



Excel Power Tools

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NCAIR 2015 Conference

- **10,382** students
- **Master's Comprehensive**
- **Mountain location**
- **Residential and Distance**



**Western
Carolina**
UNIVERSITY



Why Pivot Tables

- **Summarize large datasets**
- **Quickly add, remove, rearrange elements**
- **(Little to) No formula-writing**
- **Can be a basis for self-service data**
- **Can connect to a refreshable data source**



Limitations of Pivot Tables

- **Connected to only 1 table**
- **Formatting not maintained**
- **Calculated fields need to be created for each Pivot Table**
- **Can't count the way universities usually want to count**



Displaying Data – Pivot Tables



Connecting to Data

From Access From Web From Text From Other Sources Existing Connections Refresh All Connections

Get External Data Properties Edit Links

A1

A B C D E F

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Import Data

Select how you want to view this data in your workbook.

Table

PivotTable Report

PivotChart

Power View Report

Only Create Connection

Where do you want to put the data?

Existing worksheet:

= \$A\$1

New worksheet

Add this data to the Data Model

Properties... OK Cancel



Connecting to Data

The screenshot shows an Excel spreadsheet with a PivotTable in cell A2. The PivotTable is titled "PivotTable1" and contains the text: "To build a report, choose fields from the PivotTable Field List". Below the text is an illustration of a PivotTable and a PivotTable Field List. The PivotTable Field List task pane is open on the right side of the screen, titled "PivotTable Fields". It contains a list of fields with checkboxes next to them:

- Academic year
- Acceptance status
- ACT - Composite
- Admittance status
- Admitted this term
- Age
- Applied this term
- Career level
- Citizenship
- Class level
- College



Displaying Data – Pivot Tables

PivotTable Fields

Choose fields to add to report:

- Academic year
- Term
- Semester
- Year
- ID
- Applied this term
- Admitted this term

Drag fields between areas below:

<p>▼ FILTERS</p>	<p> COLUMNS</p>
<p>≡ ROWS</p>	<p>Σ VALUES</p>



Displaying Data – Pivot Tables

Drag fields between areas below:

Y FILTERS

ROWS

||| COLUMNS

Σ VALUES

	A	B	C
1	Semester	Fall	
2			
3	Count of ID	Column Labels	
4	Row Labels	2003-2004	2004-2005
5	Aerospace Engineering	44	66
6	Architecture	180	274
7	Biomedical Research	49	67
8	Ecosystem Health	56	72



Displaying Data – Pivot Tables

Drag fields between areas below:

FILTERS

Semester

ROWS

Program name

Move to Beginning

Move to End

Move to Report Filter

Move to Row Labels

Move to Column Labels

Move to Values

Remove Field

Value Field Settings...

Sum of ID

Sum
Count
Average
Max
Min
Product
Count Numbers
StdDev
StdDevp
Var
Varp



Displaying Data – Pivot Tables

ROWS

College

Department

Program name

	A	B	C	D	E
1	Semester	Fall			
2					
3	Count of ID	Column Labels			
4	Row Labels	2003-2004	2004-2005	2005-2006	2006-2007
5	College of Information Studies	150	197	182	181
6	Information Management	115	154	139	145
7	Information Management	115	154	139	145
8	Library Science	35	43	43	36
9	Library Science	35	43	43	36



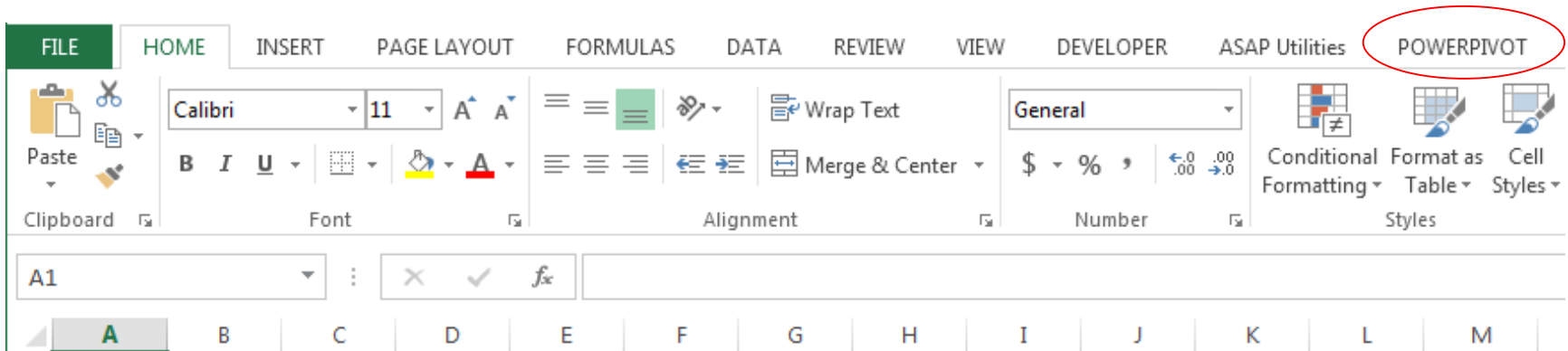
Displaying Data – Power Pivot

New and
improved
Pivot Tables!



Displaying Data – Power Pivot

- Set-up

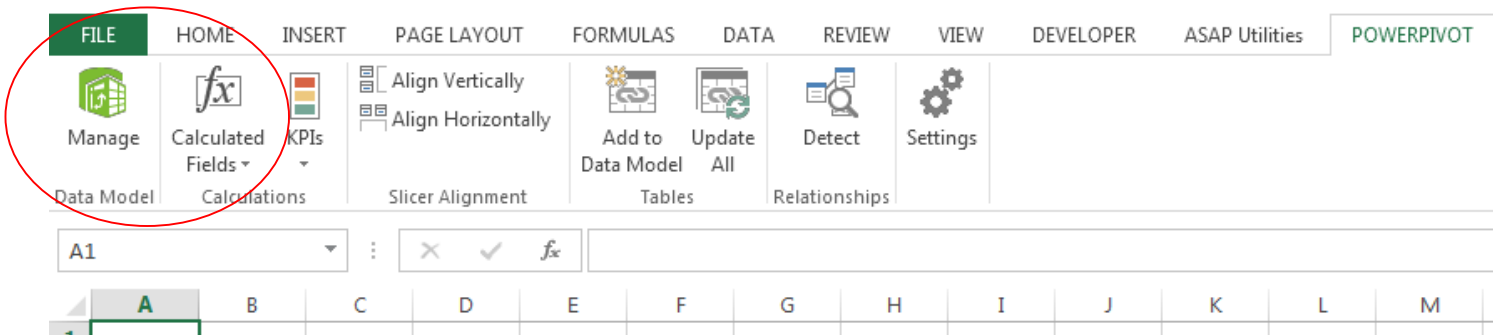


- Installed with Excel 2013
- Downloadable add-in for Excel 2010
- **Not available prior to Excel 2010**



Displaying Data – Power Pivot

- The Power Pivot environment



Manage

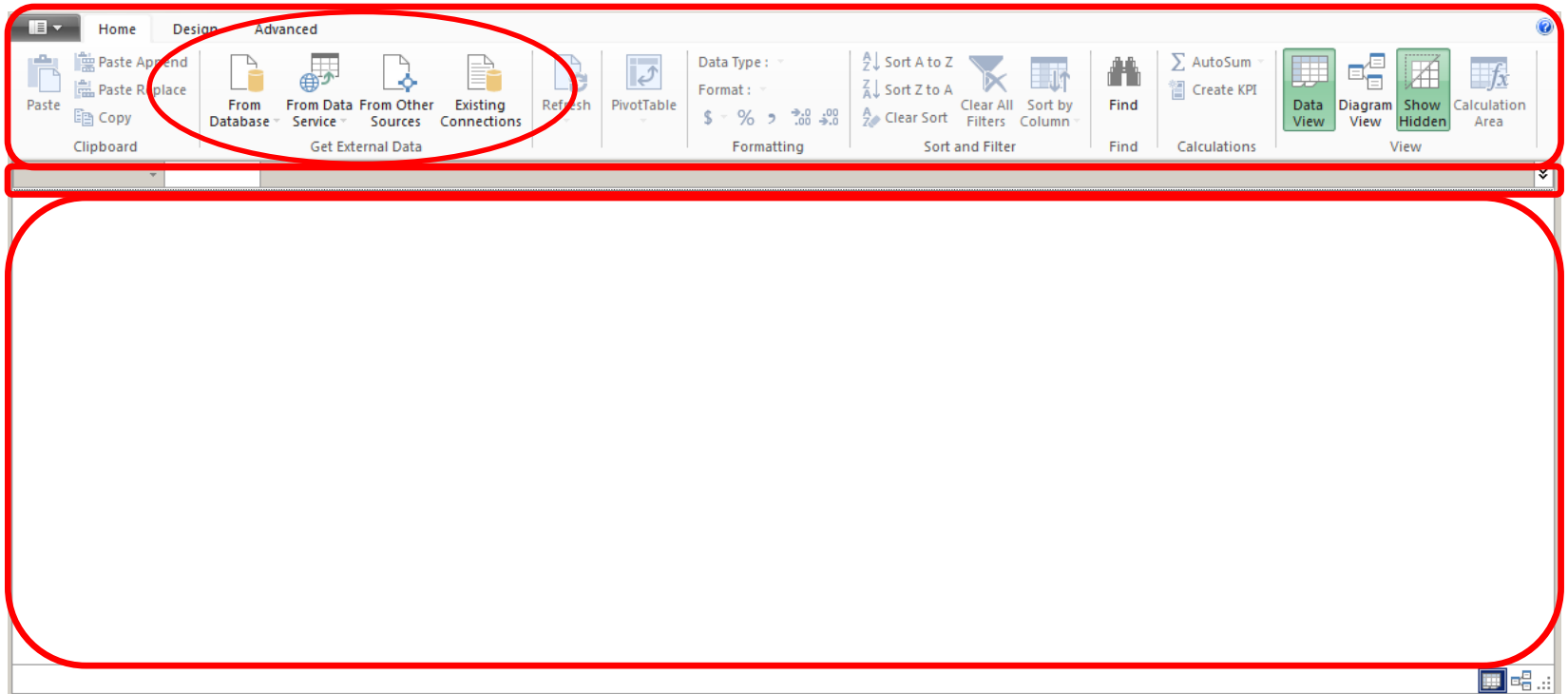
Data Model

Open Power Pivot



Displaying Data – Power Pivot

- The Power Pivot environment



Displaying Data – Power Pivot

- Import data

The screenshot displays the 'Table Import Wizard' interface. The main window is titled 'Table Import Wizard' and has a sub-header 'Select Tables and Views' with the instruction 'Select the tables and views that you want'. Below this, the database path is shown as 'Database: W:\Data\WorkshopData.accdb'. A table lists available tables and views:

<input type="checkbox"/>	Source Table	Friendly Name	Filter Details
<input checked="" type="checkbox"/>	WorkshopData	WorkshopData	

At the bottom of the wizard, the 'Preview & Filter' button is visible. An inset window titled 'Table Import Wizard' shows the 'Importing' status. It displays a green checkmark and the word 'Success'. Below this, a summary shows 'Total: 1', 'Cancelled: 0', 'Success: 1', and 'Error: 0'. A 'Details' table provides further information:

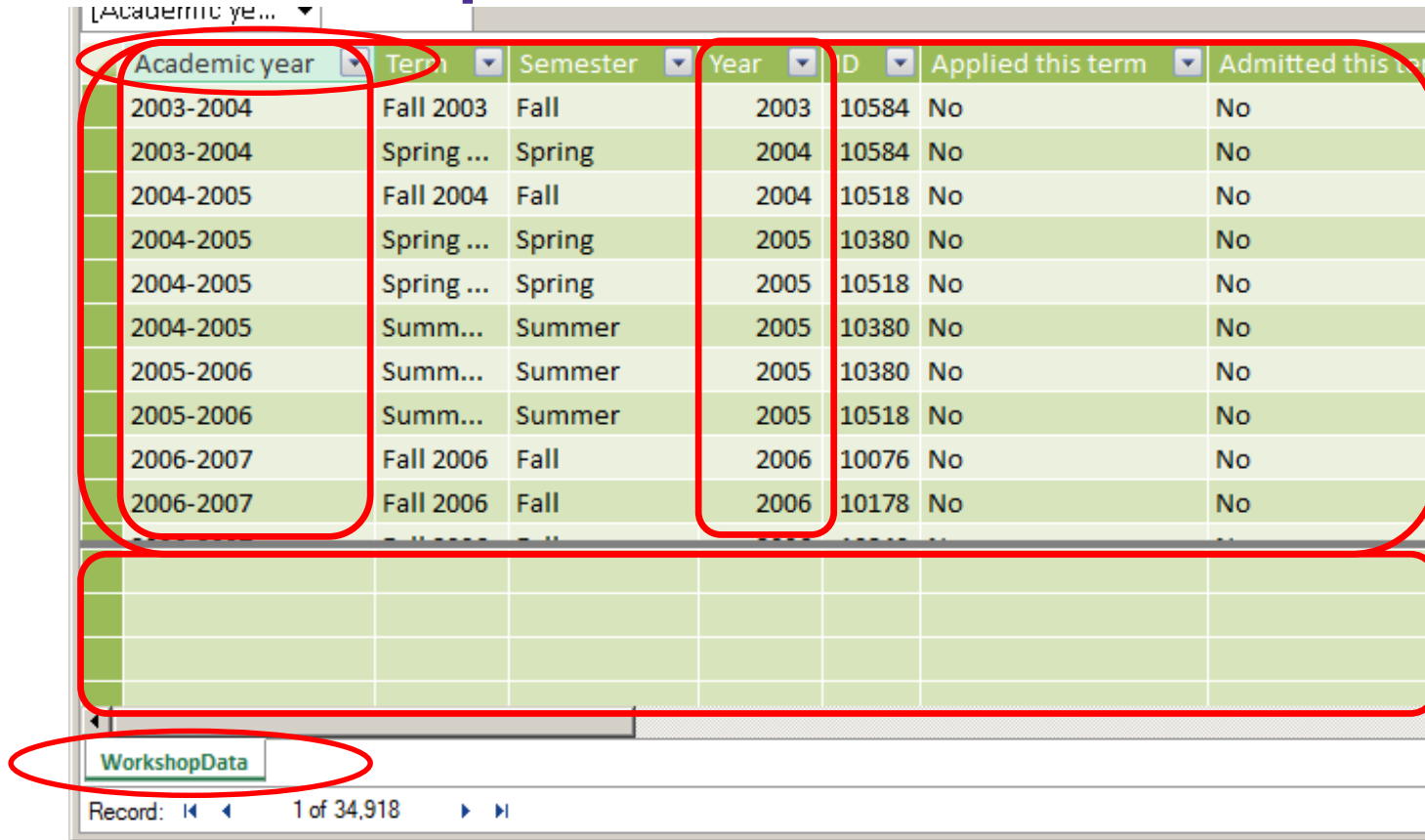
	Work Item	Status	Message
<input checked="" type="checkbox"/>	WorkshopData	Success	35,288 rows transferred.

