1. **What is anomalies? Explain Update anomaly in SQL.**
2. **What is Normalization? State the types of Normalization.**

Anomalies are problems or inconsistencies that occur in a database when it is not properly designed, especially when redundant or unnormalized data exists. They typically arise when performing operations like insert, update, or delete.

Types of Anomalies:

1. **Insert Anomaly:** Occurs when certain data cannot be inserted into the database without including unnecessary or incomplete data.
2. **Update Anomaly:** Occurs when changes to redundant data require multiple rows to be updated, leading to inconsistencies if some rows are missed.
3. **Delete Anomaly:** Occurs when deleting data unintentionally results in the loss of additional, essential data.

 Normalization is a systematic process in database design used to organize data to minimize redundancy and avoid anomalies. It involves dividing large tables into smaller, related tables and defining relationships between them.

Goals of Normalization:

1. Reduce redundancy.
2. Prevent anomalies (insert, update, delete).
3. Ensure data integrity.

Types of Normalization:

1. **First Normal Form (1NF):**
   - Ensures each column contains atomic (indivisible) values.

- o Removes duplicate columns from the same table.
2. **Second Normal Form (2NF):**
    - o Achieved when the table is in 1NF.
    - o Removes partial dependency: no non-prime attribute should depend on a part of a composite primary key.
3. **Third Normal Form (3NF):**
    - o Achieved when the table is in 2NF.
    - o Removes transitive dependency: no non-prime attribute should depend on another non-prime attribute.
4. **Boyce-Codd Normal Form (BCNF):**
    - o A stricter version of 3NF.
    - o Ensures that every determinant is a candidate key.