Tikrit University

College of Computer Science and Mathematics

Department of Computer Science

More SQL: Complex Queries, Triggers, Views, and Schema Modification

Lec6

2nd Stage

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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.

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

```
CREATE VIEW view_name AS
SELECT column1, column2.....
FROM table_name
WHERE condition;
```

Creating View from a single table

```
CREATE VIEW DetailsView AS
SELECT NAME, ADDRESS
FROM Student_Details
WHERE STU_ID < 4;
```

Creating View from multiple tables

View from multiple tables can be created by simply include Multiple tables in the SELECT statement.

In the given example, a view is created named MarksView from two tables Student_Detail and Student_Marks.

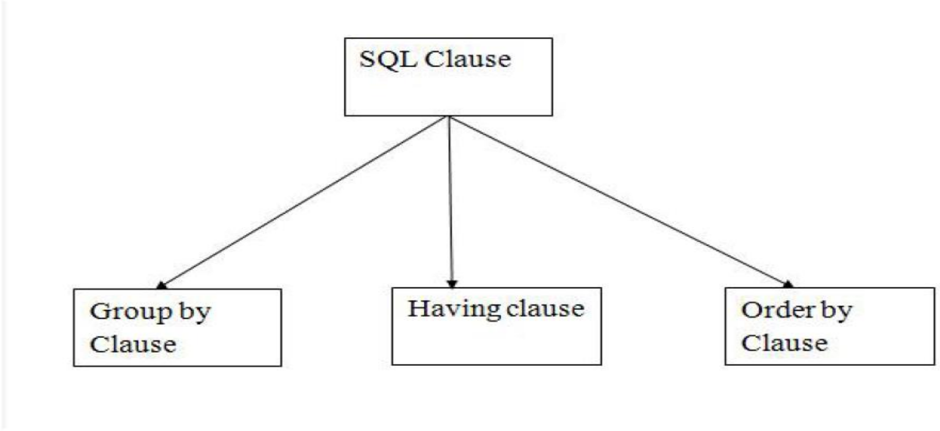
```
CREATE VIEW MarksView AS

SELECT Student_Detail.NAME, Student_Detail.ADDRESS,
Student_Marks.MARKS
FROM Student_Detail, Student_Mark
WHERE Student_Detail.NAME = Student_Marks.NAME;
```

```
SELECT * FROM MarksView;
```

```
DROP VIEW view_name;
```

SQL Clauses



GROUP BY

• SQL GROUP BY statement is used to arrange identical data into groups.
• The GROUP BY statement is used with the SQL SELECT statement.
• The GROUP BY statement follows the WHERE clause in a SELECT statement and precedes the ORDER BY clause.
• The GROUP BY statement is used with aggregation function.

Syntax

```
SELECT column
FROM table_name
WHERE conditions
GROUP BY column
ORDER BY column
```

Example

```
SELECT COMPANY, COUNT(*)
FROM PRODUCT_MAST
GROUP BY COMPANY;
```

HAVING

- HAVING clause is used to specify a search condition for a group or an aggregate.
- Having is used in a GROUP BY clause. If you are not using GROUP BY clause then you can use HAVING function like a WHERE clause.

Syntax

```
SELECT column1, column2
FROM table_name
WHERE conditions
GROUP BY column1, column2
HAVING conditions
ORDER BY column1, column2;
```

Example

```
SELECT COMPANY, COUNT(*)
FROM PRODUCT_MAST
GROUP BY COMPANY
HAVING COUNT(*)>2;
```

ORDER BY

- The ORDER BY clause sorts the result-set in ascending or descending order.
- It sorts the records in ascending order by default. DESC keyword is used to sort the records in descending order.

Syntax

```
SELECT column1, column2
FROM table_name
WHERE condition
ORDER BY column1, column2...  DESC;
```

