Power BI

POWER BI: AN INTRODUCTION

Data Collection and Manipulation

ABSTRACT

Power BI is quickly becoming the most powerful business intelligence data analytics platform. An understanding of Power BI is essential for data professionals. With Power BI it is possible to connect to many different types of data, easily manipulate and analyze the data, and then create stunning, interactive dashboards to provide visuals for your audience. This interactive seminar provides an introductory understanding of Power BI Desktop data collection and manipulation.

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Description

Because Power BI Desktop is quickly becoming the most powerful business intelligence data analytics platform, an understanding of Power BI Desktop is essential for data professionals.

With Power BI Desktop it is possible to connect to many different types of data, easily manipulate and analyze the data, and then create stunning, interactive dashboards to provide visuals for your audience.
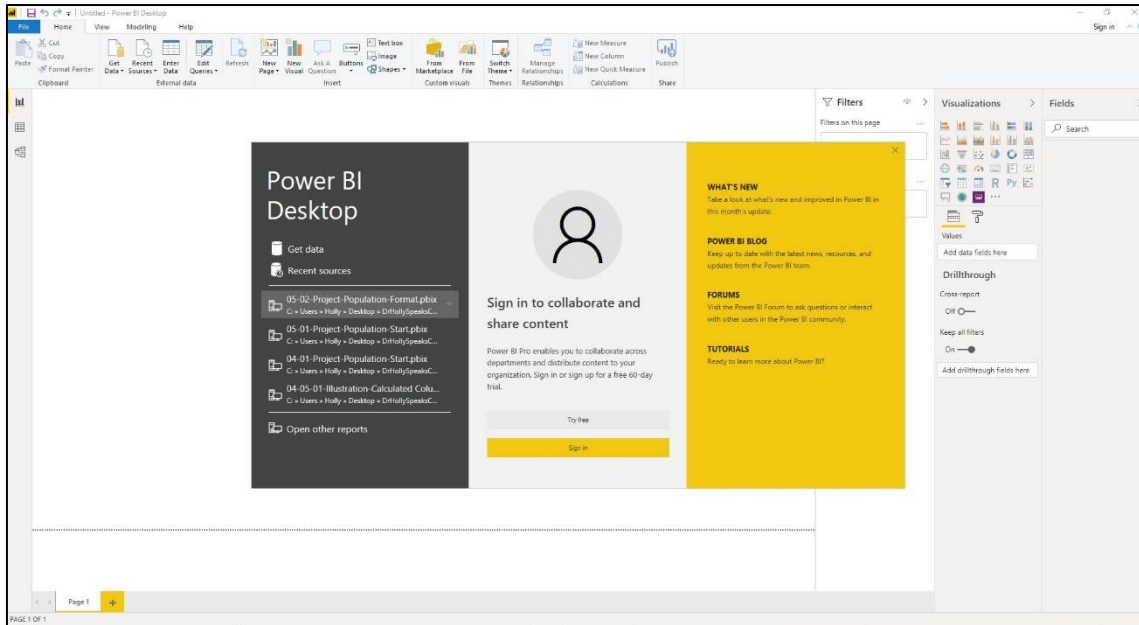
There are four different approaches to using Power BI, as shown below. This course will focus on the Power BI Desktop topics, which include importing, cleaning and manipulating datasets, and creating visualizations to include tiles and reports.

Power BI Tools

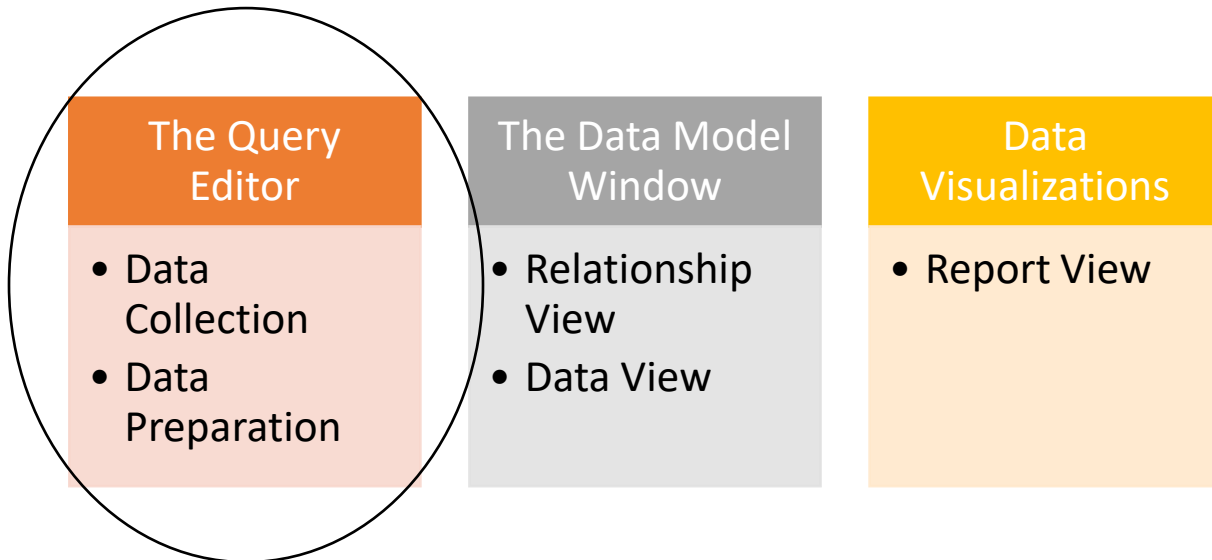|	For End Users		For Developers
Power BI Desktop	Power BI Service	Power BI Mobile	Customize Power BI
Local	Cloud	Mobile App	
Datasets	Datasets	Access Data	
Visualizations	Visualizations		
Tiles	Tiles		
Reports	Reports		
	Dashboards		
	Sharing Results		

Anyone can download the Power BI Desktop app and use it for free.   Power BI Service is a for-pay option which enables data sharing.

