

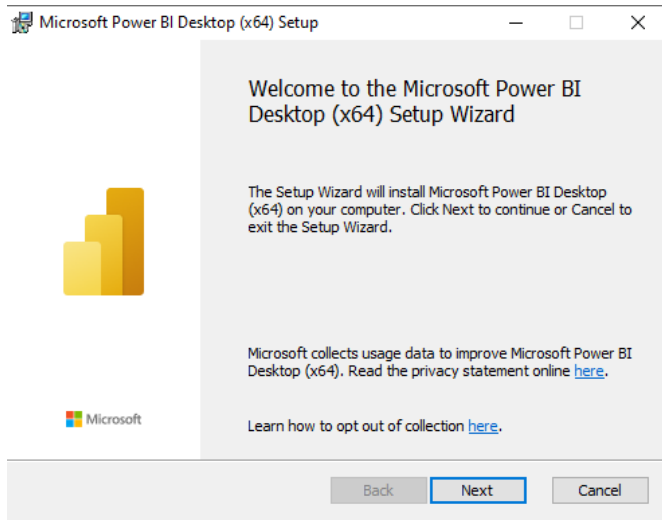
Nama : Jefry Lianto
NIM : 191402027
KOM : C

Tugas DBWI

Get Started Building with Power BI

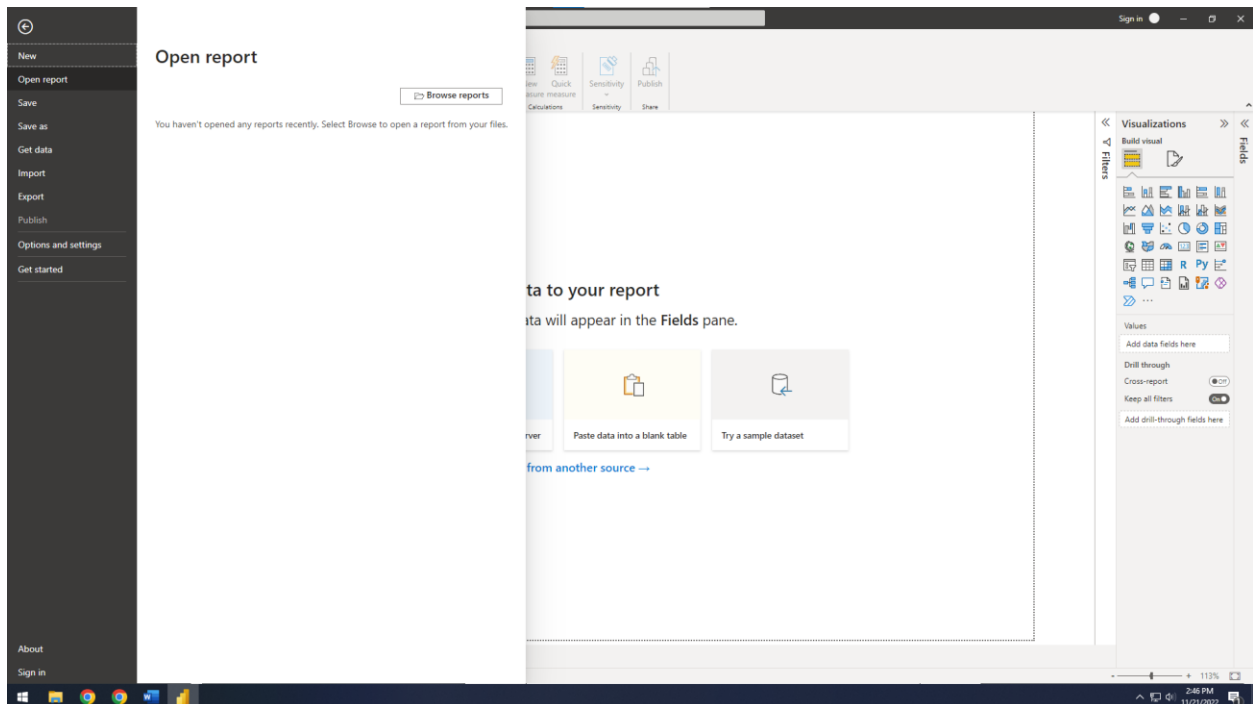
Download power BI Desktop

Link download : <https://powerbi.microsoft.com/en-us/downloads/>

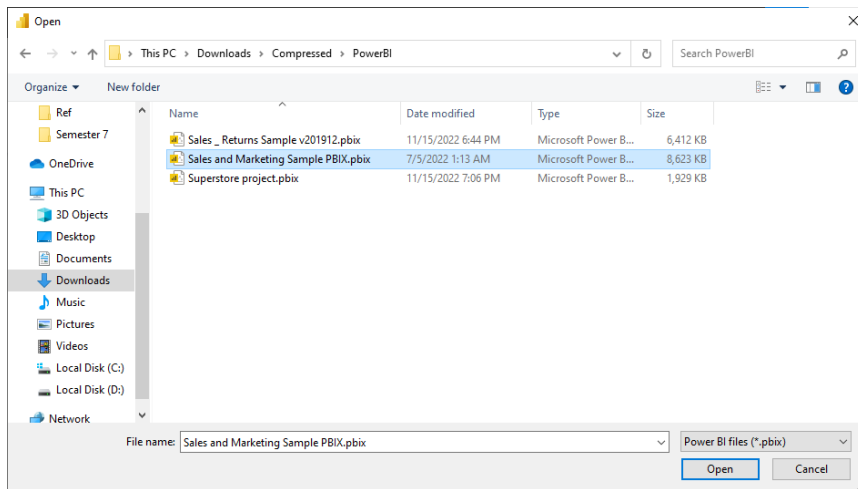


Building Blocks of Power BI: Visualizations

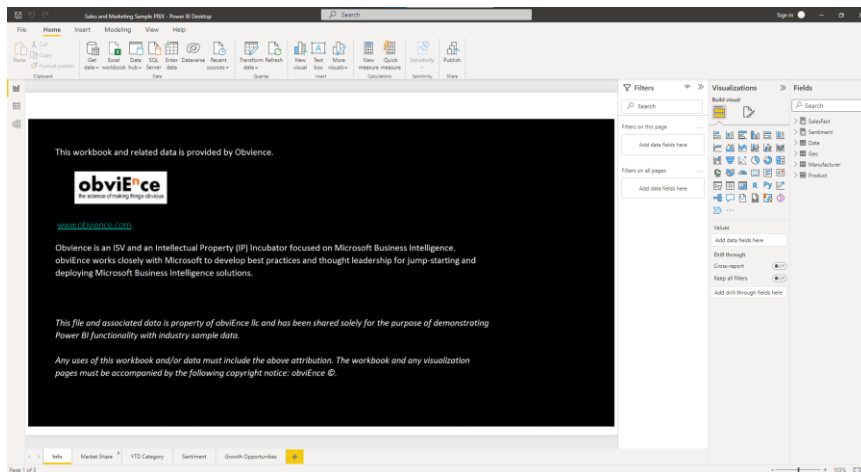
Buka power BI dan klik bagian file, setelah itu klik Open report.



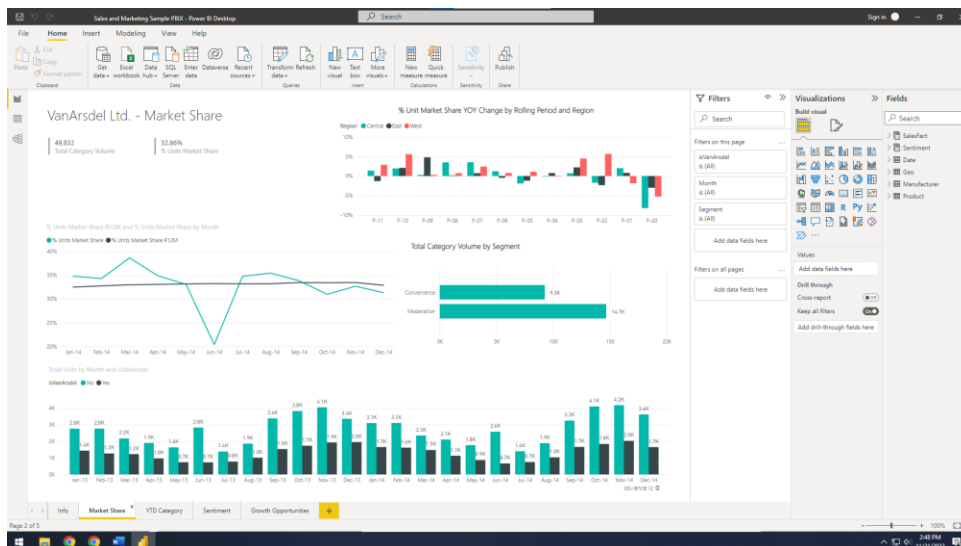
Open file Sales and Marketing Sample PBIX.



Ini merupakan tampilan awal file setelah dibuka.



Pada bagian bawah, klik Market Share. Maka akan menunjukkan visualisasi dari data.



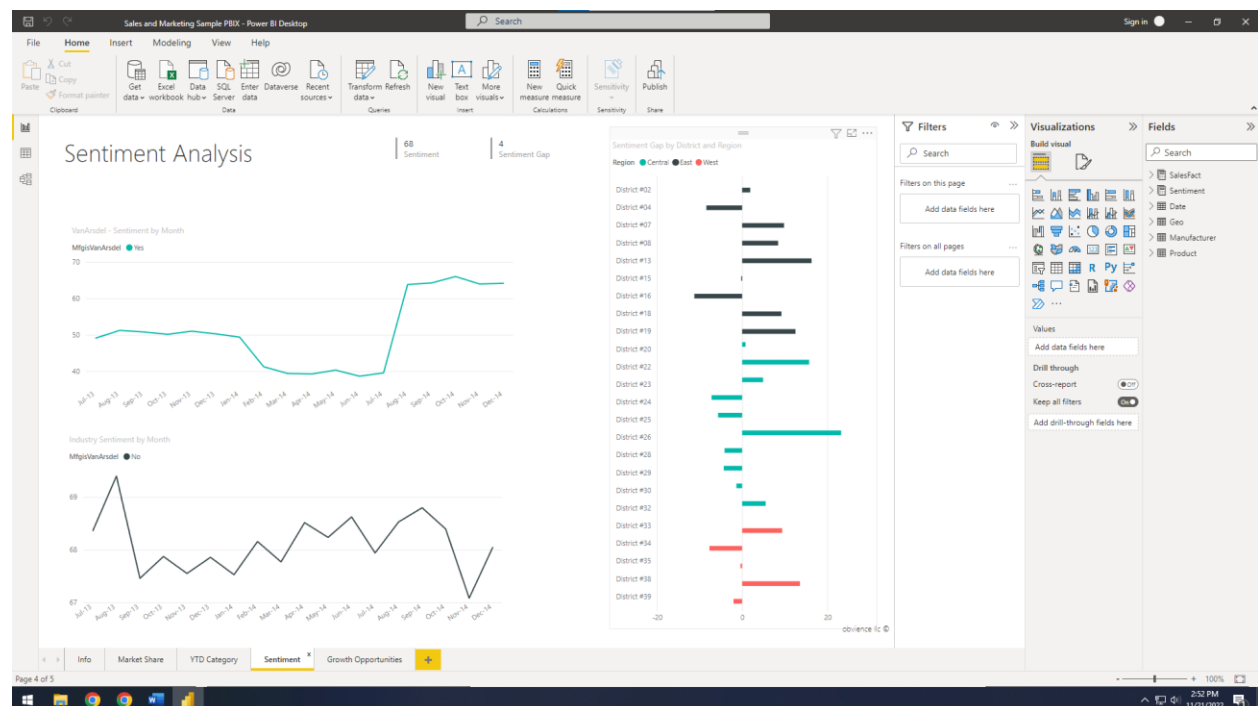
Building Blocks of Power BI: Datasets

Untuk dataset, pada bagian kiri navigation, klik bagian data.

