

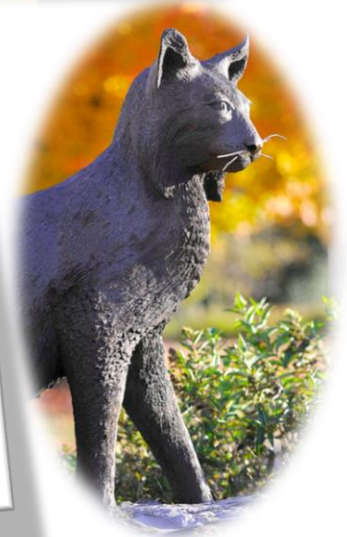
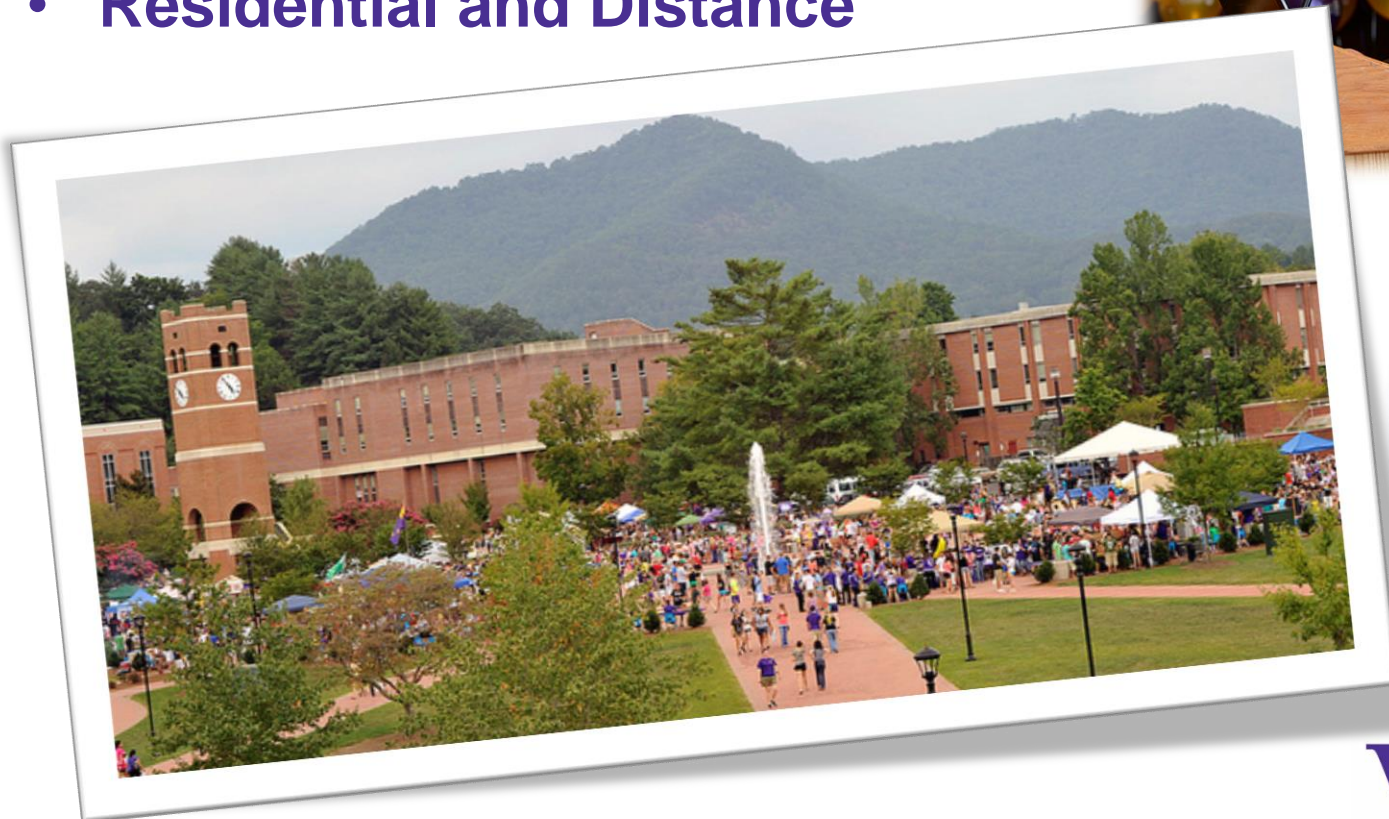


“Power” Tools for IR Reporting

Henson Sturgill, Tim Metz, and Alison Joseph

NCAIR Summer Drive-In 2014

- **10,107** students
- **Master's Comprehensive**
- **Mountain location**
- **Residential and Distance**



Presentation Overview

- **Pivot tables and their limitations**
- **Power Pivot and DAX Formulas**
- **Power Query**
- **Power Map**
- **Power View**



Pivot Tables



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**



Connecting to Data



Connecting to Data

- **Wide variety of data sources, including:**
 - Access
 - SQL Server
 - Text files (csv)
 - XML
 - OLEDB
 - Etc.

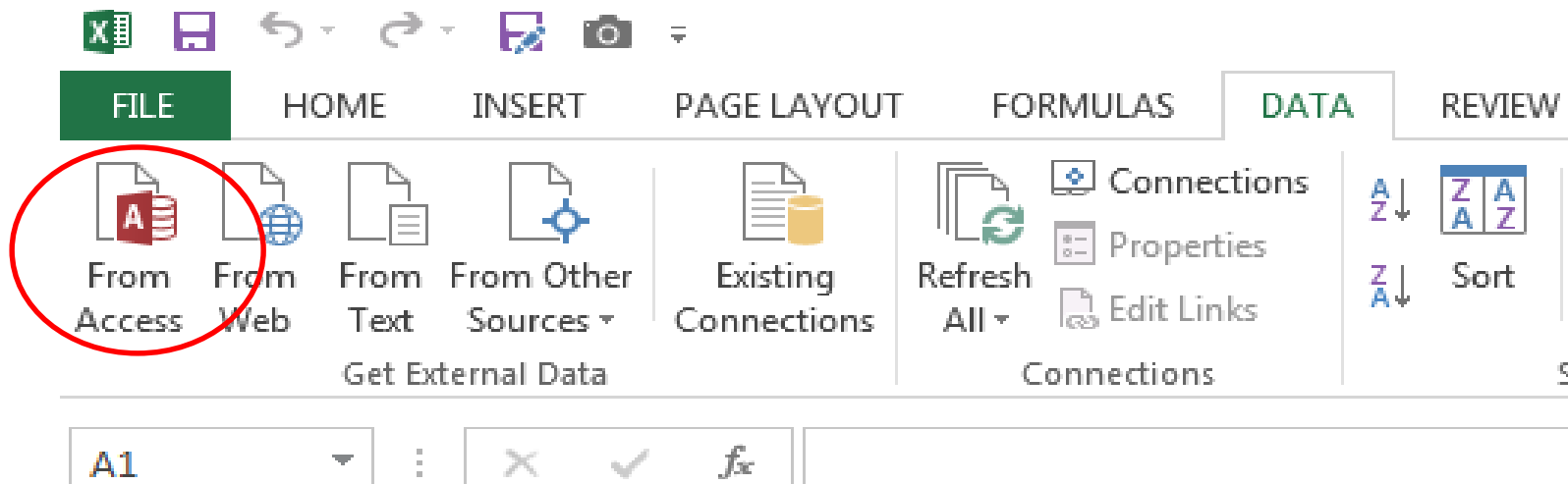


Connecting to Data

- **Connects to:**
 - Tables
 - Queries



Connecting to Data



Connecting to Data

The screenshot shows the Microsoft Excel interface with the 'Import Data' dialog box open. The dialog box is titled 'Import Data' and contains the following options:

- 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:
 - Text box: =SAS1
 - New worksheet
- Add this data to the Data Model
- Buttons: Properties..., OK, Cancel



Connecting to Data

The screenshot shows the Microsoft Excel interface. The 'Table' ribbon is active, and the 'Table Name' field is circled in red, containing the text 'Table_Workshop'. The ribbon is divided into three sections: Properties, Tools, and External. The Properties section includes 'Resize Table'. The Tools section includes 'Summarize with PivotTable', 'Remove Duplicates', and 'Convert to Range'. The External section includes 'Insert Slicer', 'Export', and 'Refresh'. Below the ribbon, the formula bar shows 'A1'. The data table below has the following structure:

	A	B	C	D	E	A
1	Academic year	Term	Semester	Year	ID	
2	2003-2004	Fall 2003	Fall	2003	10001	N
3	2003-2004	Fall 2003	Fall	2003	10002	Y
4	2003-2004	Fall 2003	Fall	2003	10003	Y
5	2003-2004	Fall 2003	Fall	2003	10004	Y
6	2003-2004	Fall 2003	Fall	2003	10005	Y
7	2003-2004	Fall 2003	Fall	2003	10006	Y
8	2003-2004	Fall 2003	Fall	2003	10007	N
9	2003-2004	Fall 2003	Fall	2003	10008	N
10	2003-2004	Fall 2003	Fall	2003	10009	Y



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



Questions

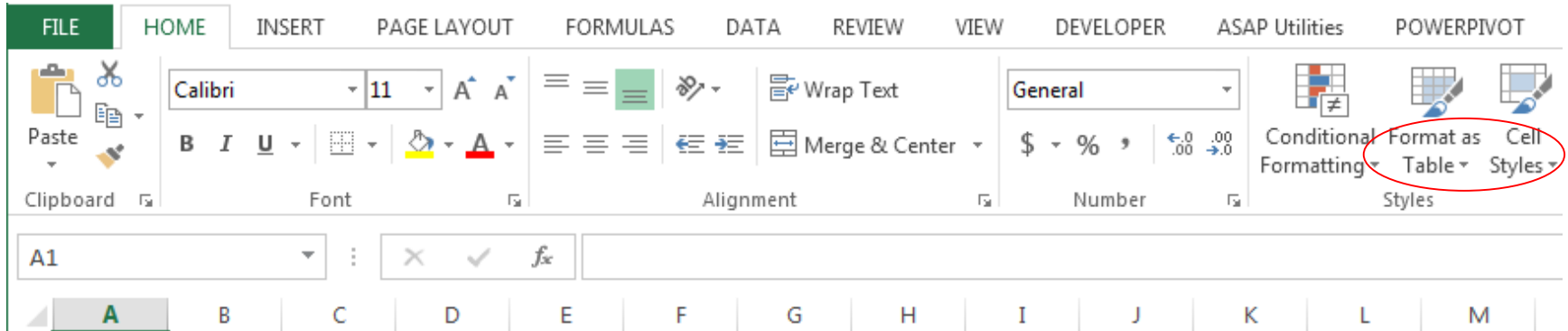


Displaying Data – Power Pivot

New and
improved
Pivot Tables!



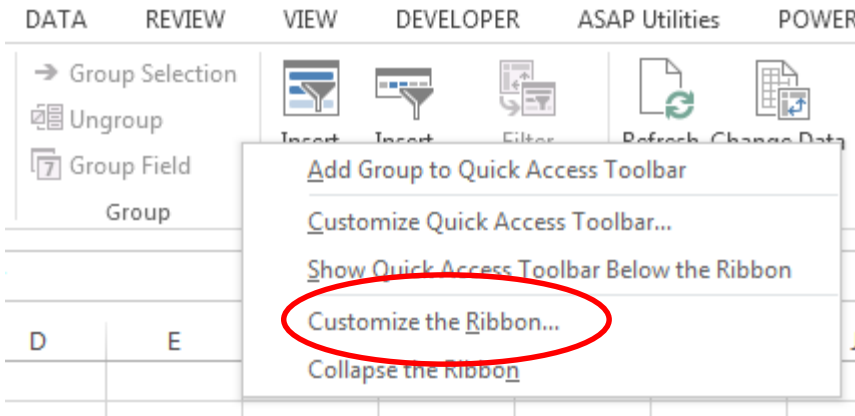
Getting Started – Power Pivot



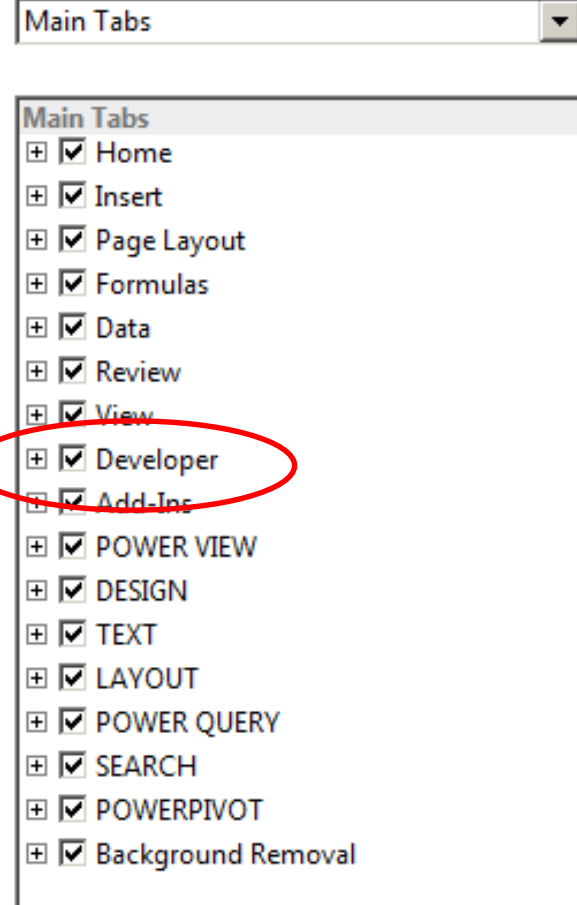
- Installed with Excel 2013
- Downloadable add-in for Excel 2010 (<http://goo.gl/3xEE0T>)
- **Not available for Excel 2011, prior to 2010, or on Office Web Apps**
- Best experience with Excel 2013 or Office 365 on Windows 64bit
- Best experience with Excel 2013 or Office 365 on Windows 64bit
- bit.ly/upgradehorror



