**SQL Basics Part 6**

* This PDF about Functions

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== 25 Aggregate Functions ==

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- an aggregate function is a function that performs a calculation on a set of values, and returns a single value

- aggregate functions are often used with the GROUP BY clause of the SELECT statement. the GROUP BY clause splits the

result-set into groups of values and the aggregate function can be used to return a single value for each group

- aggregate functions excepts NULL values, except for COUNT(\*)

- the most commonly used aggregate functions are:

MIN() - returns the smallest value within the selected column

MAX() - returns the largest value within the selected column

COUNT() - returns the number of rows in a set

SUM() - returns the total sum of a numerical column

AVG() - returns the average value of a numerical column

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-- find the total number of customers, NULL values are ignored

SELECT COUNT(customer\_id) AS total\_customers

FROM customers;

-- other solution

SELECT COUNT(\*) AS total\_customers

FROM customers;

-- find the total amounts of all orders

SELECT SUM(amount) AS total\_amounts

FROM orders;

-- find the average score of all customers, NULLs are ignored

SELECT AVG(score) as average\_score

FROM customers;

-- find the oldest date of the order

SELECT MIN(order\_date) AS oldest\_date

FROM orders;

-- find the lowest score

SELECT MIN(score) AS smallest\_score

FROM customers

WHERE score > 0;

-- find the newest date from the orders

SELECT MAX(order\_date) AS newest\_date

FROM orders;

-- find the largest score

SELECT MAX(score) AS largest\_score

FROM customers;

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== 26 String Functions ==

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- string functions: used to manipulate, extract, search, transform string data in SQL

- CONCAT(): returns a string by concatenating two or more string values

- LOWER(): converts the string to lower case letters

- UPPER(): converts the string to upper case letters

- TRIM(): remove leading and trailing spaces from a string

- LENGTH: returns the length of the string

- SUNSTRING(): returns the substring from the string

LEN(): is used in SQL Server

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-- add column on the table [last\_name]

ALTER TABLE customers

ADD last\_name VARCHAR(100);

UPDATE customers

SET last\_name = 'Ahmed';

-- list all customer names, where the name is combination of first name and last name

SELECT CONCAT(first\_name, ' ', last\_name) AS full\_name

FROM customers ;

-- list the first name of all customers in upper case

SELECT UPPER(first\_name) AS first\_name

FROM customers;

-- list the first name of all customers in lower case

SELECT LOWER(first\_name) AS first\_name

FROM customers;

-- get the length of all first names on the customers

SELECT

first\_name,

LEN(first\_name) AS count\_of\_letters

FROM customers

ORDER BY count\_of\_letters;

UPDATE customers

SET last\_name = ' Osama '

WHERE customer\_id = 1;

-- remove all spaces from the strings

SELECT

last\_name,

TRIM(last\_name) AS trimed\_spaces

FROM customers;

-- SUBSTRING(column, start, length)

SELECT SUBSTRING(first\_name, 0, 3) AS sub\_string

FROM customers;

-- retrieve the first two letters from the country

SELECT SUBSTRING(first\_name, 0, 3)

FROM customers;