

Using Power BI

Power BI is a business analytics service by Microsoft. It aims to provide interactive visualizations and business intelligence capabilities with an interface simple enough for end users to create their own reports and dashboards. In this exercise using Power BI, you will:

Extract data files from Excel.

Transform the data into a flat data set in which all the data for a specific sales order is on one row. Aggregate the Number of units sold, sales and shipping cost by salesperson and shipping costs by product and region.

Load the transformed data into Excel.

There are five streams of data in the Excel file, *Stuffed Animals.Join.Demo.xlsx*. The first stream is stored in a sheet titled **"Sales Data"**. Notice that the column headings are in row three.

	A	B	C	D	E	F
1	Cuddly Stuffed Animals					
2	Sales					
3	Sales Order #	Salesperson #	Region	State	Product #	Units Sold
4	35005	1303	West	WA	103	120
5	35006	1302	West	AZ	101	96
6	35009	1305	West	CA	102	156
7	35011	1305	West	CO	101	144
8	35014	1302	Midwest	IN	106	84
9	35017	1305	West	NV	103	72
10	35025	1301	Northeast	CT	106	84
11	35026	1306	West	WY	105	132
12	35027	1301	Midwest	IL	103	120
13	35032	1305	South	AL	103	132
14	35041	1305	Midwest	MI	103	144
15	35046	1302	Midwest	KS	102	132
16	35052	1303	South	LA	102	108

Notice that the last "Sales Order #" is 50150, and there are 5,017 rows of data (row 5020 – row 3 = 5017 rows).

	A	B	C	D	E	F
1	Cuddly Stuffed Animals					
2	Sales					
3	Sales Order #	Salesperson #	Region	State	Product #	Units Sold
5016	50138	1303	West	NM	102	108
5017	50141	1304	West	AK	102	96
5018	50143	1303	West	NV	102	120
5019	50147	1306	Northeast	NH	106	72
5020	50150	1305	Northeast	NY	106	156
5021						

The second stream is stored in a sheet titled **"Products"**. Notice that the column headings are in row fifteen.

The last "Product ID" is 106, and there are 6 rows of data.

	B	C	D	E	F	G
10						
11						
12						
13						
14						
15		Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
16		101	Stuffed Lamb	20.00	8.75	11.25
17		102	Stuffed Giraffe	22.00	9.75	12.25
18		103	Stuffed Elephant	24.00	10.75	13.25
19		104	Stuffed Unicorn	21.00	8.50	12.50
20		105	Stuffed Horse	23.00	10.75	12.25
21		106	Stuffed Pig	25.00	12.50	12.50
22						
23						
24						
25						
26						
27						
28						

The third stream is stored in a sheet titled **"Salesperson"**. Notice that the column headings are in row fifteen.

	C	D	E	F	G	H
10						
11						
12						
13						
14						
15		Code	Salesperson		Title	
16		1301	James Polk		Sales Associate I	
17		1302	Ulysses Grant		Senior Sales Associate	
18		1303	Thomas Jefferson		Senior Sales Associate	
19		1304	James Madison		Sales Associate I	
20		1305	James Monroe		Sales Associate I	
21		1306	Grover Cleveland		Senior Sales Associate	
22						

The last "Code" is 1306, and there are 6 rows of data.

The fourth stream contains the shipping cost per unit by the product and region in which the sales were made is stored in a sheet titled **"Shipping Costs"**. Notice that the column headings are in row thirteen.

Cuddly Stuffed Animals Shipping Cost Per Unit				
Product ID	Region			
	Midwest	Northeast	South	West
101	2.15	2.12	2.08	2.02
102	2.11	2.08	2.04	1.98
103	2.14	2.11	2.07	2.01
104	2.12	2.09	2.05	1.99
105	2.07	2.04	2.00	1.94
106	2.02	1.99	1.95	1.89

The last "Product ID" is 106, and there are 6 rows of data.

The fifth stream contains data regarding the Regions and states in each region sold are stored in a sheet titled **"Region"**.

Cuddly Stuffed Animals Region I									
Code	Region	1	2	3	4	5	6	7	
1	Midwest	IL	IN	IA	KS	MI	MN	MO	
2	Northeast	CT	ME	MA	NH	NJ	NY	PA	
3	South	AL	AR	DE	FL	GA	KY	LA	
4	West	AK	AZ	CA	CO	HI	ID	MT	

The deliverable consists of two reports exported to the original Excel file. The first report is a report by salesperson that shows the number of units sold, sales in dollars and shipping costs. The second report is a shipping cost report by product and region loaded back into Excel.

By Salesperson			
Salesperson	Units Sold	Sales	Shipping Cost
Ulysses Grant	57,924	\$ 1,317,384.00	\$ 117,878.40
Thomas Jefferson	141,156	\$ 3,210,924.00	\$ 287,129.76
James Polk	43,200	\$ 985,560.00	\$ 87,710.64
James Monroe	121,236	\$ 2,748,540.00	\$ 246,882.36
James Madison	59,136	\$ 1,349,352.00	\$ 120,158.04
Grover Cleveland	76,680	\$ 1,733,088.00	\$ 156,216.00
Total	499,332	\$ 11,344,848.00	\$ 1,015,975.20

Automate the process so that the reports can be completed at the end of every month. The unit selling price and costs do not change during the year.

Shipping Costs by Product and Region					
	Midwest	Northeast	South	West	Grand Total
Stuffed Elephant	\$ 47,610.72	\$ 35,625.24	\$ 50,822.64	\$ 63,990.36	\$ 198,048.96
Stuffed Giraffe	\$ 76,744.92	\$ 56,958.72	\$ 80,686.08	\$ 91,095.84	\$ 305,485.56
Stuffed Horse	\$ 26,032.32	\$ 17,062.56	\$ 25,488.00	\$ 31,916.88	\$ 100,499.76
Stuffed Lamb	\$ 30,263.40	\$ 19,614.24	\$ 29,877.12	\$ 38,905.20	\$ 118,659.96
Stuffed Pig	\$ 47,898.24	\$ 30,566.40	\$ 47,361.60	\$ 59,648.40	\$ 185,474.64
Stuffed Unicorn	\$ 25,999.68	\$ 18,458.88	\$ 29,987.40	\$ 33,360.36	\$ 107,806.32
Grand Total	\$ 254,549.28	\$ 178,286.04	\$ 264,222.84	\$ 318,917.04	\$ 1,015,975.20

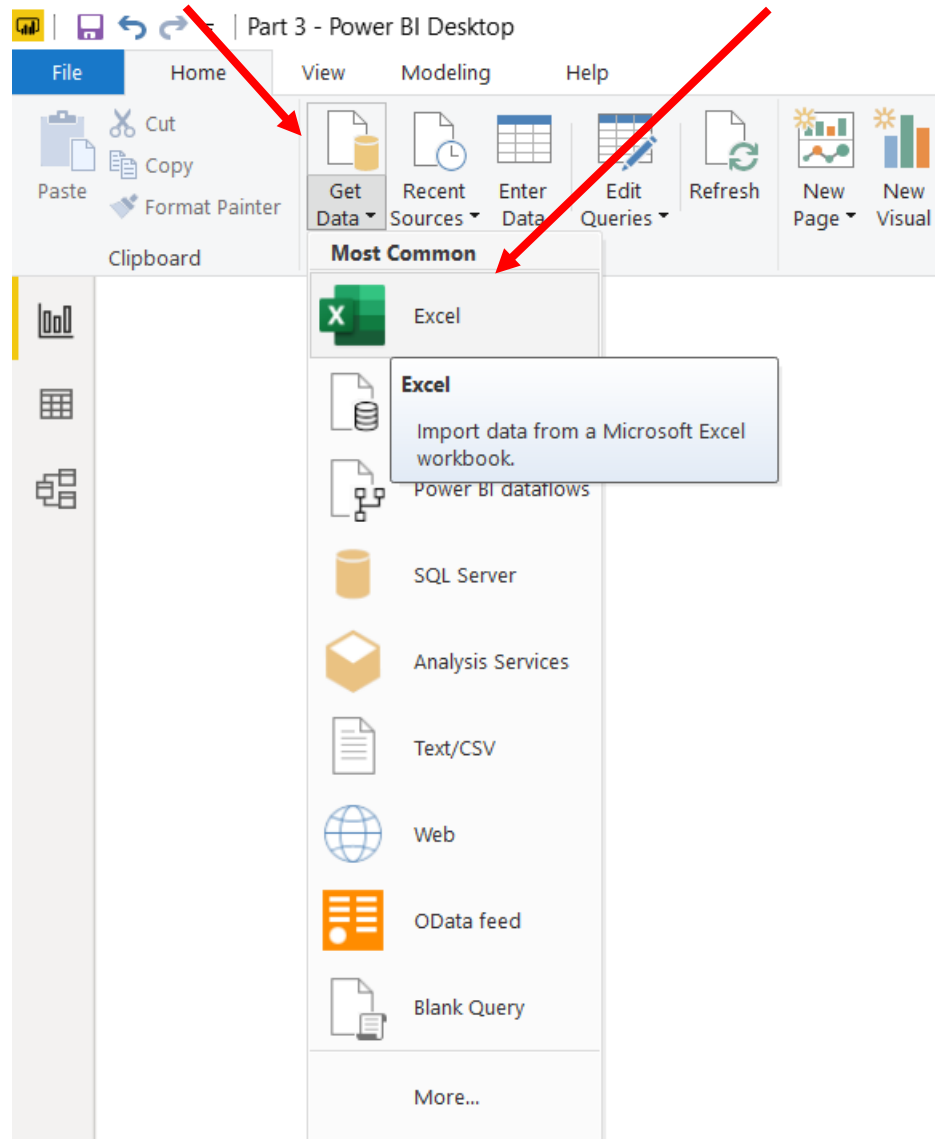
Start Power BI Desktop

There are four major parts to the Power BI tabs: Home, View, Modeling and Help.

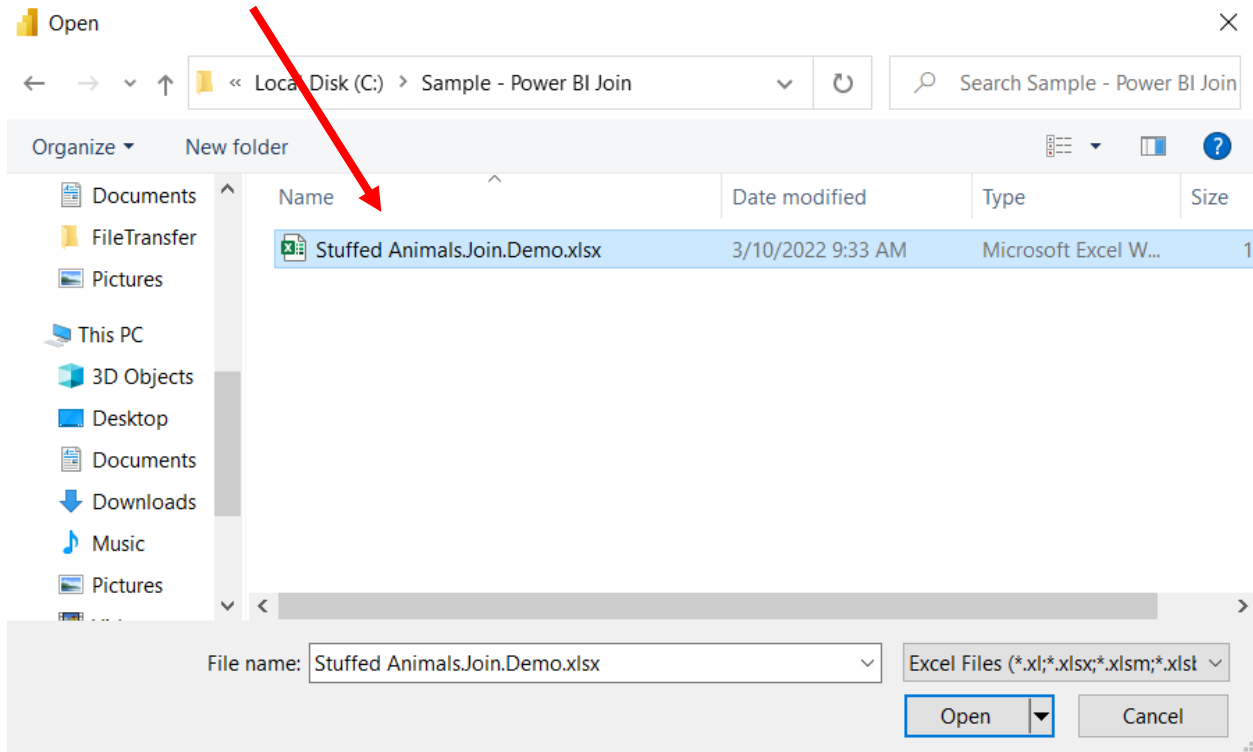
Operation 1: **Get Data**

Input the “Sales Data” from *Stuffed Animals.Join.Demo.xlsx* Excel data set.

Select “Get Data” under the home tab. Then select Excel from the drop-down



Select the file *Stuffed AnimalsJoin.Demo.xlsx*.

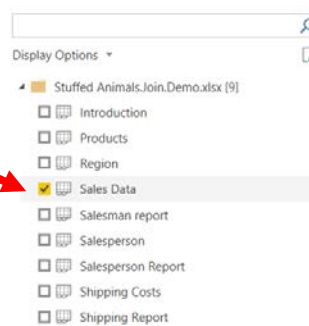


Select "Open".

Highlight the desired sheet "Sales Data". At this time the "Transform" button is not highlighted.

However, the data preview is displayed.

Navigator



Cuddly Stuffed Animals	Column2	Column3	Column4	Column5
Sales		null	null	null
Sales Order #	Salesperson #	Region	State	Pro
35005	1303	West	WA	
35006	1302	West	AZ	
35009	1305	West	CA	
35011	1305	West	CO	
35014	1302	Midwest	IN	
35017	1305	West	NY	
35025	1301	Northeast	CT	
35026	1306	West	WY	
35027	1301	Midwest	IL	
35032	1305	South	AL	
35041	1305	Midwest	MI	
35046	1302	Midwest	KS	
35052	1303	South	LA	
35057	1303	West	AK	
35058	1303	Midwest	NE	
35063	1304	West	WA	
35072	1305	West	NM	
35074	1304	Midwest	KS	
35078	1305	West	ID	
35083	1305	South	TX	

Load Transform Data Cancel

Double click on **"Sales Data"** or select the check box to the left of the sheet's name.

Navigator

Display Options

- Stuffed Animals.Join.Demo.xlsx [9]
 - Introduction
 - Products
 - Region
 - ☒ Sales Data
 - Salesman report
 - Salesperson
 - Salesperson Report
 - Shipping Costs
 - Shipping Report

Sales Data

Cuddly Stuffed Animals	Column2	Column3	Column4	Column5
Sales	null	null	null	
Sales Order #	Salesperson #	Region	State	Product #
35005	1303	West	WA	
35006	1302	West	AZ	
35009	1305	West	CA	
35011	1305	West	CO	
35014	1302	Midwest	IN	
35017	1305	West	NV	
35025	1301	Northeast	CT	
35026	1306	West	WY	
35027	1301	Midwest	IL	
35032	1305	South	AL	
35041	1305	Midwest	MI	
35046	1302	Midwest	KS	
35052	1303	South	LA	
35057	1303	West	AK	
35058	1303	Midwest	NE	
35063	1304	West	WA	
35072	1305	West	NM	
35074	1304	Midwest	KS	
35078	1305	West	ID	

Load

Transform Data

Cancel

Select "Transform Data" and the "Power Query Editor" opens. Don't click on "Load" as that imports the data directly without an option for data transformation.

Now "Sales Data" query is inserted. After you perform a transformation, the changes are recoded in the "Applied Steps" section.

Queries [1]

Table.TransformColumnTypes(#"Promoted Headers",{"Cuddly Stuffed Animals", type any}, {"Column2", type any}, {"Column3", type any}, {"Column4", type any}, {"Column5", type any})

1	Sales	Column2	Column3	Column4	Column5
2	Sales Order #	Salesperson #	Region	State	Product #
3		35005	1303	West	WA
4		35006	1302	West	AZ
5		35009	1305	West	CA
6		35011	1305	West	CO
7		35014	1302	Midwest	IN
8		35017	1305	West	NV
9		35025	1301	Northeast	CT
10		35026	1306	West	WY
11		35027	1301	Midwest	IL

Query Settings

PROPERTIES

Name: Sales Data

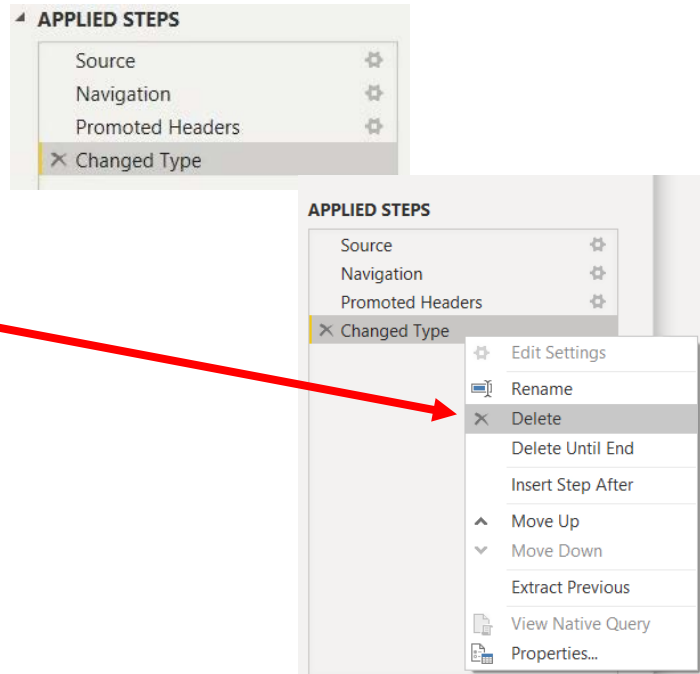
APPLIED STEPS

- Source
- Navigation
- Promoted Headers
- Changed Type

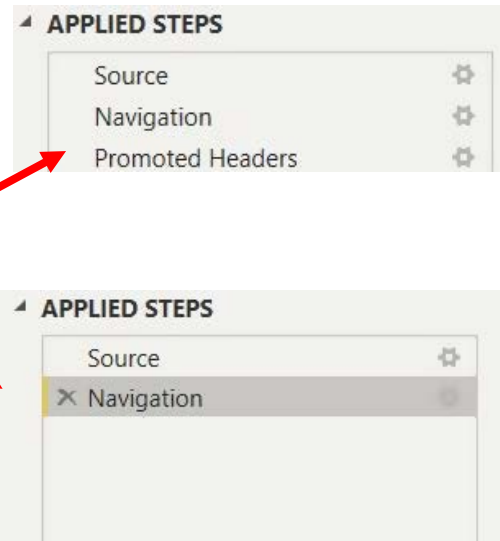
The program automatically added steps and it did not correctly find the row that contains the "Headers".