Enabling Add-Ins – Power Pivot



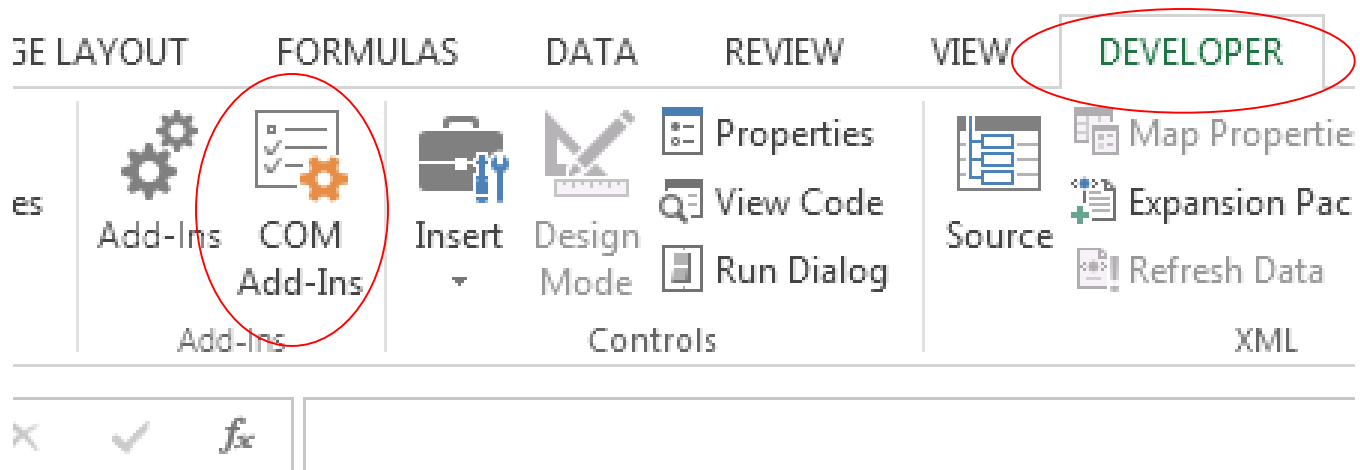
Customize the Ribbon: ⓘ



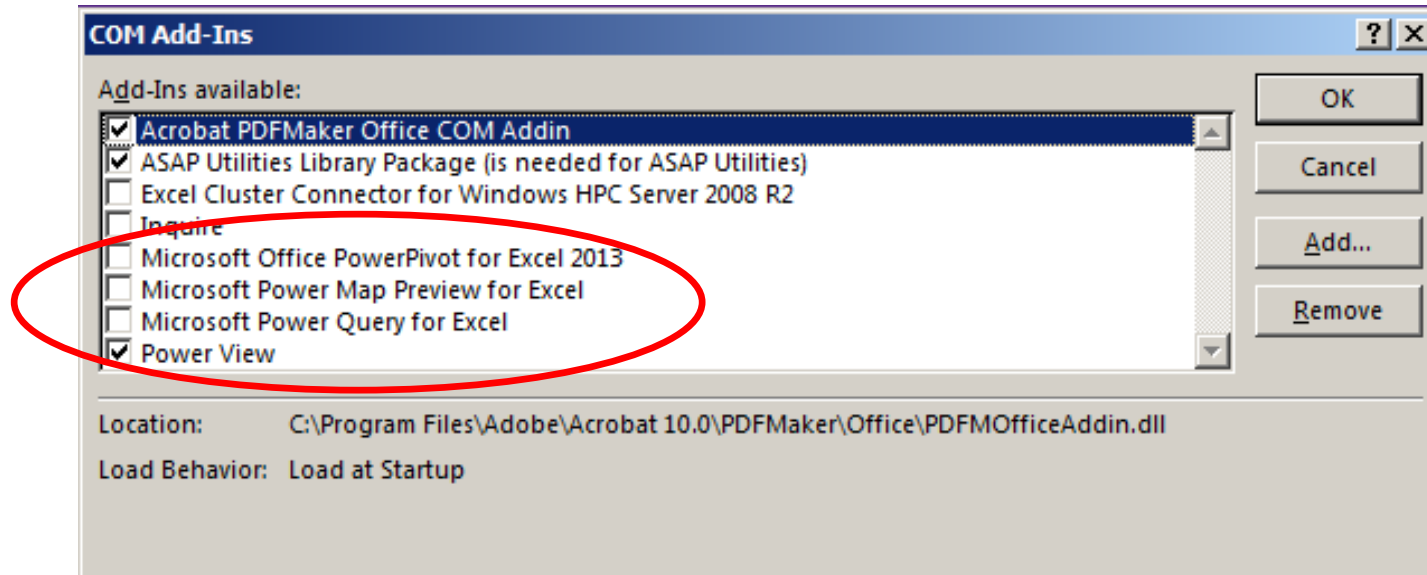
- Right-click on ribbon
- *Customize the ribbon*
- Select *Developer*



Enabling Add-Ins – Power Pivot



Enabling Add-Ins – Power Pivot



Limitations – Power Pivot

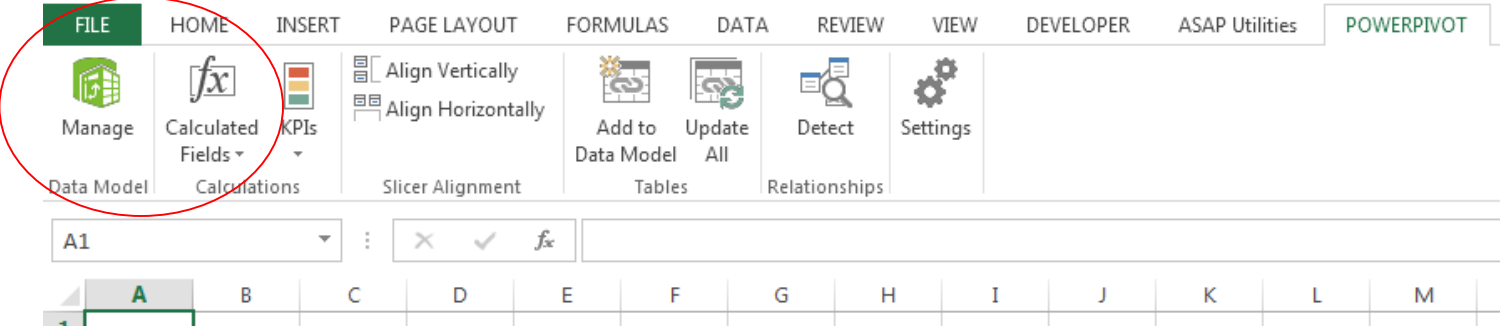
- **The Power Pivot environment**

- Number of tables per PowerPivot database $(2^{31}) - 1$
2,147,483,647
- Number of rows in a table
1,999,999,997
- Number of calculated measures in a table
 $(2^{31}) - 1 = 2,147,483,647$
- String Length
512 MB



Getting Started – Power Pivot

- The Power Pivot environment



Manage

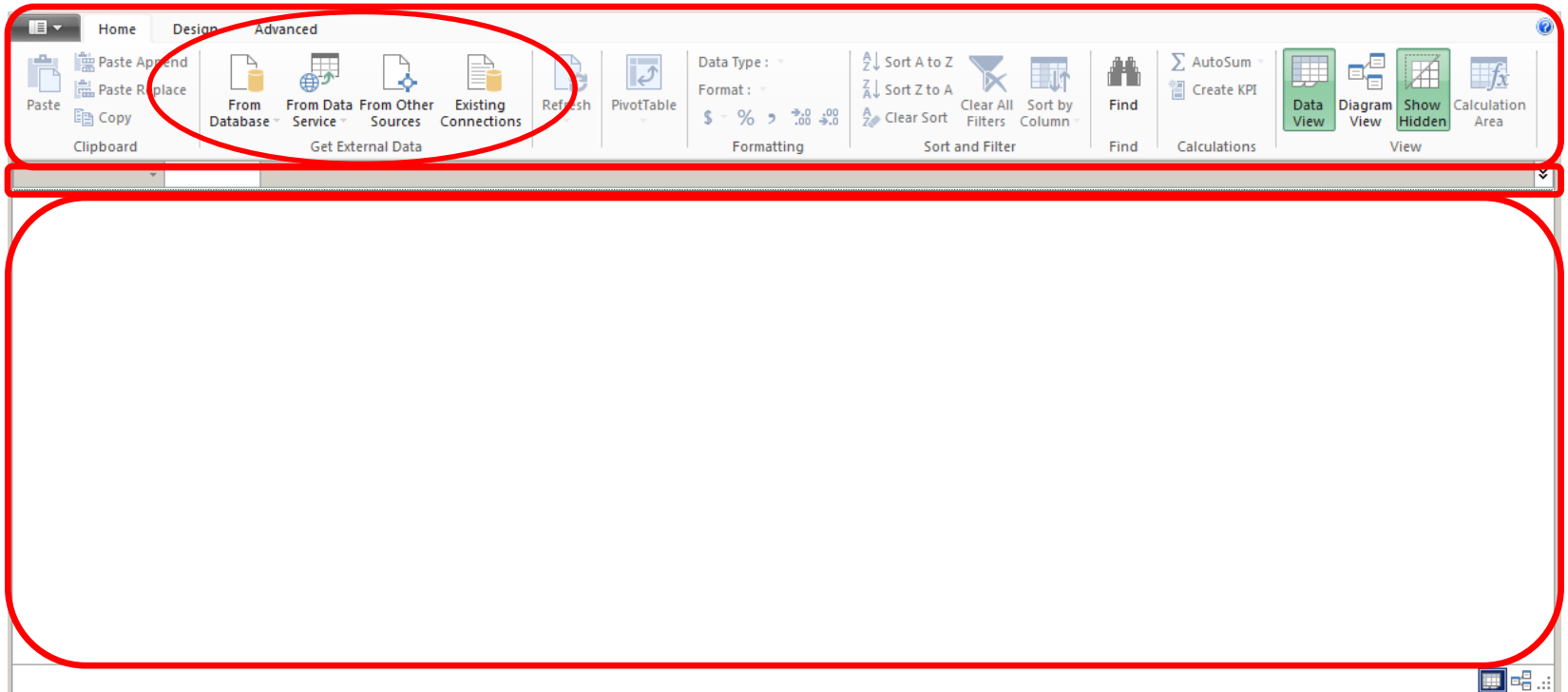
Open Power Pivot

Data Model



Getting Started – Power Pivot

- The Power Pivot environment



Importing Data – Power Pivot

- Import data

The screenshot displays the 'Table Import Wizard' interface. The main window is titled 'Table Import Wizard' and has a tab 'Select Tables and Views' with the instruction 'Select the tables and views that you want'. Below this, the database path is '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	

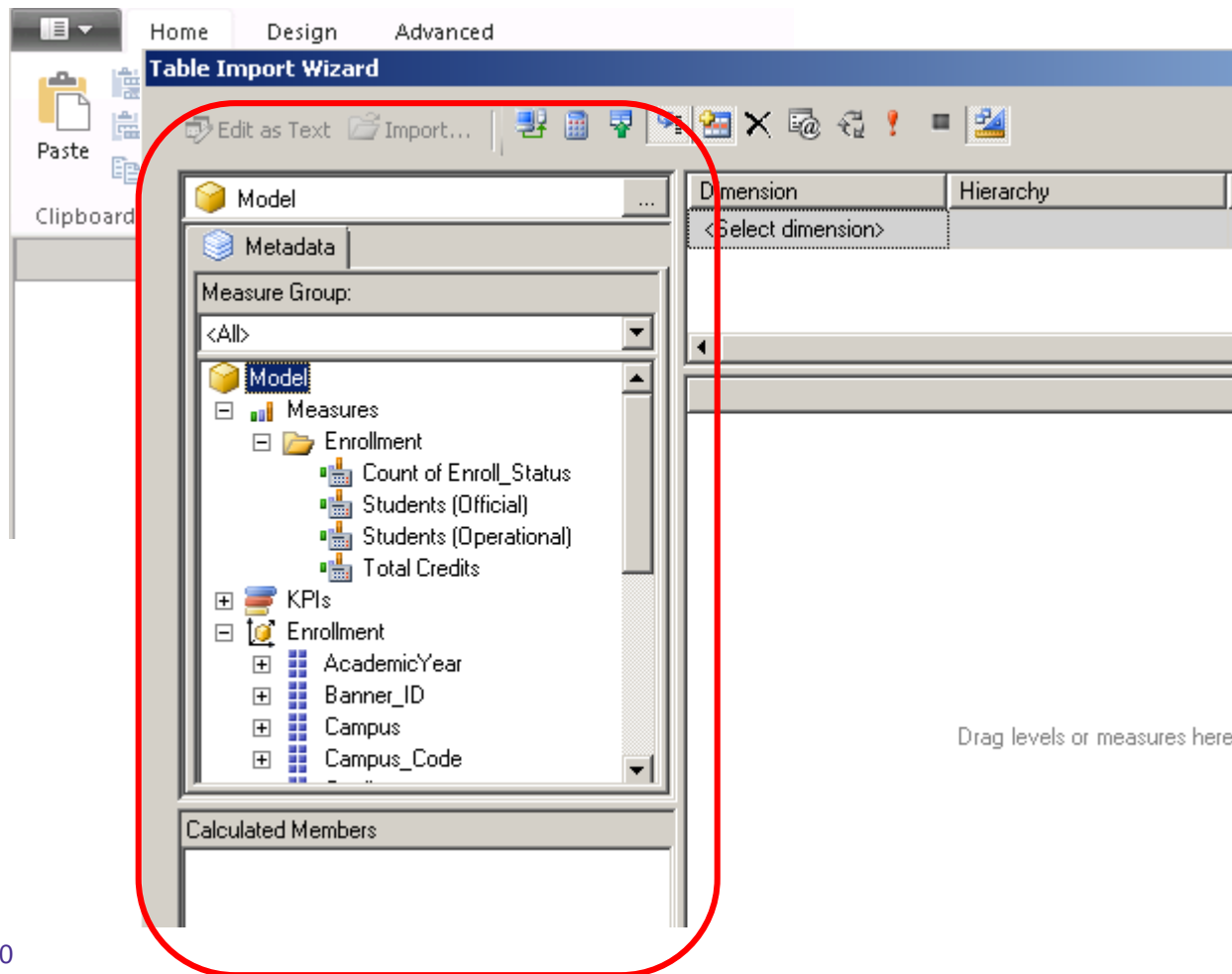
At the bottom of the wizard, the 'Preview & Filter' button is highlighted with a red circle. An inset window titled 'Table Import Wizard' shows the 'Importing' status. It displays a green checkmark and the word 'Success'. The summary shows: Total: 1, Cancelled: 0, Success: 1, Error: 0. A 'Details' table below shows:

Work Item	Status	Message
WorkshopData	Success	35,288 rows transferred.