The Initial Power BI Desktop Window

Once Power BI has been downloaded and installed, the initial window will look like the following.
Close the initial window by clicking in the upper right corner of the yellow strip.

**There are three step to working successfully with Power BI:**

The Query Editor	The Data Model Window	Data Visualizations
• Data Collection • Data Preparation	• Relationship View • Data View	• Report View

**This session will focus on the FIRST box – the Query Editor.**

The Power BI Desktop Interface

After you get into Power BI Desktop, the first window you will see is the Data Model window for Power BI. The three areas that we work with in Power BI are the three tools on the left side of the window.
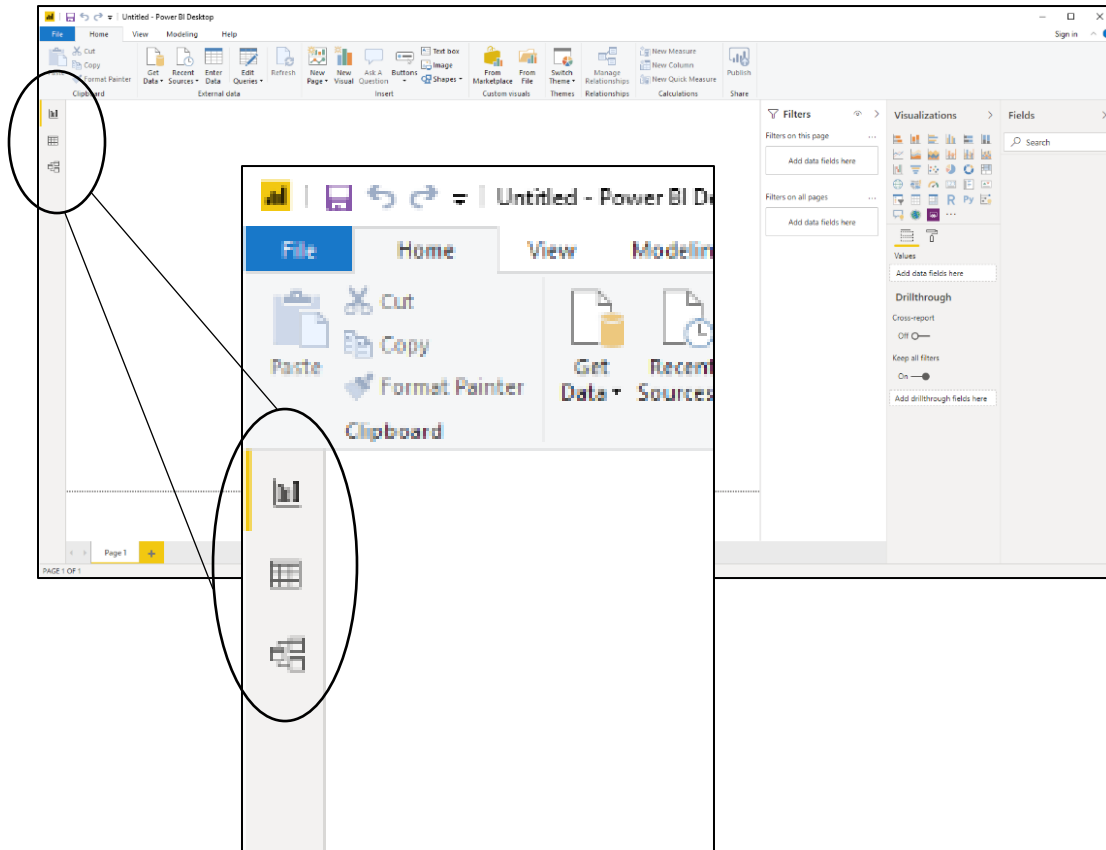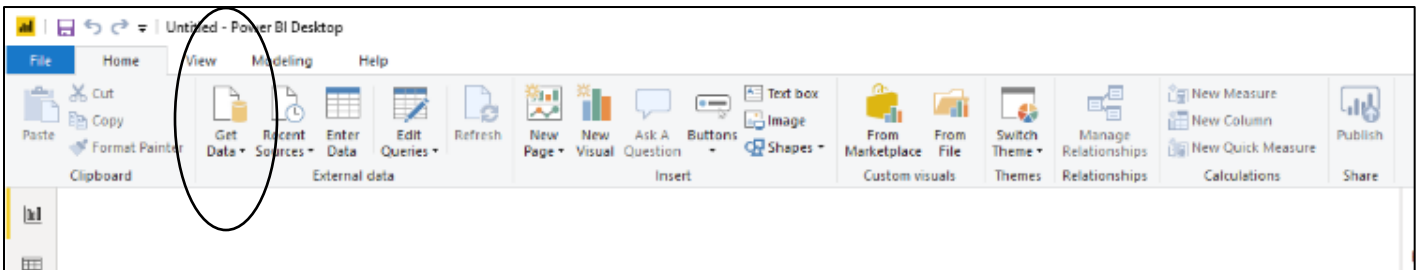