Date	MonthNo	MonthName	MonthID	Quarter	Year	RunningMonths	Running Year	Running Months	Rolling Period	Rolling Period Sort	MonthIndex
7/1/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/2/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/3/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/4/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/5/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/6/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/7/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/8/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/9/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/10/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/11/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/12/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/13/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/14/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/15/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/16/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/17/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/18/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/19/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/20/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/21/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/22/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/23/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/24/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/25/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/26/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/27/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/28/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/29/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/30/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/31/1999 12:00:00 AM	7	Jul	199907	Q3	1999	186	186	186			7
7/1/2000 12:00:00 AM	7	Jul	200007	Q3	2000	174	174	174			19
7/2/2000 12:00:00 AM	7	Jul	200007	Q3	2000	174	174	174			19
7/3/2000 12:00:00 AM	7	Jul	200007	Q3	2000	174	174	174			19
7/4/2000 12:00:00 AM	7	Jul	200007	Q3	2000	174	174	174			19
7/5/2000 12:00:00 AM	7	Jul	200007	Q3	2000	174	174	174			19
7/6/2000 12:00:00 AM	7	Jul	200007	Q3	2000	174	174	174			19
7/7/2000 12:00:00 AM	7	Jul	200007	Q3	2000	174	174	174			19

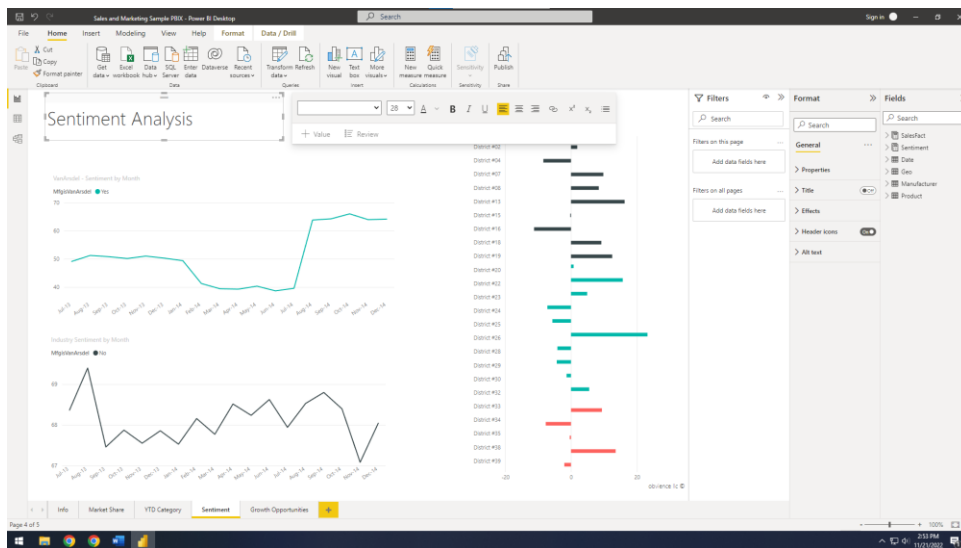
Building Blocks of Power BI: Reports

Untuk report, pada bagian kiri navigation, klik bagian report.

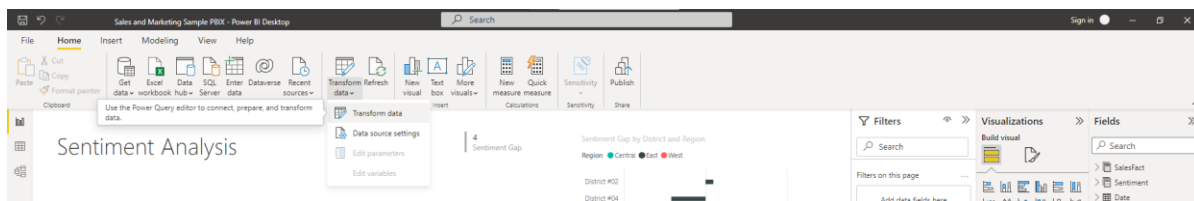


Building Blocks of Power BI: Dashboard and Tiles

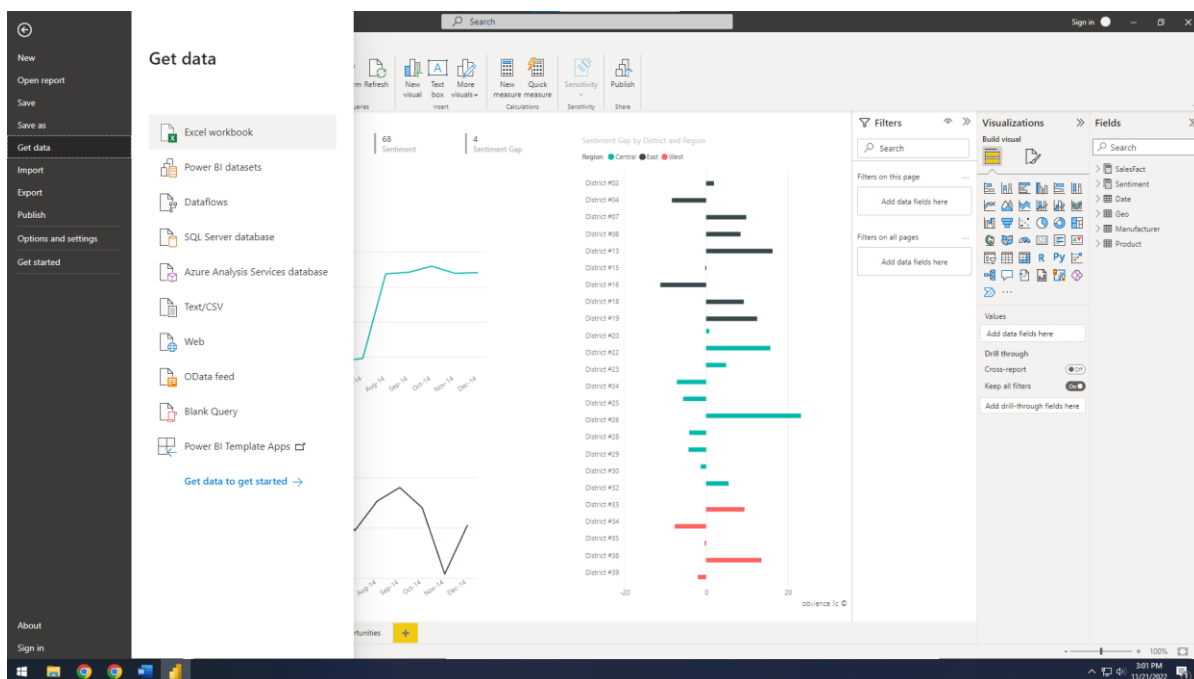
Halaman utama dan utilities pada power BI



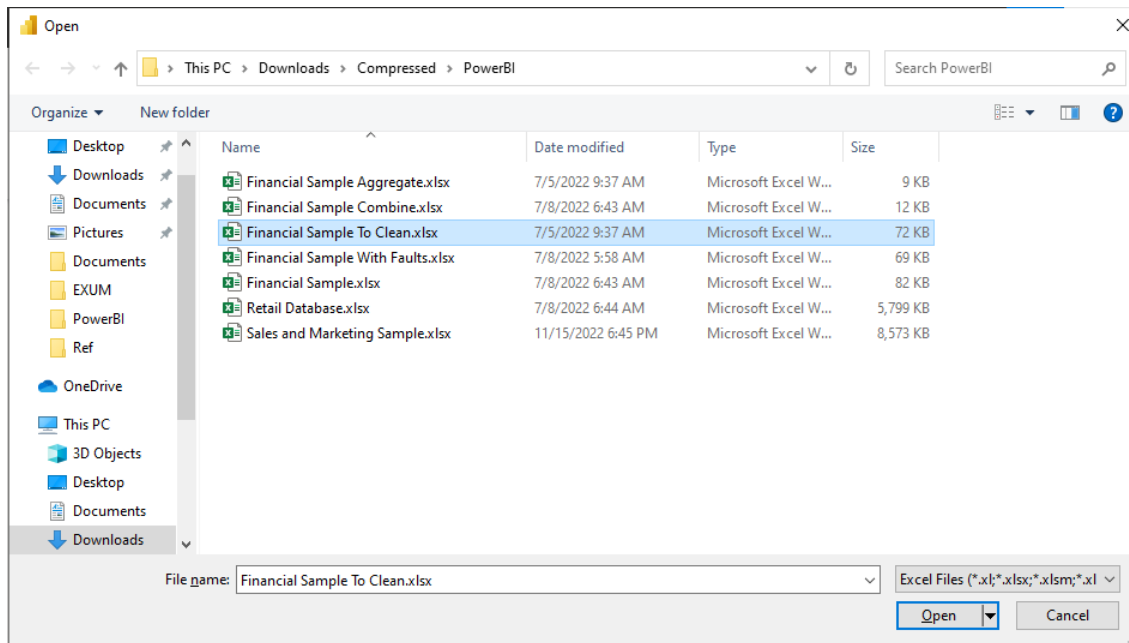
Load, Clean, and Transform Data in Power BI – I
 Shape the Initial Data
 Pada bagian Home, klik transform data untuk inisiasi data.



