

# DAX (Data Analysis Expression)

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# What is DAX?

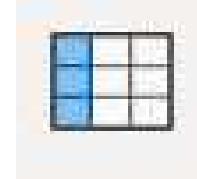
DAX is a collection of functions, operators, and constants that can be used in a formula, or expression, to calculate and return one or more values.

DAX helps you create new information from data already in your model.

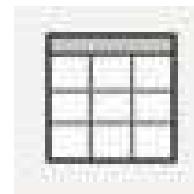
# Using DAX can add calculations to your data model



Measures



Calculated  
columns



Calculated  
tables

Untitled - Power BI Desktop

Sign in

File Home Insert Modeling View Help

Cut Copy Paste Format painter

Get data workbook datasets Power BI Server Enter data Refresh data Recent sources

New visual Text box More visuals

Transform data New measure Quick measure Sensitivity

Clipboard Data Queries Insert Calculations Sensitivity Share

Build visuals with your data

Select or drag fields from the Fields pane onto the report canvas.

Visualizations Fields

Filters

ProductData

- Product
- SumValue
- $\sum$  Value (MB)

Ranking

Values

Add data fields here

Drill through

Cross-report

Off

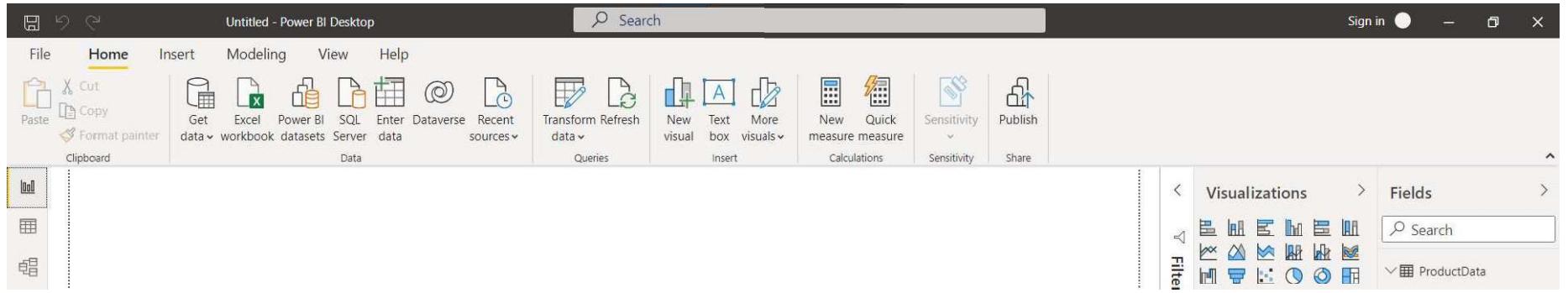
Keep all filters

On

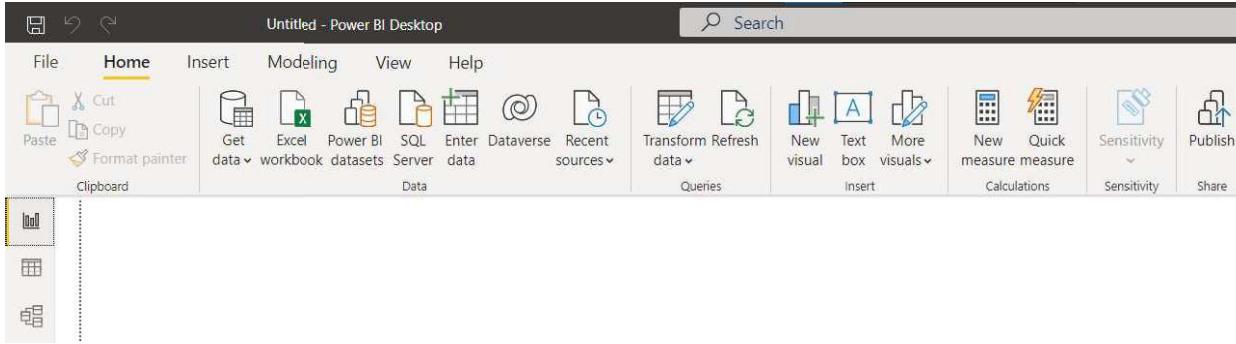
Add drill-through fields here

Page 1 +

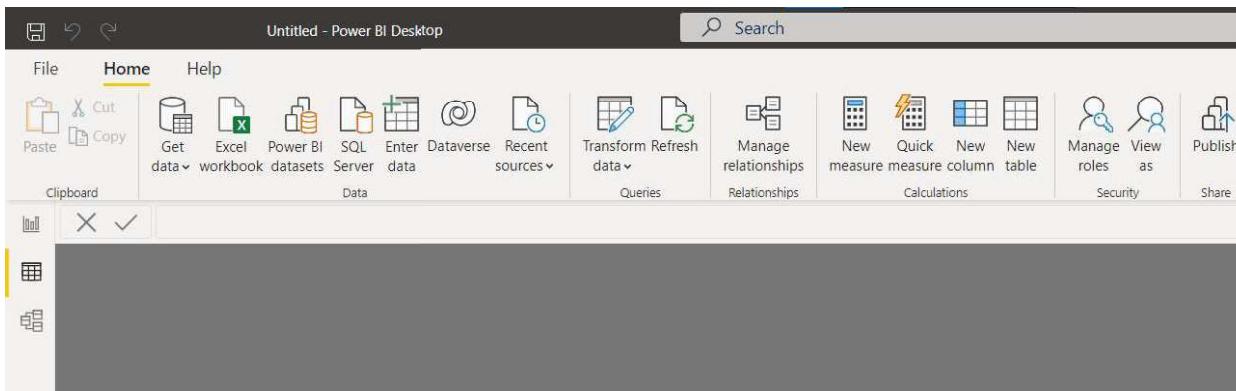
Page 1 of 1



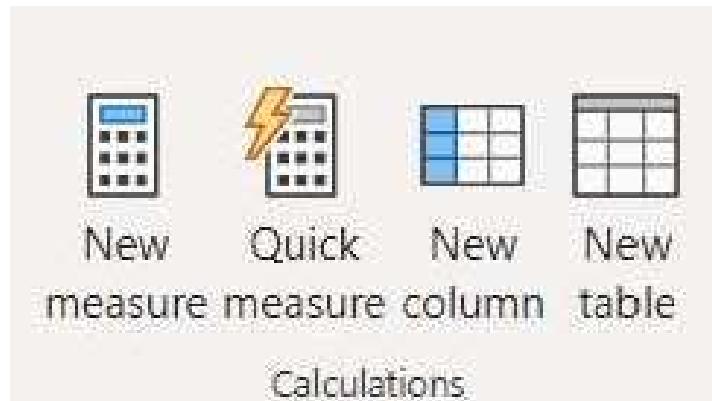
Report view →



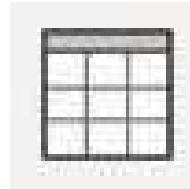
Data view →



# Calculations

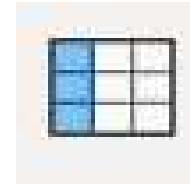


# Calculated tables



- The formula can duplicate or transform existing model data, or create a series of data, to produce a new table.
- Calculated table data is always imported into your model, so it increases the model storage size and can prolong data refresh durations.

# Calculated columns



- The formula is evaluated for each table row and it returns a single value. When added to an Import storage mode table, the formula is evaluated when the data model is refreshed and it increases the storage size of your model.
- When added to a DirectQuery storage mode table, the formula is evaluated by the underlying source database when the table is queried.

# Measures



- The formula is concerned with achieving summarization over model data.
- Similar to a calculated column, the formula must return a single value. Unlike calculated columns, which are evaluated at data refresh time, measures are evaluated at query time and their results are never stored in the model.

# Power BI



## MEASURES

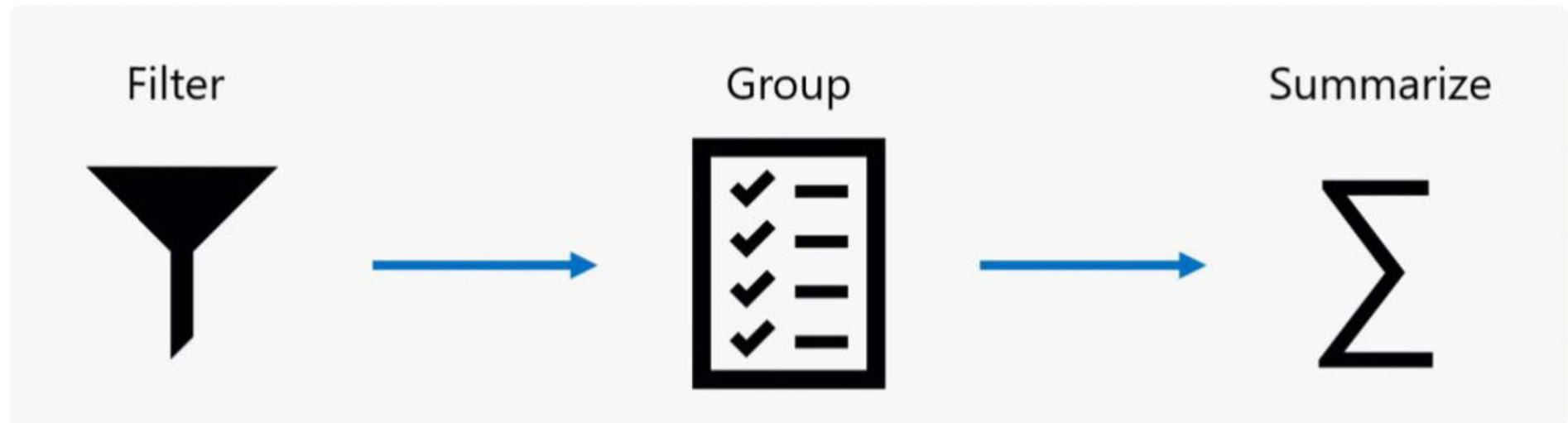
The values calculated by measures are dynamically evaluated whenever a user adds the measure to a PivotTable or open a report; as the user modifies the context, values returned by the measure change.