Select "Changed Type".

Right click and select "Delete".



Delete the step "Promoted Headers", leaving us with two steps.

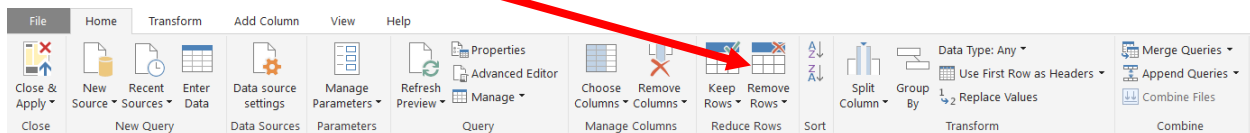


Operation 2: Fix the Headers

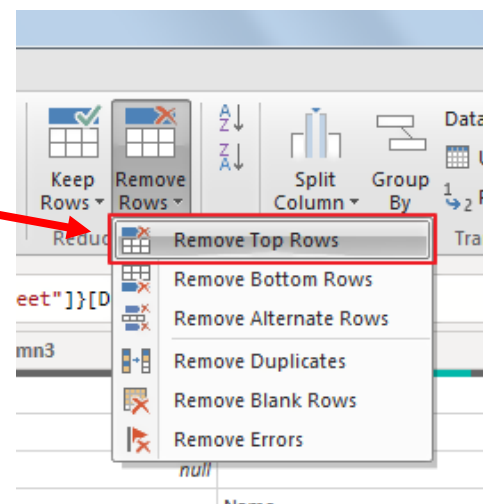
The field headers are in the third row of the source document. Remove the top two rows to move the headers to the first row and then make them to the Query Editor's headers.

	Column1	Column2	Column3	Column4	Column5
1	Cuddly Stuffed Animals	null	null	null	
2	Sales	null	null	null	
3	Sales Order #	Salesperson #	Region	State	Product #
4	35005	1303	West	WA	
5	35006	1302	West	AZ	
6	35009	1305	West	CA	
7	35011	1305	West	CO	
8	35014	1302	Midwest	IN	

Select "Remove Rows".



Select "Remove Top Rows".



Enter a "2" to remove top five rows.

Remove Top Rows

Specify how many rows to remove from the top.

Number of rows

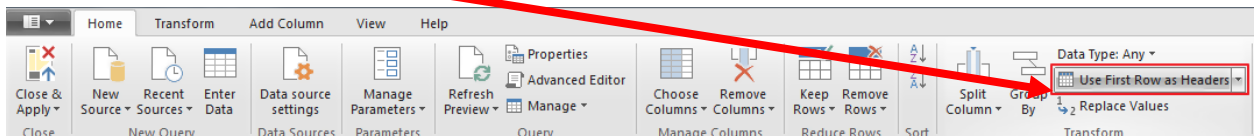
2

Then click OK.

OK Cancel

	ABC 123 Column1	ABC 123 Column2	ABC 123 Column3	ABC 123 Column4	ABC 123 Column5	A 1
1	Sales Order #	Salesperson #	Region	State	Product #	1
2	35005	1303	West	WA	103	
3	35006	1302	West	AZ	101	
4	35009	1305	West	CA	102	
5	35011	1305	West	CO	101	

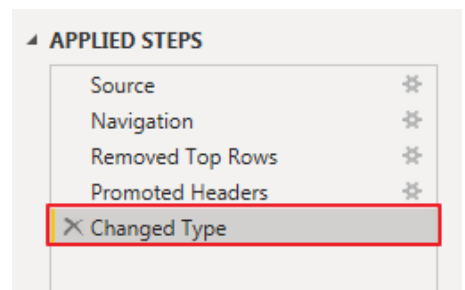
To make the first row the header, select “Use First Row as Headers”.



The transformed table would like this:

	123 Sales Order #	123 Salesperson #	ABC Region	ABC State	123 Product #	
1	35005	1303	West	WA	103	
2	35006	1302	West	AZ	101	
3	35009	1305	West	CA	102	
4	35011	1305	West	CO	101	
5	35014	1302	Midwest	IN	106	
6	35017	1305	West	NV	103	

After you perform a transformation, the changes are recorded in the “Applied Steps” section. If a step was incorrectly done, just delete the step redo.



Operation 3: The Data in the Fields Must Conform to Predefined Rules.

In the original Excel file, The Cuddly Stuffed Animals company provided a table with the only acceptable values for “Region”. Sometime data is entered incorrectly.

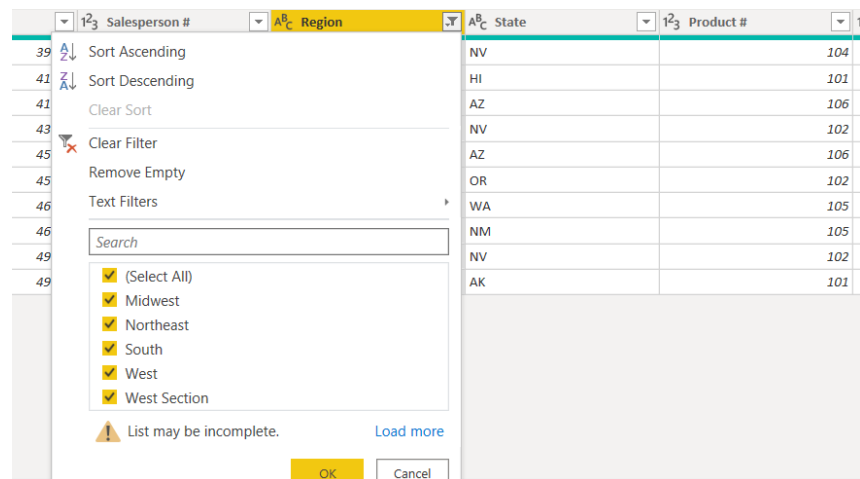
The “Region” field can only contain one of the four regions. Browse the data in the “Region” field to verify that all the data is correct. Make any changes that are required.

Code	Region
1	Midwest
2	Northeast
3	South
4	West

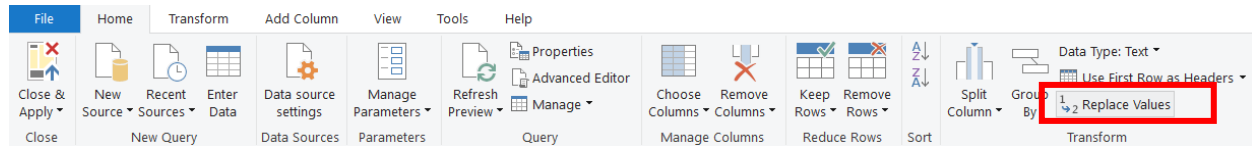
Click on the “drop-down” next to “Region”.

The “Region” field can only contain one of the four regions. Browse the data in the “Region” field to verify that all the data is correct. Make any changes that are required.

“West Section” must be replaced with “West”.



Select Cancel.



Select Replace Values

Value to find “West Section”
Replace with “West”

Replace Values

Replace one value with another in the selected columns.

Value To Find
West Section

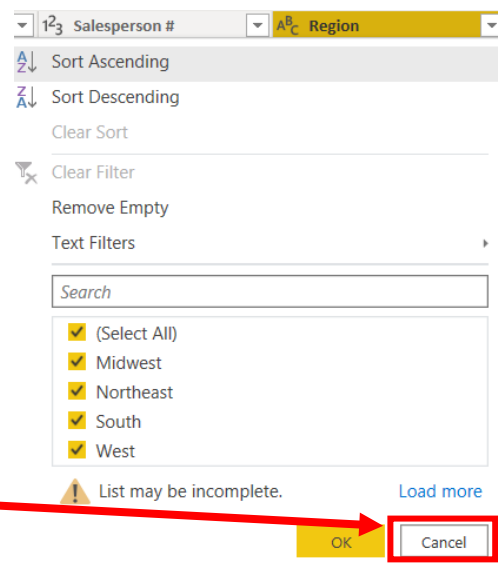
Replace With
West

> Advanced options

OK Cancel

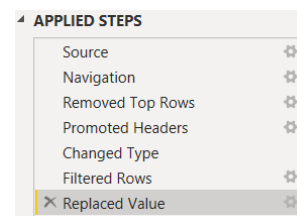
Select OK.

Click on the “drop-down” next to “Region”.



Select Cancel.

A step has been added to the Applied Steps.



Requirement 2: Extract the data from the "Products" sheet. Review the data and make any required corrections.

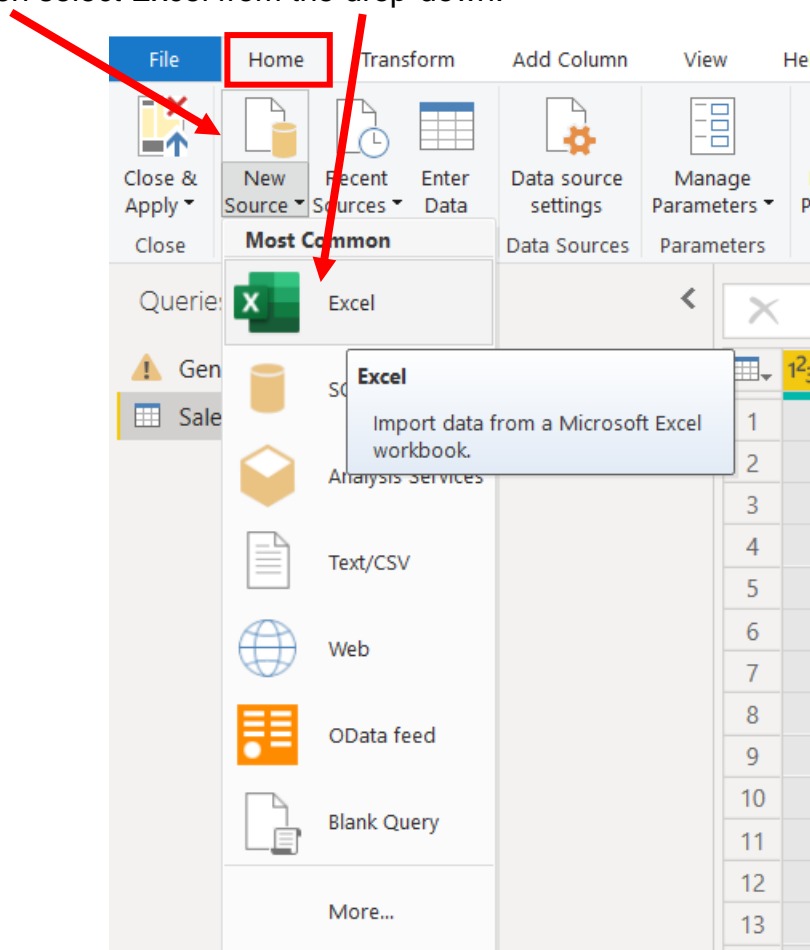
Data regarding the Product's ID, name, selling price, manufacturing cost and profit margin are stored in an Excel sheet titled "Products". Notice that the column headings are in the fifteen row.

Cuddly Stuffed Animals Product Information					
Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product	
101	Stuffed Lamb	20.00	8.75	11.25	
102	Stuffed Giraffe	22.00	9.75	12.25	
103	Stuffed Elephant	24.00	10.75	13.25	
104	Stuffed Unicorn	21.00	8.50	12.50	
105	Stuffed Horse	23.00	10.75	12.25	
106	Stuffed Pig	25.00	12.50	12.50	

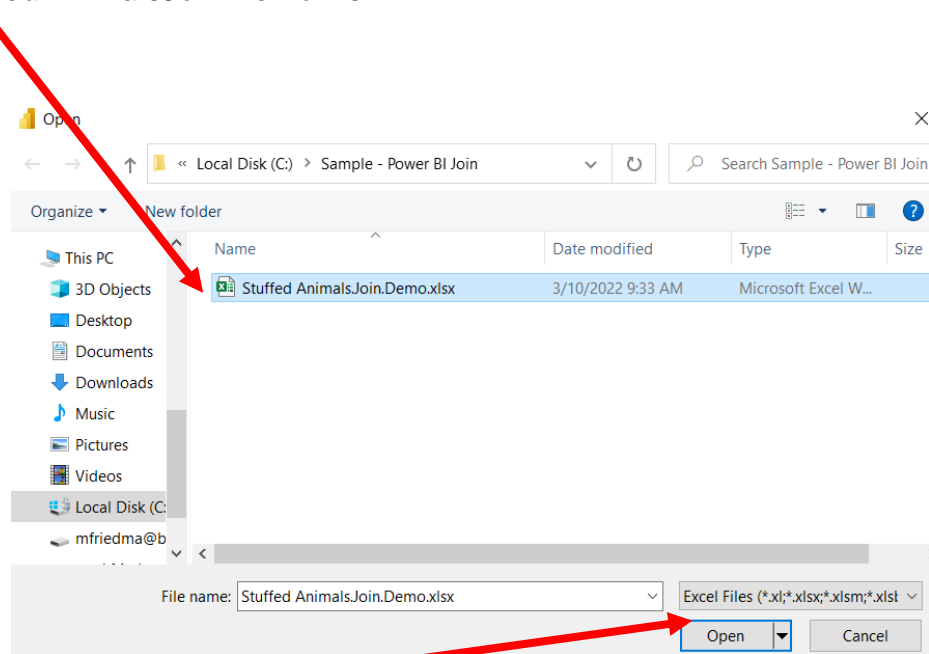
Operation 4: Get Data from New Source

Input the "Products" sheet from the Excel file

Import other datasets from the Power Query Editor. Under Home tab, select "New Source", then select Excel from the drop-down.

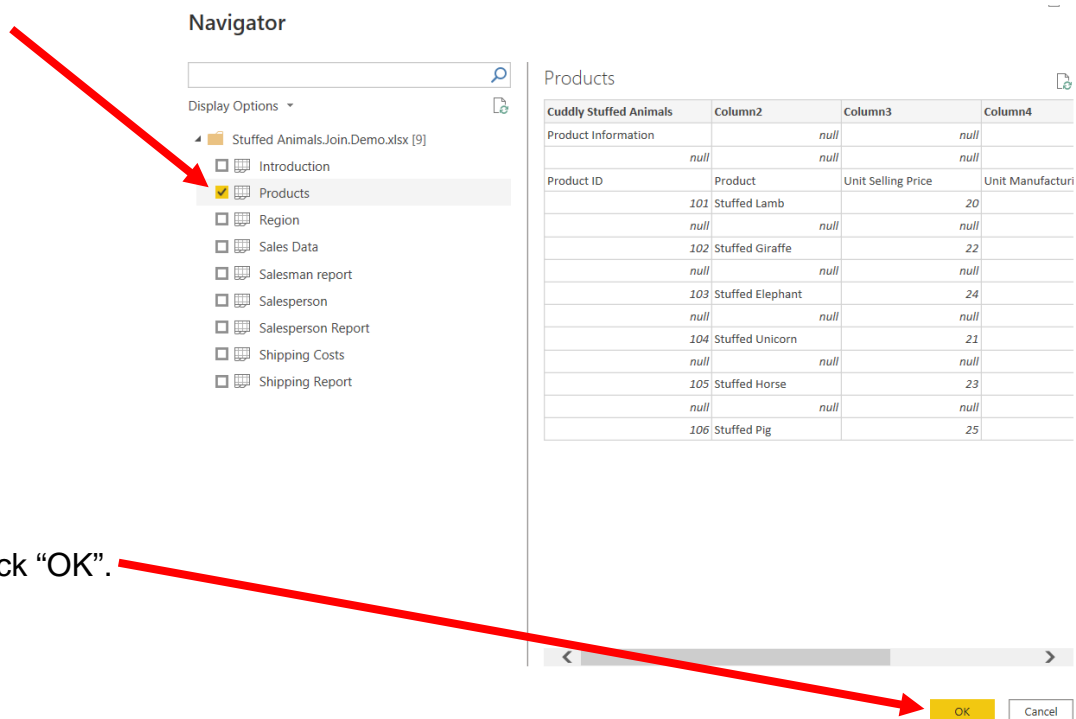


Select the file *Stuffed AnimalsJoin.Demo.xlsx*.



Select "Open".

Double click on "**Products**" or select the check box to the left of the sheet's name.



Then Click "OK".

The “Products” query is inserted. After a transformation is performed the changes are recoded in the “Applied Steps” section.

The screenshot shows the Power BI Query Editor with the 'Products' query selected. The data table is as follows:

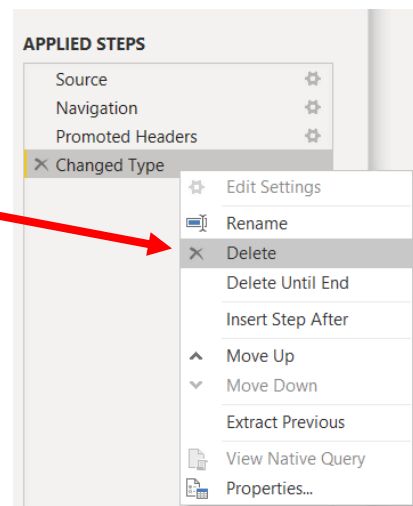
Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
101	Stuffed Lamb	20	8.75	11.25
102	Stuffed Giraffe	22	9.75	12.25
103	Stuffed Elephant	24	10.75	13.25

The program automatically added steps as it attempted to locate the headers. The program did not correctly find the row that contains the headers therefore, two steps must be deleted.



Select “Changed Type”.

Right click and select “Delete”.



Delete the step “Promoted Headers”, leaving us with two steps.