Importing Data – Power Pivot

- Import from another Power Pivot (SharePoint)



Modeling Data – Power Pivot

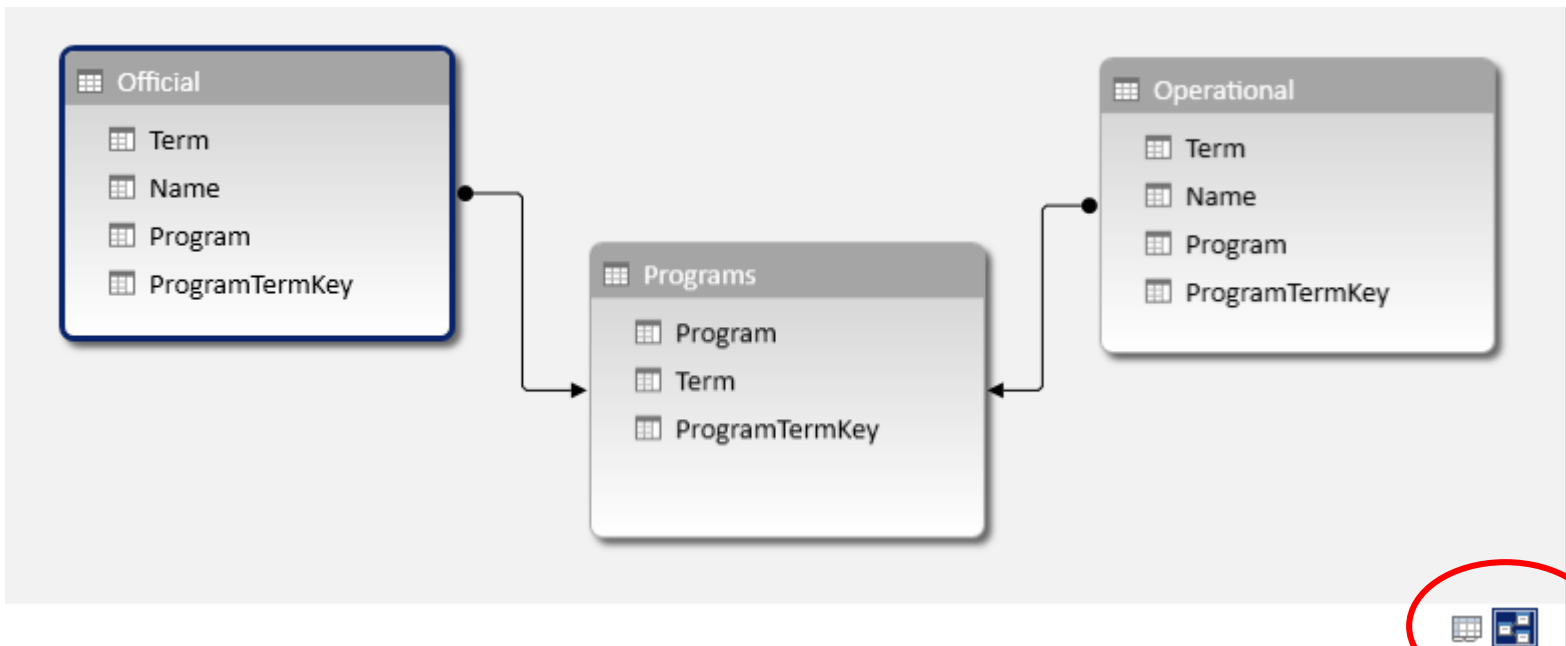
- **Joining Tables in Power Pivot** (for SQL Lovers)
 - Basically, a **LEFT OUTER JOIN**
 - Can be used in a single Excel Pivot Table or chart
 - Only one-to-one and many-to-one relationships are supported
 - You can cheat with one-to-many-to-one



Modeling Data – Power Pivot

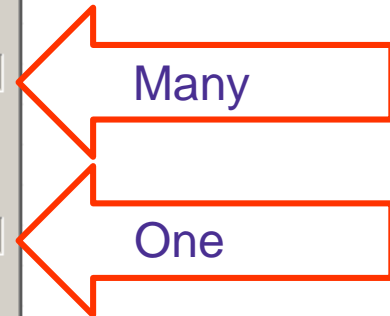
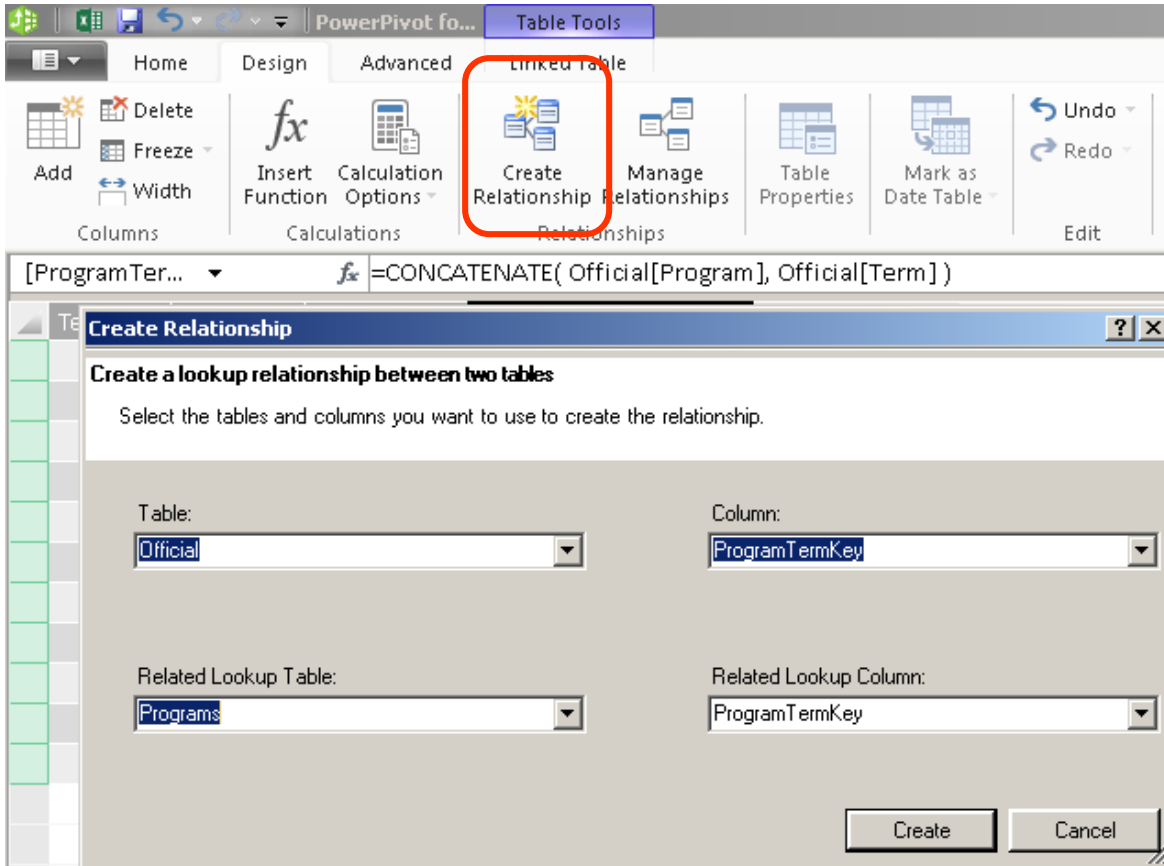
- **Joining Power Pivot Tables**

- Use Diagram View to view and manage relationships



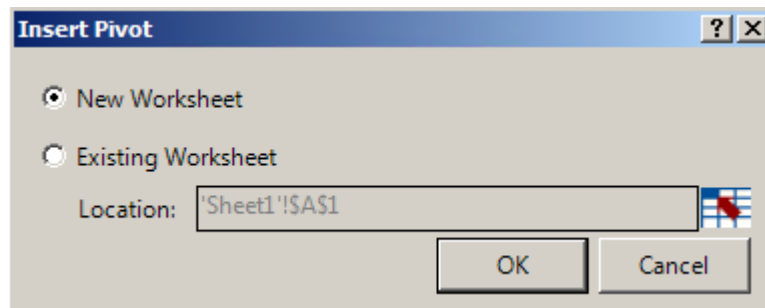
Modeling Data – Power Pivot

- Manually Joining Tables in Power Pivot



Displaying Data – Power Pivot

- Bringing data into Excel



Displaying Data – Power Pivot

• PivotTable vs. Power Pivot PivotTable

The image shows two screenshots of Excel. The top screenshot displays a PivotTable with 'Semester' set to 'Fall'. The PivotTable Fields task pane on the right shows 'Academic year' selected. The bottom screenshot shows a Power Pivot PivotTable with 'WorkshopData' selected in the task pane, and 'Academic year' and 'Semester' checked.

Department	2003-2004	2004-2005	2005-2006
Education Studies	153	200	185
Management	116	155	140
Management	116	155	140
Library Science	37	45	45

=IF(ISNULL(Banner[Department]),
 "Unknown", Banner[Department]
)



Adding Calculations – Power Pivot

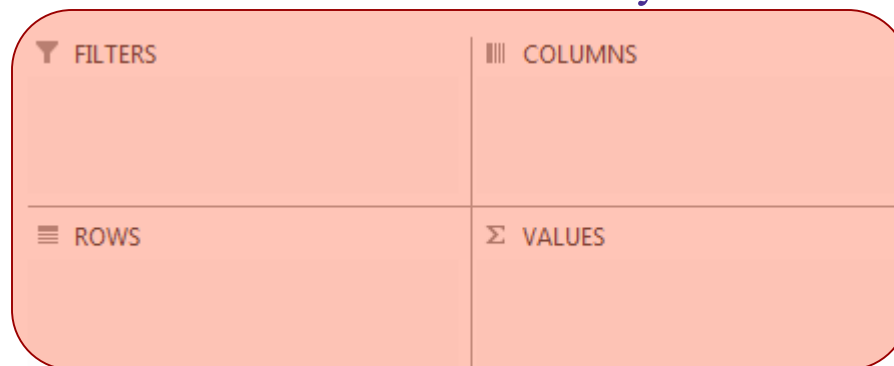
- **DAX**
 - Data Analysis Expressions (DAX)
 - Formula language for Power Pivot
 - Used to create **Calculated Columns** and **Calculated Fields** (Measures)



Adding Calculations – Power Pivot

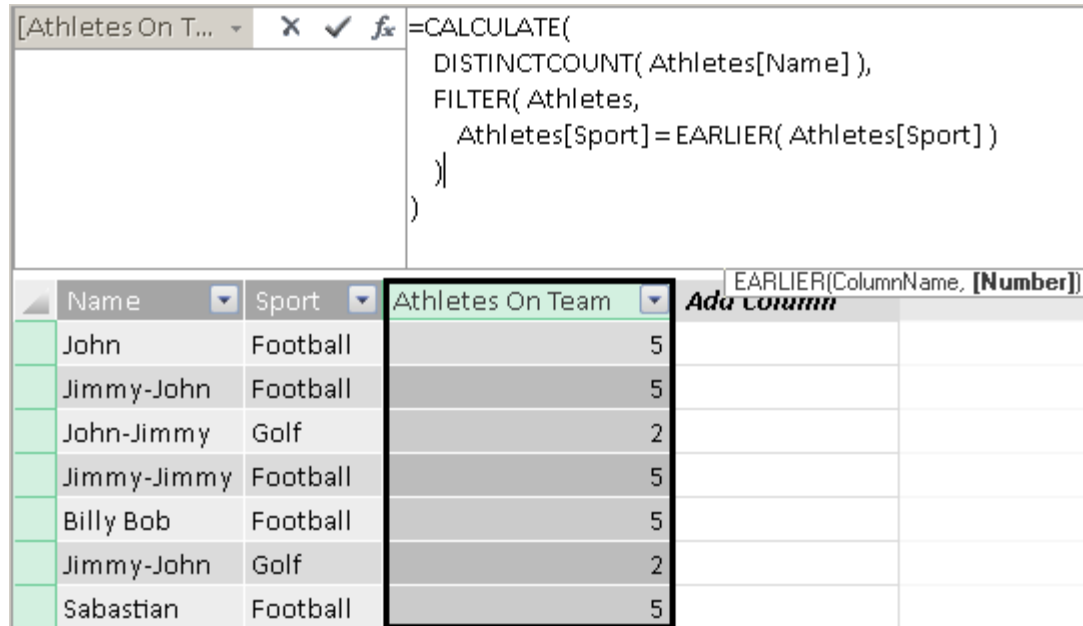
- **Calculated Columns**

- 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



Calculated Columns – Power Pivot

- Can use EARLIER() function to loop



The screenshot shows the Power Pivot interface. At the top, a formula bar contains the following DAX formula:

```
=CALCULATE(  
    DISTINCTCOUNT( Athletes[Name] ),  
    FILTER( Athletes,  
        Athletes[Sport] = EARLIER( Athletes[Sport] )  
    )  
)
```

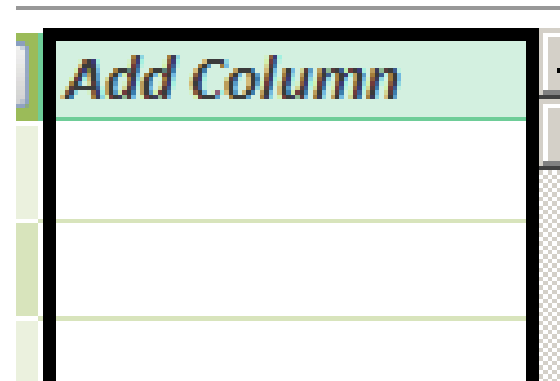
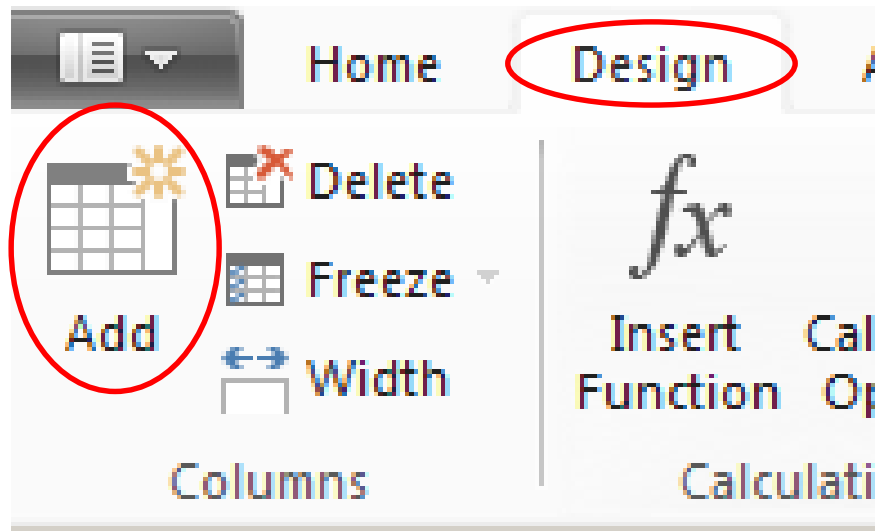
Below the formula bar is a table with the following columns: Name, Sport, Athletes On Team, and an additional column labeled "Add column" with a tooltip that reads "EARLIER(Column Name, [Number])". The "Athletes On Team" column is highlighted with a black border. The data in the table is as follows:

Name	Sport	Athletes On Team	Add column
John	Football	5	
Jimmy-John	Football	5	
John-Jimmy	Golf	2	
Jimmy-Jimmy	Football	5	
Billy Bob	Football	5	
Jimmy-John	Golf	2	
Sabastian	Football	5	