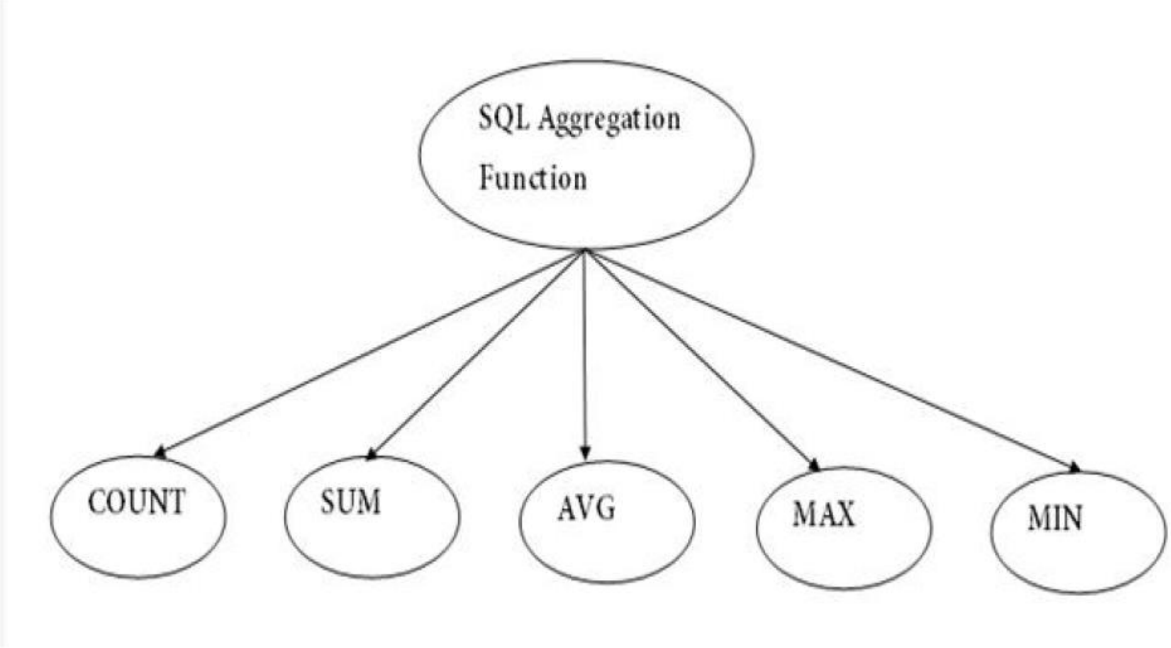
Example

```
SELECT *
FROM CUSTOMER
ORDER BY NAME ; (already ASC)
```

OR

```
SELECT *
FROM CUSTOMER
ORDER BY NAME DESC;
```

SQL Aggregate Functions



COUNT FUNCTION

• COUNT function is used to Count the number of rows in a database table. It can work on both numeric and non-numeric data types.

• COUNT function uses the COUNT(*) that returns the count of all the rows in a specified table. COUNT(*) considers duplicate and Null.

Syntax

COUNT(*) or COUNT([ALL|DISTINCT] expression)

Example

➢ SELECT COUNT(*) FROM PRODUCT_MAST;

➢ SELECT COUNT(*) FROM PRODUCT_MAST; WHERE RATE>=20;

➢ SELECT COUNT(DISTINCT COMPANY) FROM
PRODUCT_MAST;

➢ SELECT COMPANY, COUNT(*) FROM PRODUCT_MAST
GROUP BY COMPANY;

➢ SELECT COMPANY, COUNT(*) FROM PRODUCT_MAST
GROUP BY COMPANY
HAVING COUNT(*)>2;

SUM FUNCTION

• Sum function is used to calculate the sum of all selected columns. It works on numeric fields only.

Syntax

```
SUM()
```

Example

```
SELECT SUM(COST) FROM PRODUCT_MAST;
```

SUM() with WHERE

```
SELECT SUM(COST) FROM PRODUCT_MAST WHERE
QTY>3;
```

SUM() with GROUP BY

```
SELECT SUM(COST) FROM PRODUCT_MAST WHERE
QTY>3
GROUP BY COMPANY;
```

SUM() with HAVING

```
SELECT COMPANY, SUM(COST) FROM
PRODUCT_MAST GROUP BY COM
PANY HAVING SUM(COST)>=170;
```

AVG FUNCTION

- The AVG function is used to calculate the average value of the numeric type. AVG function returns the average of all non-Null values.

Syntax
AVG() or AVG([ALL|DISTINCT] expression)

Example
SELECT AVG(COST) FROM PRODUCT_MAST;

MAX FUNCTION

- MAX function is used to find the maximum value of a certain column. This
function determines the largest value of all selected values of a column.

Syntax
MAX() or MAX([ALL|DISTINCT] expression)

Example
SELECT MAX(RATE) FROM PRODUCT_MAST;

MIN FUNCTION

• MIN function is used to find the minimum value of a certain column. This function determines the smallest value of all selected values of a column

Syntax

MIN() or MIN([ALL|DISTINCT] expression)

Example

SELECT MIN(RATE) FROM PRODUCT_MAST;