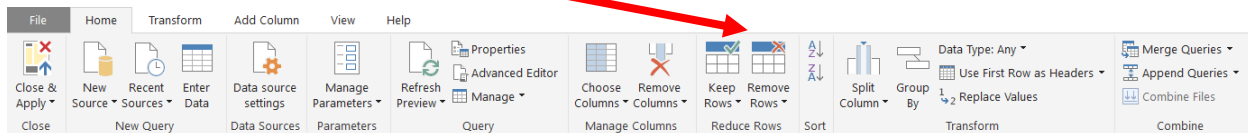


Operation 6: Fix the Headers

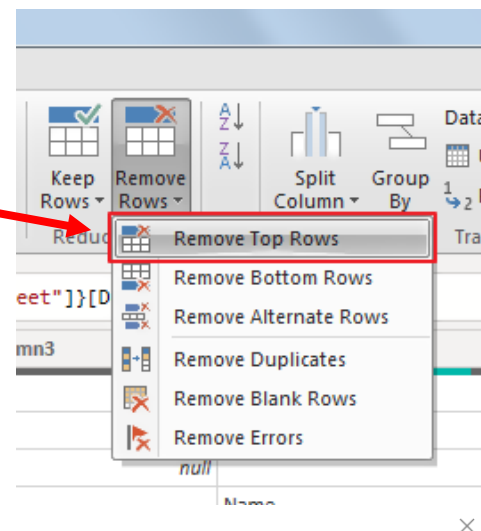
The field headers are in the fourth row of the inputted data. Remove the top three rows to move the headers to the first row and then assign that row as the headers.

	Column1	Column2	Column3	Column4	Column5
1	Cuddly Stuffed Animals	null	null	null	null
2	Product Information	null	null	null	null
3	null	null	null	null	null
4	Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
5	101	Stuffed Lamb	20	8.75	11.25
6	null	null	null	null	null

Select "Remove Rows".



Select "Remove Top Rows".



Enter a "3" to remove top three rows.

Remove Top Rows

Specify how many rows to remove from the top.

Number of rows

3

Then click OK.

OK

Cancel

= Table.Skip(#"Changed Type",2)

	ABC 123 Cuddly Stuffed Animals	ABC 123 Column2	ABC 123 Column3	ABC 123 Column4	ABC 123 Column5
1	Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
2	101	Stuffed Lamb	20	8.75	11.25
3	null	null	null	null	null
4	102	Stuffed Giraffe	22	9.75	12.25
5	null	null	null	null	null
6	103	Stuffed Elephant	24	10.75	13.25
7	null	null	null	null	null
8	104	Stuffed Unicorn	21	8.5	12.5

To make the first row in the current data as header, select “Use First Row as Headers”.

= Table.Skip(#"Changed Type",2)

	ABC 123 Cuddly Stuffed Animals	ABC 123 Column2	ABC 123 Column3	ABC 123 Column4	ABC 123 Column5
1	Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
2	101	Stuffed Lamb	20	8.75	11.25
3	null	null	null	null	null
4	102	Stuffed Giraffe	22	9.75	12.25
5	null	null	null	null	null
6	103	Stuffed Elephant	24	10.75	13.25
7	null	null	null	null	null
8	104	Stuffed Unicorn	21	8.5	12.5

After a transformation is performed the changes are recorded in the “Applied Steps” section. If a step was incorrectly completed, just delete the step redo.

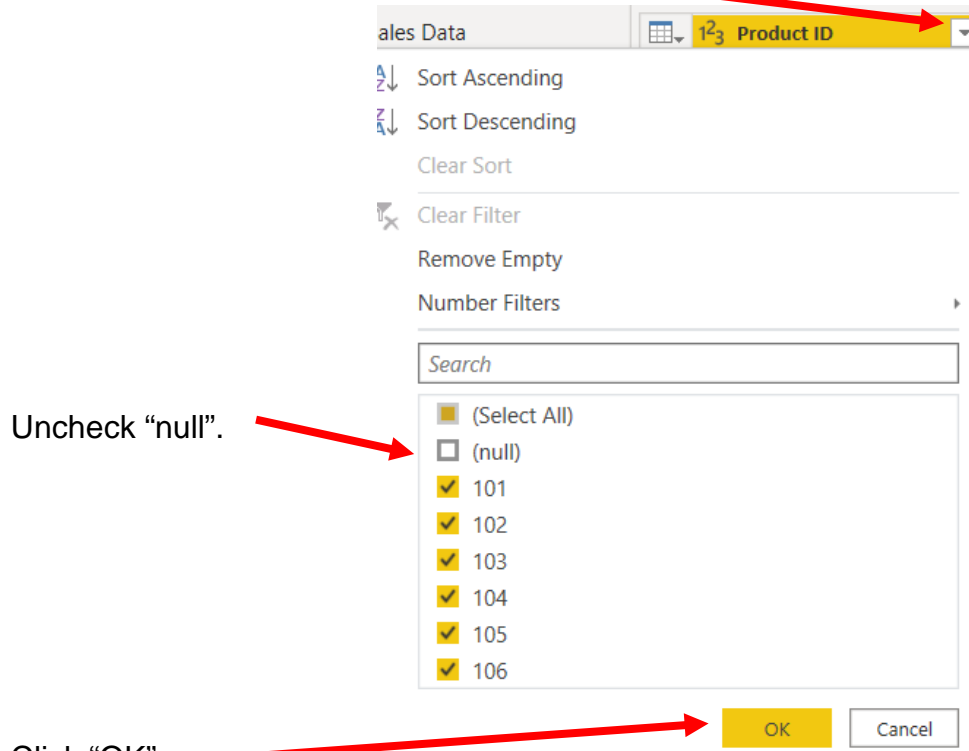
= Table.Skip(#"Changed Type",2)

	ABC 123 Cuddly Stuffed Animals	ABC 123 Column2	ABC 123 Column3	ABC 123 Column4	ABC 123 Column5
1	Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
2	101	Stuffed Lamb	20	8.75	11.25
3	null	null	null	null	null
4	102	Stuffed Giraffe	22	9.75	12.25
5	null	null	null	null	null
6	103	Stuffed Elephant	24	10.75	13.25
7	null	null	null	null	null
8	104	Stuffed Unicorn	21	8.5	12.5

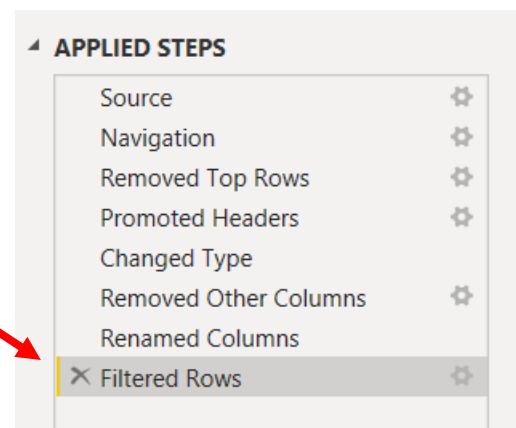
Operation 7 – Exclude rows that do not contain a number for “Product ID”

There are several rows that do not contain valid data in the “Product ID” column, and which must be removed. Nothing is being deleted from the source document. This will just exclude rows from the Power BI table.

Click on the drop-down in the “Product ID” column heading.



Notice that there are no longer any rows with nulls and Filtered Rows has been added to the “Applied Steps” section.



Requirement 8: Extract the data from the "Salesperson" sheet. Review the data and make any required corrections.

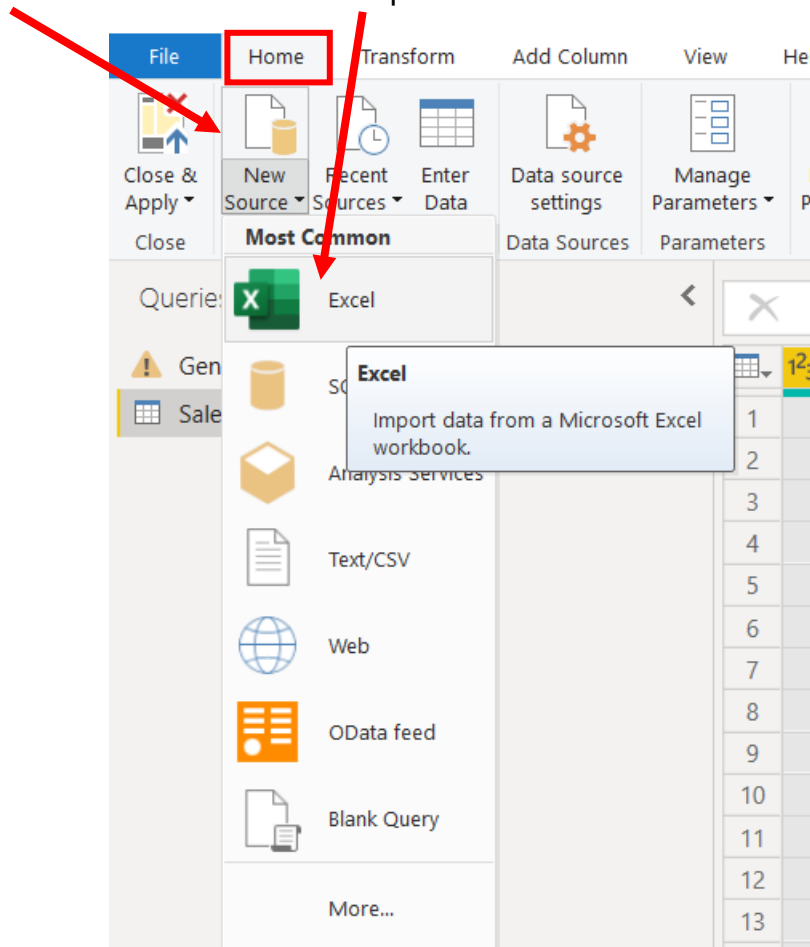
Data regarding the Salesperson's Code, name and Title are stored in an Excel sheet titled "Salesperson". Notice that the column headings are in the fifteenth row.

	C	D	E	F	G
10					
11					
12					
13					
14					
15	Code		Salesperson		Title
16	1301		James Polk		Sales Associate I
17	1302		Ulysses Grant		Senior Sales Associate
18	1303		Thomas Jefferson		Senior Sales Associate
19	1304		James Madison		Sales Associate I
20	1305		James Monroe		Sales Associate I
21	1306		Grover Cleveland		Senior Sales Associate
22					
23					

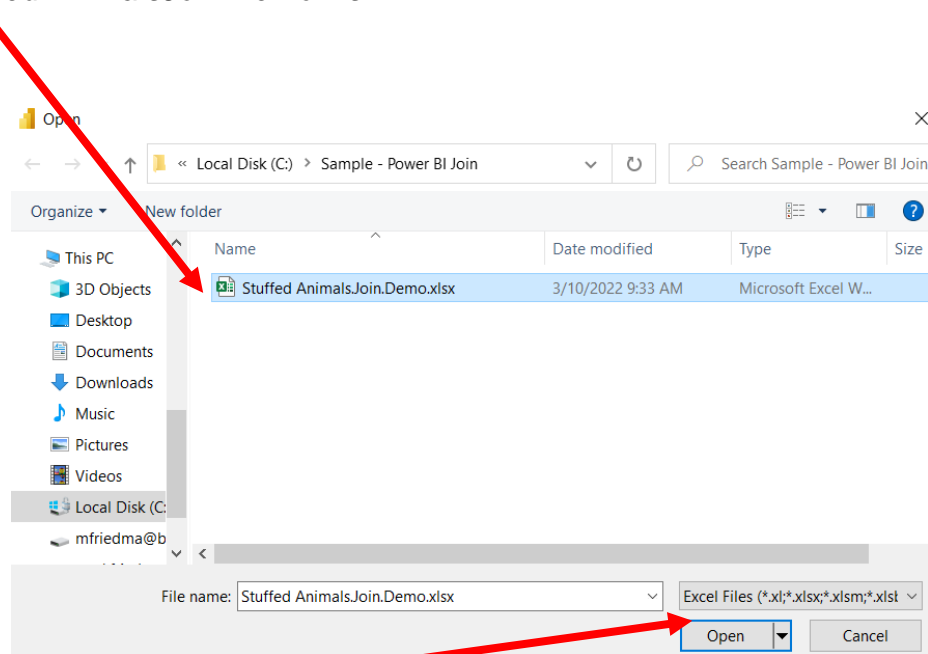
Introduction Sales Data Products **Salesperson** Region Shipping Costs ...

Operation 4: Get Data from New Source Input the "Salesperson" sheet from the Excel file

Import other datasets from the Power Query Editor. Under Home tab, select "New Source", then select Excel from the drop-down.

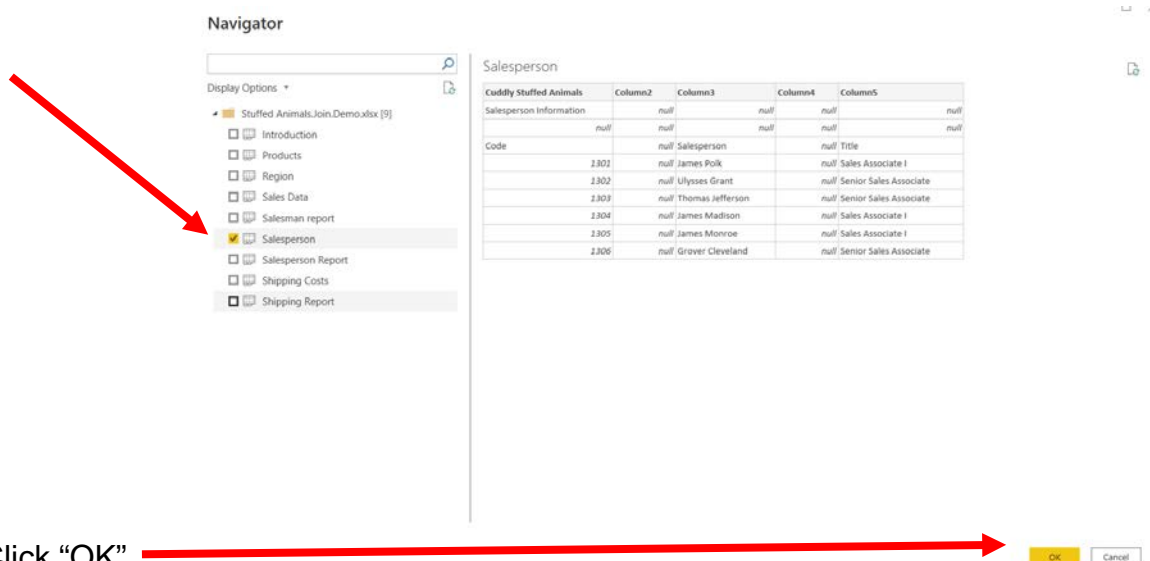


Select the file *Stuffed AnimalsJoin.Demo.xlsx*.



Select "Open".

Double click on "**Salesperson**" or select the check box to the left of the sheet's name.



Then Click "OK".

The “Salesperson” query is inserted. After a transformation is performed the changes are recoded in the “Applied Steps” section.

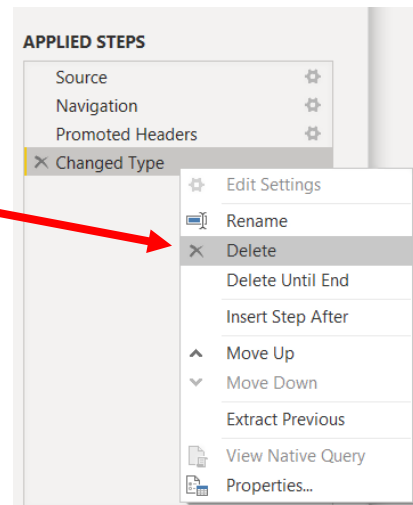
	ABC 123 Cuddly Stuffed Animals	ABC 123 Column2	ABC 123 Column3	ABC 123 Column4	ABC 123 Column5
1	Salesperson Information	null	null	null	null
2	null	null	null	null	null
3	Code	null	Salesperson	null	Title
4	1301	null	James Polk	null	Sales Associate I
5	1302	null	Ulysses Grant	null	Senior Sales Associate
6	1303	null	Thomas Jefferson	null	Senior Sales Associate
7	1304	null	James Madison	null	Sales Associate I
8	1305	null	James Monroe	null	Sales Associate I

The program automatically added steps as it attempted to locate the headers. The program did not correctly find the row that contains the headers therefore, two steps must be deleted.



Select “Changed Type”.

Right click and select “Delete”.



Delete the step “Promoted Headers”, leaving us with two steps.

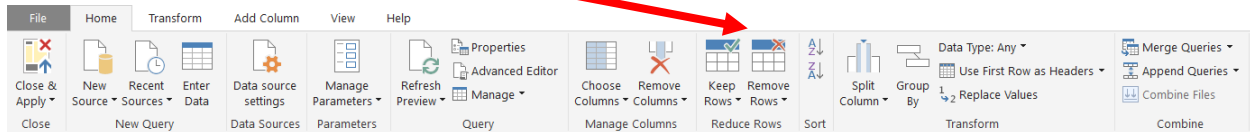


Operation 6: Fix the Headers

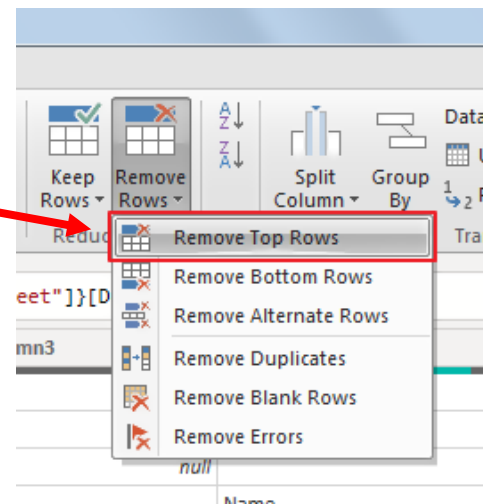
The field headers are in the fourth row of the inputted data. Remove the top three rows to move the headers to the first row and then assign that row as the headers.

	Column1	Column2	Column3	Column4	Column5
1	Cuddly Stuffed Animals	null	null	null	null
2	Salesperson Information	null	null	null	null
3	null	null	null	null	null
4	Code	null	Salesperson	null	Title
5	1301	null	James Polk	null	Sales Associate I
6	1302	null	Ulysses Grant	null	Senior Sales Associate
7	1303	null	Thomas Jefferson	null	Senior Sales Associate
8	1304	null	James Madison	null	Sales Associate I
9	1305	null	James Monroe	null	Sales Associate I
10	1306	null	Grover Cleveland	null	Senior Sales Associate

Select "Remove Rows".



