NPMA

Value Through Professional Asset Management

2017 National Education Seminar

YOUR EDUCATIONAL TRACK TO SUCCESS

July 31 - August 3

JW MARRIOTT DESERT RIDGE RESORT & SPA | PHOENIX, AZ

Excel Skills for Fleet Managers

Part 1:
Data Analysis Process, Importing, Filtering, and Summarizing Data

Presented by:
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2017 National Education Seminar
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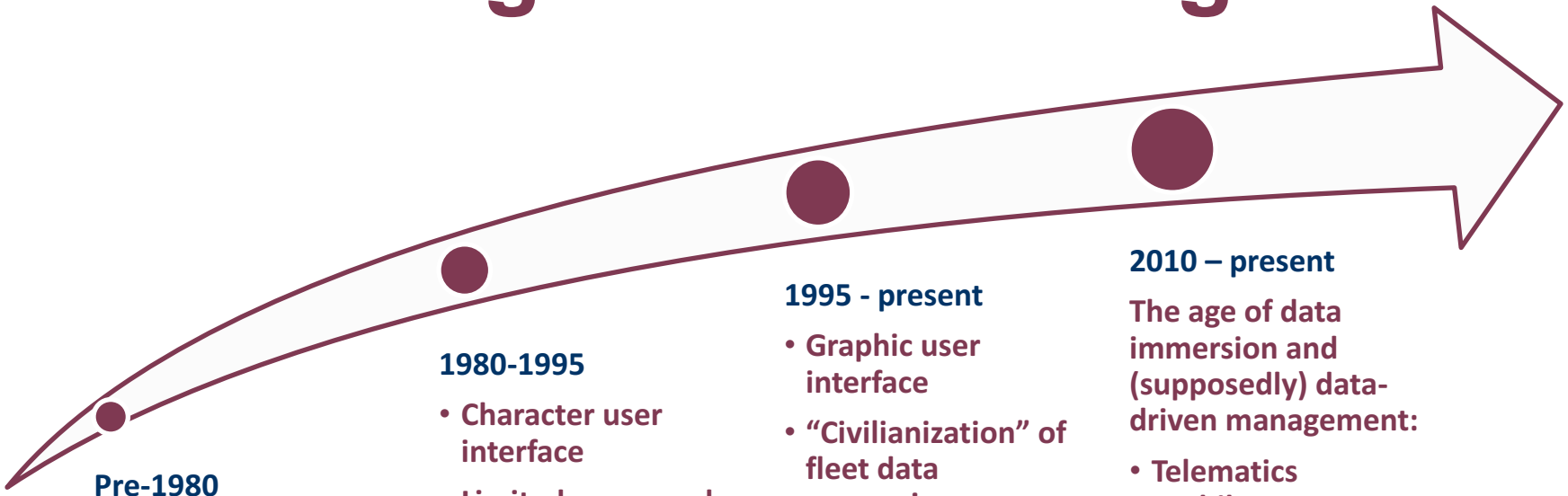
The Evolution of Data Processing in Fleet Management



Pre-1980

- Paper-based records
- Subjective judgment is king

1980-1995

- Character user interface
- Limited query and reporting functionality
- High degree of dependence on data entry clerks and IT specialists

1995 - present

- Graphic user interface
- "Civilianization" of fleet data processing; employees at all levels become engaged in data gathering and information consumption
- Continued evolution of data analysis tools

2010 – present

The age of data immersion and (supposedly) data-driven management:

- Telematics
- Mobile Apps
- Business Intelligence
- Internet of Things
- Autonomous Vehicles
- "Uberization" of Transportation

The Data Analysis Process

- Ask a question
- Identify data sources
- Conduct exploratory data analysis
- Clean the data
- Select appropriate analytical technique(s)
- Conduct analysis
- Challenge your results
- Document your steps and present your work

Ask a Question

- Typical questions that fleet managers try to answer through data are:
- Is my fleet the right size?
- Do I have the right types of vehicles?
- Am I replacing vehicles on time?
- Do I have the right size staff, garage, or parts inventory?
- Am I accurately capturing my costs (i.e., am I competitive with the local market)?

Data Sources

- Fleet and fuel card transactional data
- Fuel management systems
- Telematics devices
- Motor pool management and key control systems
- Asset records
- Work orders
- Fleet management information systems

Key Issues with Data Sources

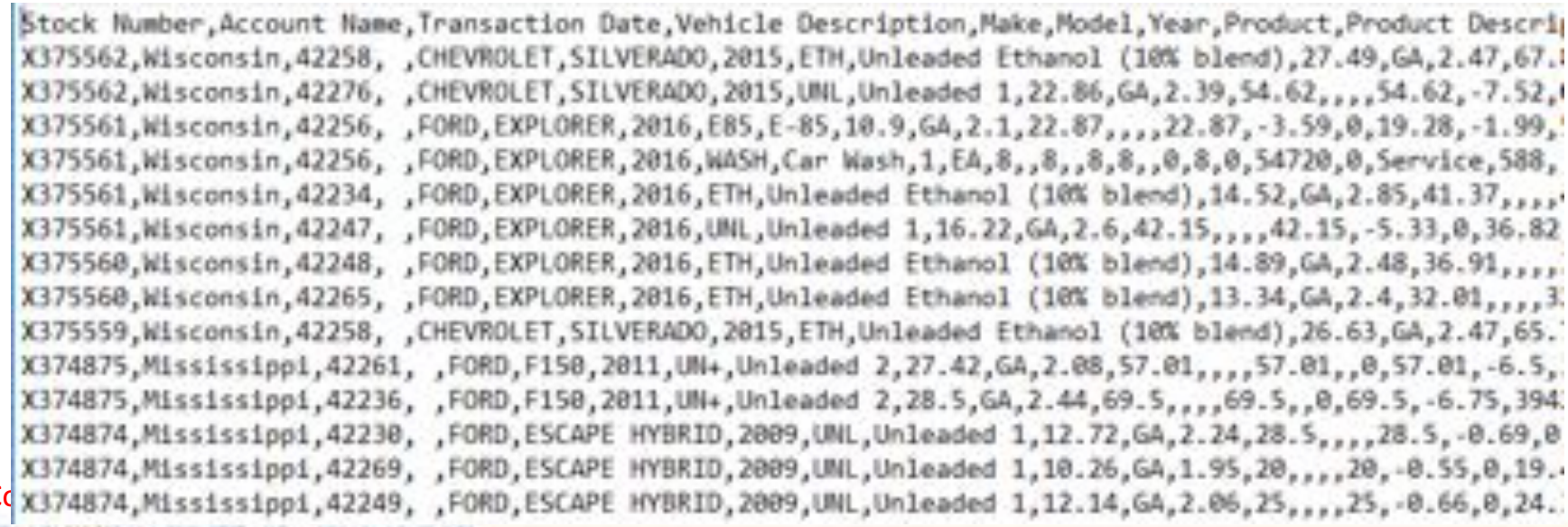
- Each data source can present its own types of inaccuracies:
  - Manual meter entries at the pump
  - Improperly calculated operating rates
  - Lack of segregation between dissimilar costs
- Any time humans are involved in data collection, there is more opportunity for error
- Poor data integrity can skew your results and undercut the story that you are trying tell about your fleet

Exploratory Data Analysis

- Import the data into a spreadsheet and start calculating basic metrics
  - Cost per mile
  - Annual miles per vehicle
- Normalize Data
  - Identify outliers

