DAX

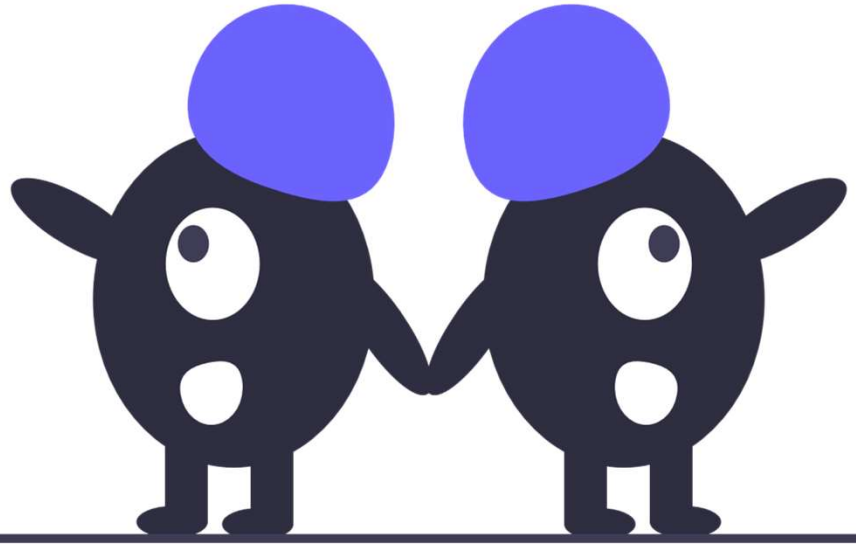
FUNDAMENTALS

DAX

COLUMN

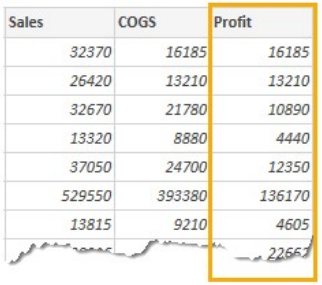
MEASURE

Sometimes *either* a column or measure is possible, but in most situations your *computation* needs will determine your choice.



WHICH TO CHOOSE? - Storage

COLUMN



Sales	COGS	Profit
32370	16185	16185
26420	13210	13210
32670	21780	10890
13320	8880	4440
37050	24700	12350
529550	393380	136170
13815	9210	4605
		22663

- Columns are stored as part of the data set
- Stored as 1 value per record
- Columns take **more memory**, add to initial load time
- Columns are **faster** if filtering on the fly

MEASURE

```
1 Profit = SUMX(financials,financials[Sales]-financials[COGS])
2 // this is my Profit measure
3
```

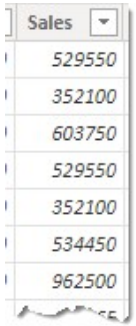
- Measures are calculated 'on the fly' when required
- Stored as only 1 formula
- Measures take **less memory**, reduces initial load time
- Measures can be **slower** if filtering on the fly

WHICH TO CHOOSE? – Reference

COLUMN

- **`table[column]`**

- Columns names belong to a table
  `financials[sales]`



MEASURE

- **`table[measure]`**
- It is possible to use the table name but not good idea
  `financials[profit]` **avoid**

- **`measure`**
- Columns names belong to a whole report so no table reference need
  `[profit]` **advisable**

Aggregators

SUM(), AVG(), MAX(), MIN()

- Non-Iterators - simple aggregation

Sum()

City	Sales	COGS	Profit
New York	146	87	x
Sydney	40	20	x
London	49	29	x
sum()	235	136	99

SUM(sales-COGS) - *not possible*
SUM(sales) - SUM(COGS) possible but not what we want

Correct
235 - 136 = 99
BUT You cannot get the INDIVIDUAL Rows profit

SUM() is good for Totals not row by row values

✓ `SUM(financials[sales])`
✓ `SUM(financials[COGS])`

*SUM([column]) **Cannot** evaluate an expression*

✗ `SUM(financials[sales] - financials[COGS])`

✓ `SUM(financials[sales]) - SUM(financials[COGS])`

SUMX(), AVGX(), MAXX(), MINX()

- Iterators (row by row calculations)

SumX()

City	Sales	COGS	Profit
New York	25	12	13
London	13	6	7
Sydney	18	8	10
Sydney	22	12	10
New York	56	32	24
London	36	23	13
New York	65	43	22
sumx()	235	136	99

SUMX(table,Sales-COGS) - *correct*

Correct
235 - 136 = 99
AND you will get the INDIVIDUAL Rows profit

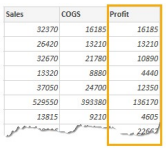
✓ `SUMX(financials,financials[sales])`
✓ `SUMX(financials,financials[COGS])`

*SUMX() **Can** evaluate an expression*

✓ `SUMX(financials,financials[sales]- financials[COGS])`
✓ `SUMX(financials,financials[sales]) -SUMX(financials,financial[COGS])`

WHICH TO CHOOSE? - Reports

COLUMN



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- Can be added to a Slicer
- Can be added to rows and columns in a matrix
- Can be added to axis of a chart

- Don't always contain aggregators
- Columns calculate on a row by row basis so when we use `SUM`, `AVG` etc. need to use with CALCULATE or FILTER instead

MEASURE

```
1 Profit = SUMX(financials,financials[Sales]-financials[COGS])
2 // this is my Profit measure
3
```

- Cannot be added to a Slicer
- Cannot be added to rows and columns in a matrix
- Cannot be added to axis of a chart

- Will more often contain aggregators
- Measures may contain an aggregation function such as `SUM` or `AVG` etc. or `SUMX` or `AVGX` etc..