

# DAX

## (Data Analysis Expression)

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# What is DAX?

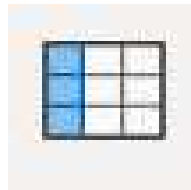
DAX is a collection of functions, operators, and constants that can be used in a formula, or expression, to calculate and return one or more values.

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

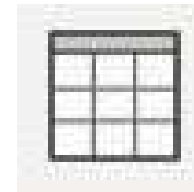
# Using DAX can add calculations to your data model



Measures



Calculated  
columns



Calculated  
tables

---

Untitled - Power BI Desktop

Search

Sign in

File Home Insert Modeling View Help

Paste Cut Copy Format painter Clipboard

Get data Excel workbook Power BI datasets SQL Server Enter data Dataverse Recent sources

Transform data Refresh data Queries

New visual Text box More visuals Insert


New measure Quick measure Calculations

Sensitivity Sensitivity

Publish Share

Build visuals with your data

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



Visualizations

Filters

Fields

Search

- ProductData
  - Product
  - SumValue
  - Value (MB)
- Ranking

Values

Add data fields here

Drill through

Cross-report

Off

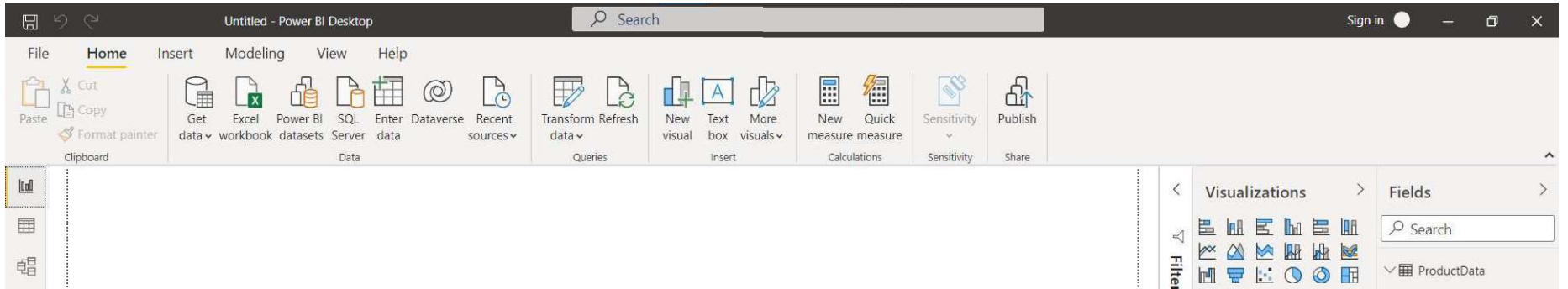
Keep all filters

On

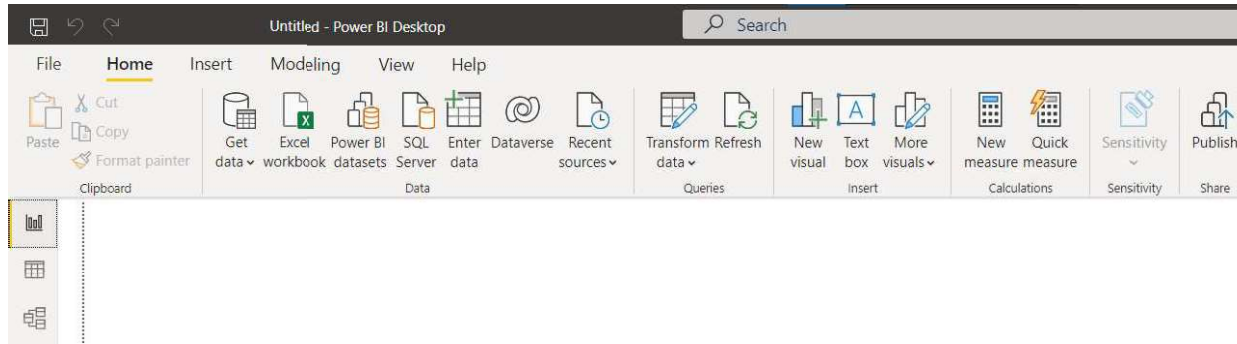
Add drill-through fields here

Page 1

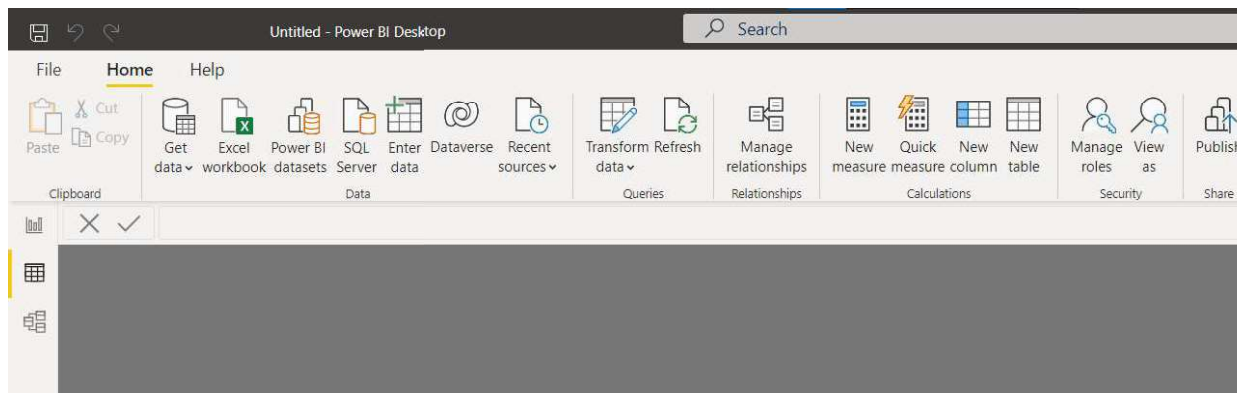
Page 1 of 1



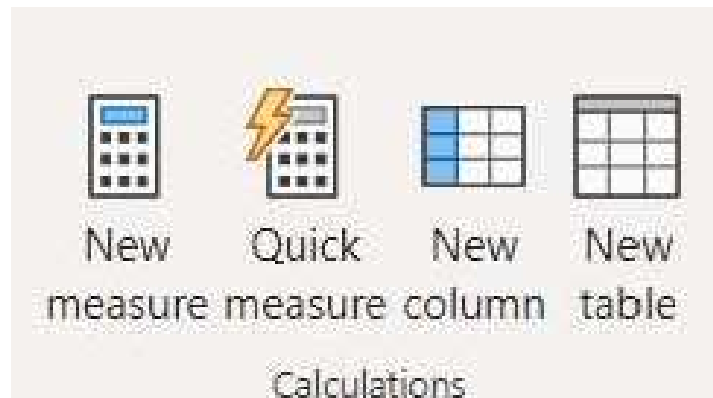
Report view →



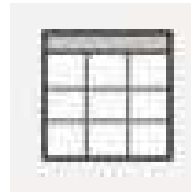
Data view →



# Calculations



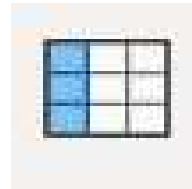
# Calculated tables



- 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.

