

# Excel and Power BI Analytics for Assessors

Presenter:

David Cornell, MAI, CAE

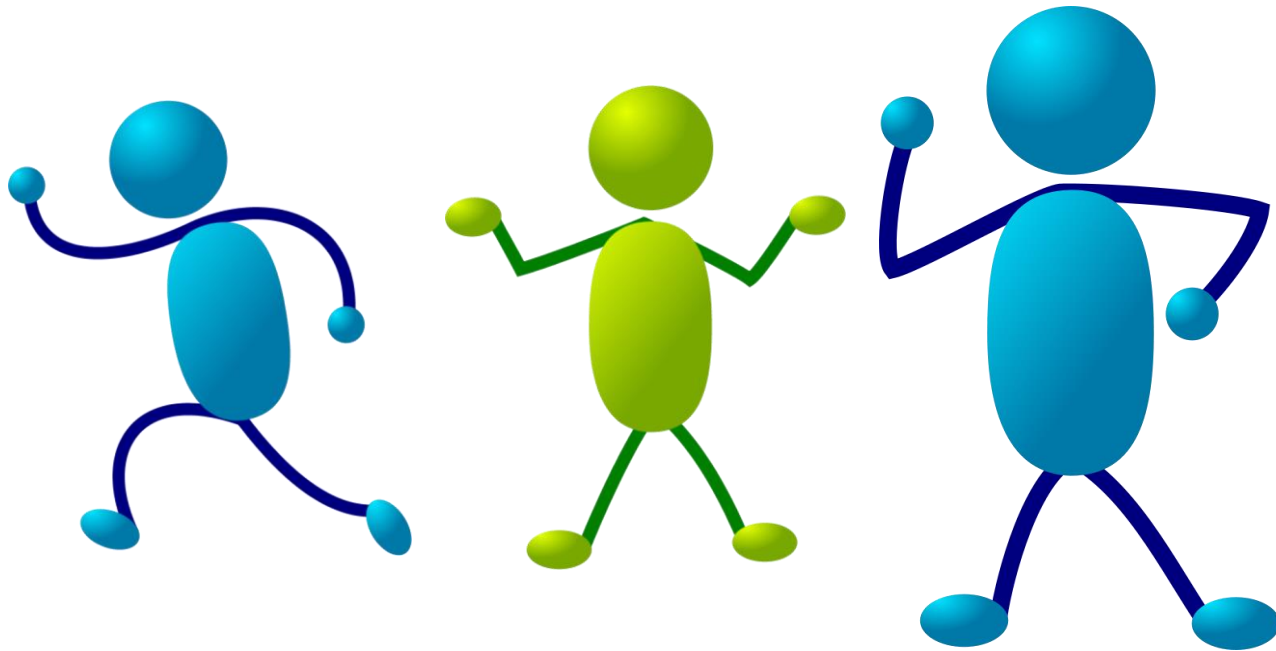
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603-203-5517



# Session Expectations

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- ❖ Different User Levels
- ❖ Something for everyone
- ❖ Exposure to tips and tricks
- ❖ Live demonstrations (change pictures)

Discover  
Actionable  
Insight



Develop  
KPIs



Transform  
Data

A circular inset showing a table of real estate data with columns for address, neighborhood, and sale price. A green arrow points from this inset towards the central 'Process Steps' circle.

Address	Nhbd	Sale Price
ALLEY ST	3	\$ 145,000
BEECH ST	3	\$ 135,000
90 ESSEX ST	3	\$ 132,000
438 FRONT ST	3	\$ 138,000
20 DONALD ST	1	\$ 158,000
305 HOLLY AVE	3	\$ 145,000
604 HALL ST	3	\$ 130,000
86 ARMAND AVE	4	\$ 152,000
125 ROCHELLE AVE	3	\$ 140,000
MARTIN ST	4	\$ 131,000
LAKE AVE	1	\$ 175,000
ST	1	\$ 186,500

Get Data

A circular inset showing a table of real estate data with columns for neighborhood, style, and sale price. A green arrow points from this inset towards the central 'Process Steps' circle.

Nhbd	Style	Desc	Sale Price
MOUTH ST	2	Conventional	240000
27 MAPLE ST	2	Conventional	192000
276 BRIDGE ST	2	Conventional	199040
34 EVERETT ST	2	Conventional	235040
15 CILLEY RD	3	Cape Cod	207840
LEY RD	4	Ranch	228800
	2	Conventional	180000



Does  
your data  
feel like  
this?

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Time spent truly analyzing the data

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< Back

## What type of Excel user are you?




 When poll is active, respond at [PolleEv.com/davidcornell844](https://PolleEv.com/davidcornell844)  Text **DAVIDCORNELL844** to **22333** once to join



Power User

Average

Below  
Average

 Poll Everywhere

Logout

< Back


## Describe your time / work balance




 Respond at [PollEv.com/davidcornell844](https://PollEv.com/davidcornell844)

 Text **DAVIDCORNELL844** to **22333** once to join, then text your message



 No responses received yet. They will appear here...

 Poll Everywhere

Logout

< Back

## Have you used Power BI




 When poll is active, respond at [Pollev.com/davidcornell844](https://Pollev.com/davidcornell844)  Text **DAVIDCORNELL844** to **22333** once to join