Red circles highlight the 'WorkshopData' table in the main wizard, the 'Filter Details' column header, the 'Preview & Filter' button, and the 'Success' status and message in the inset window.



Displaying Data – Power Pivot

- How the imported data look



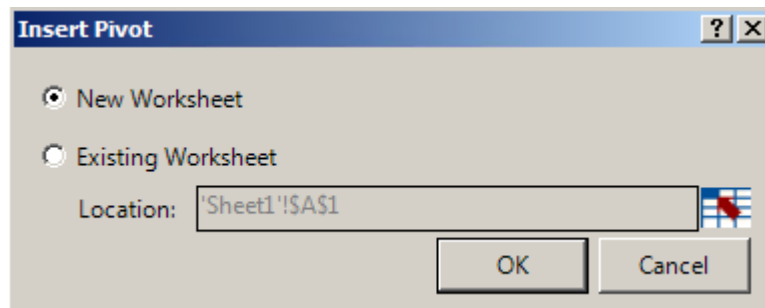
Academic year	Term	Semester	Year	ID	Applied this term	Admitted this term
2003-2004	Fall 2003	Fall	2003	10584	No	No
2003-2004	Spring ...	Spring	2004	10584	No	No
2004-2005	Fall 2004	Fall	2004	10518	No	No
2004-2005	Spring ...	Spring	2005	10380	No	No
2004-2005	Spring ...	Spring	2005	10518	No	No
2004-2005	Summ...	Summer	2005	10380	No	No
2005-2006	Summ...	Summer	2005	10380	No	No
2005-2006	Summ...	Summer	2005	10518	No	No
2006-2007	Fall 2006	Fall	2006	10076	No	No
2006-2007	Fall 2006	Fall	2006	10178	No	No

WorkshopData

Record: 1 of 34,918

Displaying Data – Power Pivot

- Bringing data into Excel



Displaying Data – Power Pivot

- PivotTable vs. Power Pivot PivotTable

Semester	Fall		
Count of ID	Column Labels		
Row Labels	2003-2004	2004-2005	2005-2006
College of Information Studies	153	200	185
Information Management	116	155	140
Information Management	116	155	140
Library Science	37	45	45

PivotTable Fields

Choose fields to add to report:

- Academic year
- Acceptance status
- ACT - Composite
- Admittance status
- Admitted this term

Semester	Fall		
Count of ID	Column Labels		
Row Labels	2003-2004	2004-2005	
College of Information Studies	153	200	
Information Management	116	155	
Information Management	116	155	
Library Science	37	45	

PivotTable Fields

ACTIVE | ALL

Choose fields to add to report:

- WorkshopData
 - Academic year
 - Term
 - Semester



Displaying Data – Power Pivot

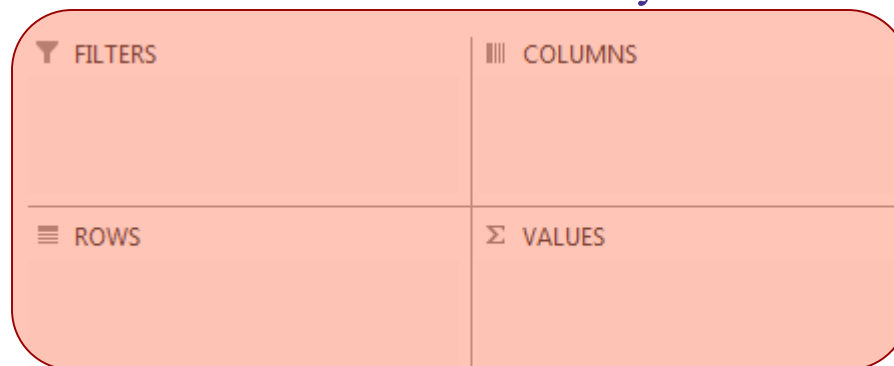
- **DAX**
 - Data Analysis Expressions (DAX)
 - Formula language for Power Pivot
 - Used to create **Calculated Columns** and **Calculated Fields**



Displaying Data – Power Pivot

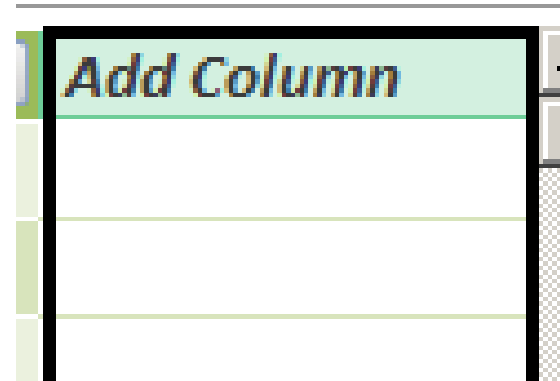
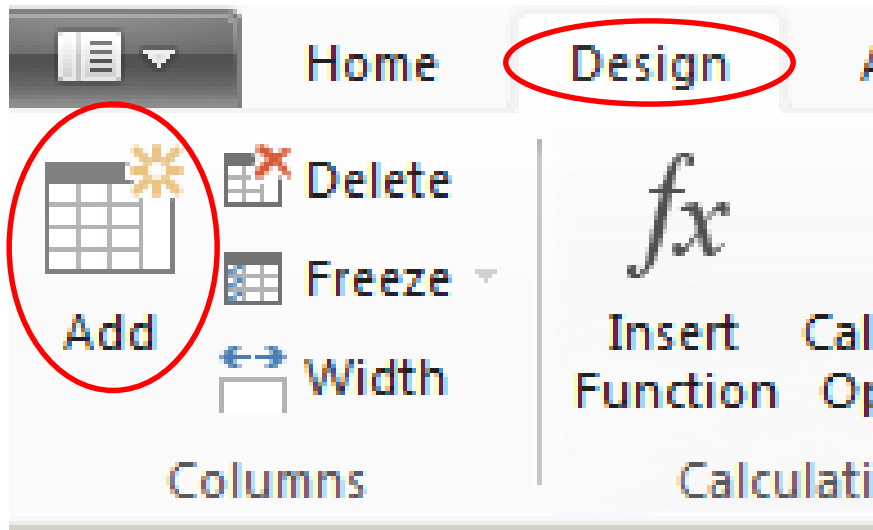
- **Calculated Columns**

- Used to add an additional column to data table
- Can be a column added from a related table (like a VLOOKUP) or new data, derived from existing data (sum to combined SAT, length of name, substring of longer string, etc.)
- Column can be used in any area of the pivot



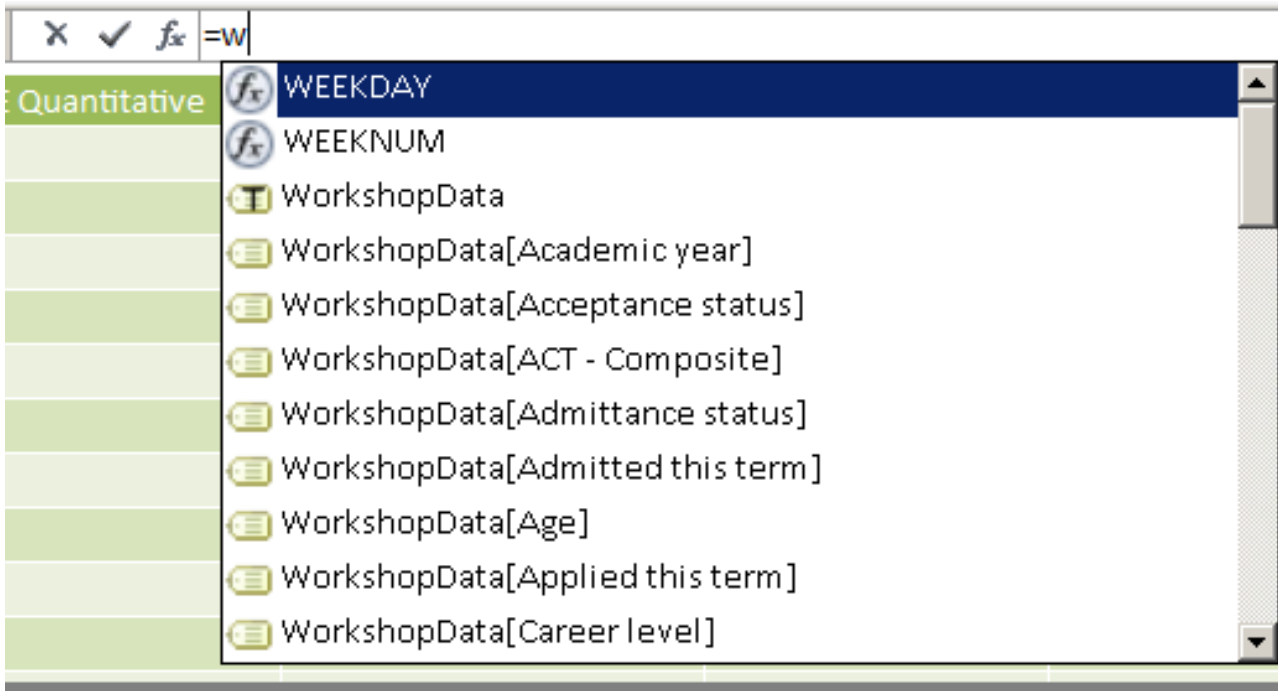
Displaying Data – Power Pivot

- Adding a calculated column



Displaying Data – Power Pivot

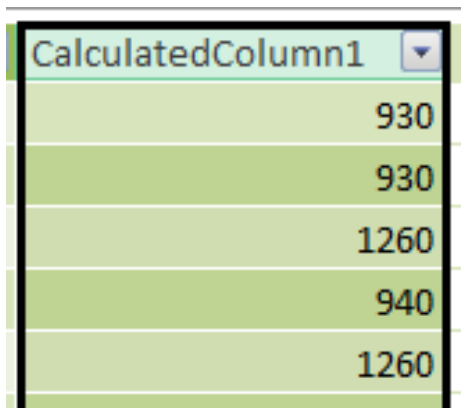
- Adding a calculated column



Displaying Data – Power Pivot

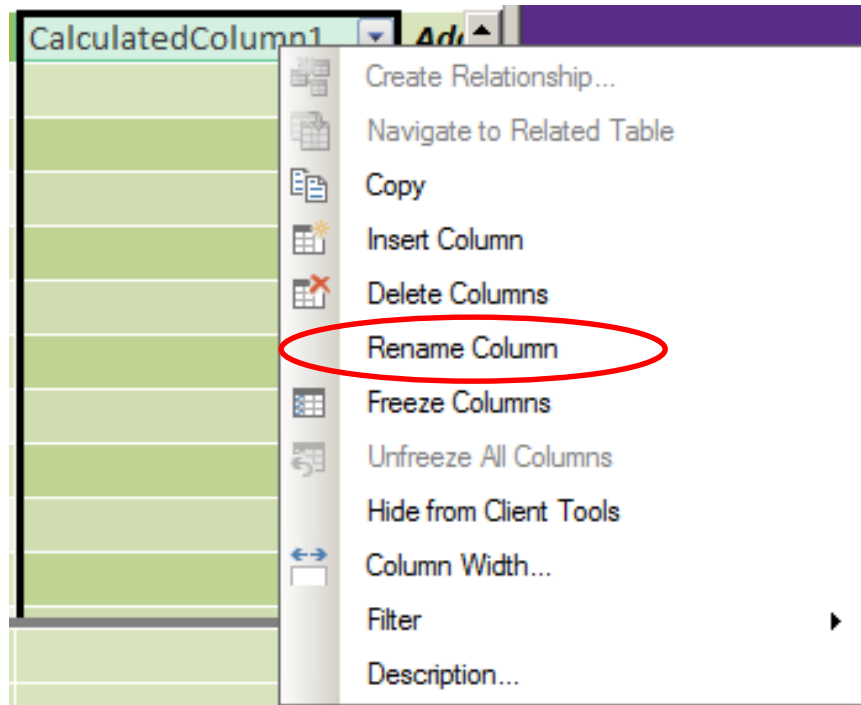
- Adding a calculated column

f_x =WorkshopData[SAT - Critical reading]+WorkshopData[SAT - Math]



A screenshot of a table with a calculated column. The column header is 'CalculatedColumn1' and it contains the following values: 930, 930, 1260, 940, and 1260.

