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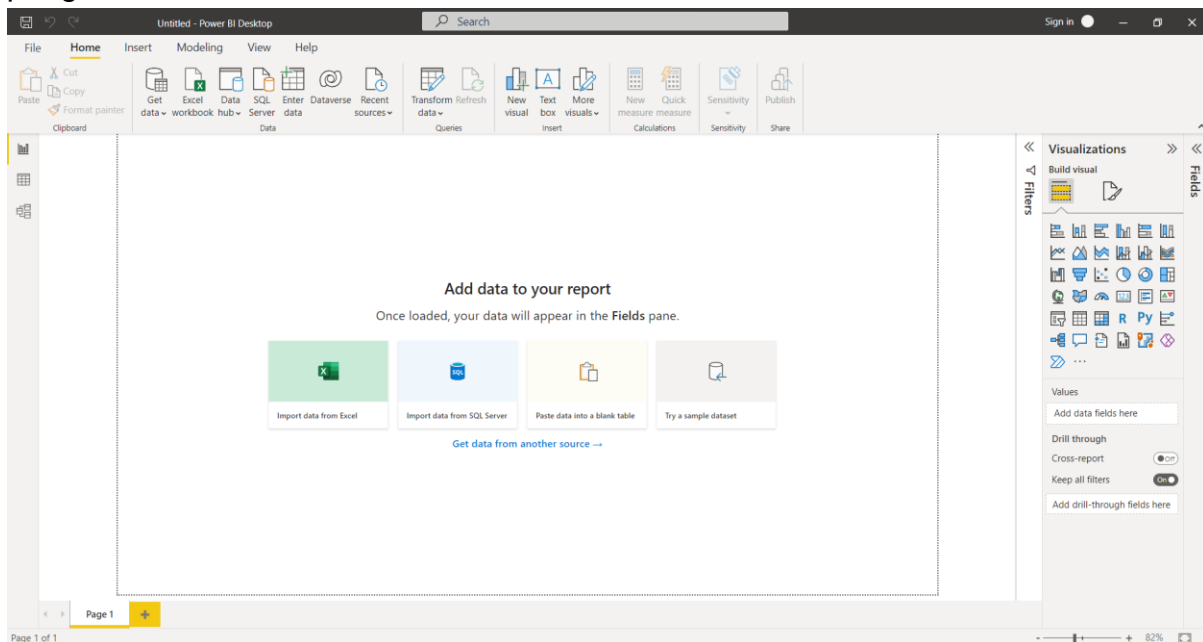
NIM : 191402128

Tugas 2 DWBI

Microsoft PowerBI

PowerBI Intro.

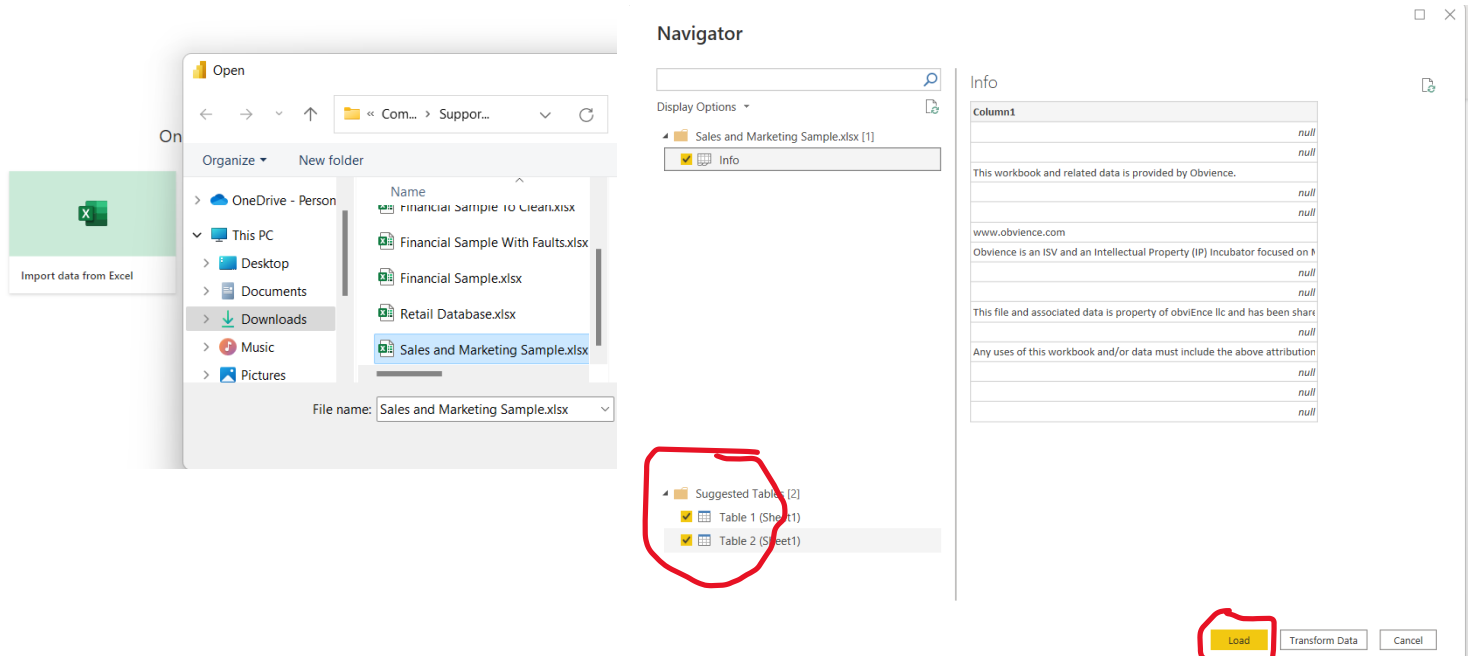
PowerBI merupakan software yang memiliki fungsi untuk menggabungkan, menganalisis, membuat visualisasi, dan membagikan data. Semua fitur itu dikemas dalam tampilan yang intuitif. Tak hanya itu, Power BI sangat terintegrasi dengan Excel, Azure, dan produk-produk Microsoft lainnya. Ini tentu memudahkan proses pengolahan data.