The first tool is the Report View tool. The second is the Data tool. The last tool is the Model tool.
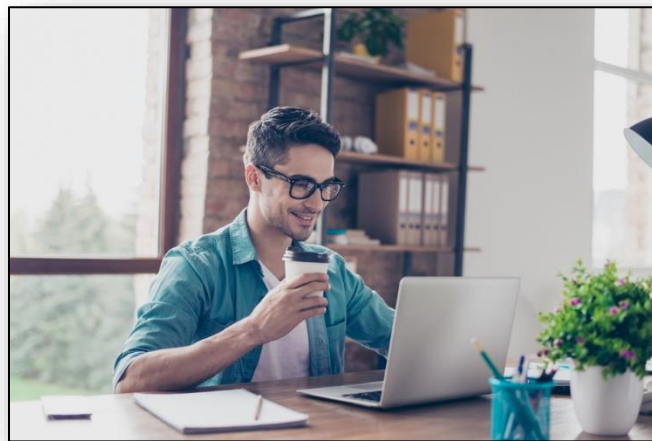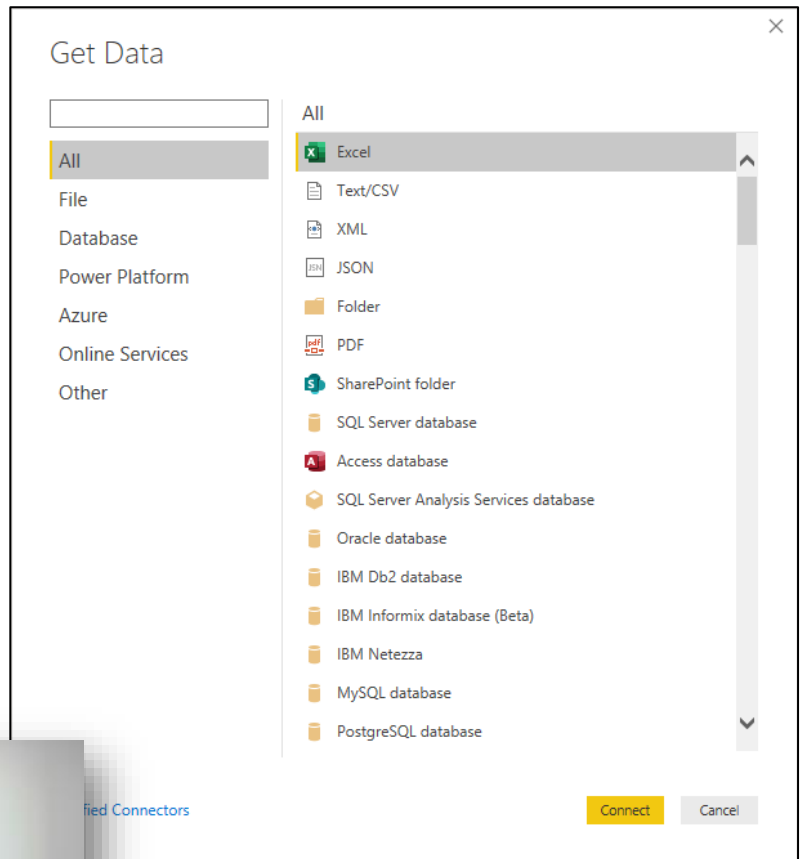

Acquiring Data

To pull data into Power BI, click on the Get Data on the Data Model window toolbar.

There are many different types of datasets that we can connect to using Power BI Desktop.

For the purposes of learning Power BI, we will focus on three of the types:

- Excel
- Text/CSV
- Access database

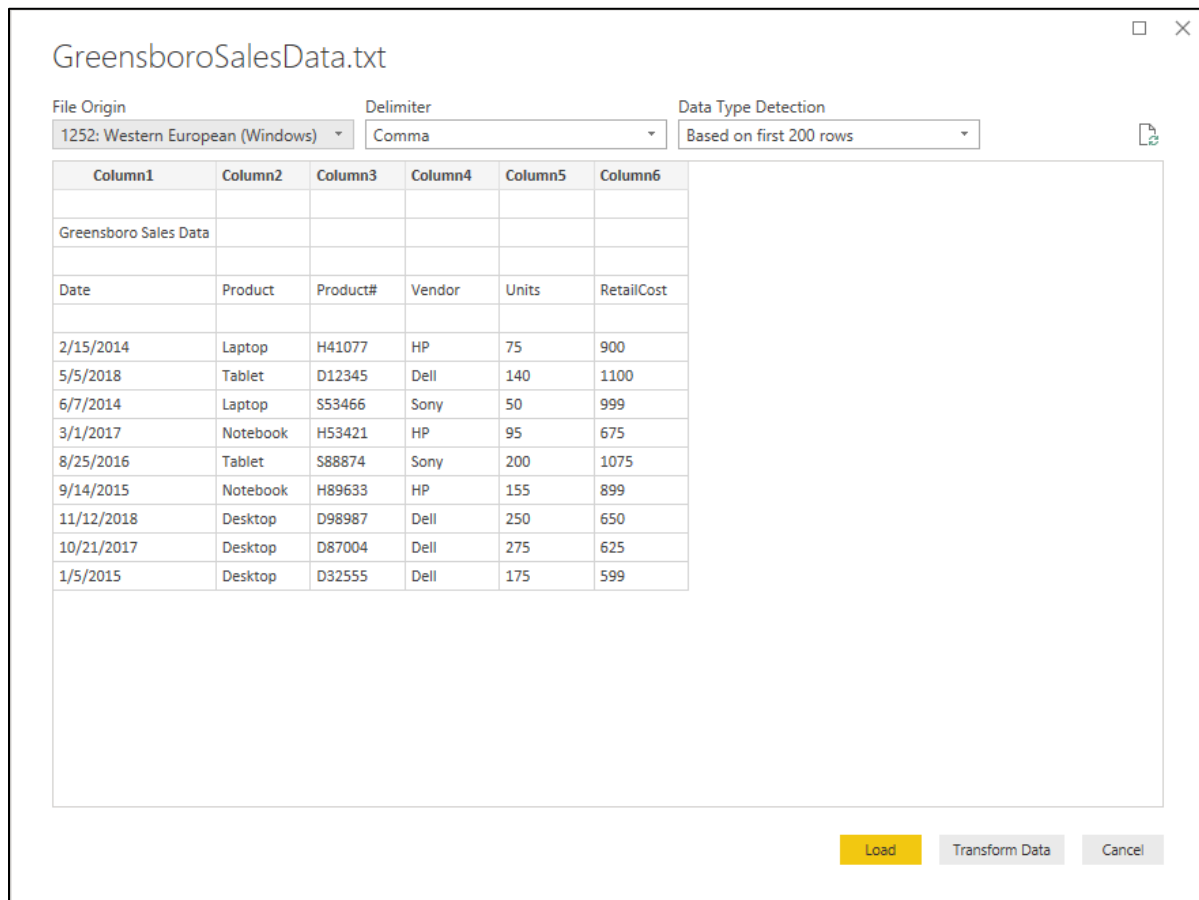# Acquiring Data: Connecting to Text/CSV Datasets

To connect to a Text/CSV dataset in Power BI Desktop:

- Click on Get Data on the ribbon
- Click on Text/CSV
- Click on Connect
- Navigate to the dataset and click on it once to select it
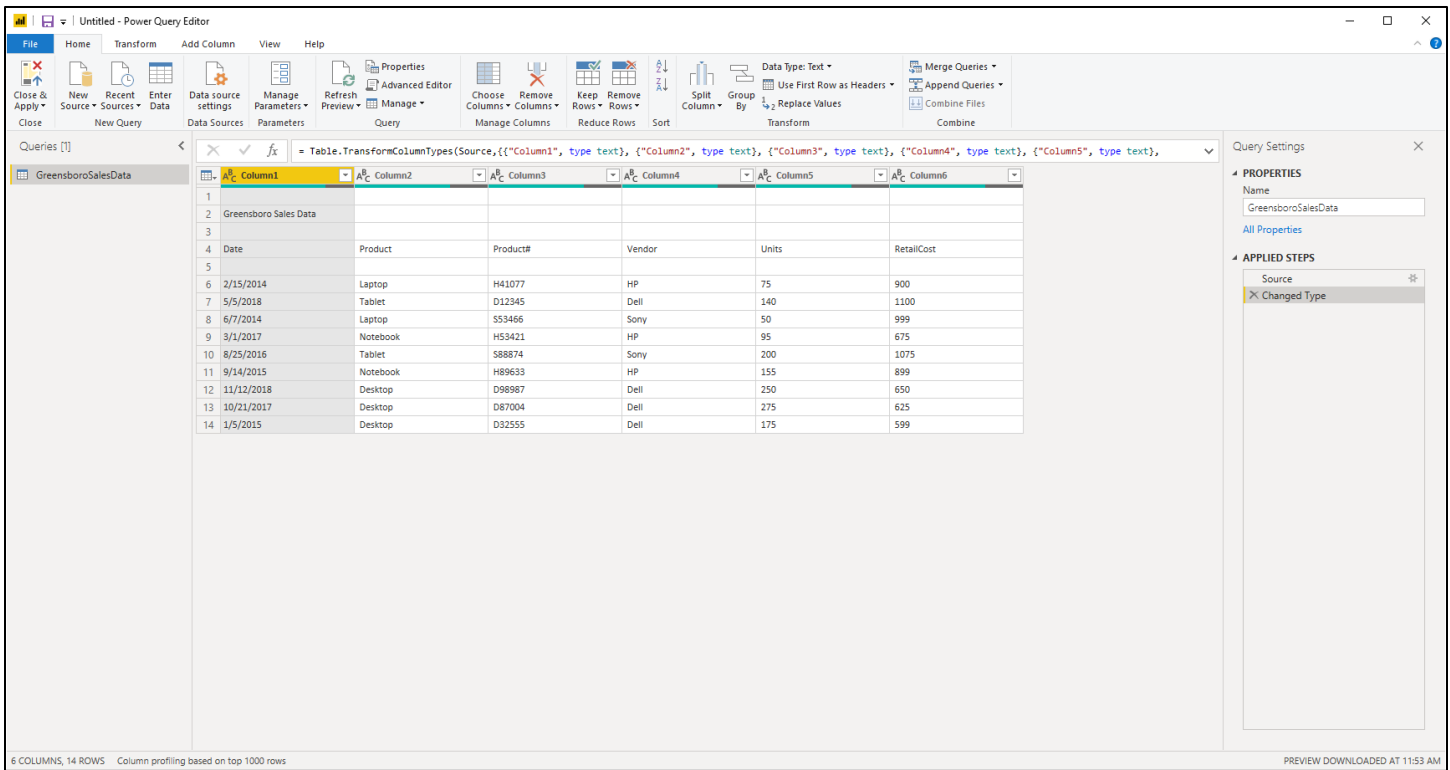- Click on the Open command button in the lower right

You will now see the import edit window.

