TECHNIKHIL

TOP10 SQL FUNCTIONS FOR DATA ANALYSIS

1 AGGREGATE FUNCTIONS:

COUNT():
- SYNTAX: COUNT(EXPRESSION)
- DESCRIPTION: COUNTS THE NUMBER OF ROWS IN A RESULT SET BASED ON THE SPECIFIED EXPRESSION.

SUM():
- SYNTAX: SUM(EXPRESSION)
- DESCRIPTION: CALCULATES THE SUM OF VALUES IN A NUMERIC COLUMN BASED ON THE SPECIFIED EXPRESSION.

AVG():
- SYNTAX: AVG(EXPRESSION)
- DESCRIPTION: COMPUTES THE AVERAGE OF VALUES IN A NUMERIC COLUMN BASED ON THE SPECIFIED EXPRESSION.

MIN():
- SYNTAX: MIN(EXPRESSION)
- DESCRIPTION: FINDS THE MINIMUM VALUE IN A COLUMN BASED ON THE SPECIFIED EXPRESSION.

MAX():
- SYNTAX: MAX(EXPRESSION)
- DESCRIPTION: FINDS THE MAXIMUM VALUE IN A COLUMN BASED ON THE SPECIFIED EXPRESSION.

2 MATHEMATICAL FUNCTIONS:

ROUND():
- SYNTAX: ROUND(NUMBER, DECIMALS)
- DESCRIPTION: ROUNDS A NUMERIC VALUE TO THE SPECIFIED NUMBER OF DECIMAL PLACES.

CEIL() OR CEILING():
- SYNTAX: CEIL(NUMBER) OR CEILING(NUMBER)
- DESCRIPTION: ROUNDS A NUMERIC VALUE UP TO THE NEAREST INTEGER.

FLOOR():
- SYNTAX: FLOOR(NUMBER)
- DESCRIPTION: ROUNDS A NUMERIC VALUE DOWN TO THE NEAREST INTEGER.

ABS():
- SYNTAX: ABS(NUMBER)
- DESCRIPTION: RETURNS THE ABSOLUTE VALUE OF A NUMERIC EXPRESSION.

POWER():
- SYNTAX: POWER(BASE, EXPONENT)
- DESCRIPTION: RAISES A NUMERIC VALUE TO THE POWER OF ANOTHER.

3 STRING FUNCTIONS:

CONCAT() OR CONCATENATE():
- SYNTAX: CONCAT(STRING1, STRING2, ...)
- DESCRIPTION: CONCATENATES TWO OR MORE STRINGS.

SUBSTRING() OR SUBSTR():
- SYNTAX: SUBSTRING(STRING, START, LENGTH) OR SUBSTR(STRING, START)
- DESCRIPTION: EXTRACTS A SUBSTRING FROM A STRING.

LENGTH() OR LEN():
- SYNTAX: LENGTH(STRING) OR LEN(STRING)
- DESCRIPTION: RETURNS THE LENGTH OF A STRING.

UPPER():
- SYNTAX: UPPER(STRING)
- DESCRIPTION: CONVERTS A STRING TO UPPERCASE.

LOWER():
- SYNTAX: LOWER(STRING)
- DESCRIPTION: CONVERTS A STRING TO LOWERCASE.

TRIM():
- SYNTAX: TRIM([LEADING | TRAILING | BOTH] CHARACTERS FROM STRING)
- DESCRIPTION: REMOVES LEADING AND/OR TRAILING SPACES FROM A STRING.

4 DATE AND TIME FUNCTIONS:

NOW():
- SYNTAX: NOW()
- DESCRIPTION: RETURNS THE CURRENT DATE AND TIME.

DATE():
- SYNTAX: DATE(DATETIME)
- DESCRIPTION: EXTRACTS THE DATE PORTION FROM A DATETIME VALUE.

TIME():
- SYNTAX: TIME(DATETIME)
- DESCRIPTION: EXTRACTS THE TIME PORTION FROM A DATETIME VALUE.

DATEDIFF():
- SYNTAX: DATEDIFF(INTERVAL, START_DATE, END_DATE)
- DESCRIPTION: CALCULATES THE DIFFERENCE BETWEEN TWO DATES.

DATEADD():
- SYNTAX: DATEADD(INTERVAL, VALUE, START_DATE)
- DESCRIPTION: ADDS A SPECIFIED TIME INTERVAL TO A DATE.

