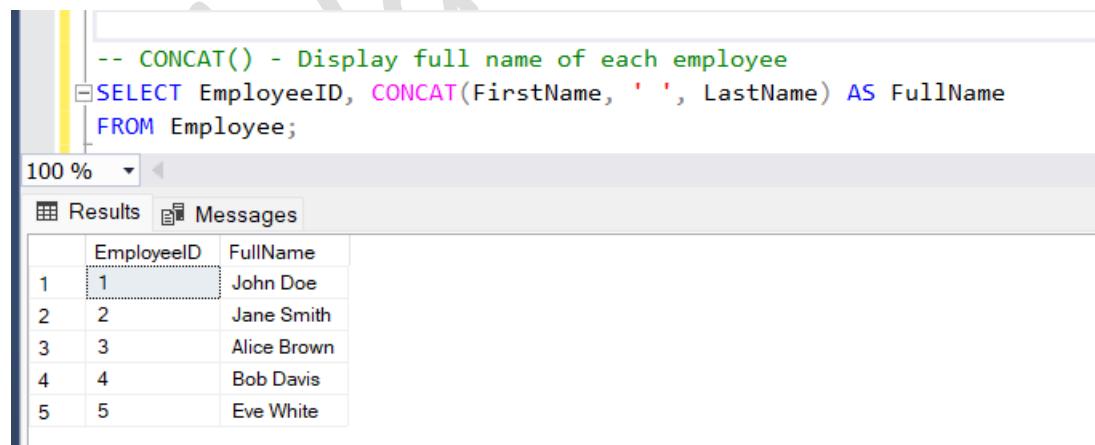


## Scenario Series 12 -- Real-World Applications of String and Date Functions

```
-- Create the Employee table
CREATE TABLE Employee (
    EmployeeID INT PRIMARY KEY,
    FirstName VARCHAR(50),
    LastName VARCHAR(50),
    Position VARCHAR(50),
    Department VARCHAR(50),
    HireDate DATE,
    Salary DECIMAL(10, 2),
    Email VARCHAR(100)
);

-- Insert data into the Employee table
INSERT INTO Employee (EmployeeID, FirstName, LastName, Position, Department, HireDate, Salary, Email)
VALUES
(1, 'John', 'Doe', 'Manager', 'Sales', '2018-01-15', 75000, 'john.doe@example.com'),
(2, 'Jane', 'Smith', 'Developer', 'IT', '2019-03-22', 85000, 'jane.smith@example.com'),
(3, 'Alice', 'Brown', 'Analyst', 'Finance', '2020-07-19', 65000, 'alice.brown@example.com'),
(4, 'Bob', 'Davis', 'Consultant', 'HR', '2021-05-10', 70000, 'bob.davis@example.com'),
(5, 'Eve', 'White', 'Assistant', 'Admin', '2017-12-05', 45000, 'eve.white@example.com');
```

1. **Full Name Display:** How can you display the full name of each employee by combining their first and last names?



```
-- CONCAT() - Display full name of each employee
SELECT EmployeeID, CONCAT(FirstName, ' ', LastName) AS FullName
FROM Employee;
```

The screenshot shows a SQL query being run in a database environment. The query uses the `CONCAT()` function to combine the `FirstName` and `LastName` columns into a single `FullName` column. The results are displayed in a table with columns `EmployeeID` and `FullName`. The data shows five employees with their respective full names.

	EmployeeID	FullName
1	1	John Doe
2	2	Jane Smith
3	3	Alice Brown
4	4	Bob Davis
5	5	Eve White

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## 2. Substring Extraction:

⚡ How would you extract the first three characters of an employee's first name?

```
-- SUBSTRING() - Extract first three characters of each employee's first name
SELECT EmployeeID, SUBSTRING(FirstName, 1, 3) AS FirstNamePart
FROM Employee;
```

100 %

Results Messages

	EmployeeID	FirstNamePart
1	1	Joh
2	2	Jan
3	3	Ali
4	4	Bob
5	5	Eve

⚡ How could you extract the last three characters of a job title?

```
-- SUBSTRING() - Extract last three characters of the position title
SELECT EmployeeID, SUBSTRING(Position, LEN(Position) - 2, 3) AS PositionEnd
FROM Employee;
```

100 %

Results Messages

	EmployeeID	PositionEnd
1	1	ger
2	2	per
3	3	yst
4	4	ant
5	5	ant

⚡ How can you pull a department name starting from the second character?

```
-- SUBSTRING() - Extract department name starting from the second character
SELECT EmployeeID, SUBSTRING(Department, 2, LEN(Department) - 1) AS DepartmentPart
FROM Employee;
```

