

Power Query

Presented by QCL

Agenda

Lecture

- What is Power Query?
- Activate Power Query
- Case Statement
- Data Set (Sales) = data cleaning and transforming

Hands-on

- Import Data
- Interface
- Remove columns, Filter, Split Column by Delimiter
- Data types, New Columns, Calculation
- Moving into Data into Excel
- Pivot Chart with Transformed Data
- Merge and Append

Hands-on Activities

Power Query Installation

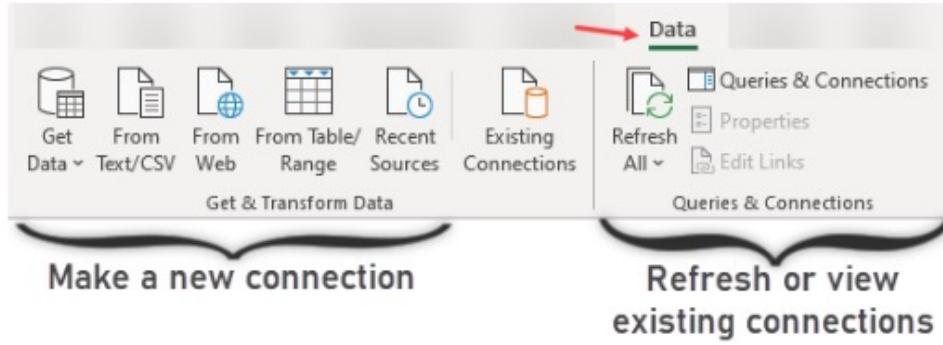
- Built-in on Windows PC
- Need to install as beta version for Mac
 - **Important:** This feature is available to Insiders using either the Current Channel Preview or Beta Channel, running Version 16.64 (Build 22072501) or later of Excel for Mac. If you are a Microsoft 365 subscriber, [make sure you have the latest version of Office.](#)

What is Power Query

- A feature in Microsoft Excel and Power BI programs.
- It is used to:
 - Set up connections to various data sources.
 - Pre-process data such as cleanup, adding columns, filtering, sorting, mashing up.
 - Publish the finalized data to source system (Microsoft Excel or Power BI).

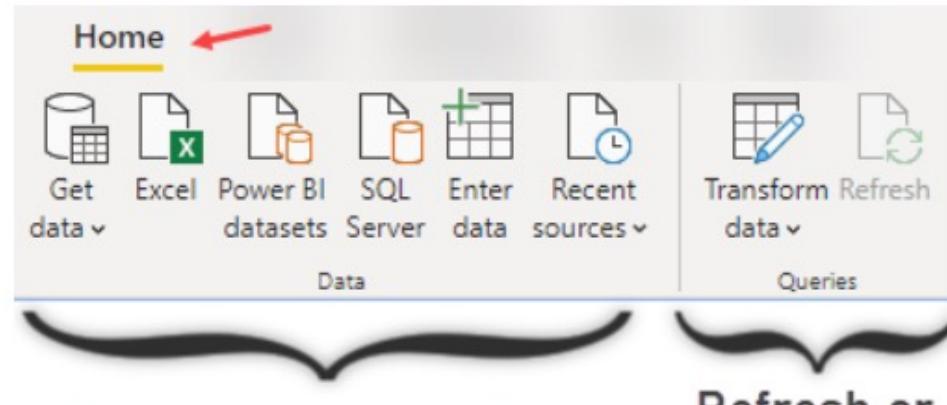
Activate Power Query

Launching Power Query from Excel



1. Goto **Data ribbon** in Excel
2. Use buttons in "Get & transform data" area to make a new connection.
3. Or click on buttons in "Queries & Connections" area to refresh or view the existing queries.

Power Query from Power BI



1. Goto **Home ribbon** in Power BI
2. Use buttons in "data" area to make a new connection.
3. Or click on buttons in "Queries" area to refresh or view the existing queries.

Case Statement

You are a data analyst and every month you are to analyze the monthly sales data. First all, you need to clean the data, maybe to add or remove some columns, run some calculations, and then analyze it. Rather than doing it manually, you can let Power Query do all of this. You don't need to know how to code to do this.

Sales Data Set

A	B	C	D	E	F	G	H	
1	Order ID	Customer ID	Cookies Shipped	Revenue	Cost	Order Date	Ship Date	Order Status
2	413383	152689 - YT Restaurants	\$ 936.00	\$ 4,680.00	\$ 2,340.00	12/31/17	1/5/18	Shipped
3	751142	985245 - Quick Bite Convenience Stores	\$ 987.00	\$ 4,935.00	\$ 2,467.50	12/31/17	1/4/18	Shipped
4	876056	985245 - Quick Bite Convenience Stores	\$ 270.00	\$ 1,350.00	\$ 675.00	12/30/17	1/3/18	Shipped
5	548247	985245 - Quick Bite Convenience Stores	\$ 925.00	\$ 4,625.00	\$ 2,312.50	12/30/17	1/3/18	Shipped
6	626350	152689 - YT Restaurants	\$ 974.00	\$ 4,870.00	\$ 2,435.00	12/29/17	1/3/18	Shipped
7	XXXXXX	XXXXXX - Promo	\$ 715.00	\$ 3,575.00	\$ 1,787.50	12/31/17	1/2/18	Shipped
8	200181	325698 - Cascade Grovers	\$ 454.00	\$ 2,270.00	\$ 1,135.00	12/30/17	1/2/18	Shipped
9	711368	152689 - YT Restaurants	\$ 484.00	\$ 2,420.00	\$ 1,210.00	12/28/17	1/2/18	Shipped
10	958419	325698 - Cascade Grovers	\$ 269.00	\$ 1,345.00	\$ 672.50	12/29/17	1/1/18	Shipped

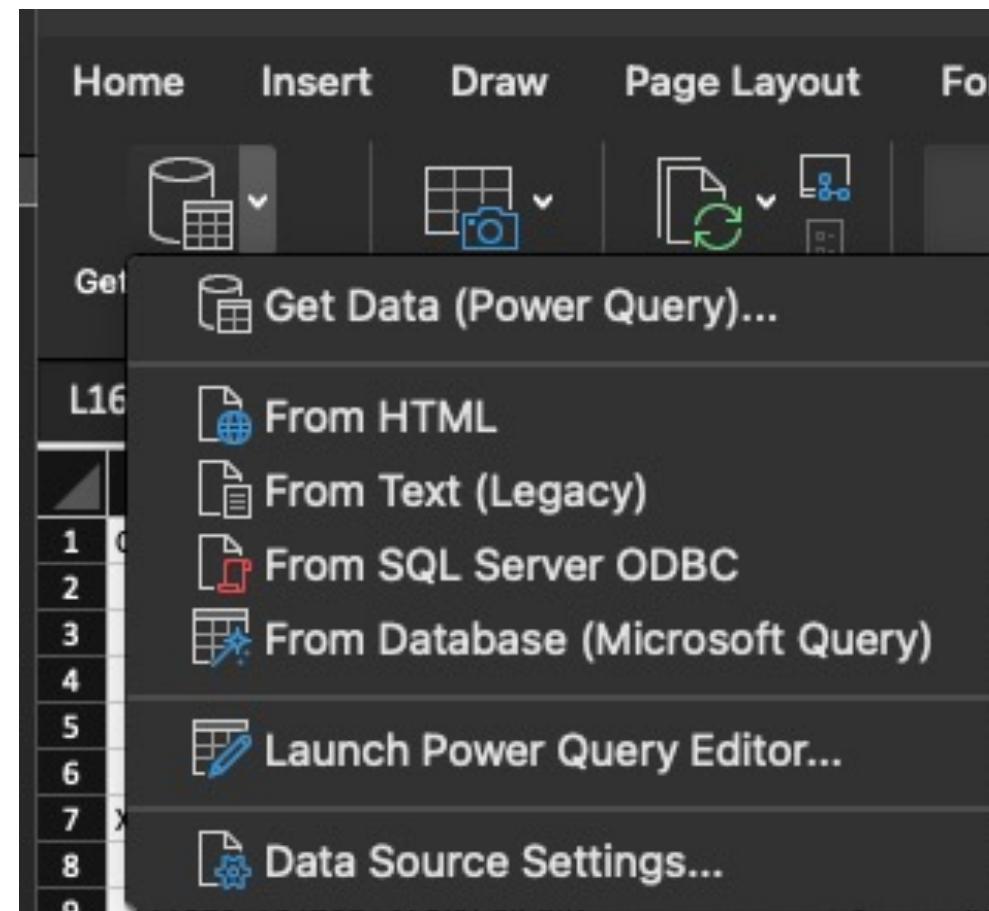
Data Cleaning and Transform

- Separate Customer ID column into Customer ID and Customer Name columns
- Change the Cookies Shipped column from currency to unit count
- Add a Profits Column
- Calculate how many days does it take to ship for each order
- Merge and Append the data set