Tampilan Laman Awal dari PowerBI

Input data.

Untuk menginput data kedalam PowerBI adalah dengan mengklik Button Get Data pada PowerBI, lalu klik Import Data From Excel, Select Table, dan data berhasil diinput kedalam PowerBI.

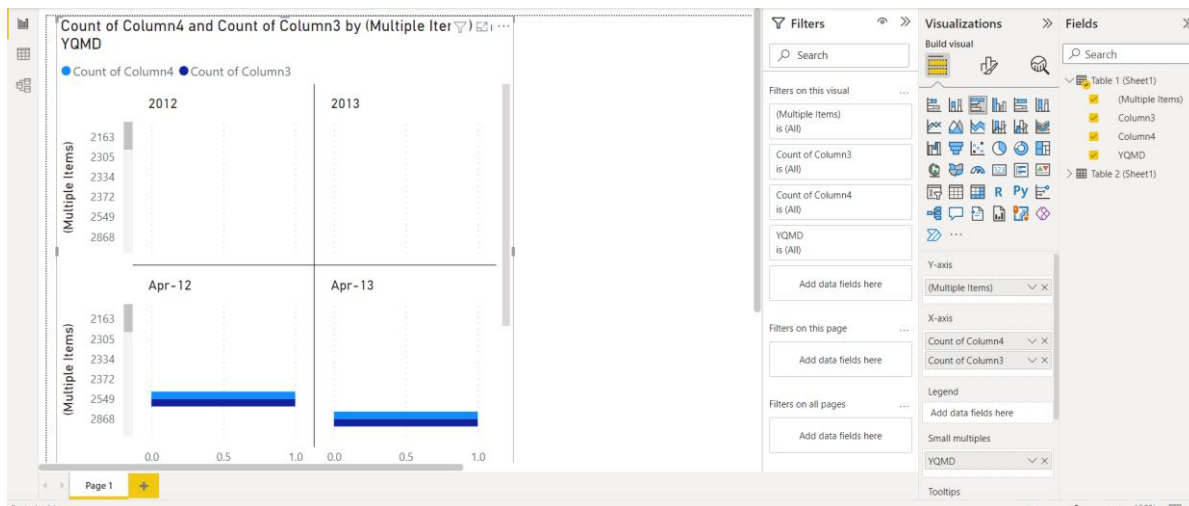


PowerBI sendiri memiliki banyak fitur yang terdapat didalamnya seperti Visualisasi Data, Transform Isi data, dsb.