CalculatedColumn1
930
930
1260
940
1260



Displaying Data – Power Pivot

- Adding a calculated column to pivot table

		Column Labels ▾	
		2003-2004	2004-2005
Row Labels ▾		Count of ID	Average SAT
[-] College of Information Studies		153	1062.592593
[-] Information Management		116	1081.188119
Information Management		116	1081.188119
[-] Library Science		37	1007.352941
Library Science		37	1007.352941
[-] College of Journalism		67	1045.5
[-] Journalism		67	1045.5
Journalism		67	1045.5



Evaluation Contexts

- Row context
 - The one row being evaluated
 - Automatic for calculated columns
 - Can be created in other ways as well (SUMX, AVERAGEX, etc.)
- Filter context



Row Context

f_x = WorkshopData[SAT - Critical reading]+WorkshopData[SAT - Math]

cumulative GPA	HS GPA	SAT - Critical reading	SAT - Math	SAT - Total	AC
3.13800001144409	3.150000...	540	390	930	
3.17499995231628	3.150000...	540	390	930	
3.53699994087219	4.559999...	520	740	1260	
1.8289999961853	3.25	510	430	940	
3.58999991416931	4.559999...	520	740	1260	
1.94900000095367	3.25	510	430	940	



Evaluation Contexts

- Row context

- The one row being evaluated
- Automatic for calculated columns
- Can be created in other ways as well (SUMX, AVERAGEX, etc.)

- Filter context

- The filters being applied by the pivot table
- Filters can be explicit or implicit
- Can add additional filters only with CALCULATE



Filter Context

Semester	Fall			
Column Labels	2003-2004			2004
Row Labels	Count of ID	Average SAT	Cou	
<input type="checkbox"/> College of Information Studies	153	1062.592593		
<input type="checkbox"/> Information Management	116	1081.188119		
Information Management	116	1081.188119		
<input type="checkbox"/> Library Science	37	1007.352941		
Library Science	37	1007.352941		
<input type="checkbox"/> College of Journalism	67	1045.5		



Displaying Data – Power Pivot

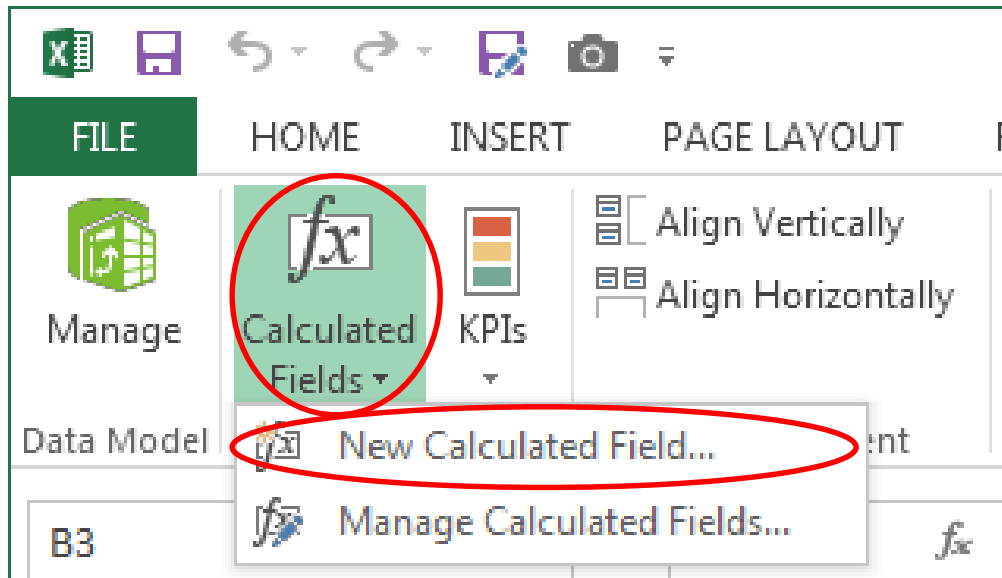
- **Calculated Fields**

- Used to add a calculated element
- Aggregate function that applies to whole table, column, or range
- Something that needs to be recalculated
- Fields can only be used in the VALUES section



Displaying Data – Power Pivot

- Adding a Calculated Field



Displaying Data – Power Pivot

- Adding a Calculated Field

Calculated Field

Table name:

Calculated field name:

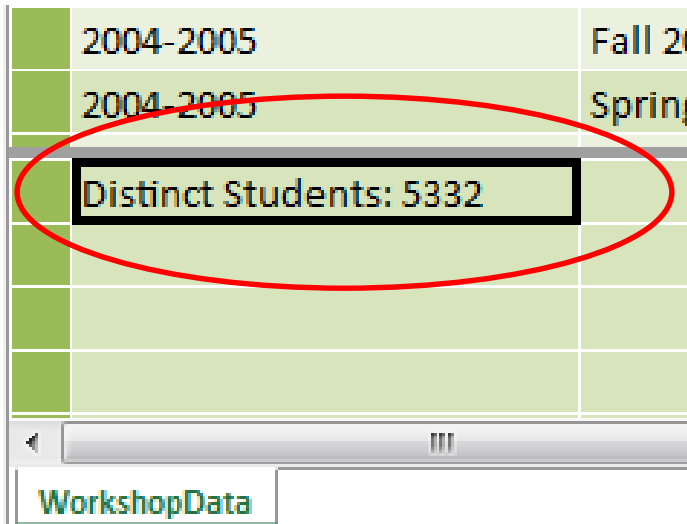
Description:

Formula:



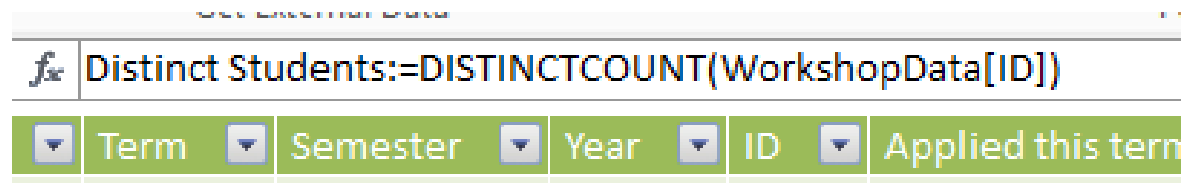
Displaying Data – Power Pivot

- Calculated Field in Power Pivot



A screenshot of a PivotTable in Microsoft Excel. The table has two columns: 'Term' and 'Semester'. The first row shows '2004-2005' for Term and 'Fall 2004' for Semester. The second row shows '2004-2005' for Term and 'Spring 2004' for Semester. A third row is highlighted with a black border and contains the text 'Distinct Students: 5332'. This row is circled in red. Below the table is a scroll bar and a label 'WorkshopData'.

Term	Semester
2004-2005	Fall 2004
2004-2005	Spring 2004
Distinct Students: 5332	



A screenshot of the Power Pivot formula bar. The formula bar shows the formula: `=DISTINCTCOUNT(WorkshopData[ID])`. Below the formula bar is a row of field names: 'Term', 'Semester', 'Year', 'ID', and 'Applied this term'. Each field name has a dropdown arrow to its left.

Term	Semester	Year	ID	Applied this term
------	----------	------	----	-------------------



Displaying Data – Power Pivot

DAX

ALL, ALLEXCEPT, CALCULATE, DISTINCTCOUNT, DIVIDE, FILTER



Displaying Data – Power Pivot

- **DISTINCTCOUNT**

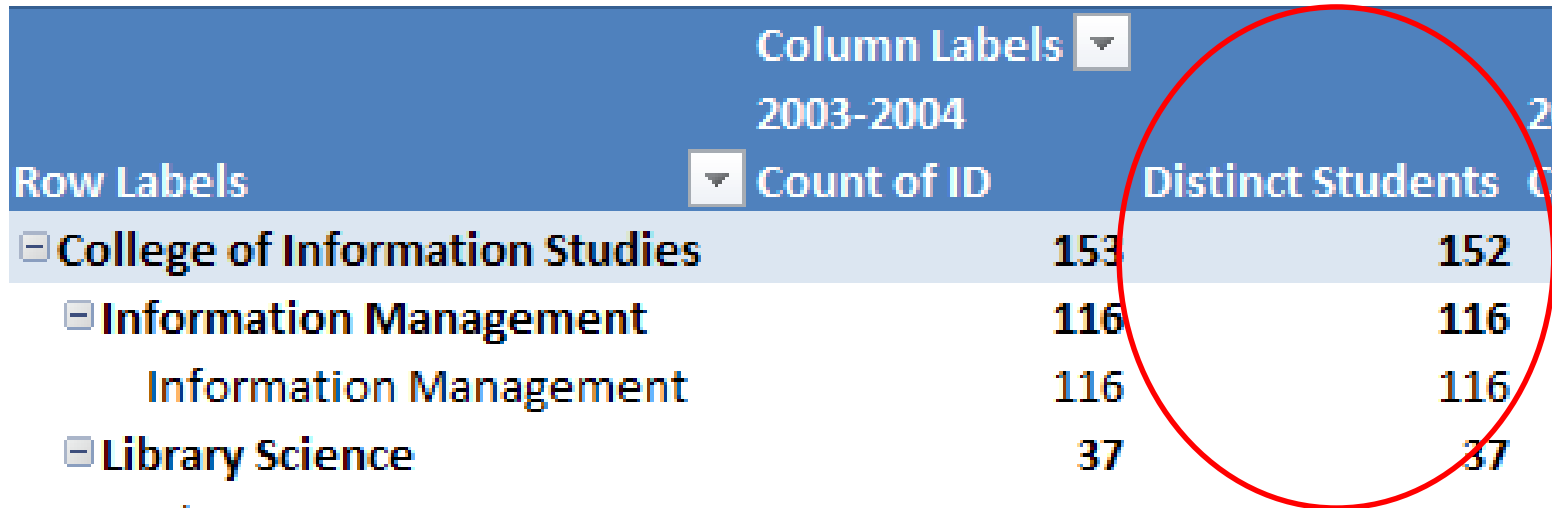
DISTINCTCOUNT(<column>)

– Counts unique values in column



Displaying Data – Power Pivot

- Adding a Calculated Field



The screenshot shows a PivotTable with the following structure:

Column Labels	2003-2004	2004-2005
Row Labels	Count of ID	Distinct Students
College of Information Studies	153	152
Information Management	116	116
Information Management	116	116
Library Science	37	37

A red circle highlights the 'Distinct Students' column, indicating the result of a calculated field.



Displaying Data – Power Pivot: DAX CALCULATE

- **CALCULATE**

`CALCULATE(expression, <filter1>, <filter2>...)`

- Supercharged SUMIFS
- Allows filtering (IFs) on any aggregate function (imagine “MAXIFS”, “MEDIANIFS”, etc.)
- Operators for filters: =, <, >, <=, >=, <>
- Can also use || in filter on same column



Displaying Data – Power Pivot: DAX CALCULATE

First-time Freshmen Distinct Students:=

CALCULATE(

[Distinct Students],

workshopData[Class level]="Freshman",

workshopData[Is new student this term]="Yes"

)



Displaying Data – Power Pivot: DAX CALCULATE

Column Labels		2003-2004		
Row Labels	Distinct Enrolled Students	First-time Freshmen Distinct Students	First-t	First-t
<input type="checkbox"/> Aerospace Engineering	44		10	
<input type="checkbox"/> Freshman	12		10	
No	2		10	
Yes	10		10	
<input type="checkbox"/> Sophomore	15		10	
No	12		10	
Yes	3		10	
<input type="checkbox"/> Junior	9		10	
No	6		10	



Displaying Data – Power Pivot: DAX ALL

- ALL

ALL(table_or_column, <column1>, <column2>, ...)

- Returns all the rows in a table, or all the values in a column, removing any filters that might have been applied



Displaying Data – Power Pivot: DAX ALL

All Distinct Enrolled Students:=

CALCULATE(

[Distinct Enrolled Students],

ALL(workshopData[Class Level])

)



Displaying Data – Power Pivot: DAX ALL

2009-2010		
Row Labels	Distinct Enrolled Students	All Distinct Enrolled Students
Aerospace Engineering	107	107
Freshman	18	107
Sophomore	13	107
Junior	37	107
Senior	39	107
Architecture	276	276
Freshman	40	276



Displaying Data – Power Pivot: DAX ALL

% of All Distinct Enrolled Students:=
DIVIDE([Distinct Enrolled Students],
[All Distinct Enrolled Students])



Displaying Data – Power Pivot

- **DIVIDE**

DIVIDE(<num>, <den>, [<alt>])

- “Safe” divide
- Can specify alternate result for divide by zero



Displaying Data – Power Pivot

Row Labels	2009-2010	2010
	Distinct Enrolled Students	% of All Distinct Enrolled Students
<input type="checkbox"/> Aerospace Engineering	107	100.00 %
Freshman	18	16.82 %
Sophomore	13	12.15 %
Junior	37	34.58 %
Senior	39	36.45 %
<input type="checkbox"/> Architecture	276	100.00 %
Freshman	40	14.49 %



Displaying Data – Power Pivot: DAX FILTER

- **FILTER**

`FILTER(TableToFilter, FilterExpression)`

– Returns a table filtered by FilterExpression



Displaying Data – Power Pivot: DAX CALCULATE

Above Average GPA Enrolled Undergraduates:=

```
CALCULATE(  
    [Distinct Enrolled Students],  
    FILTER(  
        workshopData,  
        workshopData[Institutional cumulative GPA] >  
            [Average GPA Enrolled Undergraduates]  
    )  
)
```



Displaying Data – Power Pivot: DAX FILTER

Row Labels		Column Labels	
		2003-2004	2004-2005
		Distinct Enrolled	% Above Average GPA
		Students	Enrolled Undergraduates
[-] College of Information Studies		152	42.11 %
[-] Information Management		116	44.83 %
Information Management		116	44.83 %
[-] Library Science		37	32.43 %
Library Science		37	32.43 %
[-] College of Journalism		66	45.45 %
[-] Journalism		66	45.45 %
Journalism		66	45.45 %



