
Debabrata Palit
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Row Context Vs. Filter Context in DAX

TRANSFORM YOUR DATA INTO DECISIONS!

What is Context in DAX?

In DAX, context refers to the environment in which a formula is evaluated. It determines what data is considered during calculation. This makes context a powerful concept that shapes how and where your formulas produce results.

Without it, writing accurate measures and calculated columns becomes a guessing game.

There are two main types of context:

- *Row Context*
- *Filter Context*

Understanding the differences – and how they can work together – is key to unlocking DAX's full potential.

Row Context

Row context refers to the current row being evaluated when performing calculations. When you create measures or calculated columns, Power BI evaluates them row by row, applying the calculation to each individual row.

Example

```
1  Total Sales = Sales[ Quantity ] * Sales[ Price ]
```

Date	Product	Category	Quantity	Price	Total Sales
01-01-2023	A	X	10	5	50
02-01-2023	B	X	20	10	200
03-01-2023	C	Y	30	15	450
04-01-2023	D	Y	40	20	800
05-01-2023	E	Z	50	25	1250

Key Characteristics:

- Exists in calculated columns and iterators (SUMX, FILTER, etc.)
- Operates implicitly, without needing extra setup
- Evaluates one row at a time
- Cannot access other rows unless explicitly instructed using DAX functions like EARLIER() or CALCULATE()


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Filter Context

Filter context refers to the filters applied to your data that determine which rows or values are included or excluded from calculations. These filters can be applied through slicers, visual interactions, or explicit filters you define.

Example

DAX

```
Average Sales = AVERAGE(Sales[Total Sales])
```

Category	Average Sales
X	125.00
Y	625.00
Z	1,250.00
Total	**550.00**

Here, we see a matrix visual showing Average Sales by Category. Each row in the matrix visual is calculated based on the filter applied by the visual (in this case, filtering by Category).

Key Characteristics:

- Created by report elements (slicers, filters, visuals) or CALCULATE()
- Determines which subset of rows is evaluated
- Applies to measures
- Must be managed explicitly in many custom calculations

Comparison

Feature	Row Context	Filter Context
Origin	From rows in a table (looping)	From report filters or `CALCULATE()`
Applies to	Calculated columns, iterators	Measures, visuals, `CALCULATE()`
Affects	One row at a time	Multiple rows based on filter criteria
Setup	Usually automatic	Often requires explicit use of `CALCULATE()`

Use Case Comparison:

Let's say you want to calculate Total Sales for a specific region:

- Using a Measure:

```DAX
Total Sales = SUM(Sales[Sales Amount])
```

This measure dynamically responds to filters like slicers (e.g., Region = "East") – thanks to *Filter Context*.

- Using a Calculated Column:

```DAX
Sales Amount = Sales[Quantity] * Sales[Price]
```

This formula evaluates on a row-by-row basis using *Row Context*.

THANK YOU!!!

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