The screenshot shows the Power BI Desktop interface with the 'Table tools' ribbon selected. The table displayed has the following structure and data:

YQMD	(Multiple Items)	Column3	Column4
Region	All		
Row Labels	Total Units	Total Units R12Ms	Total Units YTD
2012	49058	49058	49058
Jan-12	4327	48565	4327
Feb-12	4235	48343	8562
Mar-12	3262	48181	11824
Apr-12	2549	47936	14373
May-12	2334	48027	16707
Jun-12	3438	48112	20145
Jul-12	3205	48555	22450

Melihat Isi Data



Visualisasi Data

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Sort Split Column Group By Use First Row as Headers Replace Values Merge Queries Append Queries Combine Files Combine Text Analytics Vision Azure Machine Learning AI Insights

Queries [2] Table.Skip(#"Changed Type",2)

	YQMD	Column3	Column4
1	2012	49058	49058
2	Jan-12	4327	48565
3	Feb-12	4235	48343
4	Mar-12	3262	48181
5	Apr-12	2549	47936
6	May-12	2334	48027
7	Jun-12	3438	48112
8	Jul-12	2305	48566
9	Aug-12	3270	49003
10	Sep-12	6457	48784
11	Oct-12	5660	48985
12	Nov-12	5893	49080
13	Dec-12	5328	49058
14	2013	47250	47250
15	Jan-13	4202	48933
16	Feb-13	4034	48732
17	Mar-13	3405	48875
18	Apr-13	2868	49194
19	May-13	2372	49232
20	Jun-13	3564	49358
21	Jul-13	2163	49216
22	Aug-13	2874	48820
23	Sep-13	4915	47278
24	Oct-13	5560	47178
25	Nov-13	5981	47266
26	Dec-13	5312	47250
27	Grand Total	96308	47250

Query Settings

PROPERTIES

Name: Table 1 (Sheet1)

APPLIED STEPS

- Source
- Navigation
- FilterNullAndWhitespace
- Transposed Table
- Added Custom
- Added Index
- Added Custom1
- Removed Blank Rows
- Filled Down
- Grouped Rows
- Selected Group
- Removed Columns
- Transposed Table1
- Removed Blank Rows1
- Promoted Headers
- Changed Type
- Removed Top Rows

Power Query Editor yang memiliki fungsi untuk mengolah data dengan mudah pada PowerBI.

Menghapus data Yang tidak Perlu.

Navigator

to clean

Display Options ▾

- Financial Sample To Clean.xlsx [2]
 - Table_1
 - ☒ to clean

Column1	Column2	Column3	Column4	Column5
	null	null	null	null
Segment	Country	Product	Discount Band	
	null	null	null	null
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	
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	

Load Transform Data Cancel

Masukkan data kedalam Tabel.

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Group By Use First Row as Headers Transpose Reverse Rows Detect Data Type Fill Pivot Column Rename Unpivot Columns Split Column Format ABC 123 Extract Parse Statistics Standard Scientific Rounding Information Date Time Duration Run R Run Python script

Queries [3] Table

Table 1 (Sheet1) Table 2 (Sheet1) to clean

Table.TransformColumnTypes(#"to clean_Sheet",{"Column1", type text}, {"Column2", type text}, {"Column3", type text}, {"Column4", type text}, {"Column5", type text}, {"Column6", type text}, {"Column7", type text})

Column1	Column2	Column3	Column4	Column5	Column6	Column7
	null	null	null	null	null	null
Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price
	null	null	null	null	null	null
Government	Canada	Carretera	None	1618,5	3	
Government	Germany	Carretera	None	1321	3	
Midmarket	France	Carretera	None	2178	3	
Midmarket	Germany	Carretera	None	888	3	
Midmarket	Mexico	Carretera	None	2470	3	
Government	Germany	Carretera	None	1513	3	
Midmarket	Germany	Montana	None	921	5	
Channel Partners	Canada	Montana	None	2518	5	
Government	France	Montana	None	1899	5	
Channel Partners	Germany	Montana	None	1545	5	
Midmarket	Mexico	Montana	None	2470	5	
Enterprise	Canada	Montana	None	2665,5	5	

Disini data belum memiliki Label, untuk membuat label pada data kita bisa menekan Tombol use first row as Headers hingga Data dapat Dilabel dengan sempurna

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price
1	null	null	null	null	null	null
2	Government	Canada	Carretera	None	1618,5	3
3	Government	Germany	Carretera	None	1321	3
4	Midmarket	France	Carretera	None	2178	3
5	Midmarket	Germany	Carretera	None	888	3
6	Midmarket	Mexico	Carretera	None	2470	3
7	Government	Germany	Carretera	None	1513	3
8	Midmarket	Germany	Montana	None	921	5
9	Channel Partners	Canada	Montana	None	2518	5
10	Government	France	Montana	None	1899	5
11	Channel Partners	Germany	Montana	None	1545	5
12	Midmarket	Mexico	Montana	None	2470	5
13	Enterprise	Canada	Montana	None	2665,5	5