Displaying Data – Power Pivot: DAX FILTER

- **ALLEXCEPT**

`ALLEXCEPT(<table>, <column>[, <column>...])`

- Similar to *ALL* function, but excludes the column(s) specified from the *ALL*



Power Query



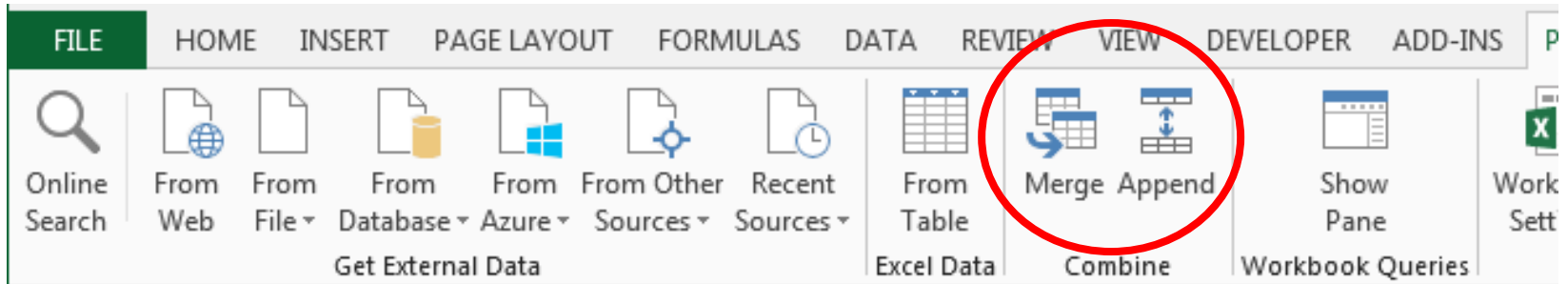
Power Query

- Retrieve data from a variety of external sources
 - Pull in external data from the Internet
- Limit the data you bring into your model (filter on rows and columns)
 - Keep you model to a reasonable size (< 1M records) to prevent processing problems
 - Bring in only what you need



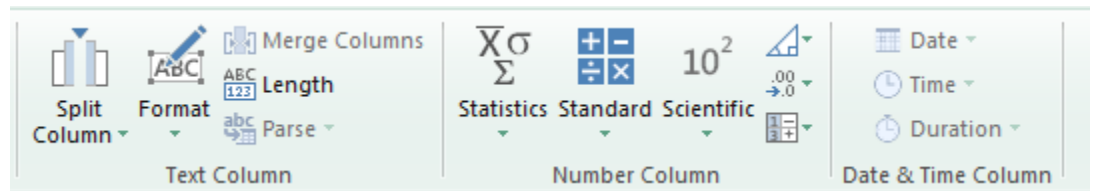
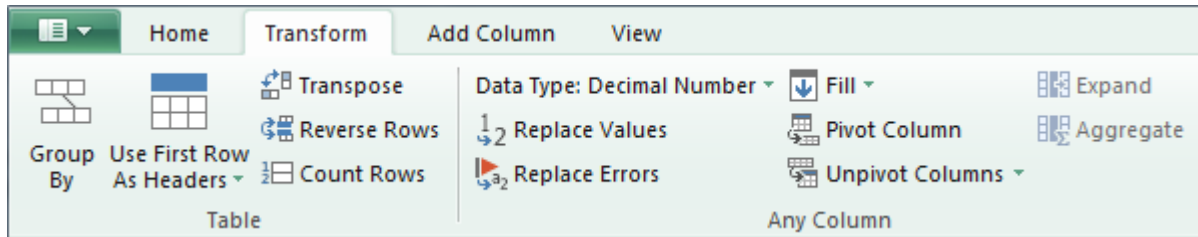
Power Query

- Consolidate multiple tables into one



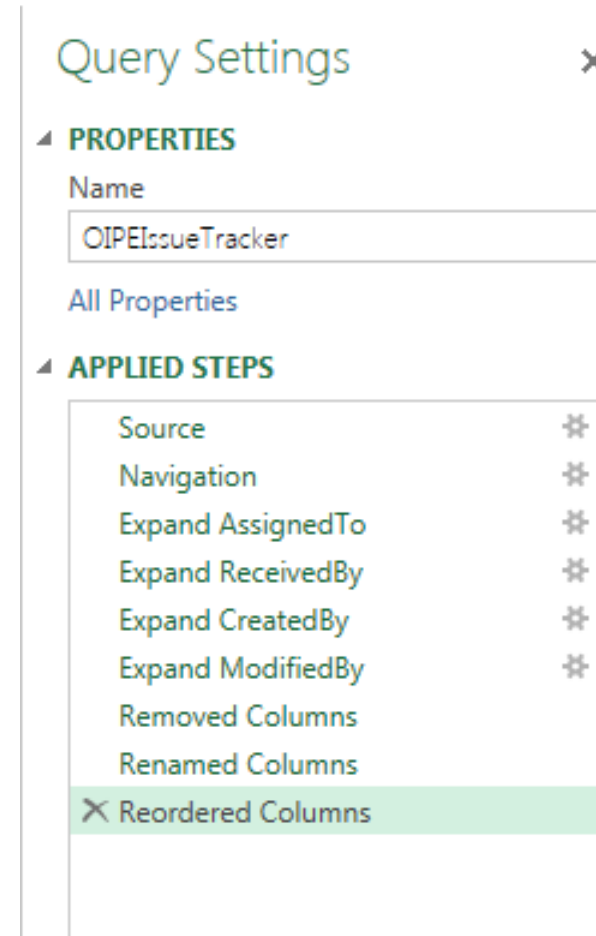
Power Query – Advanced

- Consolidate multiple tables into one
- **In-line data transformations**



Power Query – Advanced

- Consolidate multiple tables into one
- In-line data transformations
- **All transformation steps are listed, and reversible**



Query Settings ×

▲ **PROPERTIES**

Name

All Properties

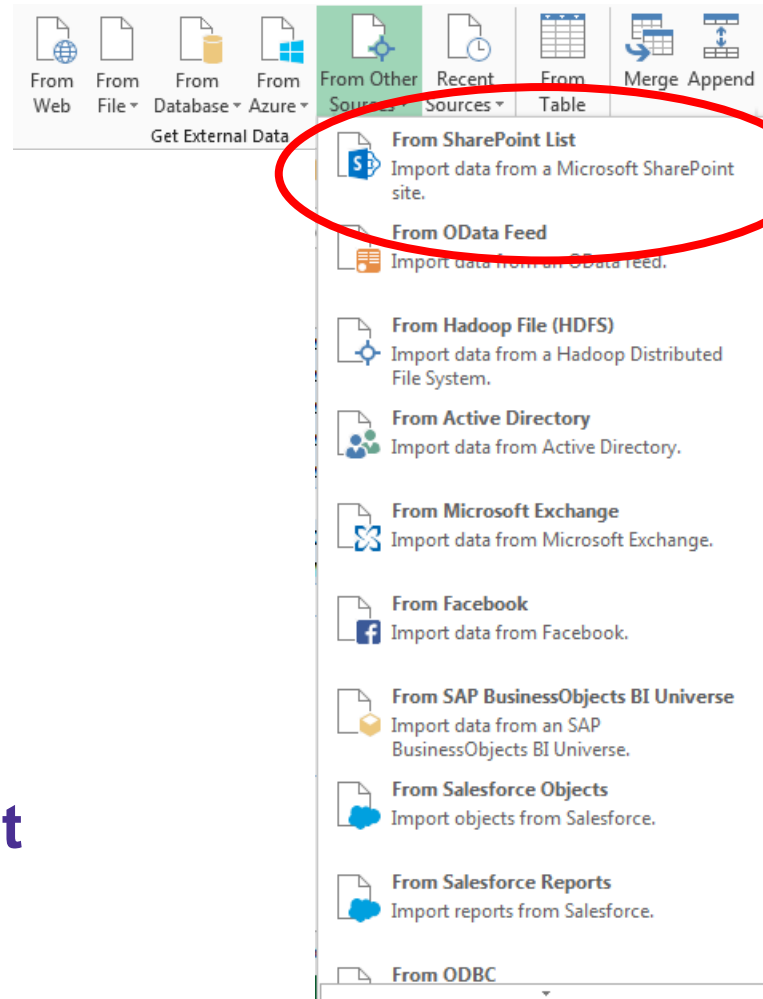
▲ **APPLIED STEPS**

Source	✱
Navigation	✱
Expand AssignedTo	✱
Expand ReceivedBy	✱
Expand CreatedBy	✱
Expand ModifiedBy	✱
Removed Columns	
Renamed Columns	
✕ Reordered Columns	



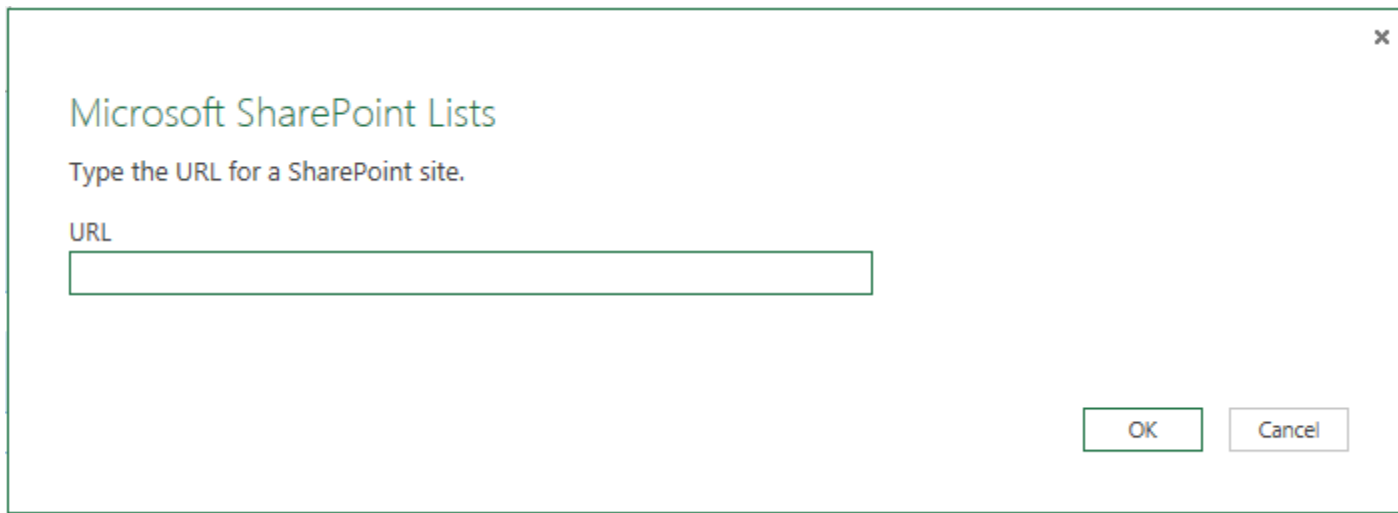
Power Query – Advanced

- Consolidate multiple tables into one
- In-line data transformations
- All transformation steps are listed, and reversible
- **Access to sources of data not readily available to Power Pivot**



Power Query – Advanced

- SharePoint Lists



Microsoft SharePoint Lists

Type the URL for a SharePoint site.

URL

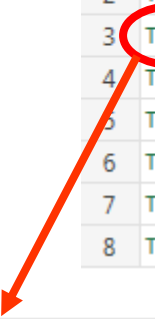
OK Cancel



Power Query – Advanced

- See all available lists
- Expand a particular list for fields

	Content	Name	Folder F
1	Table	AccessRequests	https://
2	Table	ComposedLooks	https://
3	Table	IssueTracker	https://
4	Table	MicroFeed	https://
5	Table	NintexWorkflowHistory	https://
6	Table	TeamIssueTrackerSettings	https://
7	Table	UserInformationList	https://
8	Table	WorkflowTasks	https://



	RequestProjectName	RequestTypeValue	PriorityValue	Re
1	Program FTE enrollment	Ad hoc	Medium	
2	1st Generation	Ad hoc	Medium	
3	SCH and enrollment data for department	Ad hoc	Medium	
4	Faculty counts by department	Ad hoc	Medium	
5	Enrollment by Major	Ad hoc	Medium	
6	Student directory	Ad hoc	Medium	
7	Listing of Deans List students	Ad hoc	Medium	
8	TRIO grant application	Ad hoc	High	
9	Data needed for Bond Application	Ad hoc	High	
10	Faculty stats for NCATE reporting	Ad hoc	Medium	
11	Disability Services Grant	Ad hoc	High	
12	Data for grant application w/ Wells Fargo	Ad hoc	Medium	

Power Query – Advanced

- Even get Active Directory names

RequestType	ReceivedBy	AssignedTo.Name	Priority	CreatedBy
Record	Record	Alison Joseph	Record	Record
Record	Record	Alison Joseph	Record	Record
Record	Record	Alison Joseph	Record	Record
Record	Record	Alison Joseph	Record	Record
Record	Record	Alison Joseph	Record	Record
Record	Record	Alison Joseph	Record	Record
Record	Record	Alison Joseph	Record	Record
Record	Record	Alison Joseph	Record	Record
Record	Record	Billy Hutchings	Record	Record

PROPERTIES
Name
OIPeIssueTracker
All Properties

APPLIED STEPS
Source
Navigation
X Expand AssignedTo
Expand ReceivedBy
Expand CreatedBy