Select "Remove Top Rows".



Enter a "3" to remove top three rows.

Remove Top Rows

Specify how many rows to remove from the top.

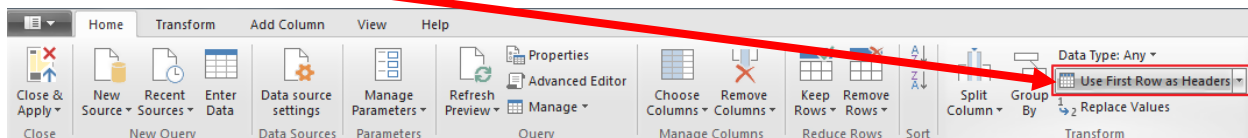
Number of rows

Then click OK.

fx = Table.Skip(Salesperson_Sheet,3)

	Column1	Column2	Column3	Column4	Column5
1	Code		null	Salesperson	null
2	1301		null	James Polk	null
3	1302		null	Ulysses Grant	null
4	1303		null	Thomas Jefferson	null
5	1304		null	James Madison	null
6	1305		null	James Monroe	null
7	1306		null	Grover Cleveland	null

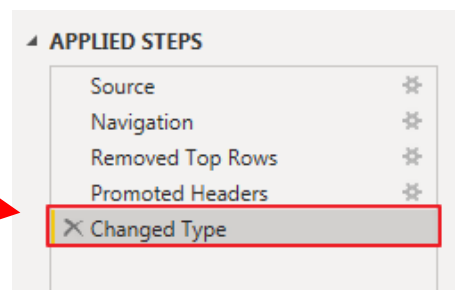
To make the first row in the current data as header, select “Use First Row as Headers”.



fx = Table.TransformColumnTypes(#"Promoted Headers",{{"Code", Int64.Type}, {"Column2", type any}, {"Salesperson"

	Code	Column2	Salesperson	Column4	Title
1	1301		null	James Polk	null
2	1302		null	Ulysses Grant	null
3	1303		null	Thomas Jefferson	null
4	1304		null	James Madison	null
5	1305		null	James Monroe	null
6	1306		null	Grover Cleveland	null

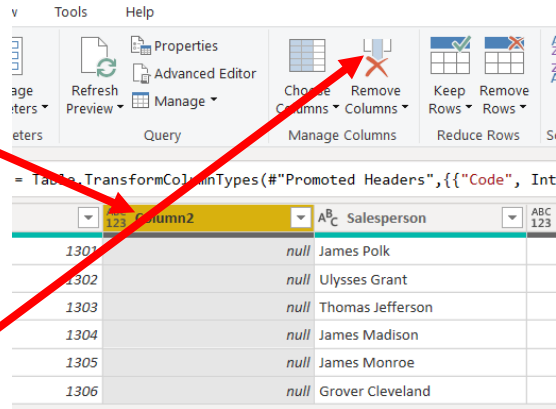
After a transformation is performed the changes are recorded in the “Applied Steps” section. If a step was incorrectly completed, just delete the step redo.



Operation 7 – Exclude columns that do not contain values

There are columns rows that do not contain valid data, and which must be removed. Nothing is being deleted from the source document. This will just exclude rows from the Power BI table.

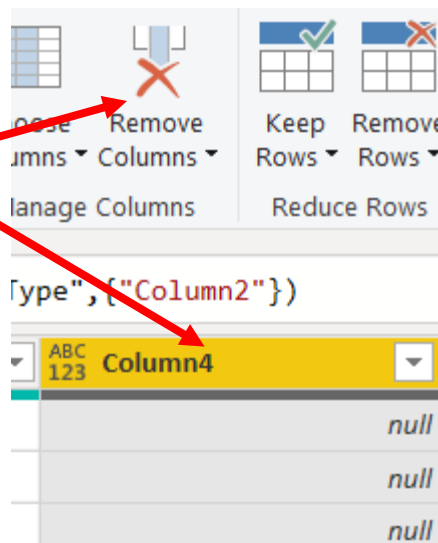
Select column 2.



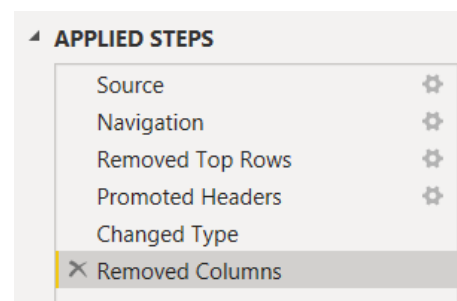
Select "Remove Columns".

Select Column 4.

Select "Remove Columns".

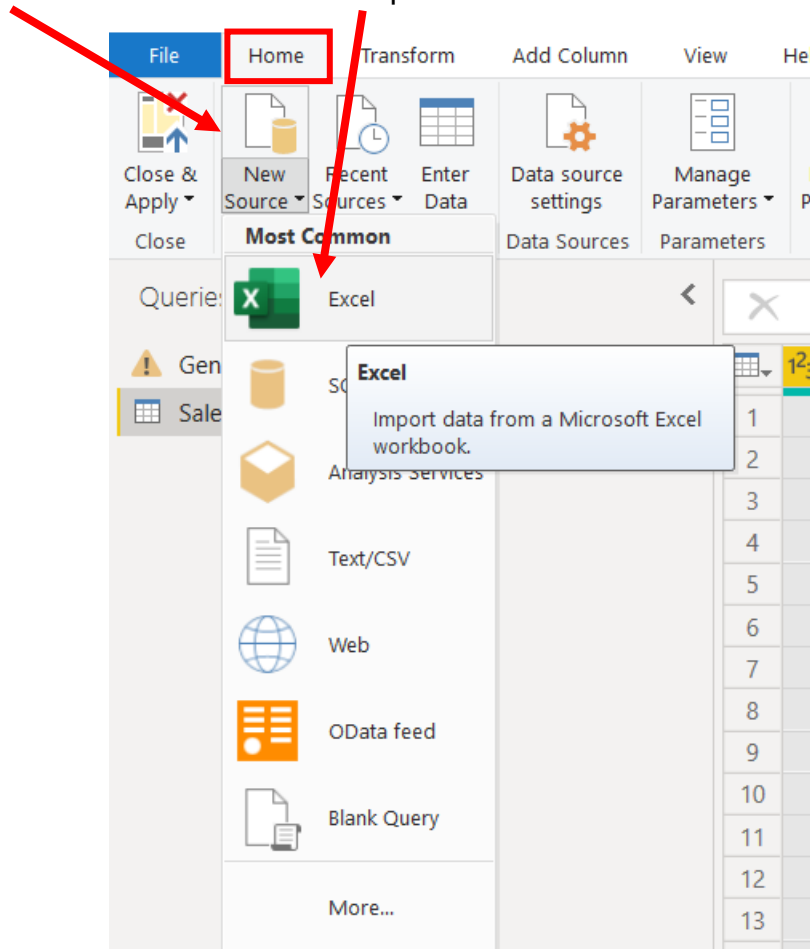


Notice that there are no longer any columns with nulls and Removed Columns has been added to the "Applied Steps" section.

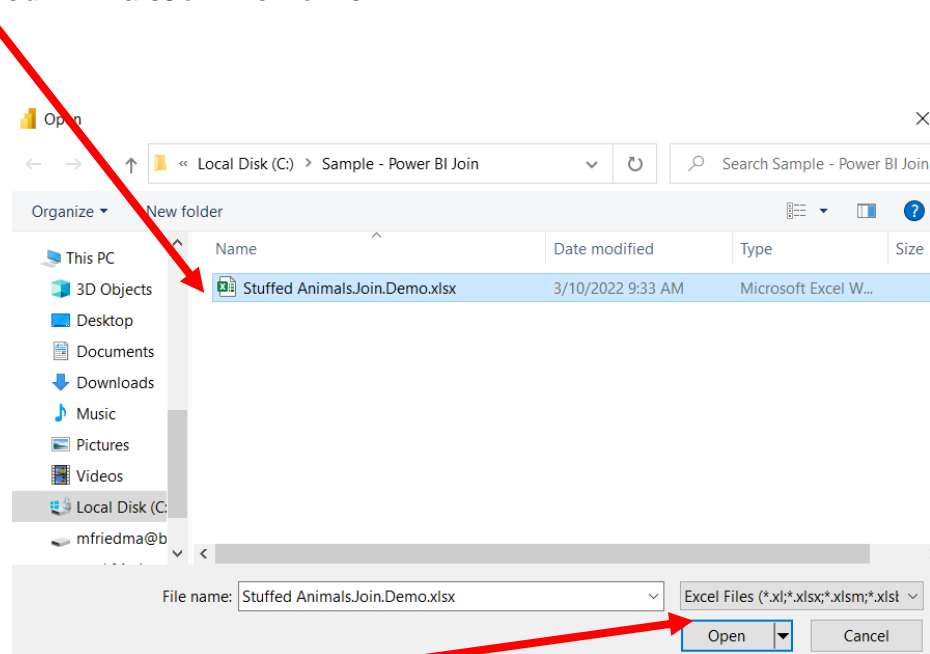


Operation 9: Get Data from New Source Input the “Shipping Cost” sheet from the Excel file

Import other datasets from the Power Query Editor. Under Home tab, select “New Source”, then select Excel from the drop-down.



Select the file *Stuffed AnimalsJoin.Demo.xlsx*.



Select "Open".

Double click on **“Shipping Costs”** or select the check box to the left of the sheet's name.

Navigator

Shipping Costs

Column1 Cuddly Stuffed Animals Column3 Column4 Column5 Colu

null	Shipping Cost Per Unit	null	null	null	
null	null	null	null	null	
null	null	null	null	null	
null	null	null	null	null	
null	null	null	Region	null	null
null	Product ID	Midwest	Northeast	South	West
null	101	2.15	2.12	2.08	
null	102	2.11	2.08	2.04	
null	103	2.14	2.11	2.07	
null	104	2.12	2.09	2.05	
null	105	2.07	2.04	2	
null	106	2.02	1.99	1.95	
null	null	null	null	null	
null	null	null	null	null	
null	null	null	null	null	
null	null	null	null	null	
null	null	null	null	null	

Display Options ▾

Stuffed Animals.Join.Demo.xlsx [6]

- ☐ Introduction
- ☐ Products
- ☐ Region
- ☐ Sales Data
- ☐ Salesperson
- ☒ Shipping Costs

OK Cancel

Select “OK” and the data gets loaded into the Power Query editor window.

The “Shipping Cost” query is now inserted.

Queries [4]

Sales Data
Products
Salesperson
Shipping Costs

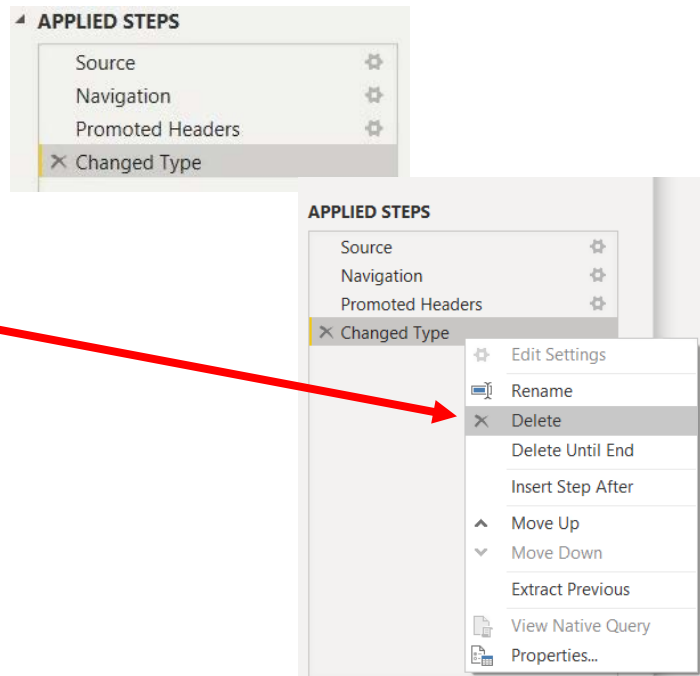
Table.TransformColumnTypes(#"Promoted Headers",{"Column1", type any}, {"Cuddly Stuffed Animals ", type any},

	Column1	Cuddly Stuffed Animals	Column3	Column4	Column5	Column6
1	null	Shipping Cost Per Unit	null	null	null	
2	null	null	null	null	null	
3	null	null	null	null	null	
4	null	null	null	null	null	
5	null	null	Region	null	null	
6	null	Product ID	Midwest	Northeast	South	West
7	null	101	2.15	2.12	2.08	
8	null	102	2.11	2.08	2.04	
9	null	103	2.14	2.11	2.07	
10	null	104	2.12	2.09	2.05	
11	null	105	2.07	2.04	2	

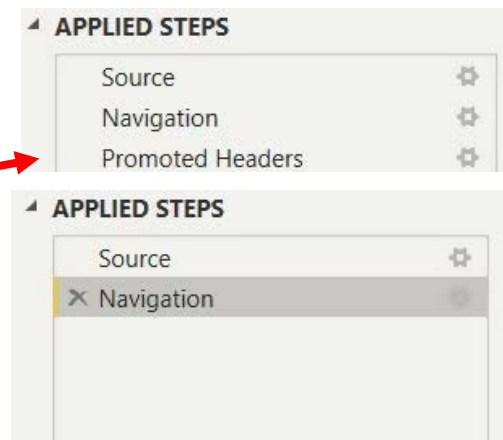
The program automatically added steps and it did not correctly find the row that contains the "Headers".

Select "Changed Type".

Right click and select "Delete".



Delete the step "Promoted Headers", leaving us with two steps.

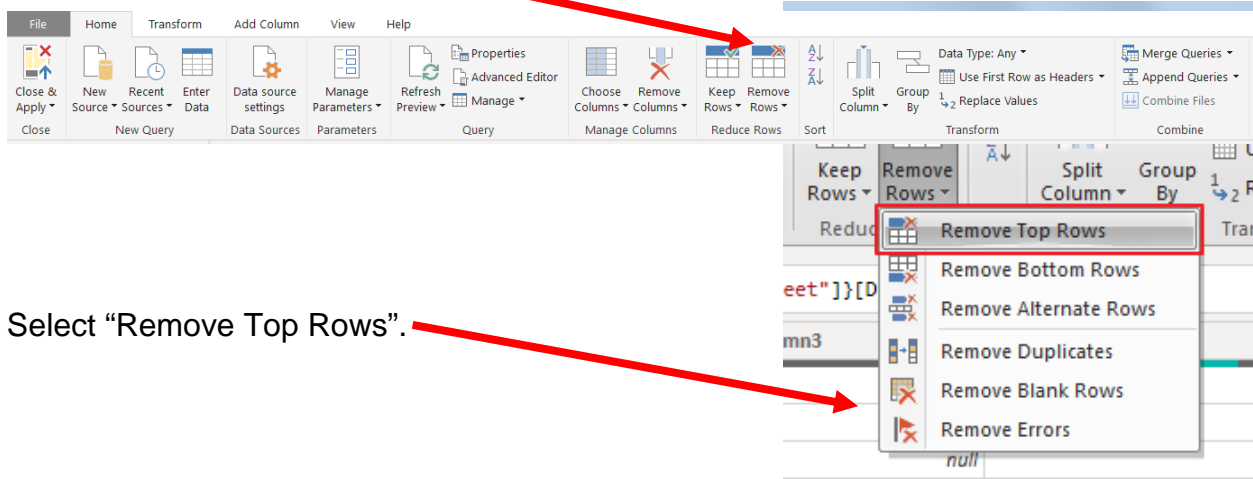


Operation 10: Fix the Headers

The field headers are in the seventh row of the source document. Remove the top six rows to move the headers to the first row and then make them to the Query Editor's headers.

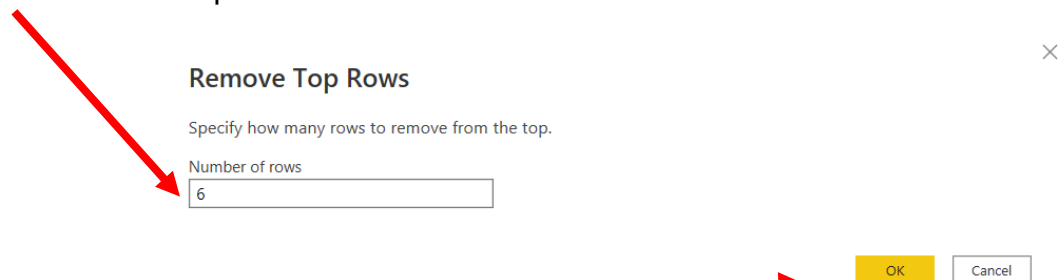
	Column1	Column2	Column3	Column4	Column5	Column6	Column7
1	null	Cuddly Stuffed Animals	null	null	null	null	null
2	null	Shipping Cost Per Unit	null	null	null	null	null
3	null	null	null	null	null	null	null
4	null	null	null	null	null	null	null
5	null	null	null	null	null	null	null
6	null	null	Region	null	null	null	null
7	null	Product ID	Midwest	Northeast	South	West	
8	null	101	2.15	2.12	2.08	2.02	
9	null	102	2.11	2.08	2.04	1.98	
10	null	103	2.14	2.11	2.07	2.01	
11	null	104	2.12	2.09	2.05	1.99	
12	null	105	2.07	2.04	2	1.94	
13	null	106	2.02	1.99	1.95	1.89	
14	null	null	null	null	null	null	
15	null	null	null	null	null	null	
16	null	null	null	null	null	null	
17	null	null	null	null	null	null	

Select "Remove Rows".



Select "Remove Top Rows".

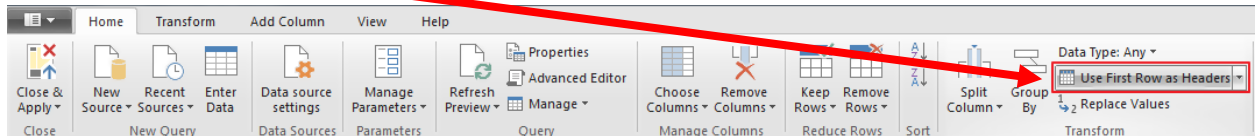
Enter a "6" to remove top five rows.