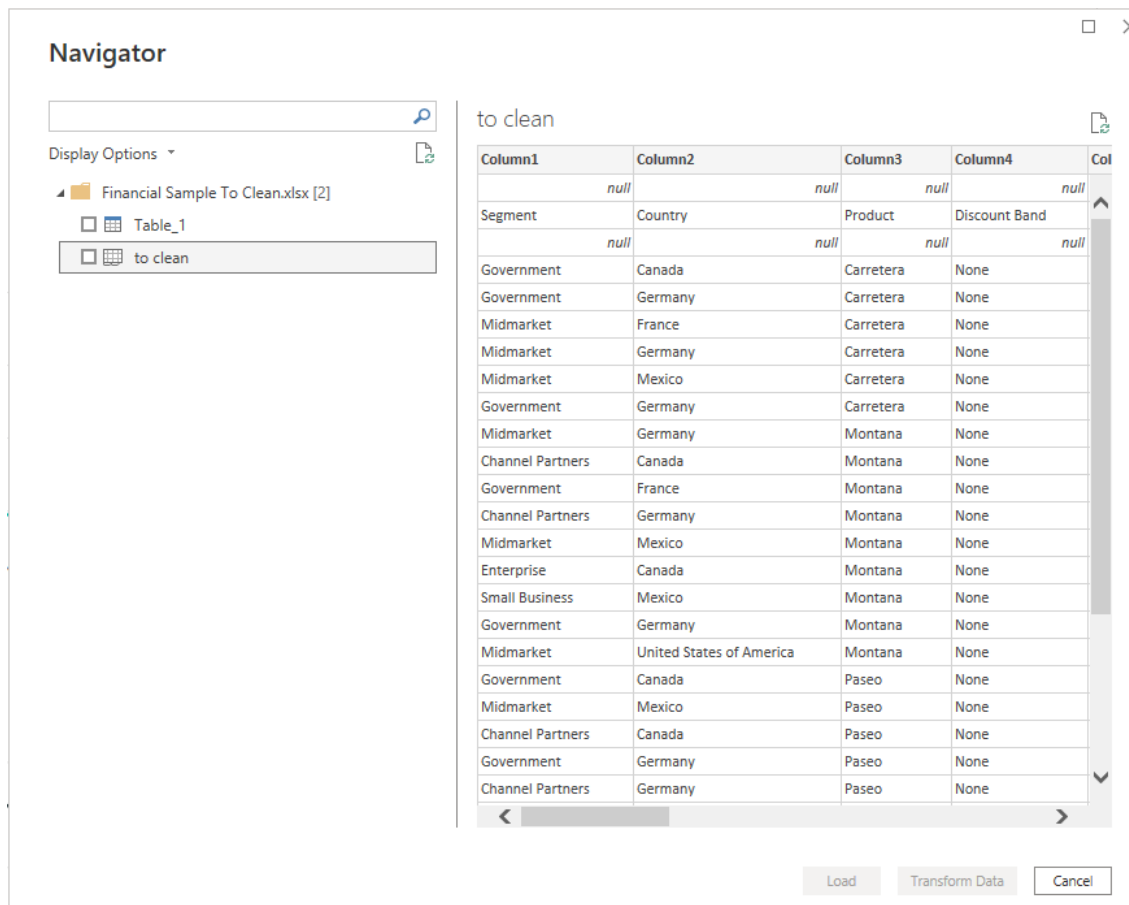
Identify Column Headers and Names
 Pada bagian file, klik get data, setelah itu klik excel workbook.



Masukkan file yang ingin digunakan dan open file.



Pilih table yang akan digunakan. Kali ini kita akan menggunakan table to clean. Select table dan klik transform data.



Tampilan pada table to clean.

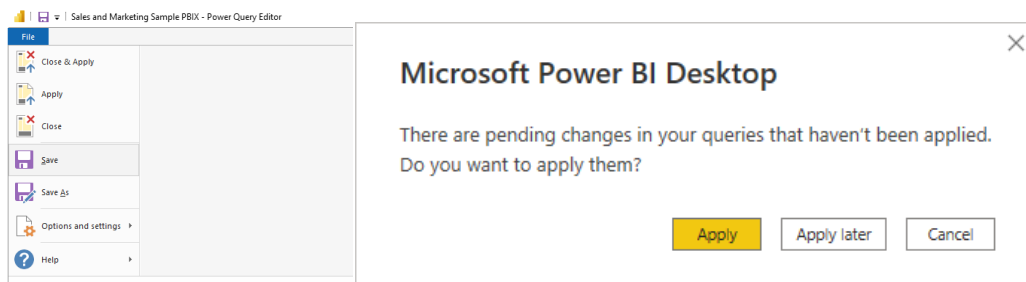
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8
1	Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price
2	Government	Canada	Carretera	None	1618.5	3	20
3	Government	Germany	Carretera	None	1321	3	20
4	Midmarket	France	Carretera	None	2179	3	15
5	Midmarket	Germany	Carretera	None	888	3	15
6	Midmarket	Mexico	Carretera	None	2470	3	15
7	Government	Germany	Carretera	None	1513	3	350
8	Midmarket	Germany	Montana	None	921	5	15
9	Channel Partners	Canada	Montana	None	2518	5	12
10	Government	France	Montana	None	1899	5	20
11	Channel Partners	Germany	Montana	None	1545	5	12
12	Midmarket	Mexico	Montana	None	2470	5	15
13	Enterprise	Canada	Montana	None	2665.5	5	125
14	Small Business	Mexico	Montana	None	958	5	300
15	Government	Germany	Montana	None	2146	5	7
16	Midmarket	United States of America	Montana	None	615	5	15
17	Government	Canada	Paseo	None	292	10	20
18	Midmarket	Mexico	Paseo	None	974	10	15
19	Channel Partners	Canada	Paseo	None	2518	10	12
20	Government	Germany	Paseo	None	1006	10	350
21	Channel Partners	Germany	Paseo	None	367	10	12
22	Government	Mexico	Paseo	None	883	10	7
23	Midmarket	Mexico	Paseo	None	2472	10	15
24	Government	United States of America	Paseo	None	1143	10	7
25	Government	Canada	Paseo	None	1817	10	20

Promote Headers

Pada table to clean, select Use First Row as Header untuk membuat baris pertama sebagai header.

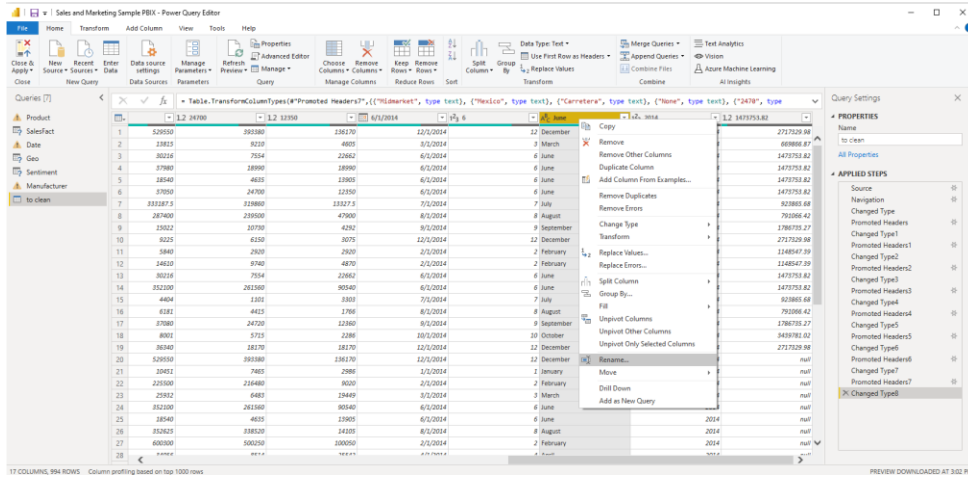
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8
Product	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales
Carretera	None	None	1618.5	3	20		
Carretera	None	None	1321	3	20		
Carretera	None	None	2179	3	15		
Carretera	None	None	888	3	15		
Carretera	None	None	2470	3	15		
Carretera	None	None	1513	3	350		
Montana	None	None	921	5	15		
Montana	None	None	2518	5	12		
Montana	None	None	1899	5	20		
Montana	None	None	1545	5	12		
Montana	None	None	2470	5	15		
Montana	None	None	2665.5	5	125		
Montana	None	None	958	5	300		
Montana	None	None	2146	5	7		
Montana	None	None	615	5	15		
Paseo	None	None	292	10	20		
Paseo	None	None	974	10	15		
Paseo	None	None	2518	10	12		
Paseo	None	None	1006	10	350		
Paseo	None	None	367	10	12		
Paseo	None	None	883	10	7		
Paseo	None	None	2472	10	15		
Paseo	None	None	1143	10	7		
Paseo	None	None	1817	10	20		

Klik save dan apply



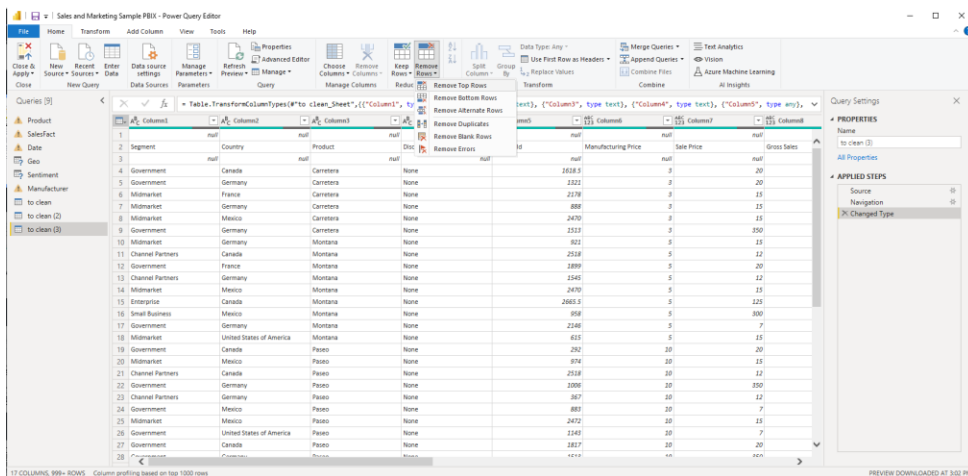
Rename Columns

Untuk mengubah nama kolom, Klik kanan pada kolom, setelah itu select rename.