Text Import Wizard

- Fleet card or FMIS data is often exported in comma separated value (*.csv) format.
- This data can be imported and formatted using the Text Import Wizard



```
Stock Number,Account Name,Transaction Date,Vehicle Description,Make,Model,Year,Product,Product Descri
X375562,Wisconsin,42258, ,CHEVROLET,SILVERADO,2015,ETH,Unleaded Ethanol (10% blend),27.49,GA,2.47,67.
X375562,Wisconsin,42276, ,CHEVROLET,SILVERADO,2015,UNL,Unleaded 1,22.86,GA,2.39,54.62,,,,54.62,-7.52,
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X375561,Wisconsin,42234, ,FORD,EXPLORER,2016,ETH,Unleaded Ethanol (10% blend),14.52,GA,2.85,41.37,,,,
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X374874,Mississippi,42249, ,FORD,ESCAPE HYBRID,2009,UNL,Unleaded 1,12.14,GA,2.06,25,,,,25,-0.66,0,24.
```
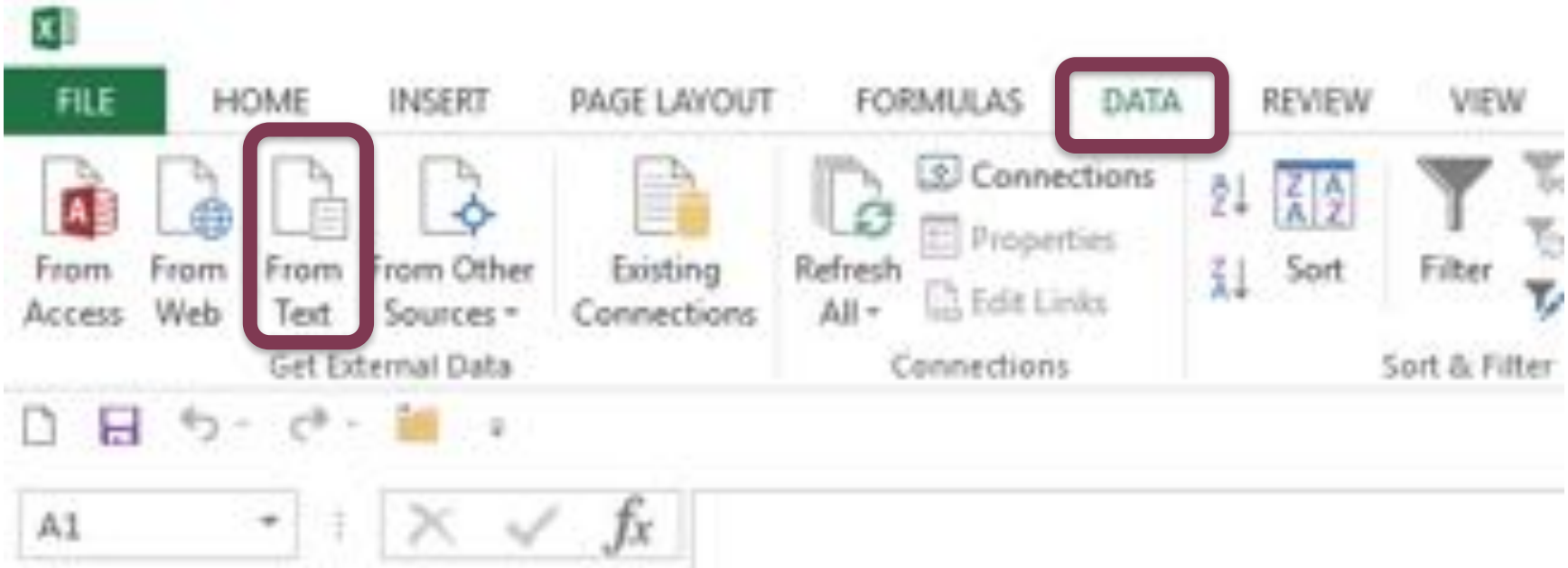
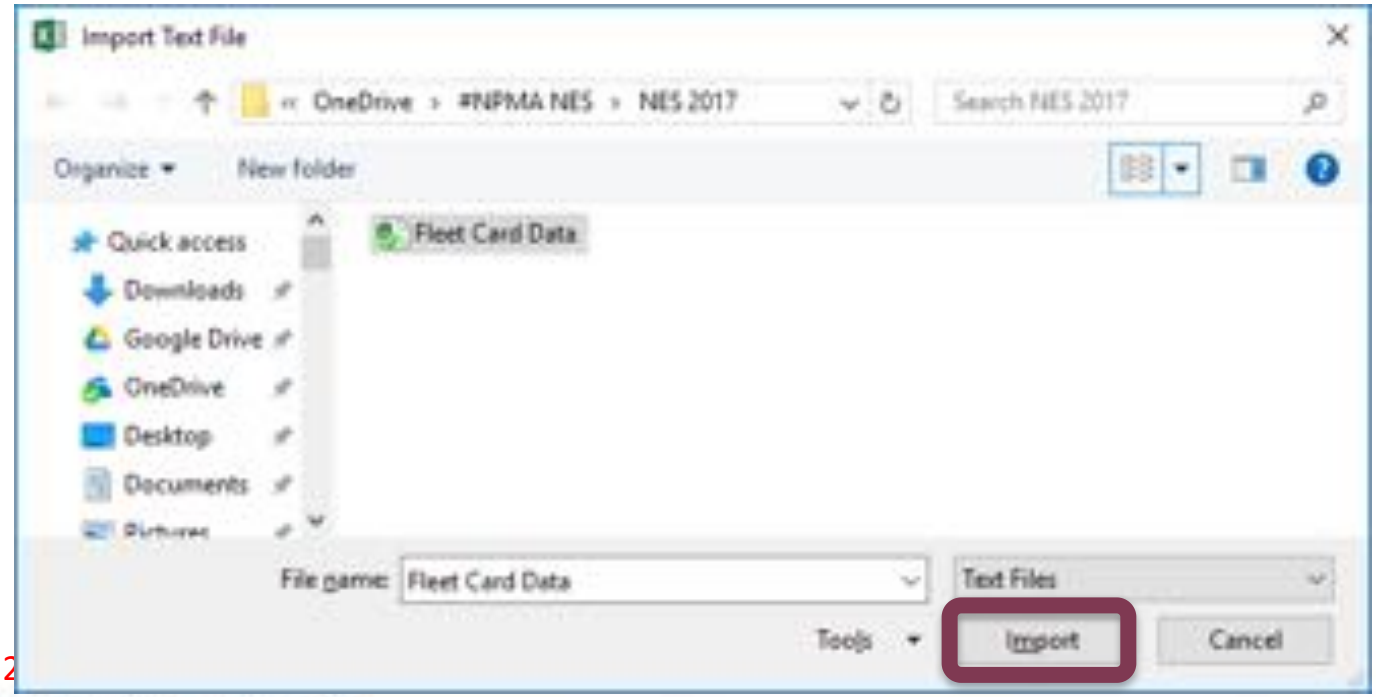

Text Import Wizard

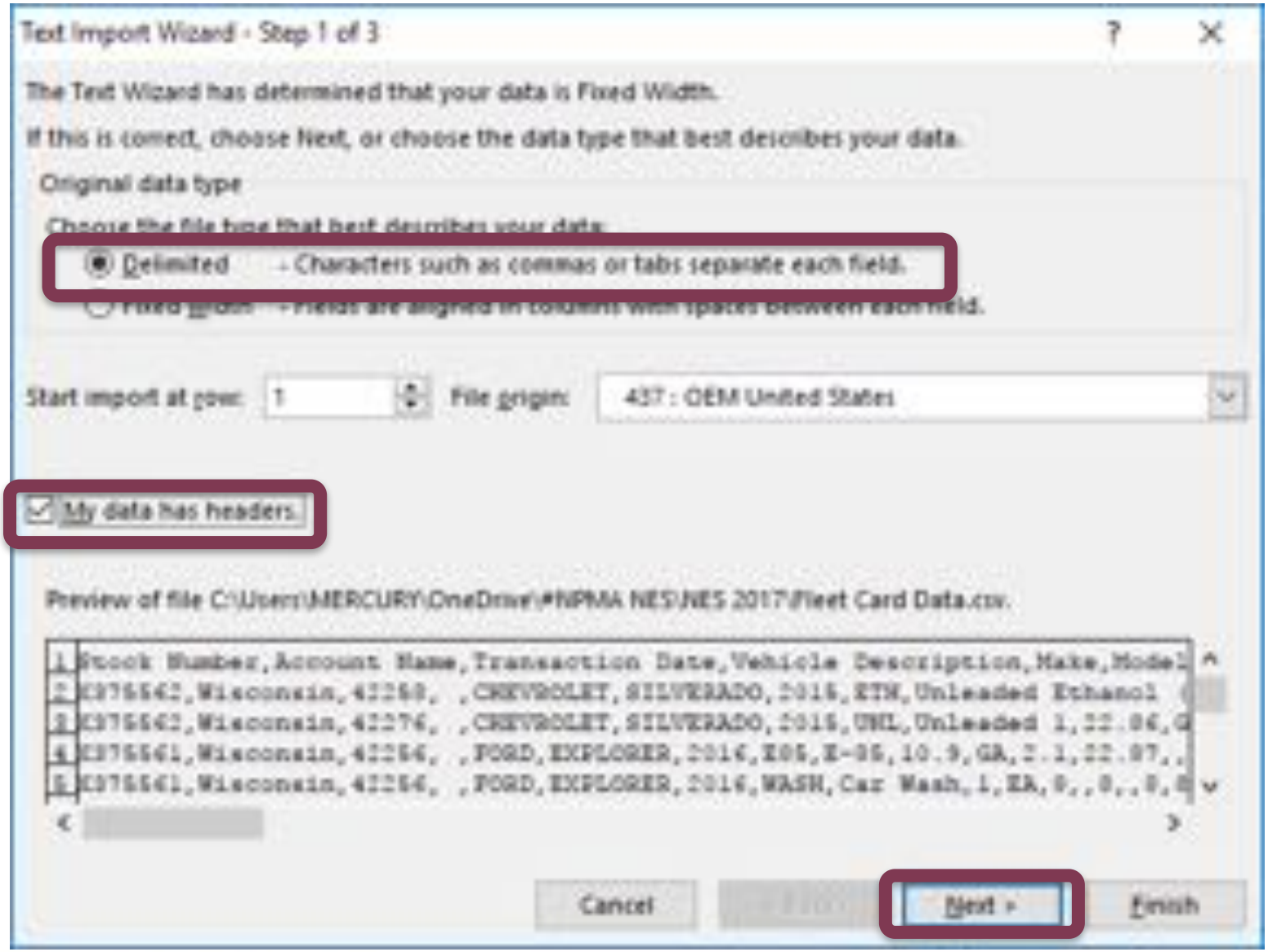
- To open, from a blank Excel document, click on **Data > From Text**