Then click OK

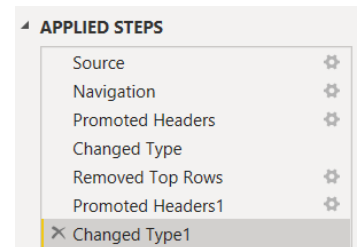
Column1	Cuddly Stuffed Animals	Column3	Column4	Column5	Column6	Column7
1	null	Product ID	Midwest	Northeast	South	West
2	null	101	2.15	2.12	2.08	2.02
3	null	102	2.11	2.08	2.04	1.98
4	null	103	2.14	2.11	2.07	2.01
5	null	104	2.12	2.09	2.05	1.99

To make the first row in the current data the header, select “Use First Row as Headers”.



Column1	Product ID	Midwest	Northeast	South	West	Column7
1	null	101	2.15	2.12	2.08	2.02
2	null	102	2.11	2.08	2.04	1.98
3	null	103	2.14	2.11	2.07	2.01
4	null	104	2.12	2.09	2.05	1.99
5	null	105	2.07	2.04	2	1.94
6	null	106	2.02	1.99	1.95	1.89
7	null	null	null	null	null	null
8	null	null	null	null	null	null
9	null	null	null	null	null	null

After you perform a transformation, the changes are recorded in the “Applied Steps” section. If a step was incorrectly done, just delete the step redo.



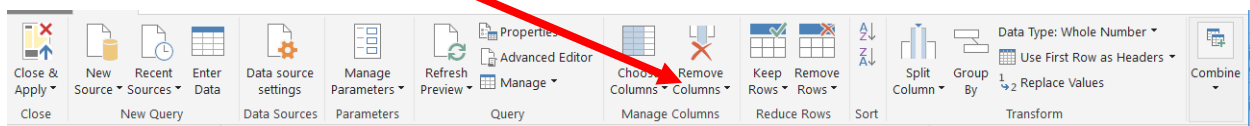
Operation 11: Clean up the columns:**Remove extra columns**

Select the columns “Product ID” up until “West” by clicking on the heading “Product ID”. Hold down the shift key and at the same time click on the column heading “West”.

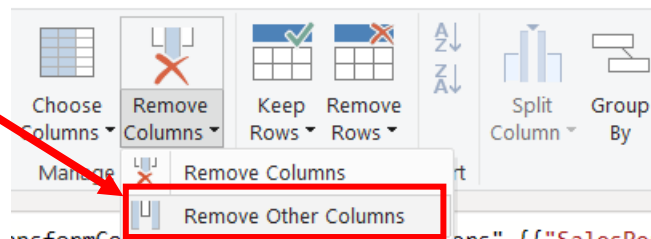
Table.TransformColumnTypes(#Promoted Headers1,({"Column1", type any}, {"Product ID", Int64.Type}, {"Midwest", type number}, {"Northeast", type number}, {"South", type any}, {"West", type number}, {"Column7", type any}, {"Column8", type any}, {"Column9", type any}))

	Column1	Product ID	1.2 Midwest	1.2 Northeast	1.2 South	1.2 West	Column7	Column8	Column9
1		101	2.15	2.12	2.08	2.02	null	null	null
2		102	2.11	2.08	2.04	1.98	null	null	null
3		103	2.14	2.11	2.07	2.01	null	null	null
4		104	2.12	2.09	2.05	1.99	null	null	null
5		105	2.07	2.04	2	1.94	null	null	null
6		106	2.02	1.99	1.95	1.89	null	null	null
7		null	null	null	null	null	null	null	null
8		null	null	null	null	null	null	null	null
9		null	null	null	null	null	null	null	null
10		null	null	null	null	null	null	null	null
11		null	null	null	null	null	null	null	null

Click on the “Remove Columns” drop-down.



Select “Remove Other Columns”.



	Product ID	1.2 Midwest	1.2 Northeast	1.2 South	1.2 West
1	101	2.15	2.12	2.08	2.02
2	102	2.11	2.08	2.04	1.98
3	103	2.14	2.11	2.07	2.01
4	104	2.12	2.09	2.05	1.99
5	105	2.07	2.04	2	1.94
6	106	2.02	1.99	1.95	1.89
7	null	null	null	null	null
8	null	null	null	null	null
9	null	null	null	null	null
10	null	null	null	null	null
11	null	null	null	null	null

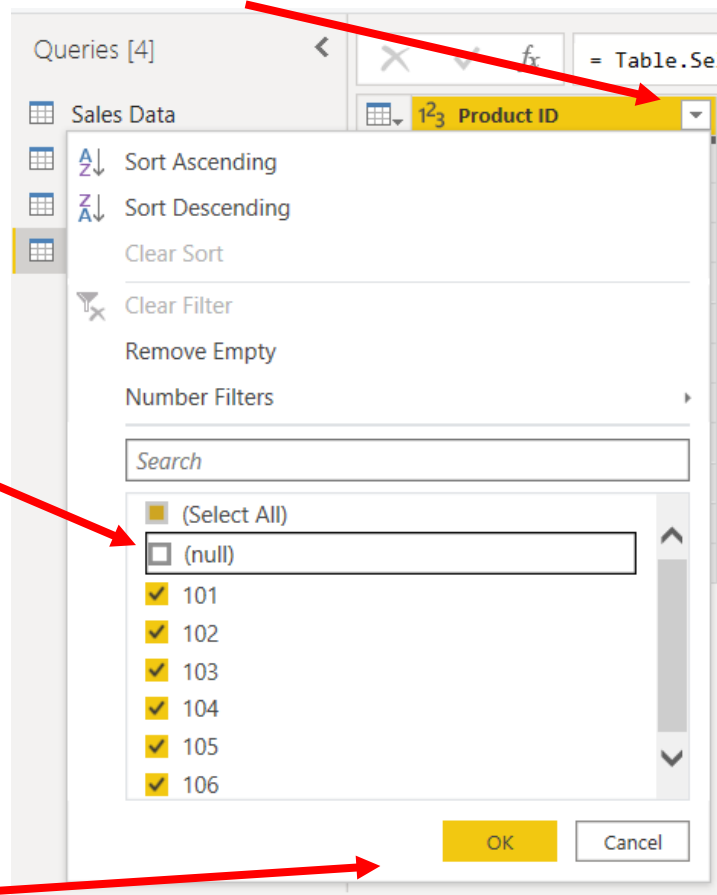
Operation 12 – Exclude rows that do not contain a number for “Product ID #”

There are several rows that do not contain valid data in the “Product ID” column, which can be removed. Nothing is being deleted from the source. This will just exclude records from the final table.

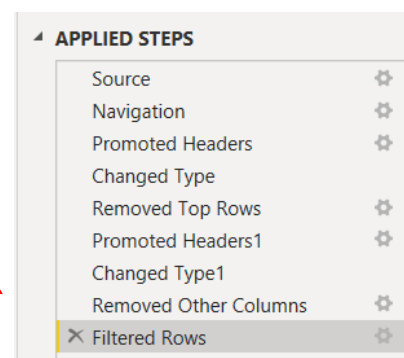
Click on the drop-down in the “Product ID” column.

Uncheck “null”.

Click “OK”.



There are no rows with nulls and a Filtered Rows is added to the Applied steps section.



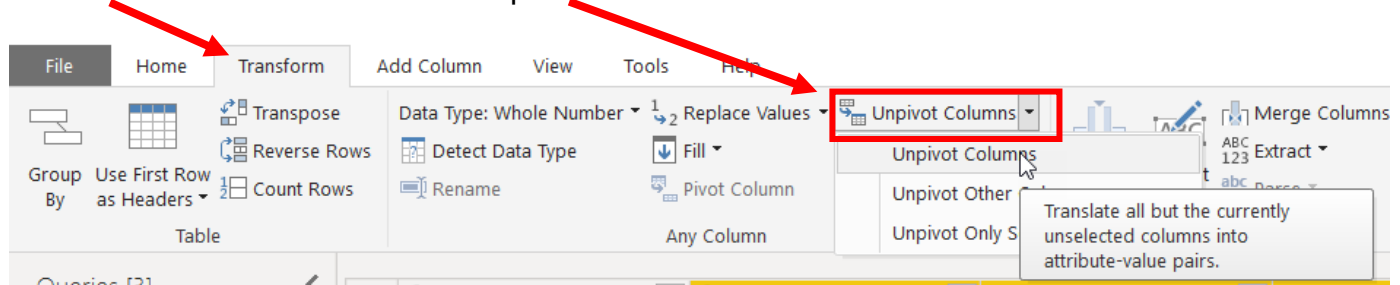
Operation 13: Unpivot columns

Unpivot all the data in the “Region” columns producing a table of shipping cost every combination of “Product ID” and “Region”.

Select the columns “Midwest”, “Northeast”, “South” and “West”. You can do that by clicking on “Midwest”, then hold down the Shift key and select “West”

	Product ID	Midwest	Northeast	South	West
1	101	2.15	2.12	2.08	2.02
2	102	2.11	2.08	2.04	1.98
3	103	2.14	2.11	2.07	2.01
4	104	2.12	2.09	2.05	1.99
5	105	2.07	2.04	2	1.94
6	106	2.02	1.99	1.95	1.89

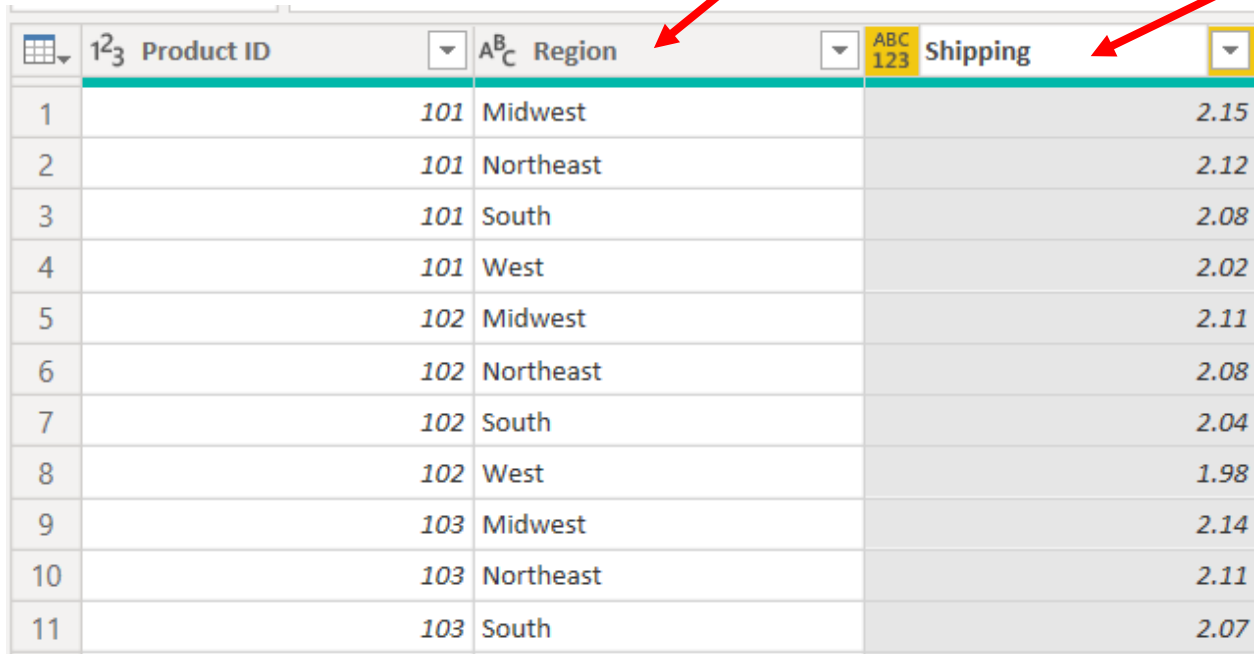
Select Transform and then select “Unpivot Columns”.



= Table.UnpivotOtherColumns("#Filtered Rows", {"Product ID"})

	Product ID	Attribute	Value
1	101	Midwest	2.15
2	101	Northeast	2.12
3	101	South	2.08
4	101	West	2.02
5	102	Midwest	2.11
6	102	Northeast	2.08
7	102	South	2.04
8	102	West	1.98
9	103	Midwest	2.14
10	103	Northeast	2.11
11	103	South	2.07
12	103	West	2.01
13	104	Midwest	2.12
14	104	Northeast	2.09
15	104	South	2.05
16	104	West	1.99
17	105	Midwest	2.07
18	105	Northeast	2.04

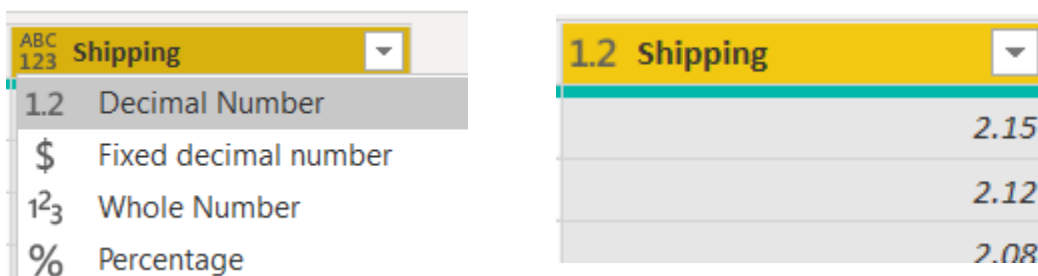
Rename the columns “Attribute” & “Value” to “Region” & “Shipping” respectively by double clicking on the headers.



	1 ² ₃ Product ID	A ^B _C Region	ABC 123 Shipping
1	101	Midwest	2.15
2	101	Northeast	2.12
3	101	South	2.08
4	101	West	2.02
5	102	Midwest	2.11
6	102	Northeast	2.08
7	102	South	2.04
8	102	West	1.98
9	103	Midwest	2.14
10	103	Northeast	2.11
11	103	South	2.07

The data in the “Shipping” will be used to calculate the shipping cost for each sales order should be a decimal.

Click on the type of variable and change to a “Decimal Number”.



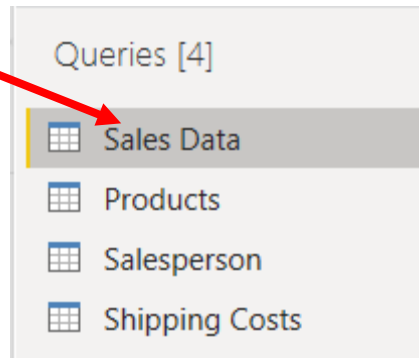
ABC 123 Shipping
1.2 Decimal Number
\$ Fixed decimal number
1 ² ₃ Whole Number
% Percentage

1.2 Shipping
2.15
2.12
2.08

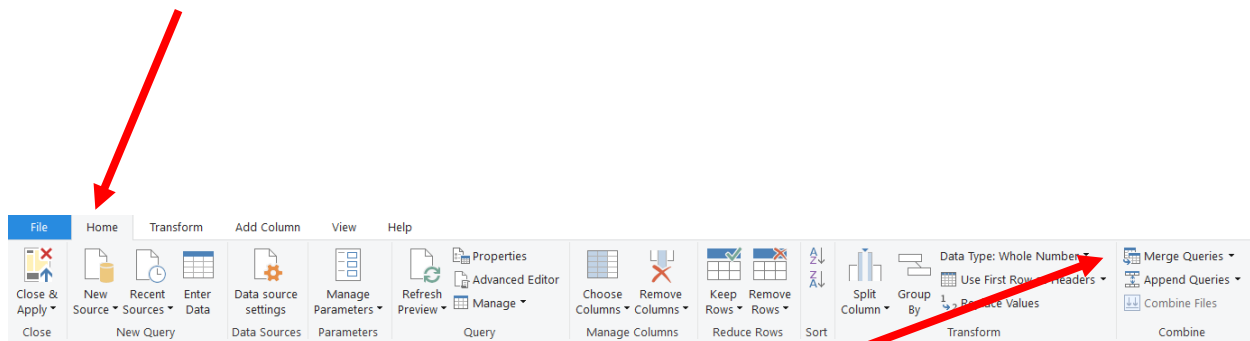
Operation 14: Merge datasets.

Combining the data from the “Sales Data” query with the “Salesperson” query.

We will merge the data sets two at a time. Data Set 1 merges with Data Set 2 to form Data Set 1&2. Data Set 1&2 is then merged with Data Set 3 to form Data Set 1&2&3. Data Set 1&2&3 is then merged with Data Set 4 to form Data Set 1&2&3&4. Start with the “Sales Data” query by navigating to “Queries and selecting “Sales Data”.



On the “Home” tab.



select “Merge Queries”.

By default, the current query will be the first table.

Select the second table, "Products" from the drop-down.

Make the selection of the common field(s) between the two tables.

In this case, it would be "Product #" from the first dataset.

and "Product ID" from the second dataset.

The number of matches is reported, 5017 of 5017.

Click OK.

Merge

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

Sales Data

Sales Order #	Salesperson #	Region	State	Product #	Units Sold
35005	1303	West	WA	103	120
35006	1302	West	AZ	101	96
35009	1305	West	CA	102	156
35011	1305	West	CO	101	144
35014	1302	Midwest	IN	106	84

Products

Sales Data (Current)

Salesperson

Shipping Costs

No preview is available

Join Kind

Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

> Fuzzy matching options

Merge

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

Sales Data

Sales Order #	Salesperson #	Region	State	Product #	Units Sold
35005	1303	West	WA	103	120
35006	1302	West	AZ	101	96
35009	1305	West	CA	102	156
35011	1305	West	CO	101	144
35014	1302	Midwest	IN	106	84

Products

Product ID	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
101	stuffed Lamb	20	8.75	11.25
102	stuffed Giraffe	22	9.75	12.25
103	stuffed Elephant	24	10.75	13.25
104	stuffed Unicorn	21	8.5	12.5
105	stuffed Horse	23	10.75	12.25

Join Kind

Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

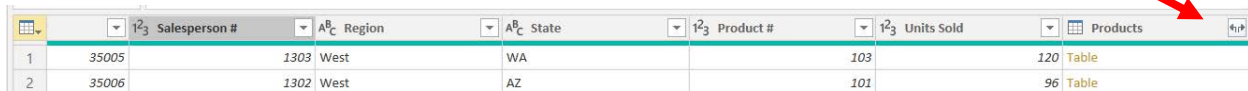
> Fuzzy matching options

The selection matches 5017 of 5017 rows from the first table.