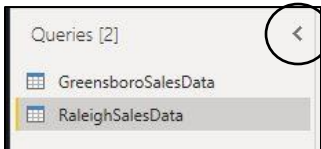- **Click on Transform Data to control how the data is pulled into Power BI Desktop.**

This will take you into the Query Editor window, where you can manipulate the data before it is placed into Power BI Desktop.

GreensboroSalesData.txt

File Origin: 1252: Western European (Windows)
Delimiter: Comma
Data Type Detection: Based on first 200 rows

Column1	Column2	Column3	Column4	Column5	Column6
Greensboro Sales Data					
Date	Product	Product#	Vendor	Units	RetailCost
2/15/2014	Laptop	H41077	HP	75	900
5/5/2018	Tablet	D12345	Dell	140	1100
6/7/2014	Laptop	S53466	Sony	50	999
3/1/2017	Notebook	H53421	HP	95	675
8/25/2016	Tablet	S88874	Sony	200	1075
9/14/2015	Notebook	H89633	HP	155	899
11/12/2018	Desktop	D98987	Dell	250	650
10/21/2017	Desktop	D87004	Dell	275	625
1/5/2015	Desktop	D32555	Dell	175	599

Load | Transform Data | Cancel
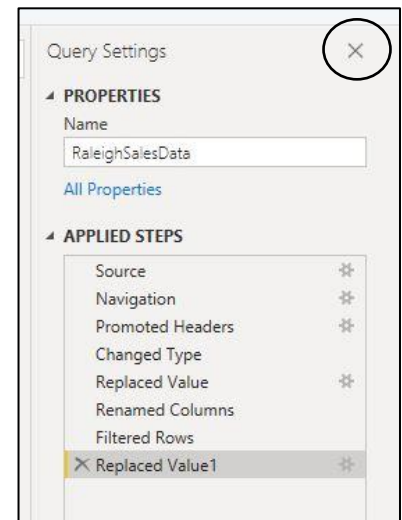
The Query Editor Window

At the top, you will see a new ribbon, and the Home tab is active.

<u>On the left</u>, you will see the name of the dataset you are importing. **NOTE:** *This part of window can be expanded and collapsed using the arrow on the right side of the pane.*

<u>In the middle</u>, you will see the fields and a data sample that you are importing.

<u>On the right</u>, you will see the Query Settings for this dataset – eventually this window will contain a list of the steps you take to transform the data.

The Query Editor: Removing Rows from a Dataset
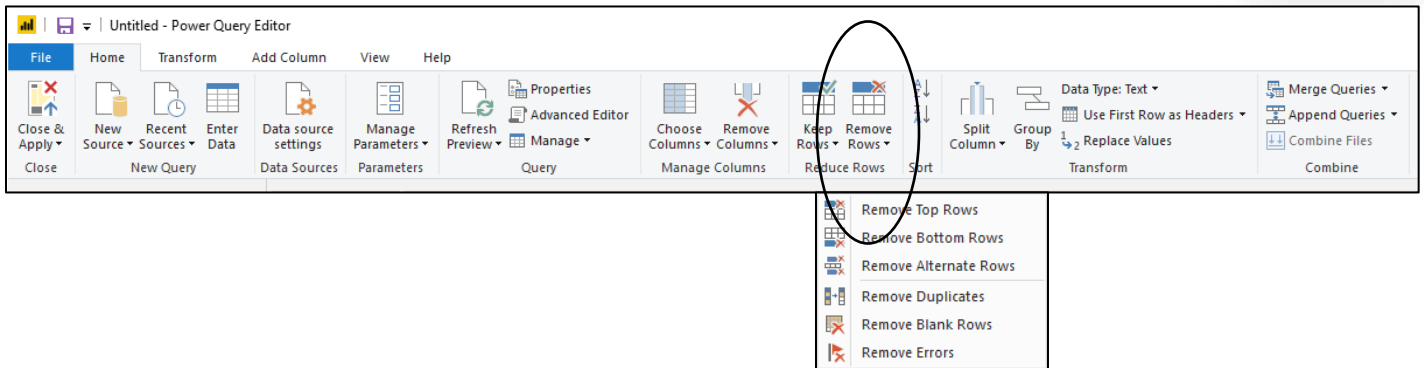
Often, datasets will import with blank rows and/or title rows – caused by the source used for dataset creation. Blank rows and title rows are not useful for data manipulation, so they must be removed.

To remove rows, use the Remove Rows tool on the Home tab of the ribbon.


Remove Top Rows is one of the frequently used options. The Remove Top Rows dialog window will ask you to specify how many rows should be removed. Enter a number and click on OK.

The Remove Blank Rows is also a frequently used option. Simply click on that option and blank rows will be removed.