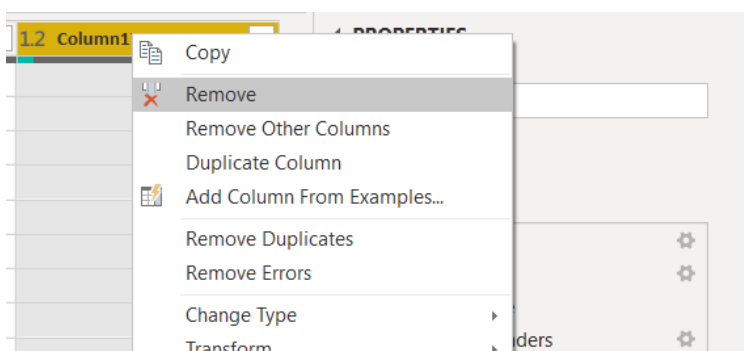
Ketika posisi header data sudah pas, data bisa lebih mudah diolah. Namun disini terdapat kendala dimana ada baris null pada data, untuk menghapus baris null dapat dilakukan dengan menekan tombol Remove Rows, lalu menekan tombol Remove Top Rows

Profit	Date	Month Name	Year	Column17
1	null	null	null	null
2	16185	16185	01/01/2014	
3	13210	13210	01/01/2014	
4	21780	10890	01/06/2014	
5	8880	4440	01/06/2014	
6	24700	12350	01/06/2014	
7	393380	136170	01/12/2014	
8	9210	4605	01/03/2014	
9	7554	22662	01/06/2014	

Setelah data diremove, bis akita lihat tampilan data sesuai dengan yang dibawah ini

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price
1	Government	Canada	Carretera	None	1618,5	3
2	Government	Germany	Carretera	None	1321	3
3	Midmarket	France	Carretera	None	2178	3
4	Midmarket	Germany	Carretera	None	888	3
5	Midmarket	Mexico	Carretera	None	2470	3
6	Government	Germany	Carretera	None	1513	3
7	Midmarket	Germany	Montana	None	921	5
8	Channel Partners	Canada	Montana	None	2518	5
9	Government	France	Montana	None	1899	5
10	Channel Partners	Germany	Montana	None	1545	5
11	Midmarket	Mexico	Montana	None	2470	5
12	Enterprise	Canada	Montana	None	2665,5	5

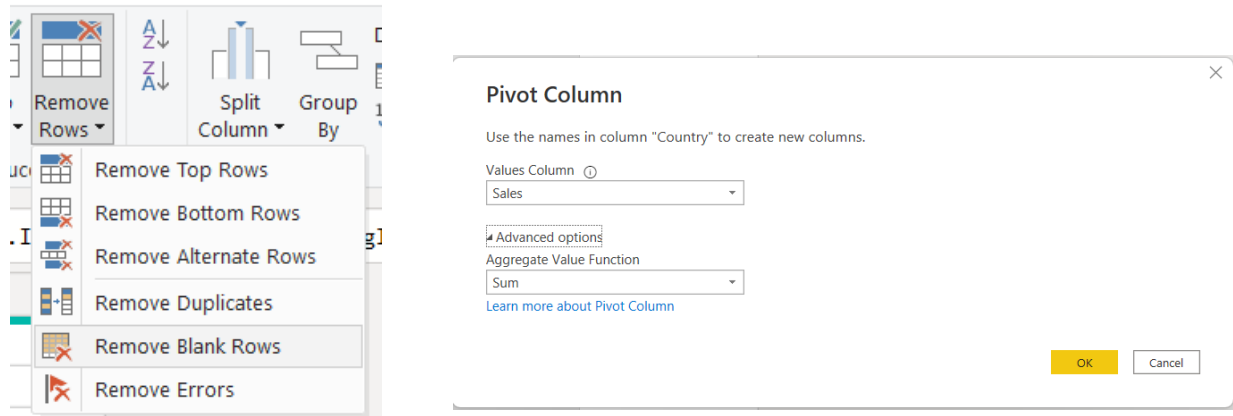
Pada Akhir data, terdapat Kolom yang tidak berlabel dan berisikan data, untuk menghapus kolom tersebut dapat menekan kolom yang dihapus dan drop kolom dengan klik Remove Columns



Month Number	Month Name	Year
1	January	2014
1	January	2014
6	June	2014
6	June	2014
6	June	2014
12	December	2014
3	March	2014
6	June	2014
6	June	2014
6	June	2014
6	June	2014
7	July	2014

Pivoting Data.

Setelah data diolah, kita akan menyatukan data (Pivoting Data) agar data lebih terstruktur dan mudah untuk diolah. Sebelum melakukan Pivoting data, kita harus menghapus variabel kosong (*null*) dengan cara drop table yang berisikan data *null*.



