What is the difference between View and Table.

Table:

- **Physical entity:** Stores actual data in the database.
- **Direct data storage:** Contains rows and columns to organize information.
- **Data manipulation:** Allows for direct insertion, deletion, and modification of data.
- **Independent entity:** Exists as a standalone object in the database.

View:

- **Logical entity:** A virtual table derived from one or more underlying tables.
- **Indirect data access:** Doesn't store data itself but presents data from existing tables.
- **Data presentation:** Offers a specific perspective or filtered view of the data.
- **Dependent entity:** Relies on the underlying tables for its data.

What is view? State the types of View.

View

A **view** in a database is a virtual table that presents data from one or more underlying tables. It doesn't store data directly but provides a filtered or aggregated perspective of the data. Views are often used to simplify complex queries, improve data security, and provide customized data presentations for different users or applications.

Types of Views

There are several types of views based on their underlying logic :

1. **Simple View:**
    - Derived from a single base table.
    - Contains a subset of columns from the base table.
    - Can include filtering conditions to limit the data returned.
2. **Complex View:**
    - Derived from multiple base tables.
    - Uses joins to combine data from different tables.
    - Can include complex expressions, functions, and subqueries.
3. **Materialized View:**
    - Stores pre-calculated results of a query.
    - Can improve query performance for frequently executed queries.
    - Requires periodic refresh to keep the data up-to-date.

What is the difference between Simple View and Complex View

Simple View

- **Derived from a single base table.**
- **Contains a subset of columns from the base table.**
- **Can include filtering conditions to limit the data returned.**
- **Typically involves basic SQL statements like SELECT, FROM, WHERE.**

Complex View

- **Derived from multiple base tables.**
- **Uses joins to combine data from different tables.**
- **Can include complex expressions, functions, and subqueries.**
- **Often involves more advanced SQL constructs like JOINs, UNION, CASE statements.**