## CALCULATED COLUMNS

The values in a calculated column are computed and stored in the model.

# DAX vs M

Attribute	Power Query	Power Pivot	Excel
Language Name	Power Query Formula Language ( <b>PQFL</b> ) or "M"	Data Analytics eXpressions ( <b>DAX</b> )	Excel Formulas
Can target specific cells in formulas?	No	No	Yes (i.e. =A1+C3)
Can add calculated columns?	Yes (i.e. AddColumn = Table.AddColumn(Source, "C", each [A] + [B]))	Yes (i.e. Add Custom Column, =[A] + [B])	Yes (i.e. Add Custom Column, =[@A]+[@B])
Can add custom tables?	Yes Source = #table({{"Column 1", "Column 2"}, {"R1C1","R1C2"}, {"R2C1", "R2C2"}})	Yes (in Power BI only) Table = DATATABLE ("Column 1", STRING, "Column 2", STRING, {"R1C1", "R1C2"}, {"R2C1", "R2C2"})	Yes CSE Formula ={"R1C1", "R1C2";"R2C1", "R2C2"}
Can create aggregate calculations?	No (although it can do basic grouping aggregations)	Yes	Yes
Can import/connect to Data?	Yes	Yes	Yes
Auto-complete formulas? (i.e. Intellisense)	No	Yes	Yes
Case sensitive?	Yes	No	No
Specialization	Importing + Transformations	Calculations	Can do both (although not as well)



## Analytic Queries

- = a query that produces a result from a data model.
- The analytic query is written as a Data Analysis Expressions (DAX) query statement.

# Write DAX formulas

# Write DAX formulas

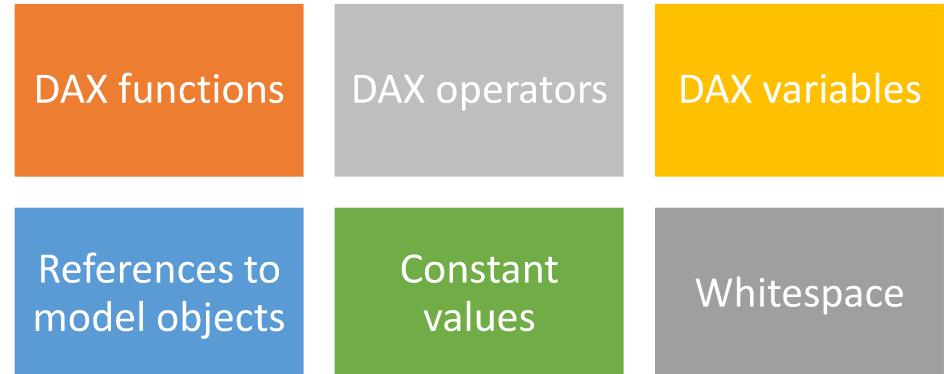
- <Calculation name> = <DAX formula>

Ship Date = 'Date'

For example,  
the definition of the Ship Date calculated table  
that duplicates the Date table data

# Write DAX formulas

- <Calculation name> = <DAX formula>



# Write DAX formulas

- References to model object

- Table references
- Column references
- Measure references

# Write DAX formulas

Table references

Ship Date = 'Date'

Column references

Arrival Airport = Airport

Revenue = SUM([Sales Amount])

Measure references

Revenue = SUM(Sales[Sales Amount])

Profit = [Revenue] - [Cost]

# Write DAX formulas

- Whitespace



Spaces  
Tabs  
Carriage returns

# DAX data types

# DAX data types

Model  
data type

- Whole number
- Decimal number
- Boolean
- Text
- Date
- Currency
- N/A

DAX  
data type

- Integer
- Real
- Boolean
- Text
- Date/Time
- Currency
- BLANK

# BLANK data type

- BLANK doesn't mean zero but "absence of a value"
- ฟังก์ชัน [BLANK](#) returns BLANK
- ฟังก์ชัน [ISBLANK](#) tests whether an expression evaluates to BLANK

# DAX functions



# DAX functions

Functions that  
originate  
from Excel

Functions that  
**don't** originate  
from Excel

# DAX operators

# DAX Operators

---

Arithmetic

---

Comparison

---

Text concatenation

---

Logical

---

Operator precedence

# Arithmetc Operators

[Use DAX operators - Learn | Microsoft Docs](#)

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
^	Exponentiation

# Comparison Operators

Operator	Description	Operator	Description
=	Equal to	==	Strict equal to
>	Greater than	>=	Greater than or equal to
<	Less than	<=	Less than or equal to
		<>	Not equal to

# Text concatenation Operators

- Use the ampersand (&) character to connect, or concatenate, two text values to produce one continuous text value.
- For example, consider the following calculated column definition:

Model Color = Product[Model] & "-" & Product[Color]

# Logical Operators

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Operator	Description
&	an AND condition between two expressions where each has a Boolean result.
(double pipe)	an OR condition between two logical expressions.
IN	a logical OR condition between each row that is being compared to a table.
NOT	Inverts the state of a Boolean expression.

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# Workshop 1

## Calculate column

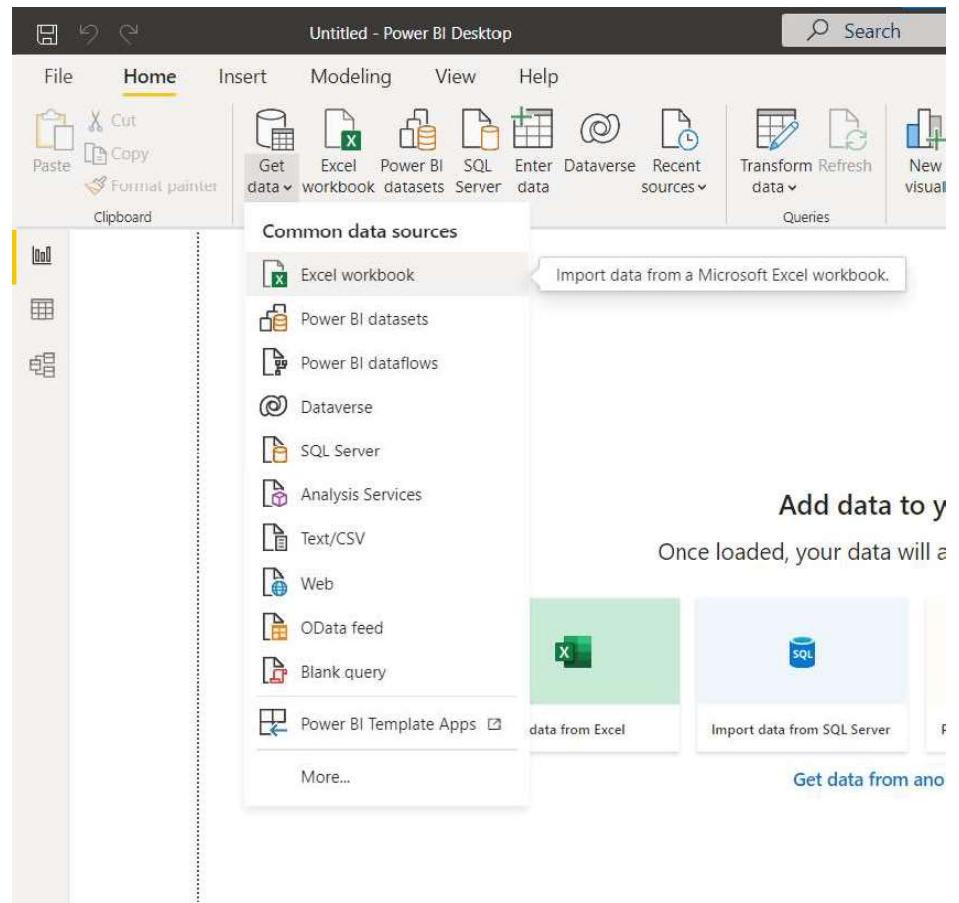
- DAX operators
- Text concatenation



# Workshop 1: Calculate column

## DAX operators

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx



# Workshop 1: Calculate column

## DAX operators

- เลือกที่กล่องสีเหลืองหน้า w1
- คลิก Load

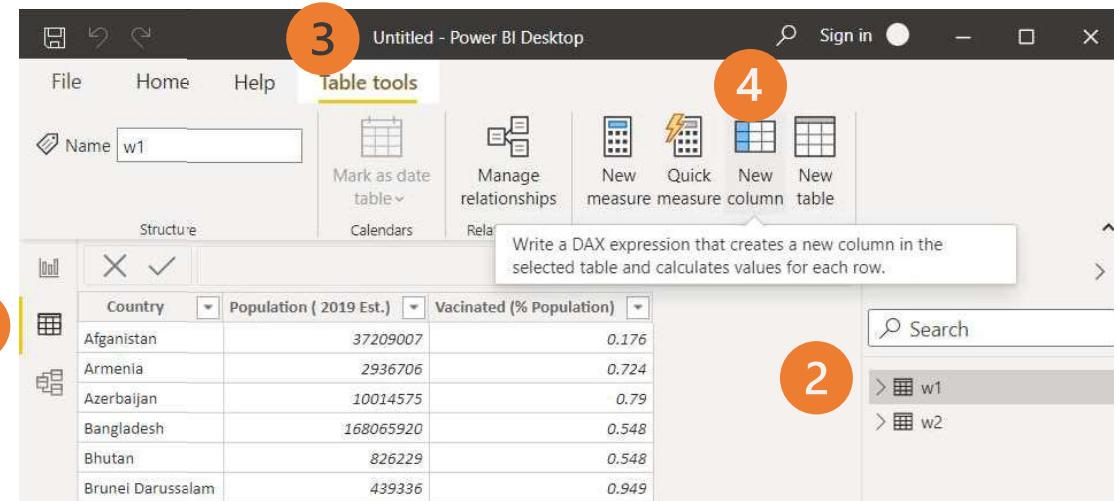
The screenshot shows the Power BI Navigator interface. On the left, there is a tree view of files and tables. A yellow circle labeled '1' highlights the 'w1' table under the 'Calculation.xlsx [2]' folder. On the right, there is a preview of a table titled 'w1' with three columns: 'Country', 'Population ( 2019 Est.)', and 'Vaccinated (% Population)'. The table contains data for various countries. At the bottom right, there are buttons for 'Load', 'Transform Data', and 'Cancel'. A yellow circle labeled '2' is positioned near the 'Load' button.