Let's Start the Hands-on

Import Data

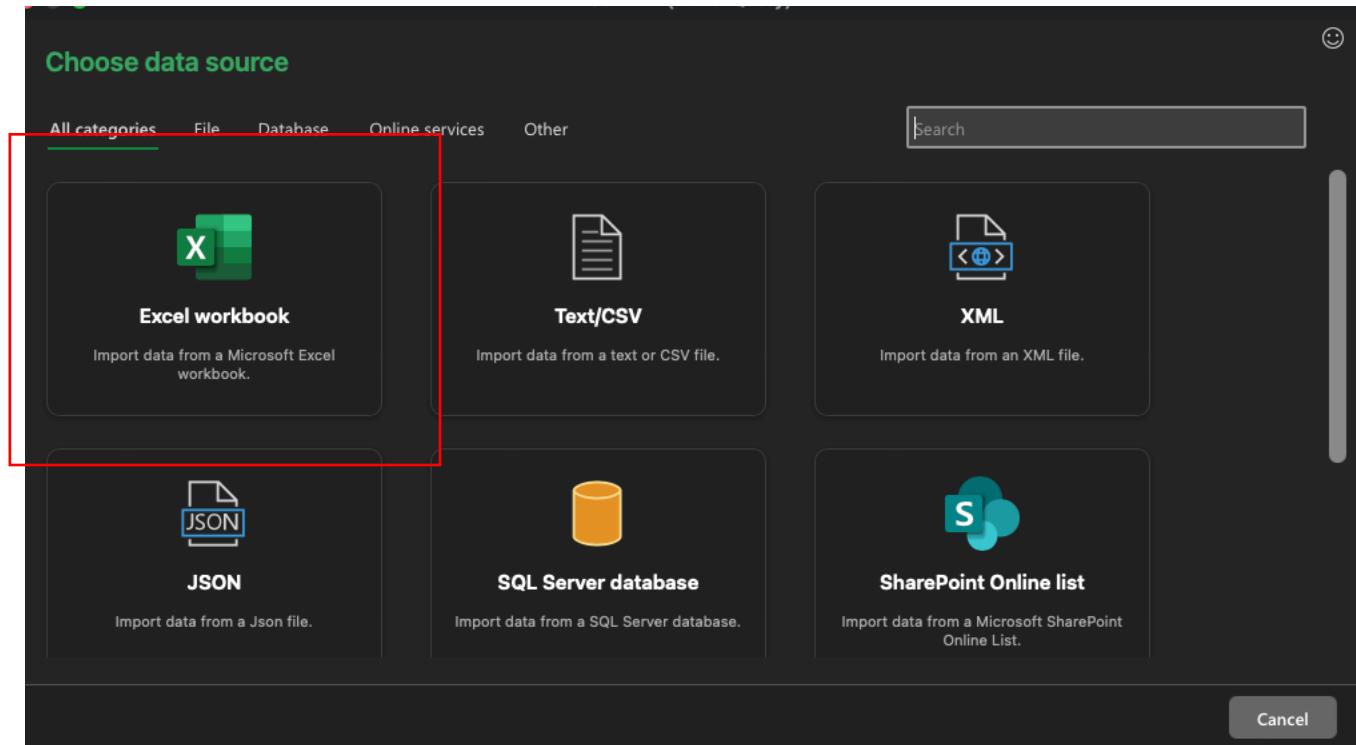
- Under Data tab, click on Get Data (Power Query)



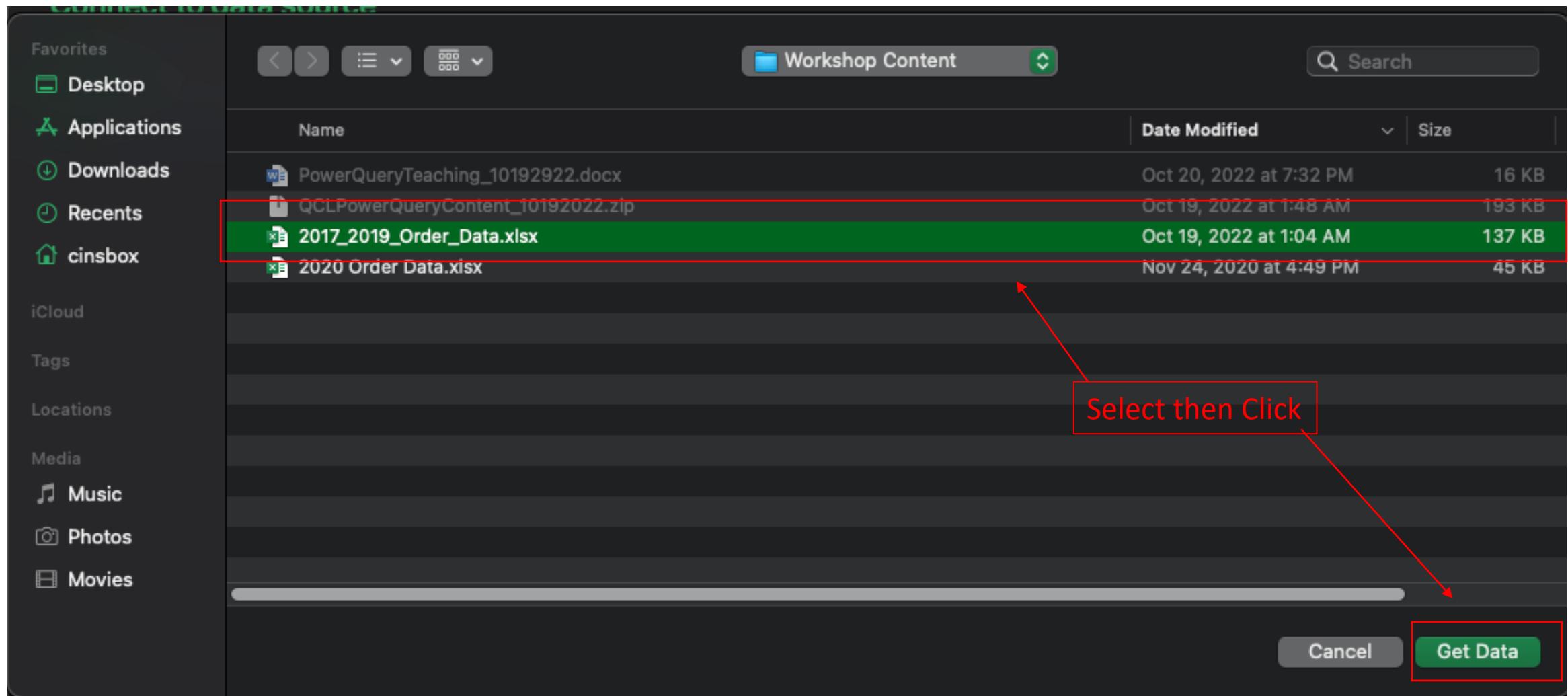
Import Data (Continued)

Know
what type
of data file
you have

Import
your data
straight
into Excel



Import Data (Continued)



Import Data (Continued)

Choose data

Search

Display options ▾

Excel workbook [1]