100 %

Results Messages

	EmployeeID	DepartmentPart
1	1	ales
2	2	T
3	3	inance
4	4	R
5	5	dmin

**3. Name Length Check:** How would you find the length of each employee's first name to ensure it meets specific criteria?

```
-- LENGTH() - Retrieve the length of each employee's first name
SELECT EmployeeID, FirstName, LEN(FirstName) AS FirstNameLength
FROM Employee;
```

100 %

Results Messages

	EmployeeID	FirstName	FirstNameLength
1	1	John	4
2	2	Jane	4
3	3	Alice	5
4	4	Bob	3
5	5	Eve	3

**4. Case Conversion:**

- ⚡ How can you convert first names to uppercase for consistency?
- ⚡ How would you convert last names to lowercase, perhaps for generating email addresses?

```
-- UPPER()/LOWER() - Convert first name to uppercase and last name to lowercase
SELECT EmployeeID, FirstName, UPPER(FirstName) AS FirstNameUpper, LastName, LOWER(LastName) AS LastNameLower
FROM Employee;
```

100 %

Results Messages

	EmployeeID	FirstName	FirstNameUpper	LastName	LastNameLower
1	1	John	JOHN	Doe	doe
2	2	Jane	JANE	Smith	smith
3	3	Alice	ALICE	Brown	brown
4	4	Bob	BOB	Davis	davis
5	5	Eve	EVE	White	white

**5. Text Replacement:**

- ⚡ How would you update all occurrences of the word "Manager" to "Lead" in job titles?
- ⚡ How could you replace "IT" with "Technology" in department names?
- ⚡ How would you replace spaces with hyphens in full names for URL-friendly formatting?

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```

-- REPLACE() - Replace 'Manager' with 'Lead' in the position title , REPLACE() - Replace 'IT' with 'Technology' in the department name,
--REPLACE() - Replace ' ' with '-' in the full name
SELECT EmployeeID, REPLACE(CONCAT(firstName, ' ', LastName), ' ', '-') AS FullNameWithDash,
REPLACE(Position, 'Manager', 'Lead') AS NewPosition , REPLACE(Department, 'IT', 'Technology') AS NewDepartment
FROM Employee;

```

100 % ▾

Results Messages

EmployeeID	FullNameWithDash	NewPosition	NewDepartment
1	John-Doe	Lead	Sales
2	Jane-Smith	Developer	Technology
3	Alice-Brown	Analyst	Finance
4	Bob-Davis	Consultant	HR
5	Eve-White	Assistant	Admin

**6. Email Masking:** What's the best way to mask an email address so that only the first three characters and the domain are visible, keeping the rest private?

```

SELECT EmployeeID,
       Email,
       STUFF(Email, 4, CHARINDEX('@', Email) - 4, REPLICATE('*', CHARINDEX('@', Email) - 4)) AS MaskedEmail
FROM Employee;

```

% ▾

Results Messages

EmployeeID	Email	MaskedEmail
1	john.doe@example.com	joh*****@example.com
2	jane.smith@example.com	jan*****@example.com
3	alice.brown@example.com	ali*****@example.com
4	bob.davis@example.com	bob*****@example.com
5	eve.white@example.com	eve*****@example.com

**STUFF(Email, 4, CHARINDEX('@', Email) - 4, REPLICATE('\*', CHARINDEX('@', Email) - 4)):**

- Email: The original email address.
- 4: The starting position where masking begins (the 4th character).
- CHARINDEX('@', Email) - 4: The length of the string to be replaced, which is the number of characters between the 3rd position and the @ symbol.
- REPLICATE('\*', CHARINDEX('@', Email) - 4): The replacement string, which is a series of asterisks (\*) to mask the characters.

## Date Management:

⚡ How would you extract just the date from a hire date field?

```
-- ⚡ Extract Just the Date: Get only the date part from a HireDate field
SELECT EmployeeID, HireDate, CAST(HireDate AS DATE) AS HireDateOnly
FROM Employee;
```

100 %

Results Messages

	EmployeeID	HireDate	HireDateOnly
1	1	2018-01-15	2018-01-15
2	2	2019-03-22	2019-03-22
3	3	2020-07-19	2020-07-19
4	4	2021-05-10	2021-05-10
5	5	2017-12-05	2017-12-05

⚡ How can you break down the hire date into year, month, and day components?

