Normalization

* Normalization in SQL is a way to organize a database to remove repeated data and ensure everything is stored properly. It makes the database smaller and easier to manage by breaking one big table into smaller, related tables.
* Normalization is a way to arrange data properly and It breaks big tables into smaller ones then remove repeated information. And it’s makes the data simple, correct, and easy to use.

TYPE OF NORMALIZATION

1. 1 NF
2. 2NF
3. 3NF
4. BCNF

1. 1NF :- Data should be stored in a table with rows and columns, and each column must have only one value

* Each column should have only one value
* Each row should be unique
* The data should be organized in a table with clear rows and columns

1. 2 NF :- This keeps things clear and avoids unnecessary connections between columns
   * 1. In that every piece of information in a table should be directly linked to the main identifier in primary key Non - key details like student name or and other data should depend only on the primary key and not on other pieces of information in the table.

It means that each piece of information in a table should depend only on the primary key, not on other columns.

1. 3 NF :-  **3NF** is a organizing a database to reduce redundancy and improve data integrity. To be in 3NF, the table must first be in **2NF**, and then it should meet an additional rule: **no transitive dependencies**.

That is know as that non-key columns should not depend on other non-key columns. Instead, every non-key column must depend directly on the primary key.

A 3NF ensures that all non-key columns depend only on the primary key and not on other non-key columns.

1. BCNF :- BCNF ensures that every **determinant** it is know as simple is a column that determines the value of another column is a **candidate key**. This means there are no exceptions to the rule that every non-key column must depend on the BCNF ensures that every column in a :- table depends only on the primary key, not on any other column.

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