Order Data

Select then Click

Order Data

ABC 123	Order ID	ABC Customer ID	123 Cookies Shipped	123 Revenue	1.2 Cost	Order Date	Ship Date	ABC 123
413383	152689 - YT Restaurants		936	4680	2340	12/31/2017	1/5/2018	
751142	985245 - Quick Bite Convenience S...		987	4935	2467.5	12/31/2017	1/4/2018	
876056	985245 - Quick Bite Convenience S...		270	1350	675	12/30/2017	1/3/2018	
548247	985245 - Quick Bite Convenience S...		925	4625	2312.5	12/30/2017	1/3/2018	
626350	152689 - YT Restaurants		974	4870	2435	12/29/2017	1/3/2018	
XXXXXX	XXXXXX - Promo		715	3575	1787.5	12/31/2017	1/2/2018	
200181	325698 - Cascade Grovers		454	2270	1135	12/30/2017	1/2/2018	
711368	152689 - YT Restaurants		484	2420	1210	12/28/2017	1/2/2018	
958419	325698 - Cascade Grovers		269	1345	672.5	12/29/2017	1/1/2018	
808349	985245 - Quick Bite Convenience S...		396	1980	990	12/29/2017	1/1/2018	
392582	985245 - Quick Bite Convenience S...		121	605	302.5	12/28/2017	1/1/2018	
415147	152689 - YT Restaurants		373	1865	932.5	12/27/2017	1/1/2018	
656789	325698 - Cascade Grovers		118	590	295	12/28/2017	12/30/2017	
247229	325698 - Cascade Grovers		137	685	342.5	12/27/2017	12/30/2017	
532184	985245 - Quick Bite Convenience S...		574	2870	1435	12/26/2017	12/30/2017	
412714	325698 - Cascade Grovers		541	2705	1352.5	12/27/2017	12/29/2017	
771122	325698 - Cascade Grovers		922	4660	2220	12/27/2017	12/29/2017	

Back

Cancel

Transform data

Load

Power Query User Interface

The screenshot shows the Microsoft Power Query Editor interface within an Excel window. The interface is divided into several sections:

- Ribbon Button (1):** Located at the top left of the ribbon.
- Home Ribbon (2):** A red box highlights the Home tab of the ribbon.
- Queries pane (3):** A red box highlights the Queries pane on the left side, which lists "Order Data" under "Queries [1]".
- Working data (4):** A large red box highlights the main working area where a table of data is displayed. The table has columns: ABC Order ID, Customer ID, Cookies Shipped, Revenue, 1.2 C, Order Date, Ship Date, and Order Status.
- Formula Bar (5):** A red box highlights the formula bar at the top of the working area, showing the formula: Table.TransformColumnTypes(#"Promoted headers", {"Order ID", type any}, {"Customer ID", type text}, {"Cookies Shipped", type number}, {"Revenue", type number}, {"1.2 C", type number}, {"Order Date", type date}, {"Ship Date", type date}, {"Order Status", type text}).
- Home Ribbon (6):** A red box highlights the Home tab of the ribbon again, specifically the "Get data" button.
- Query settings pane (7):** A red box highlights the pane on the right, titled "Query settings", which contains "Properties" and "Applied steps".

Below the working data table, there is a note: "Completed (1.06 s) Columns: 8 Rows: 99+".

ABC Order ID	Customer ID	Cookies Shipped	Revenue	1.2 C	Order Date	Ship Date	Order Status
577597	152689 - YT Restaurants	329	1645	822.5	11/23/2020	null	Open
503658	985245 - Quick Bite Convenience S...	350	1750	875	11/23/2020	null	Open
797851	785432 - Park & Eat LLC	981	4905	2452.5	11/21/2020	null	Open
552860	152689 - YT Restaurants	843	4215	2107.5	11/21/2020	null	Open
466725	985245 - Quick Bite Convenience S...	154	770	385	11/22/2020	null	Open
936967	785432 - Park & Eat LLC	993	4965	2482.5	11/20/2020	null	Open
562749	152689 - YT Restaurants	99	495	247.5	11/20/2020	null	Open
269983	325698 - Cascade Grovers	747	3735	1867.5	11/21/2020	null	Open
334598	985245 - Quick Bite Convenience S...	817	4085	2042.5	11/20/2020	null	Open
956465	785432 - Park & Eat LLC	798	3990	1995	11/19/2020	null	Open
517521	152689 - YT Restaurants	680	3400	1700	11/19/2020	null	Open
849766	325698 - Cascade Grovers	383	1915	957.5	11/21/2020	null	Open
400187	785432 - Park & Eat LLC	679	3395	1697.5	11/19/2020	null	Open
279099	985245 - Quick Bite Convenience S...	77	385	192.5	11/18/2020	11/21/2020	Shipped
221661	152689 - YT Restaurants	910	4550	2275	11/16/2020	11/21/2020	Shipped
196228	325698 - Cascade Grovers	300	1500	750	11/18/2020	11/20/2020	Shipped
499944	325698 - Cascade Grovers	511	2555	1277.5	11/18/2020	11/20/2020	Shipped
462194	985245 - Quick Bite Convenience S...	97	485	242.5	11/17/2020	11/20/2020	Shipped
288845	785432 - Park & Eat LLC	868	4340	2170	11/16/2020	11/20/2020	Shipped
408539	452584 - Acme Grocery Stores	211	1055	527.5	11/17/2020	11/19/2020	Shipped
962242	985245 - Quick Bite Convenience S...	549	2745	1372.5	11/16/2020	11/19/2020	Shipped
559502	985245 - Quick Bite Convenience S...	469	2345	1172.5	11/15/2020	11/19/2020	Shipped
936106	152689 - YT Restaurants	878	4390	2195	11/14/2020	11/19/2020	Shipped
716031	985245 - Quick Bite Convenience S...	701	3505	1752.5	11/14/2020	11/18/2020	Shipped
410303	785432 - Park & Eat LLC	198	990	495	11/14/2020	11/18/2020	Shipped
634504	452584 - Acme Grocery Stores	415	2075	1037.5	11/15/2020	11/17/2020	Shipped
718857	152689 - YT Restaurants	995	4975	2487.5	11/12/2020	11/17/2020	Shipped
478868	985245 - Quick Bite Convenience S...	885	4425	2212.5	11/13/2020	11/16/2020	Shipped
752620	985245 - Quick Bite Convenience S...	205	1025	512.5	11/12/2020	11/16/2020	Shipped
475652	985245 - Quick Bite Convenience S...	154	770	385	11/12/2020	11/16/2020	Shipped

Import Data (Continued)

There will be pre-query steps when you first open the file in power query

The data set will populate in the middle view

You are ready to transform your data

The screenshot shows the Microsoft Power Query ribbon with the 'Home' tab selected. The 'Queries [1]' section displays a table titled 'Table.TransformColumnTypes(#"Promoted headers", {"Order ID", "Customer ID", "Cookies Shipped", "Revenue", "Cost"}' containing 16 rows of data. The 'Applied steps' pane on the right lists the following steps:

- Source
- Navigation 1
- Promoted headers
- Changed col...

A red box highlights the 'Applied steps' pane, and a red arrow points from the text 'There will be pre-query steps when you first open the file in power query' to the 'Applied steps' pane.