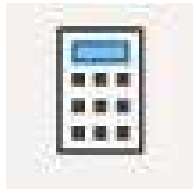


# Calculated columns



- 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

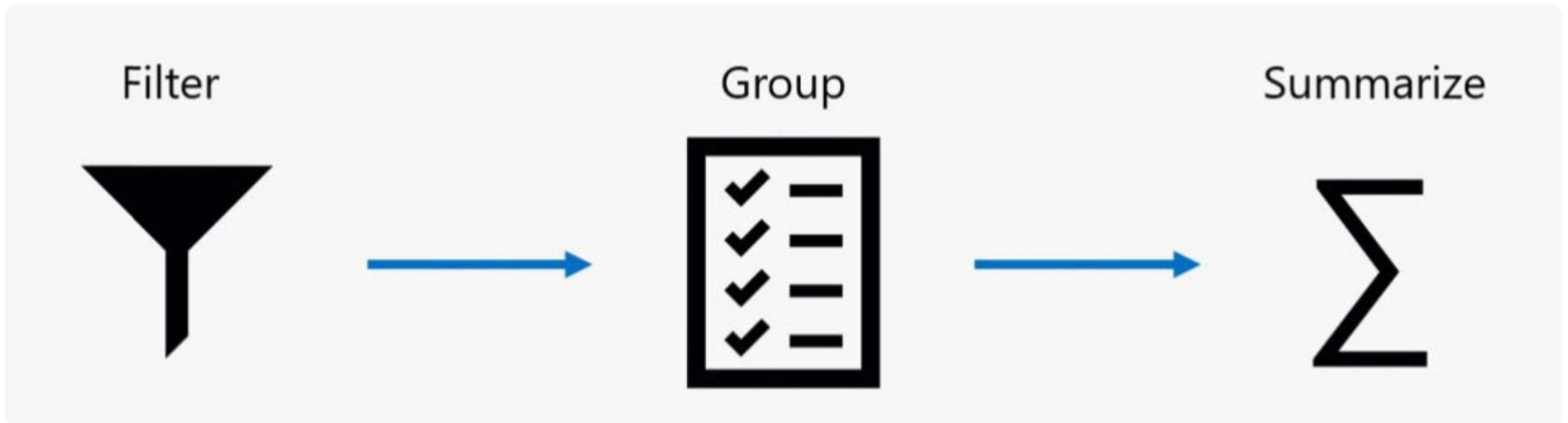
The values calculated by measures are dynamically evaluated whenever a user adds the measure to a PivotTable or open a report; as the user modifies the context, values returned by the measure change.

## 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 (PQFL) or "M"	Data Analytics eXpressions (DAX)	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>

DAX functions

DAX operators

DAX variables

References to  
model objects

Constant  
values

Whitespace





# 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

Measure references

Revenue = SUM([Sales Amount])

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



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Arithmetic

---

Comparison

---

Text concatenation

---

Logical

---

Operator precedence

# Arithmetic Operators

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

---

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

---

# Comparison Operators

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Operator	Description
----------	-------------

=	Equal to
---	----------

>	Greater than
---	--------------

<	Less than
---	-----------

---

---

Operator	Description
----------	-------------

==	Strict equal to
----	-----------------

>=	Greater than or equal to
----	--------------------------

<=	Less than or equal to
----	-----------------------

<>	Not equal to
----	--------------

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## 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

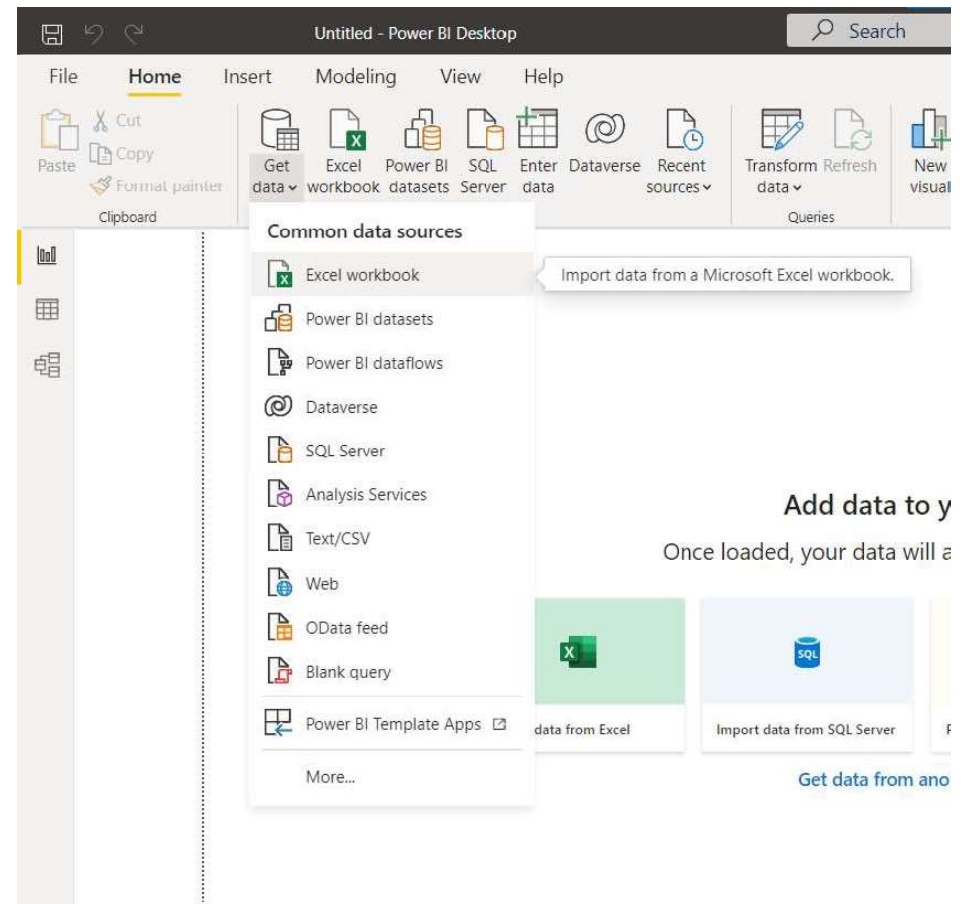
## Calculate column

- DAX operators
  - Text concatenation
-

# Workshop 1: Calculate column

## DAX operators

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx





# Workshop 1: Calculate column

## DAX operators

- เลือกที่กล่องสี่เหลี่ยมหน้า w1
- คลิก Load

The screenshot shows the Power BI Desktop interface. On the left, the Navigator pane displays a folder named 'Calculation.xlsx [2]' containing two tables: 'w1' and 'w2'. A red circle with the number '1' highlights the 'w1' table. On the right, a preview of the 'w1' table is shown, containing data for various countries.