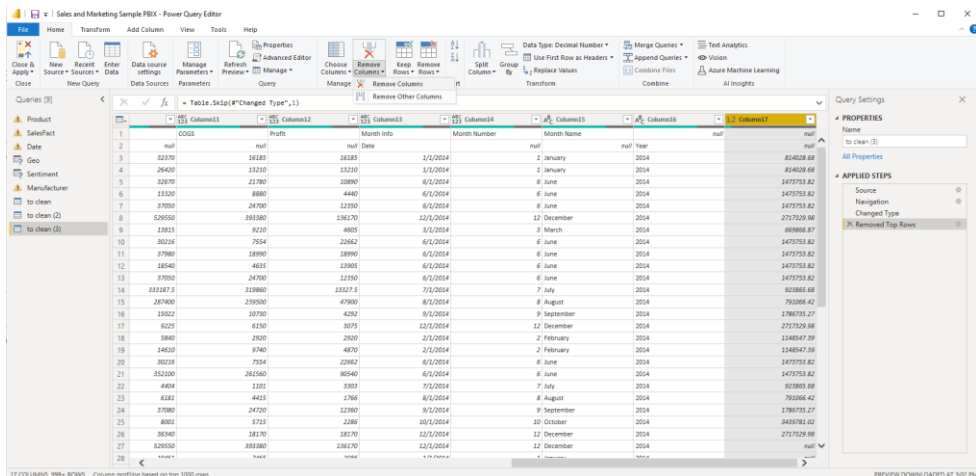


Remove Rows or Columns

Menghapus Top Rows atau baris pertama.

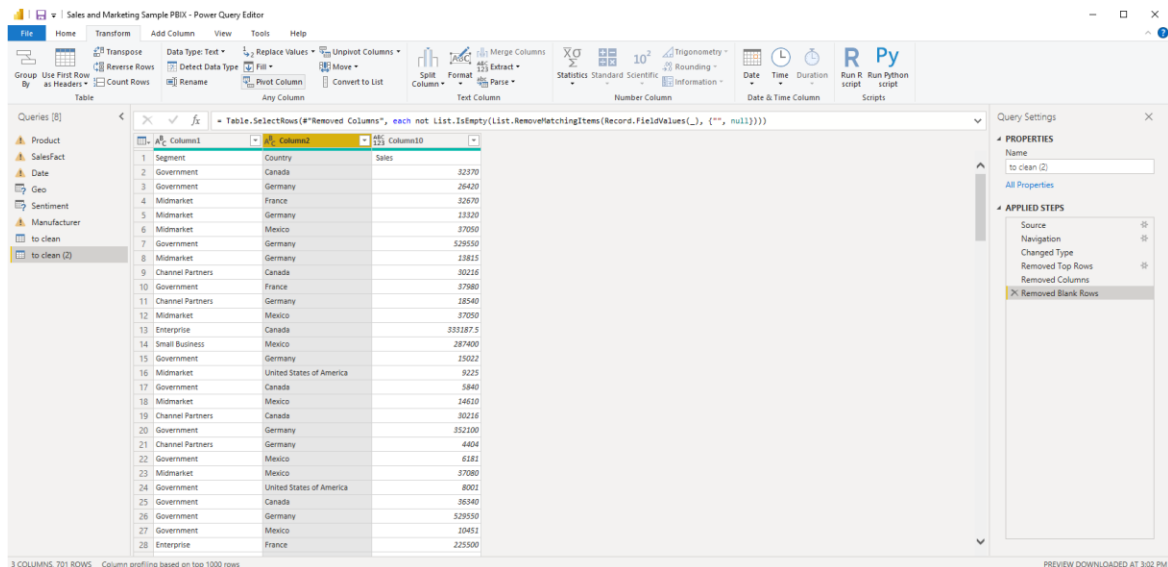


Untuk menghapus kolom, klik kanan pada kolom yang ingin dihapus, selanjutnya klik remove column.

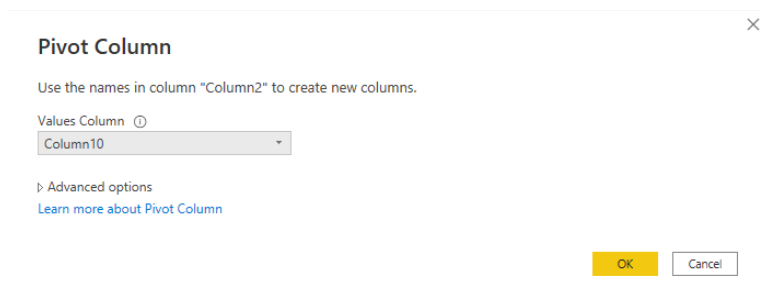


Pivot Columns

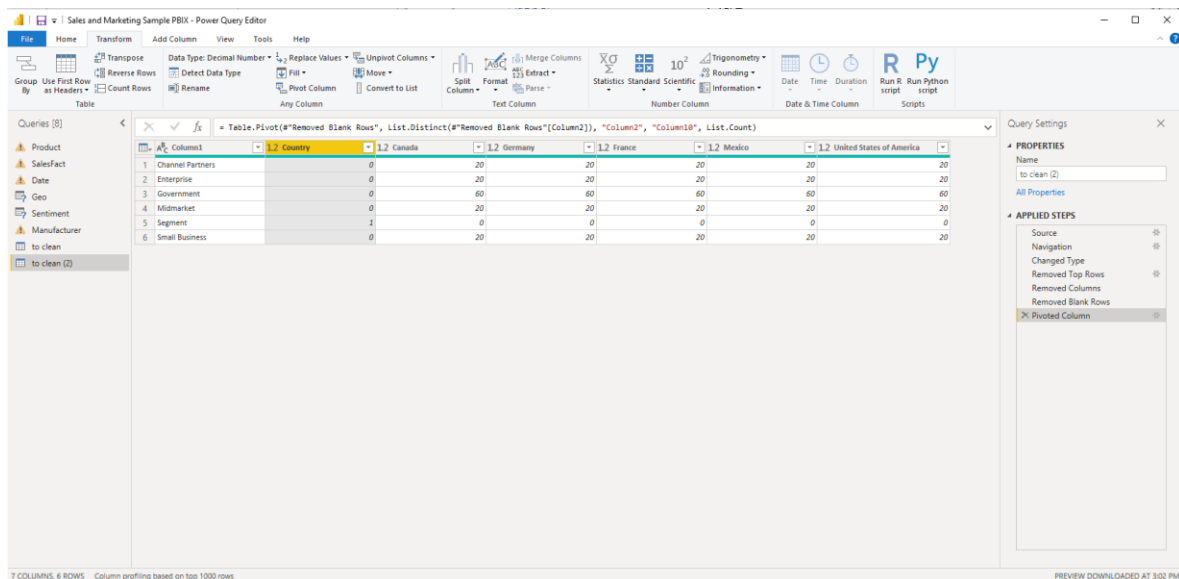
Select Column 2, Setelah itu pada bagian Transform, select Pivot Column.



Masukkan values untuk membuat kolom yang baru.

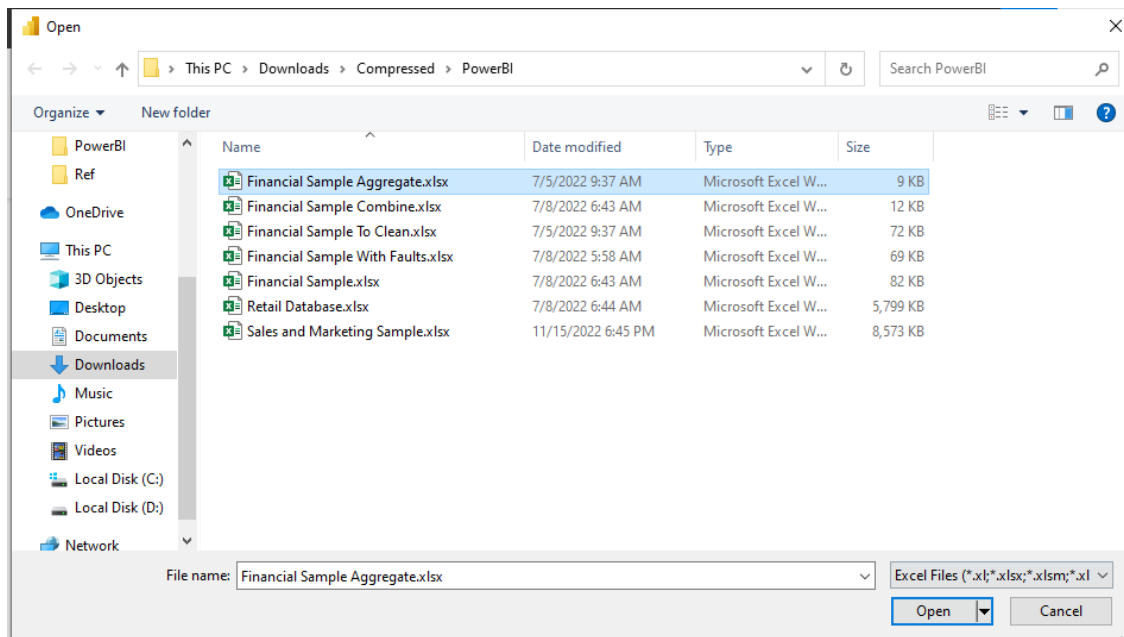


Hasilnya sebagai berikut.