Country	Population ( 2019 Est.)	Vaccinated (% Population)
Afghanistan	37209007	0.176
Armenia	2936706	0.724
Azerbaijan	10014575	0.79
Bangladesh	168065920	0.548
Bhutan	826229	0.548
Brunei Darussalam	435336	0.949
Cambodia	16482646	0.486
China *	1420062022	0.584
Georgia	3904204	0.681
Hong Kong *	7490776	0.894
India	1368737513	0.409
Indonesia	269536482	0.532
Japan	126854745	0.935
Kazakhstan	18592970	0.764
Korea, North	25727408	0.001
Korea, South	51339238	0.951
Kyrgyzstan	6218616	0.401

# Workshop 1: Calculate column

## DAX operators

- เข้าสู่หน้าจอ Power BI Desktop
- คลิก Data view
- คลิก w1
- คลิก Table tools > New column



## Workshop 1: Calculate column

### DAX operators

- สร้าง column ชื่อ ร้อยละ

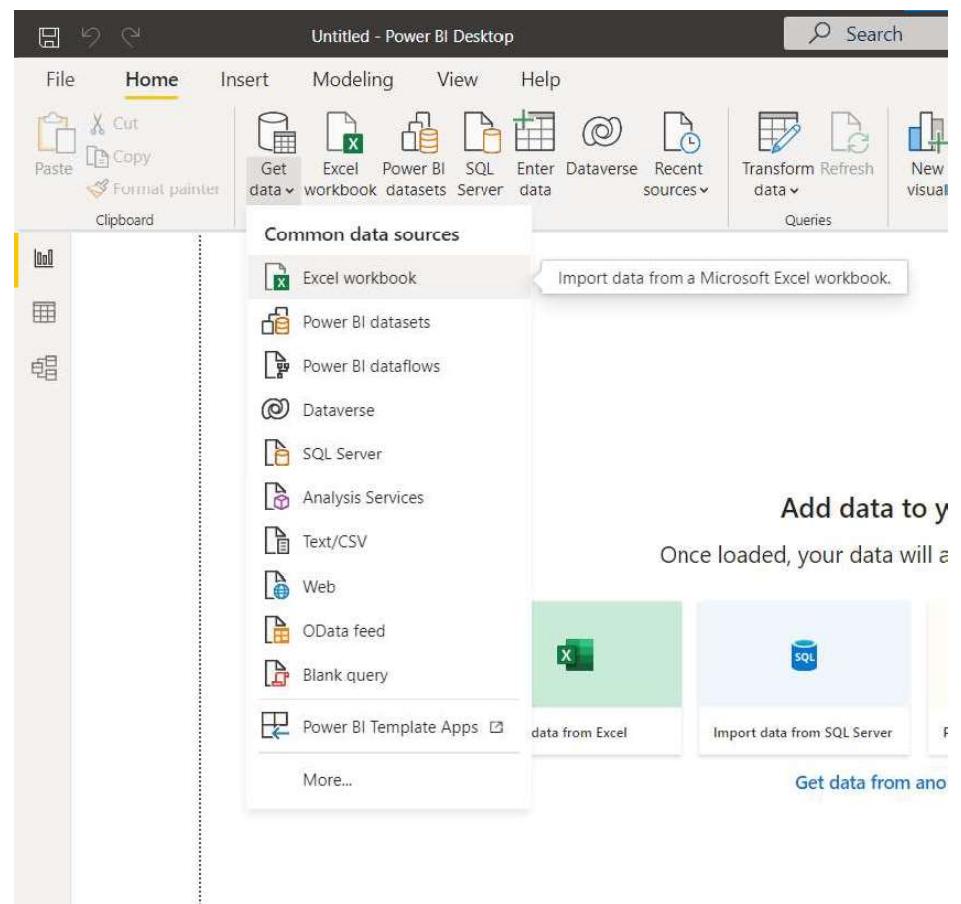


The screenshot shows the Power BI formula bar. On the left are buttons for 'X' and '✓'. The main input field contains the DAX formula: `1 ร้อยละ = w1[Vaccinated (% Population)]*100`. To the right of the input field is a dropdown arrow.

# Workshop 1: Calculate column

## DAX operators

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx



# Workshop 1: Calculate column

## DAX operators

- เลือกที่กล่องสีเหลืองหน้า w2
- คลิก Load

Navigator

w2

Month Name	Year	Segment	Country	Product	Discount B
January	2019	Government	Canada	Carretera	None
Febuary	2019	Government	Germany	Carretera	None
March	2019	Government	Mexico	Velo	None
April	2019	Government	France	Paseo	Low
May	2019	Small Business	France	Paseo	Low
June	2019	Channel Partners	Germany	VTT	Low
July	2019	Government	Canada	Paseo	Low
August	2019	Government	Germany	Paseo	Medium
September	2019	Government	France	Montana	Medium
October	2019	Midmarket	Canada	Paseo	Low
November	2019	Government	Germany	Montana	Low
December	2019	Channel Partners	Germany	Carretera	Medium
January	2020	Government	France	Paseo	Medium
Febuary	2020	Enterprise	Germany	Velo	Medium
March	2020	Government	Germany	Amarilla	Medium
April	2020	Enterprise	Canada	Velo	Medium
May	2020	Government	France	Montana	High
June	2020	Midmarket	Germany	Paseo	High
July	2020	Government	Mexico	Paseo	High
August	2020	Enterprise	Mexico	Velo	High
September	2020	Government	Mexico	Montana	High
October	2020	Government	Canada	Paseo	None
November	2020	Midmarket	Mexico	Paseo	None

1

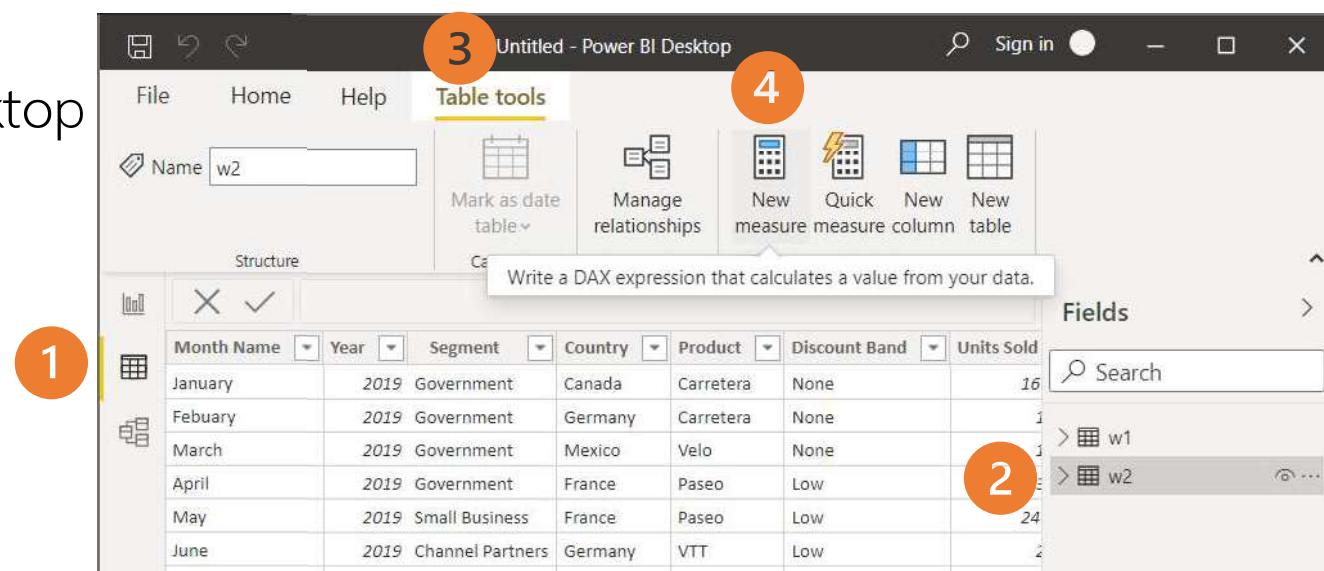
2

Load Transform Data Cancel

# Workshop 1: Calculate column

## Text concatenation

- เข้าสู่หน้าจอ Power BI Desktop
- คลิก Data view
- คลิก w2
- คลิก Table tools > New column



## Workshop 1: Calculate column

### Text concatenation

- สร้าง column ชื่อ Month\_Year เพื่อให้ได้คอลัมน์ใหม่ที่แสดงเดือนและปี



# Workshop 1: Calculate column

## Text concatenation

- สร้าง column ชื่อ Month\_Year เพื่อให้ได้คอลัมน์ใหม่ที่แสดงเดือนและปี
- ที่ Fields จะมี column ชื่อ Month\_Year

The screenshot shows the Power BI Data Editor interface. A calculated column 'Month\_Year' is being created in the first step (1). The formula is set to `w2[Month Name]&"_"&w2[Year]`. In the second step (2), the formula bar shows the result: `Month_Year`. The Fields pane on the right lists various fields and their descriptions, including Sales, COGS, Profit, Month Name, and Month Year.

