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ADT23SOCB1509

Assignment-5

**Implementation of Different Types of SQL Functions with Examples**

SQL functions are used to **perform calculations, format data, and manipulate values** in queries. Below are different types of SQL functions with examples.

**1) Number Functions**

These functions perform mathematical operations on numeric values.

**Example: Using ROUND(), CEIL(), FLOOR(), and ABS()**

SELECT ROUND(23.567, 2) AS Rounded\_Value; -- Output: 23.57

SELECT CEIL(23.4) AS Ceiling\_Value; -- Output: 24

SELECT FLOOR(23.9) AS Floor\_Value; -- Output: 23

SELECT ABS(-15) AS Absolute\_Value; -- Output: 15

📌 **Explanation:**

* ROUND(value, decimal\_places): Rounds a number to the specified decimal places.
* CEIL(value): Returns the smallest integer greater than or equal to the value.
* FLOOR(value): Returns the largest integer less than or equal to the value.
* ABS(value): Returns the absolute value of a number.

**2) Aggregate Functions**

These functions **calculate values from a set of records** and return a single value.

**Example: Using SUM(), AVG(), COUNT(), MAX(), and MIN()**

SELECT SUM(Year\_Published) AS Total\_Years FROM Book;

SELECT AVG(Year\_Published) AS Average\_Year FROM Book;

SELECT COUNT(\*) AS Total\_Books FROM Book;

SELECT MAX(Year\_Published) AS Latest\_Book FROM Book;

SELECT MIN(Year\_Published) AS Oldest\_Book FROM Book;

📌 **Explanation:**

* SUM(column): Returns the total sum of values.
* AVG(column): Returns the average value.
* COUNT(column): Returns the number of rows.
* MAX(column): Returns the highest value.
* MIN(column): Returns the lowest value.

**3) Conversion Functions**

These functions **convert data types**.

**Example: Using CAST() and CONVERT()**

SELECT CAST(2024 AS CHAR) AS String\_Year; -- Converts integer to string

SELECT CAST('123.45' AS DECIMAL(10,2)) AS Decimal\_Value; -- Converts string to decimal

SELECT CONVERT(1234, CHAR) AS String\_Number; -- Converts number to string

SELECT CONVERT('2024-03-06', DATE) AS Date\_Value; -- Converts string to date

📌 **Explanation:**

* CAST(value AS datatype): Converts a value from one data type to another.
* CONVERT(value, datatype): Similar to CAST(), but syntax varies.

**4) Date Functions**

These functions **manipulate and extract information from dates**.

**Example: Using CURDATE(), NOW(), YEAR(), MONTH(), DAY(), and DATE\_ADD()**

SELECT CURDATE() AS Current\_Date; -- Output: 2025-03-06 (Today's date)

SELECT NOW() AS Current\_Timestamp; -- Output: 2025-03-06 14:35:00 (Current date & time)

SELECT YEAR(CURDATE()) AS Year\_Value; -- Output: 2025

SELECT MONTH(CURDATE()) AS Month\_Value; -- Output: 3 (March)

SELECT DAY(CURDATE()) AS Day\_Value; -- Output: 6

-- Add 7 days to the current date

SELECT DATE\_ADD(CURDATE(), INTERVAL 7 DAY) AS Future\_Date; -- Output: 2025-03-13

📌 **Explanation:**

* CURDATE(): Returns the **current date**.
* NOW(): Returns the **current date and time**.
* YEAR(date), MONTH(date), DAY(date): Extracts **year, month, or day** from a date.
* DATE\_ADD(date, INTERVAL value unit): Adds a specific time interval (e.g., days, months) to a date.

**Summary of SQL Functions:**

|  |  |  |
| --- | --- | --- |
| **Function Type** | **Example** | **Description** |
| Number Function | ROUND(23.567, 2) | |  | | --- | |  |  |  | | --- | | Rounds a number | |
| Aggregate Function | COUNT(\*) | |  | | --- | |  |  |  | | --- | | Counts total rows | |
| Conversion Function | CAST(2024 AS CHAR) | |  | | --- | |  |  |  | | --- | | Converts number to string | |
| Date Function | |  | | --- | |  |  |  | | --- | | CURDATE() | | Returns current date |