The Query Editor: Removing a Column

You many notice that the dataset contains additional columns we do not need in our data model. To remove a column:

- Click on the column heading of the unnecessary column
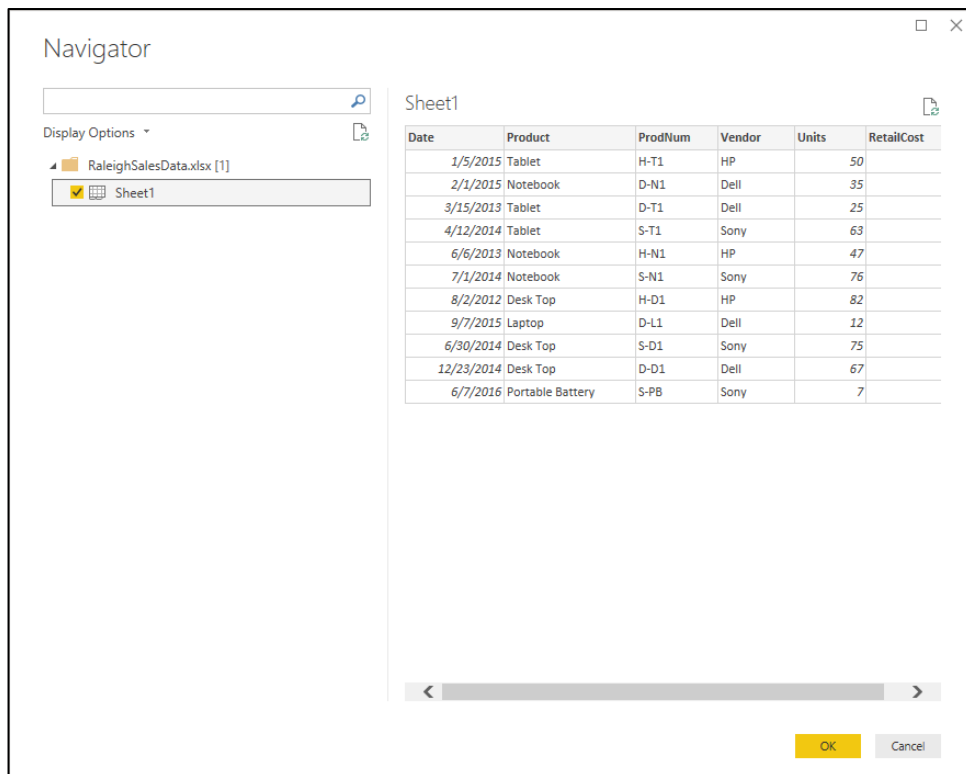- Click on the Remove Columns tool on the Home tab of the ribbon
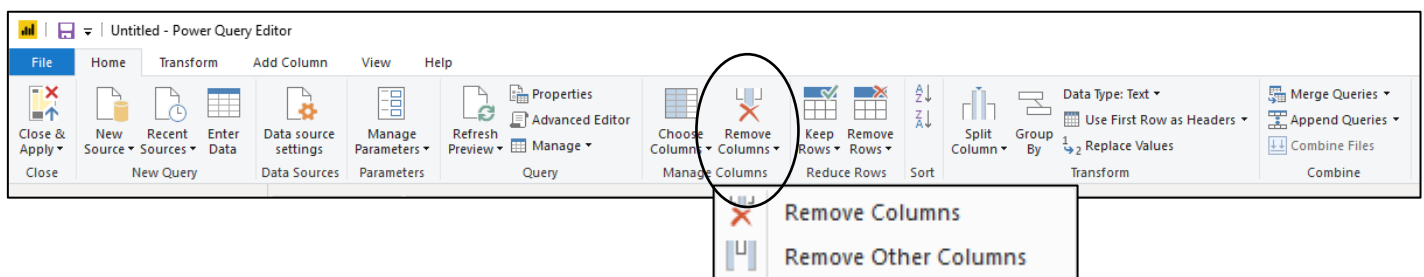
You can either click on Remove Columns to remove the columns you have highlighted, or Remove Other Columns to remove anything NOT highlighted.

Be careful to watch what you are highlighting and what your choice is!

The Query Editor: Importing a Microsoft Excel Dataset

To bring in additional datasets into the Query Editor Window, click on New Source in the upper left corner of the window.   To pull in a Microsoft Excel Dataset:

- Click on the New Source tool on the left side of the Home tab on the ribbon
- Click on Excel
- Click on Connect
- Navigate to the correct Excel file and click on it once to select it
- Click on the Open button in the lower right corner
- Check the box next to the spreadsheet that contains data to be imported
- Click on OK

Navigator

Display Options ▾

▲ 📁 RaleighSalesData.xlsx [1]

☑ 🔳 Sheet1

Sheet1

Date	Product	ProdNum	Vendor	Units	RetailCost
1/5/2015	Tablet	H-T1	HP	50	
2/1/2015	Notebook	D-N1	Dell	35	
3/15/2013	Tablet	D-T1	Dell	25	
4/12/2014	Tablet	S-T1	Sony	63	
6/6/2013	Notebook	H-N1	HP	47	
7/1/2014	Notebook	S-N1	Sony	76	
8/2/2012	Desk Top	H-D1	HP	82	
9/7/2015	Laptop	D-L1	Dell	12	
6/30/2014	Desk Top	S-D1	Sony	75	
12/23/2014	Desk Top	D-D1	Dell	67	
6/7/2016	Portable Battery	S-PB	Sony	7	

OK   Cancel

Notes:

The Query Editor: Importing a Microsoft Access Dataset

To bring in additional datasets into the Query Editor Window, click on New Source in the upper left corner of the window.   To pull in a Microsoft Access Dataset:

- Click on the New Source tool on the left side of the Home tab on the ribbon
- Click on Access database
- Click on Connect
- Navigate to the correct Access file and click on it once to select it
- Click on the Open button in the lower right corner
- Check the box next to the database table that contains data to be imported
- Click on OK
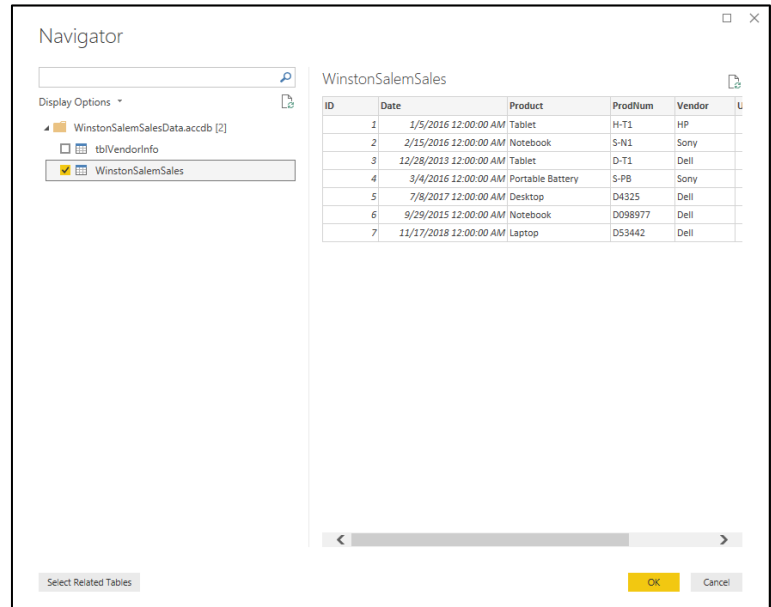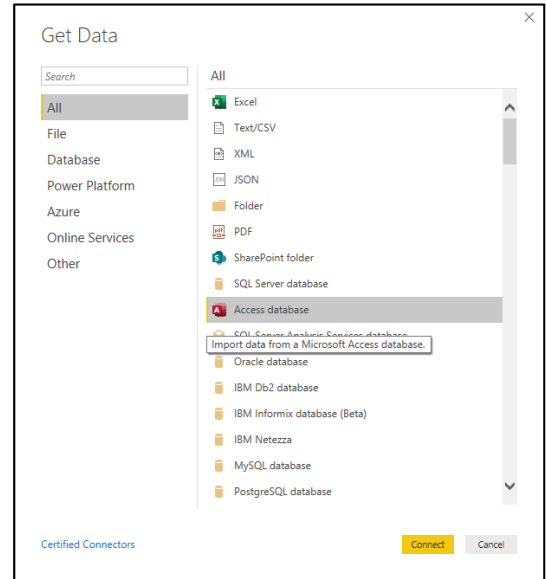

Notes:

The Query Editor: Append Queries

It is common to want to tack datasets together to make a new dataset. To do this, we can either Append or Merge the datasets.

Append vs. Merge

Append means to attach one dataset to the bottom of another dataset.
Merge means to add new columns from one dataset to another.

Append Queries

The Append query is used to add one dataset to the bottom of another dataset. Follow these steps:
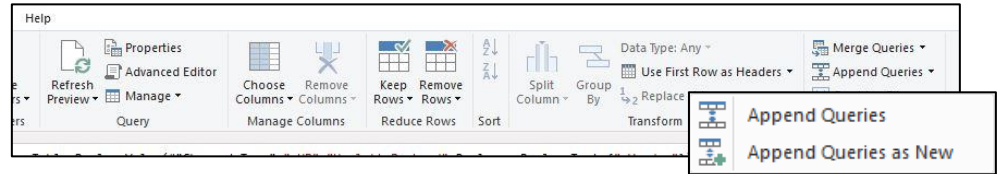
- Click on the drop down arrow on the right edge of the Append Queries tool on the Home tab of the ribbon.
- Click on Append Queries as New

Appending Two Datasets:

- Select the Primary dataset by using the drop down arrow on the right under Primary Table
- Select the Secondary dataset by using the drop down arrow on the right under Table to append to the primary table
- Click on OK
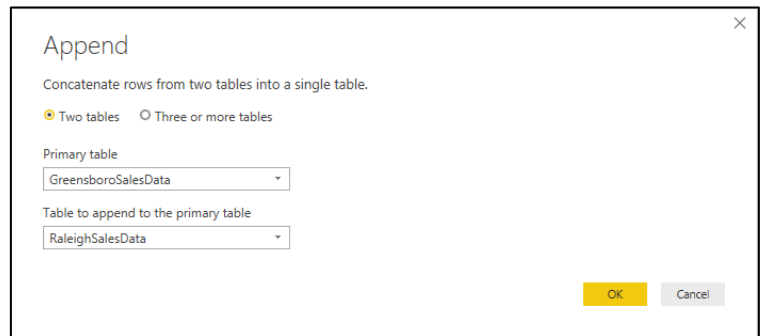
**Appending Three or More Datasets:**