OK

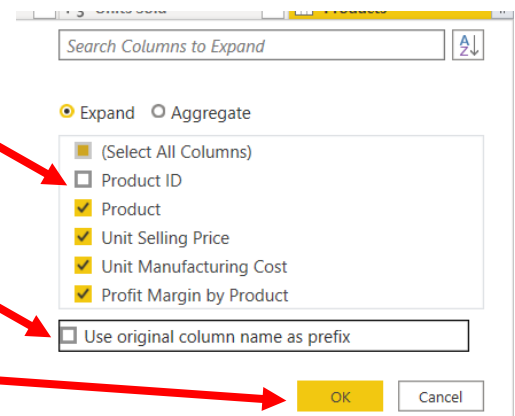
Cancel

This will add a new column called “Products” that contains all the fields from the Products Query. Click on the button next to the header.



	Salesperson #	Region	State	Product #	Units Sold	Products
1	35005	1303	West	WA	103	120 Table
2	35006	1302	West	AZ	101	96 Table

Uncheck “Product ID” and uncheck “Use original column name as prefix” then click OK.



Search Columns to Expand

☒ Expand ☐ Aggregate

(Select All Columns)

☐ Product ID

☒ Product

☒ Unit Selling Price


☒ Unit Manufacturing Cost

☒ Profit Margin by Product

☐ Use original column name as prefix

OK Cancel

This will load the four new columns.



	Units Sold	Product	Unit Selling Price	Unit Manufacturing Cost	Profit Margin by Product
103	120	Stuffed Elephant	24	10.75	13.25
103	72	Stuffed Elephant	24	10.75	13.25
101	96	Stuffed Lamb	20	8.75	11.25
101	144	Stuffed Lamb	20	8.75	11.25
102	156	Stuffed Giraffe	22	9.75	12.25
106	84	Stuffed Pig	25	12.5	12.5
106	84	Stuffed Pig	25	12.5	12.5
105	132	Stuffed Horse	23	10.75	12.25
103	120	Stuffed Elephant	24	10.75	13.25
103	132	Stuffed Elephant	24	10.75	13.25
103	144	Stuffed Elephant	24	10.75	13.25
102	132	Stuffed Giraffe	22	9.75	12.25
102	108	Stuffed Giraffe	22	9.75	12.25
103	120	Stuffed Elephant	24	10.75	13.25
101	180	Stuffed Lamb	20	8.75	11.25
105	132	Stuffed Horse	23	10.75	12.25
103	48	Stuffed Elephant	24	10.75	13.25
102	84	Stuffed Giraffe	22	9.75	12.25

Operation 14: Merge datasets.

We merged Data Set 1 with Data Set 2 to form Data Set 1&2. The “Sales Data” is now a combination of the “Sales Data” query with the “Products” query. We will now add Data set 3, “Salesperson”.

Start with the “Sales Data” query by navigating to “Queries and selecting “Sales Data”.

The image shows a screenshot of the Power BI Desktop interface. On the left, the 'Queries' pane is visible, listing four queries: 'Sales Data', 'Products', 'Salesperson', and 'Shipping Costs'. A red arrow points from the text 'select “Sales Data”.' to the 'Sales Data' query in this list. On the right, the 'Home' tab of the ribbon is selected. A red arrow points from the text 'On the “Home” tab,' to the 'Home' tab label. Another red arrow points from the text 'select “Merge Queries”.' to the 'Merge Queries' button in the 'Combine' group of the 'Home' tab ribbon.

On the “Home” tab,

select “Merge Queries”.

By default, the current query will be the first table.

Select the second table, "Salesperson" from the drop-down.

Merge

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

Sales Data

Sales Order #	Salesperson #	Region	State	Product #	Units Sold	Product	Unit Selling Price
35005	1303	West	WA	103	120	Stuffed Elephant	24
35017	1305	West	NV	103	72	Stuffed Elephant	24
35006	1302	West	AZ	101	96	Stuffed Lamb	20
35011	1305	West	CO	101	144	Stuffed Lamb	20

Products
Sales Data (Current)
Salesperson
Shipping Costs

No preview is available

Join Kind
Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

> Fuzzy matching options

OK Cancel

Make the selection of the common field(s) between the two tables.

In this case, it would be "Product #" from the first dataset,

and "Product ID" from the second dataset.

The number of matches is reported, 5017 of 5017.

Merge

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

Sales Data

Sales Order #	Salesperson #	Region	State	Product #	Units Sold	Product	Unit Selling Price
35005	1303	West	WA	103	120	Stuffed Elephant	24
35017	1305	West	NV	103	72	Stuffed Elephant	24
35006	1302	West	AZ	101	96	Stuffed Lamb	20
35011	1305	West	CO	101	144	Stuffed Lamb	20

Salesperson

Code	Salesperson	Title
1301	James Polk	Sales Associate I
1302	Ulysses Grant	Senior Sales Associate
1303	Thomas Jefferson	Senior Sales Associate
1304	James Madison	Sales Associate I
1305	James Monroe	Sales Associate I

Join Kind
Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

> Fuzzy matching options

✓ The selection matches 5017 of 5017 rows from the first table.

OK Cancel

Click OK.

This will add a new column called “Salesperson” that contains all the fields from the Salesperson Query. Click on the button next to the header.

t Manufacturing Cost	1.2 Profit Margin by Product	Salesperson
10.75	13.25	Table
10.75	13.25	Table
8.75	11.25	Table
8.75	11.25	Table
9.75	12.25	Table
13.5	13.5	Table

Uncheck “Code” and uncheck “Use original column name as prefix” then click OK.

Search Columns to Expand

Expand Aggregate

(Select All Columns)

☐ Code

☒ Salesperson

☒ Title

☐ Use original column name as prefix

OK Cancel

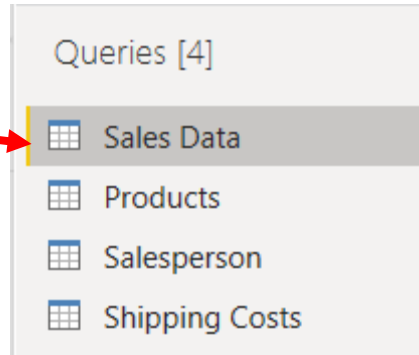
This will load the two new columns to the Sales Query.

1.2 Profit Margin by Product	A ^B _C Salesperson.1	A ^B _C Title
13.25	Thomas Jefferson	Senior Sales Associate
12.5	James Polk	Sales Associate I
13.25	James Monroe	Sales Associate I
11.25	James Monroe	Sales Associate I
12.25	James Monroe	Sales Associate I
11.25	Ulysses Grant	Senior Sales Associate
12.5	Ulysses Grant	Senior Sales Associate
12.25	Grover Cleveland	Senior Sales Associate
13.25	James Polk	Sales Associate I
13.25	James Monroe	Sales Associate I
13.25	James Monroe	Sales Associate I
12.25	Ulysses Grant	Senior Sales Associate
12.25	Thomas Jefferson	Senior Sales Associate

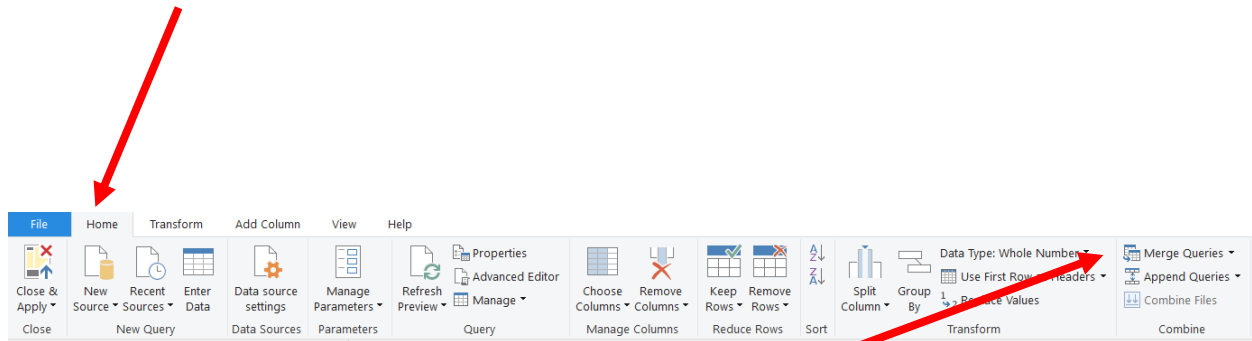
Operation 15: Merge datasets.

We merged Data Set 1 with Data Set 2 and Data Set 3 to form Data Set 1&2&3. The “Sales Data” is now a combination of the “Sales Data” query with the “Product” query and the “Salesperson” query. We will now add Data set 4, the “Shipping Costs” query.

Start with the “Sales Data” query by navigating to “Queries and selecting “Sales Data”.



On the “Home” tab,



select “Merge Queries”.

By default, the current query will be the first table.

Select the second table, "Shipping Costs" from the drop-down.

Merge

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

Sales Data

Sales Order #	Salesperson #	Region	State	Product #	Units Sold	Product	Unit Selling Price
35005	1303	West	WA	103	120	Stuffed Elephant	24
35025	1301	Northeast	CT	106	84	Stuffed Pig	25
35017	1305	West	NV	103	72	Stuffed Elephant	24
35011	1305	West	CO	101	144	Stuffed Lamb	20

Products
Sales Data (Current)
Salesperson
Shipping Costs

No preview is available

Join Kind

Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

> Fuzzy matching options

OK

Cancel

The unique key that is common to both queries is a combination of "Product #"/"Product ID" and "Region".

To select two columns as the joining condition, first select the first column then Ctrl+Click on the second column. The order of selection is also very important. Select the "Product" first followed by "Region".

Merge

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

Sales Data

Sales Order #	Salesperson #	Region	State	Product #	Units Sold	Product	Unit Selling Price
35005	1303	West	WA	103	120	Stuffed Elephant	24
35025	1301	Northeast	CT	106	84	Stuffed Pig	25
35017	1305	West	NV	103	72	Stuffed Elephant	24
35011	1305	West	CO	101	144	Stuffed Lamb	20

Shipping Costs

Product ID	Region	Shipping
101	Midwest	2.15
101	Northeast	2.12
101	South	2.08
101	West	2.02
102	Midwest	2.11

Join Kind

Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

> Fuzzy matching options

✓ The selection matches 5017 of 5017 rows from the first table.

OK

Cancel

Select "Product #" and then "Region" from the first table.

From the second table select "Product ID" and then "Region".

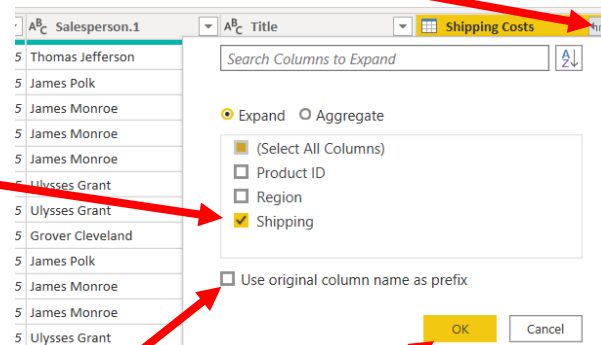
The merge is complete 5017 records were matched. If less matches were made it would have been because of misspelling in the Sales query.

Once the selection from both tables is completed, Click OK.

This will add a new column called “Shipping Costs”.

Click on the button next to the header.

Uncheck all columns except “Shipping”.



Uncheck “Use original column name as prefix”,

then click OK.

This will load the new column “Shipping”.

	1.2.3 Unit Selling Price	1.2 Unit Manufacturing Cost	1.2 Profit Margin by Product	A ^B C Salesperson.1	A ^B C Title	1.2 Shipping
1	24	10.75	13.25	Thomas Jefferson	Senior Sales Associate	2.01
2	24	10.75	13.25	James Monroe	Sales Associate I	2.01
3	24	10.75	13.25	Thomas Jefferson	Senior Sales Associate	2.01
4	24	10.75	13.25	James Monroe	Sales Associate I	2.01
5	20	8.75	11.25	Thomas Jefferson	Senior Sales Associate	2.15

Rename the column Shipping per Unit.

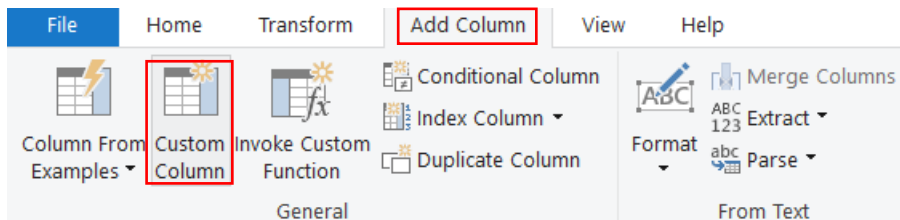
	1.2.3 Unit Selling Price	1.2 Unit Manufacturing Cost	1.2 Profit Margin by Product	A ^B C Salesperson.1	A ^B C Title	1.2 Shipping per Unit
1	24	10.75	13.25	Thomas Jefferson	Senior Sales Associate	2.01
2	24	10.75	13.25	James Monroe	Sales Associate I	2.01

Operation 17: Creating calculation column.

Create a field “Shipping Cost” based on the “Shipping per Unit” and “Units Sold” columns.

Shipping cost per sales order can be calculated as Shipping per Unit * Units Sold. To do this operation add a column.

Click on Custom Column under Add Column tab



In the pop-up give the new column the name “Shipping Cost”.

Custom Column

Add a column that is computed from the other columns.

New column name

Shipping Cost

Custom column formula ⓘ

= [Units Sold]*[Shipping per Unit]

[Learn about Power Query formulas](#)

Available columns

Sales Order #
Salesperson #
Region
State
Product #
Units Sold
Product
Unit Selling Price

<< Insert

✓ No syntax errors have been detected.

OK

Cancel

Then enter the following formula in the Custom Column formula section:

[Units Sold]*[Shipping per Unit]

Then Click OK.

This will add a “Shipping Cost” Column at the end of the dataset.

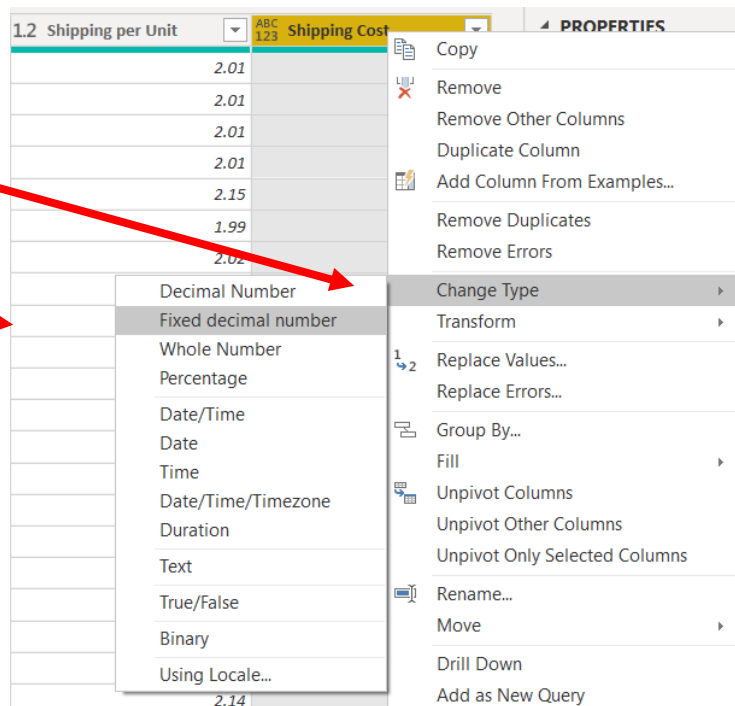
Manufacturing Cost	1.2 Profit Margin by Product	A ^B C Salesperson.1	A ^B C Title	1.2 Shipping per Unit	ABC 123 Shipping Cost
10.75	13.25	Thomas Jefferson	Senior Sales Associate	2.01	241.2
10.75	13.25	James Monroe	Sales Associate I	2.01	144.72
10.75	13.25	Thomas Jefferson	Senior Sales Associate	2.01	241.2
10.75	13.25	James Monroe	Sales Associate I	2.01	96.48

Right click on the column header.

Select Change Type.

Then, select Fixed decimal number.

This will change the data type of the column to have dollar values.



The updated column header would indicate the \$ sign next to the column name indicating that the change is effective.

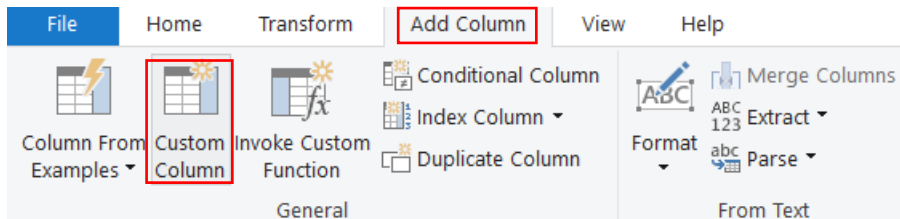


Operation 17: Creating calculation column.

Create a field “Sales” based on the “Unit Selling Price” and “Units Sold” columns.

Sales per sales order can be calculated as Unit Selling Price * Units Sold. To do this operation add a column.

Click on Custom Column under Add Column tab.



In the pop-up give the new column the name “Sales”.

Custom Column

Add a column that is computed from the other columns.

New column name

Sales

Custom column formula

= [Unit Selling Price]*[Units Sold]

Available columns

- Salesperson #
- Region
- State
- Product #
- Units Sold
- Product
- Unit Selling Price
- Unit Manufacturing Cost

<< Insert

✓ No syntax errors have been detected.

OK Cancel

Then enter the following formula in the Custom Column formula section:

[Units Selling Price]*[Units Sold]

Then Click OK.

This will add a “Sales” Column at the end of the dataset.