Sales	Discounts	Sales	COGS	Profit	Month_Year
32370	0	32370	16185	16185	January_2019
26420	0	26420	13210	13210	February_2019
10451	0	10451	7465	2986	March_2019
27615	276.15	27338.85	19725	7613.85	April_2019
730350	21910.5	708439.5	608625	99814.5	May_2019
29748	892.44	28855.56	7437	21418.56	June_2019
29757	1190.28	28566.72	21255	7311.72	July_2019
9604	480.2	9123.8	6860	2263.8	August_2019
484575	24228.75	460346.25	359970	100376.25	September_2019
35445	708.9	34736.1	23630	11106.1	October_2019
13706	411.18	13294.82	9790	3504.82	November_2019
13392	669.6	12722.4	3348	9374.4	December_2019
26060	1303	24757	13030	11727	January_2020
100875	5043.75	95831.25	96840	-1008.75	February_2020



# Workshop 2

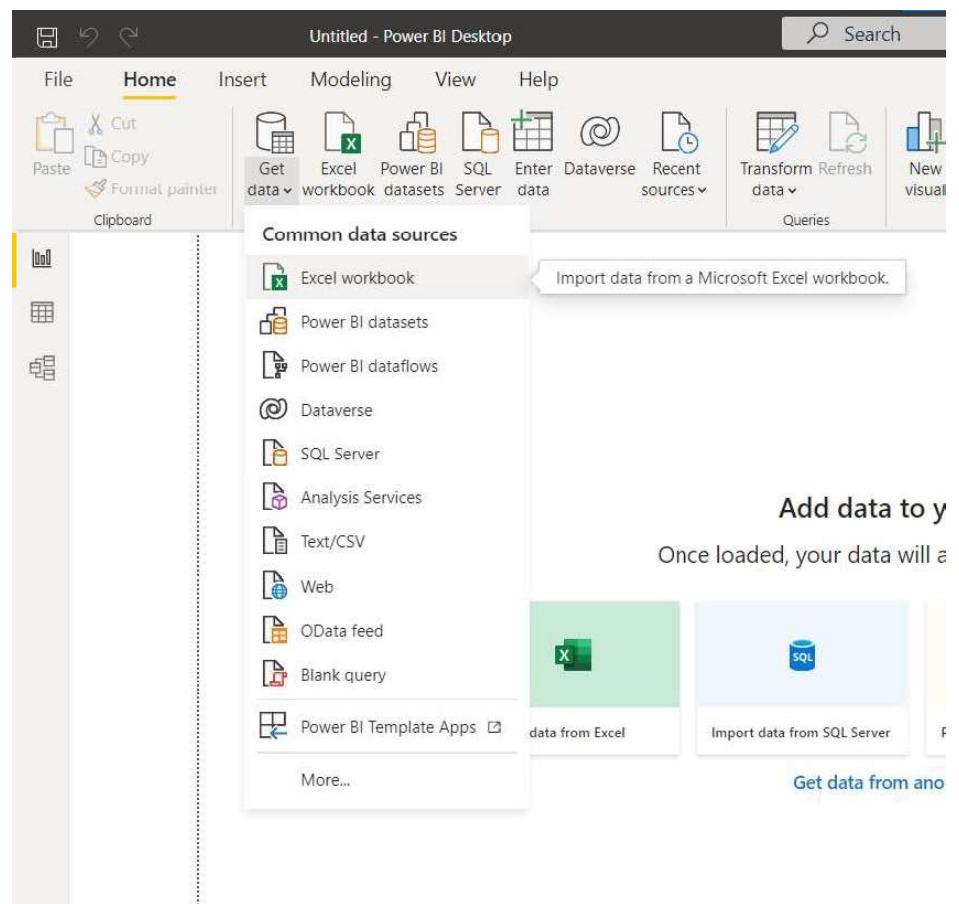
## Measure

- พึงก์ชั่น SUM

$$<\text{NAME}> = \text{SUM}(\text{Table\_Name}[\text{Column\_Name}])$$


## Workshop 2: Measure

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx



## Workshop 2: Measure

- เลือกที่กล่องสีเหลืองหน้า w2
- คลิก Load

Navigator

Display Options

Calculation.xlsx [2]

w1

w2

Month Name	Year	Segment	Country	Product	Discount B
January	2019	Government	Canada	Carretera	None
Febuary	2019	Government	Germany	Carretera	None
March	2019	Government	Mexico	Velo	None
April	2019	Government	France	Paseo	Low
May	2019	Small Business	France	Paseo	Low
June	2019	Channel Partners	Germany	VTT	Low
July	2019	Government	Canada	Paseo	Low
August	2019	Government	Germany	Paseo	Medium
September	2019	Government	France	Montana	Medium
October	2019	Midmarket	Canada	Paseo	Low
November	2019	Government	Germany	Montana	Low
December	2019	Channel Partners	Germany	Carretera	Medium
January	2020	Government	France	Paseo	Medium
Febuary	2020	Enterprise	Germany	Velo	Medium
March	2020	Government	Germany	Amarilla	Medium
April	2020	Enterprise	Canada	Velo	Medium
May	2020	Government	France	Montana	High
June	2020	Midmarket	Germany	Paseo	High
July	2020	Government	Mexico	Paseo	High
August	2020	Enterprise	Mexico	Velo	High
September	2020	Government	Mexico	Montana	High
October	2020	Government	Canada	Paseo	None
November	2020	Midmarket	Mexico	Paseo	None

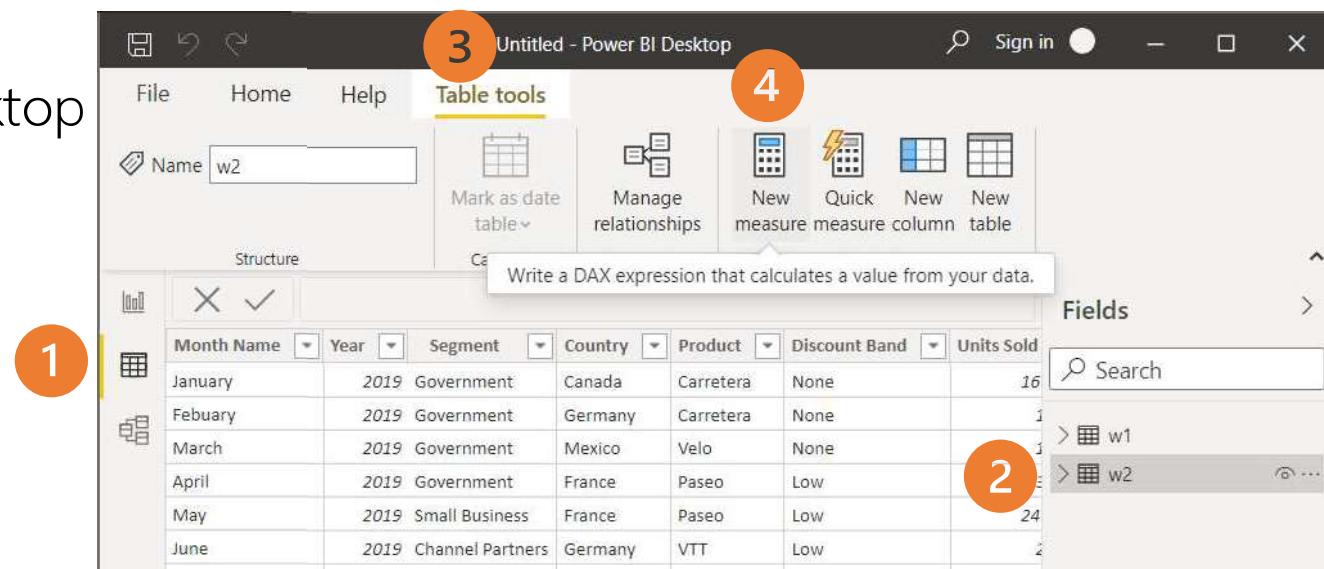
Load

Transform Data

Cancel

## Workshop 2: Measure

- เข้าสู่หน้าจอ Power BI Desktop
- คลิก Data view
- คลิก w2
- คลิก Table tools > New measure



## Workshop 2: Measure

- สร้าง measure ชื่อ Total Profit เพื่อแสดงกำไรรวม



The screenshot shows a user interface for creating a DAX measure. On the left, there are two buttons: a red 'X' and a green checkmark. In the center, the formula is displayed: "1 Total Profit = sum(w2[Profit])". To the right of the formula is a small icon of a document with a checkmark.

## Workshop 2: Measure

- สร้าง measure ชื่อ Total Profit
- ที่ Fields จะมี measure  
ชื่อ Total Profit

1

Month Name	Year	Segment	Country	Product
January	2019	Government	Canada	Carretera
Febuary	2019	Government	Germany	Carretera
March	2019	Government	Mexico	Velo
April	2019	Government	France	Paseo
May	2019	Small Business	France	Paseo
June	2019	Channel Partners	Germany	VTT
July	2019	Government	Canada	Paseo
August	2019	Government	Germany	Paseo
September	2019	Government	France	Montana
October	2019	Midmarket	Canada	Paseo
November	2019	Government	Germany	Montana
December	2019	Channel Partners	Germany	Carretera
January	2020	Government	France	Paseo
Febuary	2020	Enterprise	Germany	Velo
March	2020	Government	Germany	Amarilla
April	2020	Enterprise	Canada	Velo
May	2020	Government	France	Montana
June	2020	Midmarket	Germany	Paseo
July	2020	Government	Mexico	Paseo
August	2020	Enterprise	Mexico	Velo

