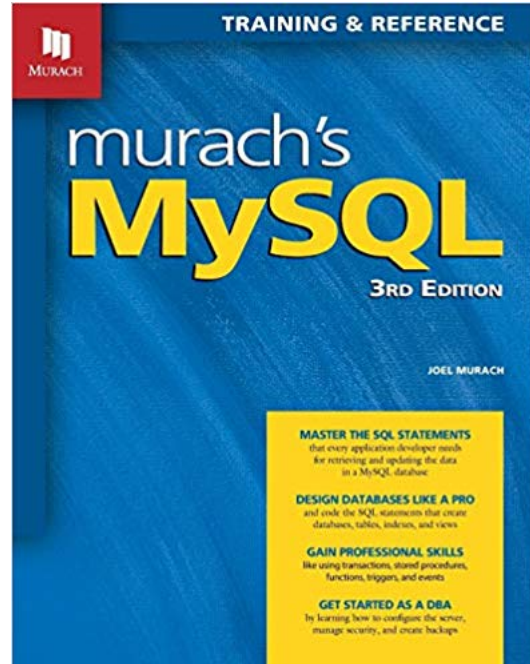

MYSQL built-in functions

Topic 3
Lesson 4 – MySQL functions

Part of Chapter 8 Murach's MySQL



Numeric functions

Simple arithmetic operations

The arithmetic operators: +, -, *, /

DIV() division - return value has the same data result as the input values

MOD for the remainder of division or use the modulo key %

POWER(BASE, EXPONENT), synonym POW – power function

ABS(N) - absolute value function

SIGN(N) – returns the sign of the provided number n

Base arithmetic

CONV(NUMBER, BASE, NEWBASE) – convert a number from one base to another. Current My SQL limitation is BASE 36

Rounding Functions

ROUND(n) – round a number to a whole number

ROUND(N, NUMDIGITS) – round specify number of digits

TRUNCATE(N, NUMDIGITS) – limit value of n to numdigits

CEILING(N) - round the number n up

FLOOR(N) – round a number n down

Random number generator

RAND() – generate a random number

RAND(seed) – generate a random number seeded with the number seed – will generate the same collection of numbers for each run

Trigonometric functions, log functions

Complete list:

<http://dev.mysql.com/doc/refman/8.0/en/mathematical-functions.html>

String Functions

Length(str) – number of bytes in a string

Char_length(str) – number of characters in string

Left(string, num) extract the left most num characters from string

Right(string, num) extract the rightmost num characters from string

Mid(string, start, num) extract num characters from string starting at position start

Concat(string1,string2,...,stringn) concatenate strings together

Concat_ws(delimited, string1, string2) concatenate string2 to string1 using the delimited string as a separator

Locate(substring, string) – returns the character position of substring in string

Upper(string), Lower(string) – change string to the corresponding case

Reverse(string) – reverse the order of the characters in string

Complete list

<https://dev.mysql.com/doc/refman/8.0/en/string-functions.html>

Regular Expressions

Specifies a pattern for a complex search.

Clause: *expression* REGEXP *format*

Returns 1 if the format matches the expression else 0

Special characters for matching

^ matches the beginning of a string

\$ matches the end of a string

. Match any character

a* match any sequence of zero or more a characters

a+ match any sequence of one or more a characters

a? match either zero or one a character

de|abc match either sequence de or abc

(abc)* match zero or more instances of the sequence abc

a{m,n} match m to n instances of a

2 backslashes allow you to match a special character \.

NULL Related Functions

COALESCE(EXPR1, EXPR2,...,EXPRN) returns the first expression from the list that is not NULL

IFNULL(expr1, expr2) returns first argument that is NOT NULL, returns expr1, if expr1 is not NULL otherwise returns expr2

NULLIF(expr1, expr2) compares exp1 to exp2. If they are equal returns NULL, if they are not equal returns exp1

NULL SAFE equality operator <=> (MYSQL specific)

SELECT NULL <=> NULL ; -- returns TRUE;

A complete set of comparison and NULL related functions

<http://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html>

Common date functions

NOW() – returns the current date and time

Dayname(date) – return the day of the provided date Sunday – Saturday

Dayofmonth() – return the day of the month values 1 – 12

Dayofyear() – return the day of the year where Jan 1 = 1

Dayofweek() – returns the day name number 'Monday' = 2

Monthname(now()) – return the month of the provided date

Adddate('2015-12-31', INTERVAL exp unit); - add a specific interval to a date

Example: Adddate('2010-12-31', INTERVAL 31 day) 31 days after Dec 31, 2010

SUBDATE('2015-01-02', INTERVAL exp unit); - subtract a specific interval from a date

Description of date and time variables

<https://dev.mysql.com/doc/refman/8.0/en/date-and-time-type-overview.html>

DATE_FORMAT(date, "%W, %D OF %M %Y) – format a date using the provided format

List of interval formats formats

https://dev.mysql.com/doc/refman/8.0/en/date-and-time-functions.html#function_date-add

Complete list of functions

<https://dev.mysql.com/doc/refman/8.0/en/date-and-time-functions.html>

Time functions

`Time_to_sec('00:30:00')` return the seconds portion of a time variable

`Sec_to_time()` convert seconds variable to a time variable

`To_char(date, fmt_specifier)` – convert a date to a character string

%d the day of the month, %M the long name of the month, %Y the year

`Addtime(time1,time2)` – add time together

`Subtime(time1,time2)` – subtract time

Complete list of functions

<https://dev.mysql.com/doc/refman/8.0/en/date-and-time-functions.html>

Conversion functions

BINARY string – convert a string to binary

Short hand notation for `CAST(string as binary)`

CAST(expr as type) – cast expression to type

CONVERT(expr , type)

ODBC syntax

CONVERT(expr USING type) – convert expression to type

Can specify a particular character set

Standard SQL syntax

Full description of data type conversion function

http://dev.mysql.com/doc/refman/8.0/en/cast-functions.html#function_cast

Aggregate functions

Counting functions

COUNT – count records , COUNT(DISTINCT) – count distinct values

Statistical functions

SUM, MIN, MAX, AVG, STD, STDDEV, VARIANCE

Sample and Population variance and standard deviation

STDDEV_SAMP, STDDEV_POP

VAR_POP, VAR_SAMP

Bit function operations

BIT_AND, BIT_OR, BIT_XOR

One text function

GROUP_CONCAT – Concatenate strings based on groups

Complete list

<http://dev.mysql.com/doc/refman/8.0/en/group-by-functions.html>

Summary

In this module you learned:

- MySQL system defined functions