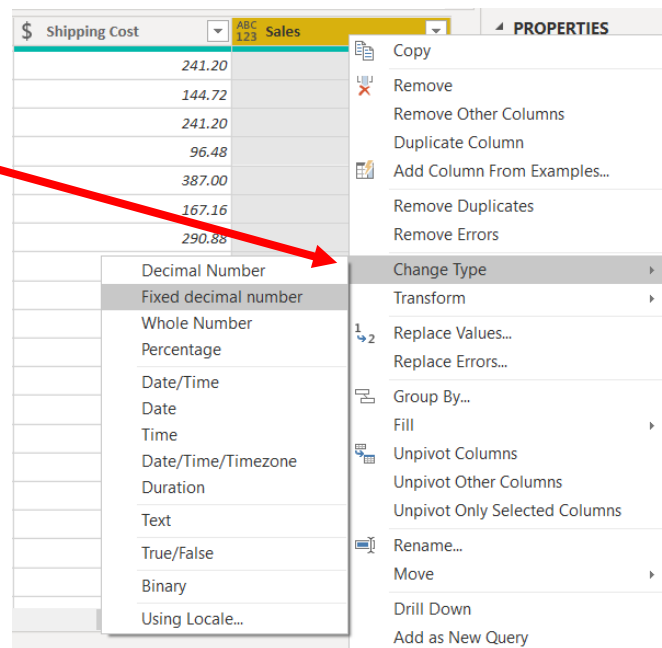
Manufacturing Cost	1.2 Profit Margin by Product	A ^B C Salesperson.1	A ^B C Title	1.2 Shipping per Unit	ABC 123 Shipping Cost
10.75	13.25	Thomas Jefferson	Senior Sales Associate	2.01	241.2
10.75	13.25	James Monroe	Sales Associate I	2.01	144.72
10.75	13.25	Thomas Jefferson	Senior Sales Associate	2.01	241.2
10.75	13.25	James Monroe	Sales Associate I	2.01	96.48

Right click on the column header.


Select Change Type.

Then, select Fixed decimal number.

This will change the data type of the column to have dollar values.

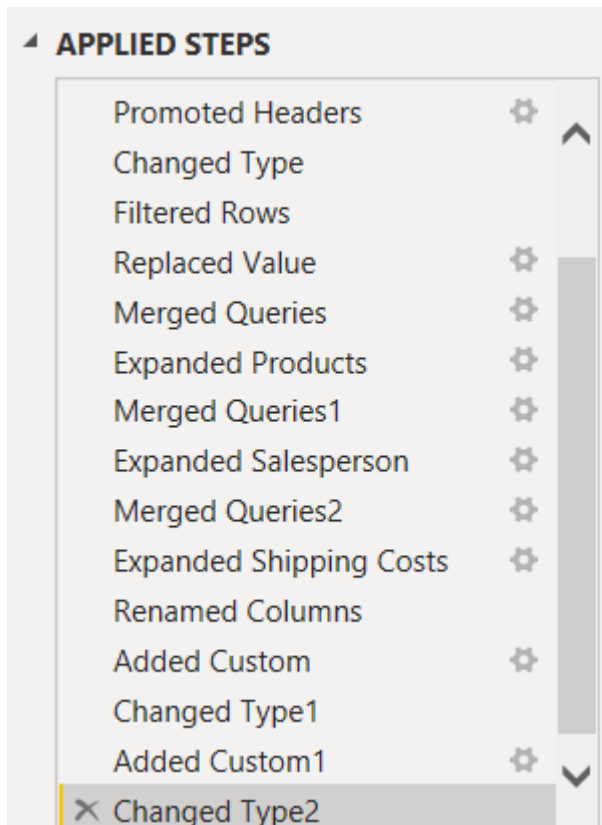


The updated column header would indicate the \$ sign next to the column name indicating that the change is effective.



\$ Shipping Cost	\$ Sales
241.20	2,880.00
144.72	1,728.00
241.20	2,880.00
96.48	1,152.00
387.00	3,600.00
167.16	2,100.00

All the steps are captured in Applied Steps.



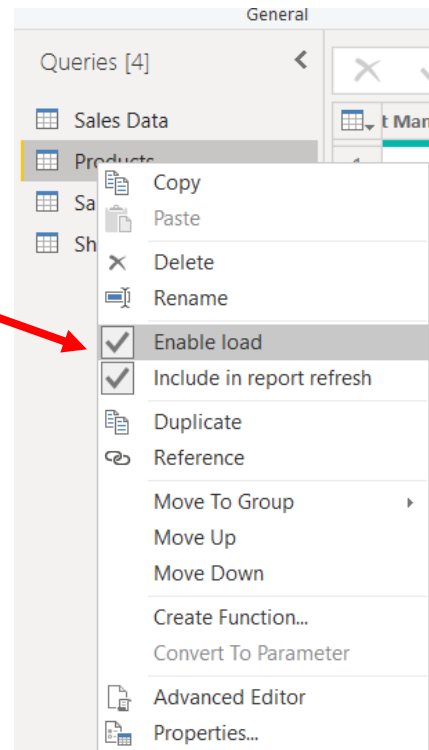
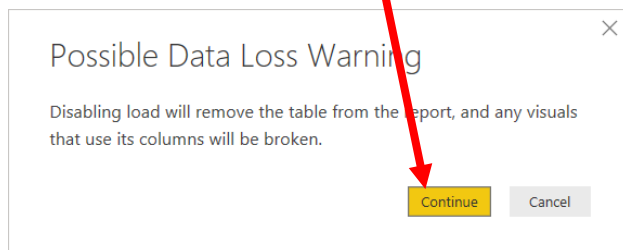
Operation 18: Data Load**Loading only relevant data to the front end.**

Now all the information needed from the four datasets is combined into the Sales Data set. The other 3 datasets should not be loaded to the Power BI front end.

To disable a load, right click on the query you want to disable.

Uncheck Enable load.

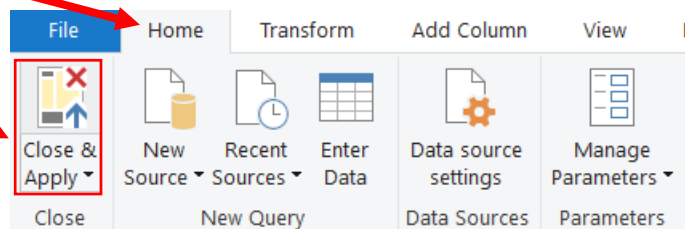
You might see a warning message indicating that there is a possibility of data loss, click Continue.



Repeat the same procedure of disabling load for the “Salesperson” and “Shipping Costs” queries.

Select Home, and then

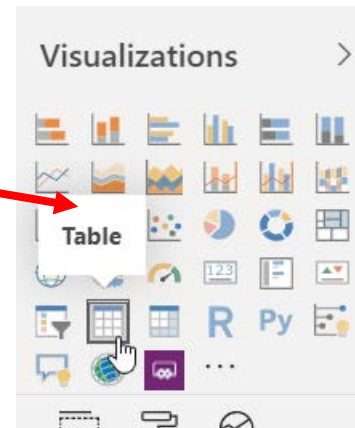
select Close & Apply.



This loads the “Sales Data” data onto the front end of Power BI.

Operation 19: Create a “Table Visual”

Click on the Table icon under the Visualization section to add a table.



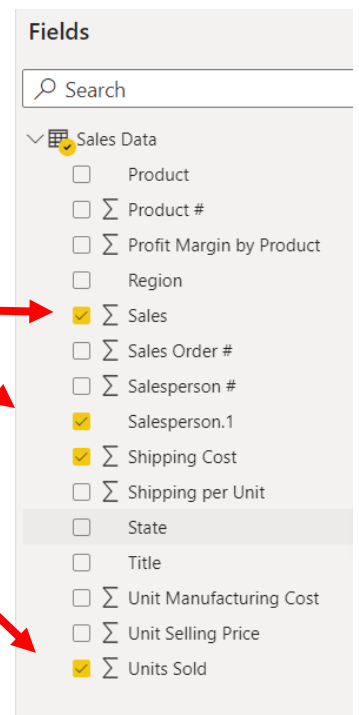
The order in which you select the fields determines their location in the Table. First select the **Salesperson** field,

then select the **Units Sold** field,

then select the **Sales** field

And end with the Shipping Cost field.

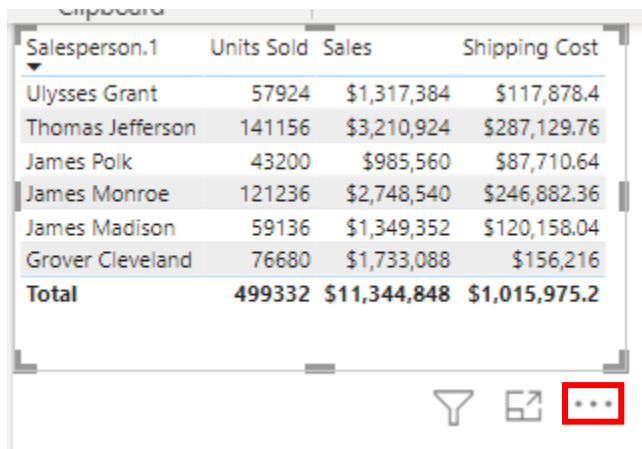
This creates a Total Commission for Salesperson report.



Salesperson.1	Units Sold	Sales	Shipping Cost
Grover Cleveland	76680	\$1,733,088	\$156,216
James Madison	59136	\$1,349,352	\$120,158.04
James Monroe	121236	\$2,748,540	\$246,882.36
James Polk	43200	\$985,560	\$87,710.64
Thomas Jefferson	141156	\$3,210,924	\$287,129.76
Ulysses Grant	57924	\$1,317,384	\$117,878.4
Total	499332	\$11,344,848	\$1,015,975.2

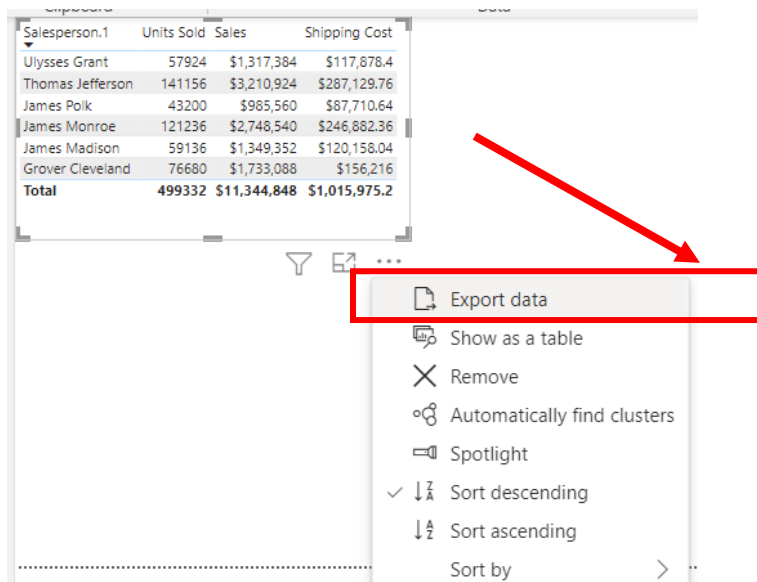
Operation 20: Exporting data to Excel

Select the table and notice that you get **More Options** indicated by 3 dots (...) on the top right or the bottom right of the table.

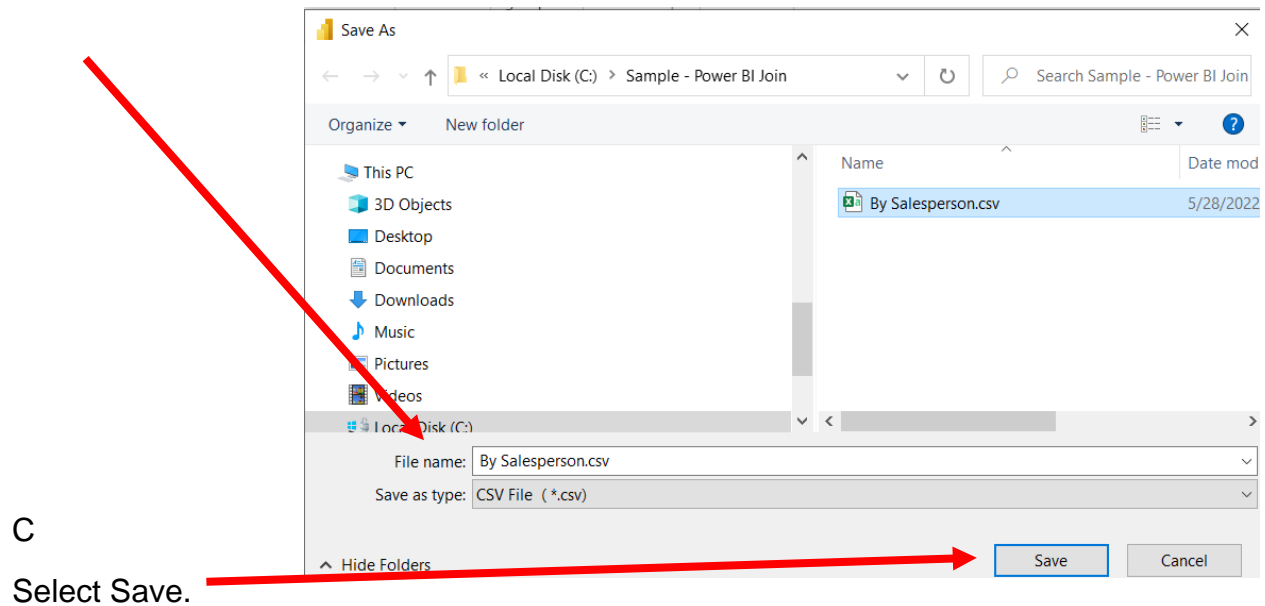


Salesperson.1	Units Sold	Sales	Shipping Cost
Ulysses Grant	57924	\$1,317,384	\$117,878.4
Thomas Jefferson	141156	\$3,210,924	\$287,129.76
James Polk	43200	\$985,560	\$87,710.64
James Monroe	121236	\$2,748,540	\$246,882.36
James Madison	59136	\$1,349,352	\$120,158.04
Grover Cleveland	76680	\$1,733,088	\$156,216
Total	499332	\$11,344,848	\$1,015,975.2

Click on the More Options and select “Export Data”.



Add the name of the file.



Navigate to the location and double click to open the CSV file you just saved.

You'll notice that the data from the visual is exported as a *.CSV file and easily opens in Excel.

	A	B	C	D	E
1	Salesperson	Units Sold	Sales	Shipping Cost	
2	Ulysses Gr	57924	#####	#####	
3	Thomas Je	141156	#####	#####	
4	James Polk	43200	\$985,560	#####	
5	James Mo	121236	#####	#####	
6	James Mac	59136	#####	#####	
7	Grover Cle	76680	#####	\$156,216	
8					

Change the columns' widths and formats.

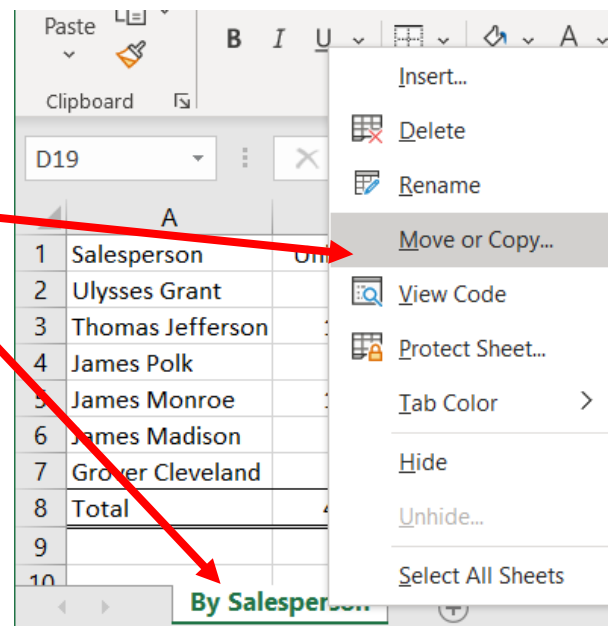
	A	B	C	D	E
1	Salesperson	Units Sold	Sales	Shipping Cost	
2	Ulysses Grant	57,924	\$ 1,317,384.00	\$ 117,878.40	
3	Thomas Jefferson	141,156	\$ 3,210,924.00	\$ 287,129.76	
4	James Polk	43,200	\$ 985,560.00	\$ 87,710.64	
5	James Monroe	121,236	\$ 2,748,540.00	\$ 246,882.36	
6	James Madison	59,136	\$ 1,349,352.00	\$ 120,158.04	
7	Grover Cleveland	76,680	\$ 1,733,088.00	\$ 156,216.00	
8	Total	499,332	\$ 11,344,848.00	\$ 1,015,975.20	
9					

By Salesperson

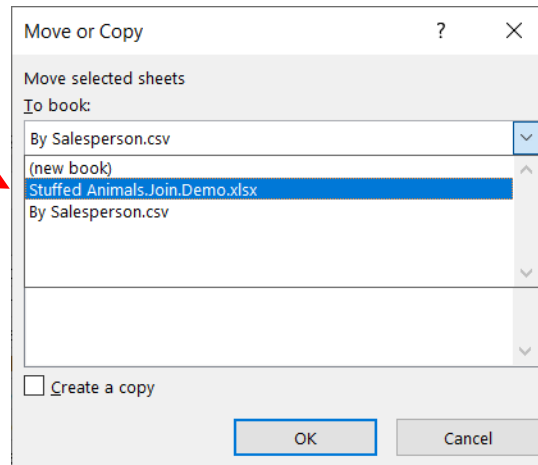
Open the original *Excel file Stuffed Animals.Join.Demo.xlsx* and return to the file *Salesperson.csv*.

Right click on the tab "By Salesperson".

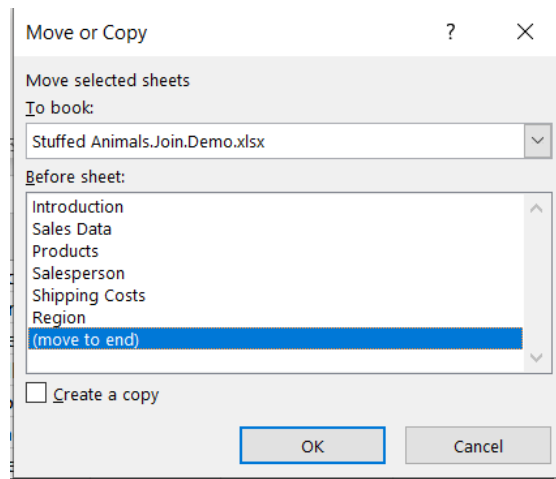
Select "Move or Copy".



Select the original file.



Select "Move to End".

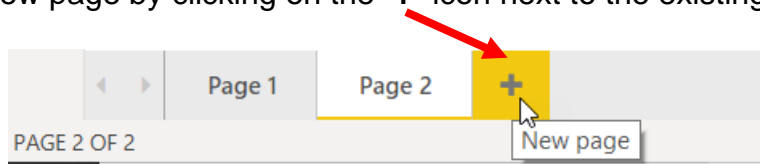


Select OK.