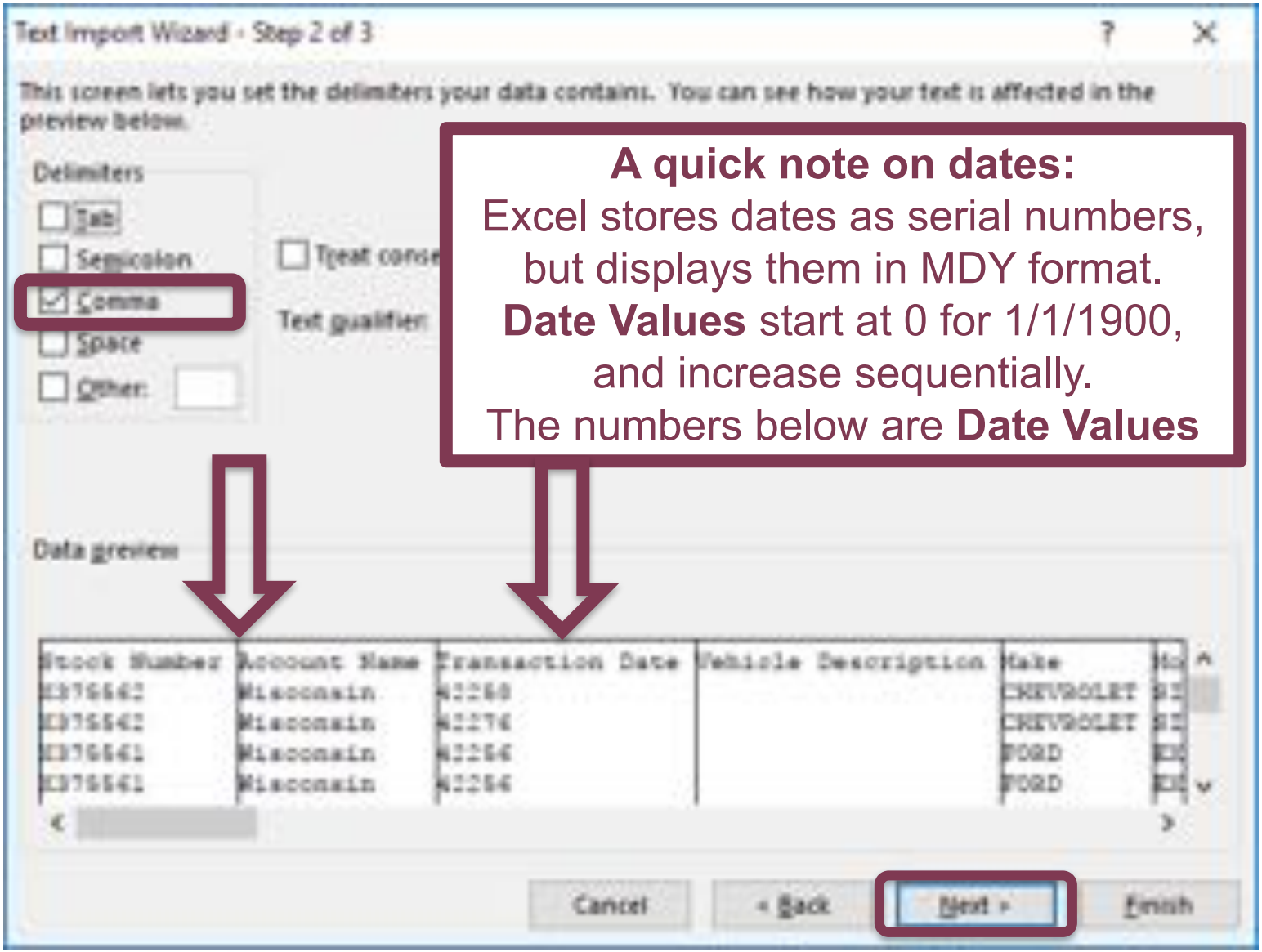


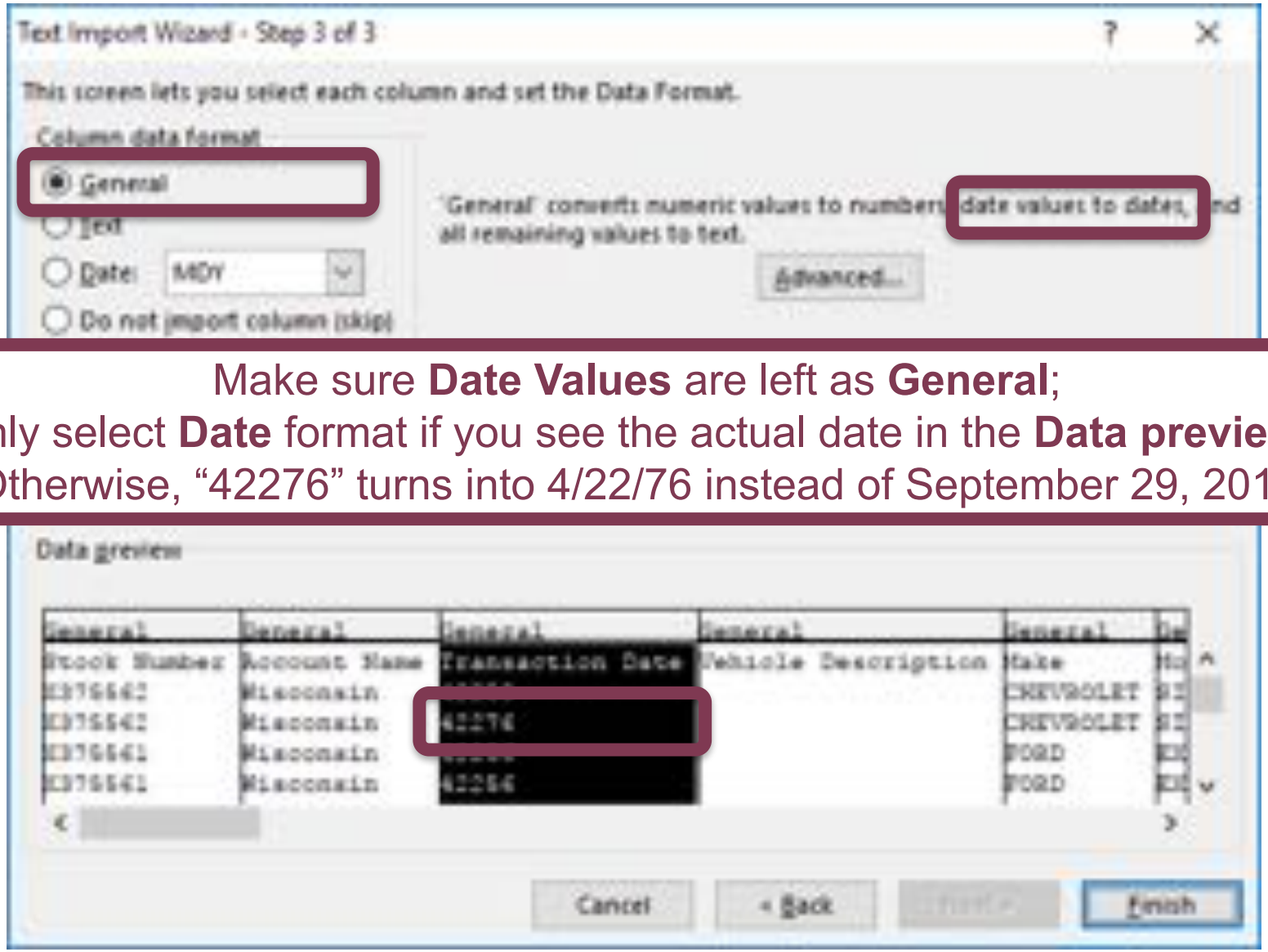
Text Import Wizard

- Navigate to your file, select it, then click **Import**

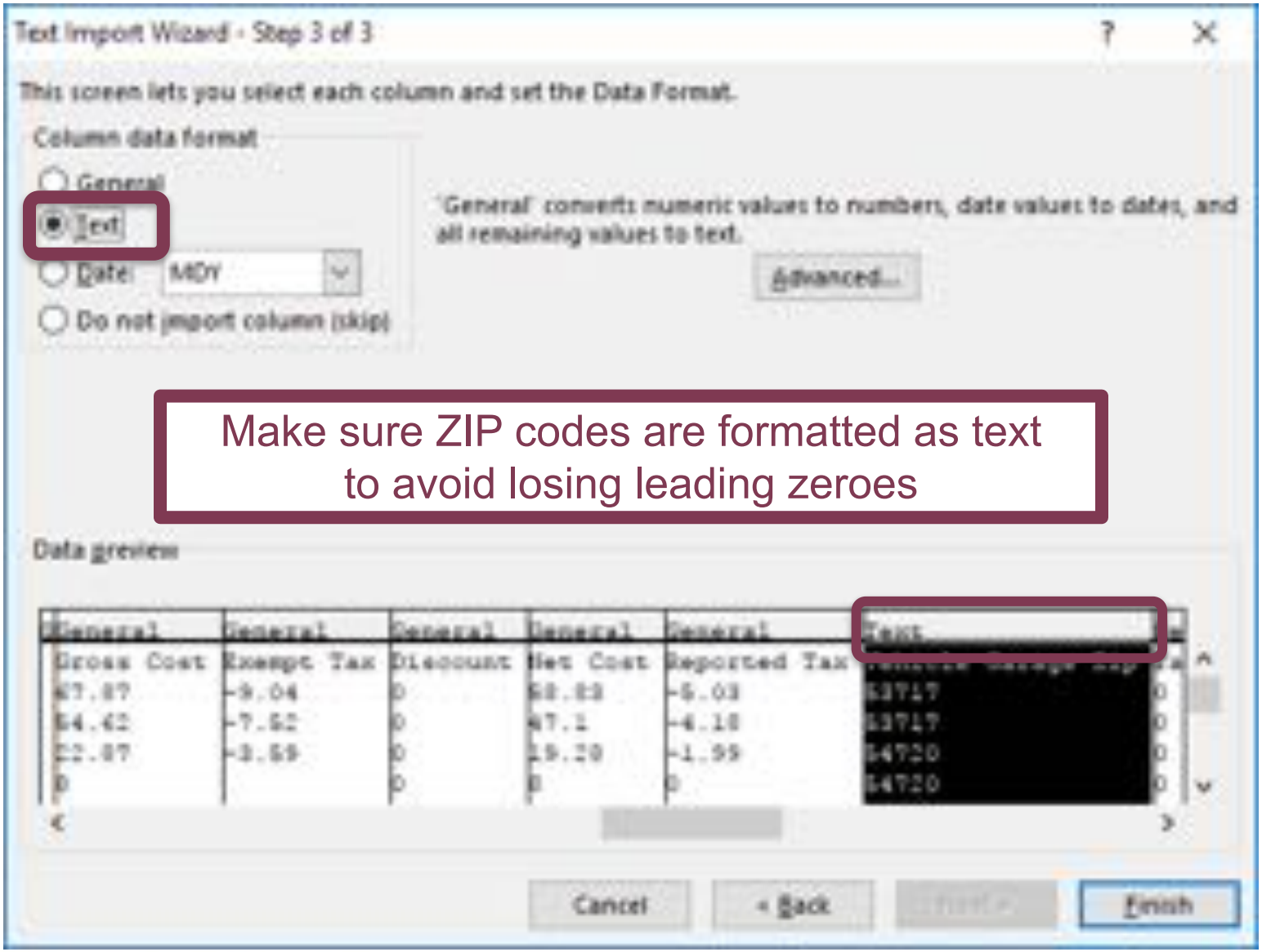




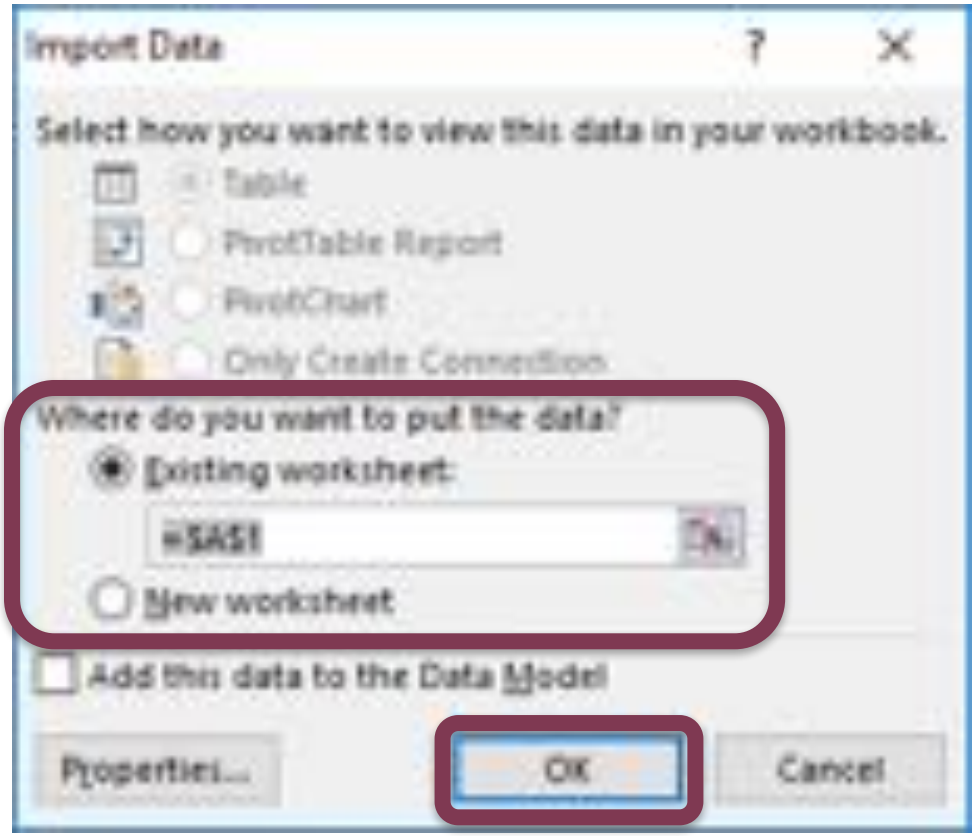




Make sure **Date Values** are left as **General**;
only select **Date** format if you see the actual date in the **Data preview**.
Otherwise, "42276" turns into 4/22/76 instead of September 29, 2015



One last step...



The Results

A1 | Stock Number

	A	B	C	D	E	F
1	Stock Number	Account Name	Transaction Date	Vehicle Description	Make	Model
2	X375562	Wisconsin	9/11/2015		CHEVROLET	SILVERADO
3	X375562	Wisconsin	9/29/2015		CHEVROLET	SILVERADO
4	X375561	Wisconsin	9/9/2015		FORD	EXPLORER
5	X375561	Wisconsin	9/9/2015		FORD	EXPLORER
6	X375561	Wisconsin	8/18/2015		FORD	EXPLORER
7	X375561	Wisconsin	8/31/2015		FORD	EXPLORER
8	X375560	Wisconsin	9/1/2015		FORD	EXPLORER
9	X375560	Wisconsin	9/18/2015		FORD	EXPLORER
10	X375559	Wisconsin	9/11/2015		CHEVROLET	SILVERADO
11	X374875	Mississippi	9/14/2015		FORD	F150
12	X374875	Mississippi	8/20/2015		FORD	F150
13	X374874	Mississippi	8/14/2015		FORD	ESCAPE HYBRID
14	X374874	Mississippi	9/22/2015		FORD	ESCAPE HYBRID
15	X374874	Mississippi	9/2/2015		FORD	ESCAPE HYBRID
16	X374873	Mississippi	9/17/2015	Pickup	Ford	f150
17	X374873	Mississippi	9/22/2015	Pickup	Ford	f150
18	X374873	Mississippi	9/2/2015	Pickup	Ford	f150