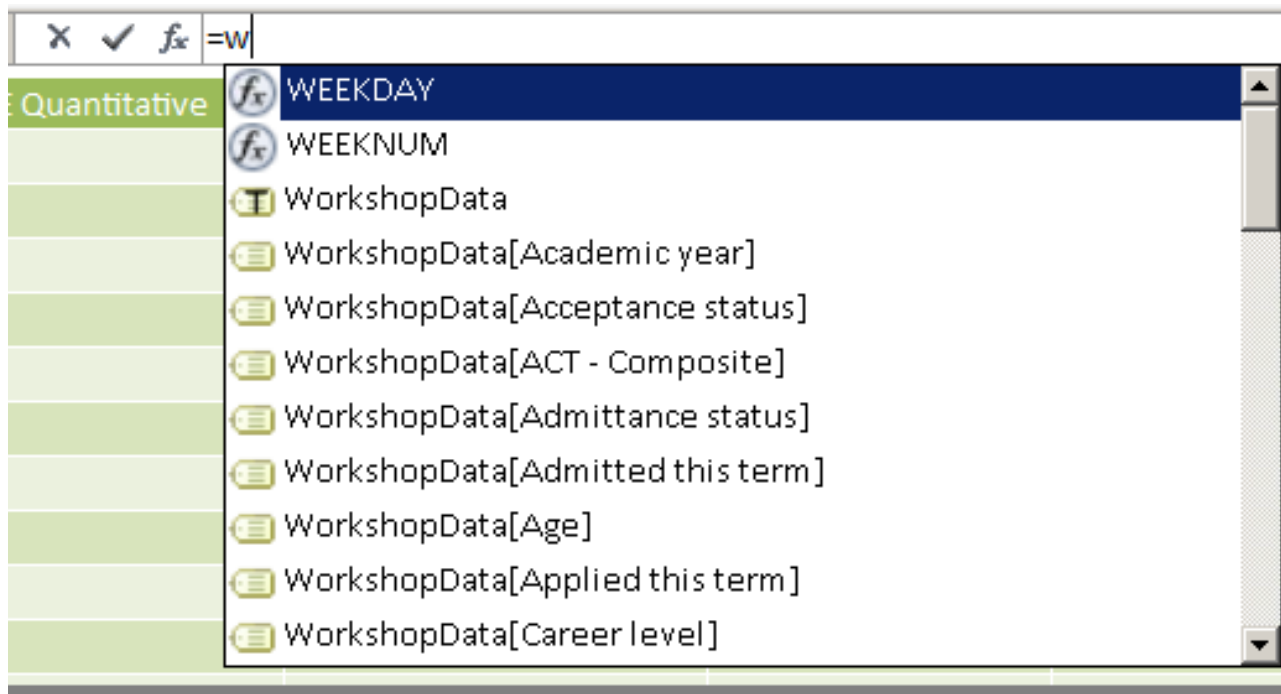
Calculated Columns – Power Pivot

- Adding a calculated column



Calculated Columns – Power Pivot

- Adding a calculated column

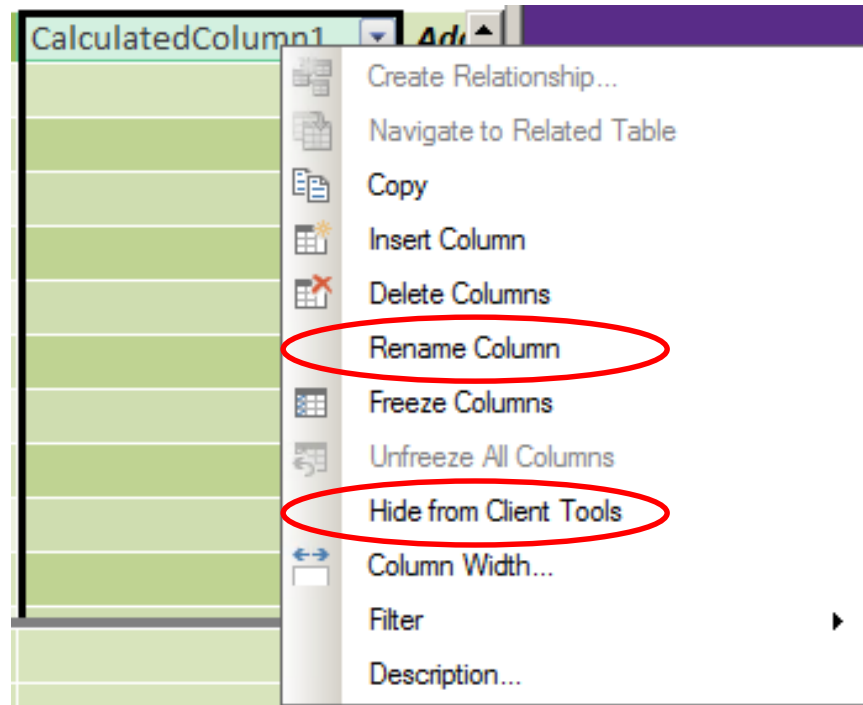


Calculated Columns – Power Pivot

- Adding a calculated column

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

CalculatedColumn1
930
930
1260
940
1260



Evaluation Contexts

- Row context
 - The one row being evaluated
 - Automatic for calculated columns
 - Carries across related tables
- 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		



Adding Calculations – Power Pivot

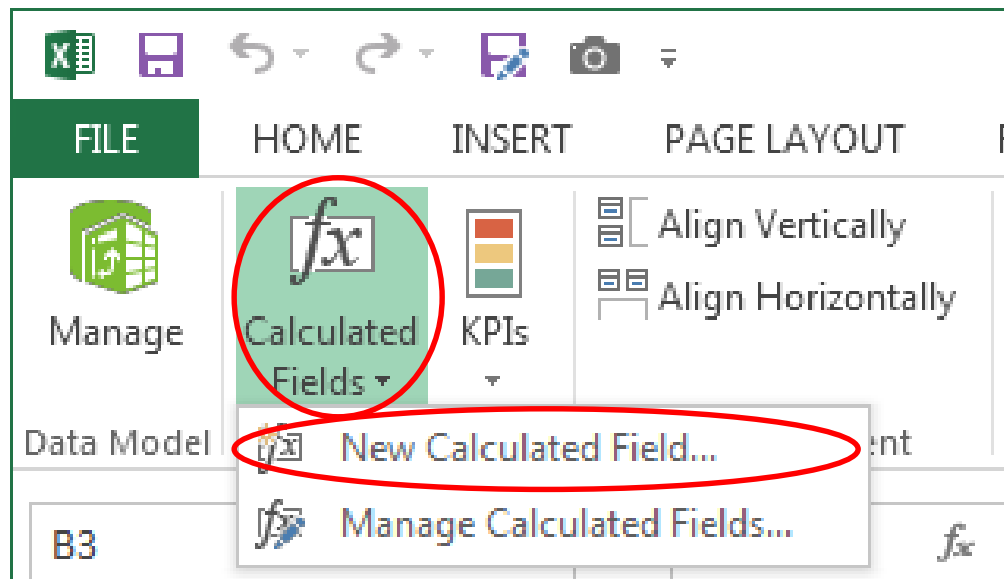
- **Calculated Fields**

- Used to add a calculated Value
- Aggregate function that applies to whole table, column, or range
- Something that needs to be recalculated
- Much faster than a Calculated Column



Calculated Fields – Power Pivot

- Adding a Calculated Field



Calculated Fields— Power Pivot

- Adding a Calculated Field

Calculated Field

Table name:

Calculated field name:

Description:

Formula:



Calculated Fields – Power Pivot

- Calculated Field in Power Pivot

A screenshot of a PivotTable with a light green background. The table has two columns: 'Term' and 'Semester'. The first row shows '2004-2005' for both. The second row shows '2004-2005' for 'Term' and 'Spring' 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 2005
Distinct Students: 5332	

A screenshot of the Power Pivot formula bar. The formula bar contains the text: `=DISTINCTCOUNT(WorkshopData[ID])`. Below the formula bar is a row of dropdown menus for the PivotTable fields: 'Term', 'Semester', 'Year', 'ID', and 'Applied this term'.

Formula
<code>=DISTINCTCOUNT(WorkshopData[ID])</code>

Term Semester Year ID Applied this term



Questions



DAX Example – Power Pivot



DAX Example— Power Pivot

		Column Labels	
		2003-2004	2004-2005
Row Labels		Distinct Enrolled Students	% Above Average GPA 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 %



DAX Example – Power Pivot

- **DISTINCTCOUNT**

DISTINCTCOUNT(<column>)

- Counts unique values in column
- Works with both Strings (characters) and numbers



DAX Example – Power Pivot

- Adding a Calculated Field

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



DAX Example— Power Pivot

- **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



DAX Example– Power Pivot

First-time Freshmen Distinct Students:=

CALCULATE(

[Distinct Students],

workshopData[Class level]="Freshman",

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

)



DAX Example – Power Pivot

- 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



DAX Example— Power Pivot

All Distinct Enrolled Students:=

CALCULATE(

[Distinct Enrolled Students],

ALL(workshopData[Class Level])

)



DAX Example— Power Pivot

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



DAX Example – Power Pivot

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



DAX Example – Power Pivot

Row Labels	2009-2010 Distinct Enrolled Students	% of All Distinct Enrolled Students	2010 Dist
<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 %	



DAX Example— Power Pivot

- **FILTER**

`FILTER(TableToFilter, FilterExpression)`

– Returns a table filtered by FilterExpression



DAX Example – Power Pivot

Above Average GPA Enrolled Undergraduates:=

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



DAX Example— Power Pivot

		Column Labels	
		2003-2004	2004-2005
Row Labels		Distinct Enrolled Students	% Above Average GPA 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

- **Resources**

- DAX Formatter:

- <http://www.daxformatter.com/>

- DAX Patterns:

- <http://www.daxpatterns.com/>

- **Twitter**

- Christopher Webb

- [@Technitrain](https://twitter.com/Technitrain)

- Marco Russo

- [@marcorus](https://twitter.com/marcorus)

- Alberto Ferrari

- [@FerrariAlberto](https://twitter.com/FerrariAlberto)

- Rob Collie

- [@powerpivotpro](https://twitter.com/powerpivotpro)



Questions

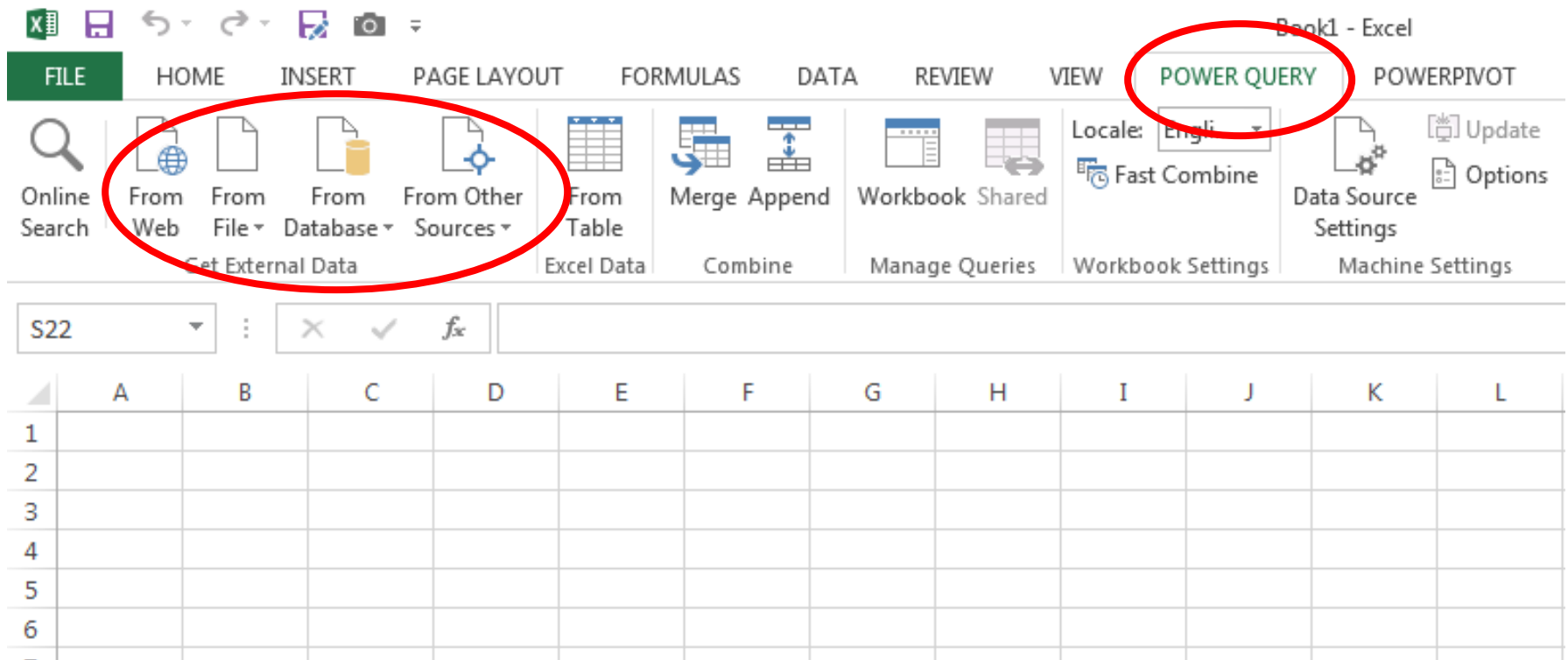


Power Query



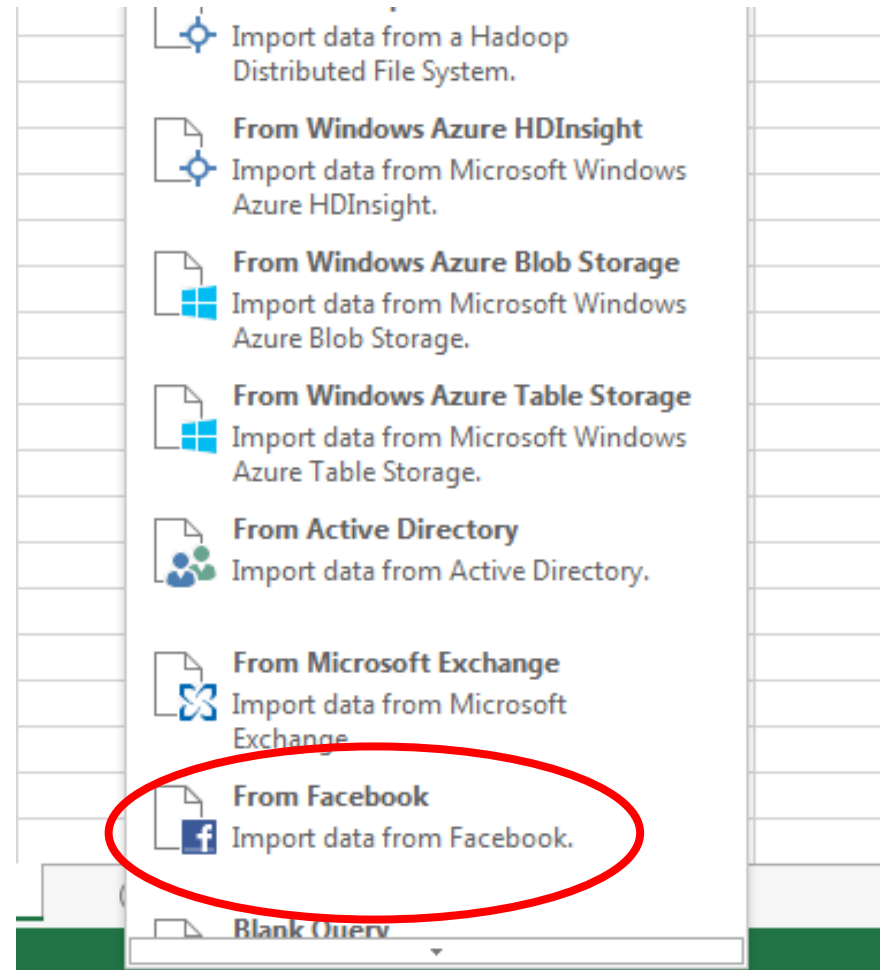
Power Query data sources

- Retrieve data from a variety of external sources (web searches, webpages, files, databases, and more)



Power Query data sources

- Access to sources of data not readily available to Power Pivot



Power Query preview (Query Editor)

WorkshopData - Query Editor

Apply & Refresh Close | Remove Top Rows | Remove Columns | Sort | Split Column | Group By | Transform | Unpivot | Merge Queries | Append Queries

= Source[[Schema="",Item="WorkshopData"]][Data]

#	Academic year	Term	Semester	Year	ID	Applied this term
1	2003-2004	Fall 2003	Fall	2003	10001	No
2	2003-2004	Fall 2003	Fall	2003	10002	Yes
3	2003-2004	Fall 2003	Fall	2003	10003	Yes
4	2003-2004	Fall 2003	Fall	2003	10004	Yes
5	2003-2004	Fall 2003	Fall	2003	10005	Yes
6	2003-2004	Fall 2003	Fall	2003	10006	Yes
7	2003-2004	Fall 2003	Fall	2003	10007	No
8	2003-2004	Fall 2003	Fall	2003	10008	No
9	2003-2004	Fall 2003	Fall	2003	10009	Yes
10	2003-2004	Fall 2003	Fall	2003	10010	Yes
11	2003-2004	Fall 2003	Fall	2003	10011	No
12	2003-2004	Fall 2003	Fall	2003	10012	No
13	2003-2004	Fall 2003	Fall	2003	10013	No
14	2003-2004	Fall 2003	Fall	2003	10014	No
15	2003-2004	Fall 2003	Fall	2003	10015	No
16	2003-2004	Fall 2003	Fall	2003	10016	Yes
17	2003-2004	Fall 2003	Fall	2003	10017	Yes
18	2003-2004	Fall 2003	Fall	2003	10018	No
19	2003-2004	Fall 2003	Fall	2003	10019	No
20	2003-2004	Fall 2003	Fall	2003	10020	No
21	2003-2004	Fall 2003	Fall	2003	10021	No

Query Settings

PROPERTIES

Name: WorkshopData

APPLIED STEPS

Source

LOAD SETTINGS

Load to worksheet

Load to Data Model

READY | PREVIEW DOWNLOADED AT 1:13 PM.