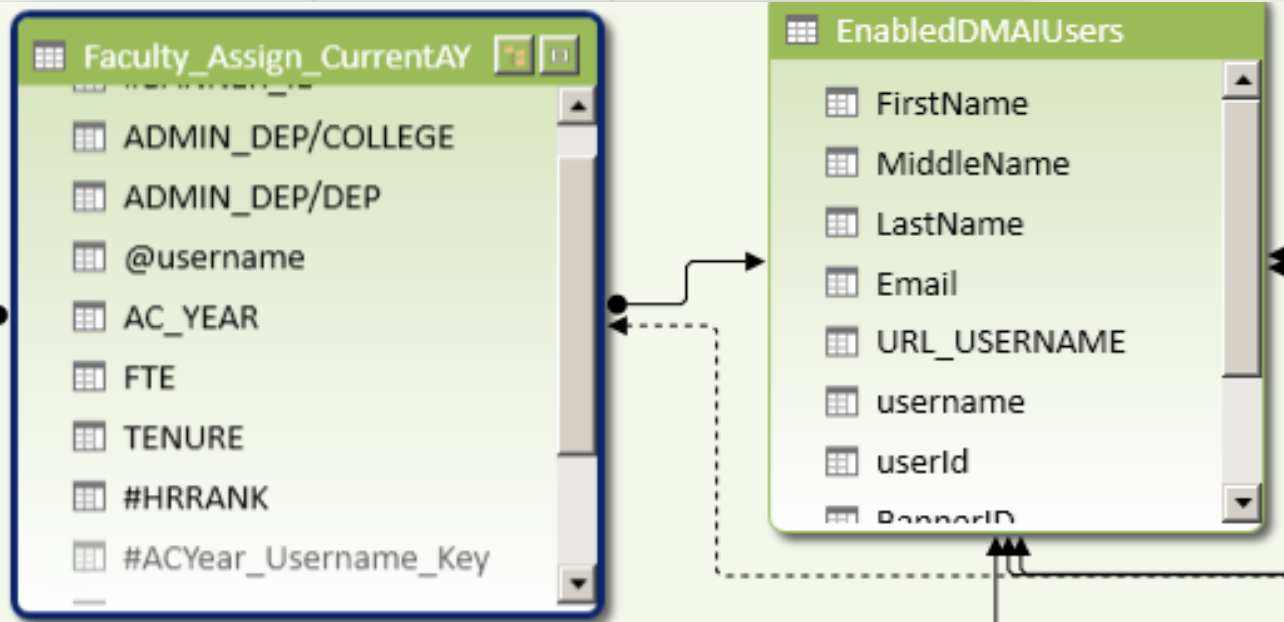
Power Query – Advanced

- **Connect to online faculty database**
 - Import active users from Digital Measures
 - Merge with local data
 - Export updated data to Digital Measures



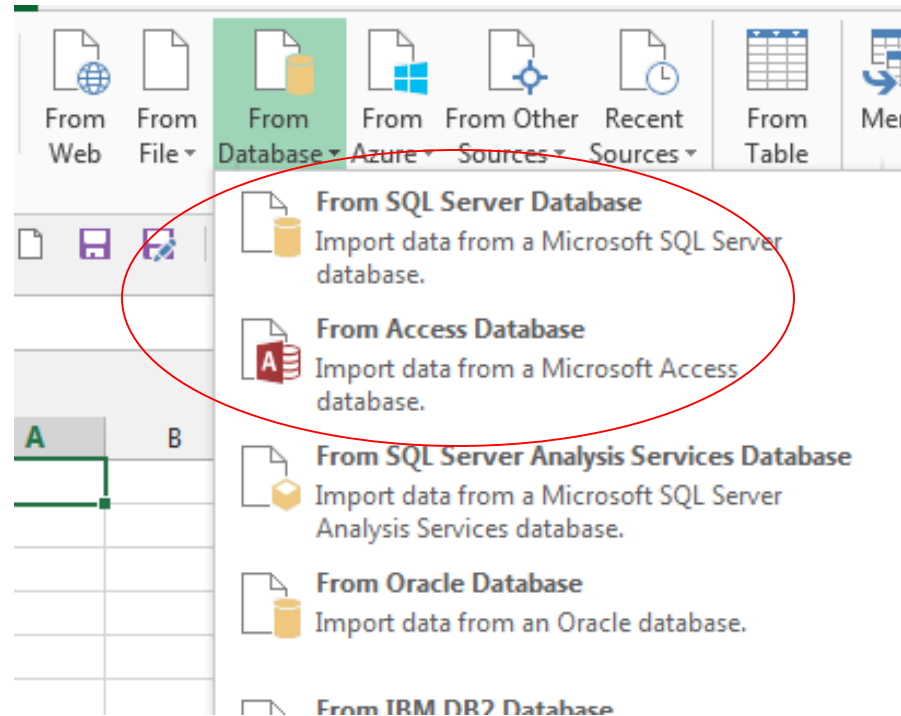
Power Query – Advanced

	FirstName	MiddleName	LastName	Email
1	Millicent	H	Abel	abel@email.wcu.edu
2	Yogita		<i>null</i> Abichandani	yabichandani@email.wcu.edu
3	Susan	M	Abram	smabram@email.wcu.edu
4	J.	P	Acheson	pacheson@email.wcu.edu
5	Michele		<i>null</i> Acker-Hocevar	ackerhocevar@email.wcu.edu
6	Warren			
7	Andrew			
8	Erin			
9	Mark			
10	Mary			
11	Mary			



Power Query – Advanced

- **Microsoft SQL Server and Access**



- **An many other datababases (e.g., Oracle, MySQL, PostgreSQL)**



Power Query – Advanced

The screenshot displays the Microsoft Power Query Advanced interface. The ribbon includes tabs for Home, Transform, Add Column, and View. The ribbon contains various tools for data manipulation, such as Close & Refresh, Properties, Advanced Editor, Choose Columns, Remove Columns, Rename, Move, Keep Rows, Remove Rows, Remove Duplicates, Remove Errors, Sort, Split Column, Group By, Data Type, Use First Row As Headers, Replace Values, Merge Queries, Append Queries, and Combine Binaries.

The main area shows a query named "Table.ReorderColumns(#'Renamed Columns')". The data table has the following columns: eCompleted, InaccuraciesFound, CreatedBy, Created, ModifiedBy, and Modified. The data is as follows:

eCompleted	InaccuraciesFound	CreatedBy	Created	ModifiedBy	Modified
10/22/2014 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:33:03 PM
10/24/2014 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:55:17 PM
10/29/2014 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:31 PM
11/03/2014 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:35 PM
11/03/2014 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:35 PM
01/09/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:35 PM
01/12/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:35 PM
01/16/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:37 PM
01/23/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:37 PM
01/23/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:37 PM
01/23/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:40 PM
01/23/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:40 PM
01/28/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:56 PM	David Onder	03/25/2015 12:56:40 PM
02/03/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:57 PM	David Onder	03/25/2015 12:56:40 PM
02/03/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:57 PM	David Onder	03/25/2015 12:56:40 PM
02/03/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:57 PM	David Onder	03/25/2015 12:56:40 PM
02/06/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:57 PM	David Onder	03/25/2015 12:56:40 PM
02/06/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:58 PM	David Onder	03/25/2015 12:56:40 PM
02/23/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:58 PM	David Onder	03/25/2015 12:56:42 PM
02/10/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:58 PM	David Onder	03/25/2015 12:56:42 PM
02/09/2015 12:00:00 AM		null David Onder	03/25/2015 12:27:58 PM	David Onder	03/25/2015 12:56:42 PM

The Query Settings pane on the right shows the following configuration:

- PROPERTIES**
 - Name: OIPEIssueTracker
- APPLIED STEPS**
 - Source *
 - Navigation *
 - Expand AssignedTo *
 - Expand ReceivedBy *
 - Expand CreatedBy *
 - Expand ModifiedBy *
 - Removed Columns
 - Renamed Columns
 - Reordered Columns** *

At the bottom of the window, it indicates "19 COLUMNS, 50 ROWS" and "PREVIEW DOWNLOADED ON MARCH 27, 2015."



Power Query – Advanced

The screenshot shows the 'Advanced Filter' dialog box in Power Query. The 'AssignedTo' column is selected, and the 'Text Filters' tab is active. The 'Contains' dropdown menu is open, showing the 'Equals...' option circled in red. The list of names includes Alison Joseph, Billy Hutchings, David Onder, Elizabeth Snyder, Johnny Lail, Kay Turpin, and Tim Metz, all of which are checked.

RequestTypeValue	ReceivedBy	AssignedTo	Priority	Request
Medium			Medium	
High			High	
High			High	
High			High	
Medium			Medium	
Medium			Medium	
Medium			Medium	
Low			Low	
Low			Low	
High			High	

Advanced Filter Options:

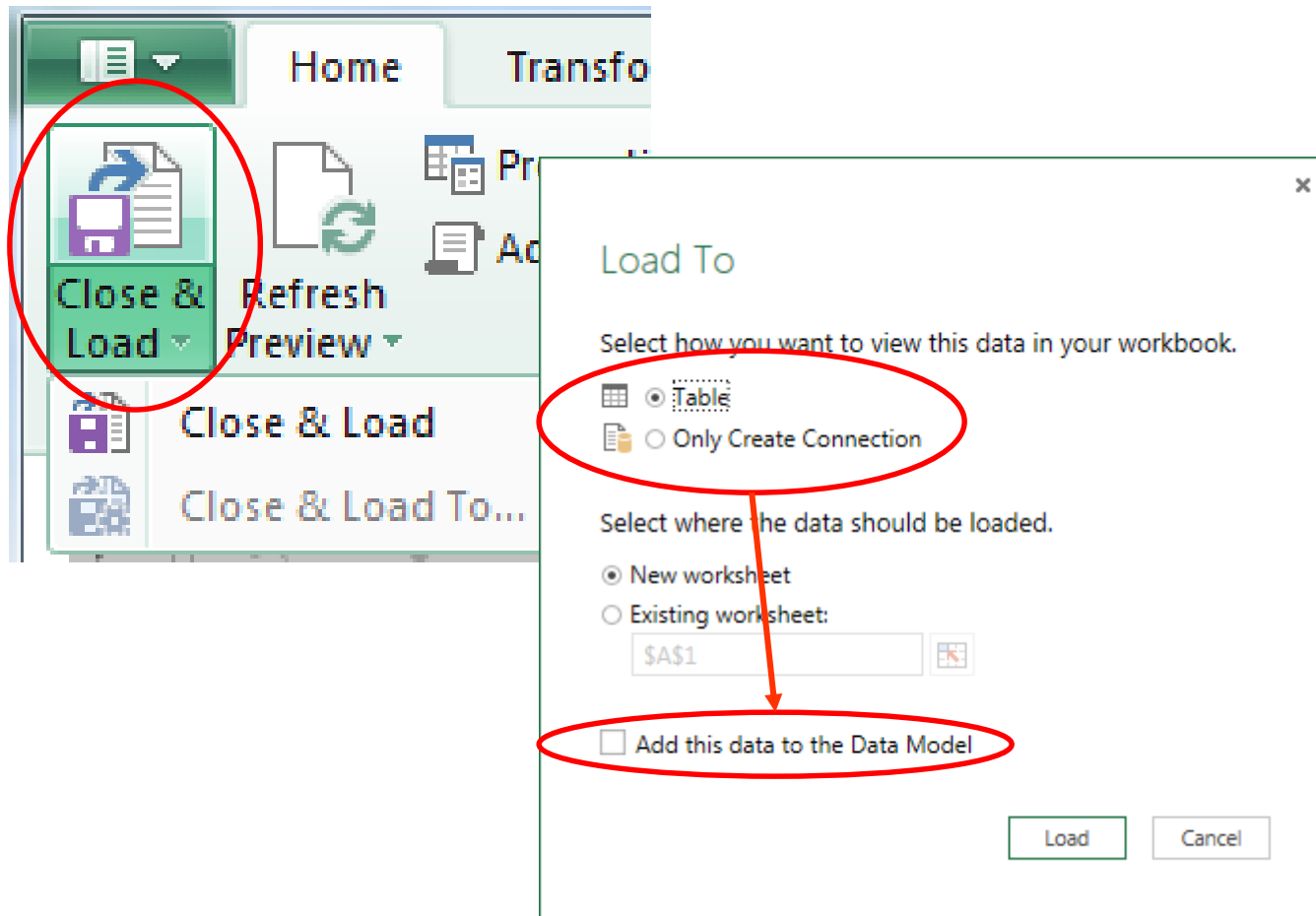
- Sort Ascending
- Sort Descending
- Clear Sort
- Clear Filter
- Text Filters
 - Search: []
 - (Select All)
 - (null)
 - Alison Joseph
 - Billy Hutchings
 - David Onder
 - Elizabeth Snyder
 - Johnny Lail
 - Kay Turpin
 - Tim Metz

Filter Criteria:

- Equals...
- Does Not Equal...
- Begins With...
- Ends With...
- Contains...
- Does Not Contain...