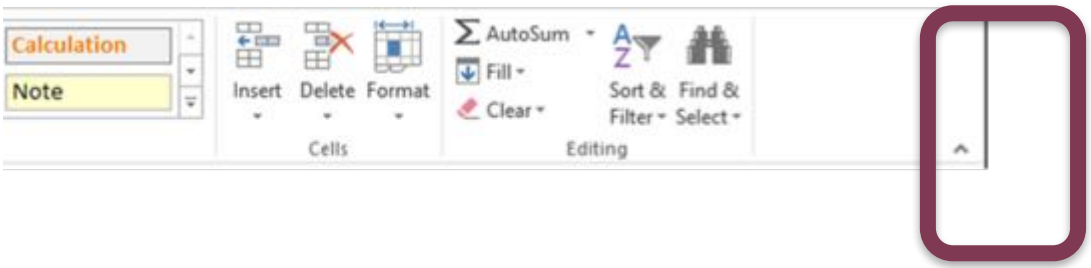
Sheet1

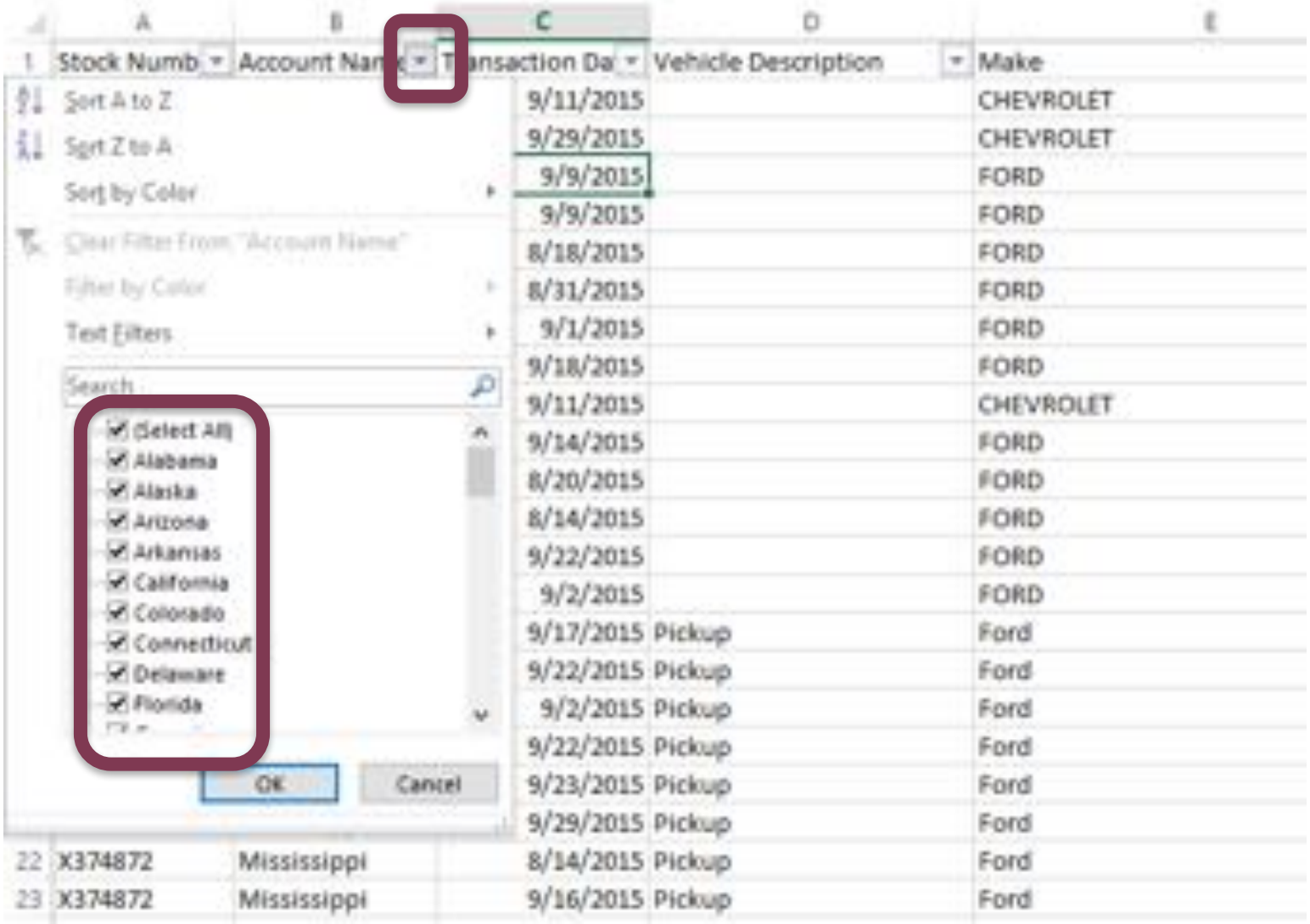
READY 100%

Filtering Data

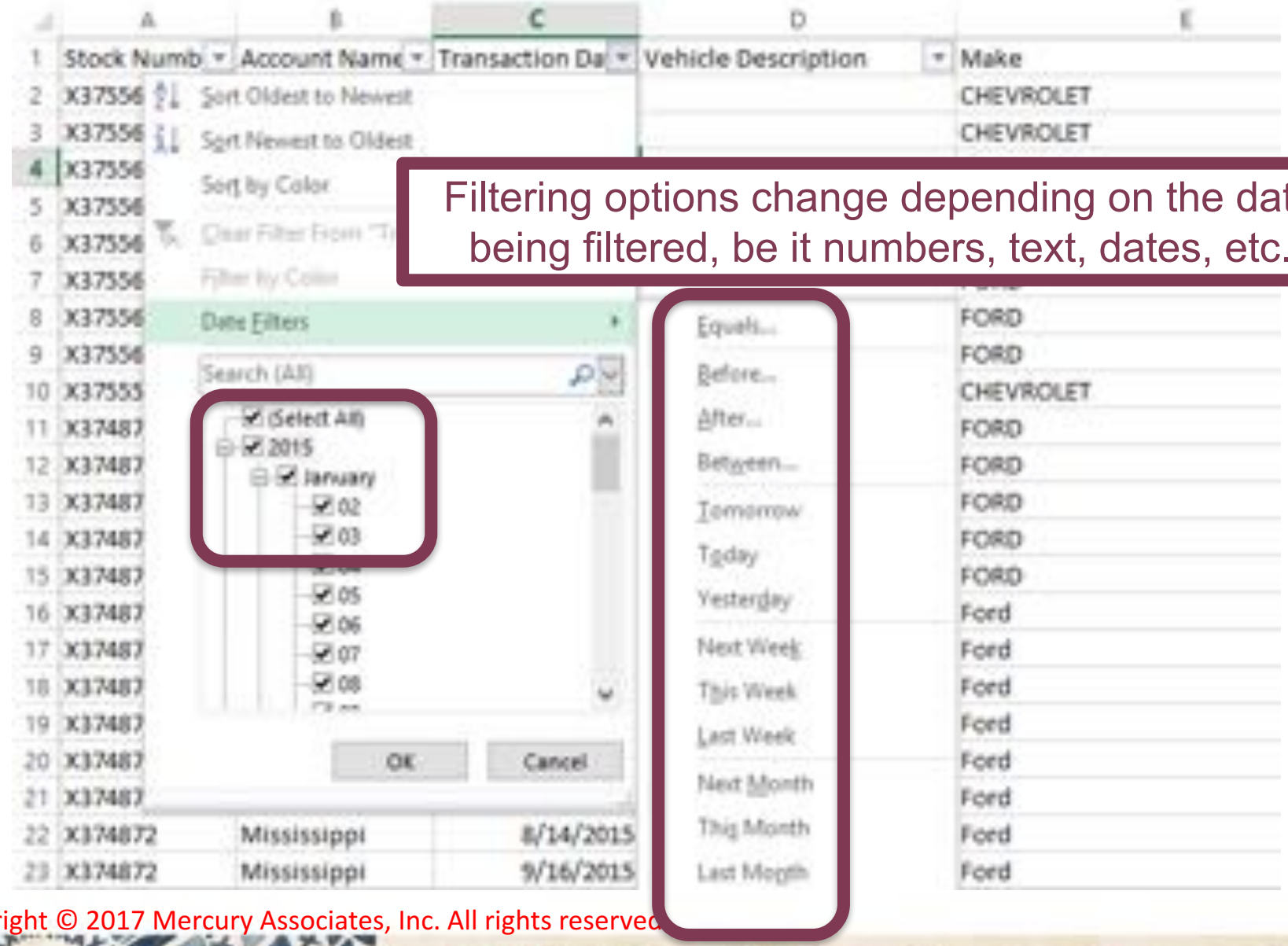
Used to narrow your focus based on the contents of a column (e.g. to show only E85 fuel costs, etc.)

- Click on **Home > Sort & Filter > Filter**

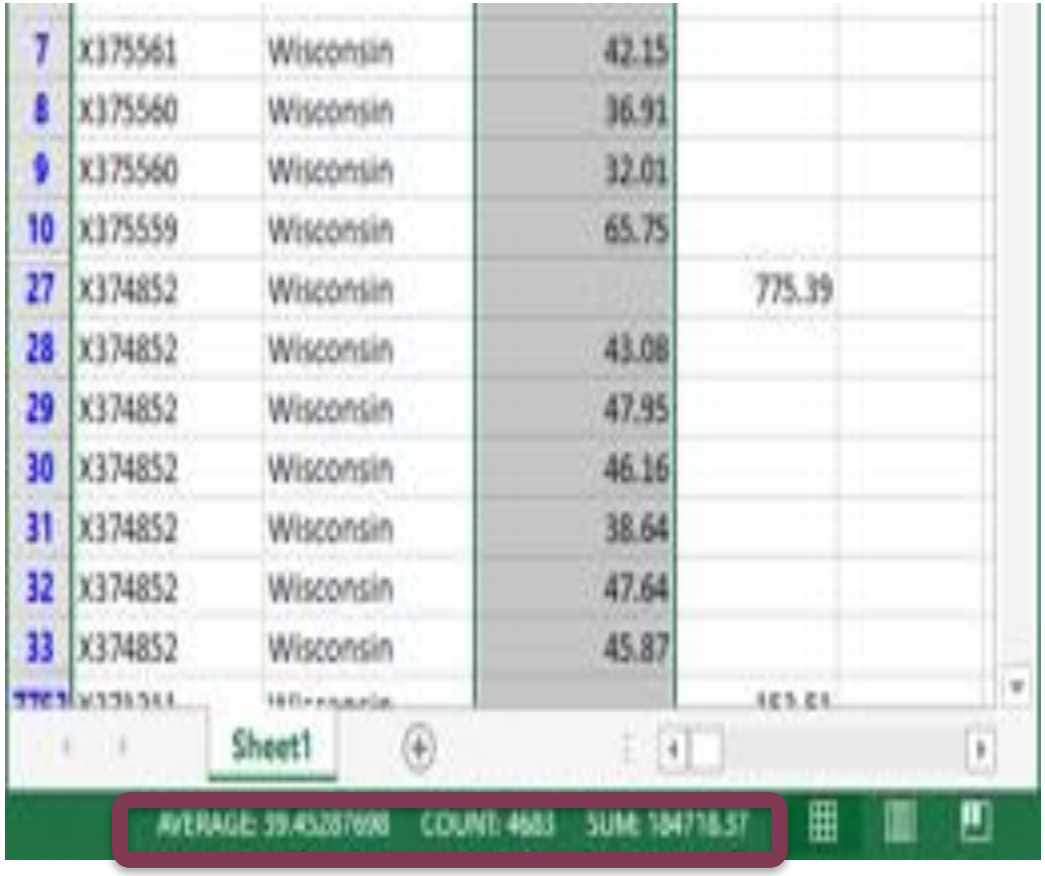




	A	B	C	D	E
1	Stock Numb	Account Nam	Transaction Da	Vehicle Description	Make
			9/11/2015		CHEVROLET
			9/29/2015		CHEVROLET
			9/9/2015		FORD
			9/9/2015		FORD
			8/18/2015		FORD