Power Query features

- Limit the data you bring into your model
 - Keep your model to a reasonable size (< 1M records) to prevent processing problems
 - Bring in only what you need

The screenshot shows the Power Query Editor interface with the 'Transform' ribbon selected. The 'Keep Top Rows' dropdown menu is open, showing options: 'Keep Top Rows', 'Keep Bottom Rows', and 'Keep Range'. The 'Keep Top Rows' option is selected. Below the ribbon, a data table is visible with columns: ID, AREA_NAME, AREA_TYPE, NAICS_TITLE, and OWNERSHIP. The first two rows are visible, both showing 'U.S.' and 'Cross-industry'.

ID	AREA_NAME	AREA_TYPE	NAICS_TITLE	OWNERSHIP
1	U.S.	U.S.	Cross-industry	All Owners
2	U.S.	U.S.	Cross-industry	All Owners

Power Query features

- Consolidate multiple tables into one

The screenshot shows the Microsoft Excel interface with the Power Query ribbon selected. The ribbon includes options for 'Merge' and 'Append', which are circled in red. Below the ribbon, a table is displayed with the following data:

	A	B	C	D	E
1	County	Tot. pop			
2	Alamance	151,131			
3	Alexander	37,198			
4	Alleghany	11,155			
5	Anson	26,948			
6	Ashe	27,281			

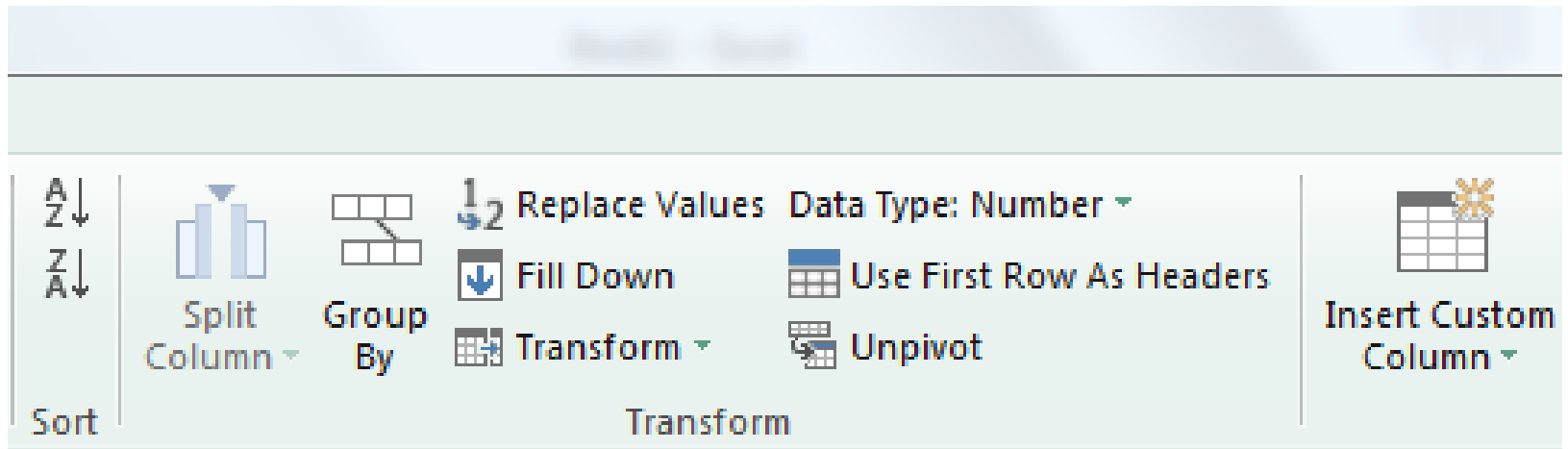
On the right side of the screenshot, the 'Merge' task pane is visible, showing a dropdown menu for 'Resident total population, 2010 - (N...)' and a preview table:

County	Tot. pop
Alamance	151,131
Alexander	37,198
Alleghany	11,155
Anson	26,948
Ashe	27,281



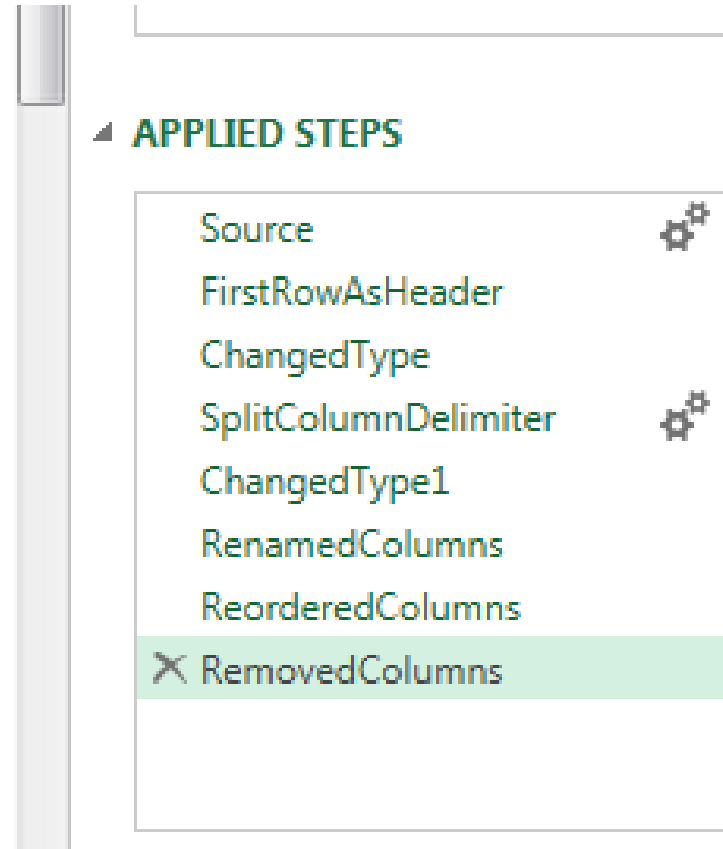
Power Query features

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



Power Query features

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



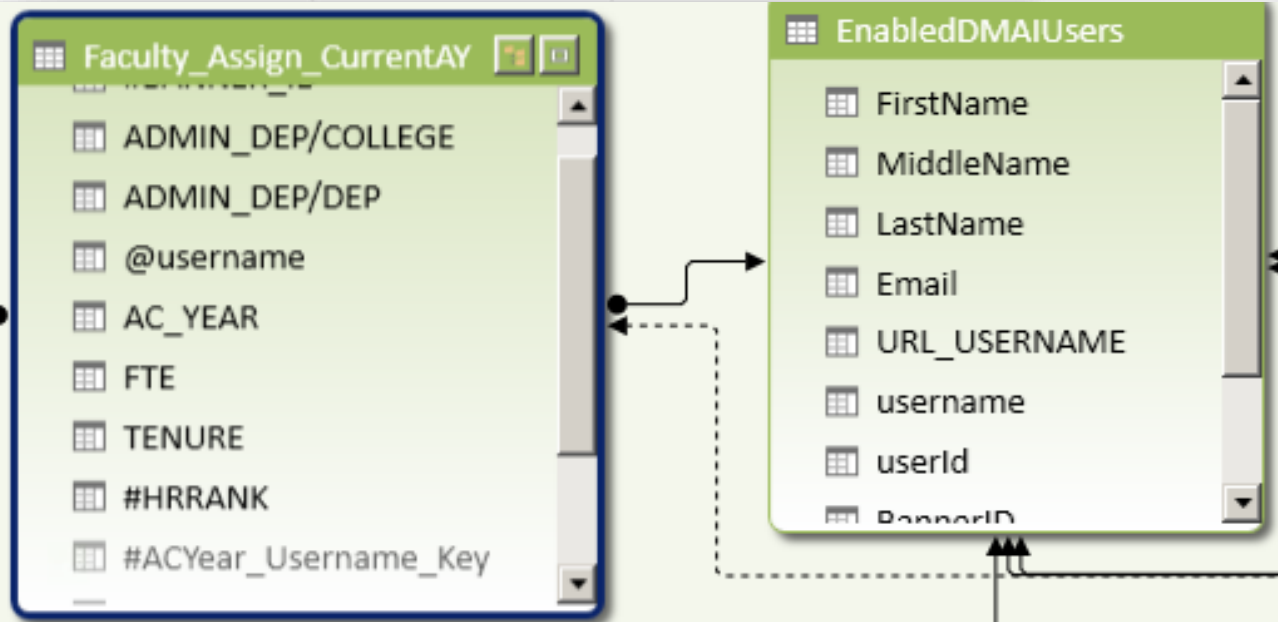
Power Query @ WCU

- **Connect to online faculty database**
 - Import active users from Digital Measures (from Web URL)
 - Merge with local data (Banner)
 - Export updated data to Digital Measures



Power Query @ WCU

	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 demonstrations

- **Data from an online search**
- **Data from websites**
- **Power Query Editor functions**
 - Split columns, remove columns/rows, merge, insert calculated columns, etc.
- **Data from Facebook**

DEMO: Power Query Online Search

Tim Metz 

Occupational Employment Statistics (2011)

From Bureau of Labor Statistics, last modified on Sunday, January 05, 2014.

The Occupational **Employment** Statistics (OES) program produces **employment** and wage estimates for over 800 occupations. These are estimates of the number of people employed in certain occupations, and estimates of the wages paid to them. Self-employed persons are not included in the estimates. These estimates are available for the nation as a whole, for individual States, and for metropolitan and nonmetropolitan areas; national occupational estimates for specific industries are also available

ID	AREA_NAME	AREA_TYPE	NAICS_TITLE	OWNERSHIP_CODE	OES_CODE_OCCUPATION	OCC_TITL
1	U.S.	U.S	Cross-industry	All Ownerships	00-0000	All Oc
2	U.S.	U.S	Cross-industry	All Ownerships	11-0000	Manag
3	U.S.	U.S	Cross-industry	All Ownerships	11-1011	Chief I
4	U.S.	U.S	Cross-industry	All Ownerships	11-1021	Gener
5	U.S.	U.S	Cross-industry	All Ownerships	11-1031	Legisl
6	U.S.	U.S	Cross-industry	All Ownerships	11-2011	Advert
7	U.S.	U.S	Cross-industry	All Ownerships	11-2021	Marke
8	U.S.	U.S	Cross-industry	All Ownerships	11-2022	Sales I
9	U.S.	U.S	Cross-industry	All Ownerships	11-2031	Public

Columns [26]

ID, AREA_NAME, AREA_TYPE, NAICS_TITLE, OWNERSHIP_CODE, OES_CODE_OCCUPATION, OCC_TITLE, MAJOR_TOTAL_OCC_GROUP, TOTAL **EMPLOYMENT**_EST, STD_ERROR_PRSNT, OCC_JOBS_PER_1000_JOBS, OCC_SHARE_TO_US_OCC_SHARE_RATIO, PRSNT_INDUSTRY **EMPLOYMENT**, Mean_Hourly_Wage, Mean_Annual_Wage,

Documentation

<http://www.bls.gov/oes>

Data Sources [1]

 <http://www.bls.gov/oes/#data>

ADD TO WORKSHEET


EDIT


LEGAL TERMS


Online Search

 employment 

350 results

 Occupational Employmen...
From Bureau of Labor Statistics on S...
The Occupational Employment
Statistics (OES) program produces
employment and...

 Growth, employment and ...
From Wikipedia on Monday, January...
Employment - Wikipedia, the free
encyclopedia

 Employment-to-populatio...
From Wikipedia on Monday, January...
Employment-to-population ratio -
Wikipedia, the free encyclopedia

 Chairs of the EEOC - Equa...
From Wikipedia on Monday, January...
Equal Employment Opportunity

1 2 3 4 5 Next

DEMO: Power Query Online Search

- Query Editor: Transform data as desired

The screenshot displays the Power Query Query Editor interface. The ribbon is set to the 'View' tab. The 'Remove Columns' option is highlighted in a red circle. A tooltip for 'Remove Columns' is visible, stating: 'Remove the currently selected columns from this table.'

	OES_CODE_OCCU		TOTAL_EMPLOYMENT...	Mean_Hourly_Wa...	Mean_Annual_W...
1	00-0000	All Occupations	128278550	21.74	45230
2	11-0000	Management Occupations	6183820	51.64	107410
3	11-1011	Chief Executives	267370	84.88	176550
4	11-1021	General and Operations Managers	1805030	55.04	114490
5	11-1031	Legislators	62180	null	38860
6	11-2011	Advertising and Promotions Managers	30710	49.69	103350
7	11-2021	Marketing Managers	168410	60.67	126190
8	11-2022	Sales Managers	328230	56.18	116860

DEMO: Power Query Online Search

- Load transformed data set into data model

Book1 - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW POWER QUERY POWERPIVOT Team

TABLE TOOLS
QUERY DESIGN

Tim Metz

A1 : OES_CODE_OCCUPATION

OES_CODE_OCCUPATION	OCC_TITLE	TOTAL_EMPLOYMENT_EST	Mean_Hourly
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse		
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	80	
39-1021	First-Line Supervisors of Personal Service Workers	80	
53-7061	Cleaners of Vehicles and Equipment	90	
51-4111	Tool and Die Makers	110	
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	160	
49-3023	Automotive Service Technicians and Mechanics	170	
11-9033	Education Administrators, Postsecondary	170	
47-2061	Construction Laborers	230	
51-2092	Team Assemblers	280	
15-2031	Operations Research Analysts	400	
39-9032	Recreation Workers	460	
43-5081	Stock Clerks and Order Fillers	440	
43-9071	Office Machine Operators, Except Computer	590	
43-5061	Production, Planning, and Expediting Clerks	1040	
53-5011	Sailors and Marine Oilers	2430	
29-1051	Pharmacists	2220	
53-7061	Cleaners of Vehicles and Equipment	16390	
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	770	
47-2031	Carpenters		
17-3012	Electrical and Electronics Drafters	40	
13-1031	Claims Adjusters, Examiners, and Investigators	60	
53-3099	Motor Vehicle Operators. All Other	50	

Workbook Queries

OESDATA2011
Last updated at 10:31 P...
338,571 rows loaded.