Order ID	Customer ID	Cookies Shipped	Revenue	Cost
413383	152689 - YT Restaurants	936	4680	2
751142	985245 - Quick Bite Convenience S...	987	4935	2
876056	985245 - Quick Bite Convenience S...	270	1350	
548247	985245 - Quick Bite Convenience S...	925	4625	2
626350	152689 - YT Restaurants	974	4870	
XXXXXX	XXXXXX - Promo	715	3575	1
200181	325698 - Cascade Grovers	454	2270	
711368	152689 - YT Restaurants	484	2420	
958419	325698 - Cascade Grovers	269	1345	
808349	985245 - Quick Bite Convenience S...	396	1980	
392582	985245 - Quick Bite Convenience S...	121	605	
415147	152689 - YT Restaurants	373	1865	
656789	325698 - Cascade Grovers	118	590	
247229	325698 - Cascade Grovers	137	685	
532184	985245 - Quick Bite Convenience S...	574	2870	
440714	325698 - Cascade Grovers	544	2705	

Completed (0.59 s) Columns: 8 Rows: 99+

Remove Column – Order Status Column

Home Transform Add column View Help

Close & load Get data Enter data Options Manage parameters Refresh Properties Advanced editor Manage Choose columns Remove columns Reduce rows Sort Transform Combine

Queries [1] < Order Data

Table.TransformColumnTypes(#"Promoted headers", {"Order ID", type any}, {"Customer ID", type any}, {"Order Status", type any})

1 staurants 936 4680 2340
2 Bite Convenience S... 987 4935 2467.5
3 Bite Convenience S... 270 1350 675
4 Bite Convenience S... 925 4625 2312.5
5 staurants 974 4870 2435
6 o 715 3575 1787.5
7 nde Grovers 454 2270 1135
8 staurants 484 2420 1210
9 nde Grovers 269 1345 672.5
10 Bite Convenience S... 396 1980 990
11 Bite Convenience S... 121 605 302.5
12 staurants 373 1865 932.5
13 nde Grovers 118 590 295
14 nde Grovers 137 685 342.5
15 Bite Convenience S... 574 2870 1435
16 nde Grovers 541 2705 1352.5
17 nde Grovers 932 4660 2330
18 Eat LLC 172 860 430
19 Grocery Stores 647 3235 1617.5
20 nde Grovers 660 3300 1650
21 nde Grovers 907 4535 2267.5
22

Copy preview data
Remove columns
Remove other columns
Duplicate column
Remove duplicates
Remove errors
Split column
Replace values...
Replace errors...
Change type
Transform column
Group by...
Fill
Unpivot columns
Unpivot other columns
Unpivot only selected columns
Rename...
Move
Drill down
Add as new query

Query settings

Properties

Name: Order Data

Applied steps

- Source
- Navigation 1
- Promoted headers
- Changed col...

Completed (0.59 s) Columns: 8 Rows: 99+

There are many ways to start. For this dataset, start by removing columns by right-clicking the header

Filter Data – Exclude Rows of XXXXXX

Click expanding button, deselect term and click okay

There are some data that is not needed with in the table

Filter out what is not wanted on the table

The screenshot shows the Power Query Editor interface in Excel. The main area displays a table of order data with columns: Order ID, Customer ID, Cookies Shipped, Revenue, Cost, Order Date, and Ship Date. A filter dialog is open over the table, specifically for the 'Customer ID' column. The dialog lists several customer IDs, with 'XXXXXX' checked. A red box highlights the 'XXXXXX' entry in the list. At the bottom of the dialog, there is a note: '⚠ List may be incomplete.' followed by 'OK' and 'Cancel' buttons. A red arrow points from the top right text 'Click expanding button, deselect term and click okay' to the 'OK' button. Another red arrow points from the same text to the 'XXXXXX' entry in the list.

Completed (0.59 s) Columns: 8 Rows: 99+

Power Query Editor

Queries [1]

Order Data

Customer ID

Order ID

Revenue

Cost

Order Date

Ship Date

Filters

Search

OK

Cancel

⚠ List may be incomplete.

Properties

Advanced editor

Manage

Choose columns

Remove columns

Keep rows

Remove rows

Filter rows

Transform

Combine

Query settings

Name: Order Data

Applied steps

- Source
- Navigation 1
- Promoted headers
- Changed col...

Step

Split Column by Delimiter – Customer ID

The screenshot shows the Power Query Editor interface in Excel. A red box highlights the 'Transform' tab in the ribbon. In the main area, a table named 'Order Data' is displayed with columns: Order ID, Customer ID, and Cookies. A red box on the left side of the table contains the text: "In [Split column], pick the [Separator] 'custom' then in type box write '-'". Another red box highlights the 'Split column' button in the 'Text column' group of the ribbon. A third red box highlights the 'By delimiter' option in the dropdown menu. A fourth red box highlights the 'Separator' input field in the 'Split column' dialog box, which contains a custom separator character '-'. The 'OK' button in the dialog box is also highlighted with a red box.

In [Split column], pick the [Separator] "custom" then in type box write "-"

In [split column] options click on [By delimiter]

Power Query Editor

Transform

Add column

View

Help

Queries [1]

Order Data

Customer ID

Cookies

Split column

By delimiter

Separator *

--Custom--

-

OK

Cancel

Completed (0.77 s) Columns: 8 Rows: 99+

If there are columns that need to be separated into different columns, using a delimiter can make transformation easy

Change Column Name – Customer ID.1 and 2

Often the names will have to be changed for the headers when columns are transformed

Click on the header and write the new name

Home Transform Add column View Help

Close & load Get data Enter data Options Manage parameters Refresh Properties Advanced editor Manage columns Reduce rows Sort Transform Combine

Queries [1] Order Data

Table.RenameColumns(#"Changed column type 1", {"Customer ID.1", "Customer Name", "Cookies Shipped"})

	ABC 123 Order ID	123 Customer ID	A B Customer Name	123 Cookies Shipped
1	413383	152689	YT Restaurants	
2	751142	985245	Quick Bite Convenience St...	
3	876056	985245	Quick Bite Convenience St...	
4	548247	985245	Quick Bite Convenience St...	
5	626350	152689	YT Restaurants	
6	200181	325698	Cascade Grovers	
7	711368	152689	YT Restaurants	
8	958419	325698	Cascade Grovers	
9	808349	985245	Quick Bite Convenience St...	
10	392582	985245	Quick Bite Convenience St...	
11	415147	152689	YT Restaurants	
12	656789	325698	Cascade Grovers	
13	247229	325698	Cascade Grovers	
14	532184	985245	Quick Bite Convenience St...	
15				

Query settings >

Properties

Name: Order Data

Applied steps

- Source
- Navigation 1
- Promoted header
- Changed column type 1
- Filtered rows
- Split column by delimiter
- Changed column type 2
- Renamed column

Step

Hands-on Activity #1

- Bring in the 2020 Data Set into Power Query
 - Remove columns
 - Filter data
 - Split columns
- The result should look like the demo Hands-on Data Set



Reuse Script

Once you have all the steps done for your query, you can reuse it.



Open 2019 and run the steps from 2017-2018 by pasting them in the query formula bar.

A screenshot of the 'Query settings' pane in Power Query. The 'Name' is set to 'Order Data'. The 'Applied steps' section lists the following steps:

- Source
- Navigation 1
- Promoted headers
- Changed column names
- Filtered rows
- Split column by delimiter
- Changed column types
- Renamed columns
- Added custom step
- Reordered columns

The 'Reordered columns' step is highlighted with a green background. A red arrow points from the text in the previous slide to the formula bar, and another red arrow points from the 'Reordered columns' step in the settings pane to the 'Step' button at the bottom right of the Power Query ribbon.

