View IN SQL

**View : -** A view in SQL is a virtual table.A view also has rows and columns like tables, but a view doesn’t store data on the disk like a table.

Why do we use view or what are the advantages of view : -

1. **Data Security and Access Control : -**

A company has a database containing employee information, including sensitive details such as salaries, Social Security Numbers (SSNs), and contact details. You want to allow certain employees (e.g., HR personnel) to access non-sensitive employee data without exposing sensitive information.

**Solution**: Create a view that excludes sensitive data (like SSNs and salaries), and grant HR staff access to this view instead of the full table.

2. **Simplifying Complex Queries : -**

Scenario: A retail company needs to regularly generate reports showing total sales by region and by product category. Instead of writing complex JOIN and GROUP BY queries repeatedly, they create a view that encapsulates the logic.

Solution: Create a view that calculates the sales summary by region and category, and use it to easily generate reports.

3. **Combining Data from Multiple Tables : -**

Scenario: A university database has separate tables for students, courses, and grades. Administrators frequently need to generate reports showing which students are enrolled in which courses along with their grades.

Solution: Create a view that joins these tables together, allowing administrators to query a single view instead of joining multiple tables each time.

**REPLACE VIEW : -** The REPLACE VIEW statement is used to modify or redefine an existing view in SQL. If the view already exists, it will be replaced with the new query. If the view doesn’t exist, it behaves like the CREATE VIEW statement and creates a new view.

Syntax :- CREATE OR REPLACE VIEW view\_name AS

SELECT columns

FROM table\_name

WHERE condition;

## **DELETE VIEWS in SQL : -** SQL allows us to delete an existing View. We can delete or drop View using the DROP statement.

Syntax : - DROP VIEW view\_name;

**UPDATE VIEW : -** In SQL, you cannot directly update the data of a view itself because a view is a virtual table that does not store data.

Updating Data Through a View (If the View is Updatable)

If the view is updatable, you can update, insert, or delete data through the view, and the changes will affect the underlying table.

not all views are updatable. A view is updatable if it follows certain conditions, such as:

1. The SELECT statement which is used to create the view should not include GROUP BY clause or ORDER BY clause.
2. The SELECT statement should not have the DISTINCT keyword.
3. The View should have all NOT NULL values.
4. The view should not be created using nested queries or complex queries.
5. The view should be created from a single table. If the view is created using multiple tables then we will not be allowed to update the view.

Syntax : - UPDATE view\_name SET column1 = value1, column2 = value2...., columnN = valueN WHERE [condition];

**WITH CHECK Condition** : - The WITH CHECK OPTION clause is used to prevent data modification (using INSERT or UPDATE) if the condition in the WHERE clause in the CREATE VIEW statement is not satisfied.

Syntax : -

CREATE [OR REPLACE] VIEW view\_name AS

SELECT column1, column2, ...

FROM table\_name

WHERE condition

WITH CHECK OPTION;

Example : - CREATE VIEW high\_salary\_employees AS

SELECT id, name, salary

FROM employees

WHERE salary > 50000

WITH CHECK OPTION;

**WITH CHECK OPTION**: Ensures that any rows inserted or updated through this view must have a salary greater than 50000. If an attempt is made to insert or update a row where the salary is less than 50000, the operation will be rejected.