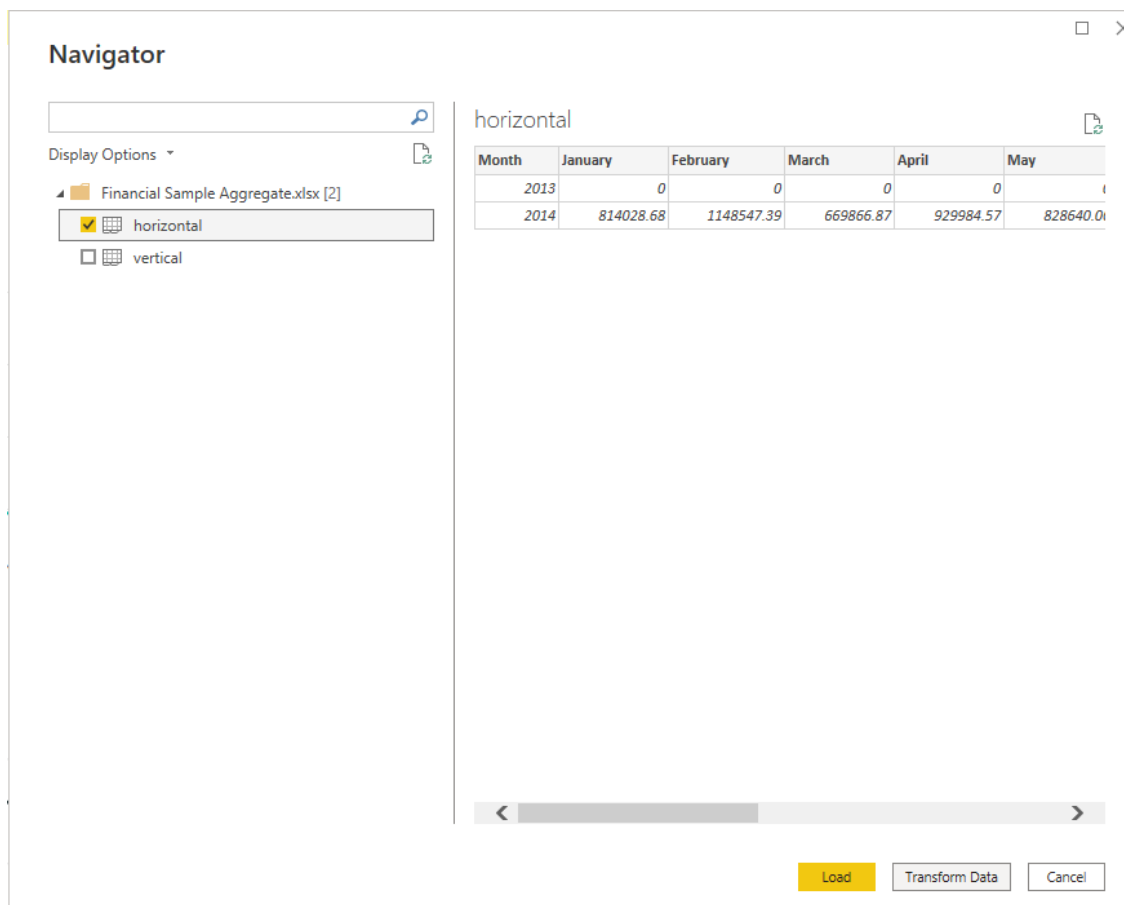


Unpivot Columns

Pada bagian file, klik get data. Setelah itu buka file Finansial Sampe Aggregate



Select Table Horizontal, Setelah itu klik Transform Data.



Remove Column Month.

The screenshot shows the Power Query Editor interface. The 'Month' column is selected, and a context menu is open with the 'Remove' option highlighted. The data table has 13 columns and 2 rows. The 'Query Settings' pane on the right shows the 'APPLIED STEPS' list with 'Changed Type' selected.

	1.2 January	1.2 February	1.2 March	1.2 April	1.2 May	1.2 June	1.2 July
1							
2	1148547.39	669866.87	929984.57	828640.06	1473753.82		

Select All column dan unpivot column.

The screenshot shows the Power Query Editor interface. All columns are selected, and a context menu is open with the 'Unpivot Columns' option highlighted. The data table has 12 columns and 2 rows. The 'Query Settings' pane on the right shows the 'APPLIED STEPS' list with 'Removed Columns' selected.

	1.2 January	1.2 February	1.2 March	1.2 April	1.2 May	1.2 June	1.2 July	1.2 August
1								
2	669866.87	929984.57	828640.06	1473753.82	923865.68			

Setelah itu akan muncul hasil sebagai berikut.

	Attribute	Value
1	January	0
2	February	0
3	March	0
4	April	0
5	May	0
6	June	0
7	July	0
8	August	0
9	September	763603.03
10	October	1657795.1
11	November	765502.3
12	December	691564.08
13	January	814028.68
14	February	1148547.39
15	March	669866.87
16	April	929984.57
17	May	828640.06
18	June	1473753.82
19	July	923865.68
20	August	791066.42
21	September	1023132.24
22	October	1781985.92
23	November	604600.2
24	December	2025765.9

Selanjutnya pivot column profit berdasarkan bulan.

The screenshot shows the Power Query Editor interface. A dialog box titled "Pivot Column" is open, asking to use names in the "Profit" column to create new columns. The "Values Column" is set to "Month". The background table has columns "Month" and "Profit".

Month	Profit	
1	January	0
2	February	0
3	March	0
4	April	0
5	May	0
6	June	0
7	July	0
8	August	0
9	September	763603.03
10	October	1657795.1
11	November	765502.3
12	December	691564.08
13	January	814028.68
14	February	1148547.39
15	March	669866.87
16	April	929984.57
17	May	828640.06
18	June	1473753.82
19	July	923865.68
20	August	791066.42
21	September	1023132.24
22	October	1781985.92
23	November	604600.2
24	December	2025765.9

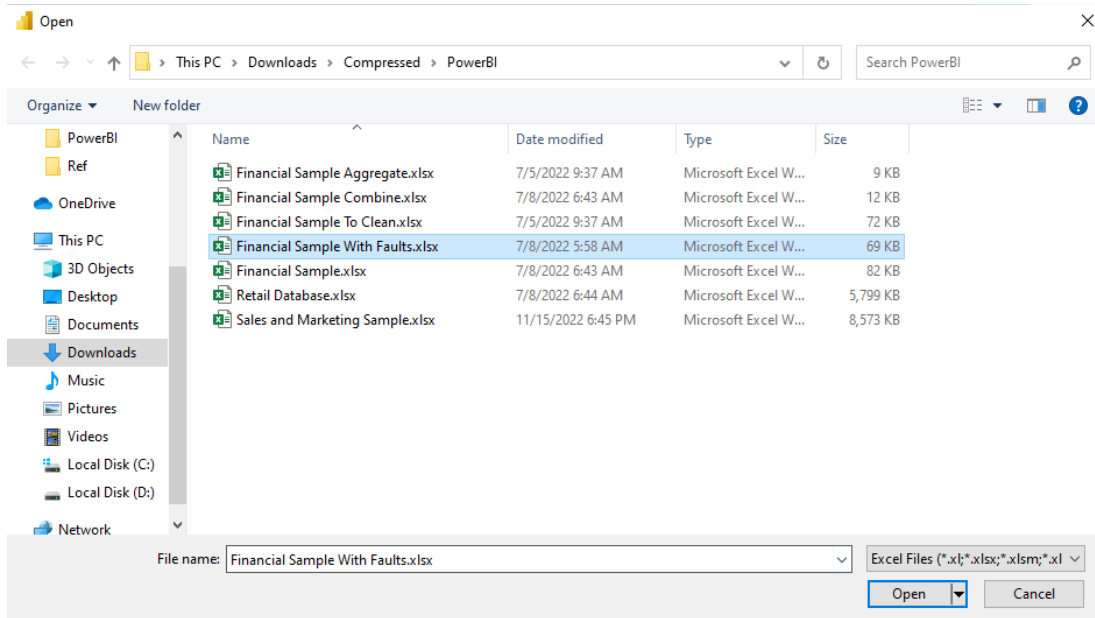
Maka akan muncul hasilnya sebagai berikut.

	1	2	3	4	5	6	7	8
1	8	1	1	1	1	1	1	1

Load, Clean, and Transform Data in Power BI – II

Simplify the Data Structure

Pada bagian file, klik get data. Setelah itu buka file Finansial Sampe With Faults.



Select Finance Sample, Kemudian Transform Data.

Navigator

Display Options ▾

- Financial Sample With Faults.xlsx [2]
 - Table_1
 - ☒ Finance Sample

Finance Sample

Segment	Country	Product	Discount Band	Unit
Government	Canada	Carretera	None	
Government	Germany	Carretera	None	
Midmarket	France	Carretera	None	
Midmarket	Germany	Carretera	None	
Midmarket	Mexico	Carretera	None	
Government	Germany	Carretera	None	
Midmarket	Germany	Montana	None	
Channel Partners	Canada	Montana	None	
Government	France	Montana	None	
Channel Partners	Germany	Montana	None	
Midmarket	Mexico	Montana	None	
Enterprise	Canada	Montana	None	
Small Business	Mexico	Montana	None	
Government	Germany	Montana	None	
Enterprise	Canada	Montana	None	
Midmarket	United States of America	Montana	None	
Government	Canada	Paseo	None	
Midmarket	Mexico	Paseo	None	
Channel Partners	Canada	Paseo	None	
Government	Germany	Paseo	None	
Channel Partners	Germany	Paseo	None	
Government	Mexico	Paseo	None	
Midmarket	France	Paseo	None	

Load Transform Data Cancel

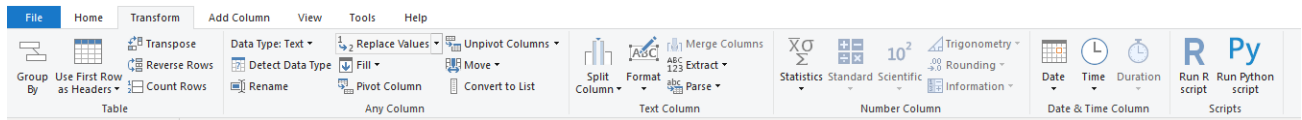
Pada kolom Month Name, klik kanan pada kolom, kemudian pilih Remove Duplicates.

Hasilnya data yang duplikat akan dihapus.

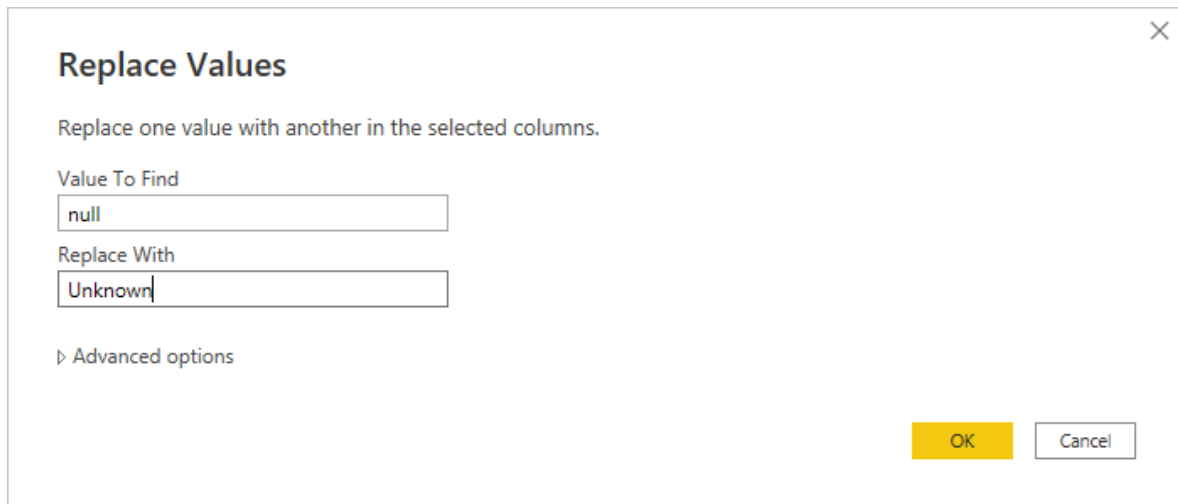
= Table.Distinct("#" & "Changed Type", {"Month Name"})									
1	2	3	4	5	6	7	8	9	10
	1.2 Sales	1.2 COGS	1.2 Profit		Date	1.3 Month Number	1.4 Month Name	1.5 Year	
1	0	32370	16185	16185	1/1/2014	1	January	2014	
2	0	32670	21780	10890	6/1/2014	6	June	2014	
3	0	529550	393380	136170	12/1/2014	12	December	2014	
4	0	13815	9210	4605	3/1/2014	3	March	2014	
5	0	333187.5	319860	13327.5	7/1/2014	7	July	2014	
6	0	287400	239500	47900	8/1/2014	8	August	2014	
7	0	15022	10730	4292	9/1/2014	9	September	2014	
8	0	43125	41400	1725	10/1/2013	10	October	2013	
9	0	5840	2920	2920	2/1/2014	2	February	2014	
10	0	603750	448500	155250	11/1/2013	11	November	2013	
11	0	25932	6483	19449	3/1/2014	3	March	2014	
12	0	34056	8514	25542	4/1/2014	4	April	2014	
13	72.1	7137.9	5150	1987.9	5/1/2014	5	May	2014	
14	null		null	null					

Simplify the Data Structure: Replace Values

Pada bagian transform, select Replace Values.