Power Query – Advanced



Displaying Data – Power View

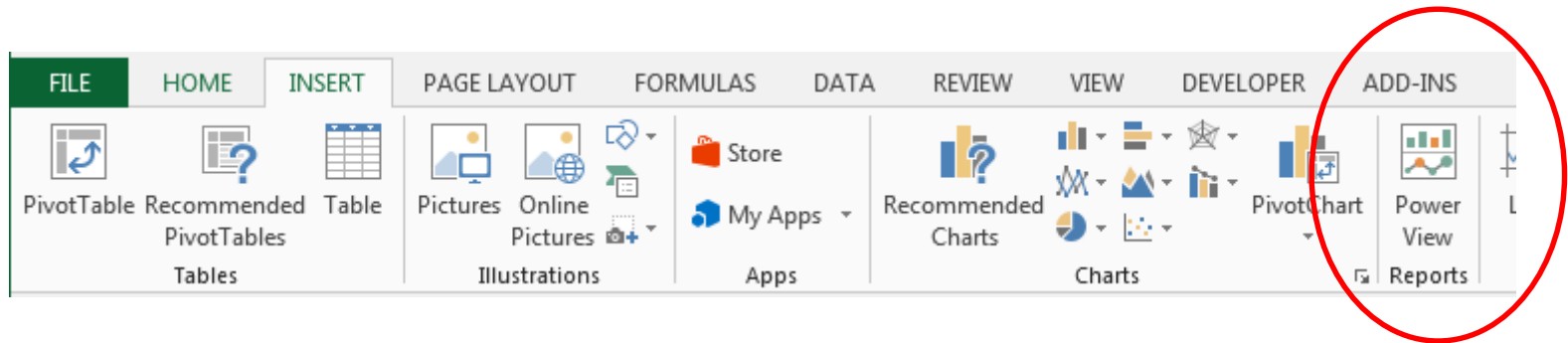


Displaying Data – Power View

- **Power View**
 - Dashboard builder
 - Allows synchronized filtering
 - Bring together tables, graphs, maps



Displaying Data – Power View



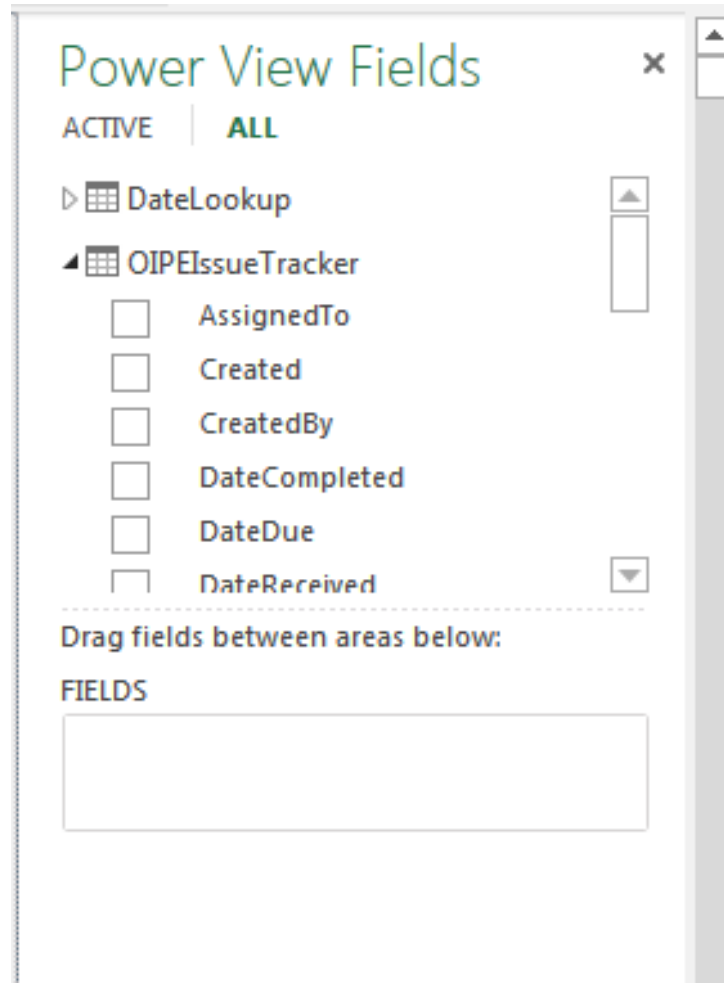
Displaying Data – Power View

The screenshot displays the Power View interface with three main sections:

- Main View:** A large area with the text "Click here to add a title" and a sub-instruction: "To build a data visualization, select fields in the field list or drag them to the view". Below this is a faint icon representing a data visualization.
- Filters Pane:** A vertical pane on the right with the title "Filters" and a sub-instruction: "To filter the view, drag fields from the field list".
- Power View Fields Pane:** A vertical pane on the far right with the title "Power View Fields". It includes a tab for "ALL" and a list of fields:
 - ▶ DateLookup
 - ▶ OIPEIssueTracker
 - AssignedTo
 - Created
 - CreatedBy
 - DateCompleted
 - DateDue
 - DateReceivedBelow the list is a section titled "Drag fields between areas below:" followed by a "FIELDS" label and an empty rectangular box.



Displaying Data – Power View



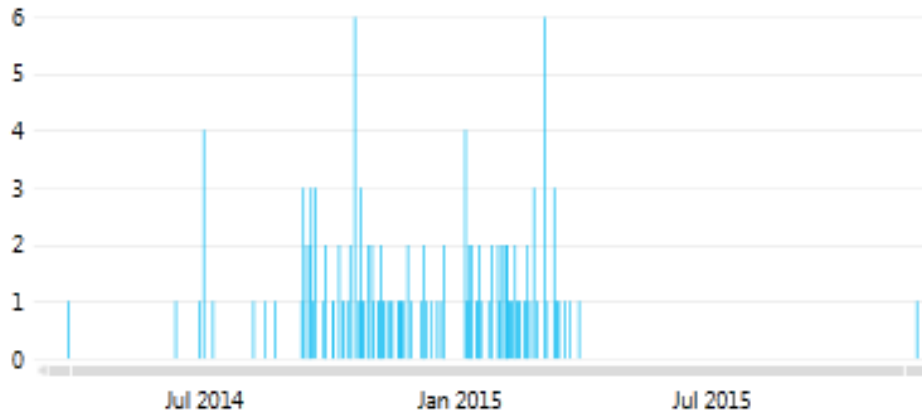
Displaying Data – Power View

The screenshot displays the Microsoft Power View interface. On the left, the 'Filters' pane is open, showing a list of names: Alison Joseph, Billy Hutchings, David Onder, Elizabeth Snyder, Johnny Lail, Kay Turpin, and Tim Metz. The 'AssignedTo' field is highlighted in blue and circled in red. Below the list, a text box reads: 'To filter the view, drag fields from the field list.' On the right, the 'Power View Fields' pane is open, showing a list of fields: DateLookup, OIPEIssueTracker, AssignedTo, Created, CreatedBy, DateCompleted, DateDue, and DateReceived. The 'AssignedTo' field is checked and circled in red. Below the list, a text box reads: 'Drag fields between areas below:'. The interface is in 'VIEW' mode.

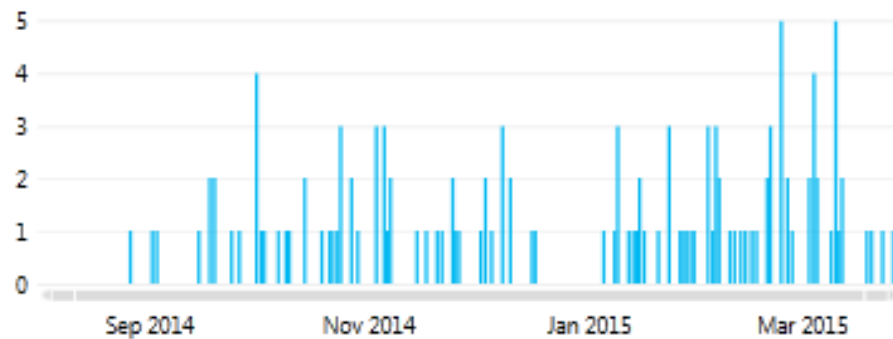


Displaying Data – Power View

Unique requests by DateReceived



Unique requests by DateCompleted



Open unique requests

18

Late open unique requests

9

Unique requests

146

Status ▲

Closed

Late

Open

AssignedTo ▲ Count of Id

	1
Alison Joseph	59
Billy Hutchings	51
David Onder	3
Elizabeth...	15
Johnny Lail	14
Kay Turpin	3
Tim Metz	16
Total	146

Displaying Data – Power View

The screenshot displays two panes from the Power View interface. The left pane, titled 'Filters', shows a 'VIEW' section with a filter for 'Month' set to 'Is February or January'. Below this is a search bar and a list of months with checkboxes and counts. The right pane, titled 'Power View Fields', shows a list of fields under the 'DateLookup' category. The 'Month' field is circled in red in both panes.

Filters

VIEW

Month
Is February or January

Search...

Month	Count
(All)	
(Blank)	1
January	62
February	56
March	62
April	60
May	62
June	60
July	62
August	62
September	60
October	62
November	60
December	62

Power View Fields

ACTIVE | ALL

DateLookup

- Academic Year
- Academic_Years
- Month
- Semester
- Semester (with separate summ
- Term
- Weekday

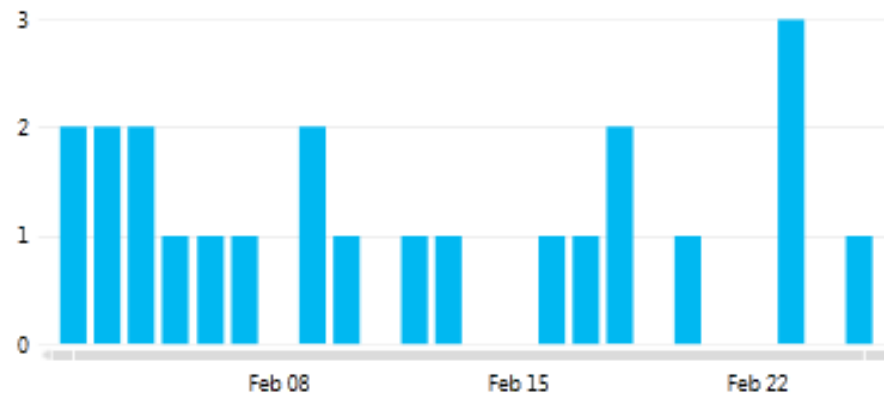
Drag fields between areas below:

FIELDS

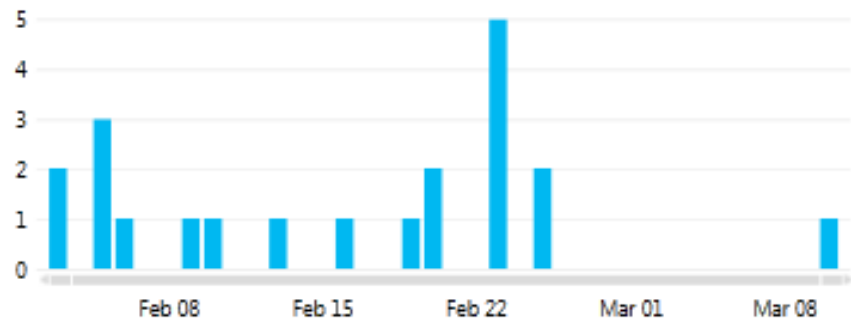


Displaying Data – Power View

Unique requests by DateReceived



Unique requests by DateCompleted



Open unique requests 2

Late open unique requests 2

Unique requests 23

Status ▲

Closed

Late

AssignedTo ▲ Count of Id

Alison Joseph	13
Billy Hutchings	6
Johnny Lail	1
Kay Turpin	2
Tim Metz	5
Total	23

Month
Is February

Search...

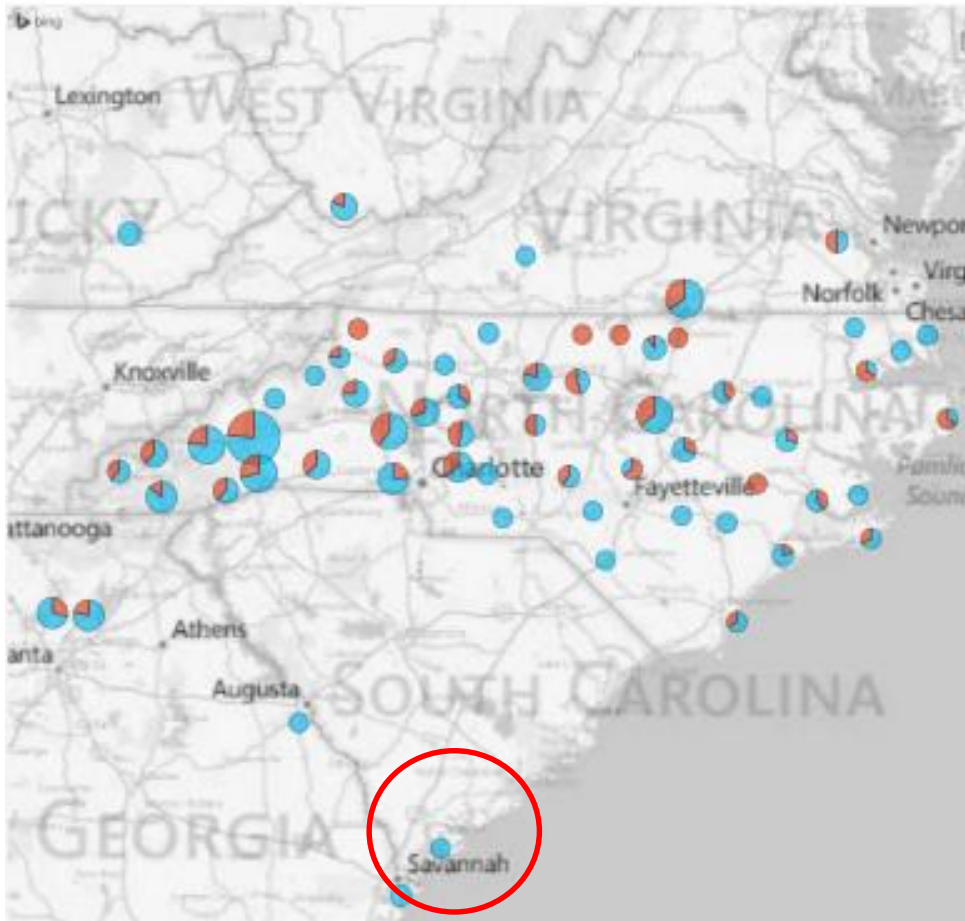
- (All)
- (Blank)
- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

► Status
(All)