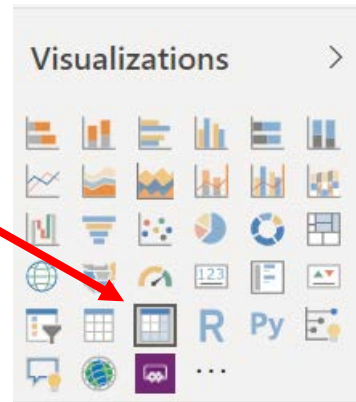
Save the original Excel file Stuffed Animals.Join.demo.xlsx file and return to Power BI.

Operation 21: Create a Matrix visual

Add a new page by clicking on the “+” icon next to the existing pages at the bottom.

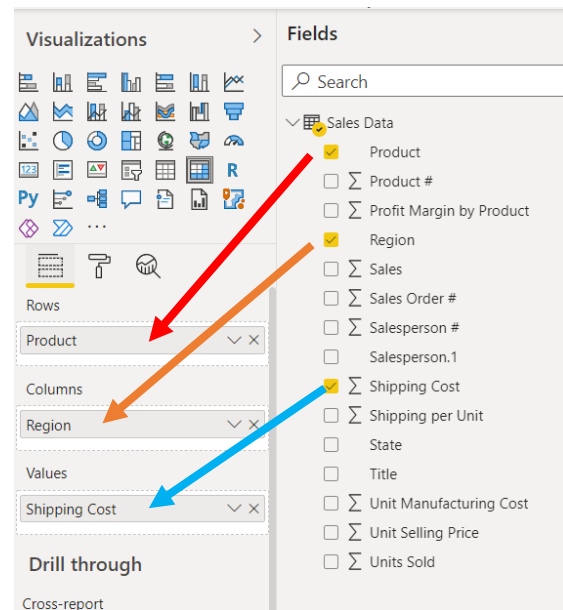


Click on the Matrix icon under the Visualization section to add a Matrix.



Once the visual is inserted, drag, and drop

1. **Product to Rows**
 2. **Region to Columns**
 3. **Shipping Costs**
- as indicated in the diagram.

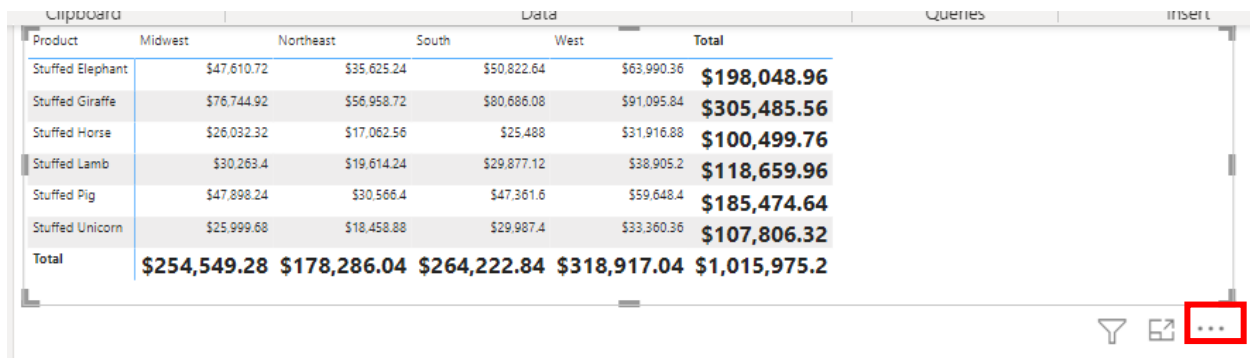


This creates a summary Matrix providing commission for each Salesperson by Region.

Product	Midwest	Northeast	South	West	Total
Stuffed Elephant	\$47,610.72	\$35,625.24	\$30,822.64	\$43,990.36	\$198,048.96
Stuffed Giraffe	\$76,744.92	\$56,956.72	\$80,086.08	\$91,095.84	\$305,485.56
Stuffed Horse	\$26,032.32	\$17,062.56	\$25,468	\$31,916.88	\$100,499.76
Stuffed Lamb	\$30,263.4	\$19,614.24	\$29,877.12	\$38,905.2	\$118,659.96
Stuffed Pig	\$47,896.24	\$30,566.4	\$47,361.6	\$59,648.4	\$185,474.64
Stuffed Unicorn	\$25,999.68	\$18,458.88	\$29,987.4	\$33,360.36	\$107,806.32
Total	\$254,549.28	\$178,286.04	\$264,222.84	\$318,917.04	\$1,015,975.2

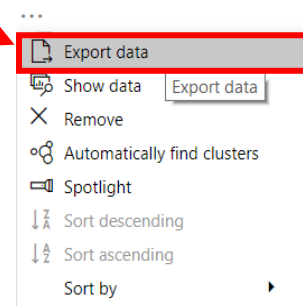
Operation 22: Exporting data to Excel

Select the table and notice that you get **More Options** indicated by 3 dots (...) on the top right or the bottom right of the table visual.

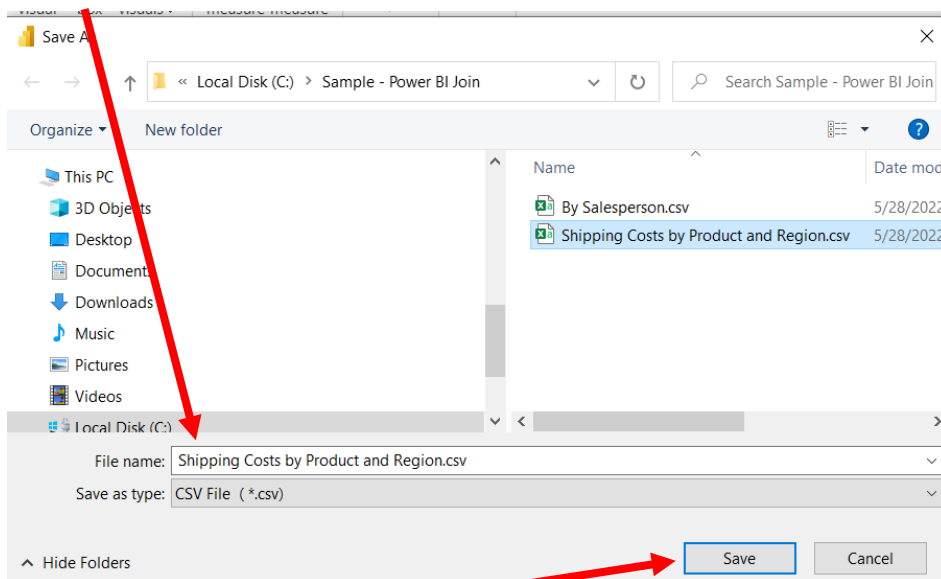


Product	Midwest	Northeast	South	West	Total
Stuffed Elephant	\$47,610.72	\$35,625.24	\$50,822.64	\$63,990.36	\$198,048.96
Stuffed Giraffe	\$76,744.92	\$56,958.72	\$80,686.08	\$91,095.84	\$305,485.56
Stuffed Horse	\$26,032.32	\$17,062.56	\$25,488	\$31,916.88	\$100,499.76
Stuffed Lamb	\$30,263.4	\$19,614.24	\$29,877.12	\$38,905.2	\$118,659.96
Stuffed Pig	\$47,898.24	\$30,566.4	\$47,361.6	\$59,648.4	\$185,474.64
Stuffed Unicorn	\$25,999.68	\$18,458.88	\$29,987.4	\$33,360.36	\$107,806.32
Total	\$254,549.28	\$178,286.04	\$264,222.84	\$318,917.04	\$1,015,975.2

Click on the More Options and select “Export Data”.



Add the name of the file Shipping Costs by Product and Region.csv



Select Save.

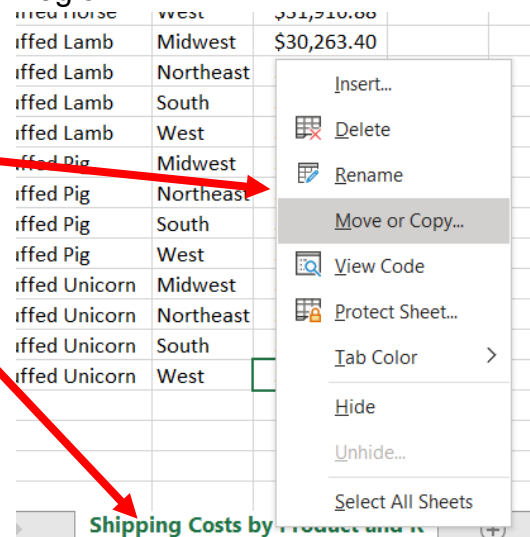
Open the original Excel file Stuffed Animals.Join.demo.xlsx and then navigate to the location and double click to open the “Shipping Costs by Product and Region.csv” file you just saved.

The exported table in Excel would like the following:

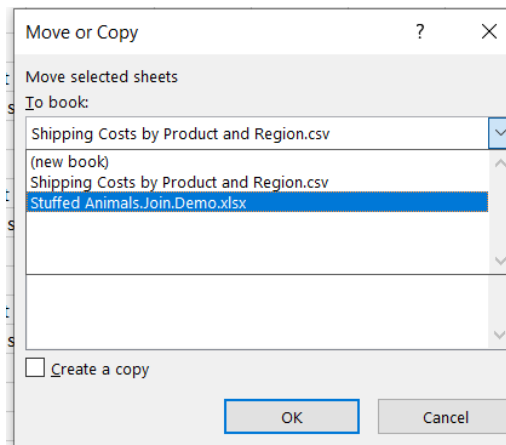
	A	B	C	D	
1	Product	Region	Shipping Cost		
2	Stuffed Elephant	Midwest	\$47,610.72		
3	Stuffed Elephant	Northeast	\$35,625.24		
4	Stuffed Elephant	South	\$50,822.64		
5	Stuffed Elephant	West	\$63,990.36		
6	Stuffed Giraffe	Midwest	\$76,744.92		
7	Stuffed Giraffe	Northeast	\$56,958.72		
8	Stuffed Giraffe	South	\$80,686.08		
9	Stuffed Giraffe	West	\$91,095.84		
10	Stuffed Horse	Midwest	\$26,032.32		
11	Stuffed Horse	Northeast	\$17,062.56		
12	Stuffed Horse	South	\$25,488		
13	Stuffed Horse	West	\$31,916.88		
14	Stuffed Lamb	Midwest	\$30,263.40		
15	Stuffed Lamb	Northeast	\$19,614.24		
16	Stuffed Lamb	South	\$29,877.12		
17	Stuffed Lamb	West	\$38,905.20		
18	Stuffed Pig	Midwest	\$47,898.24		
19	Stuffed Pig	Northeast	\$30,566.40		
20	Stuffed Pig	South	\$47,361.60		
21	Stuffed Pig	West	\$59,648.40		
22	Stuffed Unicorn	Midwest	\$25,999.68		
23	Stuffed Unicorn	Northeast	\$18,458.88		
24	Stuffed Unicorn	South	\$29,987.40		
25	Stuffed Unicorn	West	\$33,360.36		
26					
27					
28					
29					
Shipping Costs by Product and R					

Right click on the tab "Shipping Costs by Product and Region".

Select "Move or Copy".

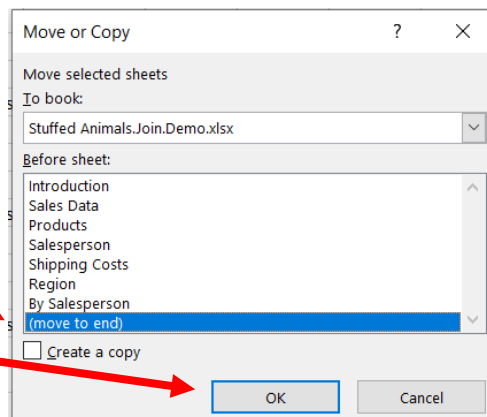


Select the original file.



Select "Move to End".

Select OK.



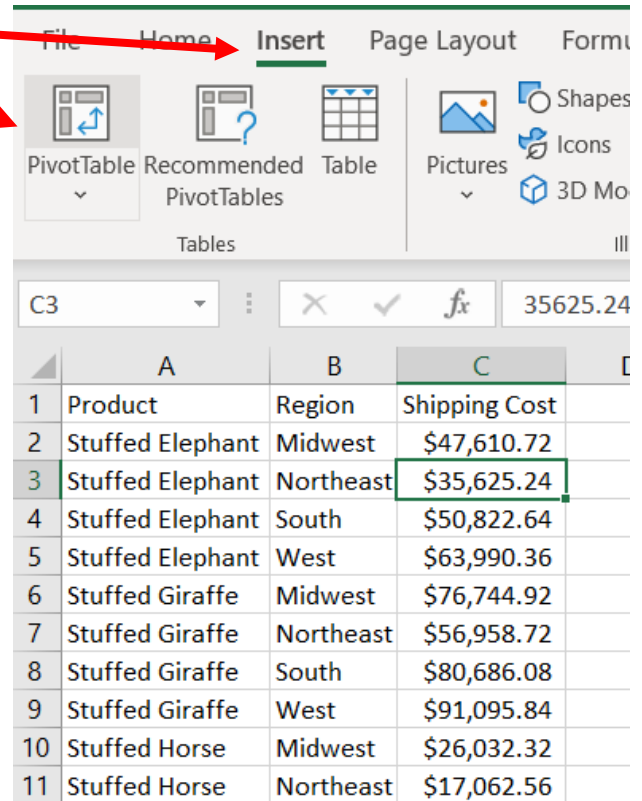
Once the data is available in the above format, you need to insert a Pivot table to represent the data in the required format.

Select any cell in the data range. Say you select cell C3.

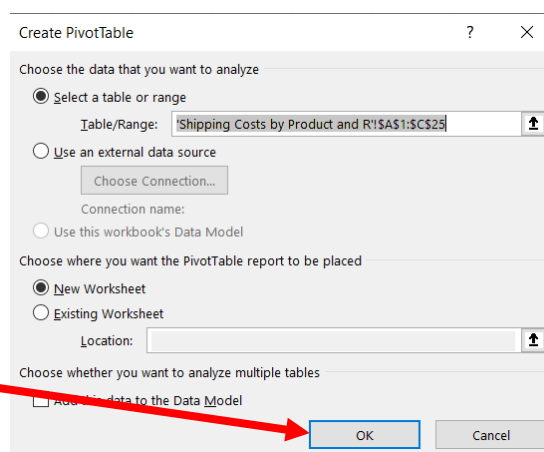
Select Insert.

Select Pivot table.

This will insert a Pivot Table in a new sheet.
Pivot tables help summarize the data in various formats.



Select OK.

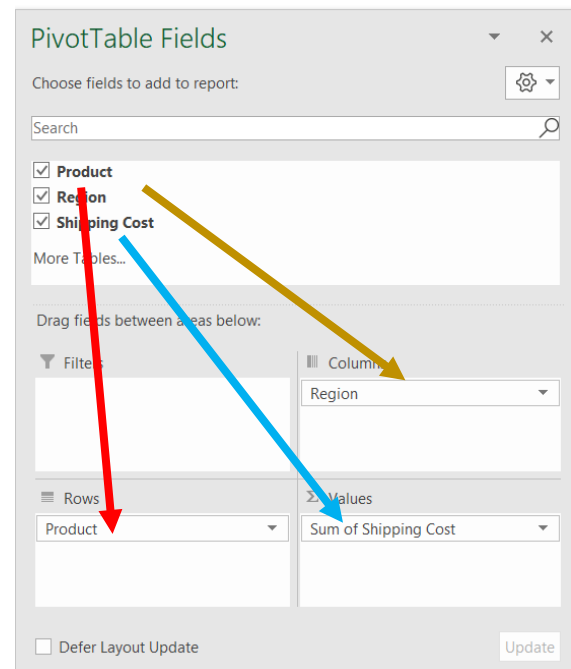


Once a Pivot table is inserted, the Pivot Table Fields are displayed.

Drag the fields

1. **Product** to Rows
2. **Region** to Columns and
3. **Shipping**

as indicated in the diagram.



If the “Count of Shipping Cost” appears instead of the “Sum of Shipping Cost”, left click on “Count of Shipping Cost”, select Value. Field Setting Sum then OK.

This summarizes the data in the following format:

	A	B	C	D	E	F
3	Sum of Shipping Cost	Column Labels				
4	Row Labels	Midwest	Northeast	South	West	Grand Total
5	Stuffed Elephant	47610.72	35625.24	50822.64	63990.36	198048.96
6	Stuffed Giraffe	76744.92	56958.72	80686.08	91095.84	305485.56
7	Stuffed Horse	26032.32	17062.56	25488	31916.88	100499.76
8	Stuffed Lamb	30263.4	19614.24	29877.12	38905.2	118659.96
9	Stuffed Pig	47898.24	30566.4	47361.6	59648.4	185474.64
10	Stuffed Unicorn	25999.68	18458.88	29987.4	33360.36	107806.32
11	Grand Total	254549.28	178286.04	264222.84	318917.04	1015975.2

Right click on cell A3 and change the format to currency.

	A	B	C	D	E	F
1						
2						
3	Sum of Shipping Cost Column Labels					
4	Row Labels	Midwest	Northeast	South	West	Grand Total
5	Stuffed Elephant	\$47,610.72	\$35,625.24	\$50,822.64	\$63,990.36	\$198,048.96
6	Stuffed Giraffe	\$76,744.92	\$56,958.72	\$80,686.08	\$91,095.84	\$305,485.56
7	Stuffed Horse	\$26,032.32	\$17,062.56	\$25,488.00	\$31,916.88	\$100,499.76
8	Stuffed Lamb	\$30,263.40	\$19,614.24	\$29,877.12	\$38,905.20	\$118,659.96
9	Stuffed Pig	\$47,898.24	\$30,566.40	\$47,361.60	\$59,648.40	\$185,474.64
10	Stuffed Unicorn	\$25,999.68	\$18,458.88	\$29,987.40	\$33,360.36	\$107,806.32
11	Grand Total	\$254,549.28	\$178,286.04	\$264,222.84	\$318,917.04	\$1,015,975.20

Save and close Excel and Power BI Desktop.