- Click on the Three or more tables radio button at the top of the window
- Move the datasets from the column on the left to the column on the right by either double clicking or clicking once and selecting the Add button
- Click on OK
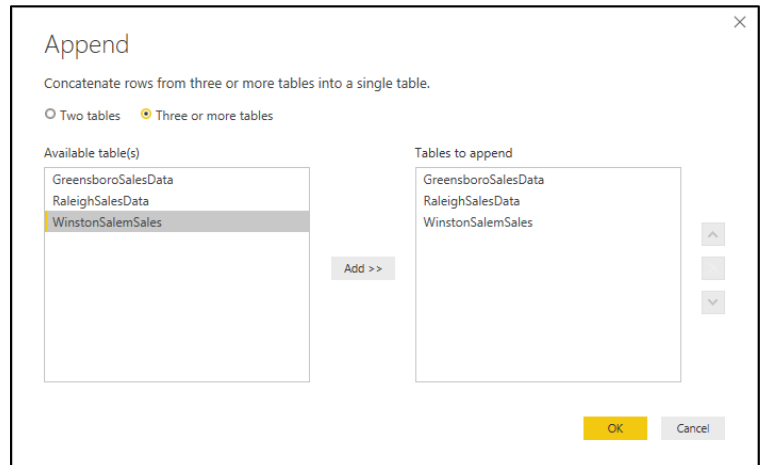
Tip: Remember to rename the new datasets that result from an append.

# The Query Editor: Returning to the Data Model Window

When data transformation for a dataset is complete, click on the Close & Apply button in the upper left corner. This will place your transformed dataset into the data model and will allow you to begin creating visuals.
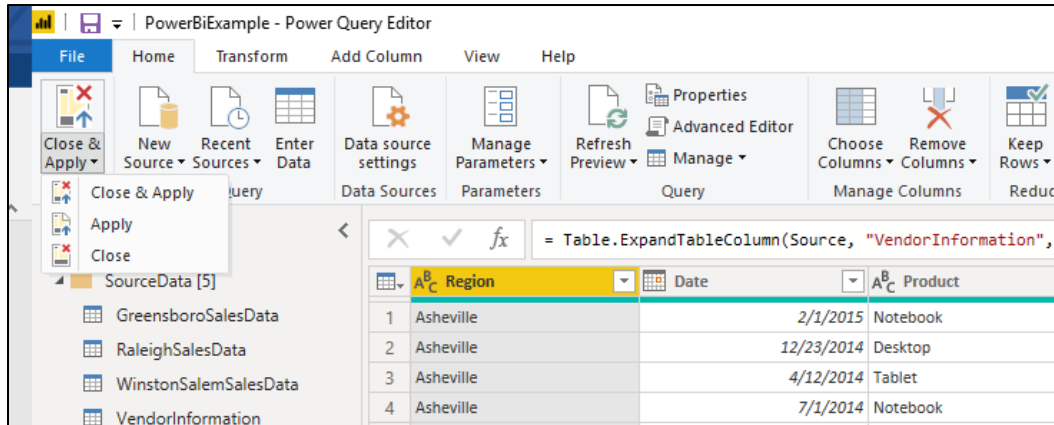
Saving the Power BI Environment

When you have returned to the data model window, you must save the Power BI environment using the following steps:

- Click on File
- Click on Save As
- Type in a name for the environment next to File name at the bottom of the window
- Click on Save
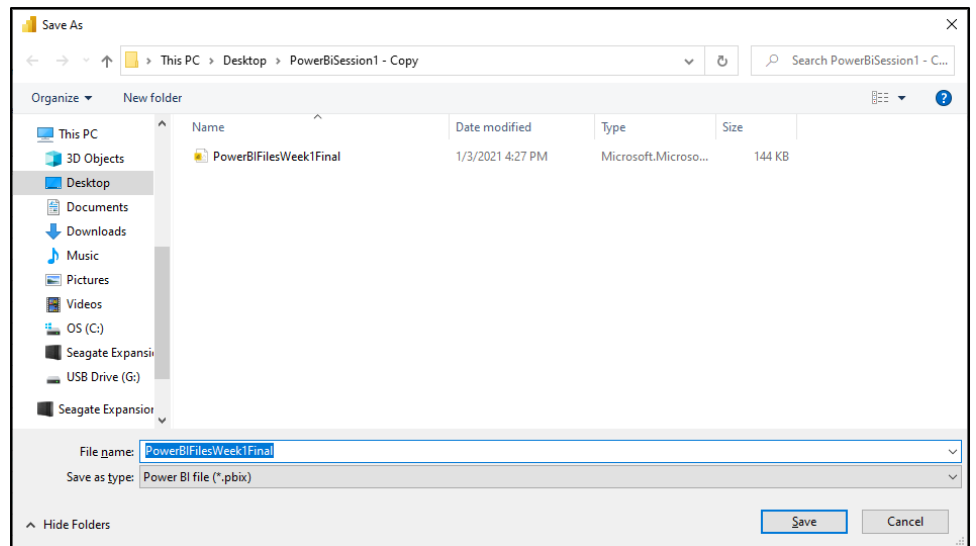
Notes:

Wrap-Up

Congratulations on completing an introduction to Power BI Desktop – Data Collection and Manipulation!

You now have a new set of analytics tools on your technology tool belt.

Please remember that as humans, we do not remember much unless we put it to practice and use it on a regular basis. So, practice when you return to work! Train someone in the office on the new concepts you think would be most useful.

If you have any questions about the material contained in this seminar, please contact Dr. Holly using any of the contact points listed below.

Happy Power BI-ing!

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