Displaying Data – Power View

Count of ID by Residence - county, and Gender



Gender

● Female

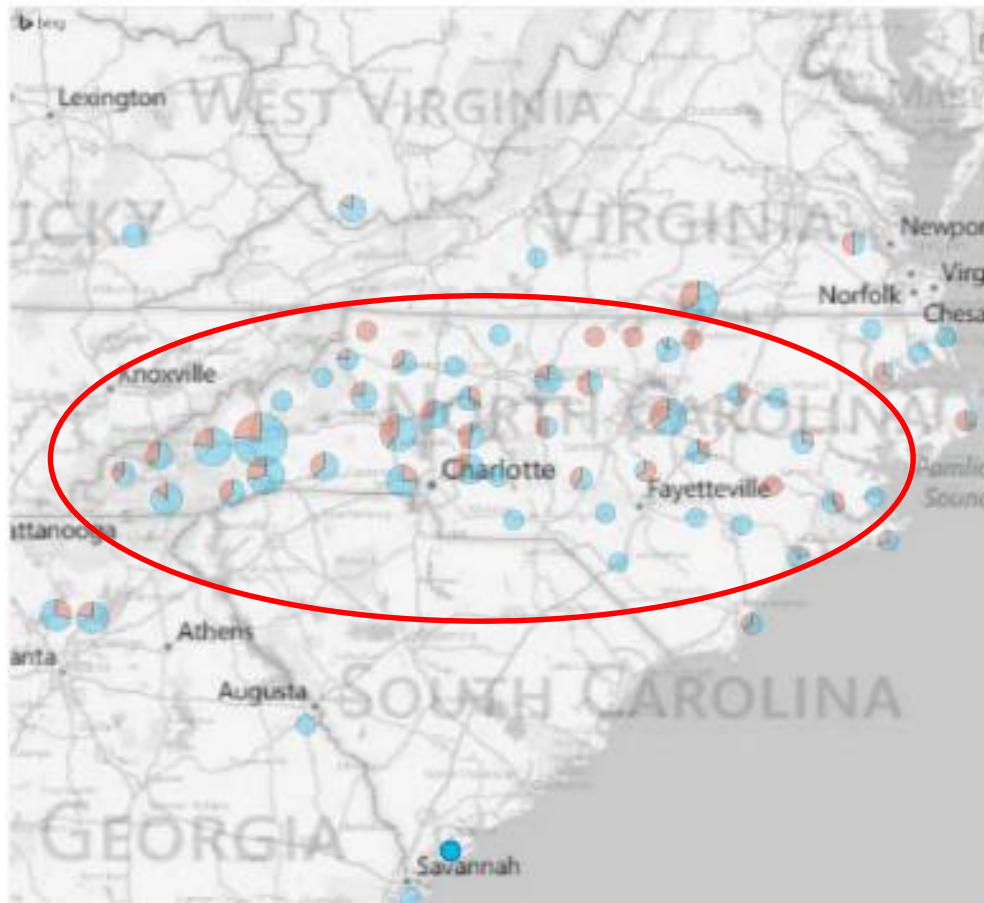
● Male

College	Count of ID
College of Information Studies	154
College of Journalism	34
College of Veterinary Medicine	611
No college	35
School of Architecture	181
School of Engineering	91
Total	1,100



Displaying Data – Power View

Count of ID by Residence - county, and Gender



Gender
● Female
● Male

College	Count of ID
College of Veterinary Medicine	2
Total	2



Displaying Data – Power Map



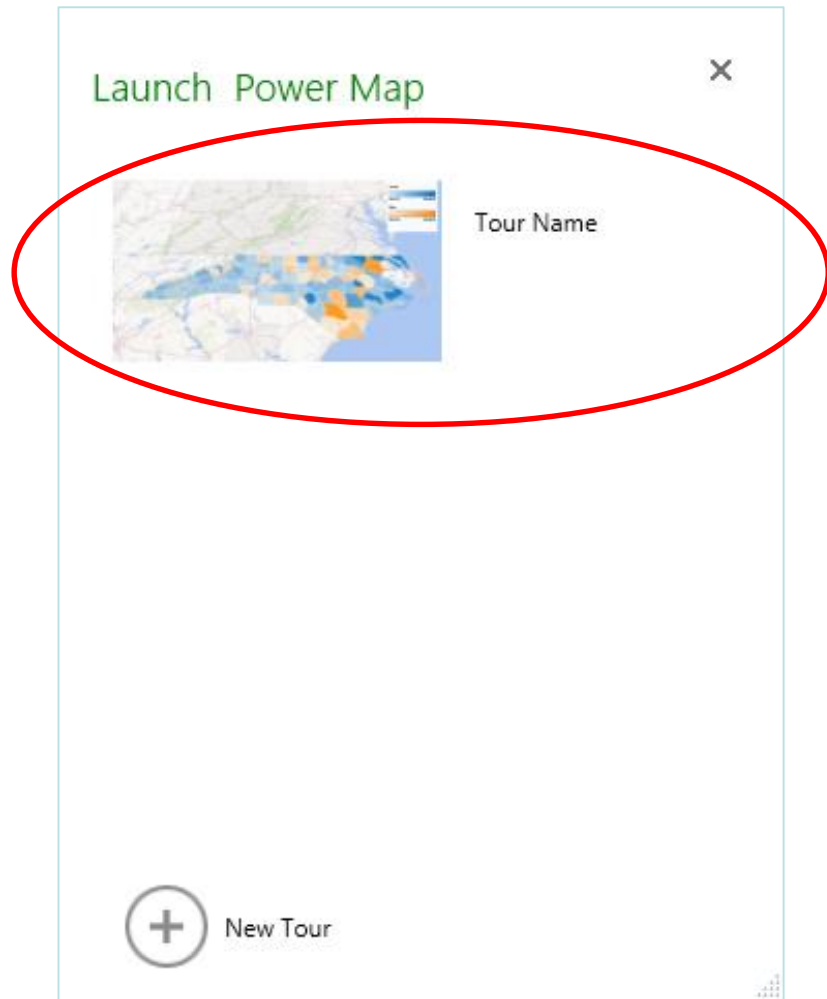
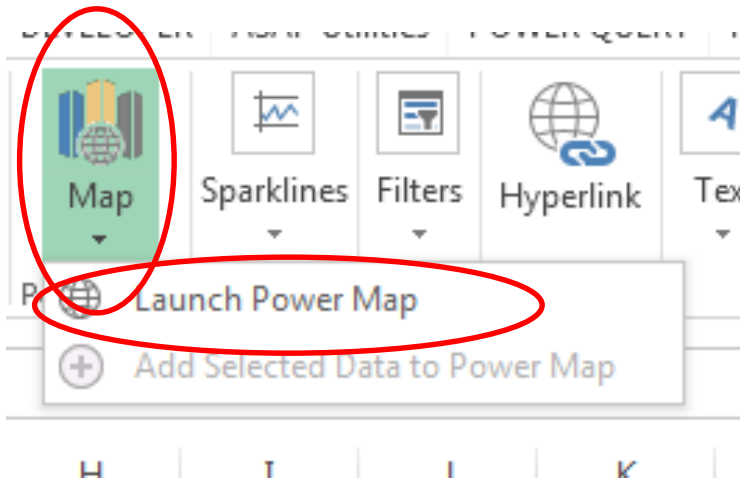
Displaying Data – Power Map

- **Power Map**

- Automated way to map geographic data
- Doesn't require geo-location information like longitude and latitude (just country, state, or county names)
- Can add elements to look at aggregate function on variables across physical space



Displaying Data – Power Map

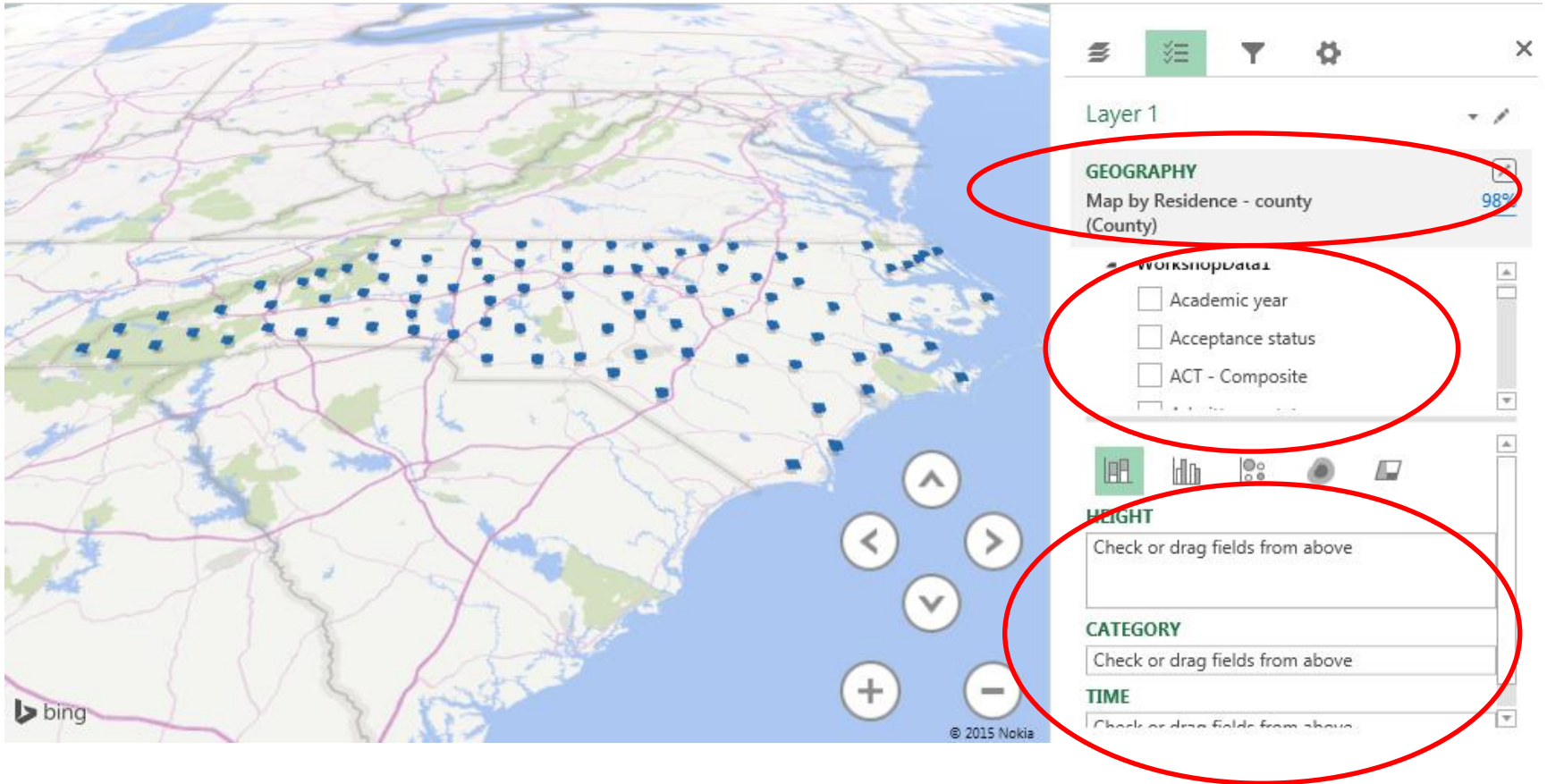


Displaying Data – Power Map

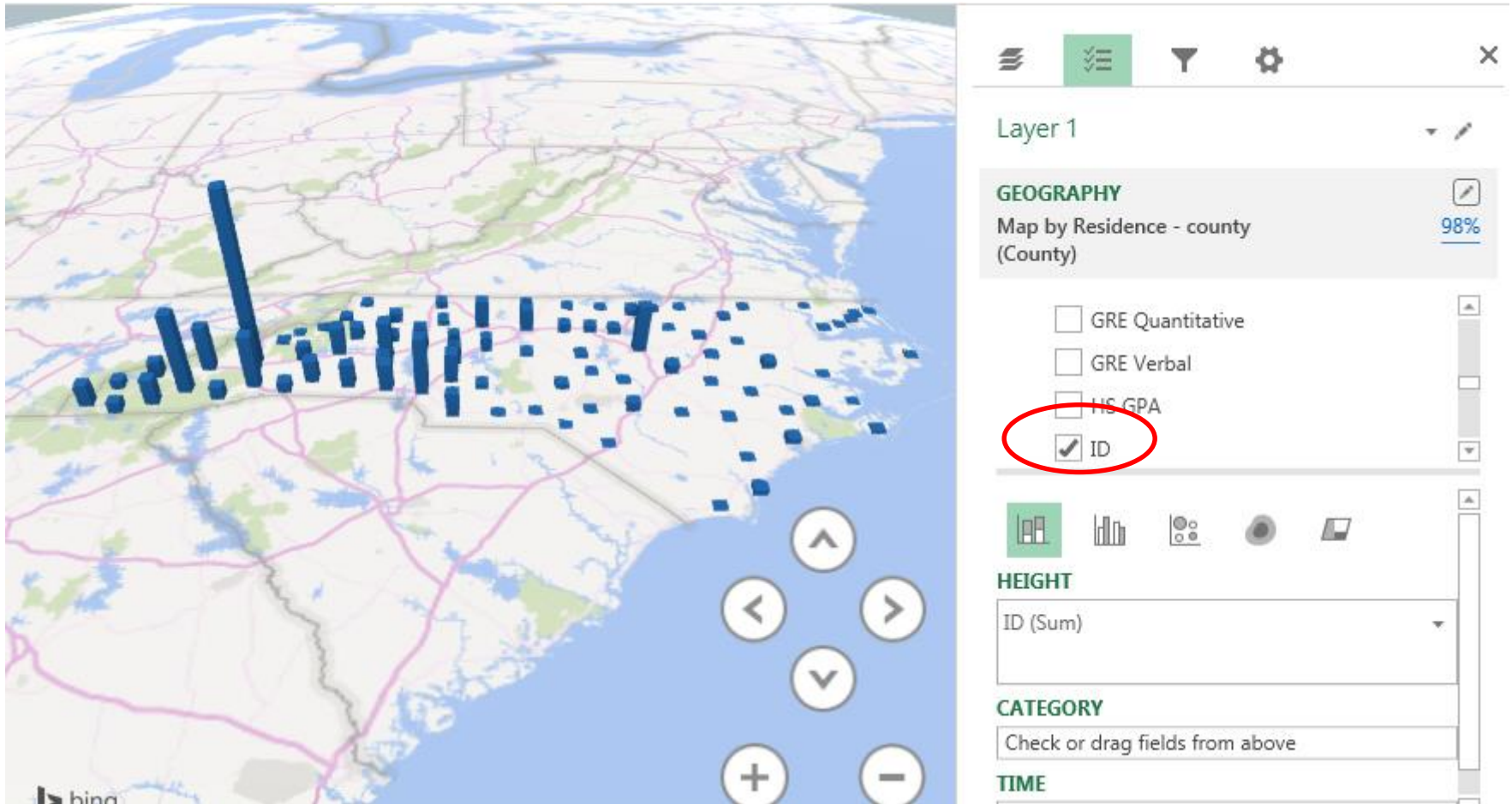
The screenshot displays a Bing map of the Eastern United States with numerous blue square data points. The map interface includes navigation controls (directional arrows, zoom in/out) and a copyright notice for 2015 Nokia. On the right, a configuration panel titled 'Layer 1' is visible. The panel has a close button (X) and icons for layers, filters, and settings. Under the heading 'CHOOSE GEOGRAPHY', there is a list of checkboxes: 'Program code', 'Program name', 'Race or ethnicity', 'Residence - country', 'Residence - county', 'Residence - state', 'SAT - Critical reading', 'SAT - Math', and 'Semester'. The 'Residence - country', 'Residence - county', and 'Residence - state' options are checked and circled in red. Below this, the 'GEOGRAPHY AND MAP LEVEL' section has radio buttons for 'Residence - country' (Country/Region), 'Residence - county' (County), and 'Residence - state' (State/Province). The 'Residence - county' option is selected and circled in red. A 'Next' button is also circled in red at the bottom right of the panel.



