

MySQL Functions

CHAR()

- Definition: Returns the character for each integer passed
- Example 1: SELECT CHAR(70, 65, 67, 69);
- Example 2: SELECT CHAR(65, 67.3, 69.3);

CONCAT()

- Definition: Returns concatenated string
- Example: `SELECT CONCAT(name, aggregate) AS 'Name Marks' FROM student WHERE age = 14 OR age = 16;`

LOWER()/LCASE()

- Definition: Returns the argument in lowercase
- Example 1: `SELECT LOWER('GEEKSFORGEEKS') AS 'LowerCase1';`
- Example 2: `SELECT LOWER('Geeks For Geeks') AS 'LowerCase2';`

SUBSTRING()/SUBSTR()

- Definition: Returns the substring as specified
- Example 1: `SELECT SUBSTR('ABSDEFG', 3, 4) AS 'Subs';`
- Example 2: `SELECT SUBSTR('ABCDEFG', -5, 4) AS 'Subs';`

UPPER()/UCASE()

- Definition: Converts to uppercase
- Example 1: `SELECT UPPER('Large') AS 'Uppercase';`
- Example 2: `SELECT UCASE('Large') AS 'Uppercase';`

TRIM()

- Definition: Removes leading and trailing spaces
- Example: SELECT TRIM(' Bar One ');

LENGTH()

- Definition: Returns the length of a string in bytes
- Example: `SELECT LENGTH('CANDIDE') AS 'Length in characters';`

MOD()

- Definition: Returns the remainder of one expression by dividing by another expression
- Example: SELECT MOD(11,4) AS 'Modulus';

POWER()/POW()

- Definition: Returns the value of one expression raised to the power of another expression
- Example: `SELECT POWER(3,2) AS 'Raised';`

ROUND()

- Definition: Returns numeric expression rounded to an integer. Can be used to round to decimal points.
- Example: `SELECT ROUND(15.193,1) AS 'Round';`

SIGN()

- Definition: Returns sign of a given number
- Example: SELECT SIGN(-15) AS 'Sign';

SQRT()

- Definition: Returns the non-negative square root of numeric expression
- Example: `SELECT SQRT(26) AS 'Square root';`

TRUNCATE()

- Definition: Returns numeric expression truncated to specified decimal places
- Example: `SELECT TRUNCATE(15.79,1) AS 'Truncate';`

CURDATE()/CURRENT_DATE()

- Definition: Returns the current date
- Example: SELECT CURDATE();

CURTIME()

- Definition: Returns current time
- Example: `SELECT CURTIME() AS CurrentTime;`

DATE_ADD()

- Definition: Adds interval to a date
- Example: `SELECT DATE_ADD(hire_date, INTERVAL 6 MONTH) AS ProbationEnd FROM employees;`

DATE_SUB()

- Definition: Subtracts interval from a date
- Example: `SELECT DATE_SUB(hire_date, INTERVAL 15 DAY) AS BeforeHire FROM employees;`

DATEDIFF()

- Definition: Returns difference in days between two dates (date1 - date2)
- Example: `SELECT DATEDIFF(CURDATE(), hire_date) AS DaysWorked FROM employees;`

TIMESTAMPDIFF()

- Definition: Returns difference between two datetimes in given unit (SECOND, MINUTE, HOUR, DAY, MONTH, YEAR)
- Example: `SELECT TIMESTAMPDIFF(YEAR, hire_date, CURDATE()) AS YearsWorked FROM employees;`

DATE()

- Definition: Extracts the date part of a date or date-time expression
- Example: SELECT DATE('2020-12-31 01:02:03');

MONTH()

- Definition: Returns the month from the date passed
- Example: `SELECT MONTH('2020-12-31');`

YEAR()

- Definition: Returns the year
- Example: SELECT YEAR('2020-12-31');

NOW()

- Definition: Returns the time at which the function executes
- Example: SELECT NOW();

SYSDATE()

- Definition: Returns the current date and time
- Example 1: SELECT NOW(), SLEEP(2), NOW();
- Example 2: SELECT SYSDATE(), SLEEP(2), SYSDATE();

| Function | What It Does |
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| CHAR(n1, n2, ...) | Returns the characters whose ASCII codes are given. |
| CONCAT(str1, str2, ...) | Concatenates (joins) two or more strings into one string. |
| LOWER(str) / LCASE(str) | Converts string to lowercase. |
| SUBSTRING(str, pos, len) / SUBSTR(str, pos, len) | Returns a substring starting at pos with length len. Negative pos counts from end. |
| UPPER(str) / UCASE(str) | Converts string to uppercase. |
| TRIM(str) | Removes leading and trailing spaces from string. |
| LENGTH(str) | Returns length of string in bytes. (For number of characters, use CHAR_LENGTH(str).) |

| Function | What It Does |
|-------------------------|--|
| MOD(x, y) | Returns remainder of $x \div y$. |
| POWER(x, y) / POW(x, y) | Returns x raised to the power y. |
| ROUND(x, d) | Rounds x to d decimal places (or to nearest integer if d omitted). |
| SIGN(x) | Returns sign of x: -1 for negative, 0 for zero, +1 for positive. |
| SQRT(x) | Returns non-negative square root of x. |
| TRUNCATE(x, d) | Truncates x to d decimal places (no rounding). |

| Function | What It Does |
|----------------------------|---|
| CURDATE() / CURRENT_DATE() | Returns current date (YYYY-MM-DD). |
| DATE(expr) | Extracts date part from date/datetime value. |
| MONTH(date) | Returns month number (1–12) from date. |
| YEAR(date) | Returns year from date. |
| NOW() | Returns current date and time at moment query starts. |
| SYSDATE() | Returns current date and time at exact moment function executes (can differ from NOW() if query delayed). |