LIMIT CLAUSE

The LIMIT clause in SQL allows users to control the amount of data retrieved and displayed in the result set.

It is useful when only a subset of records is needed for analysis or display purposes in large databases with thousands of records.

Syntax

The Syntax to use LIMIT in SQL is:

```
SELECT column1, column2, ...
FROM table_name
WHERE condition
ORDER BY column
LIMIT [offset,] row_count;
```

Here,

- **offset**: number of rows to skip before returning the result set.
- **row_count**: number of rows to return in the result set.

SQL LIMIT Examples

Let's look at some examples of the LIMIT clause in SQL to understand it's working:

We will use the sample table name "Student" and write some LIMIT queries.

id	name	age
1	Shubham Thakur	18
2	Aman Chopra	19
3	Bhavika uppala	20
4	Anshi Shrivastava	22

Student Table

To create this table in your system, write the following queries:

```
CREATE TABLE student
(
    id INT PRIMARY KEY,
    name VARCHAR(50),
    age INT
);
INSERT INTO student (id, name, age)
VALUES (1, 'Shubham Thakur', 18),
```

```
(2, 'Aman Chopra', 19),
(3, 'Bhavika uppala', 20),
(4,'Anshi Shrivastava',22);
```

LIMIT Clause Example

In this example, we will only retrieve 3 rows from the student table using LIMIT.

Query

```
SELECT * FROM student
LIMIT 3;
```

Output

id	name	age
1	Shubham Thakur	18
2	Aman Chopra	19
3	Bhavika uppala	20

LIMIT Clause Example

LIMIT with ORDER BY Clause

In this example, we will use the LIMIT clause with ORDER BY clause.

Query

```
SELECT * FROM Student
ORDER BY Grade DESC
LIMIT 3;
```

Output

id	name	age
4	Anshi Shrivastava	22
3	Bhavika uppala	20
2	Aman Chopra	19

LIMIT with ORDER BY Clause

The LIMIT operator can be used in situations such as the above, where we need to find the top 3 students in a class and do not want to use any conditional statements.

SQL LIMIT OFFSET

LIMIT OFFSET parameter skips a specified number of rows before returning the result set.

OFFSET can only be used with the **ORDER BY** clause. It cannot be used on its own.

OFFSET value must be greater than or equal to zero. It cannot be negative, else returns an error.

Syntax

```
SELECT * FROM table_name ORDER BY column_name LIMIT X
OFFSET Y;
```

OR

```
SELECT * FROM table_name ORDER BY column_name LIMIT X,Y;
```

The first value X is the offset value and the second value Y is the LIMIT value.

SQL LIMIT OFFSET Example

In this example, we will skip first 2 values using offset and print only 3 rows.

Query

```
SELECT * FROM Student
ORDER BY ROLLNO LIMIT 2,5;
```

Output

id	name	age
3	Bhavika uppala	20
4	Anshi Shrivastava	22

SQL LIMIT OFFSET Example Output

SQL LIMIT to Get the nth Highest or Lowest Value

Now we will look for LIMIT use in finding highest or lowest value we need to retrieve the rows with the nth highest or lowest value. In that situation, we can use the subsequent LIMIT clause to obtain the desired outcome.

Syntax

```
SELECT column_list
FROM table_name
ORDER BY expression
LIMIT n-1, 1;
```

Example

In this example, we will retrieve second highest age of student table.

Query

```
SELECT age FROM Student
ORDER BY age LIMIT 2, 1;
```

Output

age
20

SQL LIMIT to Get the nth Highest Value Example Output

LIMIT with WHERE Clause

The **WHERE clause** can also be used with LIMIT. It produces the rows that matched the condition after checking the specified condition in the table.

Example

In this example, we will use SQL LIMIT with WHERE Clause.

Query

```
SELECT age
FROM Student
WHERE id < 4
ORDER BY age
LIMIT 2, 1;
```

Output

age
20

LIMIT with WHERE Clause Example Output

Restrictions on the LIMIT clause

There are several limitations of SQL LIMIT. The following situations do not allow the LIMIT clause to be used:

- With regard to defining a view.
- The use of nested **SELECT statements**.
- Except for subqueries with table expressions specified in the FROM clause.
- Embedded SELECT statements are used as expressions in a singleton SELECT (where max = 1) within an SPL routine where embedded SELECT statements are used as expressions.

Important Points About SQL LIMIT

- The LIMIT clause is used to set an upper limit on the number of tuples returned by SQL.
- It is important to note that this clause is not supported by all SQL versions..
- The LIMIT clause can also be specified using the SQL 2008 OFFSET/FETCH FIRST clauses.
- The limit/offset expressions must be a non-negative integer.