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
*/

-- 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
```

```sql
FROM orders;


-- find the largest score
SELECT MAX(score) AS largest_score
FROM customers;
```

```sql
/*
        =========================
        == 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
*/

-- 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;
```

```sql
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;
```