			8/31/2015		FORD
			9/1/2015		FORD
			9/18/2015		FORD
			9/11/2015		CHEVROLET
			9/14/2015		FORD
			8/20/2015		FORD
			8/14/2015		FORD
			9/22/2015		FORD
			9/2/2015		FORD
			9/17/2015	Pickup	Ford
			9/22/2015	Pickup	Ford
			9/2/2015	Pickup	Ford
			9/22/2015	Pickup	Ford
			9/23/2015	Pickup	Ford
			9/29/2015	Pickup	Ford
22	X374872	Mississippi	8/14/2015	Pickup	Ford
23	X374872	Mississippi	9/16/2015	Pickup	Ford



Find Average, Count, & Sums



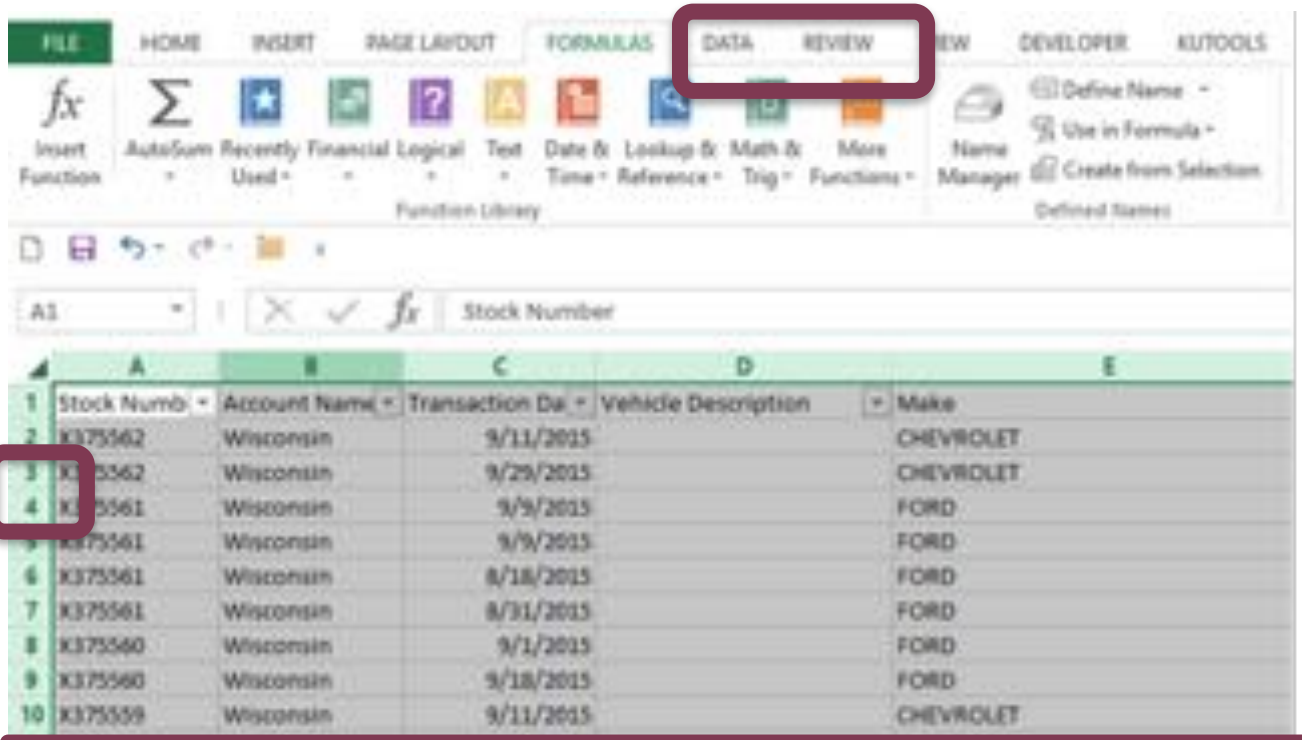
How do I make a summary table?