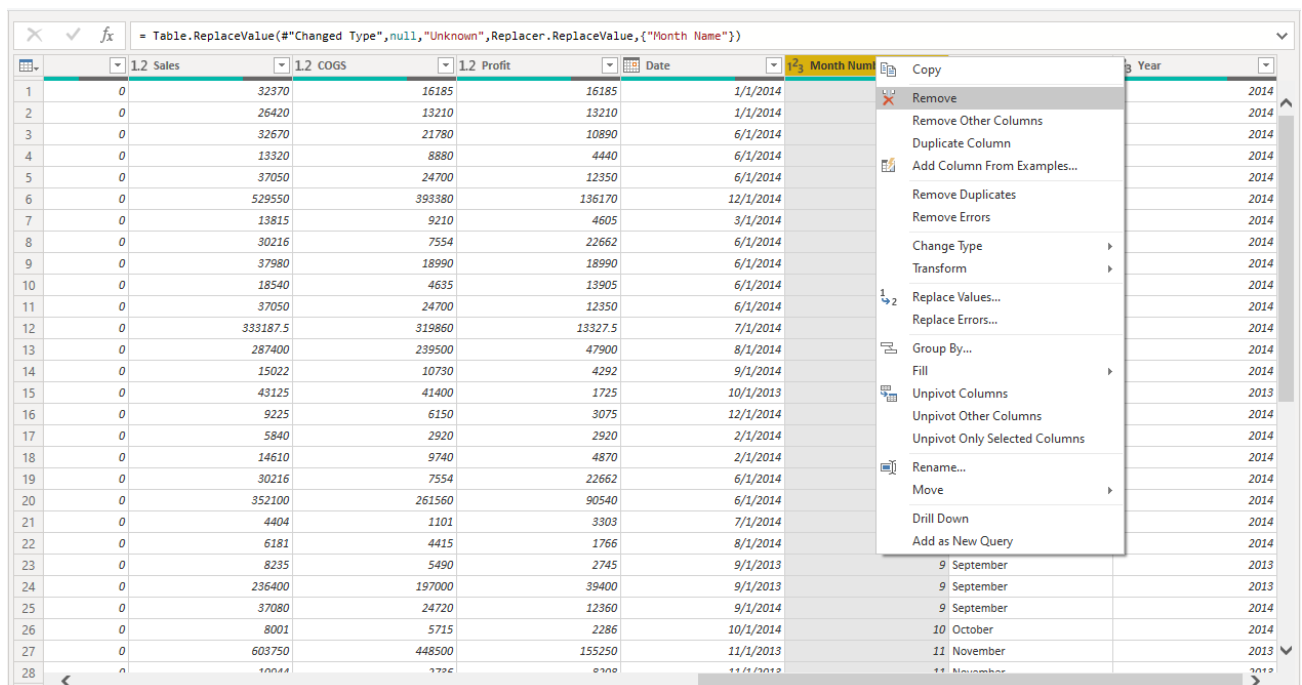


Replace null menjadi Unknown. Klik Ok. Maka data yang bernilai null akan diubah menjadi Unknown.

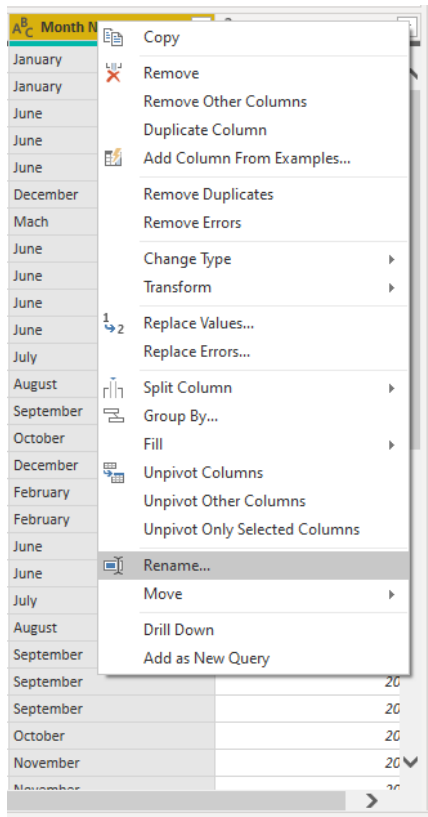


Best Practices for Naming Tables, Columns, and Values

Remove Kolom Month Number.

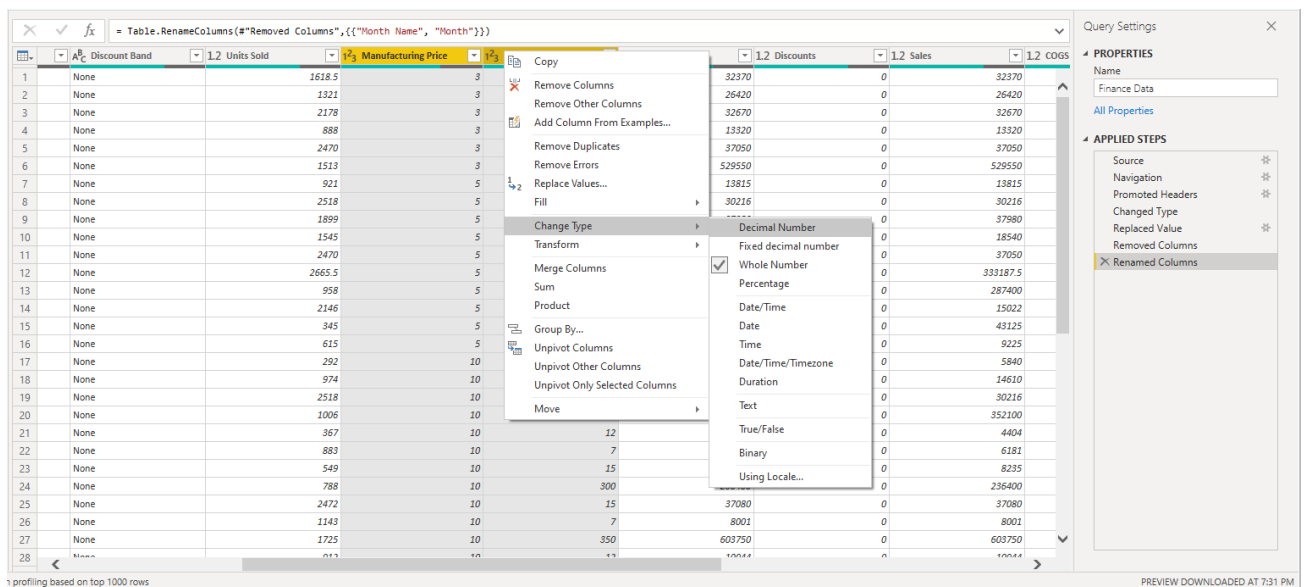


Setelah itu Rename Month Name menjadi Month.



Evaluate and Change Column Data Types

Select kolom Manufacturing Price and the Sale Price, setelah itu klik kanan pada kolom. Select Change Type dan ubah tipe dari whole number ke decimal number.



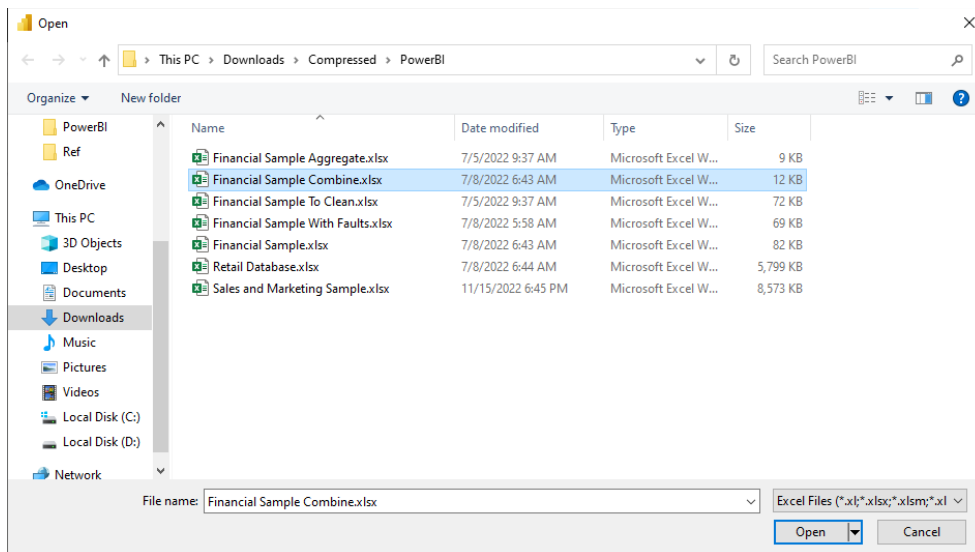
1 profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 7:31 PM