```
-- ⚡ Break Down Hire Date: Break down the HireDate into year, month, and day components
SELECT EmployeeID, HireDate,
       YEAR(HireDate) AS HireYear,
       MONTH(HireDate) AS HireMonth,
       DAY(HireDate) AS HireDay
FROM Employee;
```

100 %

Results Messages

	EmployeeID	HireDate	HireYear	HireMonth	HireDay
1	1	2018-01-15	2018	1	15
2	2	2019-03-22	2019	3	22
3	3	2020-07-19	2020	7	19
4	4	2021-05-10	2021	5	10
5	5	2017-12-05	2017	12	5

⚡ What's the best way to calculate the number of days an employee has been with the company?

```
-- ⚡ Calculate Days with Company: Calculate the number of days an employee has been with the company
SELECT EmployeeID, HireDate, DATEDIFF(DAY, HireDate, GETDATE()) AS DaysWithCompany
FROM Employee;
```

100 %

Results Messages

	EmployeeID	HireDate	DaysWithCompany
1	1	2018-01-15	2416
2	2	2019-03-22	1985
3	3	2020-07-19	1500
4	4	2021-05-10	1205
5	5	2017-12-05	2457

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⚡ How would you add a year to the hire date for tracking anniversaries?

```
-- ↗ Add a Year to Hire Date: Add a year to the HireDate for tracking anniversaries
SELECT EmployeeID, HireDate, DATEADD(YEAR, 1, HireDate) AS NextAnniversary
FROM Employee;
```

100 %

Results Messages

	EmployeeID	HireDate	NextAnniversary
1	1	2018-01-15	2019-01-15
2	2	2019-03-22	2020-03-22
3	3	2020-07-19	2021-07-19
4	4	2021-05-10	2022-05-10
5	5	2017-12-05	2018-12-05



⚡ Find Employees Hired in a Specific Month (e.g., January)

```
-- ↗ Find Employees Hired in a Specific Month: Find employees hired in January
SELECT EmployeeID, FirstName, LastName, HireDate
FROM Employee
WHERE MONTH(HireDate) = 1; -- For January
```

100 %

Results Messages

	EmployeeID	FirstName	LastName	HireDate
1	1	John	Doe	2018-01-15

⚡ Determine the Weekday of the Hire Date

```
-- ↗ Determine the Weekday of Hire Date: Find out the weekday name of the HireDate
SELECT EmployeeID, HireDate, DATENAME(WEEKDAY, HireDate) AS HireDayOfWeek
FROM Employee;
```

100 %

Results Messages

	EmployeeID	HireDate	HireDayOfWeek
1	1	2018-01-15	Monday
2	2	2019-03-22	Friday
3	3	2020-07-19	Sunday
4	4	2021-05-10	Monday
5	5	2017-12-05	Tuesday

⚡ Calculate the Number of Weeks Since the Hire Date

```
-- ↗ Calculate Number of Weeks Since Hire Date: Calculate the number of weeks an employee has been with the company
SELECT EmployeeID, HireDate, DATEDIFF(WEEK, HireDate, GETDATE()) AS WeeksWithCompany
FROM Employee;
```

100 %

Results Messages

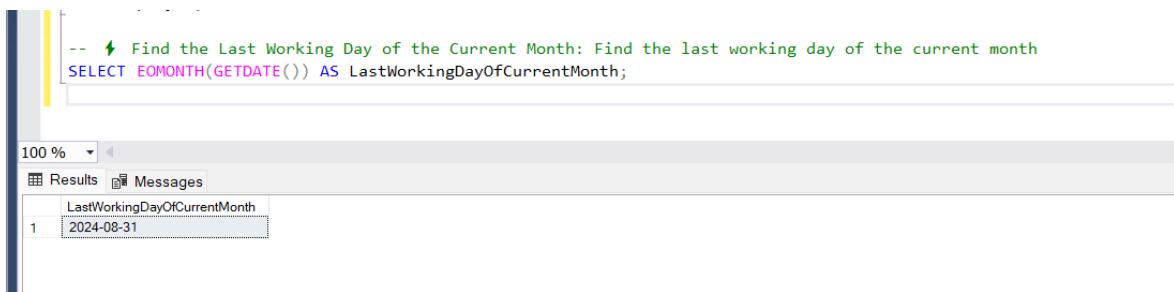
	EmployeeID	HireDate	WeeksWithCompany
1	1	2018-01-15	345
2	2	2019-03-22	284
3	3	2020-07-19	214
4	4	2021-05-10	172
5	5	2017-12-05	351

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## ⚡ Find the Last Working Day of the Current Month



The screenshot shows a SQL query results window. The query is:

```
-- ⚡ Find the Last Working Day of the Current Month: Find the last working day of the current month
SELECT EOMONTH(GETDATE()) AS LastWorkingDayOfCurrentMonth;
```

The results table has one row:

LastWorkingDayOfCurrentMonth
2024-08-31

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