Fields >

Search

w1

w2

Sales

COGS

Country

Discount Band

Discounts

Gross Sales

Manufacturing Price

Month Name

Month\_Year

Product

Profit

Sale Price

Segment

Total Profit

2

# Workshop 3

## Calculate table

- พึงก์ชัน Filter

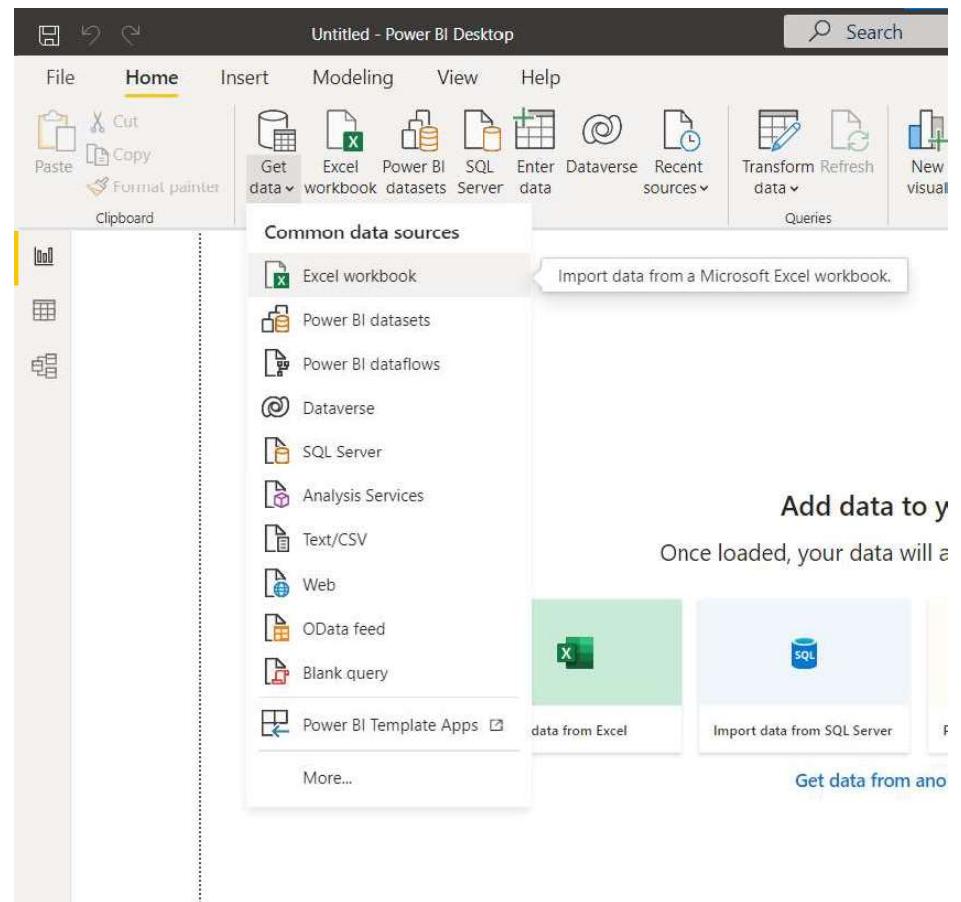
`FILTER(Table_Name, Table_Name[Column_Name] = เงื่อนไข)`

`FILTER(Table_Name, OR(  
    Table_Name[Column_Name] = เงื่อนไข,  
    Table_Name[Column_Name] = เงื่อนไข))`



## Workshop 3: Calculate Table Filter

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx



## Workshop 3: Calculate Table

### Filter

- เลือกที่กล่องสีเหลืองหน้า w2
- คลิก Load

Navigator

Display Options

Calculation.xlsx [2]

w1

w2

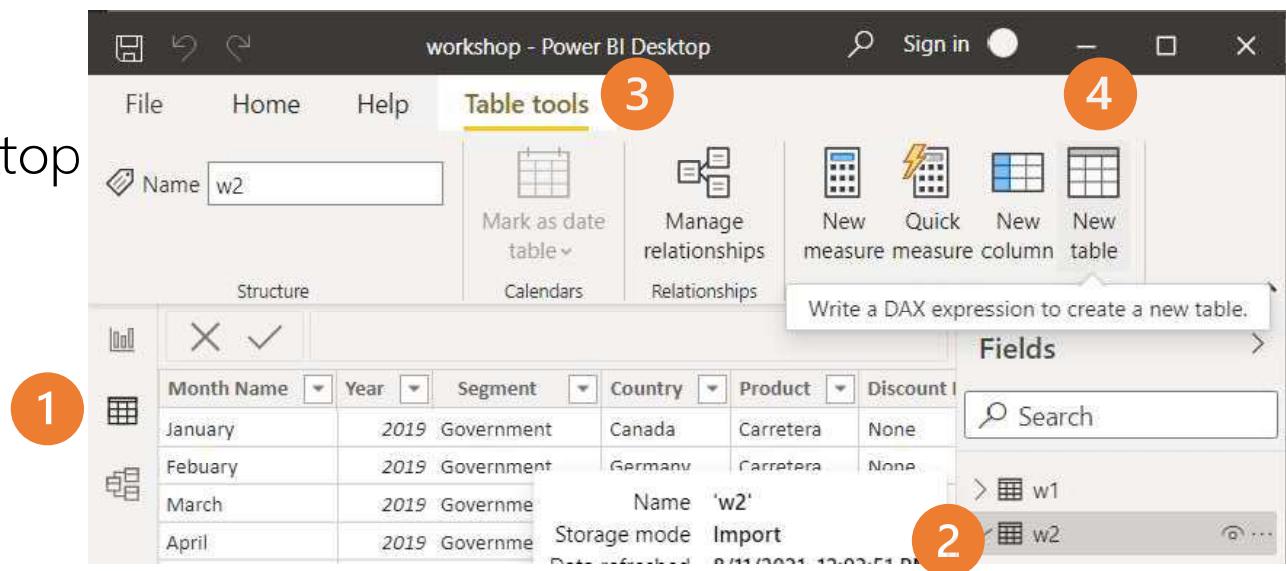
Month Name	Year	Segment	Country	Product	Discount B
January	2019	Government	Canada	Carretera	None
Febuary	2019	Government	Germany	Carretera	None
March	2019	Government	Mexico	Velo	None
April	2019	Government	France	Paseo	Low
May	2019	Small Business	France	Paseo	Low
June	2019	Channel Partners	Germany	VTT	Low
July	2019	Government	Canada	Paseo	Low
August	2019	Government	Germany	Paseo	Medium
September	2019	Government	France	Montana	Medium
October	2019	Midmarket	Canada	Paseo	Low
November	2019	Government	Germany	Montana	Low
December	2019	Channel Partners	Germany	Carretera	Medium
January	2020	Government	France	Paseo	Medium
Febuary	2020	Enterprise	Germany	Velo	Medium
March	2020	Government	Germany	Amarilla	Medium
April	2020	Enterprise	Canada	Velo	Medium
May	2020	Government	France	Montana	High
June	2020	Midmarket	Germany	Paseo	High
July	2020	Government	Mexico	Paseo	High
August	2020	Enterprise	Mexico	Velo	High
September	2020	Government	Mexico	Montana	High
October	2020	Government	Canada	Paseo	None
November	2020	Midmarket	Mexico	Paseo	None

Load Transform Data Cancel

## Workshop 3: Calculate Table

### Filter

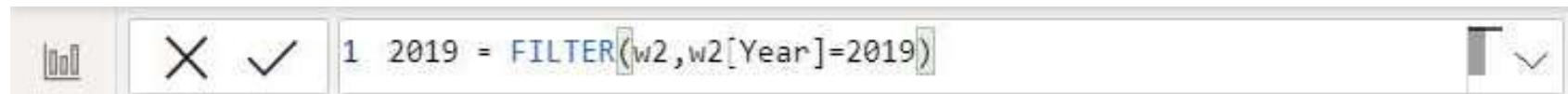
- เข้าสู่หน้าจอ Power BI Desktop
- คลิก Data view
- คลิก w2
- คลิก Table tools > New Table



## Workshop 3: Calculate Table

### Filter

- สร้าง Table ชื่อ 2019 เพื่อแสดงข้อมูลเฉพาะปี 2019



## Workshop 3: Calculate Table

### Filter

- สร้าง Table ชื่อ 2019 เพื่อแสดงข้อมูลเฉพาะปี 2019
- ที่ Fields จะมี Table ชื่อ 2019

The screenshot shows the Power BI Data View interface. A red circle labeled '1' highlights the filter bar at the top, which contains the formula: `1 2019 = FILTER(w2,w2[Year]=2019)`. Below the filter bar is a table with five rows and seven columns. The columns are: Month Name, Year, Segment, Country, Product, Discount Band, and Units Sold. The data in the table is as follows:

Month Name	Year	Segment	Country	Product	Discount Band	Units Sold
January	2019	Government	Canada	Carretera	None	16
Febuary	2019	Government	Germany	Carretera	None	1
March	2019	Government	Mexico	Velo	None	1
April	2019	Government	France	Paseo	Low	1
May	2019	Small Business	France	Paseo	Low	24

To the right of the table is the Fields pane. A red circle labeled '2' highlights the '2019' entry in the list, which is currently selected. The list also includes 'w1' and 'w2'.

Fields

- Search
- > 2019
- > w1
- w2

## Workshop 3: Calculate Table

### Filter

- สร้าง Table ชื่อ by segment เพื่อแสดงข้อมูลปี 2020 ของภาครัฐบาล



The screenshot shows a software interface with a code editor window. The code in the editor is:

```
X ✓ 1 by segment = FILTER(w2, AND(w2[Segment] = "Government", w2[Year] = 2020))
```

The code uses the FILTER function to filter rows from the table 'w2' where the 'Segment' column is 'Government' and the 'Year' column is '2020'. There are standard UI elements like a close button (X), a save button (✓), and a copy/paste button.