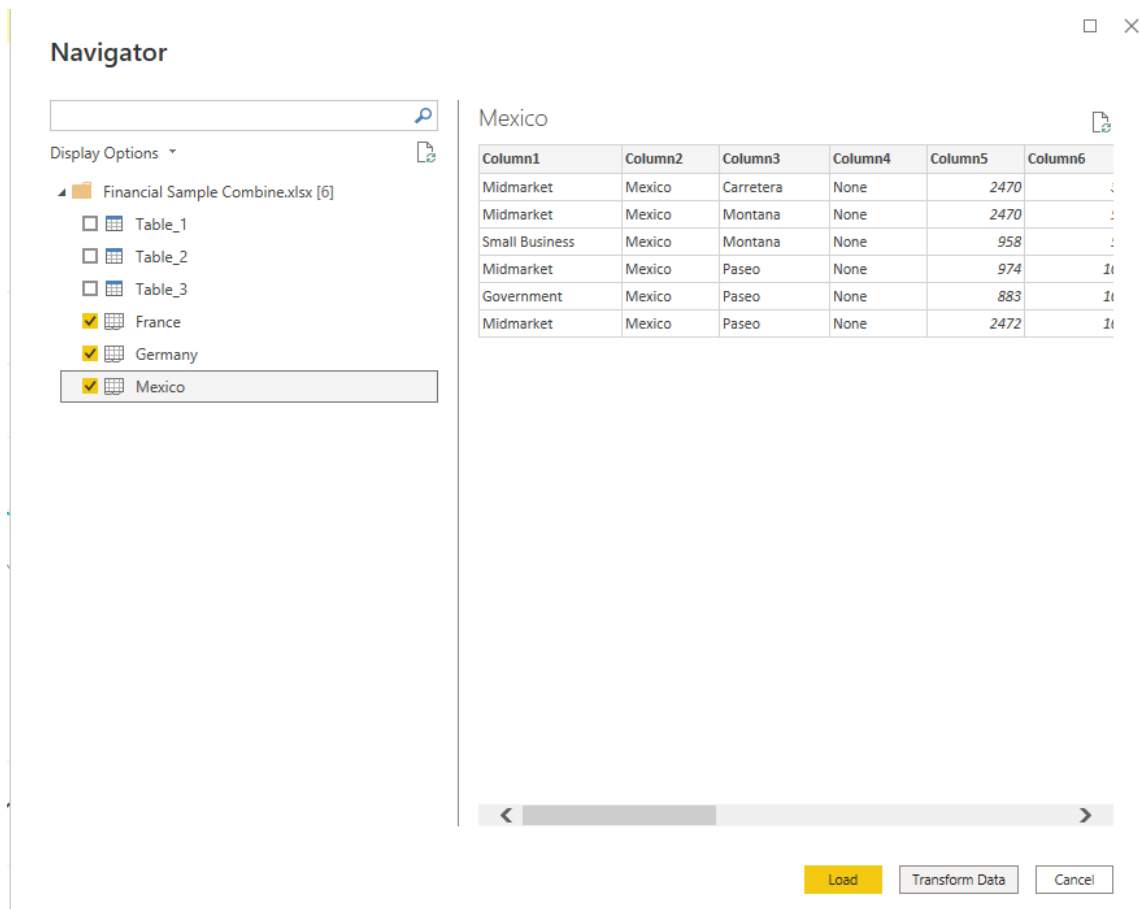
Load, Clean, and Transform Data in Power BI – III

Combine Tables by Appending Queries

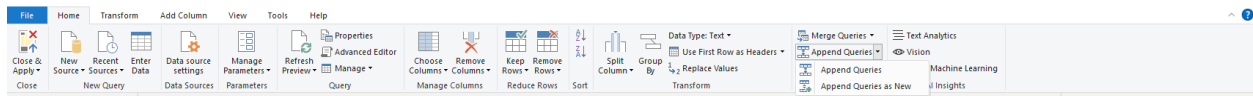
Pada bagian file, klik get data. Setelah itu buka file Financial Sampe Combine.



Select Table France. Germany dan Mexico, Kemudian Transform Data.



Pada bagian Home, select Append Queries -> Append Queries as New



Append Table France dan Germany.

Append

Concatenate rows from two tables into a single table.

☒ Two tables
 ☐ Three or more tables

First table

France

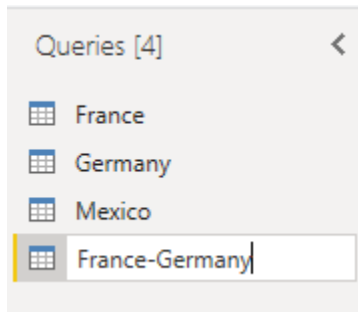
Second table

Germany

OK

Cancel

Setelah itu akan muncul query baru, rename menjadi France-Germany.

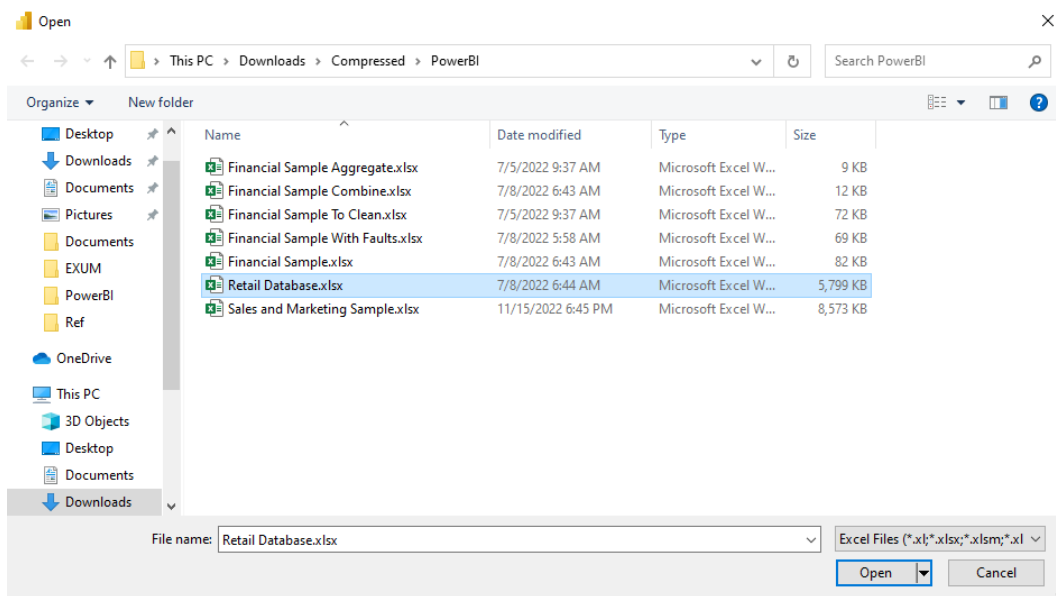


Klik table tersebut untuk melihat hasil dari append.

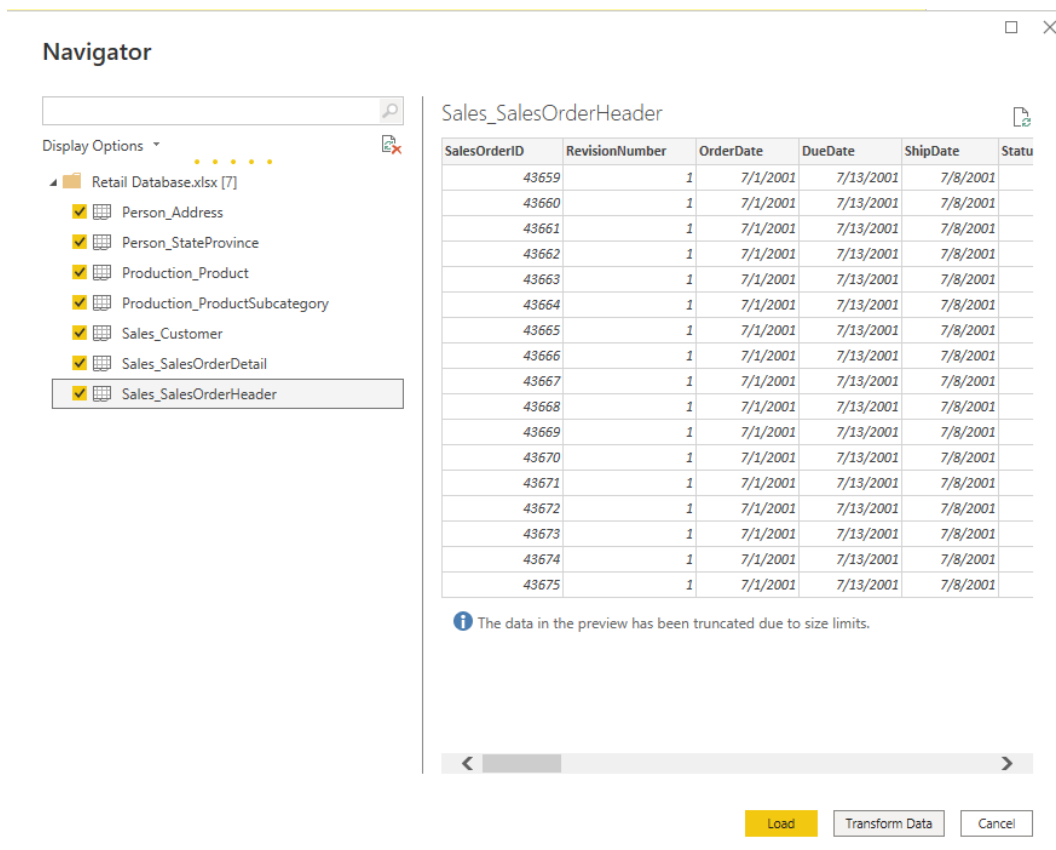
Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales
1 Midmarket	France	Carretera	None	2178	3	15	
2 Government	France	Montana	None	1899	5	20	
3 Enterprise	France	Velo	None	1804	120	125	
4 Midmarket	France	VTT	None	2178	250	15	
5 Small Business	France	VTT	None	2151	250	300	
6 Government	France	Amarilla	None	2750	260	350	
7 Government	Germany	Carretera	None	1321	3	20	
8 Midmarket	Germany	Carretera	None	888	3	15	
9 Government	Germany	Carretera	None	1513	3	350	
10 Midmarket	Germany	Montana	None	921	5	15	
11 Channel Partners	Germany	Montana	None	1545	5	12	
12 Government	Germany	Montana	None	2146	5	7	
13 Government	Germany	Paseo	None	1006	10	350	
14 Channel Partners	Germany	Paseo	None	367	10	12	

Combine Tables by Merging Queries

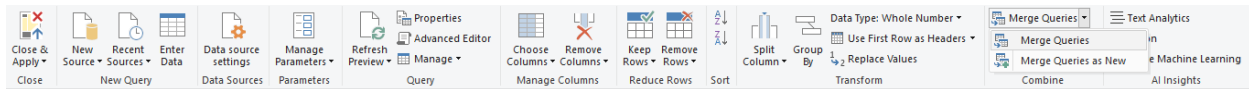
Pada bagian file, klik get data. Setelah itu buka file Retail Database.



