View:

A view is a **virtual table** based on the **result-set of a SELECT** statement. It does not store data physically but dynamically retrieves data from its underlying base tables every time it is queried, essentially acting as a stored query.

Key Characteristics

Virtual Nature: Views have rows and columns just like a physical table, but the data is not stored independently. They reflect the latest data from the underlying tables.

Abstraction and Simplification: They can be used to simplify complex queries, such as those involving multiple joins or aggregations, by encapsulating the complex logic into a single, easy-to-query object.

Security: Views enhance security by allowing users to access only specific columns and rows, hiding sensitive data and the underlying schema structure from direct access.

How to Use Views:

1. Create a View

CREATE VIEW view_name AS

SELECT column1, column2

FROM table_name

WHERE condition;

Eg:

CREATE VIEW current_employees AS

SELECT * FROM employees WHERE is_active = 1;

2. Query a View

SELECT * FROM current_employees;

3.Modify or Drop a View

To modify an existing view's definition, you can use ALTER VIEW or CREATE OR REPLACE VIEW.

To remove a view from the database, use the DROP VIEW statement

CREATE VIEW salePerOrder AS

   SELECT

      orderNumber,

      SUM(quantityOrdered * priceEach) total

   FROM

orderDetails

GROUP by orderNumber

ORDER BY total DESC;

SHOW FULL TABLES;

SHOW CREATE VIEW statement to retrieve the statement that creates the view.

Rename a View:

RENAME TABLE original_view_name TO new_view_name;

Use the following command to check if renamed successfully:

SHOW FULL TABLES WHERE table_type = 'VIEW';

Drop View:

The DROP VIEW statement deletes a view completely from the database.

DROP VIEW [IF EXISTS] view_name;

WITH CHECK OPTION:

This WITH CHECK OPTION prevents you from updating or inserting rows that are not visible through the view.

Syntax:

CREATE OR REPLACE VIEW view_name

AS select_statement WITH CHECK OPTION;

Eg:

CREATE OR REPLACE VIEW contractors

AS

SELECT id, type, name

FROM

  employees

WHERE

  type = 'Contractor'

WITH CHECK OPTION;

INSERT INTO contractors(name, type)

VALUES('Brad Knox', 'Full-time');

ERROR 1369 (HY000): CHECK OPTION failed 'mydb.contractors'