Avoid having to repeatedly calculate averages, counts, or sums by using:

- SUMIFS, AVERAGEIFS, COUNTIFS
- Pivot Tables (covered in Part 2)

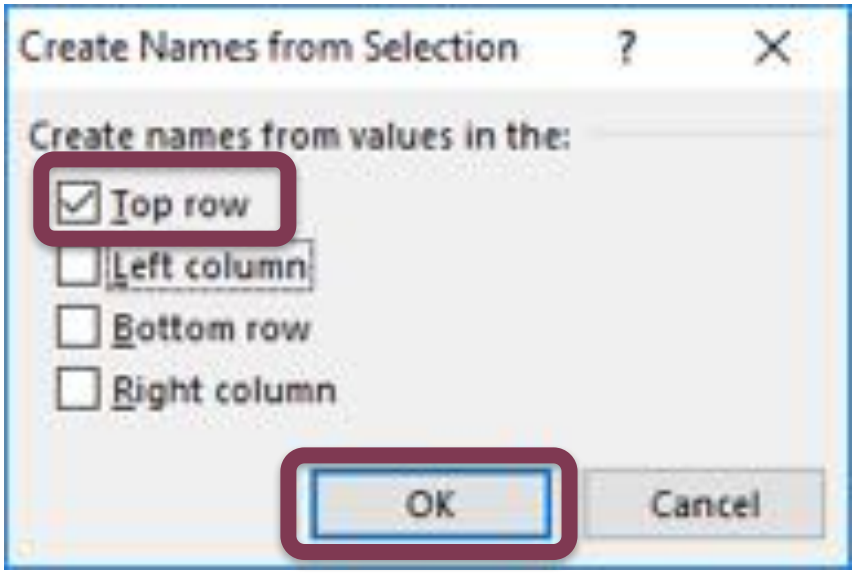
Create a Table Using Formulas

- Create **Defined Names** for your columns
- Add a sheet, copy criteria, remove duplicates
- Sort
- Enter the **SUMIFS** function
  - Use **Defined Names**



To create **Defined Names** for your columns:
Select your data, then click Formulas > Create from Selection

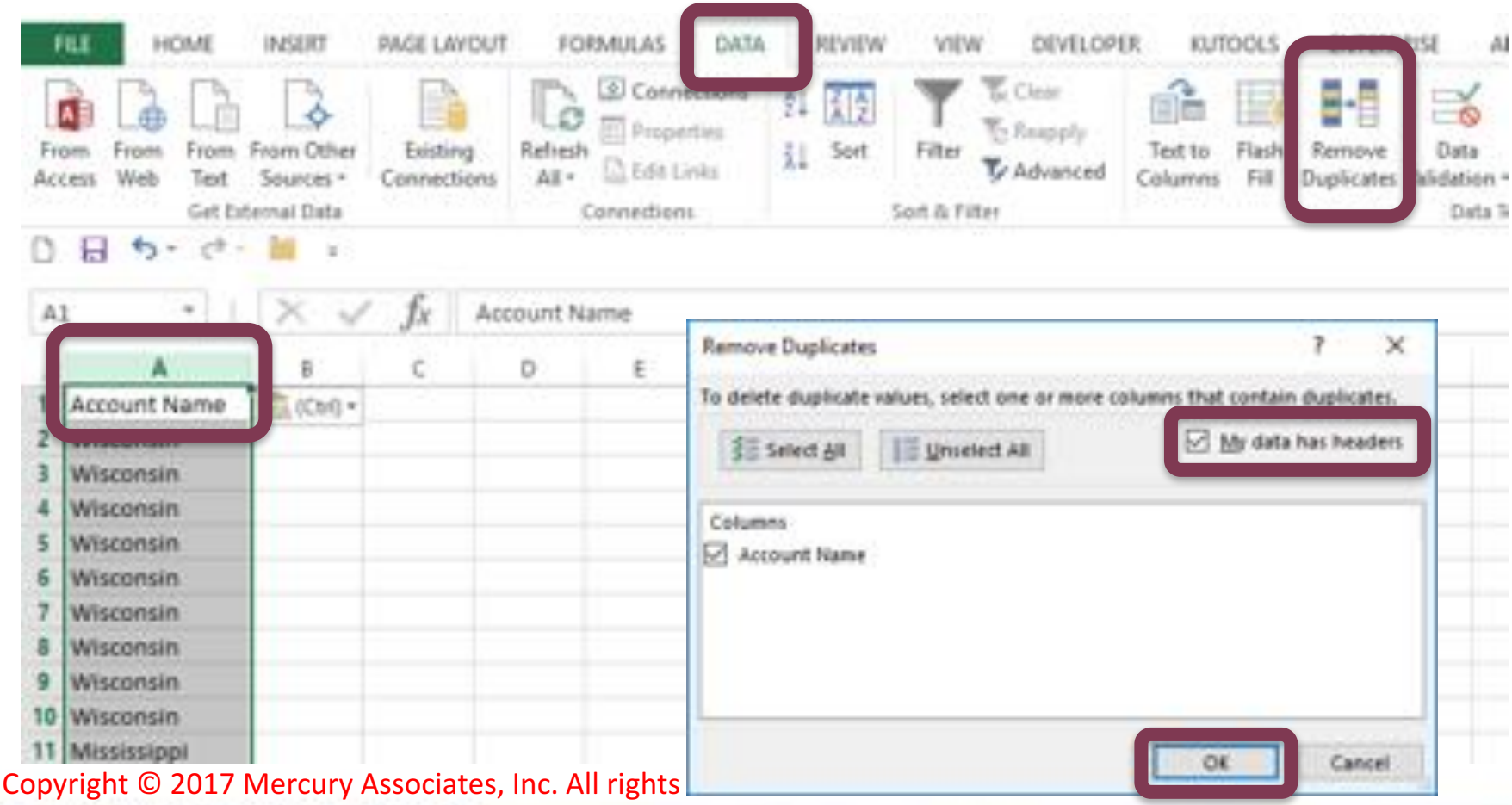
Create Names

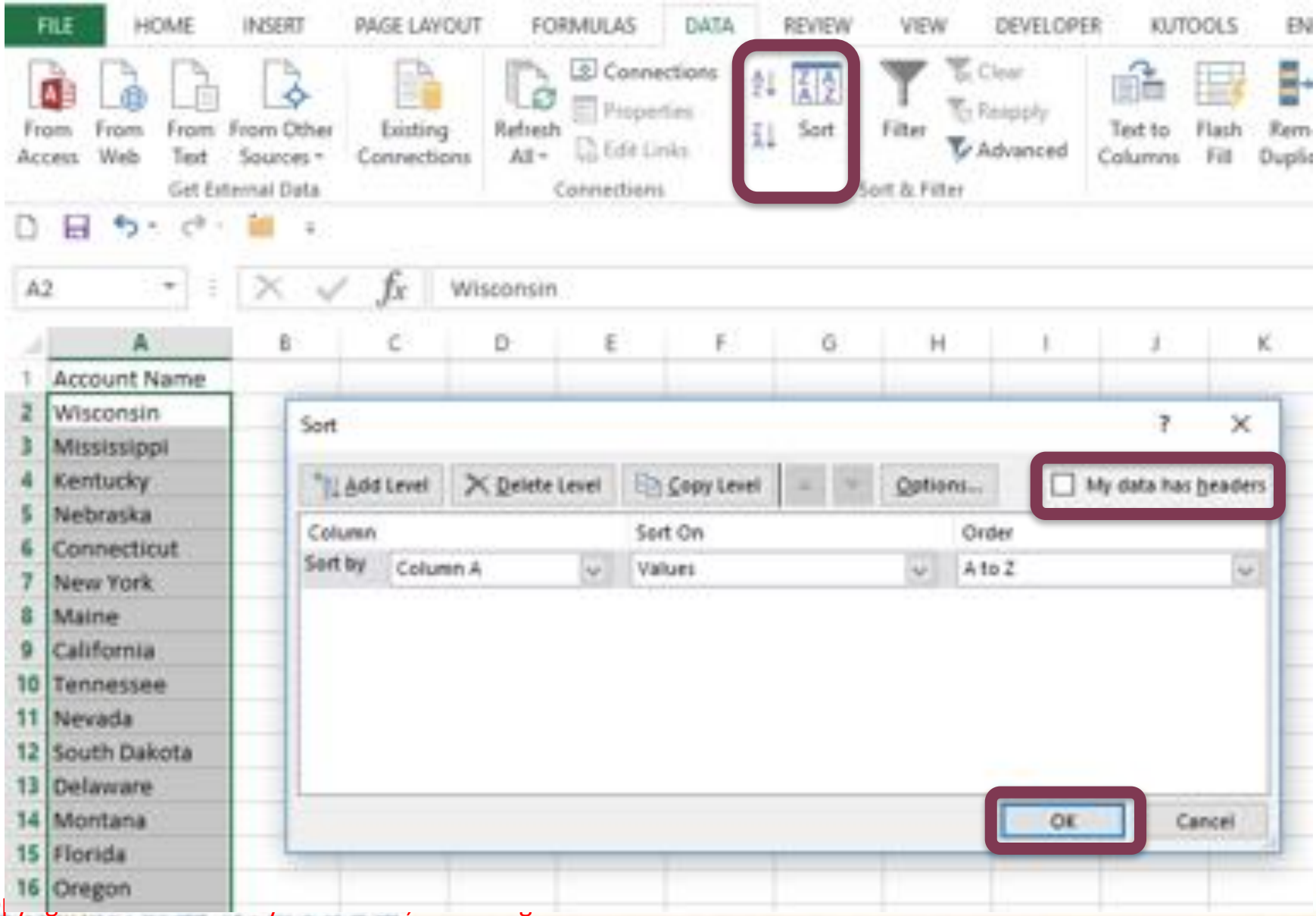


Why am I doing this?