## Workshop 3: Calculate Table

### Filter

- สร้าง Table ชื่อ by segment เพื่อแสดงข้อมูลปี 2020 ของภาครัฐบาล
- ที่ Fields จะมี Table ชื่อ by segment

1

Month Name	Year	Segment	Country	Product	Discount Band	Units Sold	Manufac
January	2020	Government	France	Paseo	Medium	1303	
March	2020	Government	Germany	Amarilla	Medium	1350	
May	2020	Government	France	Montana	High	293	
July	2020	Government	Mexico	Paseo	High	260	
September	2020	Government	Mexico	Montana	High	1368	
October	2020	Government	Canada	Paseo	None	292	

2

Fields >

Search

> by segment

> w1

✓ w2

Σ Sales

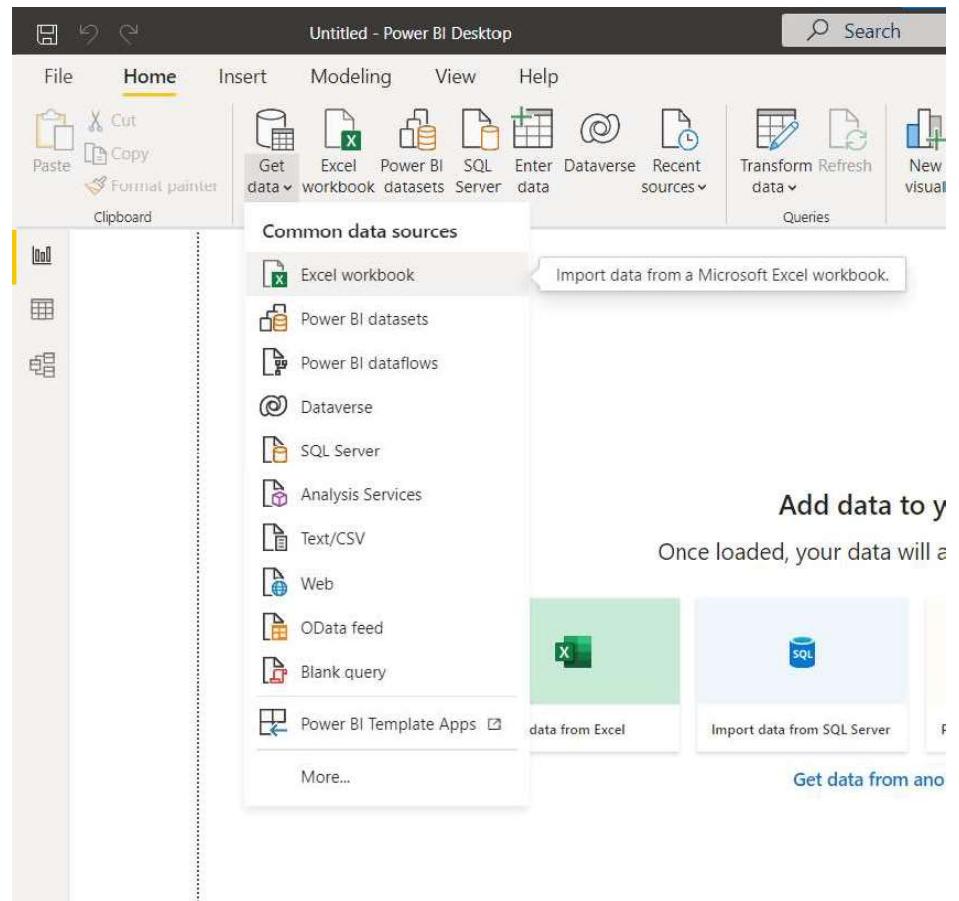
Σ COGS

# Workshop เขียนสูตรเพื่อจัดอันดับข้อมูล Top Ranking

- พึงก์ชั่น SUMX
- พึงก์ชั่น RANKX
- พึงก์ชั่น IF
- พึงก์ชั่น HASONEVALUE
- พึงก์ชั่น VALUE

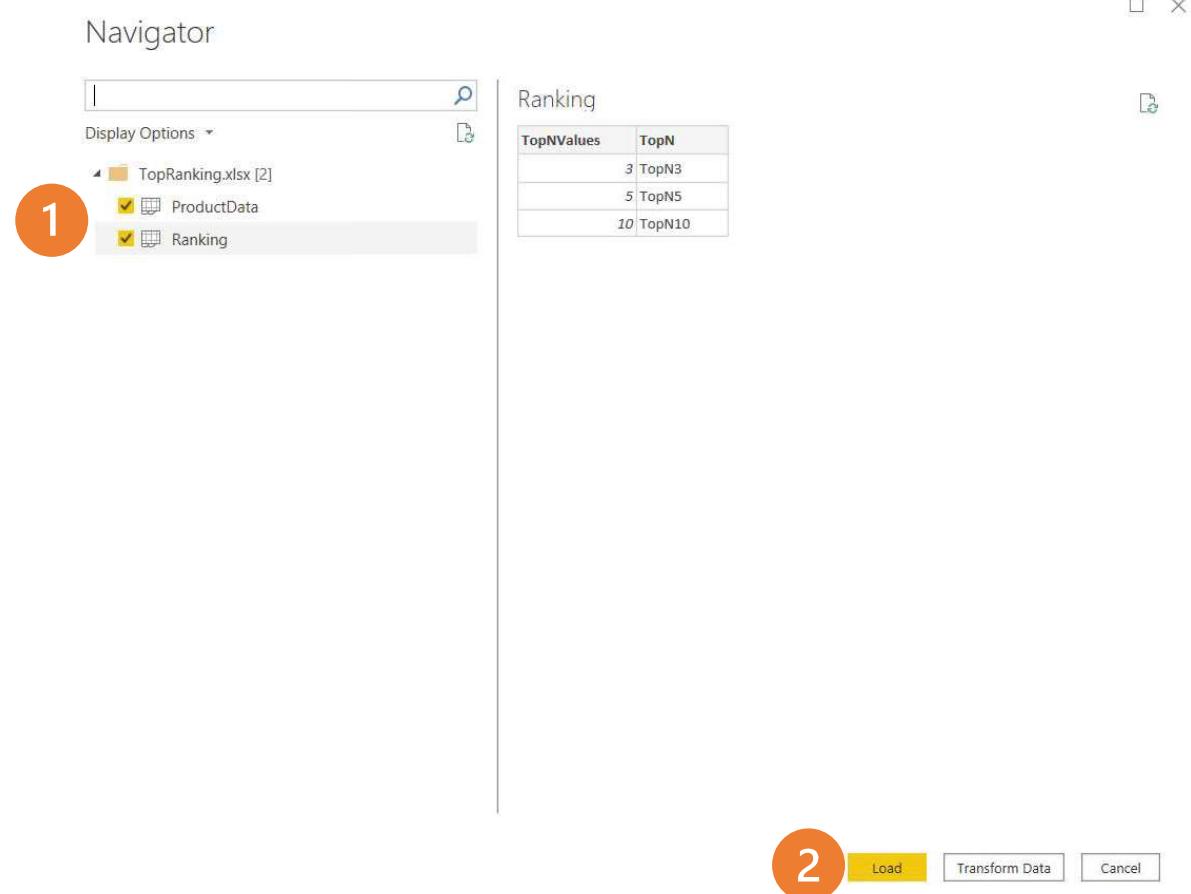
# Workshop: จัดอันดับข้อมูล Top Ranking

- คลิก Get Data > Excel
- เลือกไฟล์ TopRank.xlsx



# Workshop: จัดอันดับข้อมูล Top Ranking

- เลือกที่กล่องสีเหลืองหน้า ProductData และ Ranking
- คลิก Load



# Workshop: จัดอันดับข้อมูล Top Ranking

- เข้าสู่หน้าจอ Power BI Desktop
- คลิก Data view
- คลิก ProductData
- คลิก Table tools > New measure

The screenshot shows the Power BI Desktop interface. The ribbon at the top has 'Table tools' selected. A table named 'ProductData' is displayed with columns 'Product' and 'Value (MB)'. The table contains data for various fruits with their corresponding values. To the right of the table, the 'Fields' pane shows the table structure and a calculated column 'Ranking'. Four numbered circles highlight specific elements: 1 points to the table structure in the Data view; 2 points to the 'Ranking' column in the Fields pane; 3 points to the 'Table tools' ribbon tab; and 4 points to the 'New measure' button in the ribbon.

Product	Value (MB)
Langsat	11
Tamarind	21
Sapodilla	22
Lychee	23
Peach	33
Passion fruit	35
Blueberry	37
Star fruit	40
Guava	43
Apple	45
Star gooseberry	49
Pineapple	50
Grape	55
Papaya	59
Sugar apple	60
Rose apple	80
Banana	82
Cherry	83
Corn	85
Coconut	91
Orange	95
Custard apple	99
Durian	105

## Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SumValue เพื่อคำนวณค่าผลรวมของฟิลด์ Value (MB)



The screenshot shows the Power BI Data Editor interface. A new measure is being defined with the following DAX code:

```
1 SumValue = SUMX(ProductData, ProductData[Value (MB)])
```

The code is entered in the formula bar, and the status bar at the bottom right indicates the formula is valid.

# Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SumValue เพื่อคำนวณค่าผลรวมของฟิลด์ Value (MB)
- ที่ Fields จะมี measure ชื่อ SumValue

The screenshot shows the Power BI Data Editor interface. On the left, there is a table view with columns 'Product' and 'Value (MB)'. The table contains the following data:

Product	Value (MB)
Langsat	11
Tamarind	21
Sapodilla	22
Lychee	23
Peach	33
Passion fruit	35
Blueberry	37
Star fruit	40

In the center, there is a formula bar with the text: `1 SumValue = SUMX([ProductData], ProductData[Value (MB)])`. A circled '1' is placed above the formula bar.

On the right, there is a 'Fields' pane with a search bar and a list of fields. The 'SumValue' field is highlighted with a circled '2'. The list includes:

- ProductData
- Product
- SumValue
- $\sum \text{Value (MB)}$
- Ranking

# Workshop: จัดอันดับข้อมูล Top Ranking

- คลิก Data view
- คลิก ProductData
- คลิก Table tools > New measure

The screenshot shows the Power BI Desktop interface with the following numbered steps:

1. A callout points to the ProductData table in the Data view.
2. A callout points to the Fields pane, which shows the table structure: Product and Value (MB).
3. A callout points to the Table tools tab in the ribbon.
4. A callout points to the New measure button in the Table tools ribbon.