Yes

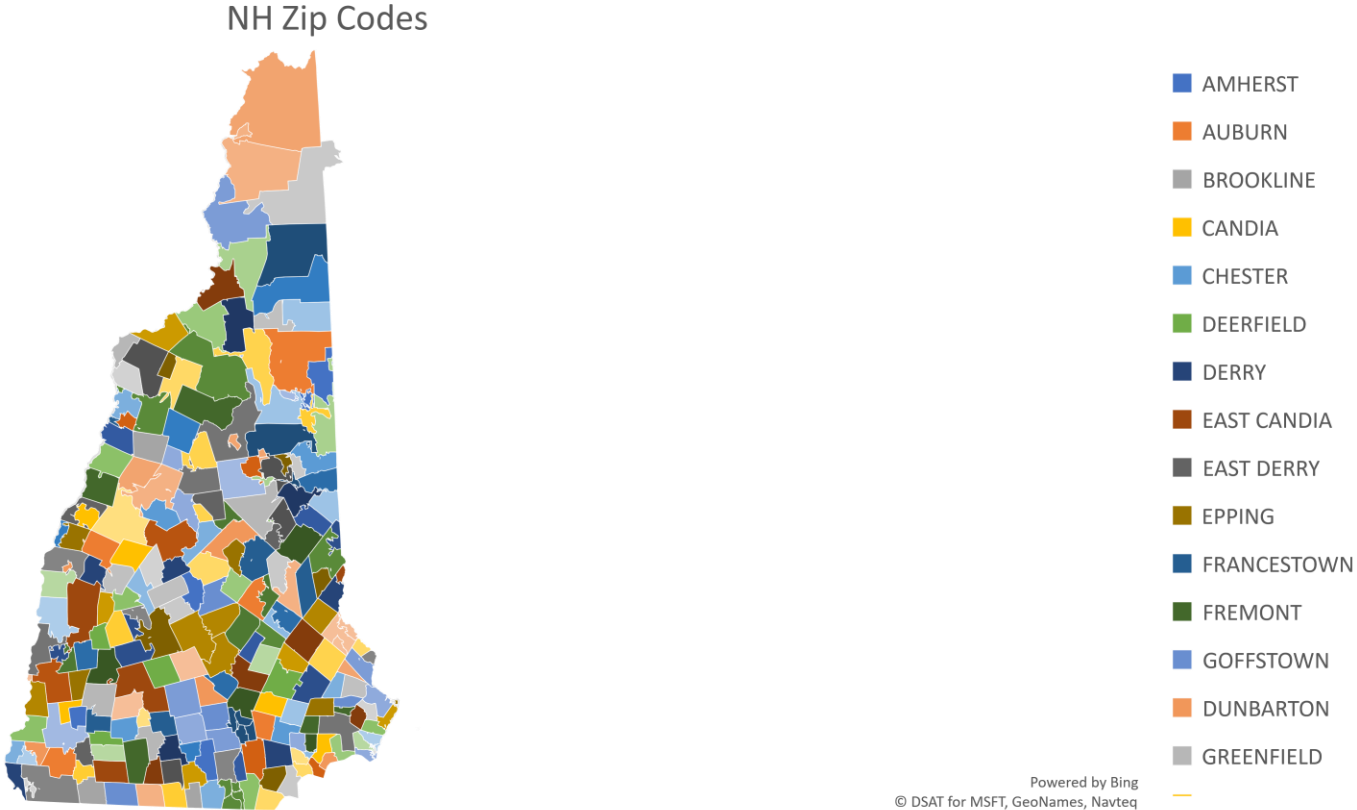
No

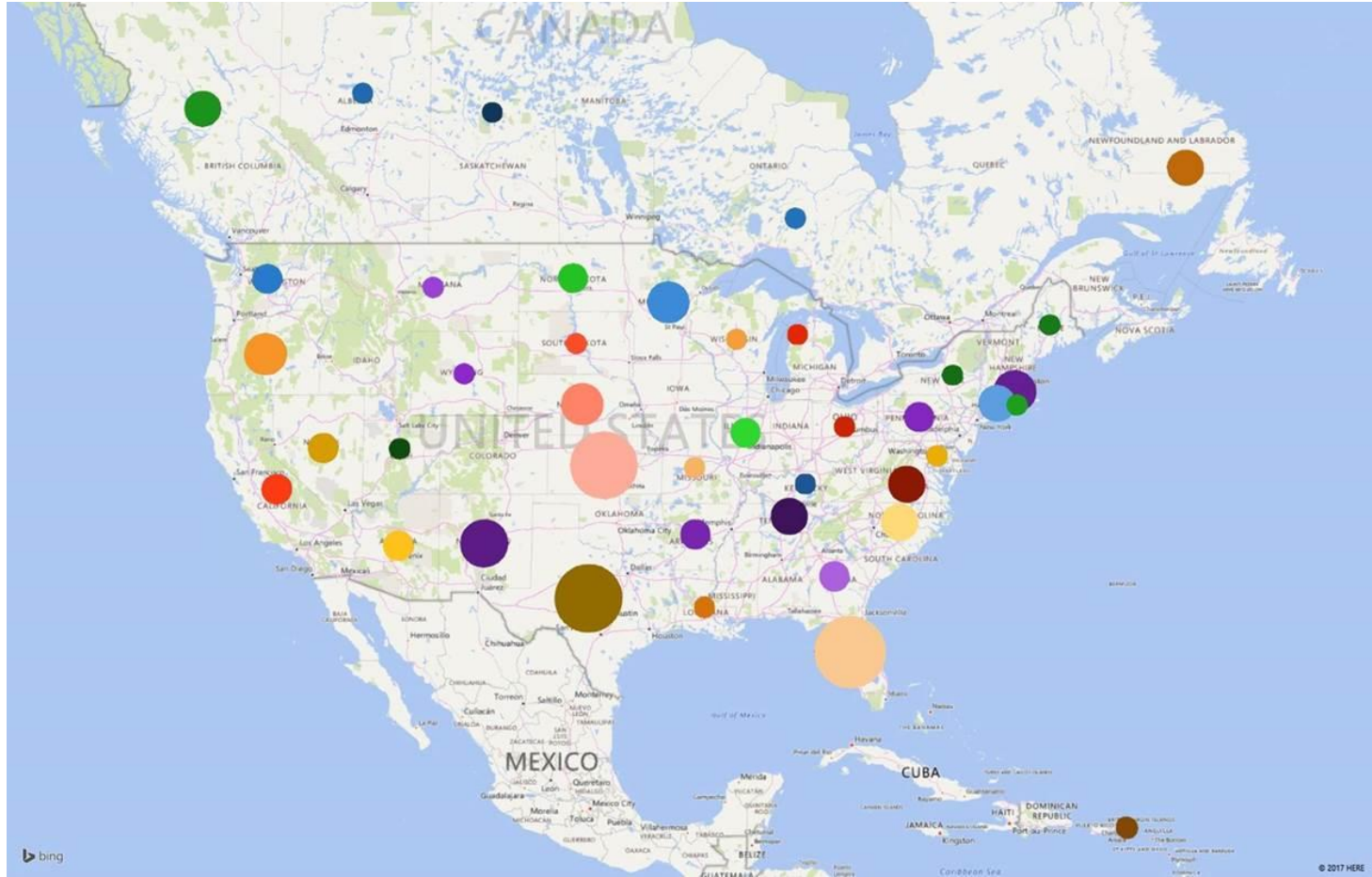
 Poll Everywhere

Logout



# Excel's Power Map Charts

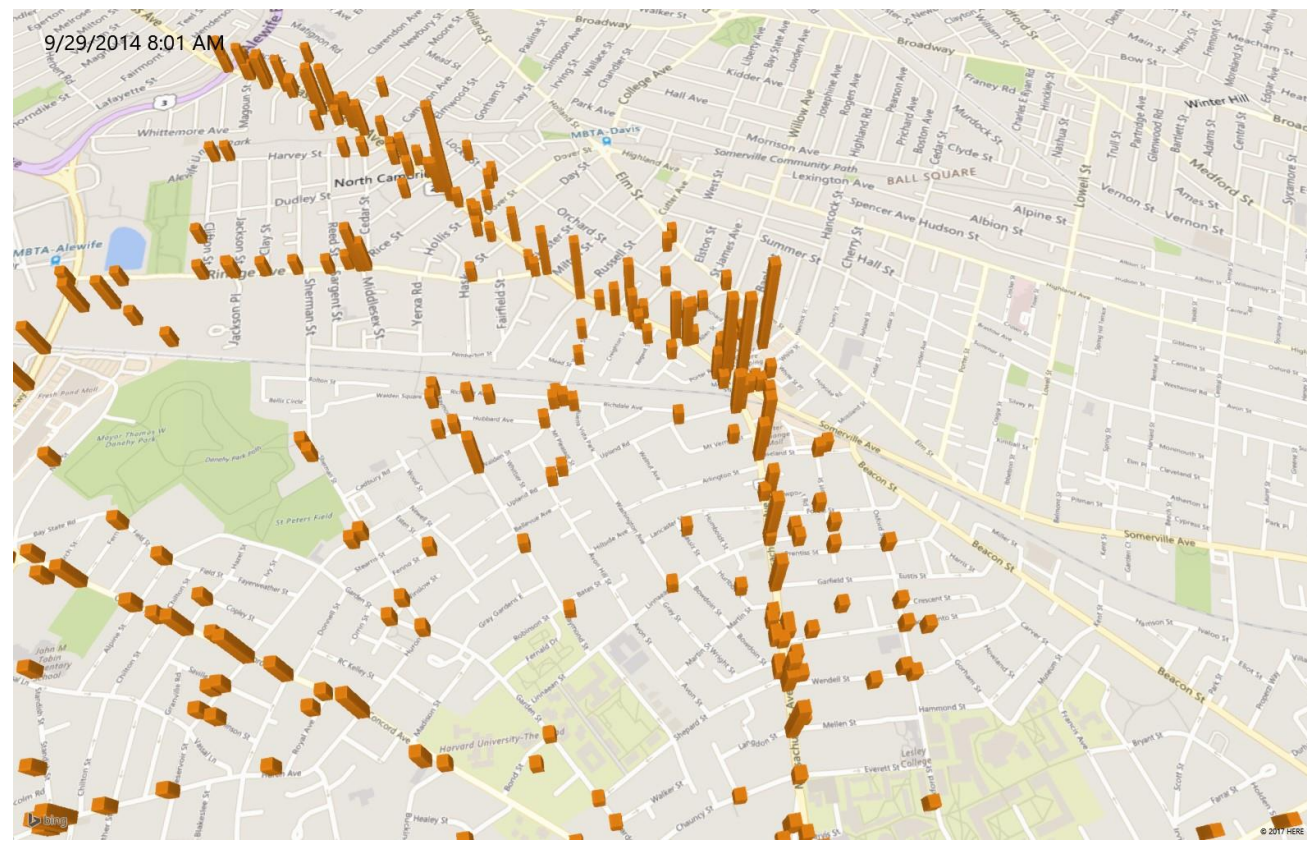
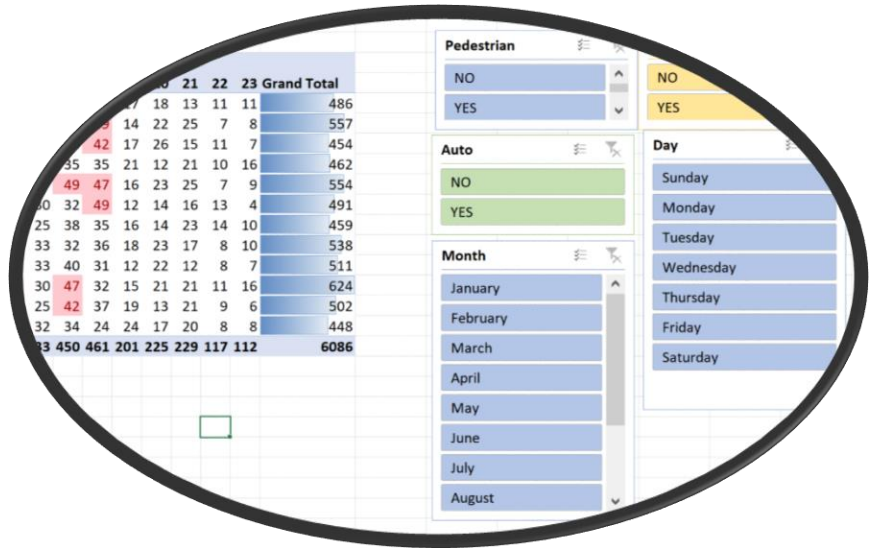




# Creating Power Maps

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Crash Number	Date Time	Month	Day	HOURL
23638	1:50:59 AM	January	Friday	1
23639	2:04:59 AM	January	Friday	2
23640	3:59:59 AM	January	Friday	3
23641	8:49:59 AM	January	Friday	8
25270	11:00:00 AM	January	Friday	11
23642	7:31:59 AM	January	Saturday	7
23643	8:00:00 AM	January	Saturday	8



# Pivot Tables & Maps

## From Raw Data to Actionable Insights

Crash Number	Date Time	Month	Day	HOUR
23638	1:50:59 AM	January	Friday	1
23639	2:04:59 AM	January	Friday	2
23640	3:59:59 AM	January	Friday	3
23641	8:49:59 AM	January	Friday	8
25270	11:00:00 AM	January	Friday	11
23642	7:31:59 AM	January	Saturday	7
23643	8:00:00 AM	January	Saturday	8

The screenshot shows a PivotTable with the following data:

	20	21	22	23	Grand Total		
17	18	13	11	11	486		
14	22	25	7	8	557		
17	26	15	11	7	454		
35	35	21	12	10	16	462	
16	23	25	7	9	554		
12	14	16	13	4	491		
16	14	23	14	10	459		
18	23	17	8	10	538		
12	22	12	8	7	511		
32	15	21	21	11	16	624	
37	19	13	21	9	6	502	
24	17	20	8	8	448		
<b>450</b>	<b>461</b>	<b>201</b>	<b>225</b>	<b>229</b>	<b>117</b>	<b>112</b>	<b>6086</b>

Filters applied:

- Pedestrian:** YES
- Auto:** YES
- Month:** January
- Day:** Saturday

# Pivot Tables

## From Raw Data to Actionable Insights

# Pivot Tables

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1

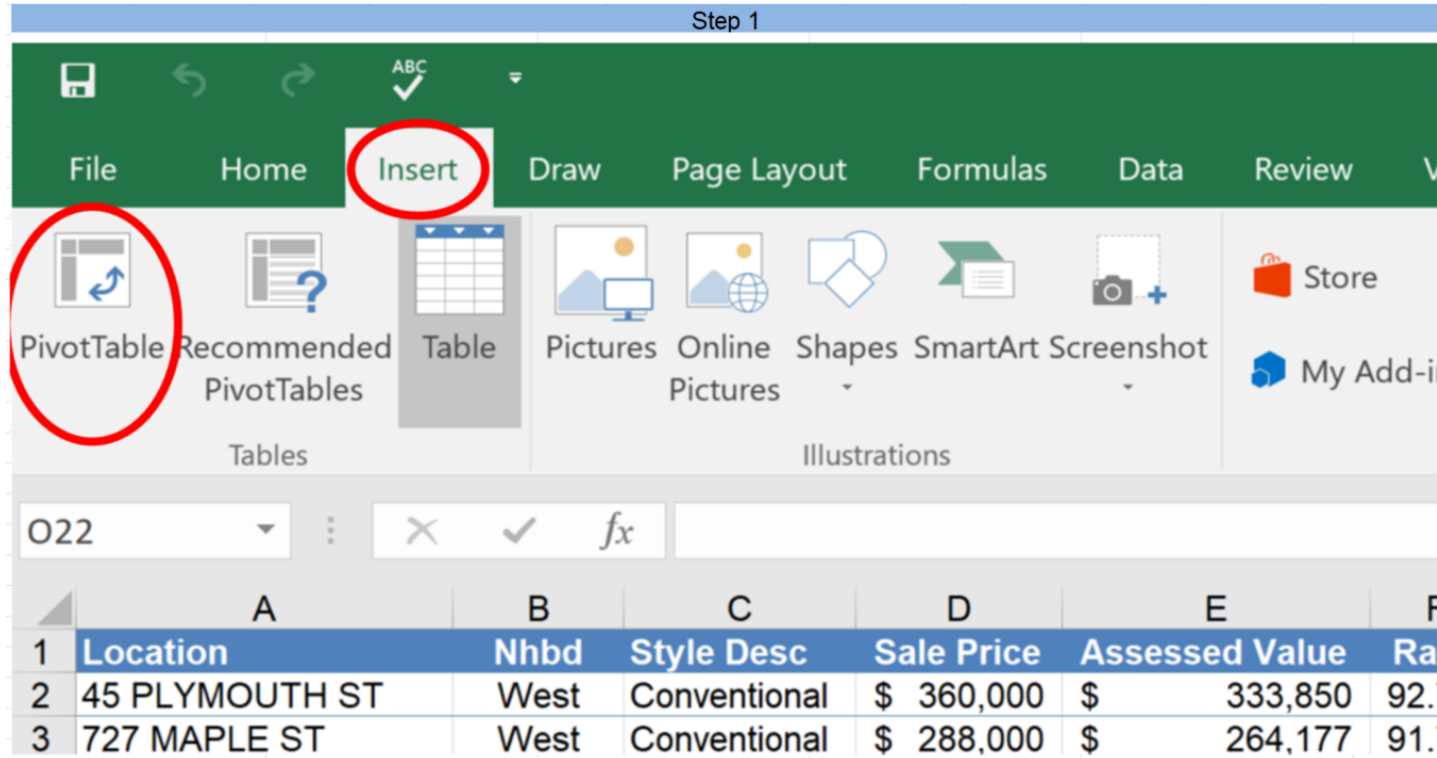
Overview of the  
basic functionality

2

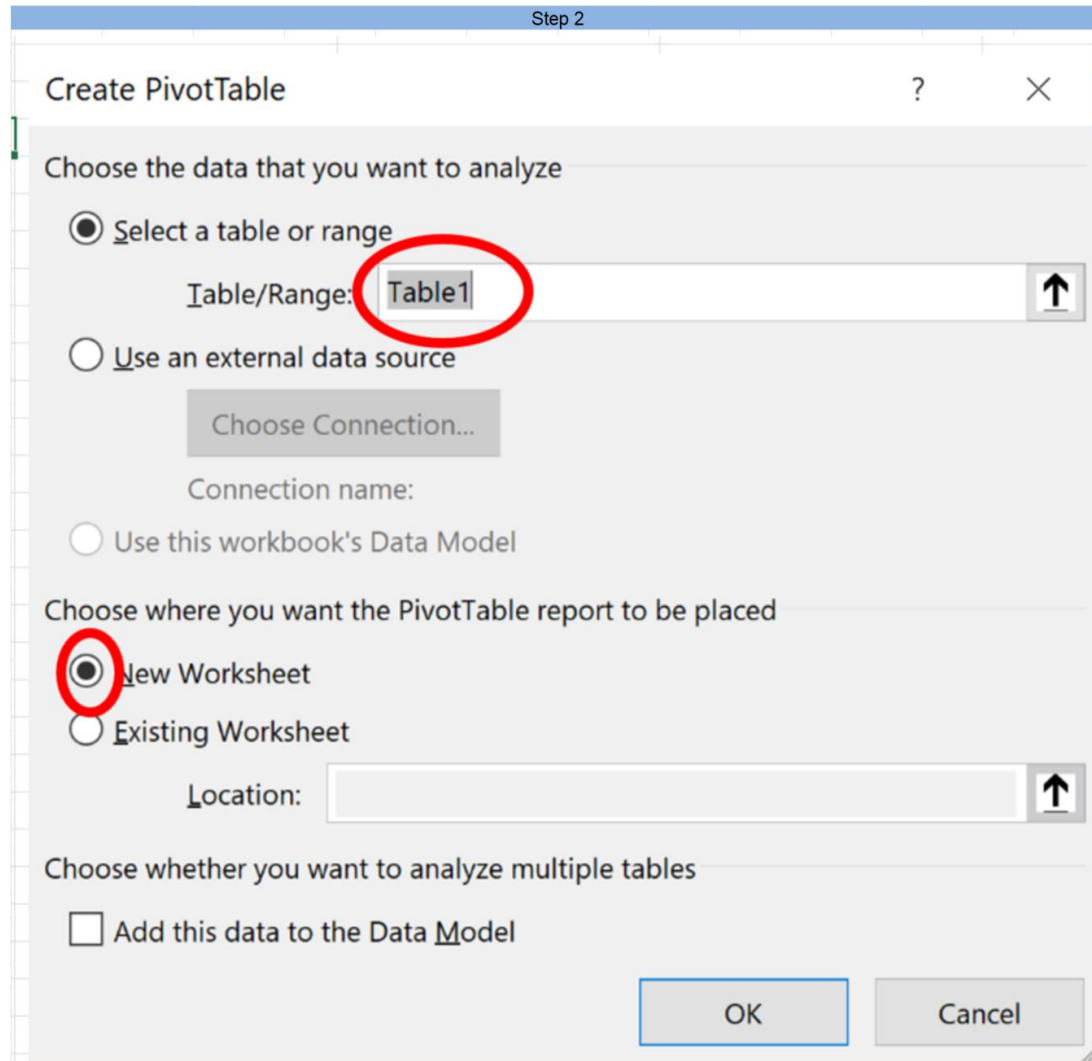
Pivot Tables  
analyze lots of data  
quickly