82

READY

DEMO: Power Query From Web

USA.COM

Local Data Search

Search State, County, City, Zip Code, or Area Code

USA.com / Ranks / North Carolina Median Household Income County Rank / Based on ACS 2006-2010 data*

Richest Counties by Income in NC

North Carolina Median Household Income County Rank

Based on ACS 2006-2010 data*

A total of 100 results found. [Show Results on Map.](#)

Rank	Median Household Income	County / Population
1.	\$63,770	Wake, NC / 850,546
2.	\$63,386	Union, NC / 190,346
3.	\$61,091	Camden, NC / 9,719
4.	\$56,038	Chatham, NC / 61,426
5.	\$55,376	Currituck, NC / 23,299
6.	\$55,294	Mecklenburg, NC / 882,761
7.	\$53,928	Cabarrus, NC / 169,990
8.	\$53,889	Dare, NC / 33,650
9.	\$52,981	Orange, NC / 129,562
10.	\$49,894	Durham, NC / 258,578
11.	\$49,745	Johnston, NC / 160,675
12.	\$49,727	Davie, NC / 40,581
13.	\$48,962	Iredell, NC / 154,632
14.	\$48,553	New Hanover, NC / 197,272
15.	\$48,319	Moore, NC / 85,914
16.	\$48,210	Granville, NC / 58,071
17.	\$47,450	Lincoln, NC / 75,897

Refine Your Ranking

Pick a Topic to Rank:

- Popular Topics
- Population and Races
- Income and Careers
- Housing
- Crime, Weather, etc.

Selected Ranking Topic: Median Household Income

Pick Your Location:

Within a Location

State

Rank within a Distance of a Point

Rank By:

County

Select Date of Data:

American Community Survey 2006-2010

Limit to Locations with Population:

to (number only, can be blank)

DEMO: Power Query From Web

The image shows a screenshot of the Microsoft Excel interface. The 'POWER QUERY' ribbon is active, displaying various options for connecting to data sources. A dialog box titled 'From Web' is open, prompting the user to 'Enter a Web page URL.' The dialog box contains a text input field for the URL and 'OK' and 'Cancel' buttons at the bottom right. The background shows the Excel ribbon with tabs for FILE, HOME, INSERT, PAGE LAYOUT, FORMULAS, DATA, REVIEW, VIEW, POWER QUERY, POWERPIVOT, and Team. The 'POWER QUERY' ribbon includes options like 'Online Search', 'From Web', 'From File', 'From Database', 'From Other Sources', 'From Table', 'Merge Append', 'Workbook Shared', 'Fast Combine', 'Data Source Settings', 'Update', 'Options', 'Sign In', 'Send Feedback', 'Help', and 'About'.

DEMO: Power Query From Web

- Transform data as needed (split column)

The screenshot shows the Power Query Editor interface. The ribbon is set to the 'Transform' tab, and the 'Split Column' button is highlighted. The ribbon includes sections for 'Query', 'Reduce', 'Sort', and 'Transform'. The 'Transform' section contains buttons for 'Split Column', 'Group By', 'Replace Values', 'Fill Down', 'Transform', and 'Unpivot'.

```
= Table.SplitColumn(ChangedType,"County / Population",Splitter.SplitTextByDelimiter(...))
```

Rank	Median Household Income ...	County / Population
1	63770	Wake, NC / 850,546
2	63386	Union, NC / 190,346
3	61091	Camden, NC / 9,719
4	56038	Chatham, NC / 61,42
5	55376	Currituck, NC / 23,29
6	55294	Mecklenburg, NC / 88
7	53928	Cabarrus, NC / 169,9
8	53889	Dare, NC / 33,650
9	52981	Orange, NC / 129,562
10	49894	Durham, NC / 258,57
11	49745	Johnston, NC / 160,6
12	49727	Davie, NC / 40,581
13	48962	Iredell, NC / 154,632

Split a column by delimiter

Specify the delimiter used to split the text column.

Select or enter delimiter

Split

- At the left-most delimiter
- At the right-most delimiter
- At each occurrence of the delimiter

Advanced options

DEMO: Power Query Editor

- Queries can be re-edited, merged and appended as needed

The screenshot shows the Power Query Editor interface. The ribbon includes tabs for FILE, HOME, INSERT, PAGE LAYOUT, FORMULAS, DATA, and REVIEW. The DATA tab is active, showing options for Edit (circled in red), Refresh, Duplicate, Reference, Delete, Merge, Append, and Share. Below the ribbon, the formula bar shows 'County' for cell A1. The data table below has columns for County, Median Household Income, and Population.

	A	B	C	D
1	County	Median Household Income	Population	
2	Robeson, NC	29667	131708	
3	Stokes, NC	42689	47194	
4	Caldwell, NC	37261	82162	
5	Graham, NC	28447	8702	
6	Richmond, NC	30439	46477	
7	Transylvania, NC	39408	32404	
8	Lenoir, NC	33625	59307	
9	Perquimans, NC	43041	13091	
10	Brunswick, NC	45806	101994	

DEMO: Power Query Editor

- Remove rows and/or columns

The screenshot shows the Power Query Editor interface. The ribbon is set to 'Transform'. The 'Remove Top Rows' button is highlighted, and its dropdown menu is open, showing options: 'Remove Top Rows', 'Remove Bottom Rows', and 'Remove Alternate Rows'. The data table below shows 8 rows of data with 10 columns. The first row is highlighted in green.

	Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9
1	...go to state	null	null	% White	null	null	% Black	null	
2	COUNTY	Total	White	of Total	Other	(Black	of Other	Indian	Asian)
3	ALAMANCE	108,213	86,584	80.01	21,629	20,836	96.33	304	489
4	ALEXANDER	27,544	25,757	93.51	1,787	1,686	94.35	52	49
5	ALLEGHANY	9,590	9,399	98.01	191	177	92.67	8	6
6	ANSON	23,474	12,270	52.27	11,204	11,107	99.13	70	27
7	ASHE	22,209	22,012	99.11	197	145	73.60	21	31
8	AVERY	14,867	14,656	98.58	211	159	75.36	28	24

DEMO: Power Query Editor

- Transform first row of data into column headers

The screenshot shows the Power Query Editor interface. The ribbon is set to 'Transform', and the 'Use First Row As Headers' button is highlighted. A tooltip is visible over the button, stating: 'Use First Row As Headers. Promote the first row of this table into column headers.'

The formula bar shows the formula: `= Table.Skip(ChangedType,1)`

The data table is as follows:

	Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9
1	COUNTY	Total	White	of Total	Other	(Black	of Other	Indian	Asian)
2	ALAMANCE	108,213	86,584	80.01	21,629	20,836	96.33	304	489
3	ALEXANDER	27,544	25,757	93.51	1,787	1,686	94.35	52	49
4	ALLEGHANY	9,590	9,399	98.01	191	177	92.67	8	6
5	ANSON	23,474	12,270	52.27	11,204	11,107	99.13	70	27
6	ASHE	22,209	22,012	99.11	197	145	73.60	21	31
7	AVERY	14,867	14,656	98.58	211	159	75.36	28	24

DEMO: Power Query Editor

- Rename column headers

fx = Table.RenameColumns(FirstRowAsHeader,{"of Total", "%White"})

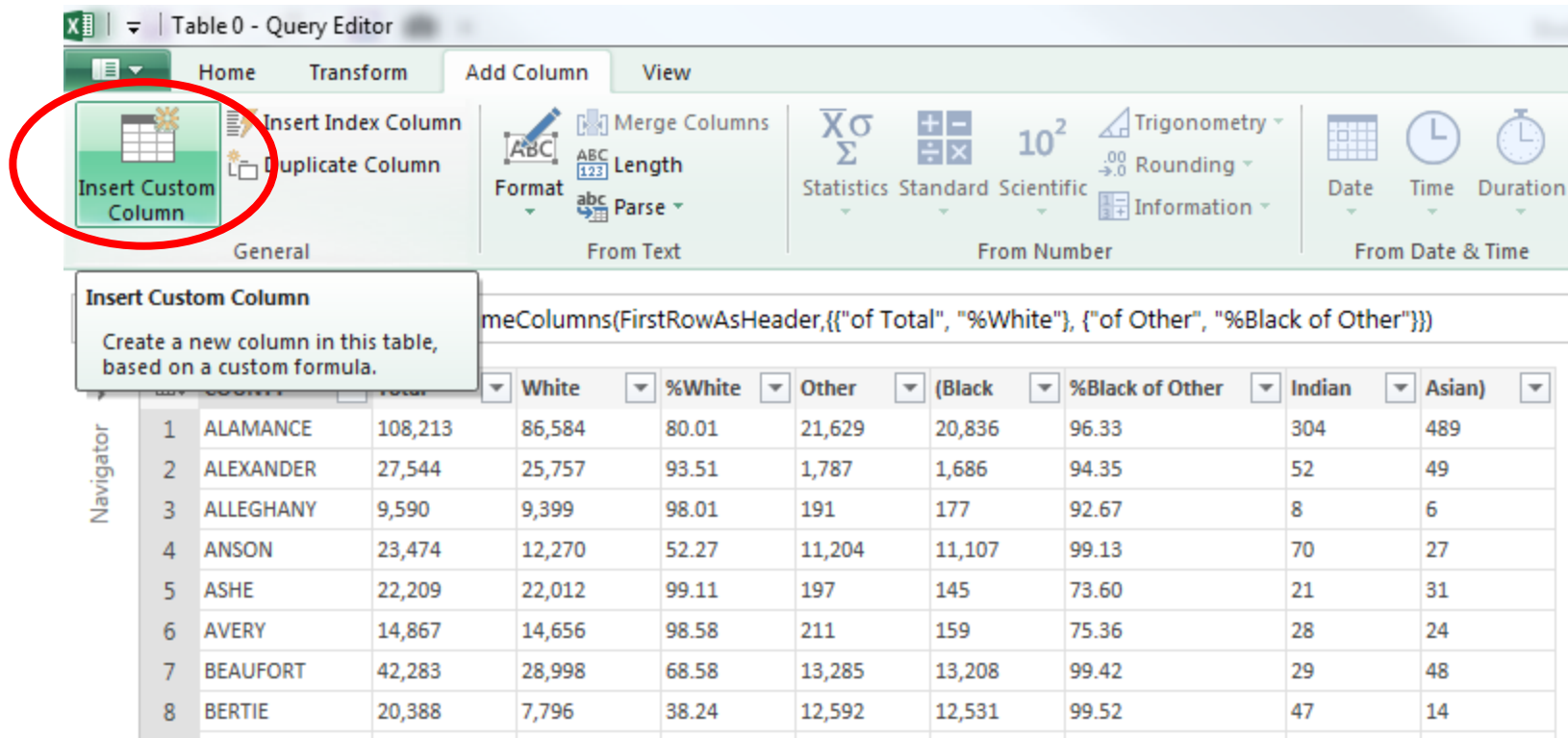
	COUNTY	Total	White	%White	Other	(Black	of Other	Indian	Asian)
1	ALAMANCE	108,213	86,584	80.01	21,629	20,836	96.33		
2	ALEXANDER	27,544	25,757	93.51	1,787	1,686	94.35		
3	ALLEGHANY	9,590	9,399	98.01	191	177	92.67		
4	ANSON	23,474	12,270	52.27	11,204	11,107	99.13		
5	ASHE	22,209	22,012	99.11	197	145	73.60		
6	AVERY	14,867	14,656	98.58	211	159	75.36		
7	BEAUFORT	42,283	28,998	68.58	13,285	13,208	99.42		
8	BERTIE	20,388	7,796	38.24	12,592	12,531	99.52		
9	BLADEN	28,663	16,964	59.18	11,699	11,205	95.78		
10	BRUNSWICK	50,985	41,428	81.26	9,557	9,232	96.60		
11	BUNCOMBE	174,819	159,199	91.07	15,620	14,358	91.92		
12	BURKE	75,740	69,617	91.92	6,123	5,190	84.76		
13	CABARRUS	98,935	85,381	86.30	13,554	12,863	94.90		
14	CALDWELL	70,709	66,603	94.19	4,106	3,888	94.69		
15	CAMDEN	5,904	4,393	74.41	1,511	1,481	98.01		
16	CARTERET	52,553	47,573	90.52	4,980	4,407	88.49		
17	CASWELL	20,693	12,200	58.96	8,493	8,446	99.45		
18	CATAWBA	118,412	106,627	90.05	11,785	10,708	90.86		
19	CHATHAM	38,759	29,674	76.56	9,085	8,883	97.78		
20	CHEROKEE	20,170	19,359	95.98	811	362	44.64		
21	CHOWAN	13,506	8,357	61.88	5,149	5,094	98.93		

Navigator

- Remove
- Remove Other Columns
- Use First Row As Headers
- Duplicate Column
- Split Column
- Remove Duplicates
- Remove Errors
- Replace Values...
- Fill Down
- Change Type
- Transform
- Insert Custom Column...
- Insert Index Column
- Group By...
- Unpivot
- Move
- Rename...**
- Drill Down
- Add as New Query

DEMO: Power Query Editor

- Insert custom formula-based columns



The screenshot displays the Power Query Editor interface. The 'Add Column' ribbon is active, and the 'Insert Custom Column' button is highlighted with a red circle. A tooltip for this button is visible, stating: "Insert Custom Column. Create a new column in this table, based on a custom formula." Below the ribbon, a table of demographic data is shown. The table has columns for 'White', '%White', 'Other', '(Black', '%Black of Other', 'Indian', and 'Asian'. A formula bar above the table contains the formula: '=Table.AddColumn(FirstRowAsHeader,{{"of Total", "%White"}, {"of Other", "%Black of Other"}})'

		Total	White	%White	Other	(Black	%Black of Other	Indian	Asian)
1	ALAMANCE	108,213	86,584	80.01	21,629	20,836	96.33	304	489
2	ALEXANDER	27,544	25,757	93.51	1,787	1,686	94.35	52	49
3	ALLEGHANY	9,590	9,399	98.01	191	177	92.67	8	6
4	ANSON	23,474	12,270	52.27	11,204	11,107	99.13	70	27
5	ASHE	22,209	22,012	99.11	197	145	73.60	21	31
6	AVERY	14,867	14,656	98.58	211	159	75.36	28	24
7	BEAUFORT	42,283	28,998	68.58	13,285	13,208	99.42	29	48
8	BERTIE	20,388	7,796	38.24	12,592	12,531	99.52	47	14

DEMO: Power Query Editor

(Black)	%Black of Other	Indian	Asian)
20,836	96.33	304	489

Insert Custom Column

New column name

Custom column formula:

Available columns:
COUNTY
Total
White
%White
Other
(Black
%Black of Other

<< Insert

Learn about Power Query formulas

✓ No syntax errors have been detected.

OK Cancel

DEMO: Power Query Editor

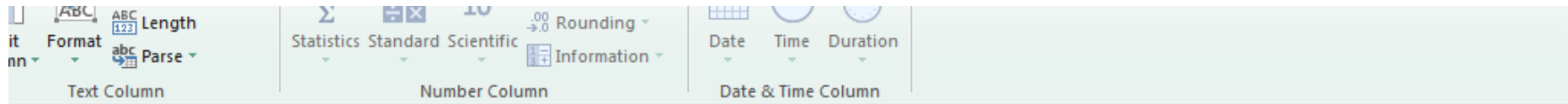
- Change data type (text, number, etc.)

The screenshot shows the Power Query Editor interface with the 'Transform' tab selected. The ribbon includes options like 'Transpose', 'Reverse Rows', 'Count Rows', 'Data Type: Text', 'Expand', 'Aggregate', 'Move', 'Unpivot Columns', and 'Sp Colu'. A tooltip titled 'Change Data Type' is displayed over the 'Data Type: Text' dropdown, stating 'Change the data type for the selected column.' Below the ribbon, a data table is visible with columns for COUNTY, Total, and %Black of t. The 'Total' column is highlighted in green.