Remove Data

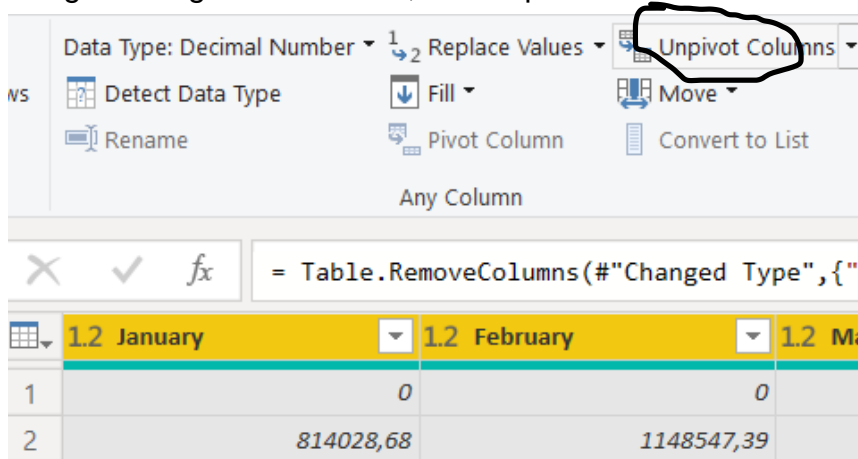
Pivoting Data

Setelah data selesai di Pivot, tampilan data menjadi seperti ini.

= Table.Pivot(#"Removed Blank Rows", List.Distinct(#"Removed Blank Rows"[Country]), "Country", "Sales", List.Sum)						
Segment	1.2 Canada	1.2 Germany	1.2 France	1.2 Mexico	1.2 United States of America	
1 Channel Partners	491164,14	336425,88	372090,36	234379,08	366534,18	
2 Enterprise	3967491,25	4086826,25	3890890,625	3315881,25	4350605	
3 Government	10741236,52	11452895,94	12127782,72	9791599,38	8390746,11	
4 Midmarket	510213,975	301344,75	593802,075	511136,4	465385,875	
5 Small Business	9177549	7327848	7369606,5	7096356	11456559	

Unpivoting Data.

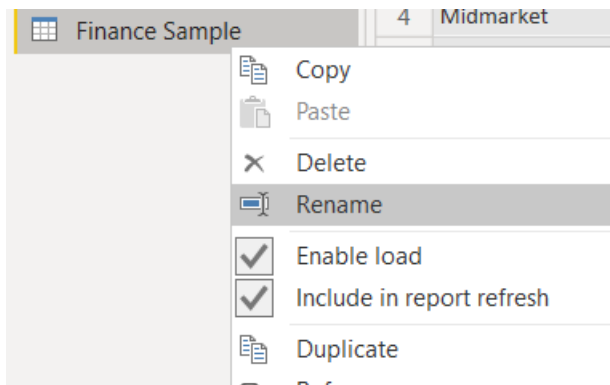
Ada beberapa jenis data yang terlanjur di Pivot namun setelah di Pivot data tidak bisa diolah dan harus dilakukan Unpivoting data. Untuk Mengunpivot data bisa dengan mengklik Transform, lalu Unpivot data.



	ABC Attribute	1.2 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	601554,08

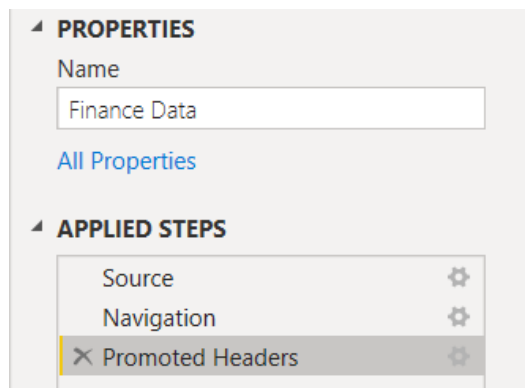
Rename Table.

Table bisa direname dengan klik kanan lalu Rename Table.



Step Back (*Redo*).

Ada kalanya kita harus me-*Redo* data yang sudah diolah, untuk mengembalikan data keposisi awal bisa dengan klik tanda silang dibawah ini.



Change Data Value.

Untuk mengubah/memperbaiki Value data, bisa dengan mengklik Replace Values, lalu mengubah value seperti dibawah ini.

December	2014
December	2014
Mach	2014
May	2014

Replace Values

Replace one value with another in the selected columns.

Value To Find

Mach

Replace With

March

- Advanced options

OK

Cancel

Replace Values

Replace one value with another in the selected columns.

Value To Find

null

Replace With

Unknown

- Advanced options

OK

Cancel

[illegible]

Jenis Table.

