1.Explain what is normalization and explain the normalization with its examples.

ANSWER :

[Normalization is a database design technique that reduces data redundancy and eliminates undesirable characteristics like Insertion, Update and Deletion Anomalies**1**](https://www.guru99.com/database-normalization.html). [It is a process of organizing data in a database to reduce redundancy and improve data integrity**2**](https://www.w3schools.in/DBMS/database-normalization/). [Normalization involves dividing large tables into smaller tables and defining relationships between them**2**](https://www.w3schools.in/DBMS/database-normalization/).

There are several normal forms that are used in database normalization. The most commonly used normal forms are:

1. [**First Normal Form (1NF)**: A relation is said to be in 1NF if it contains no repeating groups or arrays**3**](https://www.javatpoint.com/dbms-normalization).
2. **Second Normal Form (2NF)**: A relation is said to be in 2NF if it is in 1NF and every non-key attribute is fully dependent on the primary key[**3**](https://www.javatpoint.com/dbms-normalization).
3. **Third Normal Form (3NF)**: A relation is said to be in 3NF if it is in 2NF and every non-key attribute is non-transitively dependent on the primary key[**3**](https://www.javatpoint.com/dbms-normalization).

For example, consider a table that contains information about students and their courses. If we store all the information in one table, we may have redundant data such as student name, address, phone number, etc. To normalize this table, we can divide it into two tables: one for student information and another for course information. The two tables can be linked using a common field such as student ID[**1**](https://www.guru99.com/database-normalization.html).