Query Data with Inline Queries and Scalar Functions

Andrew McSwiggan
BUSINESS INTELLIGENCE ANALYST

www.pluralsight.com

Overview

Explore Scalar Functions

- LEFT
- UPPER
- STUFF
- LEN

Formatting Functions

- FORMAT
- CAST

Inline Queries and Sub Queries

- Single Value
- Virtual Tables

Combine Virtual Data in Queries

Functions are great because they save us from writing code again and again.

Consider the Structure

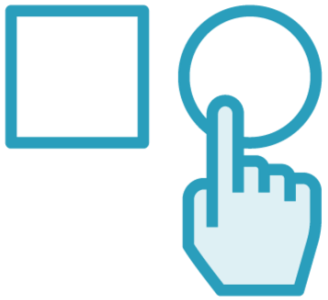
Data Structure

There are two types of function.

Consider the Structure

Data Structure

Returned by the Function



Single Value

Scalar Functions

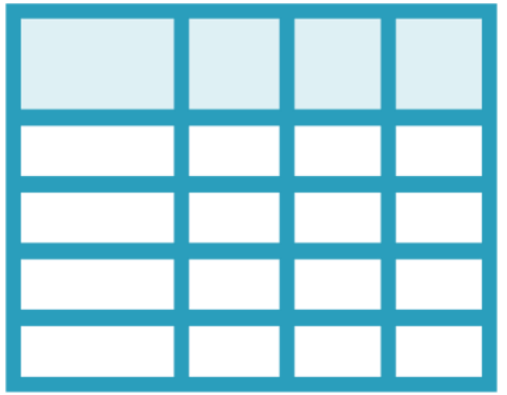


Table of Data

Table Functions

LEFT

(Character expression

, Characters)

Scalar Functions

Character expression	Column or expression representing a string
Characters	How many characters to return from the left

RIGHT

(Character expression

, Characters)

Scalar Functions

Character expression	Column or expression representing a string
Characters	How many characters to return from the right

SUBSTRING

(Character expression
, Start
, Length
)

Scalar Functions

Character expression	Column or expression representing a string
Start	Integer indicating the start position in the string
Length	Integer indicating the number of characters to choose

UPPER

(Character expression)

Scalar Functions

Character expression Column or expression representing a string

Scalar Functions

LOWER

(Character expression)

Scalar Functions

Character expression Column or expression representing a string

STUFF

(Character expression
, Start
, Length
, Replace with)

Scalar Functions

Character expression	Column or expression representing a string
Start	Integer indicating the start position in the string
Length	Integer indicating the number of characters to remove
Replace with	Column or expression providing replacement text

Searching for Strings with the LIKE Function

LIKE

‘ % text ’

Filter Functions

Wildcard	% means any string
Text	Text can be after the wildcard operator

LIKE

‘ text % ’

Filter Functions

Wildcard	% means any string
Text	Text can be before the wildcard operator

LIKE

‘ % text % ’

Filter Functions

Wildcard	% means any string
Text	Text can be between two wildcard operators

LIKE

‘ _ text ’

Filter Functions

Wildcard	_ (underscore) means any single character
Text	Text can be after the wildcard operator

LIKE

‘ text _ ’

Filter Functions

Wildcard	_ (underscore) means any single character
Text	Text can be before the wildcard operator

LIKE

‘ _ text _ ’

Filter Functions

Wildcard	_ (underscore) means any single character
Text	Text can be between two wildcard operators

LIKE

‘ [a-b] text ’

Filter Functions

Wildcard	Any single character within the specified range ([a-f]) or set ([abc])
Text	Text can be after the wildcard operator

LIKE

‘ text [a-b] ’

Filter Functions

Wildcard	Any single character within the specified range ([a-f]) or set ([abc])
Text	Text can be before the wildcard operator

LIKE

‘ [a-b] text [a-b] ’

Filter Functions

Wildcard	Any single character within the specified range ([a-f]) or set ([abc])
Text	Text can be between two wildcard operators

LIKE

‘ [^a-b] text ’

Filter Functions

Wildcard	Any character NOT within the specified range ([a-f]) or set ([abc])
Text	Text can be after the wildcard operator

LIKE

‘ text [^a-b] ’

Filter Functions

Wildcard	Any NOT character within the specified range ([a-f]) or set ([abc])
Text	Text can be before the wildcard operator

LIKE

‘ [^a-b] text [^a-b] ’

Filter Functions

Wildcard	Any character NOT within the specified range ([a-f]) or set ([abc])
Text	Text can be between two wildcard operators

hAt

All product names that include the letter a

Apple

All fruits that start with the letter a

bandanA

All products that end with the letter a

shirt

All products that do not contain the letter a

The LIKE Function Demo

Creating Statements with Simple Scalar Functions

Combining Simple Functions

Simple Functions

Combine

Achieve a Goal

Uppercase

Set the first character to uppercase

Lowercase

Set the remaining characters to lowercase

But first!

CONCAT

(Character expression

, Character expression)

Scalar Functions

Character expression Column or expression representing a string

Character expression At least 2 and up 254 character expressions

Formatting Functions

FORMAT

(Value

, Format pattern)

Scalar Functions

Value	Column or expression
Format pattern	The pattern indicating what to display

CAST

(Expression

AS Data type)

Scalar Functions

Expression	Column or expression
Data type	The name of the data type to return the data into

Inline View Queries and Subqueries

Inline View

Inline View

Imbedded Queries

Virtual Table

Returned

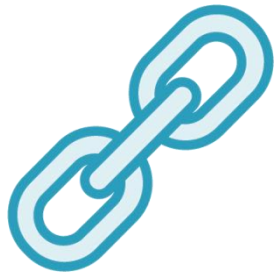
SQL

Based on Select

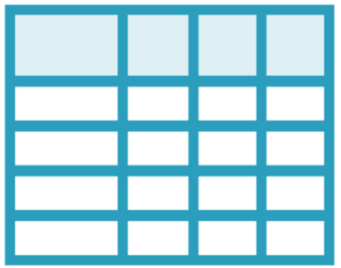
Inline View

Inline View

Returns a table



Joins to



Other Tables

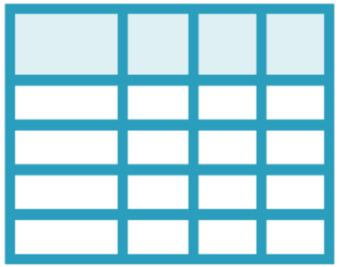
In Query

Inline View

Write Queries

Return

Single Values



Return

Tables

Products

Still on Sale

Seasonal

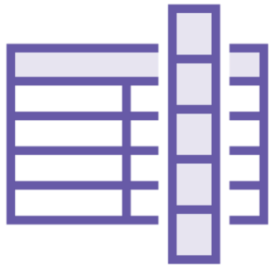
Discontinued

Timeline

Last Sales Date

Start Date

365 days before



Time Range

Enclose Transactions

Total sales value for each product in the last 365 days when the product was sold

Subqueries

What percentage of sales is contributed by each product, each year.

Produce a list of customers
in the top percentile.

Summary

SCALAR Functions

- LEFT
- RIGHT
- UPPER
- LEN
- SUBSTRING
- LOWER
- CONCAT

Formatting Functions

- FORMAT
- CAST

Advanced Queries

- Correlated Sub-queries
- Inline Views
- Sub-queries