	COUNTY	Total				(Black	%Black of t
1	ALAMANCE	108,213	86,584	80.01	21,629	20,836	96.33
2	ALEXANDER	27,544	25,757	93.51	1,787	1,686	94.35
3	ALLEGHANY	9,590	9,399	98.01	191	177	92.67
4	ANSON	23,474	12,270	52.27	11,204	11,107	99.13

DEMO: Power Query Editor

- Delete unwanted edits



Other	Indian	Asian	%Black
	304	489	Error
	52	49	Error
	8	6	Error
	70	27	Error
	21	31	Error
	28	24	Error

Delete Step

Are you sure you want to delete this step? Deleting this step may affect subsequent steps, which could cause your query to break.

Delete

Cancel

The 'Query Settings' pane is open, showing the 'APPLIED STEPS' section. The list of steps includes: Source, ChangedType, RemovedTopRows, FirstRowAsHeader, RenamedColumns, and 'X InsertedCustom'. The 'InsertedCustom' step is highlighted in green, indicating it is the current step being edited or deleted.

DEMO: Power Query Merge

Merge

Select tables and matching columns to create a merged table.


Educational attainment - persons 25... ▾

County	%Degrees
Alamance	21.4
Alexander	11.8
Alleghany	16.1
Anson	8.4
Ashe	17.2

North Carolina Median Household In... ▾

County	Population	Median Household Income ▾
Wake	850546	63770
Union	190346	63386
Camden	9719	61091
Chatham	61426	56038
Currituck	23299	55376

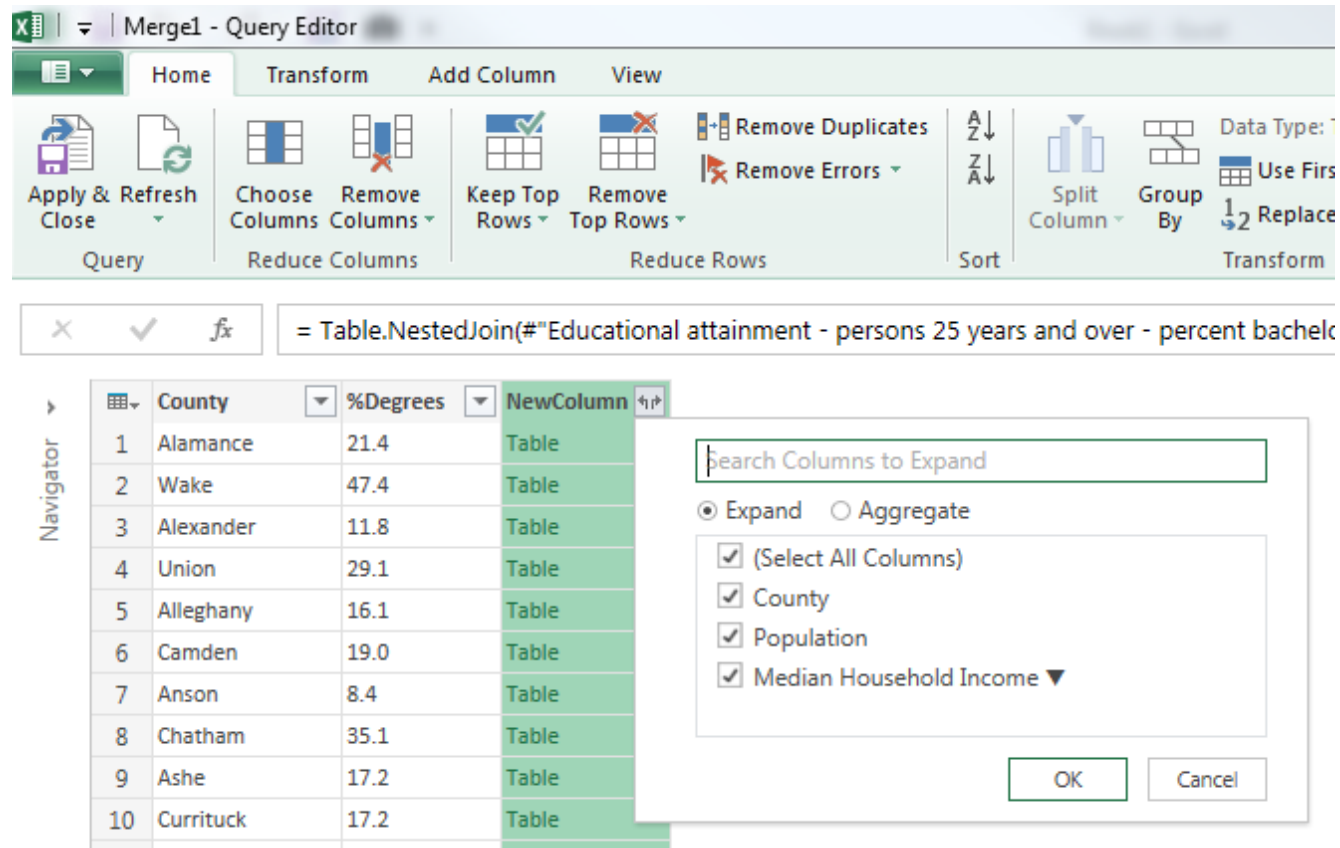
Only include matching rows

 The selection has matched 99 out of the first 100 rows.

OK Cancel

DEMO: Power Query Merge

- Select columns to include in the merge



The screenshot shows the Power Query Editor interface. The ribbon includes tabs for Home, Transform, Add Column, and View. The Transform tab is active, showing options like 'Remove Duplicates', 'Remove Errors', 'Sort', 'Split Column', and 'Group By'. The formula bar contains the expression: `= Table.NestedJoin(#"Educational attainment - persons 25 years and over - percent bachelo`. Below the formula bar, a data table is displayed with columns: County, %Degrees, and NewColumn. The NewColumn column contains the value 'Table' for each row. A dialog box is open over the NewColumn column, titled 'Search Columns to Expand'. It has radio buttons for 'Expand' (selected) and 'Aggregate'. The dialog lists the following columns with checkboxes: (Select All Columns), County, Population, and Median Household Income. The 'OK' and 'Cancel' buttons are at the bottom right of the dialog.

County	%Degrees	NewColumn
1 Alamance	21.4	Table
2 Wake	47.4	Table
3 Alexander	11.8	Table
4 Union	29.1	Table
5 Alleghany	16.1	Table
6 Camden	19.0	Table
7 Anson	8.4	Table
8 Chatham	35.1	Table
9 Ashe	17.2	Table
10 Currituck	17.2	Table

DEMO: Data from Facebook

- Facebook pages and groups

https://www.facebook.com/groups/123975444321368/

Western Carolina University - Class of 2015 (OFFICIAL GROUP)

Timothy Metz
Edit Profile

FAVORITES

- News Feed
- Messages
- Events
- Photos
- Browse
- Find Friends

Western Carolina University - Class of 20... Members Events Photos Files

Write Post Add Photo / Video Ask Question Add File

Write something...

DEMO: Data from Facebook

- Facebook pages and groups

The screenshot displays the Microsoft Excel interface with the Power Query ribbon selected. The ribbon includes options for getting external data from various sources like the web, file, database, and other sources. A dialog box titled "Facebook" is open, prompting the user to specify an object or connection in the Facebook graph. The dialog contains a text input field for the object ID, which has the value "123975444321368" entered. Below this is a dropdown menu for the connection type, currently set to "Members". The dialog also features "OK" and "Cancel" buttons.

Book1 - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW POWER QUERY POWERPIVOT Team

Online Search From Web From File From Database From Other Sources From Table Merge Append Workbook Shared Locale: Engli... Fast Combine Data Source Settings Update Options Sign In Organ

Get External Data Excel Data Combine Manage Queries Workbook Settings Machine Settings

A1

A B

1 2 3 4 5 6 7 8 9 10 11

Facebook

Specify an object or a connection in the Facebook graph.

"Me", Username or Object ID

123975444321368

Connection

Members

OK Cancel

DEMO: Data from Facebook

- Drill down for additional data fields in facebook records
- Availability of data fields depends on your personal status with the group/page, and facebook data fields completed and available

The screenshot shows a data table with columns: name, administrator, id, and object_link. A dialog box titled "Search Columns to Expand" is open over the table, listing various fields with checkboxes. The "object_link" column header in the table is circled in red. The dialog box lists the following fields with checked checkboxes: (Select All Columns), connections, first_name, gender, id, last_name, link, locale, name, updated_time, and username. The dialog box has "OK" and "Cancel" buttons at the bottom right.

	name	administrator	id	object_link
1	River Walk			
2	Soufia Ayab			
3	Amanda Elaine			
4	Windsor Kathline			
5	Cindie Dingson			
6	Mani Singh			
7	Kaitlin Hartis			
8	Sierra Jenkins			
9	Brittney Delcarlo			
10	Eneida Ptacek			
11	King Christian Dimandja			
12	Tuncheng Wang			
13	Yuchun Wu			
14	Jenn Hester			
15	Tera Fazzino	FALSE	100000137013387	Record
16	Lupita Vargas	FALSE	100004688256669	Record
17	Greg Church	FALSE	100002988715664	Record
18	Winthrop Hang	FALSE	100004415711269	Record
19	Sophia Daniels	FALSE	100007542672200	Record
20	Benjamin Logan Morrison	FALSE	100005664822374	Record
21	Adrian Kolman	FALSE	100006367273767	Record
22	Stacey Adams	FALSE	100006548280691	Record
23	Prêt Entre Particulier	FALSE	100007435141327	Record
24	Martin Vitek	FALSE	1413644226	Record

Questions



Displaying Data – Power Map & Power View



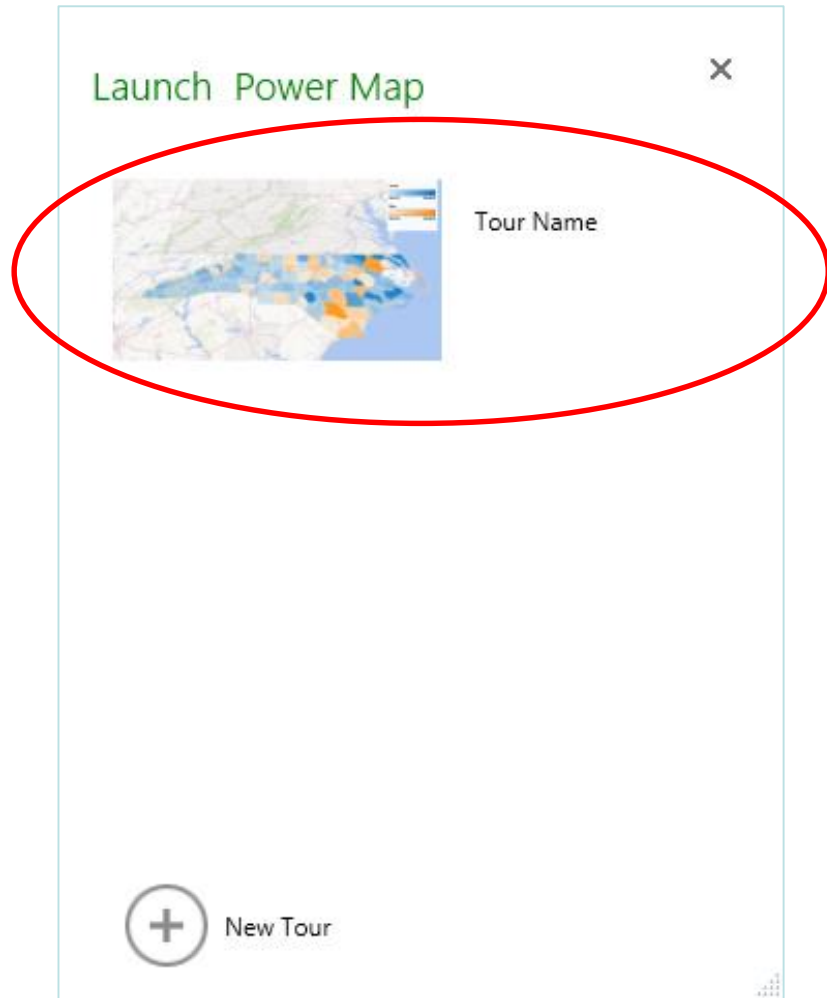
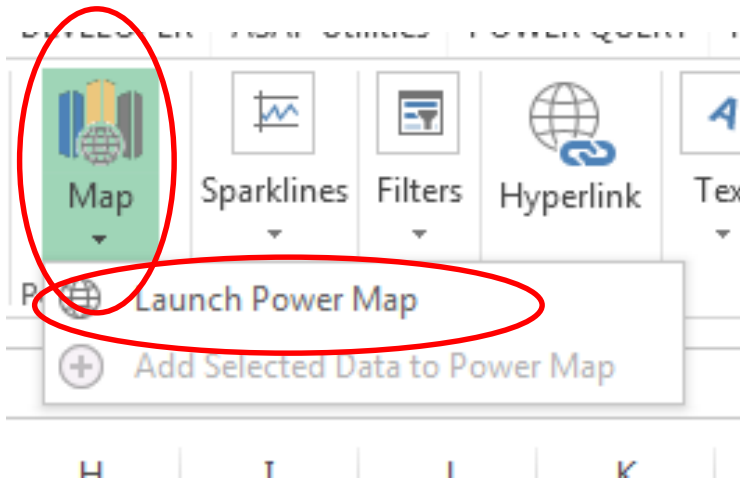
Displaying Data – Power Map

- **Power Map**

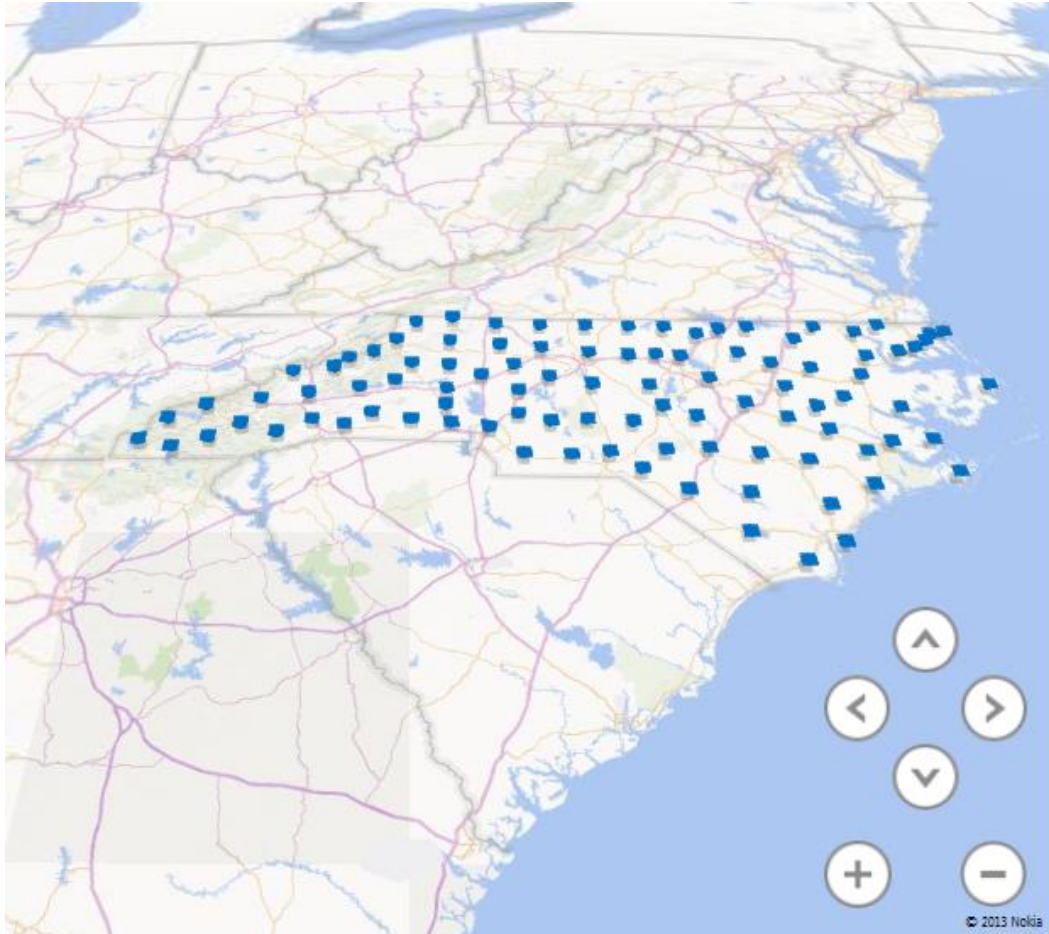
- Automated way to map geographic data
- Doesn't require geo-location information like longitude and latitude (just country, state, or county names)
- Can add elements to look at aggregate function on variables across physical space
- Limited functionality. Office 365 integration will eventually allow for full functionality in future versions.