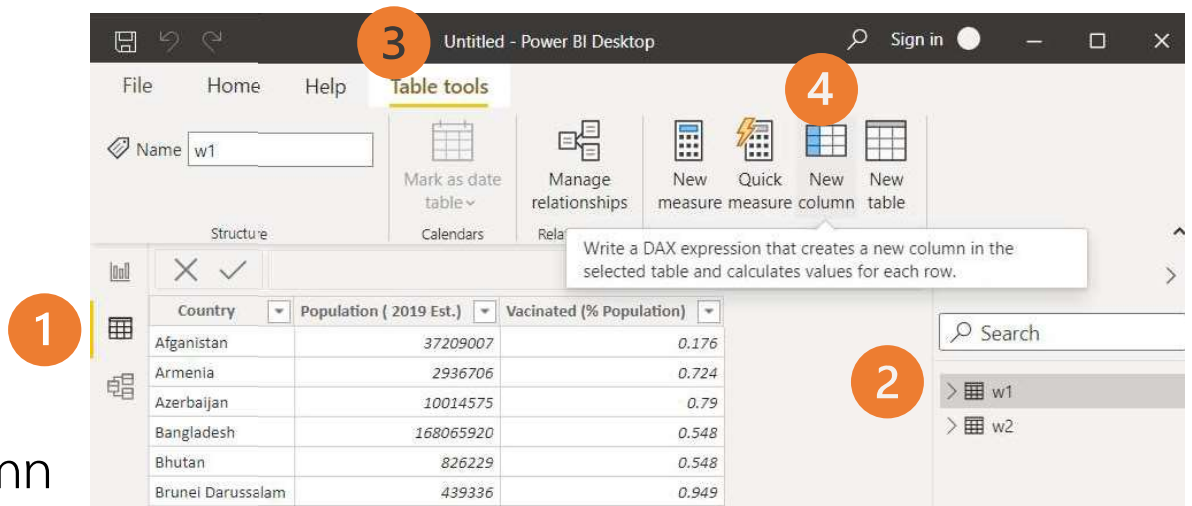
Country	Population ( 2019 Est.)	Vacinated (% Population)
Afganistan	37209007	0.176
Armenia	2936706	0.724
Azerbaijan	10014575	0.79
Bangladesh	168065920	0.548
Bhutan	826229	0.548
Brunei Darussalam	439336	0.949
Cambodia	16482646	0.486
China *	1420062022	0.584
Georgia	3904204	0.681
Hong Kong *	7490776	0.894
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
Kyrgystan	6218616	0.401

The screenshot shows the 'Load' dialog box in Power BI Desktop. A red circle with the number '2' highlights the 'Load' button. Other buttons visible are 'Transform Data' and 'Cancel'.

# 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

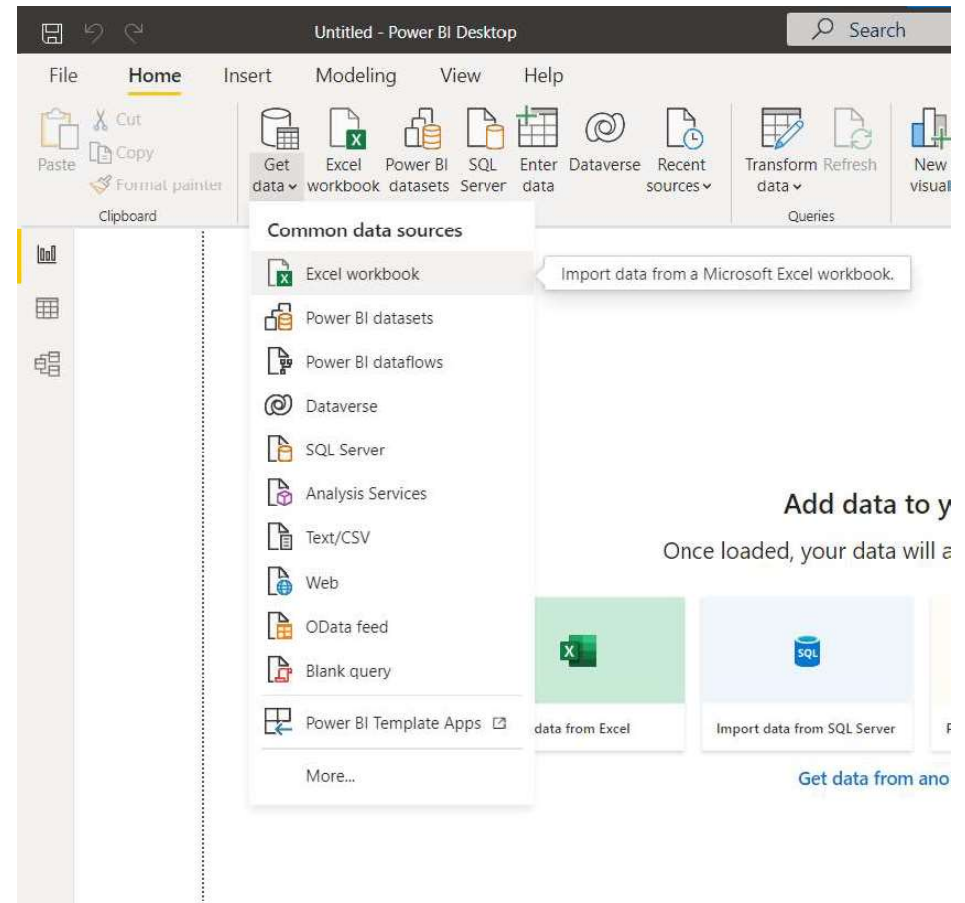
- สร้าง column ชื่อ ร้อยละ

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1 ร้อยละ = w1[Vacinated (% Population)]*100	<input type="checkbox"/>
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# Workshop 1: Calculate column

## DAX operators

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx



# Workshop 1: Calculate column

## DAX operators

- เลือกที่กล่องสี่เหลี่ยมหน้า w2
- คลิก Load

Navigator

Display Options ▾

Calculation.xlsx [2]

- w1
- w2

w2

Month Name	Year	Segment	Country	Product	Discount B
January	2019	Government	Canada	Carretera	None
February	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
February	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

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

1

2

3

4

Write a DAX expression that calculates a value from your data.