Advanced Query Code

```
let
    Source = Excel.Workbook(File.Contents("/Users/vanessacasillas/Desktop/Workshop Content/2017_2018_Order_Data.xlsx"), null, true),
    Navigation = Source{[Item = "Order Data 2017 2018", Kind = "Sheet"]}[Data],
    #"Promoted headers" = Table.PromoteHeaders(Navigation, [PromoteAllScalars = true]),
    #"Changed column type" = Table.TransformColumnTypes(#"Promoted headers", {[{"Order ID", type any}, {"Customer ID", type text}, {"Cookies Shipped", Int64.Type}, {"Revenue", Int64.Type}, {"Cost", type number}, {"Order Date", type date}, {"Ship Date", type date}, {"Order Status", type text}}),
    #"Removed columns" = Table.RemoveColumns(#"Changed column type", {"Order Status"}),
    #"Filtered rows" = Table.SelectRows(#"Removed columns", each ([Order ID] <> "XXXXXX")),
    #"Split column by delimiter" = Table.SplitColumn(#"Filtered rows", "Customer ID", Splitter.SplitTextByDelimiter(" - "), {"Customer ID.1", "Customer ID.2"}),
    #"Changed column type 1" = Table.TransformColumnTypes(#"Split column by delimiter", {[{"Customer ID.1", Int64.Type}, {"Customer ID.2", type text}}),
    #"Renamed columns" = Table.RenameColumns(#"Changed column type 1", {[{"Customer ID.1", "Customer ID"}, {"Customer ID.2", "Customer Name"}]})
in
    #"Renamed columns"
```

Change source and navigation fields only

```
let
    Source = Excel.Workbook(File.Contents("/Users/vanessacasillas/Desktop/Workshop Content/2019_Order_Data_WB.xlsx"), null, true),
    Navigation = Source{[Item = "Order_data_2019", Kind = "Sheet"]}[Data],
```

Break

Change Data Type – Revenue and Cost Columns

Home Transform Add column View Help

Close & load Get data Enter data Options Manage parameters Refresh Properties Advanced editor Manage

Choose columns Remove columns Reduce rows Sort Transform Combine

Queries [1] Order Data

Table.RenameColumns(#"Changed column type 1", {"Customer ID.1",

	Name	Cookies Shipped	Revenue	Cost	Order Date	Ship Date
1		936	1.2	Decimal number	12/31/2017	1/5/20
2	enience Sto...	987	\$	Currency	12/31/2017	1/4/20
3	enience Sto...	270	123	Whole number	12/30/2017	1/3/20
4	enience Sto...	925	%	Percentage	12/30/2017	1/3/20
5		974		Date/Time	12/29/2017	1/3/20
6	s	454		Date	12/30/2017	1/2/20
7		484		Time	12/28/2017	1/2/20
8	s	269		Date/Time/Zone	12/29/2017	1/1/20
9	enience Sto...	396		Duration	12/29/2017	1/1/20
10	enience Sto...	121		Text	12/28/2017	1/1/20
11		373		True/False	12/27/2017	1/1/20
12	s	118		Binary	12/28/2017	12/30/20
13	s	137		Using locale...	12/27/2017	12/30/20
14	enience Sto...	574			12/26/2017	12/30/20
15						

Query settings

Properties

Name: Order Data

Applied steps

- Source
- Navigation 1
- Promoted header
- Changed column
- Filtered rows
- Split column by delimiter
- Changed column
- Renamed column

Columns: 9 Rows: 99+

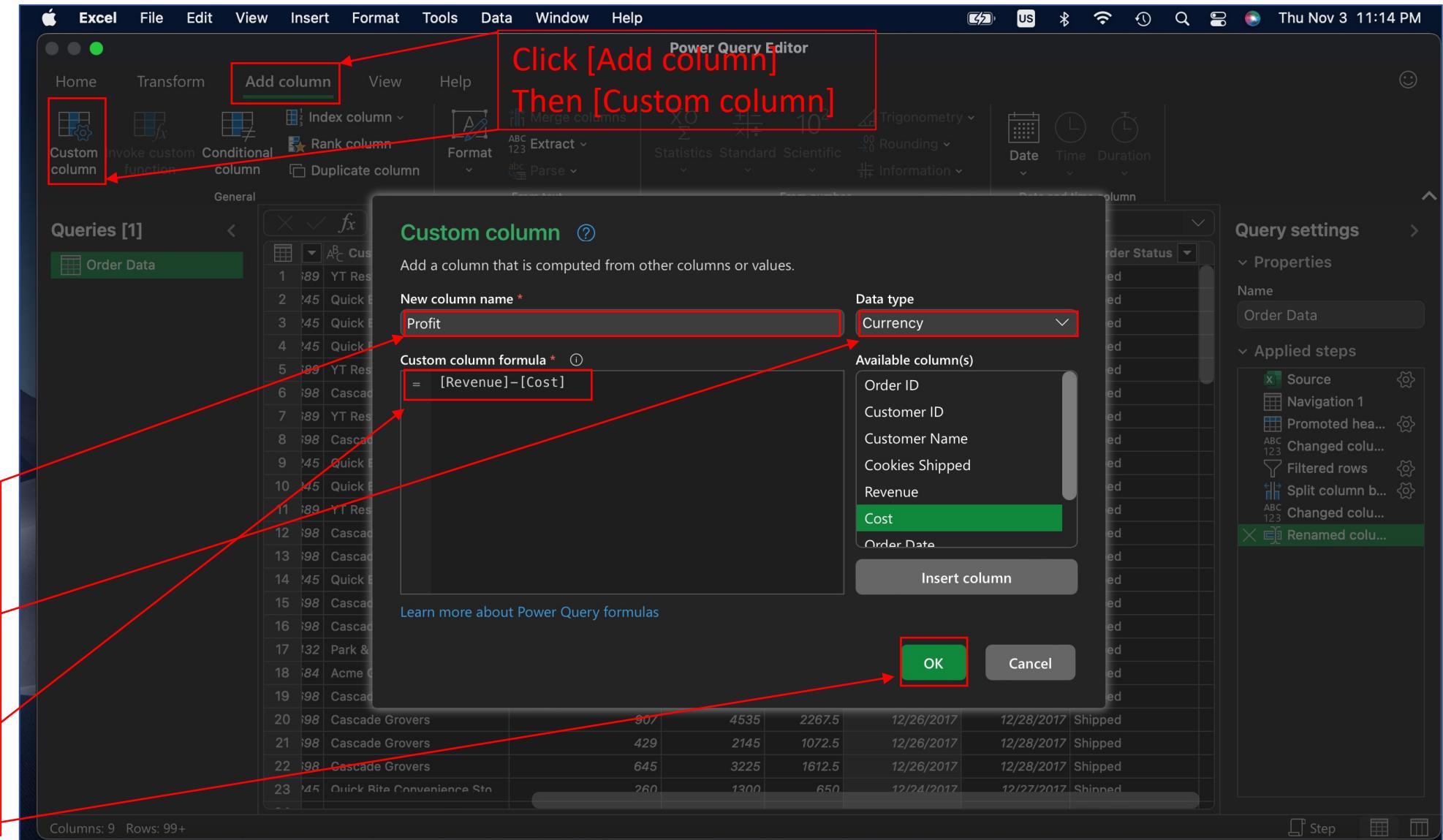
Step

Data types often must be changed when working in Power Query

Create New Column – Profit Column

Power Query
can not do
complex
mathematic
formulas, yet it
can do simple
column math

When the window pops up
Fill in [New column name],
Change [Data type] and
write the column formula
in [custom column formula], then click [Ok]



Date Calculation – Days to Ship

The screenshot shows the Power Query Editor interface in Excel. A red box highlights the 'Add column' button in the ribbon. Another red box highlights the 'Date' icon in the formula bar. A callout box with a red border points to the 'Subtract days' option in the context menu that appears when right-clicking on a cell. The 'Applied steps' pane on the right shows several steps, with 'Added custom' and 'Reordered columns' highlighted in green.

Click [Add column]
Then in the [Date] option click [Subtract days]

Subtract days.
Create a new column that contains the number of days between the values in the first and second selected columns.