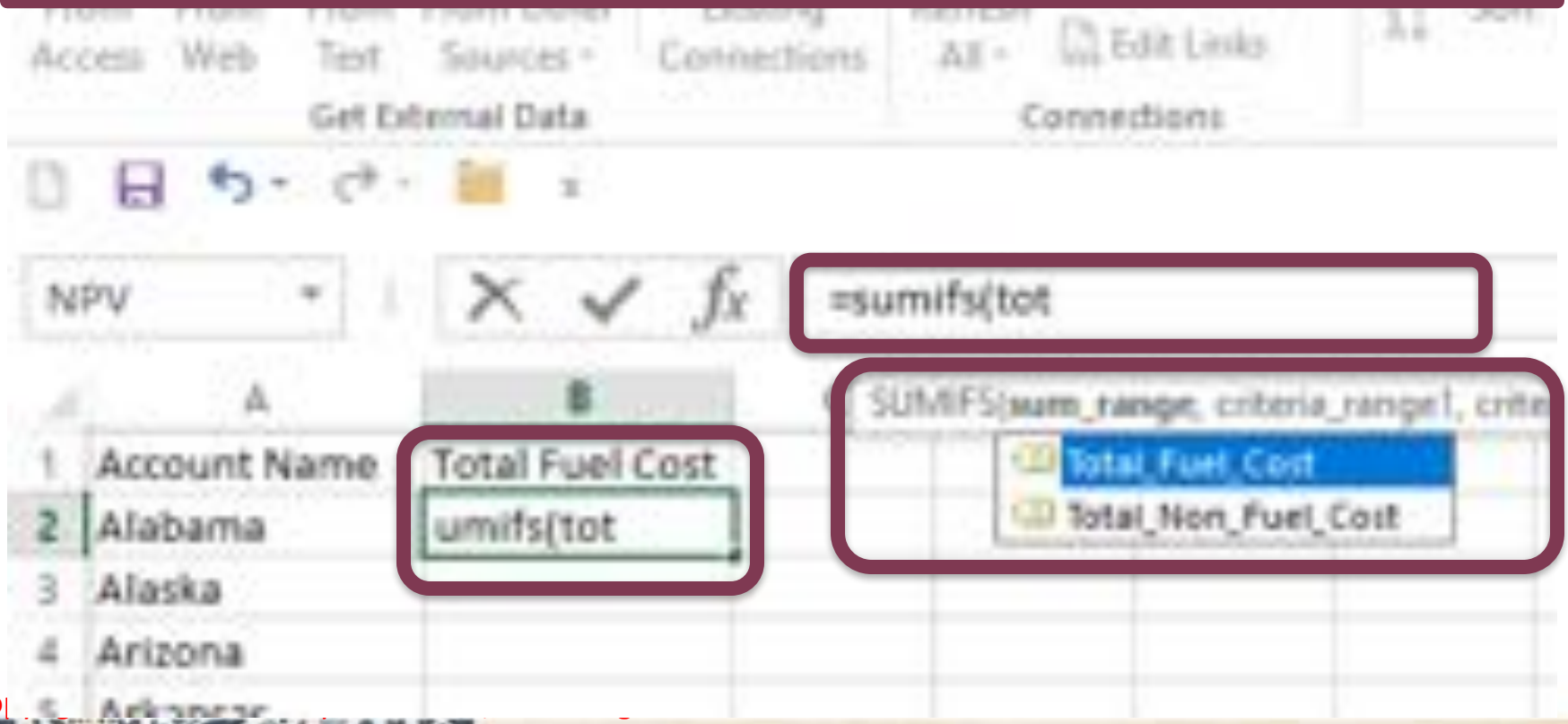
- Your column headings contain plain-language names that are easier to work with than typical cell references
- For example, I can now use “make” instead of “E2:E196655” when referring to vehicle makes
- This will make formulas more intuitive

Add a sheet, copy criteria, and remove duplicates

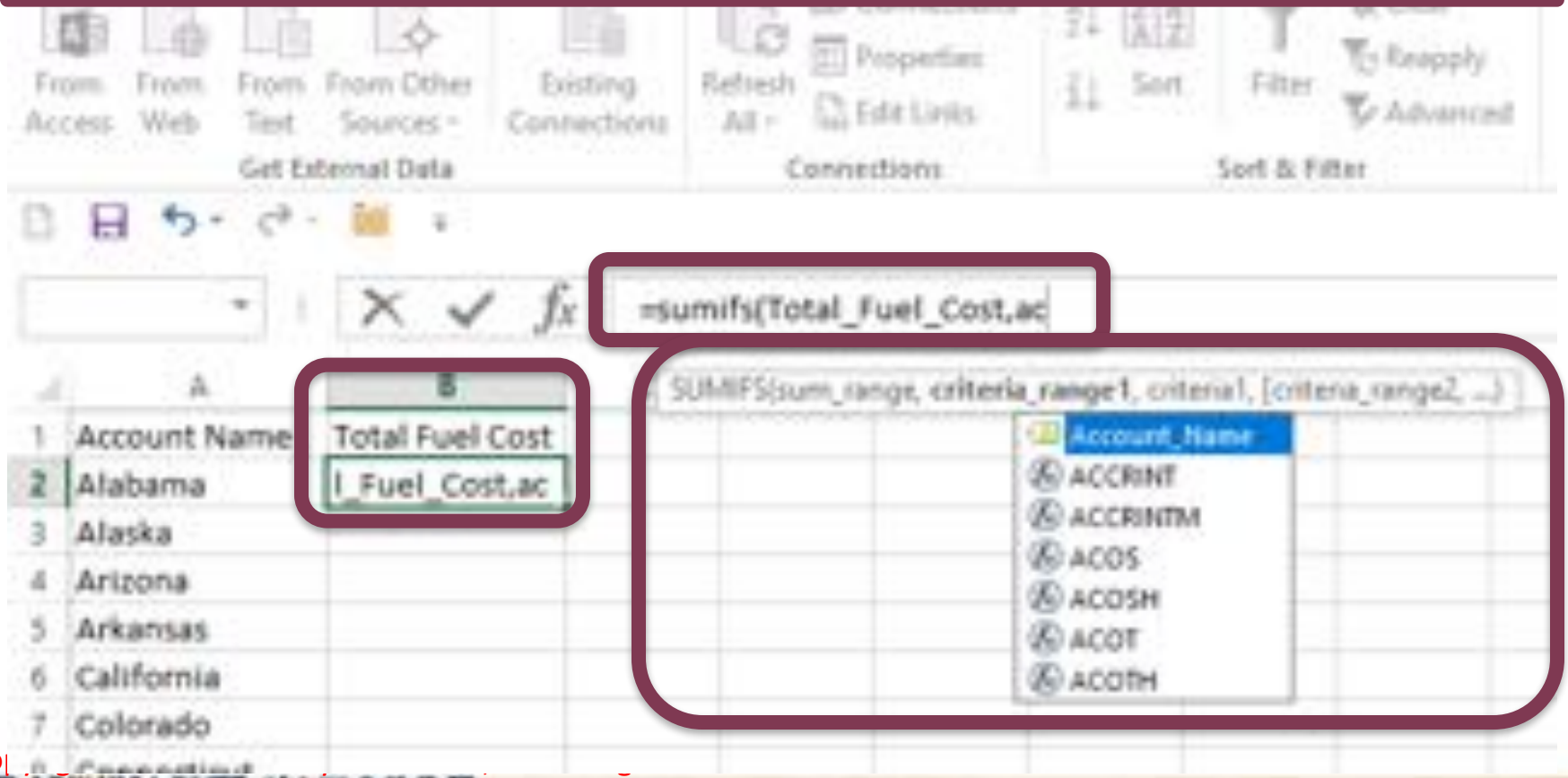



FILE
HOME
INSERT
PAGE LAYOUT
FORMULAS
DATA
REVIEW
VIEW
DEVELOPER
KUTOOLS
From Access
From Web
From Text
From Other Sources
Existing Connections
Get External Data
Refresh All
Connections
Properties
Edit Links
Connections
Sort
Filter
Clear
Reapply
Advanced
Sort & Filter
Text to Columns
Flash Fill
A2
Wisconsin
Account Name
Wisconsin
Mississippi
Kentucky
Nebraska
Connecticut
New York
Maine
California
Tennessee
Nevada
South Dakota
Delaware
Montana
Florida
Oregon
Sort
Add Level
Delete Level
Copy Level
Options...
My data has headers
Column
Sort On
Order
Sort by
Column A
Values
A to Z
OK
Cancel