Month Name	Year	Segment	Country	Product	Discount Band	Units Sold
January	2019	Government	Canada	Carretera	None	16
February	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
June	2019	Channel Partners	Germany	VTT	Low	2

## Workshop 1: Calculate column

Text concatenation

- สร้าง column ชื่อ Month\_Year เพื่อให้ได้คอลัมน์ใหม่ที่แสดงเดือนและปี



```
1 Month_Year = w2[Month Name]&"_"&w2[Year]
```

# Workshop 1: Calculate column

## Text concatenation

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

1

The screenshot shows a data table with columns: Sales, Discounts, Sales, COGS, Profit, and Month\_Year. The Month\_Year column contains values like 'January\_2019', 'February\_2019', etc. A formula bar at the top shows the calculation: `1 Month_Year = w2[Month Name]&"_"&w2[Year]`. To the right is a 'Fields' pane with a search bar and a list of fields including '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

2



# Workshop 2

## Measure

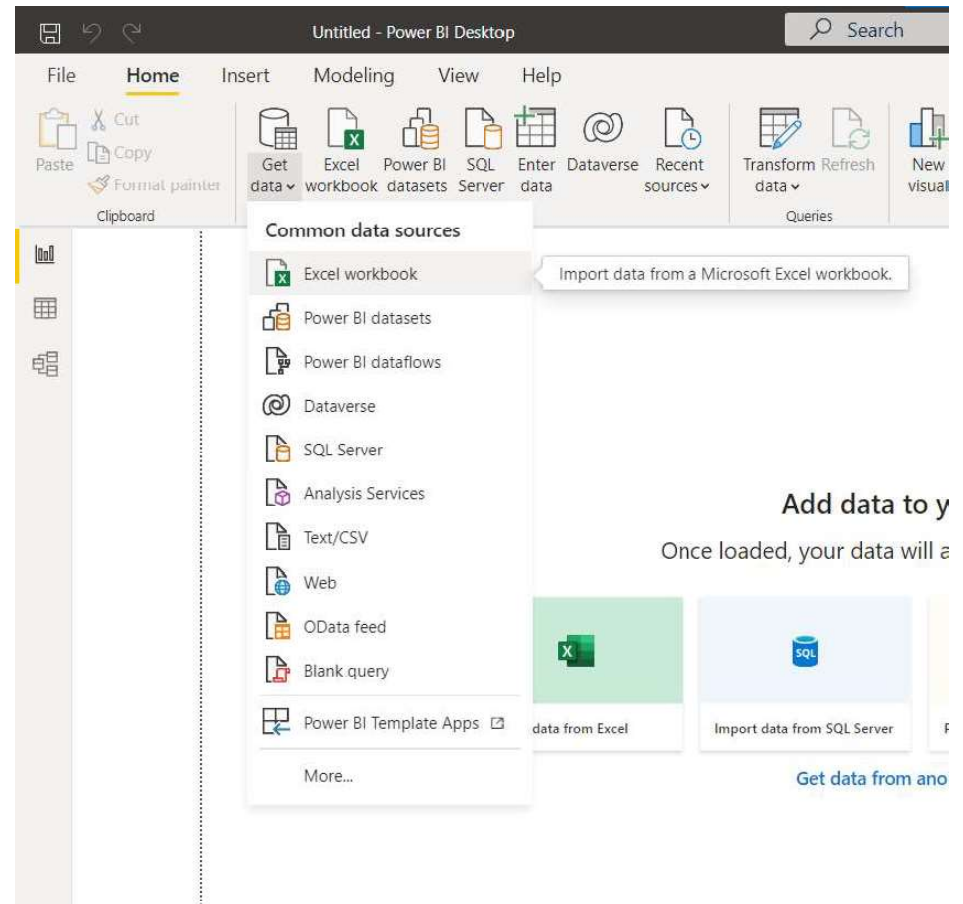
- ฟังก์ชัน SUM

<NAME> = SUM(Table\_Name[Column\_Name])

---

## Workshop 2: Measure

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx



## Workshop 2: Measure

- เลือกที่กล่องสี่เหลี่ยมหน้า w2
- คลิก Load

Navigator

Display Options ▾

- Calculation.xlsx [2]
- w1
- w2

w2

Month Name	Year	Segment	Country	Product	Discount B
January	2019	Government	Canada	Carretera	None
February	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	Mediur
September	2019	Government	France	Montana	Mediur
October	2019	Midmarket	Canada	Paseo	Low
November	2019	Government	Germany	Montana	Low
December	2019	Channel Partners	Germany	Carretera	Mediur
January	2020	Government	France	Paseo	Mediur
February	2020	Enterprise	Germany	Velo	Mediur
March	2020	Government	Germany	Amarilla	Mediur
April	2020	Enterprise	Canada	Velo	Mediur
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

2 Load Transform Data Cancel

## Workshop 2:

### Measure

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

Write a DAX expression that calculates a value from your data.

Month Name	Year	Segment	Country	Product	Discount Band	Units Sold
January	2019	Government	Canada	Carretera	None	16
February	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
June	2019	Channel Partners	Germany	VTT	Low	2

## Workshop 2:

### Measure

- สร้าง measure ชื่อ Total Profit เพื่อแสดงกำไรรวม

A screenshot of a software interface showing a DAX measure definition. The interface includes a close button (X), a checkmark, a text input field containing the measure formula, and a dropdown arrow. The formula is: 1 Total Profit = sum(w2[Profit])

```
1 Total Profit = sum(w2[Profit])
```

## Workshop 2: Measure

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

1

1 Total Profit = sum(w2[Profit])

Month Name	Year	Segment	Country	Product
January	2019	Government	Canada	Carretera
February	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
February	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

- ฟังก์ชัน Filter

`FILTER`(Table\_Name, Table\_Name[Column\_Name] = เงื่อนไข)

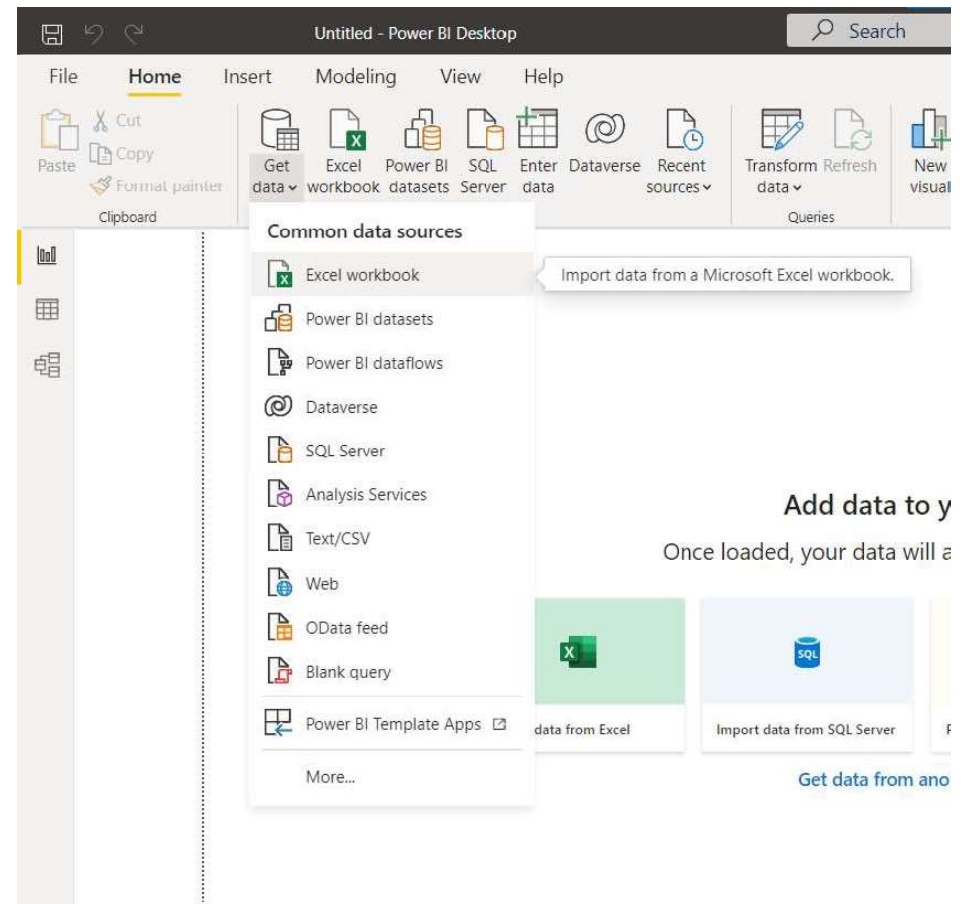
`FILTER`(Table\_Name, `OR`(  
Table\_Name[Column\_Name] = เงื่อนไข,  
Table\_Name[Column\_Name] = เงื่อนไข))