Jenis Table yang diinput dalam PowerBI adalah berbentuk text, dimana jika table berbentuk text angka yang terdapat didalamnya tidak bisa diolah. Untuk mengolahnya, kita bisa mengubah table yang berjenis Text menjadi Decimal Number dengan cara dibawah ini.

The screenshot shows the Power Query Editor interface. The 'Data Type' dropdown menu is open for the 'Sale Price' column. The menu lists various data types: Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, Text, True/False, and Binary. The 'Decimal Number' option is highlighted. The background shows a table with columns: Discount Volume, Units Sold, Manufacturing Price, and Sale Price. The 'Manufacturing Price' column is also highlighted.

Discount Volume	Units Sold	Manufacturing Price	Sale Price
one	1618,5	123	20
one	1321	123	20
one	2178	1.2	15
one	888	3	15
one	2470	3	15
one	1513	3	350
ontana	921	5	15
ontana	2518	5	12
ontana	1899	5	20

Merge Data.

Pada PowerBI, terdapat fitur untuk menggabungkan 2 buah tabel yaitu merge dan append table. Append table adalah mensisipkan table ke table utama.

The screenshot shows the Power Query Editor interface. The 'Merge Queries' and 'Append Queries' options are visible in the 'Merge' section of the ribbon. The background shows a table with columns: Segment, Country, Product, Discount Band, Units Sold, Manufacturing Price, and Sale Price. The 'Segment' column is highlighted.

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price
1 Government	Germany	Carretera	None	1321	3	
2 Midmarket	Germany	Carretera	None	888	3	
3 Government	Germany	Carretera	None	1513	3	
4 Midmarket	Germany	Montana	None	921	5	
5 Channel Partners	Germany	Montana	None	1545	5	
6 Government	Germany	Montana	None	2146	5	
7 Government	Germany	Paseo	None	1006	10	
8 Channel Partners	Germany	Paseo	None	367	10	

Append

Concatenate rows from three or more tables into a single table.

☐ Two tables ☒ Three or more tables

Available tables

Germany (Current)
Table 1 (Sheet1)
Table 2 (Sheet1)
to clean
horizontal
Finance Data
France
Mexico

Add >>

Tables to append

Germany (Current)

Tables to append

Germany (Current)
France

OK

Cancel

Table.Combine({"Changed Type", France})							
Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	
1 Government	Germany	Carretera	None	1321		3	
2 Midmarket	Germany	Carretera	None	888		3	
3 Government	Germany	Carretera	None	1513		3	
4 Midmarket	Germany	Montana	None	921		5	
5 Channel Partners	Germany	Montana	None	1545		5	
6 Government	Germany	Montana	None	2146		5	
7 Government	Germany	Paseo	None	1006		10	
8 Channel Partners	Germany	Paseo	None	367		10	
9 Midmarket	France	Carretera	None	2178		3	
10 Government	France	Montana	None	1899		5	
11 Enterprise	France	Velo	None	1804		120	
12 Midmarket	France	VTT	None	2178		250	
13 Small Business	France	VTT	None	2151		250	
14 Government	France	Amarilla	None	2750		260	

Bisa kita lihat tabel France sudah disisip kedalam table Germany. Jangan lupa untuk merename table menjadi France-Germany

France-Germany	5	C
France	6	C
Mexico	7	C
Query1	8	C
	9	M

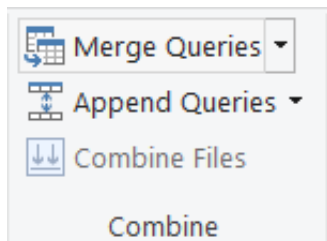
Disini saya juga memasukkan table Mexico didalam, namun bisa dilihat data dari Table Mexico bersikan null. Untuk drop isi data table mexico bisa menekan tombol X pada Applied Steps

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

Table.Combine(("Changed Type", France))							
Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	
1 Government	Germany	Carretera	None	1321	3		
2 Midmarket	Germany	Carretera	None	888	3		
3 Government	Germany	Carretera	None	1513	3		
4 Midmarket	Germany	Montana	None	921	5		
5 Channel Partners	Germany	Montana	None	1545	5		
6 Government	Germany	Montana	None	2146	5		
7 Government	Germany	Paseo	None	1006	10		
8 Channel Partners	Germany	Paseo	None	367	10		
9 Midmarket	France	Carretera	None	2178	3		
10 Government	France	Montana	None	1899	5		
11 Enterprise	France	Velo	None	1804	120		
12 Midmarket	France	VTT	None	2178	250		
13 Small Business	France	VTT	None	2151	250		
14 Government	France	Amarilla	None	2750	260		

Merge Table.

