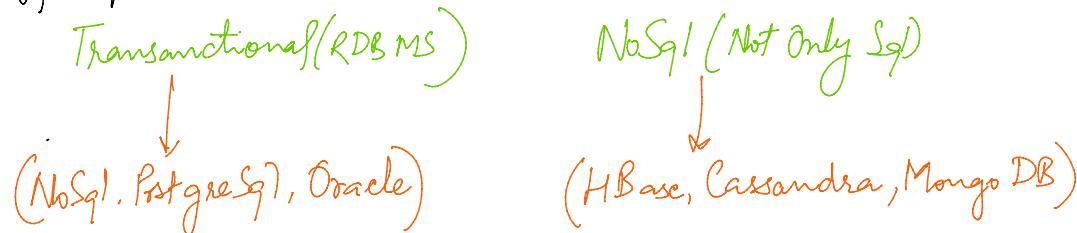
SQL :-

What is database?

Central System where data is stored in some logical related Manner.



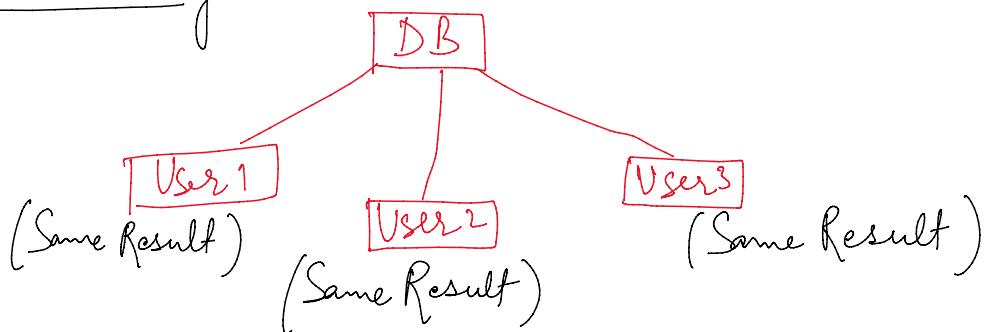
Types of databases :-



Transactional Database :-

- Vertically Scalable
- Consistent
- Data will be stored in a structured form or row column or tabular form.

Consistency :-



NoSQL Database :-

- Horizontally Scalable
- Distributed

- Distributed
 - Stored data in different form
 - Key - Value
 - Columnar
 - Graph
 - Document
 - Not always Consistent
 - Highly available if no Master - Slave Architecture

Transactional:-

Smallest Unit of execution is known as transaction.

transactional database follows ACID properties:

1. Atomicity: The entire transaction take place at once or doesn't happen at all.
 2. Consistency: The database must be consistent before and after the transaction
 3. Isolation: Multiple transaction occur independently without interference.
 4. Durability: The changes of successful transaction occurs even if the system failure occurs.

consistency: means if 2 or 3 users wants to fetch data from a database they will get the same result.

Isolation: Each transaction will execute without impacting each other.

NoSql database:

Horizontally scalable, distributed,
store data in different form: key-value,columner,graph,document
not always consistent
highly available if no master slave architecture

On failure - RollBack will happen

On Success - Commit will happen.

Roll Back - Take Our DB to previous State

Commit - Save the Changes or Next Consistent State .

Isolation :-

Isolation :-

Each Transaction Will Execute Without Impacting Each Other.

Durability :-

- holding data into the logs
- help us from failure and recovery.

CAP Theorem :-

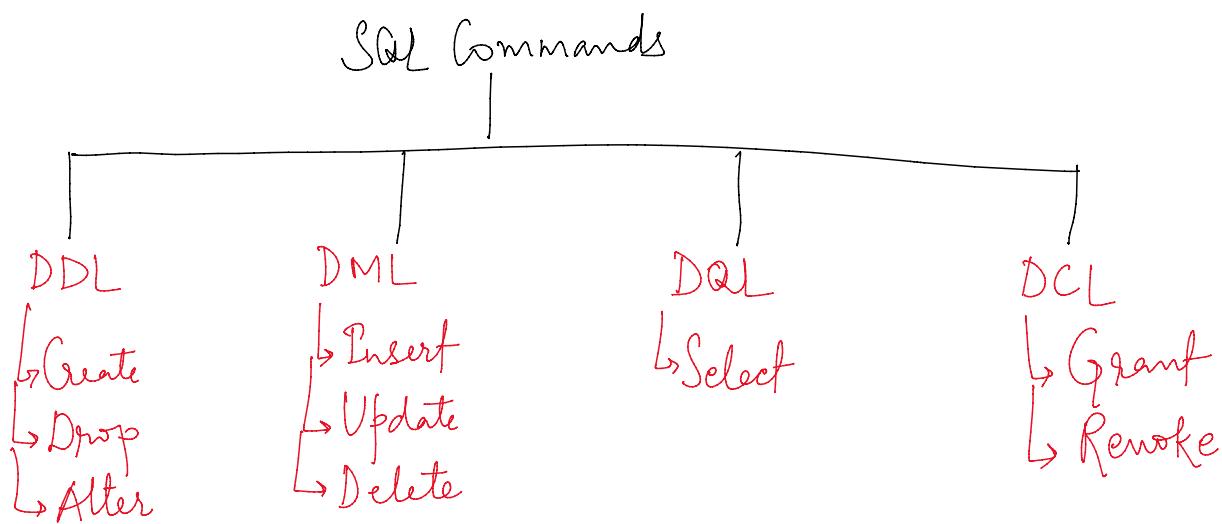
→ There is no database as such which can provide all 3 properties as once

→ Only Two Can be Achieved

C - Consistency

A - Availability

P - Partition Tolerance



DDL - Data Definition Language

DML - Data Manipulation Language

DQL - Data Query Language

~ . D.T. Intent Manager

DQL - Data Query language
DCL - Data Control language

Data types in SQL :-

① String datatypes :-

- ↳ CHAR(n) :- all character whose ASCII Value is between 0 - 255
- ↳ VARCHAR(n) :- all Unicode character as well as 0 - 65535

② Numeric datatypes :-

- ↳ INT (n)
- ↳ BIGINT (n)
- ↳ Decimal (size,d)

③ Date and time data types :-

- ↳ Date (YYYY:MM:DD)
- ↳ Timestamp (YYYY:MM:DD: hh:mm:ss)

Integrity Constant :-

- ↳ To keep data Consistent with respect to data quantity.

Integrity Constant in MySql :-

- | | | |
|---------------|---------------|----------------|
| ① NOT NULL | ④ FOREIGN KEY | ⑦ CREATE INDEX |
| ② UNIQUE | ⑤ CHECK | |
| ③ PRIMARY KEY | ⑥ DEFAULT | |