---

## Workshop 3: Calculate Table

### Filter

- คลิก Get Data > Excel
- เลือกไฟล์ Calculation.xlsx





# Workshop 3: Calculate Table

## Filter

- เลือกที่กล่องสี่เหลี่ยมหน้า w2
- คลิก Load

Navigator

Display Options ▾

- Calculation.xlsx [2]
- w1
- w2

w2

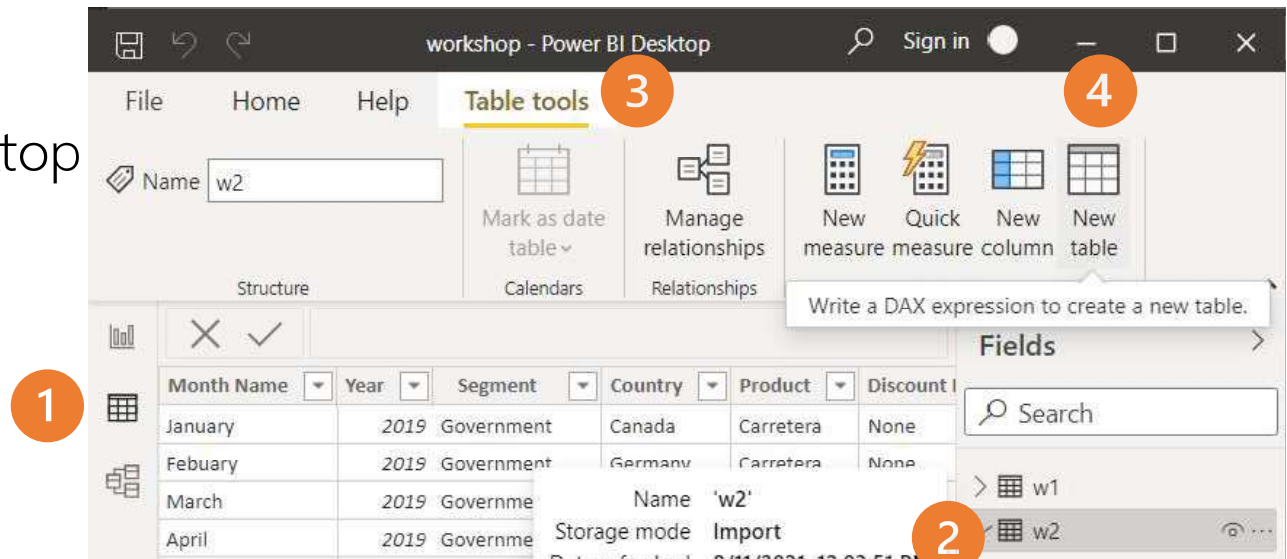
Month Name	Year	Segment	Country	Product	Discount B
January	2019	Government	Canada	Carretera	None
February	2019	Government	Germany	Carretera	None
March	2019	Government	Mexico	Velo	None
April	2019	Government	France	Paseo	Low
May	2019	Small Business	France	Paseo	Low
June	2019	Channel Partners	Germany	VTT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

2 Load Transform Data Cancel

## Workshop 3: Calculate Table

### Filter

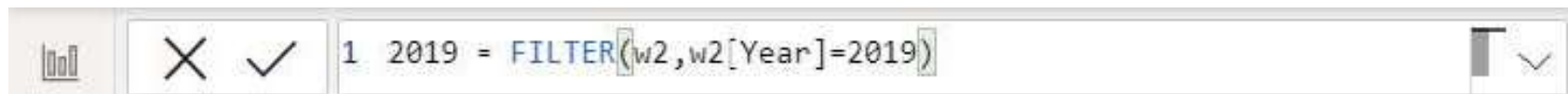
- เข้าสู่หน้าจอ Power BI Desktop
- คลิก Data view
- คลิก w2
- คลิก Table tools > New Table



## Workshop 3: Calculate Table

### Filter

- สร้าง Table ชื่อ 2019 เพื่อแสดงข้อมูลเฉพาะปี 2019

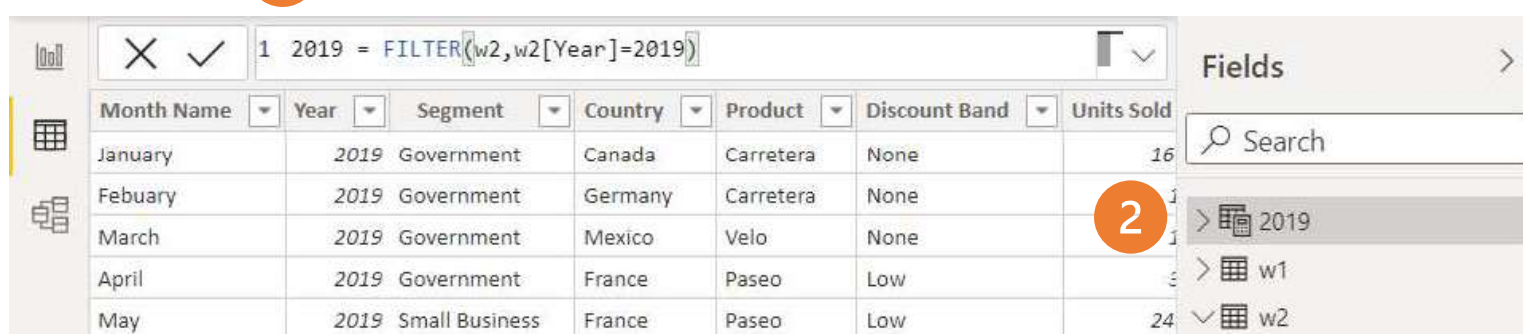


## Workshop 3: Calculate Table

### Filter

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

1



The screenshot shows a data table with a filter bar at the top. The filter bar contains the text "1 2019 = FILTER(w2,w2[Year]=2019)". The table has columns for Month Name, Year, Segment, Country, Product, Discount Band, and Units Sold. The rows show data for January, February, March, April, and May. A search bar is visible in the Fields pane on the right, and the field "2019" is selected.