3

Pivot Tables and  
Charts are  
dynamically  
updated



Step 1



# Step 2

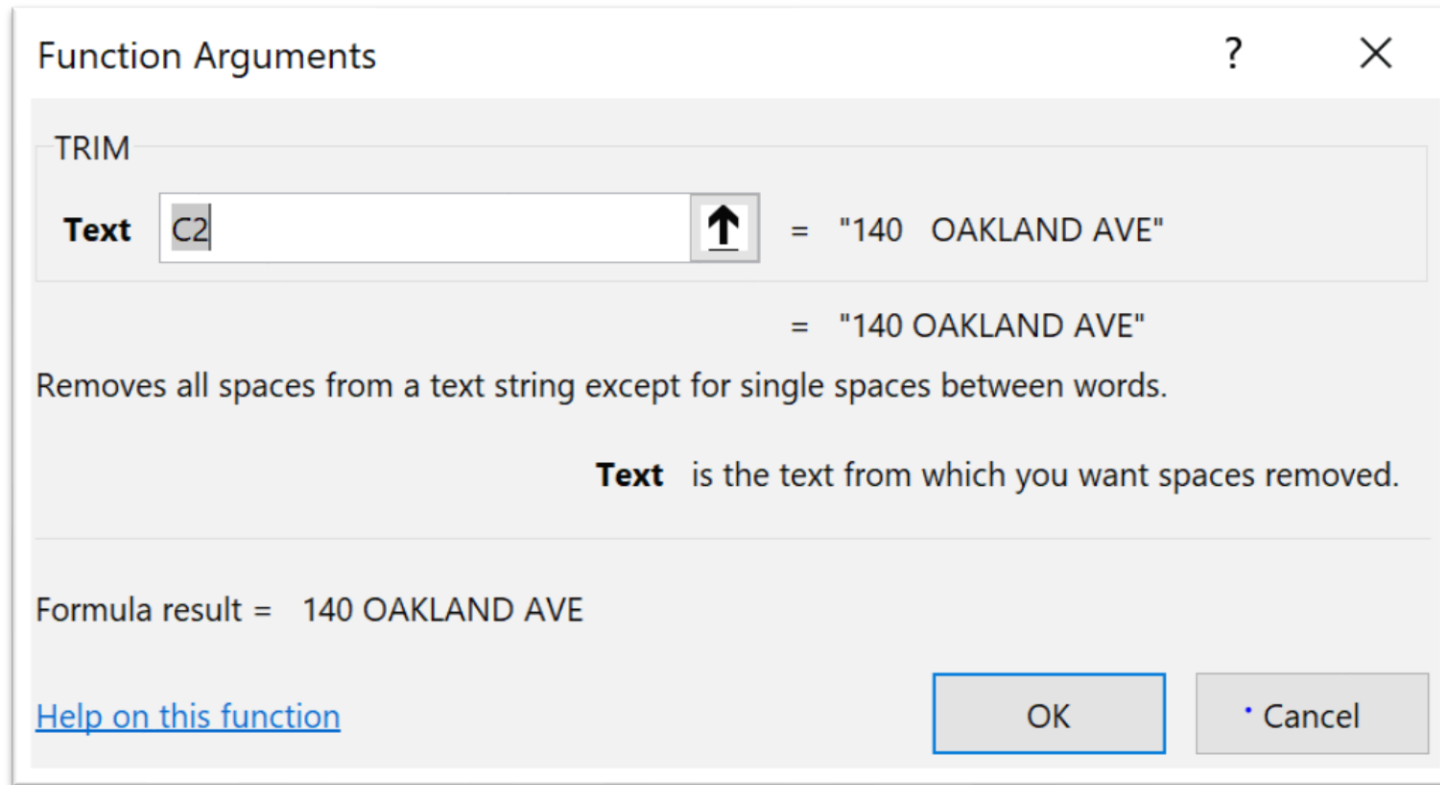
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MedianRatio Status	Average Sale Price Status
✓	●
✓	●
✓	●
✓	●
✓	●
✓	●
!	●
✓	●
!	●
✓	●
✓	●
✓	●
✓	●
✓	●
✓	●
✓	●
✓	●