Merge Table ialah menyatukan 2 buah jenis table kedalam 1 Table. Bisa dilakukan dengan menekan tombol Merge Queries.



Merge

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

Sales_SalesOrderHeader (2)

PurchaseOrderNumber	AccountNumber	CustomerID	ContactID	SalesPersonID	TerritoryID	BillToA
PO522145787	10-4020-000676	676	378	279	5	
PO18850127500	10-4020-000117	117	216	279	5	
PO18473189620	10-4020-000442	442	281	282	6	
PO18444174044	10-4020-000227	227	564	282	6	

Sales_Customer

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

Join Kind

Inner (only matching rows)

☐ Use fuzzy matching to perform the merge

Fuzzy matching options

Similarity threshold (optional)

☒ Ignore case

☒ Match by combining text parts

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

OK Cancel

Untuk menggabungkan 2 buah jenis table, kita harus melihat persamaan dari kedua dataset table tersebut. Bisa dilihat kalau kedua data memiliki kesamaan pada CustomerID sehingga data dicluster dan diurutkan dengan menjadikan CustomerID sebagai patokan data dan berikut hasil data Ketika sudah di Merge.

ABC 123	Comment	A _C rowguid	ModifiedDate	A _C ContactFirstName	A _C ContactLastName	Sales_Customer	419
5		null {79B65321-39CA-4115-9CBA-8FE0903E12E...	08/07/2001	James	Hendergart	Table	
7		null {AE51074C-108B-4274-BB03-87D670DD82...	08/10/2001	James	Hendergart	Table	
7		null {270EB149-81E2-4564-9CA6-8A4502C08A...	08/01/2002	James	Hendergart	Table	
3		null {5943CC34-5DC6-4CBB-80CB-4DE01571E5...	08/04/2002	James	Hendergart	Table	
7		null {039F4B9C-19AC-4B60-B6B2-A5D66459A2...	08/07/2002	James	Hendergart	Table	
3		null {0D6915F7-F25B-4310-9BB6-E68222CE25A...	08/10/2002	James	Hendergart	Table	
5		null {10354519-180B-40B8-8FC1-347DE19B541...	08/01/2003	James	Hendergart	Table	
3		null {D2745233-B05B-409C-93B8-4451569F42...	08/08/2001	Orlando	Gee	Table	
1		null {1A116F86-71E4-40A2-A32C-4938D8977D...	08/11/2001	Orlando	Gee	Table	
3		null {F57AB920-675E-4B1D-B43C-8EA091CF6F...	08/02/2002	Orlando	Gee	Table	
5		null {62991BDA-C42D-494F-9EF1-2754BEC25F...	08/05/2002	Orlando	Gee	Table	
1		null {738DC42D-D03B-48A1-9822-F95A67EA73...	08/07/2001	Takiko	Collins	Table	
3		null {BB901788-017A-4714-8E6A-717A64299D...	08/10/2002	Takiko	Collins	Table	
1		null {8A533BE6-0669-470A-B361-796DD1CDOE...	08/08/2002	Keith	Harris	Table	
1		null {1FAAD98B-1DE0-4B80-A804-9F8BB6F289...	08/11/2002	Keith	Harris	Table	
1		null {D91B9131-18A4-4A11-BC3A-90B6F53E9D...	08/07/2001	Jauna	Elson	Table	
3		null {181D7624-F907-41B6-90B8-B95899CA2B...	08/10/2001	Jauna	Elson	Table	
3		null {2C419B24-B1F6-4D9D-B2BF-1E68389B47...	08/01/2002	Jauna	Elson	Table	
1		null {E2DB78F0-AB7A-4755-87BE-ED52B478A8...	08/04/2002	Jauna	Elson	Table	
3		null {61DF816F-0422-4A7A-9F94-C50FF7FF4D5...	08/07/2002	Jauna	Elson	Table	
5		null {EE498ACF-F522-4937-AB69-BAD7D86ADE...	08/10/2002	Jauna	Elson	Table	
3		null {9D07E19C-0672-42E6-BC61-765BCEED32...	08/01/2003	Jauna	Elson	Table	
5		null {0F0EB783-FA76-466D-9A0A-2F88C1C7ED...	08/09/2001	Donna	Carreras	Table	
5		null {9718B3AD-7806-49F0-BC15-CE6097D629...	08/12/2001	Donna	Carreras	Table	
3		null {4AD60909-9C6D-4A8B-A333-A35AD0EFC9...	08/03/2002	Donna	Carreras	Table	
1		null {C7B82642-1411-4EF1-93CA-D2A988BDF9...	08/06/2002	Donna	Carreras	Table	
1		null {FF062776-9112-49EE-941C-BB2072A41E12}	08/09/2002	Donna	Carreras	Table	

Pada PowerBI kita bisa melihat dan membuat relasi antar dua buah jenis database. Yaitu dengan membuat Relationship dari kedua buah data. Untuk membuat Relationship bisa dengan klik new pada manage relationship.