5 LOGICAL FUNCTIONS:

CASE WHEN():
- SYNTAX: CASE
  WHEN CONDITION1 THEN RESULT1
  WHEN CONDITION2 THEN RESULT2
  ...
  ELSE ELSE_RESULT
  END
- DESCRIPTION: PERFORMS CONDITIONAL LOGIC WITHIN A QUERY.

COALESCE():
- SYNTAX: COALESCE(VALUE1, VALUE2, ...)
- DESCRIPTION: RETURNS THE FIRST NON-NULL EXPRESSION IN A LIST

6 WINDOW FUNCTIONS:

ROW_NUMBER():
- SYNTAX: ROW_NUMBER() OVER (PARTITION BY PARTITION_COLUMN ORDER BY ORDER_COLUMN)
- DESCRIPTION: ASSIGNS A UNIQUE NUMBER TO EACH ROW WITHIN A PARTITION OF A RESULT SET.

RANK():
- SYNTAX: RANK() OVER (PARTITION BY PARTITION_COLUMN ORDER BY ORDER_COLUMN)
- DESCRIPTION: ASSIGNS A RANK TO EACH ROW BASED ON THE VALUES IN ONE OR MORE COLUMNS.

DENSE_RANK():
- SYNTAX: DENSE_RANK() OVER (PARTITION BY PARTITION_COLUMN ORDER BY ORDER_COLUMN)
- DESCRIPTION: SIMILAR TO RANK(), BUT WITHOUT GAPS BETWEEN RANK VALUES.

LEAD():
- SYNTAX: LEAD(COLUMN, OFFSET, DEFAULT_VALUE) OVER (ORDER BY ORDER_COLUMN)
- DESCRIPTION: ACCESSES DATA FROM SUBSEQUENT ROWS WITHIN THE RESULT SET.

LAG():
- SYNTAX: LAG(COLUMN, OFFSET, DEFAULT_VALUE) OVER (ORDER BY ORDER_COLUMN)
- DESCRIPTION: ACCESSES DATA FROM PREVIOUS ROWS WITHIN THE RESULT SET.

7 GROUPING FUNCTIONS:

GROUP BY():
- SYNTAX: GROUP BY COLUMN1, COLUMN2, ...
- DESCRIPTION: GROUPS ROWS BASED ON THE VALUES IN SPECIFIED COLUMNS.

HAVING():
- SYNTAX: HAVING CONDITION
- DESCRIPTION: FILTERS GROUP ROWS BASED ON A SPECIFIED CONDITION.

8 CONVERSION FUNCTIONS:

CAST():
- SYNTAX: CAST(EXPRESSION AS DATA_TYPE)
- DESCRIPTION: CONVERTS A VALUE FROM ONE DATA TYPE TO ANOTHER.

CONVERT():
- SYNTAX: CONVERT(DATA_TYPE, EXPRESSION, STYLE)
- DESCRIPTION: CONVERTS A VALUE FROM ONE DATA TYPE TO ANOTHER, WITH AN OPTIONAL STYLE PARAMETER FOR DATE AND TIME CONVERSIONS.

9 CONDITIONAL FUNCTIONS:

IFNULL() OR ISNULL():
- SYNTAX: IFNULL(EXPRESSION, VALUE_IF_NULL) OR ISNULL(EXPRESSION, VALUE_IF_NULL)
- DESCRIPTION: RETURNS THE SPECIFIED VALUE IF THE EXPRESSION IS NULL.

NULLIF():
- SYNTAX: NULLIF(EXPRESSION1, EXPRESSION2)
- DESCRIPTION: RETURNS NULL IF THE TWO EXPRESSIONS ARE EQUAL; OTHERWISE, RETURNS THE FIRST EXPRESSION.

10 AGGREGATION WITH DISTINCT:

SUM(DISTINCT COLUMN):
- SYNTAX: SUM(DISTINCT COLUMN)
- DESCRIPTION: CALCULATES THE SUM OF DISTINCT VALUES IN A NUMERIC COLUMN.

AVG(DISTINCT COLUMN):
- SYNTAX: AVG(DISTINCT COLUMN)
- DESCRIPTION: COMPUTES THE AVERAGE OF DISTINCT VALUES IN A NUMERIC COLUMN.

COUNT(DISTINCT COLUMN):
- SYNTAX: COUNT(DISTINCT COLUMN)
- DESCRIPTION: COUNTS THE NUMBER OF DISTINCT VALUES IN A COLUMN.

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