LET'S START WITH DBMS :)

Normalisation and its types

Normalisation

Normalization is a process in which we organize data to reduce redundancy(duplicacy) and improve data consistency. It involves dividing a database into two or more tables

What is data redundancy and consistency and why its important

When there is same set of data repeated each and every time it results in duplicacy of data (either in row or column)
Now row level duplicacy can be remove by using primary key for unique values.

LET'S START WITH DBMS :)

Normalisation and its types

Now when we have same data for some set of columns , it leads to different anomalies (inconsistencies or errors that occur when manipulating or querying data in a database)

1. Insertion Anomaly
2. Updation Anomaly
3. Deletion Anomaly

Also it also increases the size of database with the same data.

LET'S START WITH DBMS :)

Normalisation and its types

Insertion Anomaly:

It occurs when it is difficult to insert data into the database due to the absence of other required data.

Consider you want to add a new department but there is no employee in that dept yet.

Employee

id	name	age	department	Manager	salary
1	Rahul	25	'IT'	Raj	1500
2	Afsara	26	'HR'	Avinash	1000
3	Abhimanyu	27	'IT'	Raj	1500
4	Aditya	25	'HR'	Avinash	1000
5	Raj	24	'HR'	Avinash	1000

LET'S START WITH DBMS :)

Normalisation and its types

Deletion Anomaly:

It occurs when deleting data removes other valuable data.

Consider if you delete all the record in the table, you will loose the track of dept, their manager and salaries.

Employee

id	name	age	department	Manager	salary
1	Rahul	25	'IT'	Raj	1500
2	Afsara	26	'HR'	Avinash	1000
3	Abhimanyu	27	'IT'	Raj	1500
4	Aditya	25	'HR'	Avinash	1000
5	Raj	24	'HR'	Avinash	1000

LET'S START WITH DBMS :)

Normalisation and its types

Updation Anomaly:

It occurs when changes to data require multiple updates

Consider you want to change the salary for people working in HR department, you need to update it at 3 place .

Employee

id	name	age	department	Manager	salary
1	Rahul	25	'IT'	Raj	1500
2	Afsara	26	'HR'	Avinash	1000
3	Abhimanyu	27	'IT'	Raj	1500
4	Aditya	25	'HR'	Avinash	1000
5	Raj	24	'HR'	Avinash	1000

LET'S START WITH DBMS :)

Normalisation and its types

How normalisation helps here?

Using normalisation we can divide the employee table in two tables

1. Employee
2. Department

Employee

id	name	age	department
1	Rahul	25	IT
2	Afsara	26	HR
3	Abhimanyu	27	IT
4	Aditya	25	HR
5	Raj	24	HR

Department

department	Manager	salary
IT	Raj	1500
HR	Avinash	1000

LET'S START WITH DBMS :)

Normalisation and its types

Types of Normalisation

- First Normal Form (1NF)
- Second Normal Form (2NF)
- Third Normal Form (3NF)
- Boyce-Codd Normal Form(BCNF)