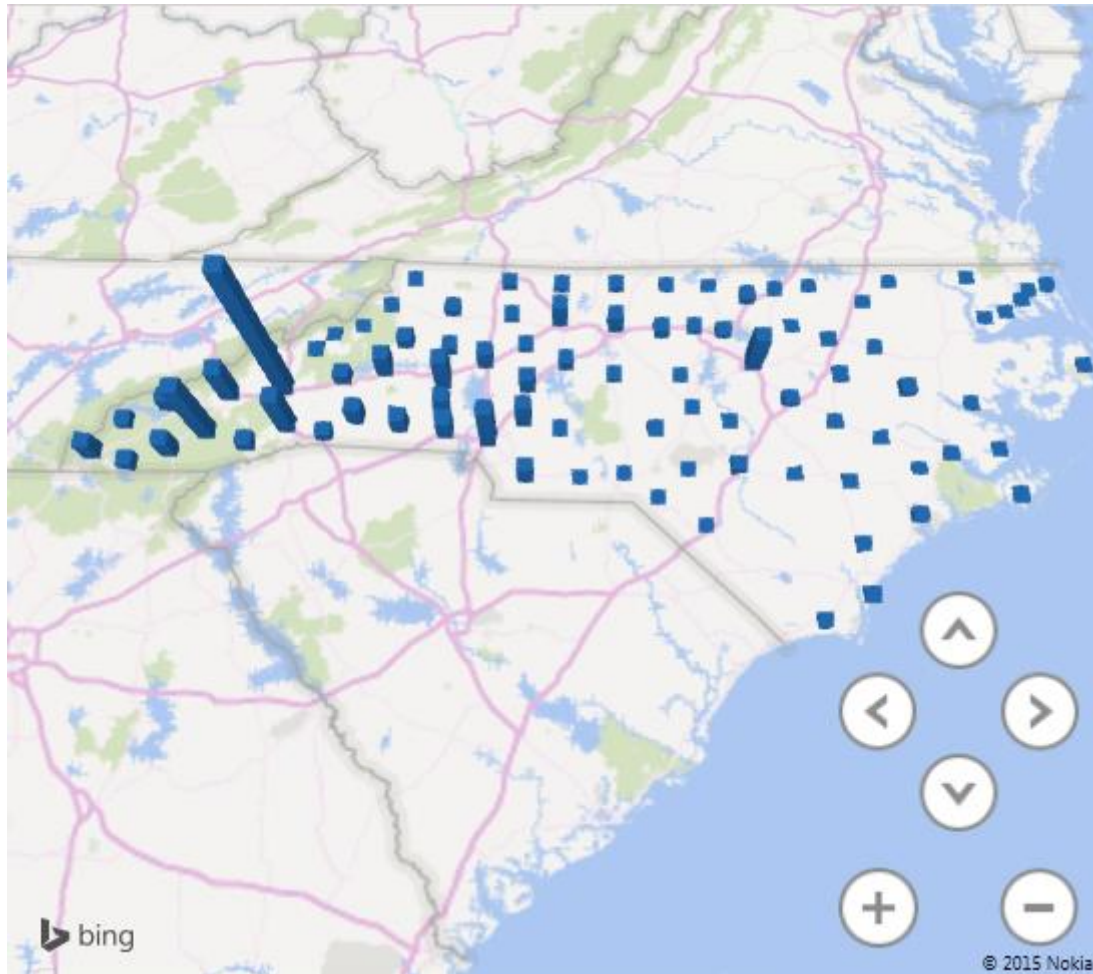
Displaying Data – Power Map



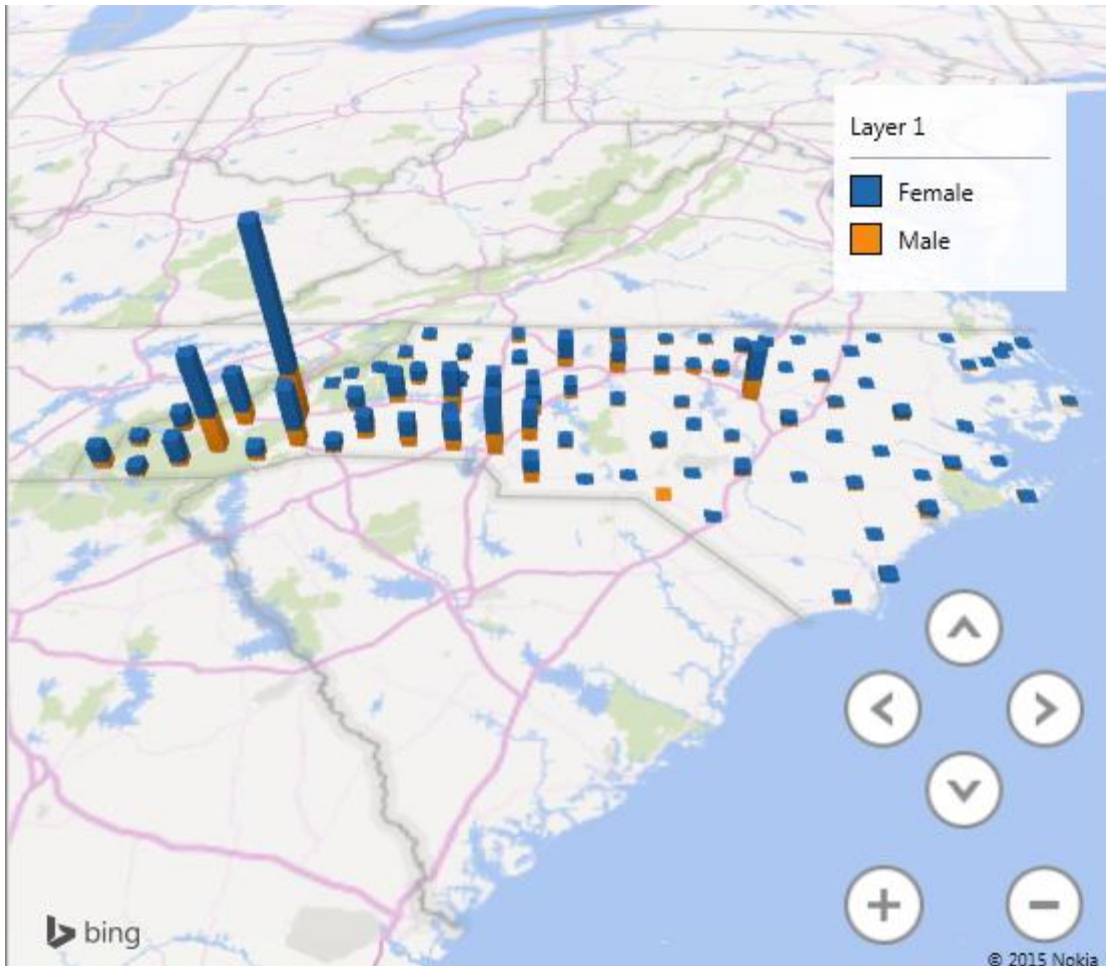
Displaying Data – Power Map



Displaying Data – Power Map



Displaying Data – Power Map



Layer 1

GEOGRAPHY 98%

Map by Residence - county (County)

- Enrolled this term
- Enrollment status
- Gender
- GRE Analytical Writing

HEIGHT

ID (Count - Distinct)

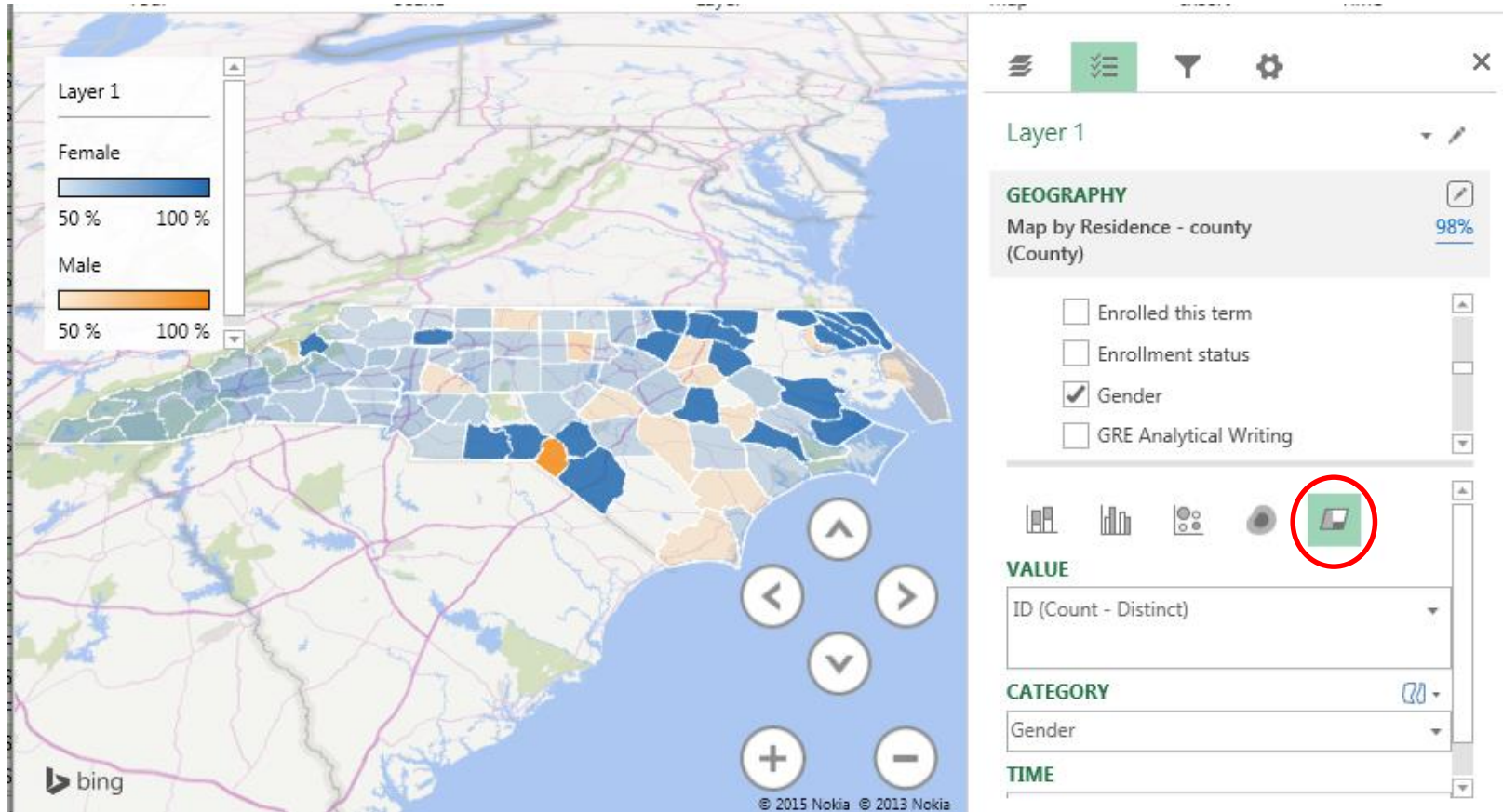
CATEGORY

Gender

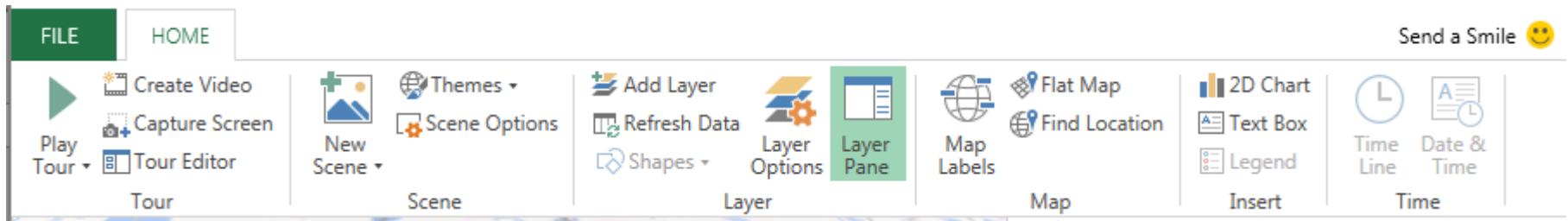
TIME



Displaying Data – Power Map



Displaying Data – Power Map



Resources

- **Rob Collie (<http://powerpivotpro>)**
 - DAX Formulas for PowerPivot, 2013
- **Bill Jelen (<http://mrexcel.com>)**
 - PowerPivot for the Data Analyst: Microsoft Excel 2010, 2010
- **Alberto Ferrari and Marco Russo**
 - Microsoft Excel 2013: Building Data Models with PowerPivot
- **Chris Webb (<http://cwebbbi.wordpress.com>)**
- **Kasper de Jonge (<http://www.powerpivotblog.nl>)**
- **Purna Duggirala (<http://www.chandoo.org/>)**



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