

SQL Functions Cheat Sheet

String Functions

Function	Purpose	Example
UPPER()	Convert text to uppercase	UPPER('hello') → 'HELLO'
LOWER()	Convert text to lowercase	LOWER('HELLO') → 'hello'
TRIM()	Remove spaces from start/end	TRIM(' hello ') → 'hello'
LENGTH()	Find length of string	LENGTH('SQL') → 3
SUBSTRING() / SUBSTR()	Extract part of string	SUBSTRING('SQLWorld', 1, 3) → 'SQL'
LEFT()	Get leftmost characters	LEFT('SQLWorld', 3) → 'SQL'
RIGHT()	Get rightmost characters	RIGHT('SQLWorld', 5) → 'World'
INSTR()	Find position of substring	INSTR('SQLWorld', 'World') → 4
POSITION()	Find position of substring	POSITION('World' IN 'SQLWorld') → 4
CONCAT()	Join two strings	CONCAT('SQL', 'World') → 'SQLWorld'
REPLACE()	Replace part of string	REPLACE('SQLWorld', 'SQL', 'Data') → 'DataWorld'
FIND_IN_SET()	Find the position of a value inside a comma-separated string	FIND_IN_SET('b', 'a,b,c') → 2
LPAD()	Pad string from the left side to a certain length	LPAD('SQL', 5, '*') → '**SQL'
RPAD()	Pad string from the right side to a certain length	RPAD('SQL', 5, '*') → 'SQL**'
FORMAT()	Format a number with commas and decimal places (MySQL)	FORMAT(1234567.89, 2) → '1,234,567.89'

Aggregate & Statistical Functions

Function	Purpose	Example
COUNT()	Number of rows	COUNT(*)
SUM()	Total sum	SUM(salary)
AVG()	Average value	AVG(salary)
MIN()	Minimum value	MIN(age)
MAX()	Maximum value	MAX(age)
VAR_POP() or VARIANCE()	Population variance (measure of spread)	VAR_POP(salary) or VARIANCE(salary)
STDDEV_POP() or STDDEV()	Population standard deviation	STDDEV_POP(salary) or STDDEV(salary)
CORR()	Correlation coefficient between two columns	CORR(salary, age)
COVAR_POP()	Population covariance between two columns	COVAR_POP(salary, age)
PERCENTILE_CONT()	Continuous percentile calculation (for medians, etc.)	PERCENTILE_CONT(0.5) WITHIN GROUP (ORDER BY salary)

Date and Time Functions

Function	Purpose	Example
CURRENT_DATE	Today's date	CURRENT_DATE
CURRENT_TIMESTAMP	Current date + time	CURRENT_TIMESTAMP
DATE_PART()	Extract part of date	DATE_PART('year', CURRENT_DATE)
EXTRACT()	Extract year, month, etc.	EXTRACT(MONTH FROM CURRENT_DATE)
AGE()	Difference between dates	AGE('2025-04-01', '2024-04-01') → 1 year
NOW()	Current date-time	NOW()
TO_CHAR()	Format date/time	TO_CHAR(NOW(), 'YYYY-MM-DD')
DATE()	Extract date part only (no time)	DATE(NOW()) → '2025-04-28'
DATEDIFF()	Difference between two dates (in days)	DATEDIFF('2025-05-01', '2025-04-28') → 3
DATE_ADD()	Add interval to date	DATE_ADD('2025-04-28', INTERVAL 5 DAY) → '2025-05-03'

Mathematical Functions

Function	Purpose	Example
ROUND()	Round number	ROUND(3.1415, 2) → 3.14
CEIL() / CEILING()	Round up	CEIL(3.2) → 4
FLOOR()	Round down	FLOOR(3.8) → 3
ABS()	Absolute value	ABS(-5) → 5
POWER()	Exponentiation	POWER(2,3) → 8
MOD()	Remainder	MOD(10,3) → 1
SQRT()	Square root	SQRT(25) → 5

Conditional Functions

Function	Purpose	Example
CASE WHEN THEN ELSE END	If-else logic	CASE WHEN salary > 5000 THEN 'High' ELSE 'Low' END
COALESCE()	Return first non-null value	COALESCE(NULL, NULL, 'default') → 'default'
NULLIF()	Returns NULL if values match	NULLIF(5,5) → NULL
IFNULL()	replaces a NULL with a value	IFNULL(NULL, 'default') → 'default'
ISNULL()	checks if something is NULL	ISNULL(NULL) → 1 and ISNULL('text') → 0

Conversion and Other Useful Functions

Function	Purpose	Example
CAST()	Change data type	CAST('123' AS INT)
CONVERT()	Similar to CAST	CONVERT(INT, '123')
DISTINCT	Remove duplicates	SELECT DISTINCT department FROM employees
GROUP_CONCAT() / STRING_AGG()	Merge values	STRING_AGG(name, ',')
JSON_VALUE()	Extract value from JSON	JSON_VALUE({'a':1}, '\$.a') → 1

Window Functions

Function	Purpose	Example
ROW_NUMBER()	Unique row number per partition	ROW_NUMBER() OVER (PARTITION BY dept ORDER BY salary DESC)
RANK()	Ranking (gaps allowed)	RANK() OVER (ORDER BY marks DESC)
DENSE_RANK()	Ranking (no gaps)	DENSE_RANK() OVER (ORDER BY marks DESC)
LEAD()	Value from next row	LEAD(salary) OVER (ORDER BY emp_id)
LAG()	Value from previous row	LAG(salary) OVER (ORDER BY emp_id)
NTILE(n)	Distribute rows into n buckets	NTILE(4) OVER (ORDER BY salary)