Month Name	Year	Segment	Country	Product	Discount Band	Units Sold
January	2019	Government	Canada	Carretera	None	16
February	2019	Government	Germany	Carretera	None	1
March	2019	Government	Mexico	Velo	None	1
April	2019	Government	France	Paseo	Low	3
May	2019	Small Business	France	Paseo	Low	24

Fields

Search

2019

w1

w2

2

## Workshop 3: Calculate Table

### Filter

- สร้าง Table ชื่อ by segment เพื่อแสดงข้อมูลปี 2020 ของภาครัฐบาล

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

## Workshop 3: Calculate Table

### Filter

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

1

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

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

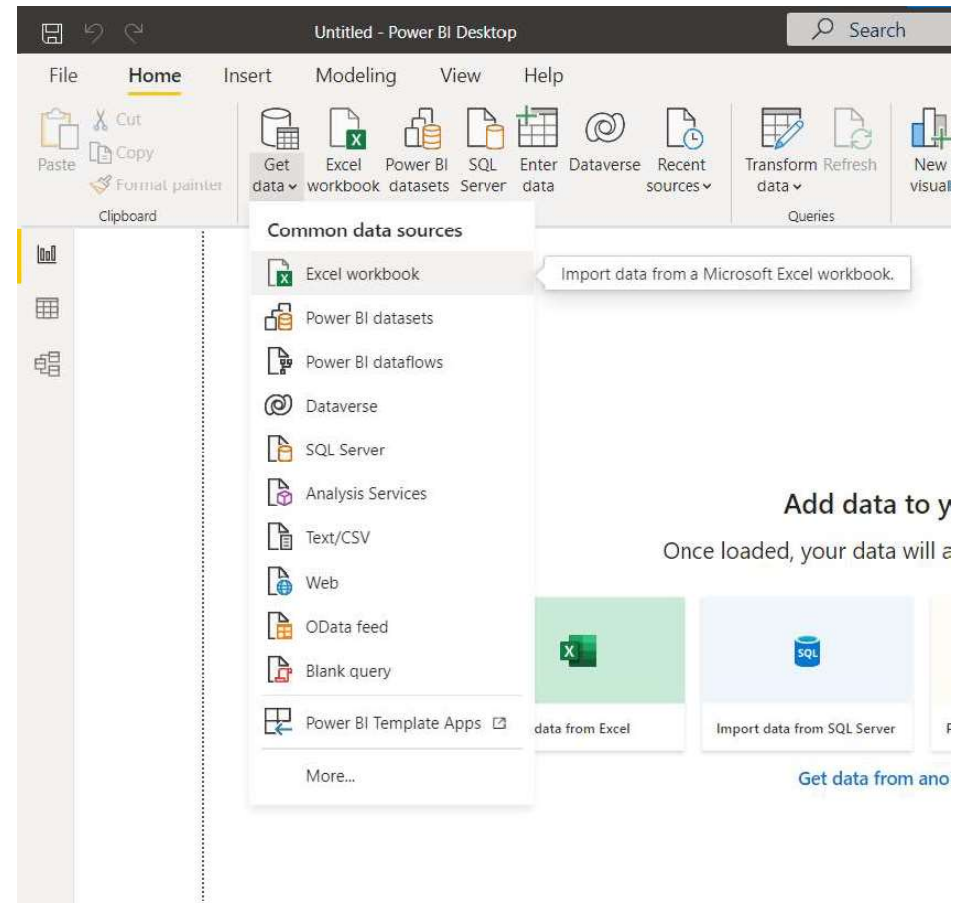
## เขียนสูตรเพื่อจัดอันดับข้อมูล Top Ranking

- ฟังก์ชัน SUMX
  - ฟังก์ชัน RANKX
  - ฟังก์ชัน IF
  - ฟังก์ชัน HASONEVALUE
  - ฟังก์ชัน VALUE
-

## Workshop:

### จัดอันดับข้อมูล Top Ranking

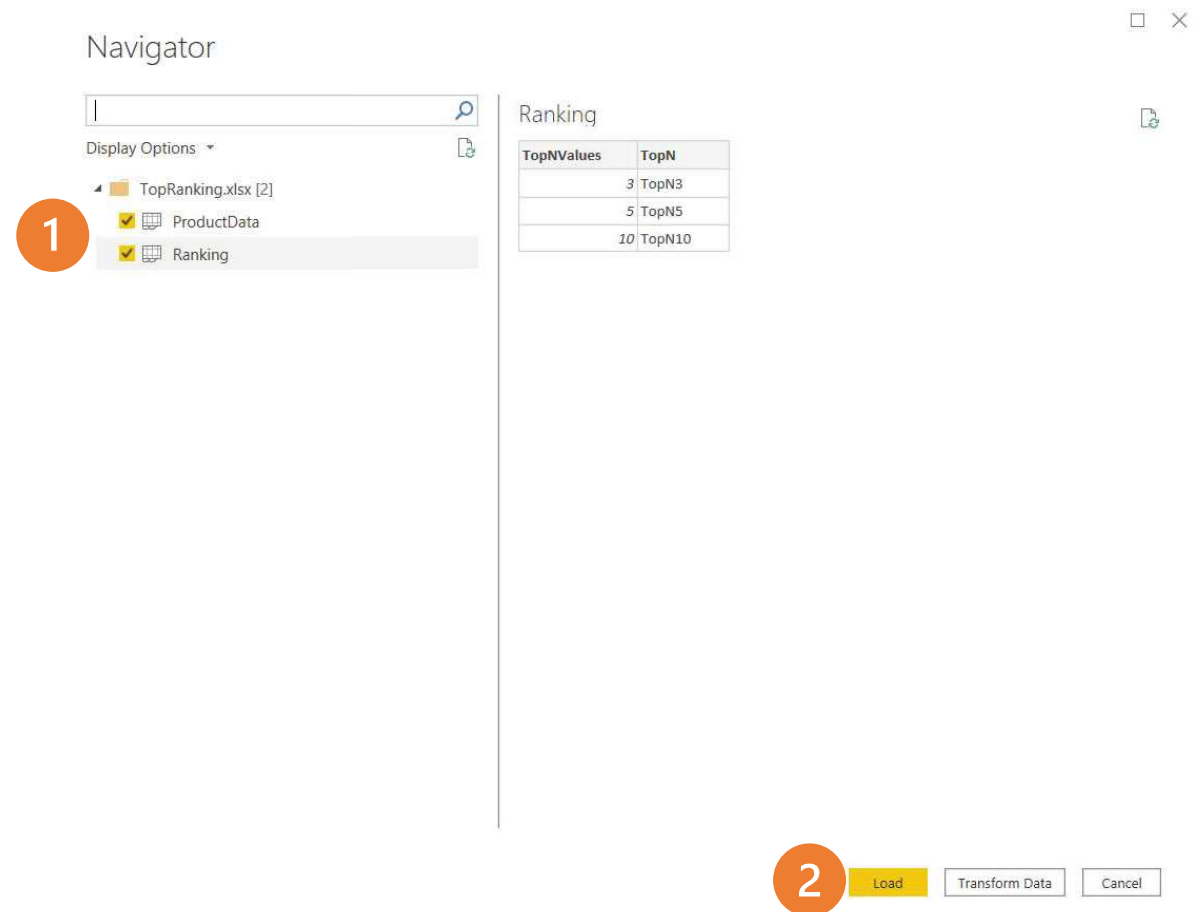
- คลิก Get Data > Excel
- เลือกไฟล์ TopRank.xlsx





