

Indian Institute of Information Technology Sri City
Database Management Systems LAB-04

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TOPIC : Aggregate functions, Grouping, String and numeric functions

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Aggregate functions, Grouping, String and Numeric functions

AGGREGATE FUNCTIONS

MySQL supports the following aggregate functions:

Aggregate function	Description
AVG()	Return the average of non-NULL values.
COUNT()	Return the number of rows in a group, including rows with NULL values.
MAX()	Return the highest value (maximum) in a set of non-NULL values.
MIN()	Return the lowest value (minimum) in a set of non-NULL values.
STDEV()	Return the population standard deviation.
SUM()	Return the summation of all non-NULL values a set.
VARIANCE()	Return the population standard variance. <code>SELECT VARIANCE (income)</code> <code>FROM employee;</code>

GROUPING IN MYSQL:

The GROUP BY clause is a SQL command that is used to group rows that have the same values.

The GROUP BY clause is used in the SELECT statement .Optionally it is used in conjunction with aggregate functions to produce summary reports from the database.

GROUP BY Syntax

```
SELECT statements... GROUP BY column_name1[,column_name2,...] [HAVING condition];
```

Example:

```
SELECT `gender` FROM `members` ;
```

Output would be,

gender

Female

Female

Male

Female

Male

Male

Example2:

```
SELECT `gender` FROM `members` GROUP BY `gender`;
```

Outputs,

gender

Female

Male

ORDER BY CLAUSE:

Use the ORDER BY clause to display the output table of a query in either ascending or descending alphabetical order. Whereas the GROUP BY clause gathers rows into groups and sorts the groups into alphabetical order, ORDER BY sorts individual rows.

MySQL String functions:

Function	Description
ASCII	Returns the ASCII value for the specific character select ascii('a');
CHAR_LENGTH	Returns the length of a string (in characters) select bit_length('iiitsricity'); select char_length('890f');
CONCAT	Adds two or more expressions together select concat('ram', 'krish');
CONCAT_WS	Adds two or more expressions together with a separator select concat_ws(',', 'Ram', 'krish');
INSTR	Returns the position of the first occurrence of a string in another string SELECT INSTR('foobarbar', 'bar');
LCASE	Converts a string to lower-case select LCASE('JOHN KEVIN');
LENGTH	Returns the length of a string (in bytes) select length('iiits dbms course');
REVERSE	Reverses a string and returns the result
STRCMP	Compares two strings
SUBSTR	Extracts a substring from a string (starting at any position)
SUBSTRING	Extracts a substring from a string (starting at any position)
TRIM	Removes leading and trailing spaces from a string
UCASE	Converts a string to upper-case
UPPER	Converts a string to upper-case

MySQL Numeric functions:

Function	Description
ABS	Returns the absolute value of a number
AVG	Returns the average value of an expression
CEIL	Returns the smallest integer value that is \geq to a number
COUNT	Returns the number of records returned by a select query

DEGREES	Converts a value in radians to degrees
DIV	Used for integer division
EXP	Returns e raised to the power of a specified number
FLOOR	Returns the largest integer value that is \leq to a number
GREATEST	Returns the greatest value of the list of arguments
LEAST	Returns the smallest value of the list of arguments
LN	Returns the natural logarithm of a number
LOG	Returns the natural logarithm of a number, or the logarithm of a number to a specified base
LOG10	Returns the natural logarithm of a number to base 10
LOG2	Returns the natural logarithm of a number to base 2
MAX	Returns the maximum value in a set of values
MIN	Returns the minimum value in a set of values
MOD	Returns the remainder of a number divided by another number
PI	Returns the value of PI
POW	Returns the value of a number raised to the power of another number
RADIANS	Converts a degree value into radians
RAND	Returns a random number
ROUND	Rounds a number to a specified number of decimal places
SIGN	Returns the sign of a number
SQRT	Returns the square root of a number
SUM	Calculates the sum of a set of values
TRUNCATE	Truncates a number to the specified number of decimal places