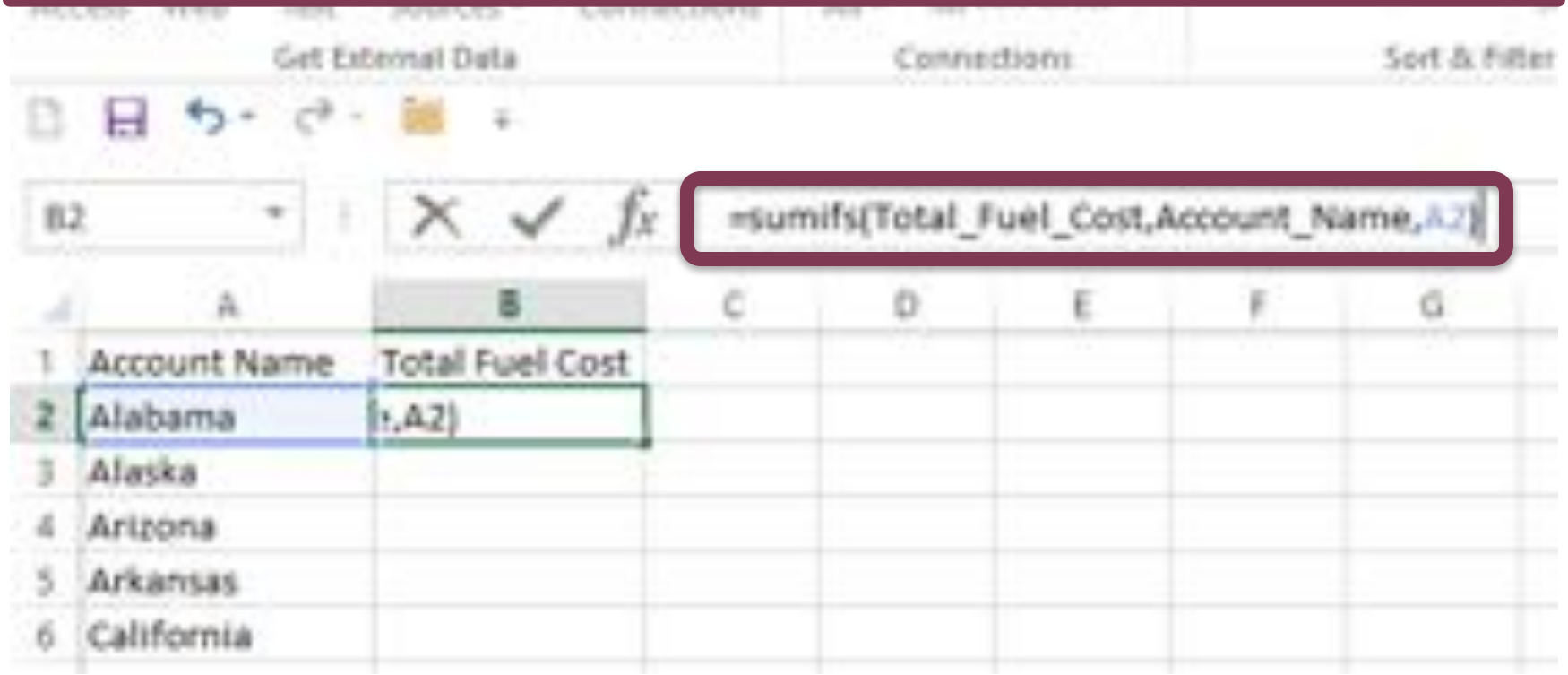
Type a column heading into cell B1
Start typing the SUMIFS formula into cell B2
A box will appear to assist you with the SUMIFS formula
The first thing you must add is the **sum_range**, i.e. **Total Fuel Costs**
When you start typing **Total Fuel Costs,** an autocomplete box appears
Double-click on **Total_Fuel_Cost**



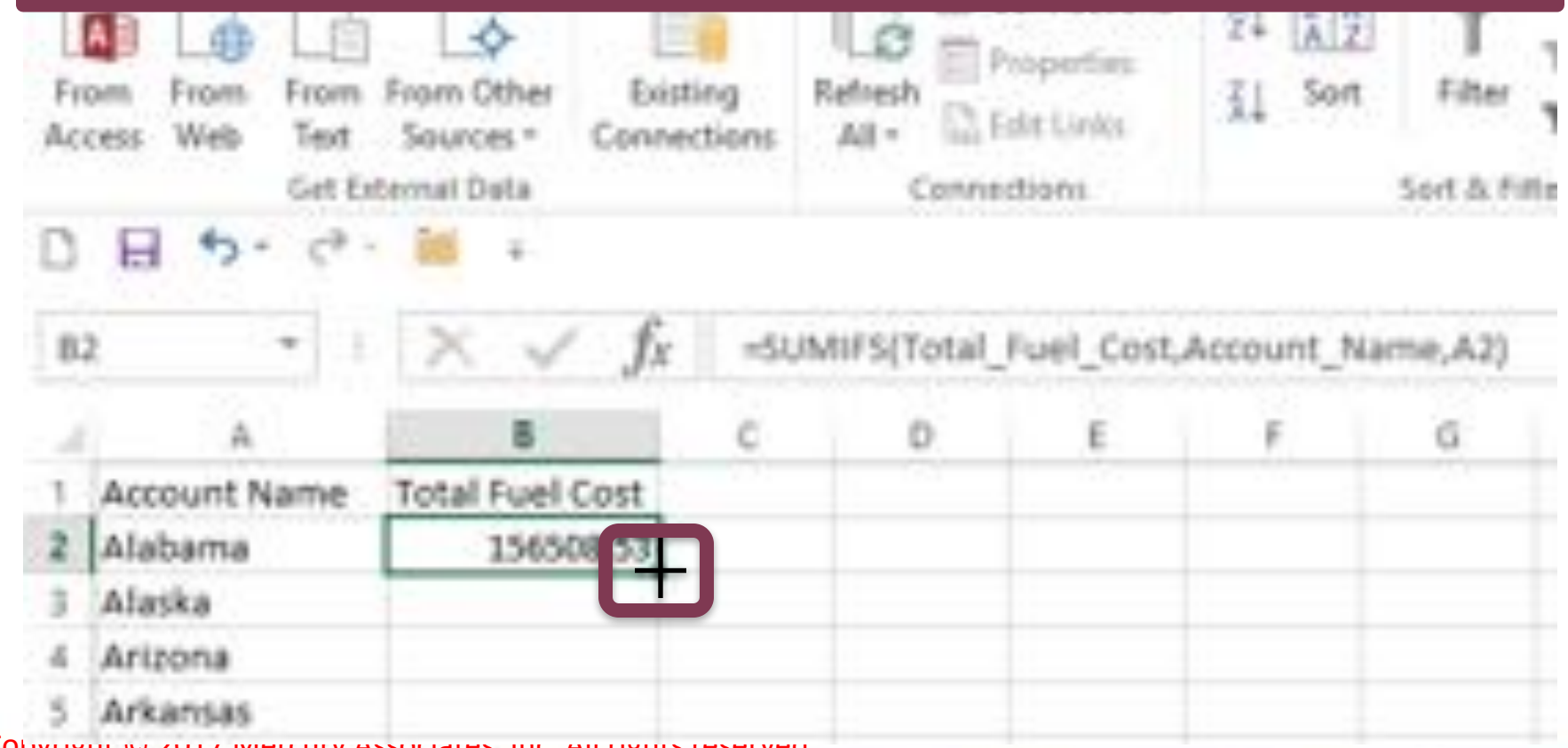
Continue typing the next argument in the formula
The SUMIFS formula helper box indicates that you need a comma, then the **criteria_range1,** i.e. **Account Name**
When you start typing **Account Name,** an autocomplete box appears
Click on **Account_Name**



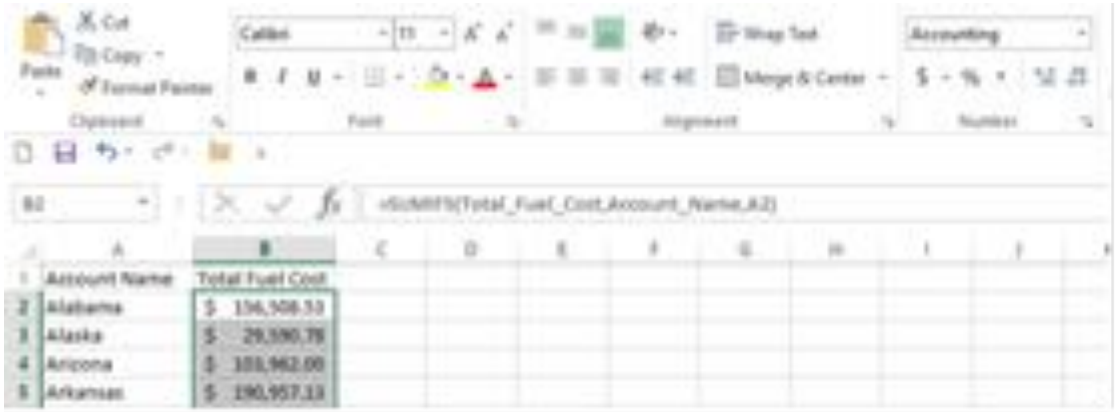
Type another comma
The box then instructs you to insert **criteria1**
In this case, **criteria1** is the Account Name that you want to sum
Click on the cell that contains **Alabama**
Insert a **Closing Parenthesis** and hit **Enter**



In plain English, you have found the
sum of total fuel costs for rows where the account name is “Alabama”
Mouse over the bottom right corner of the cell, click, and hold
Drag the mouse to the last row, then release to autofill your formula
You now have a table with total fuel costs for each account name



The Results



	A	B
1	Account Name	Total Fuel Cost
2	Alabama	$ 136,508.53
3	Alaska	$ 29,590.78
4	Arizona	$ 103,962.00
5	Arkansas	$ 190,957.13

Note: additional criteria can be added
For example, you can restrict your table to just E85
By adding **criteria_range2** (**Product**) and **criteria2 (ETH)**

=SUMIFS(Total_Fuel_Cost,Account_Name,A2,Product,"ETH")

Stay Tuned for Part 2

- 11:30 a.m. today in this room
- Part 2 will go easy on the formulas
- Pivot Tables
- Outliers
- Data Filtering and Substitution

For More Information

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