The main area displays a table of fruit names and their values in MB:

Product	Value (MB)
Langsat	11
Tamarind	21
Sapodilla	22
Lychee	23
Peach	33
Passion fruit	35
Blueberry	37
Star fruit	40
Guava	43
Apple	45
Star gooseberry	49
Pineapple	50
Grape	55
Papaya	59
Sugar apple	60
Rose apple	80
Banana	82
Cherry	83
Corn	85
Coconut	91
Orange	95
Custard apple	99
Durian	105

## Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ Rank เพื่อแสดงลำดับข้อมูลตามค่าฟิลด์ SumValue



The screenshot shows the Power BI formula bar with the following content:

```
1 Rank = RANKX(ALL(ProductData[Product]), [SumValue], ,0)
```

The formula bar includes standard icons for cancel and confirm, and a dropdown arrow for the formula.

## Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ Rank เพื่อแสดงลำดับข้อมูลตามค่าฟิลด์ SumValue
- ที่ Fields จะมี measure ชื่อ Rank

1

Product	Value (MB)
Langsat	11
Tamarind	21
Sapodilla	22
Lychee	23
Peach	33
Passion fruit	35
Blueberry	37

2

The screenshot shows the Power BI Data View interface. On the left, there is a table with columns 'Product' and 'Value (MB)'. The data includes Langsat (11), Tamarind (21), Sapodilla (22), Lychee (23), Peach (33), Passion fruit (35), and Blueberry (37). On the right, there is a 'Fields' pane. A circled '2' points to the 'Rank' measure, which is listed under the 'ProductData' table. Other measures listed are 'SumValue' and 'Value (MB)'.

# Workshop: จัดอันดับข้อมูล Top Ranking

- คลิก Data view
- คลิก Ranking
- คลิก Table tools > New measure

The screenshot shows the Power BI Desktop interface with the following numbered steps:

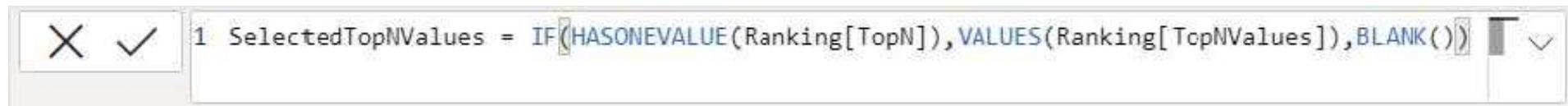
1. A callout points to the "Data view" icon in the ribbon.
2. A callout points to the "Ranking" field in the Fields pane.
3. A callout points to the "Table tools" tab in the ribbon.
4. A callout points to the "New measure" button in the Table tools ribbon group.

The Fields pane on the right shows a table named "ProductData" with two columns: "Product" and "Value (MB)". The "Value (MB)" column has a sum measure ( $\sum$  Value (MB)). The "Ranking" field is also listed under the table.

Product	Value (MB)
Langsat	11
Tamarind	21
Sapodilla	22
Lychee	23
Peach	33
Passion fruit	35
Blueberry	37
Star fruit	40
Guava	43
Apple	45
Star gooseberry	49
Pineapple	50
Grape	55
Papaya	59
Sugar apple	60
Rose apple	80
Banana	82
Cherry	83
Corn	85
Coconut	91
Orange	95
Custard apple	99
Durian	105

## Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SelectedTopNValues เพื่อดึงข้อมูลจากpivot TopNValues



```
X ✓ 1 SelectedTopNValues = IF(HASONEVALUE(Ranking[TopN]), VALUES(Ranking[TopNValues]), BLANK())
```

A screenshot of the Microsoft Power BI formula editor. The interface includes standard buttons for cancel (X), save (checkmark), and close (square). The main text area contains a single line of DAX code: "1 SelectedTopNValues = IF(HASONEVALUE(Ranking[TopN]), VALUES(Ranking[TopNValues]), BLANK())". The code uses the IF function to check if there is one value in the TopN column of the Ranking table. If true, it returns the corresponding value from the TopNValues column; otherwise, it returns a blank value.

# Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SelectedTopNValues เพื่อดึงข้อมูลจากพิวต์ TopNValues
- ที่ Fields จะมี measure ชื่อ SelectedTopNValues

The screenshot shows the Power BI Data Editor interface. On the left, there is a formula bar with the code: `1 SelectedTopNValues = IF(HASONEVALUE(Ranking[TopN]), VALUES(Ranking[TopNValues]), BLANK())`. Below the formula bar is a dropdown menu for 'TopNValues' containing three options: '3 TopN3', '5 TopN5', and '10 TopN10'. To the right of the formula bar is a 'Fields' pane. In the 'Fields' pane, there is a search bar labeled 'Search'. Below the search bar, there is a list of fields: 'ProductData', 'Ranking', 'SelectedTopNValues' (which is highlighted with a blue background), 'TopN', and 'TopNValues'. A large orange circle with the number '1' is positioned above the formula bar, and another large orange circle with the number '2' is positioned to the right of the 'Fields' pane.

# Workshop: จัดอันดับข้อมูล Top Ranking

- คลิก Data view
- คลิก Ranking
- คลิก Table tools > New measure

1

2

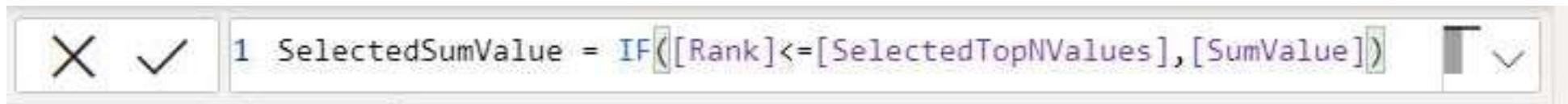
3

4

Product	Value (MB)
Langsat	11
Tamarind	21
Sapodilla	22
Lychee	23
Peach	33
Passion fruit	35
Blueberry	37
Star fruit	40
Guava	43
Apple	45
Star gooseberry	49
Pineapple	50
Grape	55
Papaya	59
Sugar apple	60
Rose apple	80
Banana	82
Cherry	83
Corn	85
Coconut	91
Orange	95
Custard apple	99
Durian	105

## Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SelectedSumValues เพื่อแสดงค่า SumValue ตาม Rank ที่เลือก



The screenshot shows the Power BI formula editor interface. On the left, there are two buttons: a red 'X' and a green checkmark. To their right is a number '1' followed by the measure definition: `SelectedSumValue = IF([Rank]<=[SelectedTopNValues], [SumValue])`. To the right of the formula is a small preview icon showing a chart, and further right is a dropdown arrow.

# Workshop: จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SelectedSumValues เพื่อแสดงค่า SumValue ตาม Rank ที่เลือก
- ที่ Fields จะมี measure ชื่อ SelectedSumValues

1

SelectedSumValue = IF([Rank]<=[SelectedTopNValues],[SumValue])

TopNValues	▼	TopN	▼
3	TopN3		
5	TopN5		
10	TopN10		

Fields

Search

ProductData

Ranking

SelectedSumValue

SelectedTopNValues

TopN

TopNValues

2

# Workshop: จัดอันดับข้อมูล Top Ranking

- คลิก Report view
- ที่ Visualizations เลือก Table
- ที่ Value เลือกฟิลด์  
จากตาราง ProductData ตามรูป

The screenshot shows the Power BI visualization editor interface. It is divided into three main sections:

- 1 Visualizations**: A grid of icons representing different visualization types, such as charts and tables.
- 2 Fields**: A list of fields from the selected data source. The 'ProductData' table is expanded, showing fields like Product, Rank, SumValue, and Value (MB). The 'Ranking' table is also expanded, showing fields like SelectedSumValue, SelectedTopNValue, TopN, and SumTopNValues. The 'Value (MB)' field is highlighted with a yellow checkmark.
- 3 Values**: A list of selected values for the visualization. It includes 'Product', 'Value (MB)', 'Rank', and 'SelectedSumValue'.

# Workshop: จัดอันดับข้อมูล Top Ranking

- คลิก Visual Table  
แล้วคลิกปุ่ม More options  
> Sort by > Rank

A screenshot of a Power BI report displaying a visual table of fruit data. The table has columns: Product, Value (MB), Rank, and SelectedSumValue. The data includes various fruits like Apple, Banana, and Durian, along with their values and ranks. A context menu is open over the table, with 'Sort by' selected. A secondary dropdown menu shows sorting options: Product, Value (MB), Rank, and SelectedSumValue, with 'Rank' highlighted.

Product	Value (MB)	Rank	SelectedSumValue
Apple	45	14	
Banana	82	7	
Blueberry	37	17	
Cherry	83	6	
Coconut	91	4	
Corn	85	5	
Custard apple	99	2	
Durian	105	1	
Grape	55	11	
Guava	43	15	
Langsat	11	23	
Lychee	23	20	
Orange	95	3	
Papaya	59	10	
Passion fruit	35	18	
Peach	33	19	
Pineapple	50	12	
Rose apple	80	8	
Sapodilla	22	21	
Star fruit	40	16	
Star gooseberry	49	13	
Sugar apple	60	9	
Tamarind	21	22	
<b>Total</b>	<b>1303</b>	<b>1</b>	

Export data  
Show as a table  
Remove  
Automatically find clusters  
Spotlight  
Sort descending  
Sort ascending

Sort by

Product  
Value (MB)  
Rank  
SelectedSumValue

# Workshop: จัดอันดับข้อมูล Top Ranking

- คลิก Visual Table  
แล้วคลิกปุ่ม More options  
> Sort ascending

Product	Value (MB)	Rank	SelectedSumValue
Langsat	11	23	
Tamarind	21	22	
Sapodilla	22	21	
Lychee	23	20	
Peach	33	19	
Passion fruit	35	18	
Blueberry	37	17	
Star fruit	40	16	
Guava	43	15	
Apple	45	14	
Star gooseberry	49	13	
Pineapple	50	12	
Grape	55	11	
Papaya	59	10	
Sugar apple	60	9	
Rose apple	80	8	
Banana	82	7	
Cherry	83	6	
Corn	85	5	
Coconut	91	4	
Orange	95	3	
Custard apple	99	2	
Durian	105	1	
<b>Total</b>	<b>1303</b>	<b>1</b>	

