

Government College of Engineering, Jalgaon
(An Autonomous Institute of Government of Maharashtra)

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Class : T. Y. B.Tech Computer	Academic Year : 2023-24	Subject : CO307U
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Practical no. 6

Aim : Design queries to demonstrate different types of views.

Requirements:

1. Computer System with Open Source Operating System.
2. Mysql

Theory:

Views in SQL:

- Views in SQL are considered as a virtual table. A view also contains rows and columns.
- To create the view, we can select the fields from one or more tables present in the database.
- A view can either have specific rows based on certain condition or all the rows of a table.

Advantages of View:

1. **Complexity:** Views help to reduce the complexity. Different views can be created on the same base table for different users.
2. **Security:** It increases the security by excluding the sensitive information from the view.
3. **Query Simplicity:** It helps to simplify commands from the user. A view can draw data from several different tables and present it as a single table.
4. **Consistency:** A view can present a consistent, unchanged image of the structure of the database. Views can be used to rename the columns without affecting the base table.
5. **Data Integrity:** If data is accessed and entered through a view, the DBMS can automatically check the data to ensure that it meets the specified integrity constraints.
6. **Storage Capacity:** Views take very little space to store the data.
7. **Logical Data Independence:** View can make the application and database tables to a certain extent independent.

Disadvantages of View:

The DML statements which can be performed on a view created using single base table have certain restrictions are:

1. You cannot INSERT if the base table has any not null column that do not appear in view.
2. You cannot INSERT or UPDATE if any of the column referenced in the INSERT or UPDATE contains group functions or columns defined by expression.
3. You can't execute INSERT, UPDATE, DELETE statements on a view if with read only option is enabled.
4. You can't be created view on temporary tables.
5. You cannot INSERT, UPDATE, DELETE if the view contains group functions GROUP BY, DISTINCT or a reference to a psuedocolumn rownum.
6. You can't pass parameters to the SQL server views.
7. You can't associate rules and defaults with views.

1. Creating view

A view can be created using the CREATE VIEW statement. We can create a view from a single table or multiple tables.

Syntax:

1. **CREATE VIEW** view_name **AS**
2. **SELECT** column1, column2.....
3. **FROM** table_name
4. **WHERE** condition;

2. Deleting View

A view can be deleted using the Drop View statement.

Syntax

1. **DROP VIEW** view_name;

3. UPDATE View

A view is a database object that can contain rows (all or selected) from an existing table. It can be created from one or many tables which depends on the provided SQL query to create a view.

Unlike CREATE VIEW and DROP VIEW there is no direct statement to update the records of an existing view. We can use the SQL UPDATE Statement to modify the existing records in a table or a view.

Syntax

The basic syntax of the UPDATE query with a WHERE clause is as follows –
UPDATE view_name

SET column1 = value1, column2 = value2....., columnN = valueN
WHERE [condition];

4. DROP VIEW

The SQL **DROP VIEW** statement is used to delete an existing view, along with its definition and other information. Once the view is dropped, all the permissions for it will also be removed. We can also drop indexed views with this statement.

Suppose a table is dropped using the DROP TABLE command and it has a view associated to it, this view must also be dropped explicitly using the DROP VIEW command.

- While trying to perform queries, the database engine checks all the objects referenced in that statement are valid and exist. So, if a view does not exist in the database, the DROP VIEW statement will throw an error.
- To drop a table in a database, one must require ALTER permission on the said table and CONTROL permissions on the table schema.

Syntax

The basic syntax of this DROP VIEW statement is as follows –

DROP VIEW view_name;

Conclusion:

Design queries to demonstrate different types of views.

Questions:

1) How do you create a view in MySQL?

```
CREATE VIEW my_view AS  
SELECT column1, column2, ...  
FROM my_table  
WHERE condition;
```

2) What is a view in MySQL?

A view in MySQL is a virtual table based on the result of a SELECT query. It doesn't store the data itself but provides a way to represent the result of a query as if it were a table. Views can be used to simplify complex queries, restrict access to specific columns, or present aggregated data.

3) Can you update data through a view in MySQL?

Yes, you can update data through a view in MySQL if certain conditions are met. The view must be updatable, meaning it should be based on a single table, not include aggregate functions, and meet other criteria. You can use the **UPDATE** statement on the view similar to a regular table.

4) How do you drop a view in MySQL?

To drop (delete) a view in MySQL, you can use the **DROP VIEW** statement. Here's an example:
`DROP VIEW my_view;`

5) Can you join multiple tables in a view in MySQL?

Yes, you can create a view that joins multiple tables in MySQL. The view definition can include multiple tables using standard SQL join syntax. Here's an example:

```
CREATE VIEW my_complex_view AS
SELECT t1.column1, t2.column2, ...
FROM table1 t1
JOIN table2 t2 ON t1.common_column = t2.common_column
WHERE condition;
```

This creates a view named **my_complex_view** that joins **table1** and **table2** based on a common column with an additional condition. Adjust the column names and conditions based on your actual tables and requirements.

Course Teacher
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