Query settings

- Properties
- Name: Order Data
- Applied steps

 - Source
 - Navigation 1
 - Promoted header
 - Changed column
 - Filtered rows
 - Split column by delimiter
 - Changed column
 - Renamed column
 - Added custom
 - Reordered columns

Columns: 10 Rows: 99+

Step Notes Comments

Slide 21 of 21 English (United States) Accessibility: Investigate

Using the date in the data can give insight

Close and Load

Home

Close & load

Click close and load and the data is now in excel as a new sheet

A	B	C	D	E	F	G	H	I	J	K	L	M
1	Order ID	Customer ID	Customer Name	Cookies Shipped	Revenue	Cost	Profit	Order Date	Ship Date	Days to Ship	Order Status	
2	413383	152689	YT Restaurants	936	4680	2340	2340	12/31/17	1/5/18	5	Shipped	
3	751142	985245	Quick Bite Convenience Stores	987	4935	2467.5	2467.5	12/31/17	1/4/18	4	Shipped	
4	876056	985245	Quick Bite Convenience Stores	270	1350	675	675	12/30/17	1/3/18	4	Shipped	
5	548247	985245	Quick Bite Convenience Stores	925	4625	2312.5	2312.5	12/30/17	1/3/18	4	Shipped	
6	626350	152689	YT Restaurants	974	4870	2435	2435	12/29/17	1/3/18	5	Shipped	
7	200181	325698	Cascade Grovers	454	2270	1135	1135	12/30/17	1/2/18	3	Shipped	
8	711368	152689	YT Restaurants	484	2420	1210	1210	12/28/17	1/2/18	5	Shipped	
9	958419	325698	Cascade Grovers	269	1345	672.5	672.5	12/29/17	1/1/18	3	Shipped	
10	808349	985245	Quick Bite Convenience Stores	396	1980	990	990	12/29/17	1/1/18	3	Shipped	
11	392582	985245	Quick Bite Convenience Stores	121	605	302.5	302.5	12/28/17	1/1/18	4	Shipped	
12	415147	152689	YT Restaurants	373	1865	932.5	932.5	12/27/17	1/1/18	5	Shipped	
13	656789	325698	Cascade Grovers	118	590	295	295	12/28/17	12/30/17	2	Shipped	
14	247229	325698	Cascade Grovers	137	685	342.5	342.5	12/27/17	12/30/17	3	Shipped	
15	532184	985245	Quick Bite Convenience Stores	574	2870	1435	1435	12/26/17	12/30/17	4	Shipped	
16	412714	325698	Cascade Grovers	541	2705	1352.5	1352.5	12/27/17	12/29/17	2	Shipped	
17	771432	325698	Cascade Grovers	932	4660	2330	2330	12/27/17	12/29/17	2	Shipped	
18	363695	785432	Park & Eat LLC	172	860	430	430	12/24/17	12/29/17	5	Shipped	
19	395821	452584	Acme Grocery Stores	647	3235	1617.5	1617.5	12/26/17	12/28/17	2	Shipped	
20	234191	325698	Cascade Grovers	660	3300	1650	1650	12/26/17	12/28/17	2	Shipped	
21	584039	325698	Cascade Grovers	907	4535	2267.5	2267.5	12/26/17	12/28/17	2	Shipped	

Pivot Chart – YOY Profit

The screenshot shows a Microsoft Excel interface with the following details:

- Excel ribbon:** The "Insert" tab is selected (highlighted with a red box). A red arrow points from the "Insert" tab to the "PivotChart" icon in the "Charts" group.
- Pop-up window:** A "Create PivotChart" dialog box is open, overlaid on the Excel window. It contains two main sections:
 - Choose the data that you want to analyze:** The "Select a table or range" option is selected. The "Table/Range" dropdown shows "Order_Data".
 - Choose where you want the PivotChart to be placed:** The "New worksheet" option is selected. The "Table/Range" dropdown is empty.
- OK button:** A red box highlights the "OK" button at the bottom right of the dialog box.
- Data table:** In the background, there is a large data table titled "Order Data" with columns including Order ID, Customer ID, Customer Name, Cookies Shipped, Revenue, Cost, Profit, Order Date, Ship Date, Days to Ship, and Order Status.
- Formula Bar:** The formula bar shows "fx 669".
- Sheet tabs:** The tabs at the bottom are "Sheet3" and "Order Data".
- Bottom status bar:** The status bar shows "Page 1 of 2", "7 of 517 words", "English (United States)", "Text Predictions: On", and "100%".

Make a quick pivot chart with the transformed data set

Click [Insert] in the ribbon
Then [Pivot Chart]
In the pop-out window click [OK]

Pivot Chart – YOY Profit

Thu Nov 3 11:50 PM

Book1

B3 1116512.5

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Row Labels	Sum of Profit													
2	2017	1018470													
3	2018	1116512.5													
4	2019	1073637.5													
5	Grand Total	3208620													
6															
7															
8															
9															
10															
11															
12															
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25															
26															
27															
28															
29															

PivotTable Fields

FIELD NAME Search fields

- Order ID
- Customer ID
- Customer Name

Filters Columns

Rows Values

Years Sum of Profit

Drag fields between areas

Sheet3 Order Data Sheet1 + 100%

Ready Accessibility: Investigate Notes Comments

Slide 23 of 23 English (United States) Accessibility: Investigate 80% 100%

Hands-on Activity #2

- In the 2020 Data Set
 - Change data type
 - Make a profit column
 - Calculate the Days to Ship
 - Load into Excel
 - Make a YOY Profit Pivot Chart



Append 1

Appending will help add new data to the data set

Load both files into Power Query

Click on combine and then on append queries as new

Home Transform Add column View Help

Close & load Get data Enter data Options Manage parameters Refresh Properties Advanced editor Manage Query Choose columns Remove columns Keep rows Remove rows Filter rows Reduce rows Sort Merge queries Append queries

Transform Combine

Queries [2]

2017-2018

2019

Table.TransformColumnTypes(#"Promoted headers", {"Order ID", type any}, {"Customer ID", type any})

	ABC Order...	ABC Customer ID	Cookies Shipped	Revenue	1.2 C...	Shipped Date	Order Date	Ship Mode
1	254941	785432 - Park & Eat LLC	560	2800	1400	12/30/2019	1/1/2020	Shipped
2	135063	785432 - Park & Eat LLC	432	2160	1080	12/28/2019	12/30/2019	Shipped
3	546482	325698 - Cascade Grovers	377	1885	942.5	12/25/2019	12/30/2019	Shipped
4	117498	452584 - Acme Grocery Stores	669	3345	1672.5	12/25/2019	12/30/2019	Shipped
5	677337	325698 - Cascade Grovers	331	1655	827.5	12/25/2019	12/30/2019	Shipped
6	976219	785432 - Park & Eat LLC	419	2095	1047.5	12/24/2019	12/29/2019	Shipped
7	842879	152689 - YT Restaurants	583	2915	1457.5	12/25/2019	12/27/2019	Shipped
8	444253	152689 - YT Restaurants	856	4280	2140	12/23/2019	12/27/2019	Shipped
9	814511	152689 - YT Restaurants	220	1100	550	12/22/2019	12/26/2019	Shipped
10	XXXXXX	XXXXXX - Promo	932	4660	2330	12/22/2019	12/26/2019	Shipped
11	449936	785432 - Park & Eat LLC	284	1420	710	12/21/2019	12/26/2019	Shipped
12	581638	985245 - Quick Bite Convenience S...	666	3330	1665	12/21/2019	12/26/2019	Shipped
13	925471	985245 - Quick Bite Convenience S...	696	3480	1740	12/23/2019	12/25/2019	Shipped
14	540958	152689 - YT Restaurants	758	3790	1895	12/22/2019	12/25/2019	Shipped
15	770586	152689 - YT Restaurants	766	3830	1915	12/20/2019	12/22/2019	Shipped
16	217061	325698 - Cascade Grovers	486	2430	1215	12/21/2019	12/23/2019	Shipped
17	920874	325698 - Cascade Grovers	486	2430	1215	12/21/2019	12/23/2019	Shipped
18	800930	152689 - YT Restaurants	486	2430	1215	12/21/2019	12/23/2019	Shipped
19	497571	325698 - Cascade Grovers	486	2430	1215	12/21/2019	12/23/2019	Shipped
20	590099	325698 - Cascade Grovers	486	2430	1215	12/21/2019	12/23/2019	Shipped
21	749043	785432 - Park & Eat LLC	486	2430	1215	12/18/2019	12/23/2019	Shipped
22	822138	325698 - Cascade Grovers	486	2430	1215	12/20/2019	12/22/2019	Shipped
23	233649	325698 - Cascade Grovers	486	2430	1215	12/19/2019	12/21/2019	Shipped

Append 2

Click on [Two tables],
then pick your first
and second table in
the pop out window

The screenshot shows the Microsoft Power Query Editor interface. The main area displays a table of data with columns: Order ID, Customer ID, Cookies Shipped, Revenue, Order Date, Ship Date, and Order Status. On the left, under 'Queries [2]', the '2017-2018' query is selected. A red arrow points from the text in the top right towards the 'Append' dialog box.