Manage relationships

Active	From: Table (Column)	To: Table (Column)
<input checked="" type="checkbox"/>	Finance Data (Segment)	to clean (Segment)
<input checked="" type="checkbox"/>	France (Segment)	to clean (Segment)
<input checked="" type="checkbox"/>	France-Germany (Segment)	to clean (Segment)
<input checked="" type="checkbox"/>	Person_Address (StateProvinceID)	Person_StateProvince (StateProvinceID)
<input checked="" type="checkbox"/>	Sales_SalesOrderHeader (2) (AccountNumber)	Sales_Customer (AccountNumber)

New... Autodetect... Edit... Delete

Close

Create relationship

Select tables and columns that are related.

Sales_SalesOrderHeader (2)

ShipDate	Status	OnlineOrderFlag	SalesOrderNumber	PurchaseOrderNumber	AccountNumber	Cu
14 February 2002	5	-1	SO45389	null	10-4030-011090	
27 February 2002	5	-1	SO45463	null	10-4030-011171	
07 March 2002	5	-1	SO45512	null	10-4030-011175	

Sales_Customer

CustomerID	TerritoryID	AccountNumber	CustomerType	rowguid	Modif
11015	4	AW00011015	I	{F791BD74-EB82-4631-B9FC-F9FEE621FD13}	13/10/2
11016	4	AW00011016	I	{023843CA-25FB-42BF-AC37-FAF6F4120DAC}	13/10/2
11023	4	AW00011023	I	{A283BD8-44A8-4665-808E-33E19ECD7F54}	13/10/2

Cardinality

Cross filter direction

☐ Make this relationship active

☐ Apply security filter in both directions

☐ Assume referential integrity

There's already a relationship between these two columns.

OK

Cancel

Dalam membuat Relationship, kita harus memastikan kedua buah data memiliki keterkaitan antar satu dengan yang lain. Jika bisa dibuat Relations dari kedua data maka data akan ditampilkan sebagai berikut.

The screenshot shows the Microsoft Power BI Desktop interface. The main workspace displays a relationship between two tables: **Sales_SalesOrderHeader** and **Sales_Customer**. The relationship is indicated by a line connecting the **CustomerID** field in **Sales_Customer** to the **CustomerID** field in **Sales_SalesOrderHeader**. The relationship is labeled with a cardinality of **1 to many** (1 to *).

The **Fields** pane on the right shows the list of tables and their columns. The **Sales_SalesOrderHeader** table is expanded, showing columns: **AccountNumber**, **BillToAddressID**, **Comment**, **ContactFirstName**, **ContactID**, **ContactLastName**, **CreditCardApprovalCode**, and **CreditCardID**. The **Sales_Customer** table is also expanded, showing columns: **AccountNumber**, **CustomerID**, **CustomerType**, **ModifiedDate**, **rowguid**, and **TerritoryID**.

The **Properties** pane on the left shows the relationship settings. The **Cardinality** is set to **1 to many**. The **Cross filter direction** is set to **From Sales_Customer to Sales_SalesOrderHeader**. The **Make this relationship active** checkbox is checked. The **Assume referential integrity** checkbox is unchecked.

Pada PowerBI kita bisa melihat Column Distribution dan Mengubah Query dengan fungsi Advance Director pada PowerBI

Advanced Editor

Sales_SalesOrderHeader (2)

Display Options ?

```
let
    Source = Excel.Workbook(File.Contents("C:\Users\ARANYA\Downloads\Compressed\Support Files\Retail Database.xlsx"), null, true),
    Sales_SalesOrderHeader_Sheet = Source[[Item="Sales_SalesOrderHeader",Kind="Sheet"]][Data],
    #"Promoted Headers" = Table.PromoteHeaders(Sales_SalesOrderHeader_Sheet, [PromoteAllScalars=true]),
    #"Changed Type" = Table.TransformColumnTypes(#"Promoted Headers",{{"SalesOrderID", Int64.Type}, {"RevisionNumber", Int64.Type}, {"OrderDate", Int64.Type}}, {"SalesOrderID", Int64.Type}, {"RevisionNumber", Int64.Type}, {"OrderDate", Int64.Type}),
    #"Merged Queries" = Table.NestedJoin(#"Changed Type", {"CustomerID"}, Sales_Customer, {"CustomerID"}, "Sales_Customer", JoinKind.Inner)
in
    #"Merged Queries"
```