- Export data
- Show as a table
- Remove
- Automatically find clusters
- Spotlight
- Sort descending
- Sort ascending

Sort by ▾

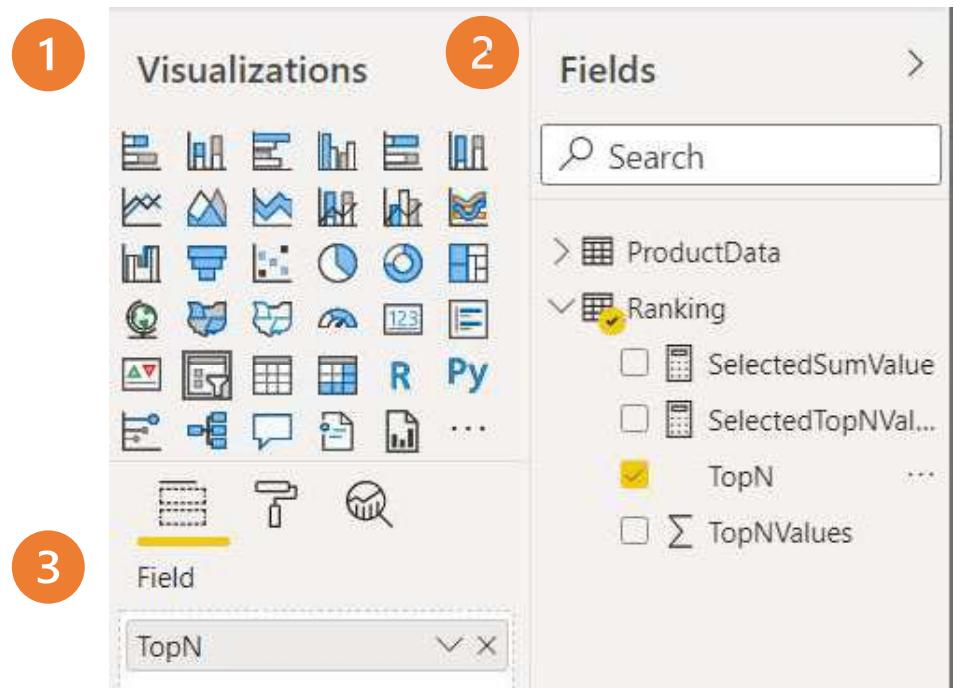
# Workshop: จัดอันดับข้อมูล Top Ranking

- จะได้ Visual Table

Product	Value (MB)	Rank	SelectedSumValue
Durian	105	1	
Custard apple	99	2	
Orange	95	3	
Coconut	91	4	
Corn	85	5	
Cherry	83	6	
Banana	82	7	
Rose apple	80	8	
Sugar apple	60	9	
Papaya	59	10	
Grape	55	11	
Pineapple	50	12	
Star gooseberry	49	13	
Apple	45	14	
Guava	43	15	
Star fruit	40	16	
Blueberry	37	17	
Passion fruit	35	18	
Peach	33	19	
Lychee	23	20	
Sapodilla	22	21	
Tamarind	21	22	
Langsat	11	23	
<b>Total</b>	<b>1303</b>	<b>1</b>	

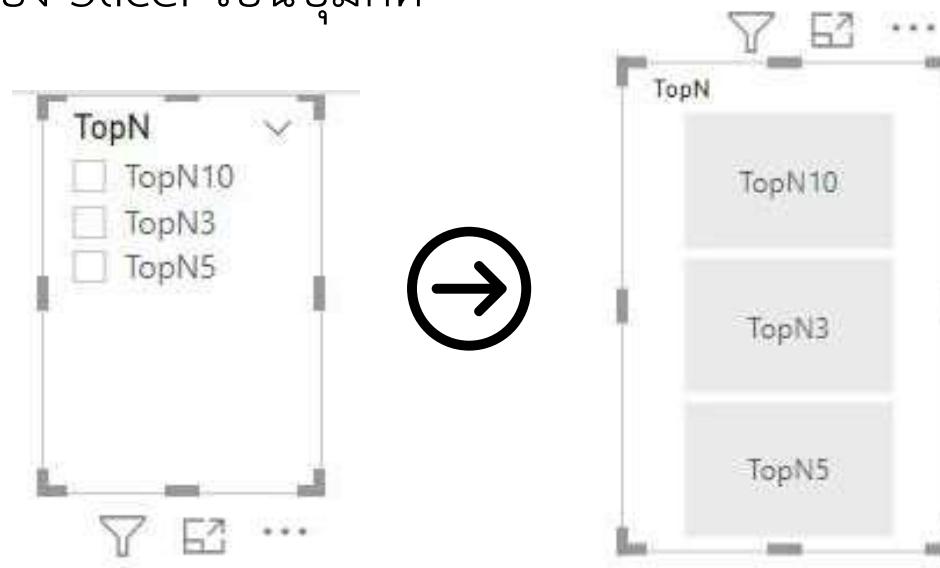
# Workshop: จัดอันดับข้อมูล Top Ranking

- ที่ Visualizations เลือก Slicer
- ที่ Value เลือกฟิลด์ TopN  
จากตาราง Ranking



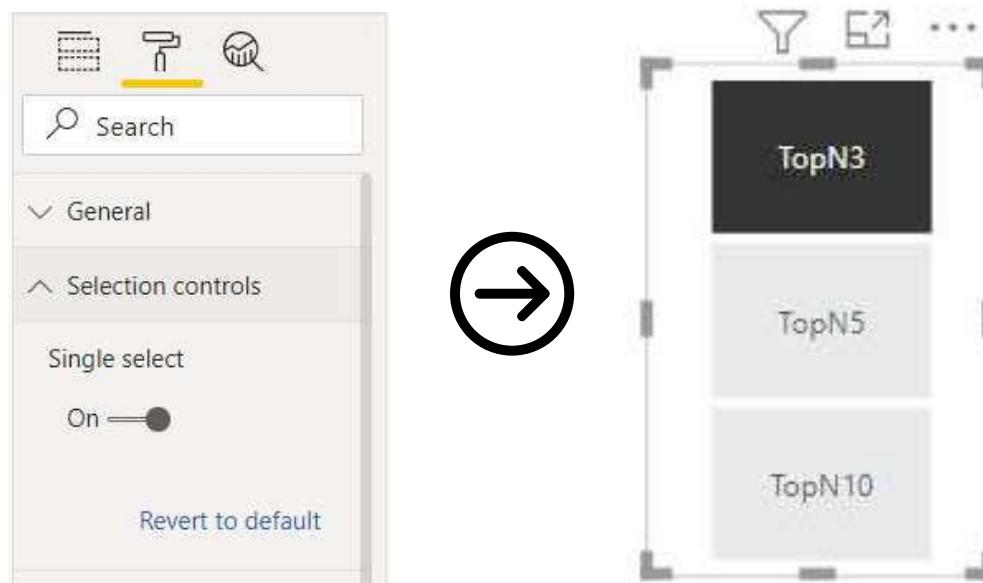
## Workshop: จัดอันดับข้อมูล Top Ranking

- ที่ Format เลือก General > Orientation >Horizontal
- จะได้รูปแบบของ Slicer เป็นปุ่มกด



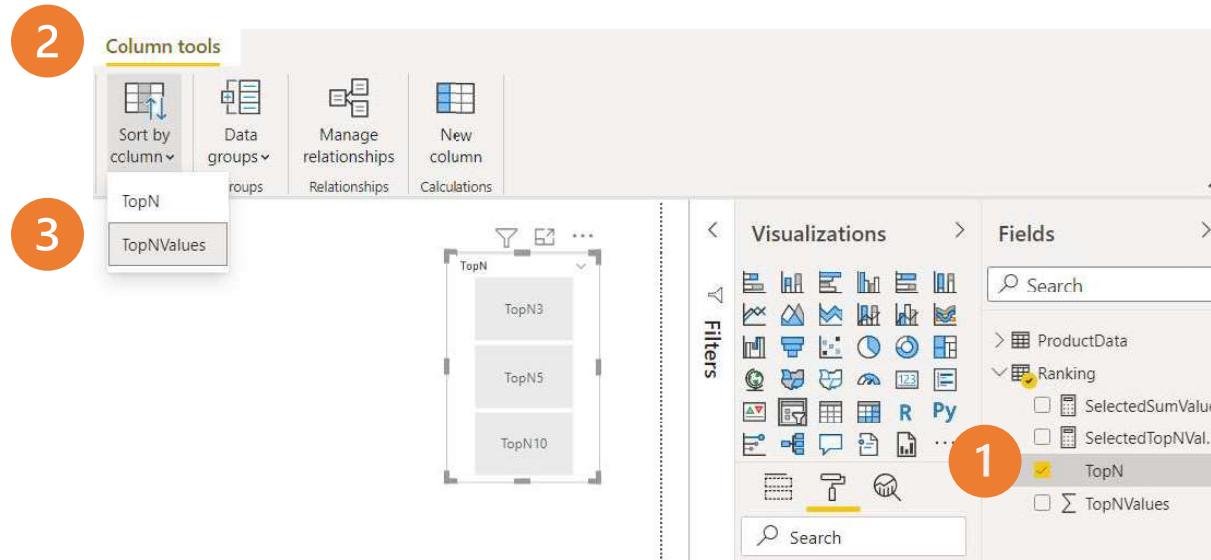
## Workshop: จัดอันดับข้อมูล Top Ranking

- ที่ Format เลือก Selection controls > Single select > On



## Workshop: จัดอันดับข้อมูล Top Ranking

- เลือกฟิลด์ TopN จากตาราง Ranking
- คลิก Column tools > Sort by column > TopNValues



# Workshop: จัดอันดับข้อมูล Top Ranking

- ที่ Visualizations  
เลือก Clustered column chart
- ที่ Axis เลือกฟิลด์  
Product จากตาราง ProductData
- ที่ Value เลือกฟิลด์  
SelectedSumValue จากตาราง Ranking