Power Query Editor

Queries [2]

2017-2018

2019

Append

Concatenate rows from two tables into a single table.

Two tables Three or more tables

First table *

2017-2018

Second table *

2019

OK Cancel

Query settings

Properties

Name: 2017-2018

Applied steps:

- Source
- Navigation 1
- Promoted headers
- Changed col...

Append 3

New query appears

The screenshot shows the Power BI desktop interface with the following details:

- Home ribbon:** The "Home" tab is selected. Other tabs include "Transform", "Add column", "View", and "Help".
- Queries pane:** The "Queries [3]" section lists three items: "2017-2018", "2019", and "Append". The "Append" item is highlighted with a red box.
- Table view:** A table titled "Table.Sort(Source, {{"Ship Date"}, Order.Ascending}})" is displayed. It contains 200 rows of data from the "AdventureworksLT" database, specifically from the "SalesLT.OrderDetail" table.
- Query settings pane:** On the right, the "Properties" section shows the name "Append". The "Applied steps" section shows a single step: "Source" followed by "Sorted rows".
- Bottom status bar:** Shows "Completed (1.50 s) Columns: 8 Rows: 200".

Merge 1

The screenshot shows the Power BI desktop interface with the 'Home' tab selected. In the 'Queries [2]' pane, there are two queries: 'Partial Order Data' (selected) and 'Order Data'. The 'Partial Order Data' query is displayed in the main area, showing 18 rows of order data with columns: Order ID, Ship Date, and Order Status. A red box highlights the 'Combine' icon in the 'Transform' ribbon, and another red box highlights the 'Merge queries as new' option in the dropdown menu.

Click on combine and then on append queries as new

Order ID	Ship Date	Order Status
123	715284	12/30/2018 Shipped
1	872190	12/29/2018 Shipped
2	573690	12/29/2018 Shipped
3	374723	12/27/2018 Shipped
4	156934	12/28/2018 Shipped
5	219369	12/31/2018 Shipped
6	422605	12/30/2018 Shipped
7	871564	12/29/2018 Shipped
8	786770	1/1/2019 Shipped
9	589574	1/1/2019 Shipped
10	487021	1/1/2019 Shipped
11	3997607	12/31/2018 Shipped
12	602410	12/30/2018 Shipped
13	478235	1/3/2019 Shipped
14	278043	1/2/2019 Shipped
15	474264	1/5/2019 Shipped
16	684340	1/2/2019 Shipped
17	641929	1/2/2019 Shipped

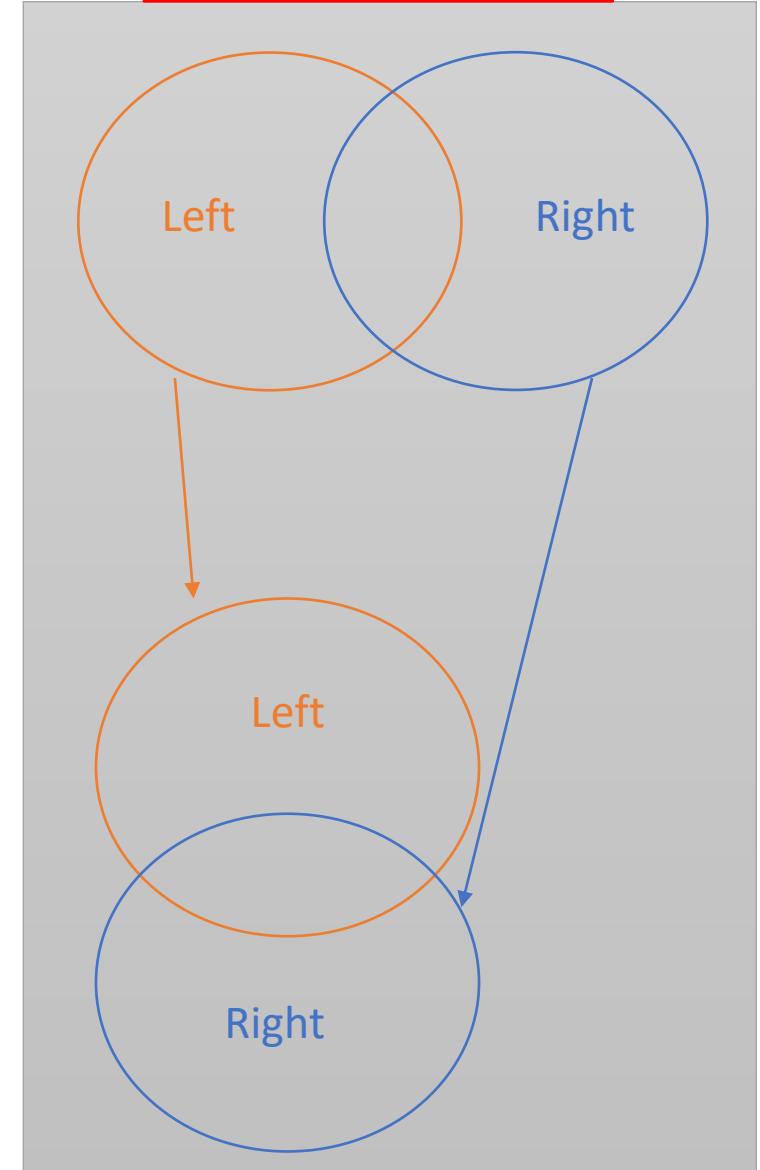
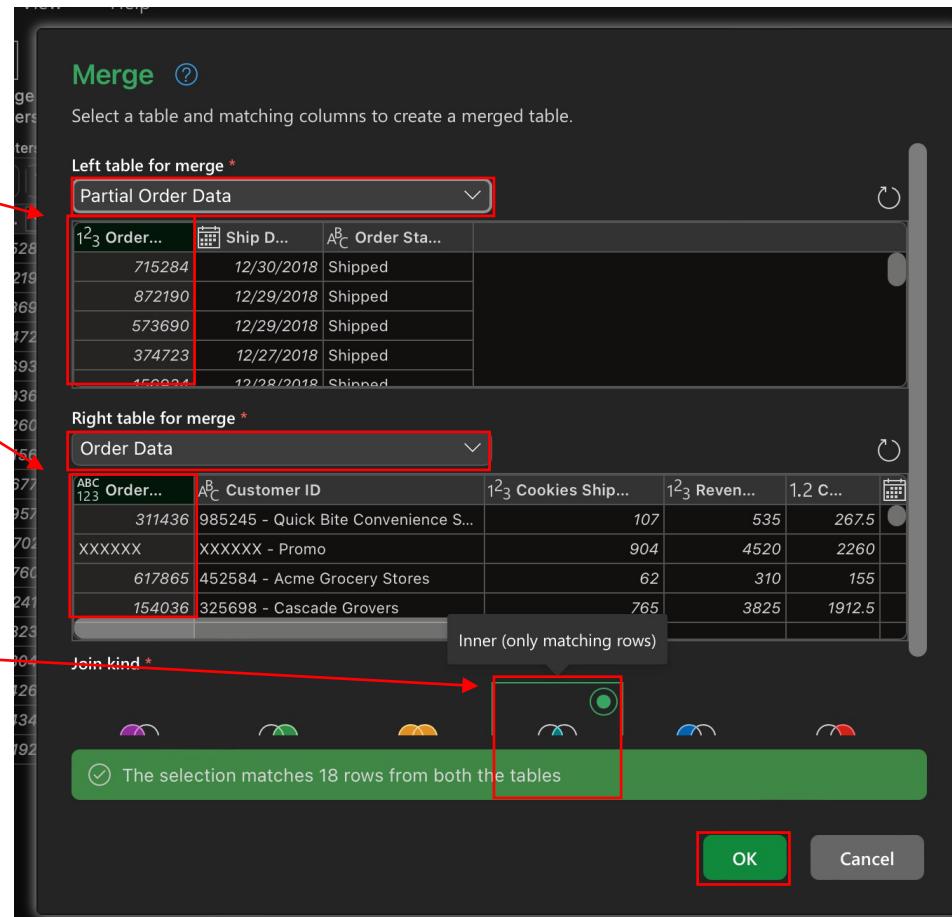
Columns: 3 Rows: 18

Step

Joins in power query

Merge 2

In the pop up, top is the left table and bottom is the right table. Select the columns that the tables will join on. Then select the type of join.