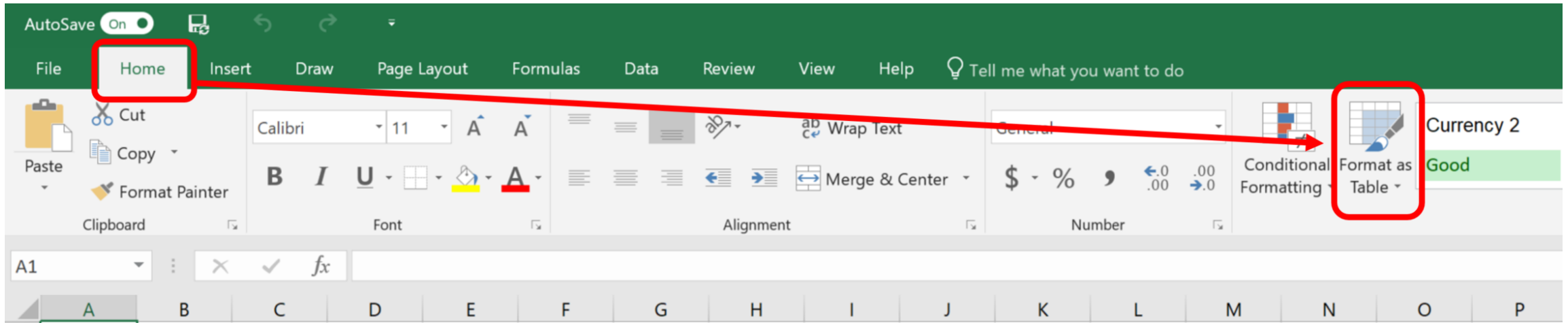
KPI's

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# Trim Function



# Adding Tables

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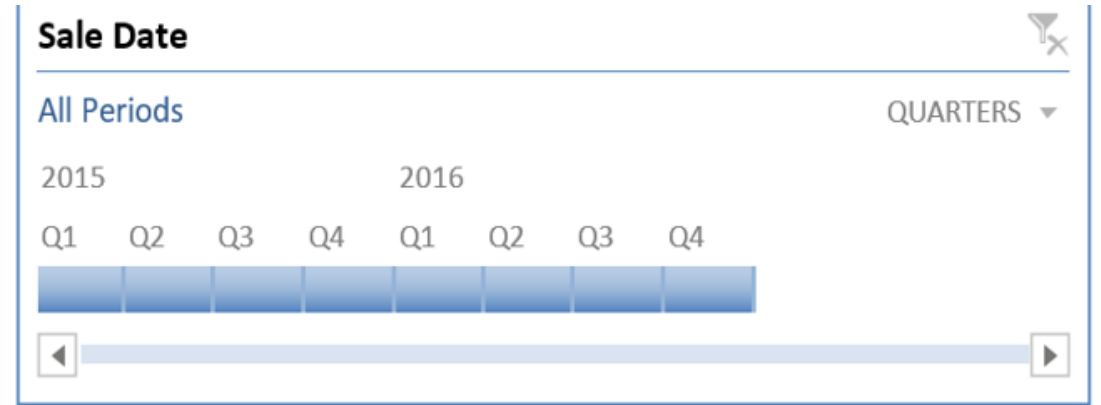
Assessed Value	Ratio	Actual Year Bl	Age	Sale Date
\$ 220,800	92.0%	1964	51	1/30/2015
\$ 174,720	91.0%	1998	17	1/31/2015
\$ 193,845	97.0%	1960	55	2/1/2015
\$ 213,886	91.0%	1965	50	2/2/2015
\$ 216,154	104.0%	1974	41	2/3/2015
\$ 205,920	90.0%	2006	9	2/4/2015
\$ 195,686	104.0%	1933	82	2/5/2015
\$ 210,924	93.0%	1966	49	2/6/2015
\$ 204,624	105.0%	2005	10	2/7/2015
\$ 154,006	103.0%	2003	12	2/8/2015
\$ 143,539	96.0%	1991	24	2/9/2015
\$ 76,117	94.0%	1984	31	2/10/2015
\$ 234,943	103.0%	1940	75	2/11/2015
\$ 203,683	98.0%	1975	40	2/12/2015
\$ 200,782	91.0%	1991	24	2/13/2015
\$ 209,296	103.0%	1975	40	2/14/2015
\$ 199,840	100.0%	2000	15	2/15/2015
\$ 205,533	97.0%	1963	52	3/16/2015
\$ 198,885	98.0%	2002	13	3/17/2015
\$ 203,537	97.0%	1960	55	3/18/2015
\$ 140,670	94.0%	1970	26	3/19/2015

**Style Desc**

- Bungalow
- Cape Cod
- Colonial
- Conventional
- Raised Ranch
- Ranch
- Tudor/Victoria

**Nhbd**

- 1
- 2
- 3
- 4



# Formatting Tables and Using Slicers

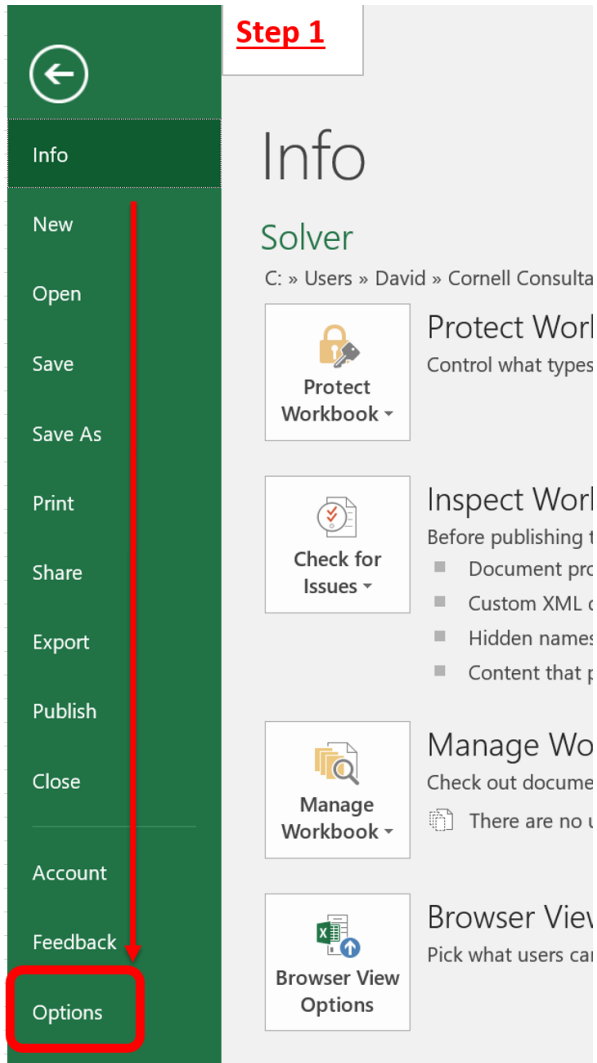
# Table- Live Example

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# Goal Seek

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# Installing Solver

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Excel Options **Step 2**

General  
Formulas  
Proofing  
Save  
Language  
Advanced  
Customize Ribbon  
Quick Access Toolbar  
**Add-ins**  
Trust Center

General options for working with Excel.

**User Interface options**

- Show Mini Toolbar on selection ⓘ
- Show Quick Analysis options on selection
- Enable Live Preview ⓘ

ScreenTip style: Show feature descriptions in ScreenTips

**When creating new workbooks**

Use this as the default font: Body Font

Font size: 11 ▾

Default view for new sheets: Normal View ▾

**Step 3- Select "Go"**

Add-in: Analysis ToolPak

Publisher: Microsoft Corporation

Compatibility: No compatibility information available

Location: C:\Program Files (x86)\Microsoft Office\root\Office16\Library\Analysis\ANALYS32.XLL

Description: Provides data analysis tools for statistical and engineering analysis

Manage: Excel Add-ins ▼

Go...



