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