Select All Tables, Kemudian Transform Data.



Pada bagian Transform, select Merge Queries-> Merge Queries as New.



Inner Sales_SalesOrderHeader dengan Sales_Customer dengan menggunakan CustomerID sebagai penghubung antara kedua table.

Merge

Select a table and matching columns to create a merged table.

Sales_SalesOrderHeader

OrderNumber	PurchaseOrderNumber	AccountNumber	CustomerID	ContactID	SalesPersonID	TerritoryID
PO522145787	10-4020-000676	676	378	279		
PO18850127500	10-4020-000117	117	216	279		
PO18473189620	10-4020-000442	442	281	282		
PO18444174044	10-4020-000227	227	564	282		

Sales_Customer

CustomerID	TerritoryID	AccountNumber	CustomerType	rowguid	ModifiedDate
1	1	AW00000001	S	{3F5AE95E-B87D-4AED-95B4-C3797AFCB74F}	10/13/2004 11:15:07 AM
2	1	AW00000002	S	{E552F657-A9AF-4A7D-A645-C429D6E02491}	10/13/2004 11:15:07 AM
3	4	AW00000003	S	{130774B1-DB21-4EF3-98C8-C104BCD6ED6D}	10/13/2004 11:15:07 AM
4	4	AW00000004	S	{FF862851-1DAA-4044-BE7C-3E85583C054D}	10/13/2004 11:15:07 AM

Join Kind

Inner (only matching rows)

☐ Use fuzzy matching to perform the merge

Fuzzy matching options

✓ The selection matches 5199 of 5199 rows from the first table, and 4173 of...

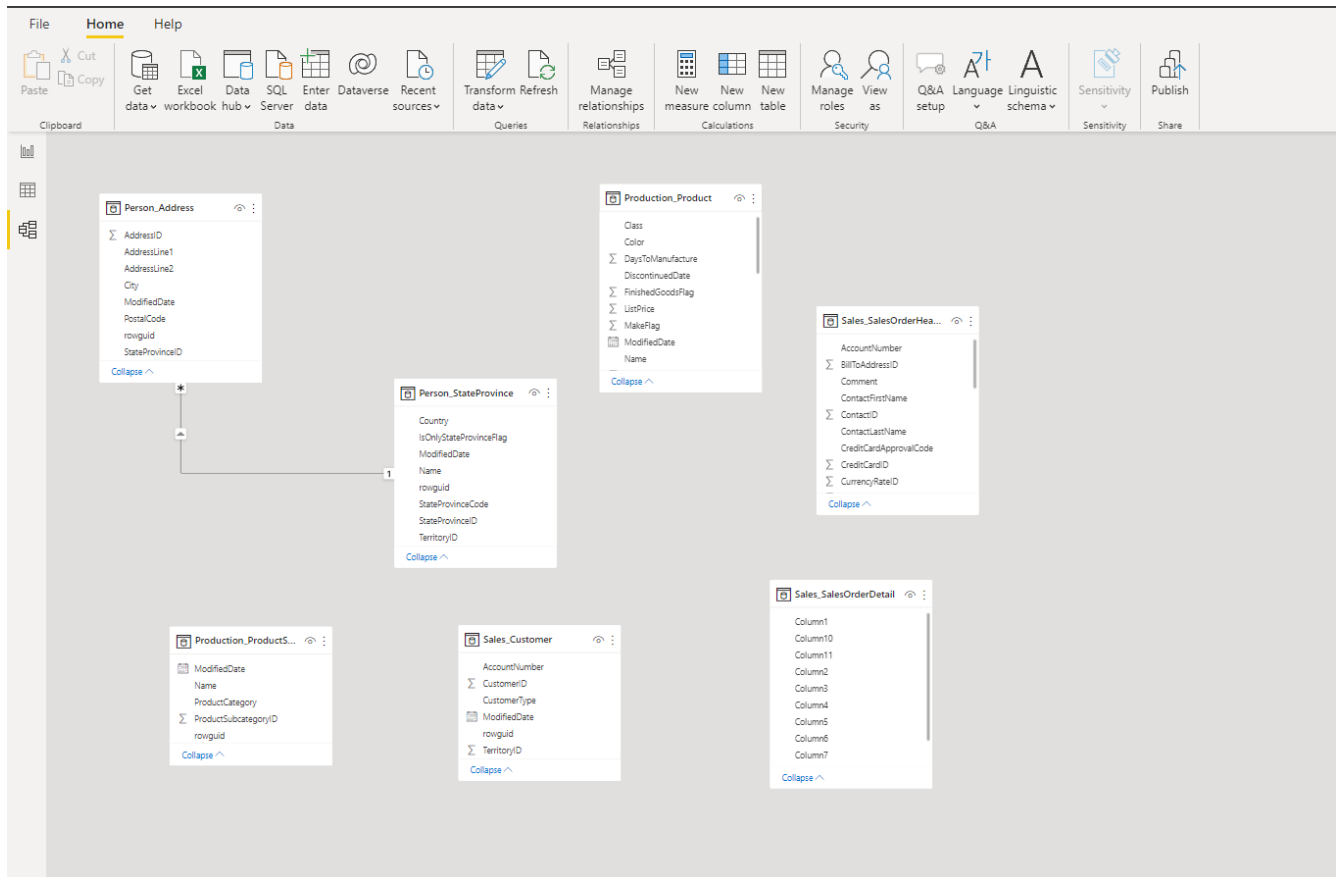
OK Cancel

Maka hasilnya sebagai berikut.

Table.NestedJoin("#Changed Type", {"CustomerID"}, Sales_Customer, {"CustomerID"}, "Sales_Customer", JoinKind.Inner)						
1.2 TotalDue	Comment	rowguid	ModifiedDate	ContactFirstName	ContactLastName	Sales_Customer
1 84	27231.5495	null	7/8/2001	James	Hendergart	Table
2 44	25067.7647	null	10/8/2001	James	Hendergart	Table
3 68	97132.5077	null	1/8/2002	James	Hendergart	Table
4 128	23923.8149	null	4/8/2002	James	Hendergart	Table
5 123	49291.0577	null	7/8/2002	James	Hendergart	Table
6 105	43850.3989	null	10/8/2002	James	Hendergart	Table
7 739	47633.1875	null	1/8/2003	James	Hendergart	Table
8 113	14603.7393	null	8/8/2001	Orlando	Gee	Table
9 108	26128.8674	null	11/8/2001	Orlando	Gee	Table
10 47	37643.1378	null	2/8/2002	Orlando	Gee	Table
11 188	34722.9906	null	5/8/2002	Orlando	Gee	Table
12 176	1716.1794	null	7/8/2001	Takiko	Collins	Table
13 138	622.9468	null	10/8/2002	Takiko	Collins	Table
CustomerID	TerritoryID	AccountNumber	CustomerType	rowguid	ModifiedDate	
676	5	AW00000676	S	{2AA331A0-6448-4EA9-9A92-0EBF254BDCD3}	10/13/2004 11:15:07 AM	

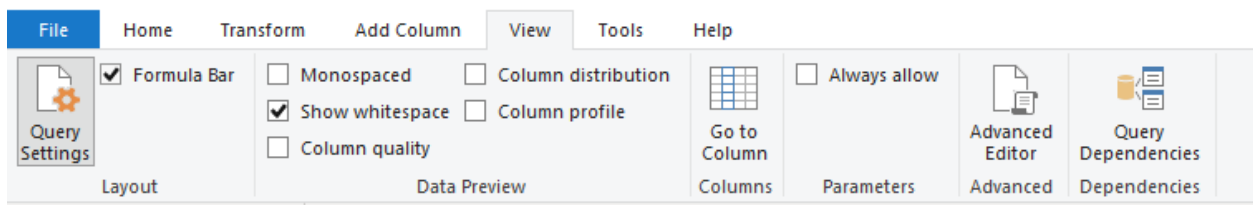
Profiling Data in Power BI: Examining Data Structures

Untuk melihat struktur data yang telah dibuat, pada Power BI Desktop, Select bagian Model. Maka kita bisa melihat struktur data yang telah dibuat dalam queries.

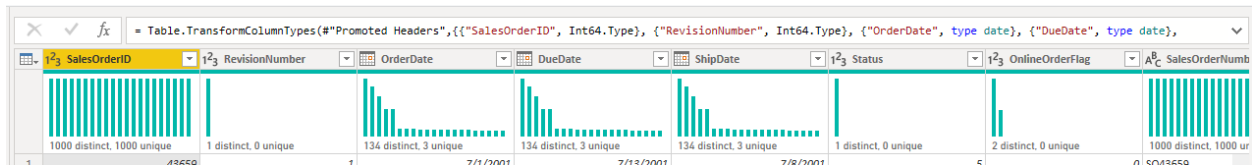


Profiling Data in Power BI: Finding Data Anomalies and Data Statistics

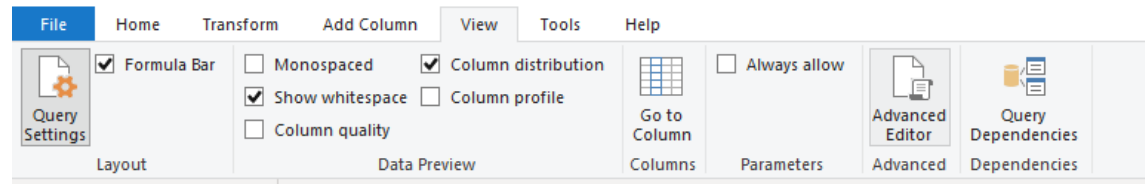
Pada bagian View, Select Column distribution. Column Distribution menampilkan distribusi data dalam kolom dan jumlah nilai yang berbeda dan unik, keduanya dapat memberi tahu Anda detailnya datanya diperhitungkan. Nilai yang berbeda adalah semua nilai dalam kolom, termasuk duplikat dan nilai nol, sedangkan nilai unik tidak menyertakan duplikat atau nol.



Hasilnya sebagai berikut.



Using Advanced Editor to Modify M Code
 Pada bagian View, Select Advanced Editor.



Setiap kali Anda membentuk data di Power Query, Anda membuat langkah di proses Power Query. Langkah-langkah tersebut dapat disusun ulang, dihapus, dan dimodifikasi jika memungkinkan. Setiap langkah pembersihan yang anda buat kemungkinan besar dibuat dengan menggunakan antarmuka grafis, tetapi Power Query menggunakan bahasa M code di belakang layar. Langkah-langkah gabungan tersedia untuk dibaca dengan menggunakan Advanced Editor Power Query. Bahasa M selalu tersedia untuk dibaca dan memodifikasi secara langsung.