**Step 3- Select "Go"**

Add-in: Analysis ToolPak

Publisher: Microsoft Corporation

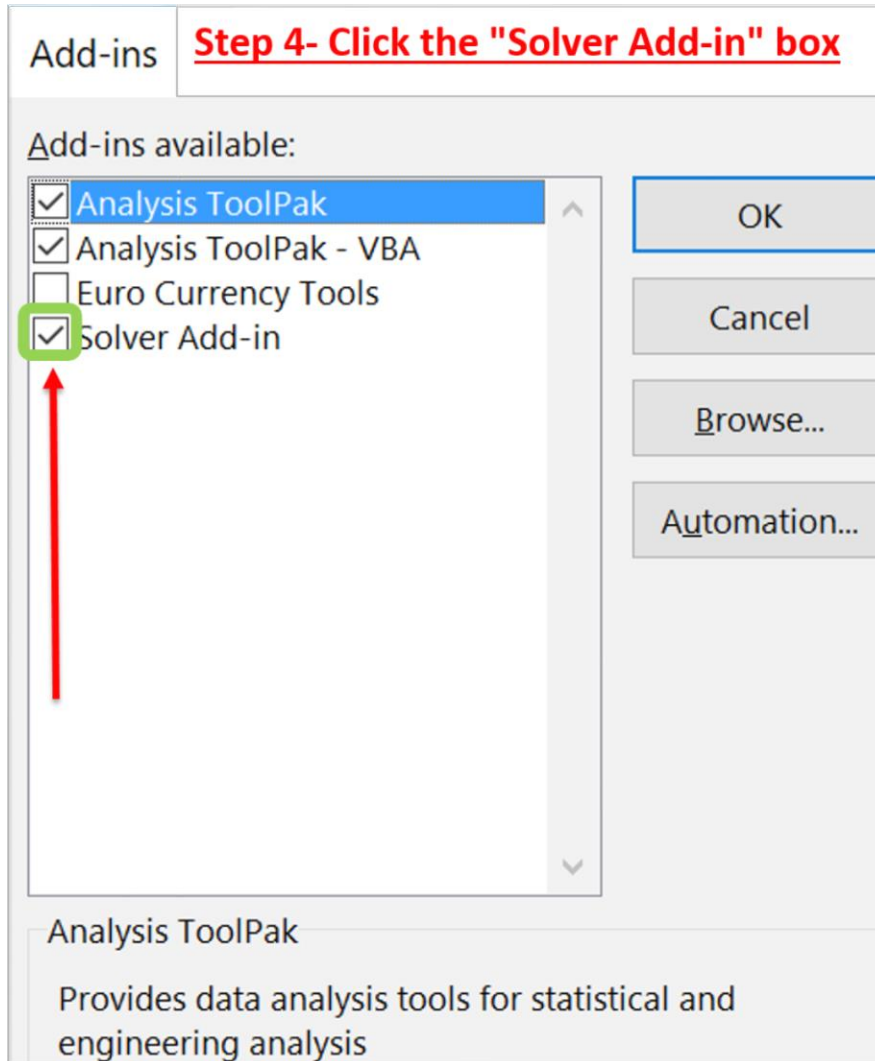
Compatibility: No compatibility information available

Location: C:\Program Files (x86)\Microsoft Office\root\Office16\Library\Analysis\ANALYS32.XLL

Description: Provides data analysis tools for statistical and engineering analysis

Manage: Excel Add-ins

Go...



**Solver Parameters** [Close]

Set Objective:  [Up Arrow]

To:  Max  Min  Value Of:

By Changing Variable Cells:  [Up Arrow]

Subject to the Constraints:

- \$Q\$10 <= 0.99
- \$Q\$10 >= 0.94
- \$Q\$11 <= 0.99
- \$Q\$11 >= 0.94
- \$Q\$12 <= 0.99
- \$Q\$12 >= 0.94
- \$Q\$9 <= 0.99
- \$Q\$9 >= 0.94

[Add] [Change] [Delete] [Reset All] [Load/Save]

Make Unconstrained Variables Non-Negative

Select a Solving Method:  [Options]

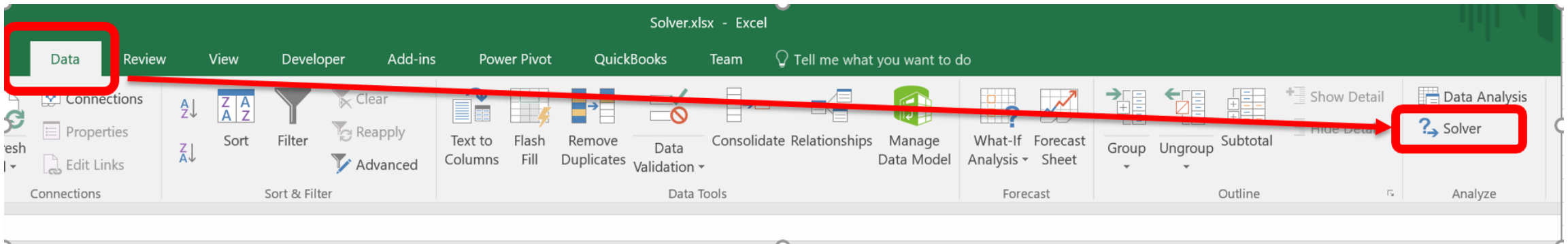
Solving Method

Select the GRG Nonlinear engine for Solver Problems that are smooth nonlinear. Select the LP Simplex engine for linear Solver Problems, and select the Evolutionary engine for Solver problems that are non-smooth.

[Help] [Solve] [Close]

