SQL | Advanced Functions

Sakshi98

SQL (Structured Query Language) offers a wide range of advanced functions that allow you to perform complex calculations, transformations, and aggregations on your data.

Aggregate Functions

In database management an aggregate function is a function where the values of multiple rows are grouped together as input on certain criteria to form a single value of more significant meaning.

- SUM(): Calculates the sum of values in a column.
- AVG(): Computes the average of values in a column.
- COUNT(): Returns the number of rows or non-null values in a column.
- MIN(): Finds the minimum value in a column.
- MAX(): Retrieves the maximum value in a column.

Conditional Functions

- CASE WHEN: Allows conditional logic to be applied in the SELECT statement.
- COALESCE(): Returns the first non-null value in a list.
- NULLIF(): Compares two expressions and returns null if they are equal; otherwise, returns the first expression.

Mathematical Functions

Mathematical functions are present in SQL which can be used to perform mathematical calculations. Some commonly used mathematical functions are given below:

- ABS(): Returns the absolute value of a number.
- ROUND(): Rounds a number to a specified number of decimal places.
- POWER(): Raises a number to a specified power.
- SQRT(): Calculates the square root of a number.

Advanced Functions in SQL

BIN(): It converts a decimal number to a binary number.

Query:

```
SELECT BIN(18);
```

Output:

BIN(18)
10010

BINARY(): It converts a value to a binary string.

Query:

```
SELECT BINARY "GeeksforGeeks";
```

Output:

BINARY "GeeksforGeeeks"
GeeksforGeeks

COALESCE(): It returns the first non-null expression in a list.

Query:

```
SELECT COALESCE(NULL,NULL,'GeeksforGeeks',NULL,'Geeks');
```

Output:

COALESCE(NULL,NULL,'GeeksforGeeks',NULL,'Geeks')
GeeksforGeeks

CONNECTION_ID(): It returns the unique connection ID for the current connection.

Query:

```
SELECT CONNECTION_ID();
```

Output:

CONNECTION_ID()
9

CURRENT_USER(): It returns the user name and hostname for the MySQL account used by the server to authenticate the current client.

Query:

```
SELECT CURRENT_USER();
```

Output:

CURRENT_USER()
root@localhost

DATABASE(): It returns the name of the default database.

Query:

```
SELECT DATABASE();
```

Output:

DATABASE()
NULL

IF(): It returns one value if a condition is TRUE, or another value if a condition is FALSE.

Query:

```
SELECT IF(200<500, "YES", "NO");
```

Output:

IF(200<500, "YES", "NO")
YES

LAST_INSERT_ID(): It returns the first AUTO_INCREMENT value that was set by the most recent INSERT or UPDATE statement.

Query:

```
SELECT LAST_INSERT_ID();
```

Output:

LAST_INSERT_ID()
0

Query:

```
SELECT NULLIF(25.11, 25);
```

Output:

NULLIF(25.11, 25)
25.11

Query:

```
SELECT NULLIF(115, 115);
```

Output:

NULLIF(115, 115)
NULL

SESSION_USER(): It returns the user name and host name for the current MySQL user.

Query:

```
SELECT SESSION_USER();
```

Output:

SESSION_USER()
root@localhost

SYSTEM_USER(): It returns the user name and host name for the current MySQL user.

Query:

```
SELECT SYSTEM_USER();
```

Output:

SYSTEM_USER()
root@localhost

USER(): It returns the user name and host name for the current MySQL user.

Query:

```
SELECT USER();
```

Output:

USER()
root@localhost

VERSION(): It returns the version of the MySQL database.

Query:

```
SELECT VERSION();
```

Output:

VERSION()
8.0.11

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