## Workshop: จัดอันดับข้อมูล Top Ranking

- เลือกที่กล่องสี่เหลี่ยมหน้า ProductData และ Ranking
- คลิก Load



The screenshot shows a software interface with a 'Navigator' pane on the left and a 'Ranking' table on the right. A red circle with the number '1' is placed over the 'ProductData' and 'Ranking' items in the Navigator. The 'Ranking' table has the following data:

TopNValues	TopN
3	TopN3
5	TopN5
10	TopN10

At the bottom right, there is a red circle with the number '2' next to a 'Load' button, followed by 'Transform Data' and 'Cancel' buttons.

## 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 'Table tools' ribbon is active, and the 'New measure' button is highlighted. The 'Fields' pane on the right shows the 'ProductData' table selected. The main area displays a table with the following data:

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 a software interface for creating a measure. On the left, there are two icons: a red 'X' for cancel and a green checkmark for confirm. The main text area contains the DAX formula: `1 SumValue = SUMX(ProductData,ProductData[Value (MB)])`. On the right side of the text area, there is a vertical bar and a dropdown arrow.

## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

1

The screenshot shows a Power BI interface. On the left, a table displays product data:

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

On the right, the Fields pane is visible. The measure 'SumValue' is highlighted, and a red circle with the number '2' is placed over it. The formula bar at the top shows the DAX formula: `1 SumValue = SUMX(ProductData,ProductData[Value (MB)])`.

## Workshop: จัดอันดับข้อมูล Top Ranking

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

1

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

2

3

4

## Workshop:

### จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ Rank เพื่อแสดงลำดับข้อมูลตามค่าฟิลด์ SumValue

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

## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

1

The screenshot shows the Power BI interface. At the top, the DAX formula bar contains the formula: `1 Rank = RANKX(ALL(ProductData[Product]),[SumValue],,0)`. Below the formula bar is a table with two columns: 'Product' and 'Value (MB)'. The table lists products and their corresponding values, sorted in ascending order of value. An orange circle with the number '1' is positioned above the formula bar. On the right side, the 'Fields' pane is visible, showing a search bar and a list of fields. An orange circle with the number '2' is positioned next to the 'Rank' measure in the Fields pane.

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

Fields

Search

ProductData

Product

Rank

SumValue

Value (MB)

2

## Workshop: จัดอันดับข้อมูล Top Ranking

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

1

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

2

3

4



## Workshop:

### จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SelectedTopNValues เพื่อดึงข้อมูลจากฟิวด์ TopNValues

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

## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

1

The screenshot shows the DAX formula bar with the following measure definition: `1 SelectedTopNValues = IF(HASONEVALUE(Ranking[TopN]),VALUES(Ranking[TopNValues]),BLANK())`. Below the formula bar is a table with two columns: 'TopNValues' and 'TopN'. The table contains three rows: (3, TopN3), (5, TopN5), and (10, TopN10). On the right side, the 'Fields' pane is visible, showing a search bar and a list of fields. The 'Ranking' table is expanded, and the 'SelectedTopNValues' measure is highlighted with a red circle labeled '2'. Below the measure, the 'TopN' and 'TopNValues' fields are also visible.

TopNValues	TopN
3	TopN3
5	TopN5
10	TopN10

2

## Workshop: จัดอันดับข้อมูล Top Ranking

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

1

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

2

3

4

## Workshop:

### จัดอันดับข้อมูล Top Ranking

- สร้าง measure ชื่อ SelectedSumValues เพื่อแสดงค่า SumValue ตาม Rank ที่เลือก

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

## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

1

The screenshot shows the DAX editor interface. The formula bar contains the following DAX formula: `1 SelectedSumValue = IF([Rank]<=[SelectedTopNValues],[SumValue])`. Below the formula bar is a table with two columns: 'TopNValues' and 'TopN'. The table contains three rows: (3, TopN3), (5, TopN5), and (10, TopN10). On the right side, the 'Fields' pane is visible, showing a search bar and a list of fields. The 'Ranking' folder is expanded, and the 'SelectedSumValue' measure is highlighted. Other measures listed include 'SelectedTopNValues', 'TopN', and 'TopNValues'.

TopNValues	TopN
3	TopN3
5	TopN5
10	TopN10

2

## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

The screenshot shows the configuration interface for a data visualization. It is divided into three main sections:

- 1 Visualizations:** A grid of icons representing different chart types. The 'Table' icon is highlighted with a yellow underline.
- 2 Fields:** A list of fields from the 'ProductData' and 'Ranking' tables. The 'ProductData' table has fields: Product (checked), Rank (checked), SumValue (unchecked), and Value (MB) (checked). The 'Ranking' table has fields: SelectedSumValue (checked), SelectedTopNVal... (unchecked), TopN (unchecked), and TopNValues (unchecked).
- 3 Values:** A list of fields selected for the table visualization: Product, Value (MB), Rank, and SelectedSumValue. Each field has a dropdown arrow and a close button (X).

## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

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

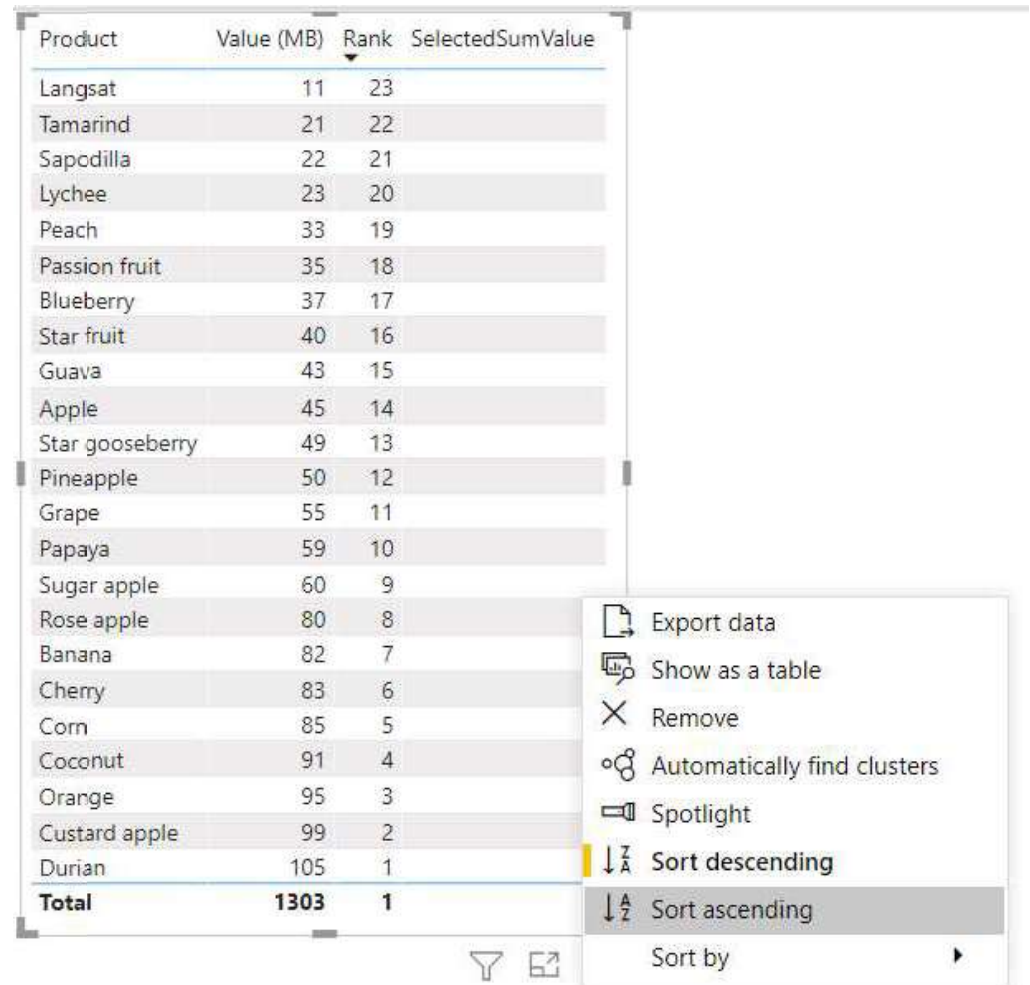
Product  
Value (MB)  
Rank  
SelectedSumValue

## 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

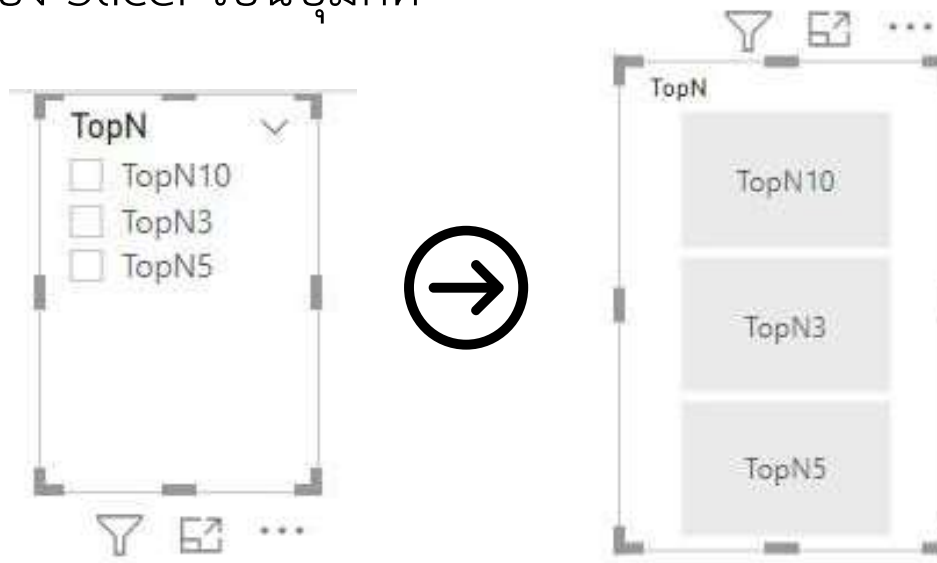
The screenshot shows the Power BI interface with the following elements:

- Visualizations Pane (Step 1):** A grid of visualization icons. The Slicer icon is highlighted with a yellow bar.
- Fields Pane (Step 2):** A list of fields. The 'Ranking' field is expanded, and the 'TopN' field is selected with a yellow checkmark.
- Field Selection (Step 3):** A 'Field' dropdown menu is shown with 'TopN' selected.

## Workshop:

### จัดอันดับข้อมูล Top Ranking

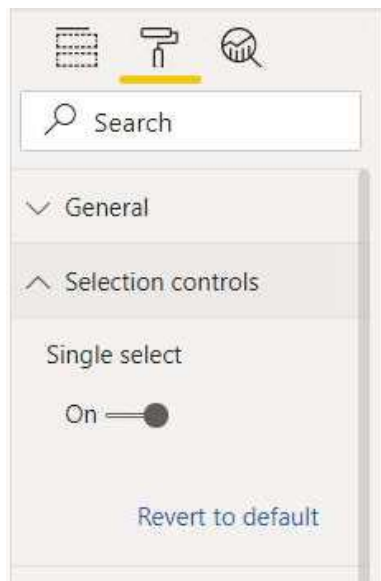
- ที่ Format เลือก General > Orientation > Horizontal
- จะได้รูปแบบของ Slicer เป็นปุ่มกด



## Workshop:

### จัดอันดับข้อมูล Top Ranking

- ที่ Format เลือก Selection controls > Single select > On



## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

The screenshot illustrates the process of applying a TopN filter in Power BI. It is divided into three numbered steps:

- 1**: In the **Fields** pane, the **Ranking** filter is expanded, and the **TopN** option is selected with a checkmark.
- 2**: The **Column tools** ribbon is shown, with the **Sort by column** dropdown menu open, displaying the **TopNValues** option.
- 3**: The resulting visualization is shown as a vertical list of filters: **TopN**, **TopN3**, **TopN5**, and **TopN10**.

## Workshop:

### จัดอันดับข้อมูล Top Ranking

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

The screenshot shows the Power BI Desktop interface with four numbered callouts:

- 1** Visualizations: A grid of chart types is shown, with the 'Clustered column chart' icon highlighted.
- 2** Fields: The Fields pane is open, showing a search bar and two data sources: 'ProductData' and 'Ranking'. Under 'ProductData', 'Product' is checked. Under 'Ranking', 'SelectedSumValue' is checked.
- 3** Axis: The 'Axis' section shows 'Product' selected in the dropdown menu.
- 4** Values: The 'Values' section shows 'SelectedSumValue' selected in the dropdown menu.