# Using Solver

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# Solver- Live Example

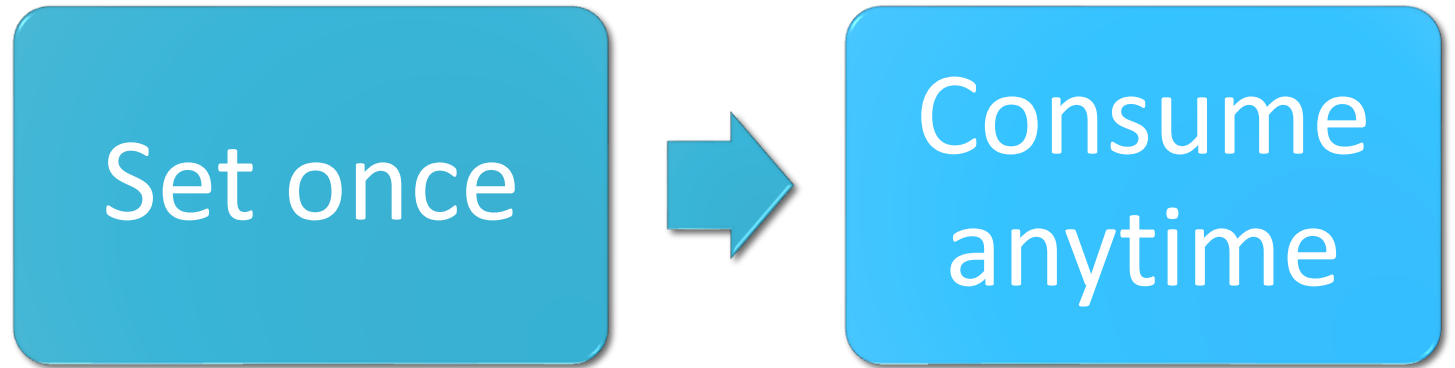
Data

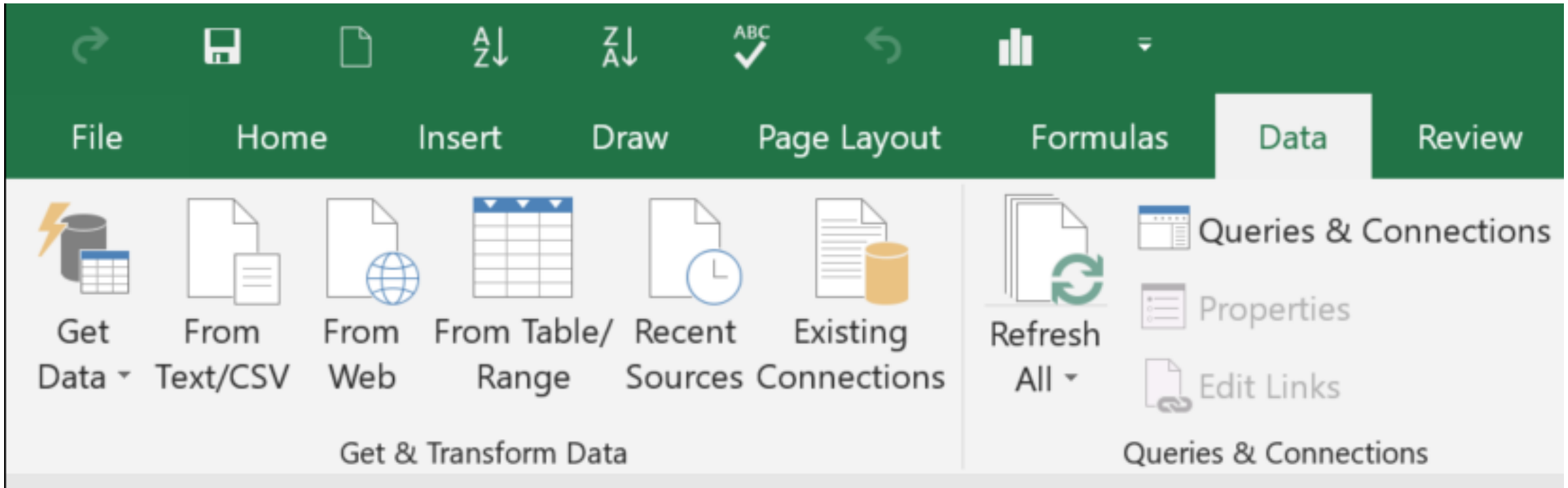
Extract

Transform

Load

Standardize  
Data





# Data Queries and Connections

# Adding New Measures

Add median values to Pivot Tables

Measure

Table Name: Table1

Measure Name: MedianRatio

Value Description: Median Ratio

Formula:

=MEDIAN(Table1[Ratio])

Category:

- General
- Date
- Number
- Currency
- TRUE\FALSE

Format: Percentage

Decimal Places: 2

Use 1000 separator (,)

OK Cancel



Excel ribbon showing the 'Queries' section with various transformation options like 'Merge Queries', 'Append Queries', and 'Combine Files'. Below the ribbon, a formula bar displays the function: `= Table.TransformColumnTypes(Source,{{"Location", type text}, {"City", type text}, {"State", type text}, {"`

	Location	City	State	Nhbd	Style Desc	Sale Price	Assessed Value
1	45 PLYMOUTH ST	Manchester	NH		2 Conventional	240000	220800
2	727 MAPLE ST	Manchester	NH		2 Conventional	192000	174720
3	276 BRIDGE ST	Manchester	NH		2 Conventional	199840	193844.8
4	34 EVERETT ST	Manchester	NH		2 Conventional	235040	213886.4
5	726 CILLEY RD	Manchester	NH		3 Cape Cod	207840	216153.6
6	898 CILLEY RD	Manchester	NH		4 Ranch	228800	205920
7	374 BRIDGE ST	Manchester	NH		2 Conventional	188160	195686.4
8	49 HILLCREST AVE	Manchester	NH		3 Conventional	226800	210924
9	476 MAPLE ST	Manchester	NH		1 Conventional	194880	204624

# Using Excel's Get & Transform Data Functions

# Monthly Sales

# Add every month

Live Example

Microsoft Power BI

## Claims Analysis

Microsoft | Power BI

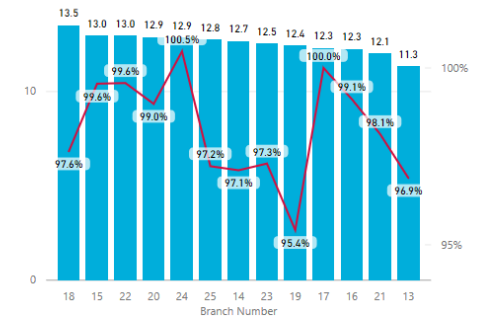
Total Claims  
2,995

Total Paid \$  
\$347M

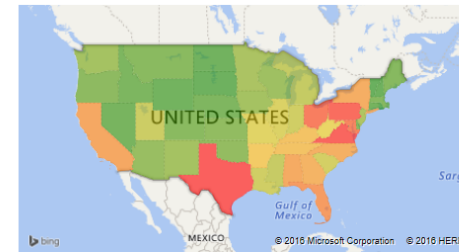
Litigated Claims  
153

### Branch Performance

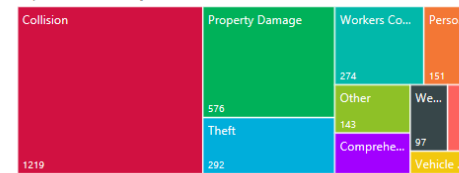
Average Days To Close ● Close Ratio



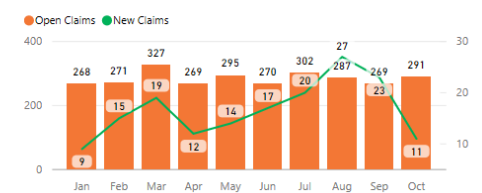
### Claims by Loss State



### Open Claims by Cause of Loss



### Claims Trend



Power BI Demonstration- Bring your data to life

Assessment Ratio					
Style	NHBD 1	NHBD 2	NHBD 3	NHBD 4	Grand Total
Bungalow	92.00%		101.67%	92.00%	97.80%
Cape Cod	101.50%	98.50%	100.50%	96.30%	98.50%
Colonial	93.00%		100.00%	90.00%	94.00%
Conventional	98.59%	97.55%	96.00%	97.17%	97.55%
Raised Ranch				103.00%	103.00%
Ranch	92.83%	82.80%	83.70%	89.10%	88.53%
Tudor/Victoria		94.00%	104.00%		99.00%
<b>Grand Total</b>	<b>97.42%</b>	<b>96.30%</b>	<b>98.20%</b>	<b>94.62%</b>	<b>96.62%</b>

# Conditional Formatting



# Questions

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