Merge 3

Select the column merged to show more details, in pop out window show which data will be merged, then ok

The screenshot shows the Power BI desktop interface with the 'Merge' step selected in the 'Queries [3]' pane. The main area displays a table with 18 rows, each containing an Order ID, Ship Date, and Order Status. A context menu is open over the fourth row, specifically over the 'Order Data' column header. This menu has a red border around its options. A red arrow points from the top text 'Select the column merged to show more details, in pop out window show which data will be merged, then ok' to the 'OK' button at the bottom right of the context menu. Another red arrow points from the same text to the 'Customer ID' checkbox in the list of columns. The context menu also includes options like '(Select all)', 'Cookies Shipped', 'Revenue', 'Cost', 'Order Date', 'Ship Date', and 'Order Status'. The 'OK' button is highlighted with a red box.

Completed (0.76 s) Columns: 4 Rows: 18

Home Transform Add column View Help

Close & load Get data Enter data Options Manage parameters Refresh Properties Advanced editor Manage

Choose columns Remove columns Keep rows Remove rows Filter rows Reduce rows Sort Transform Combine

Queries [3]

- Partial Order Data
- Order Data
- Merge

	Order ID	Ship Date	Order Status	Order Data
1	715284	12/30/2018	Shipped	[Table]
2	872190	12/29/2018	Shipped	[Table]
3	573690	12/29/2018	Shipped	[Table]
4	374723	12/27/2018	Shipped	[Table]
5	156934	12/28/2018	Shipped	[Table]
6	219369	12/31/2018	Shipped	[Table]
7	422605	12/30/2018	Shipped	[Table]
8	871564	12/29/2018	Shipped	[Table]
9	786770	1/1/2019	Shipped	[Table]
10	589574	1/1/2019	Shipped	[Table]
11	487021	1/1/2019	Shipped	[Table]
12	397607	12/31/2018	Shipped	[Table]
13	602410	12/30/2018	Shipped	[Table]
14	478235	1/3/2019	Shipped	[Table]
15	278043	1/2/2019	Shipped	[Table]
16	474264	1/5/2019	Shipped	[Table]
17	684340	1/2/2019	Shipped	[Table]
18	641929	1/2/2019	Shipped	[Table]

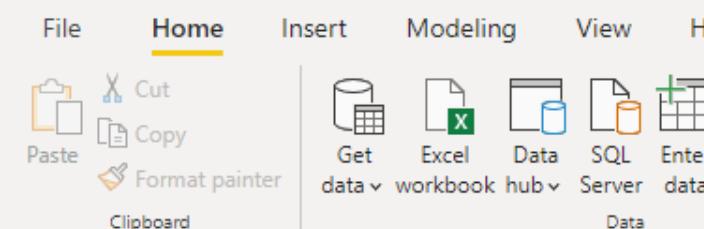
Query settings

- Properties
- Name: Merge
- Applied steps: Source

Hands-on Activity #3

- In the 2020 Data Set
 - Append





Get Data

Search

All

Excel Workbook

File

Database

Power Platform

Azure

Online Services

Other

Text/CSV

XML

JSON

Folder

PDF

Parquet

SharePoint folder

SQL Server database

Access database

SQL Server Analysis Services database

Oracle database

IBM Db2 database

IBM Informix database (Beta)

IBM Netezza

MySQL database

Certified Connectors

Template Apps

Connect

Cancel

X

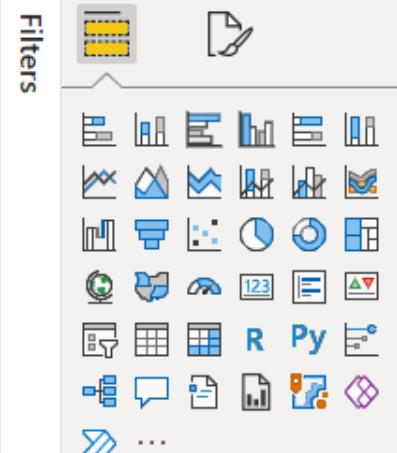
Publish

Share

View recovered files

Visualizations

Build visual



Values

Add data fields here

Drill through

Cross-report

 Off

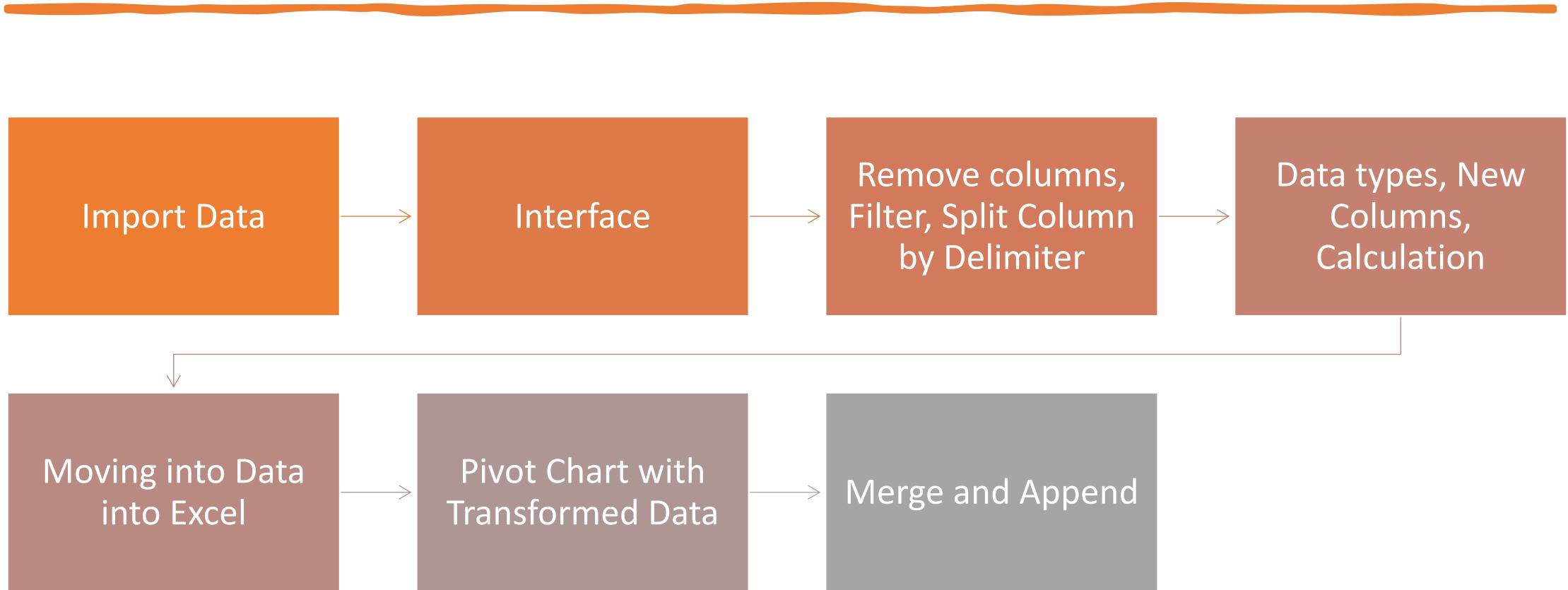
Keep all filters

 On

Add drill-through fields here



Summary



Resources

- LinkedIn Learning: <https://www.linkedin.com/learning-login/>
- Microsoft: <https://learn.microsoft.com/en-us/power-query/>



Thank you

- Send workbooks to: qcl@cmc.edu