Displaying Data – Power Map



Displaying Data – Power Map



Layer 1

CHOOSE GEOGRAPHY

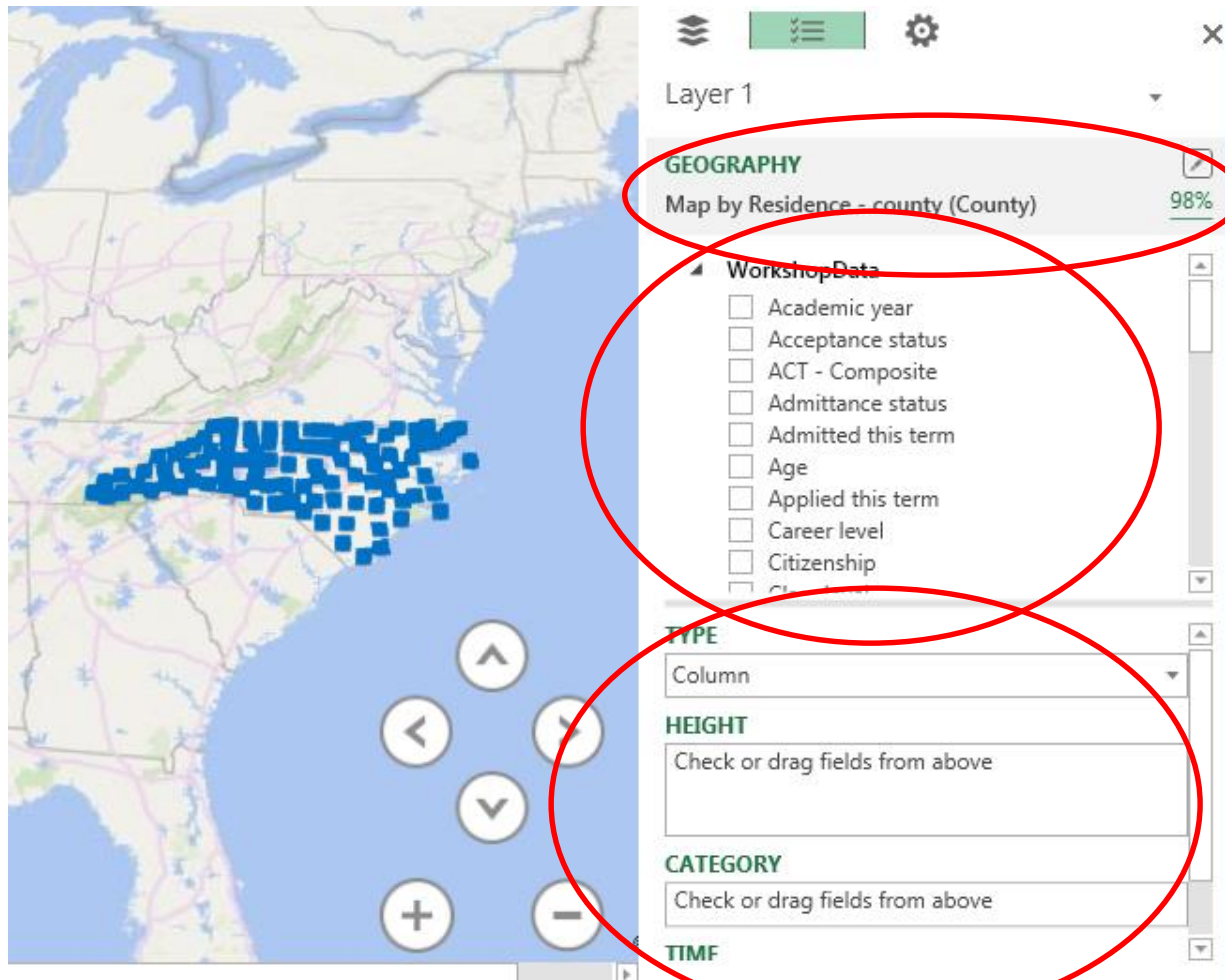
- GRE Verbal
- HS GPA
- ID
- Institutional cumulative GPA
- Is new student this term
- Is transfer student
- Program code
- Program name
- Race or ethnicity
- Residence - country
- Residence - county
- Residence - state
- SAT - Critical reading
- SAT - Math
- Semester
- Term
- Total degree credit hours earned at insti...
- Transfer hours applied to degree

GEOGRAPHY AND MAP LEVEL

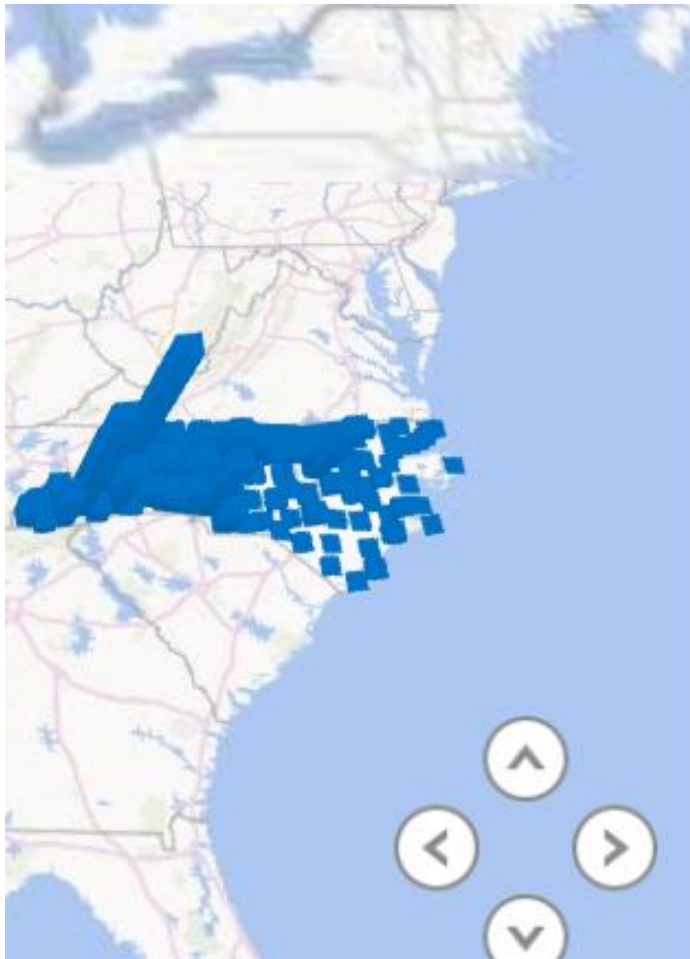
- Residence - country Country/Region
- Residence - county County
- Residence - state State/Province

Next

Displaying Data – Power Map



Displaying Data – Power Map



Layer 1

GEOGRAPHY

Map by Residence - county (County)



98%

- GRE Verbal
- HS GPA
- ID
- Institutional cumulative GPA
- Is new student this term
- Is transfer student
- Program code
- Program name
- Race or ethnicity
- Residence - country
- Residence - county

TYPE

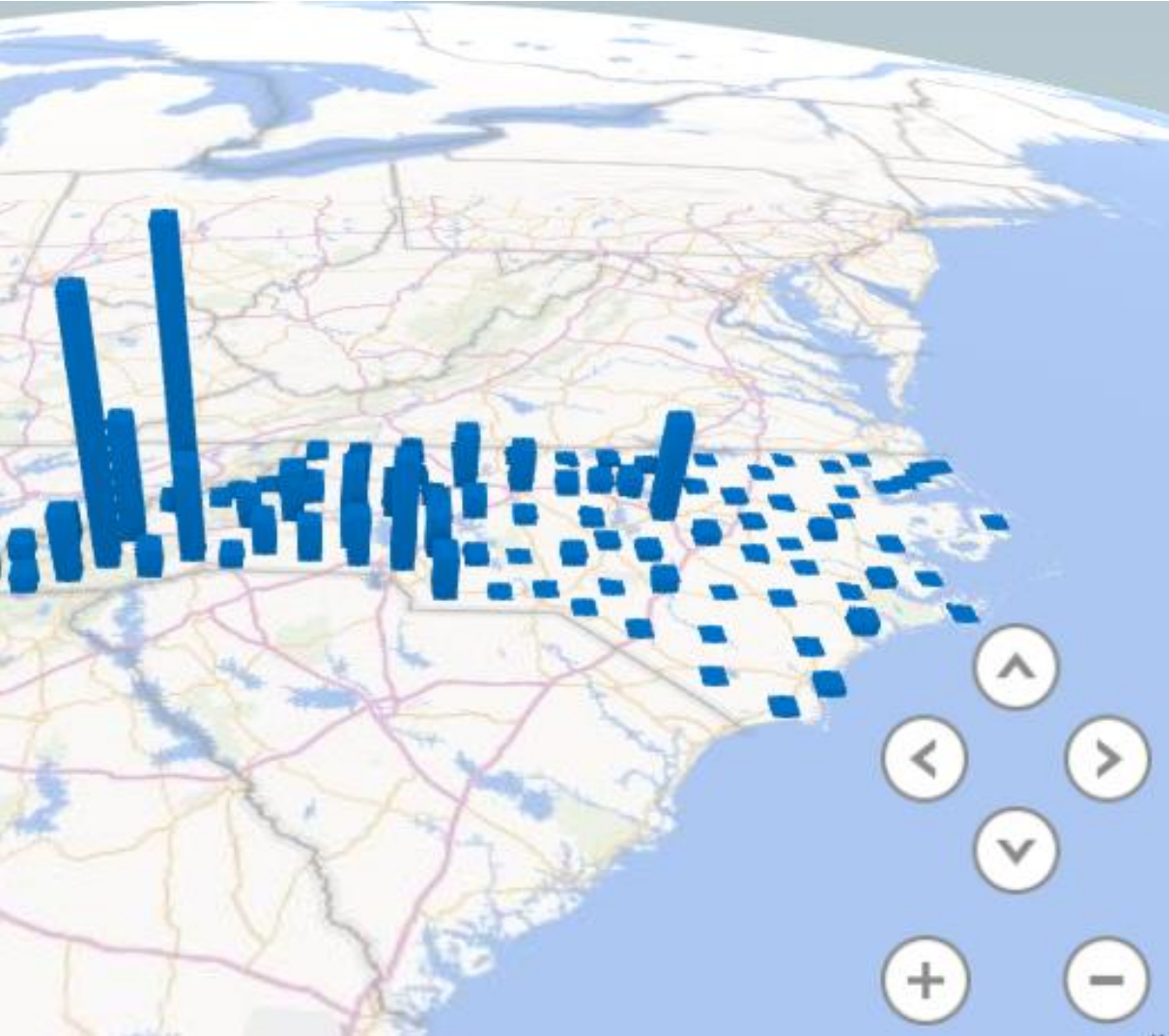
Column

HEIGHT

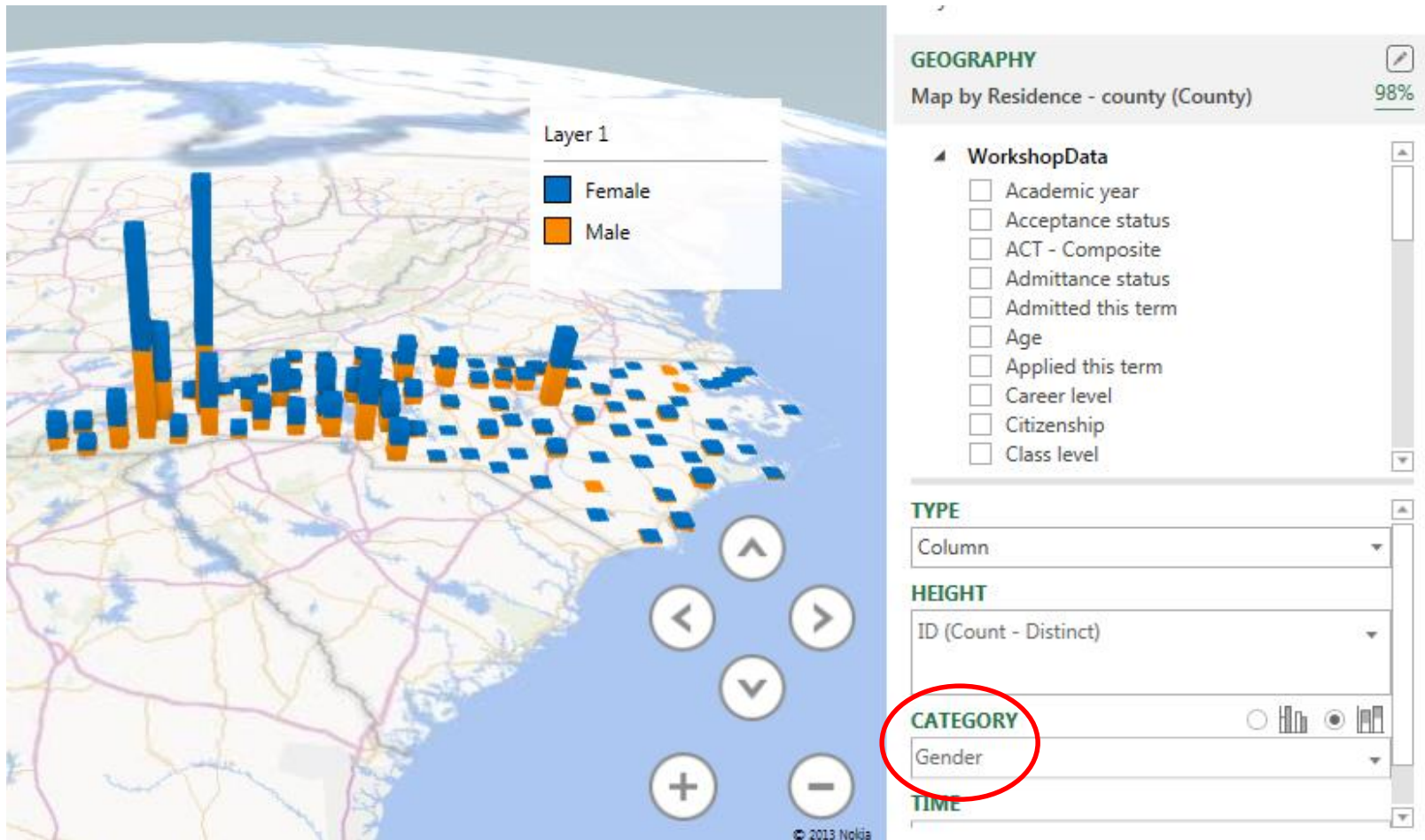
ID (Sum)



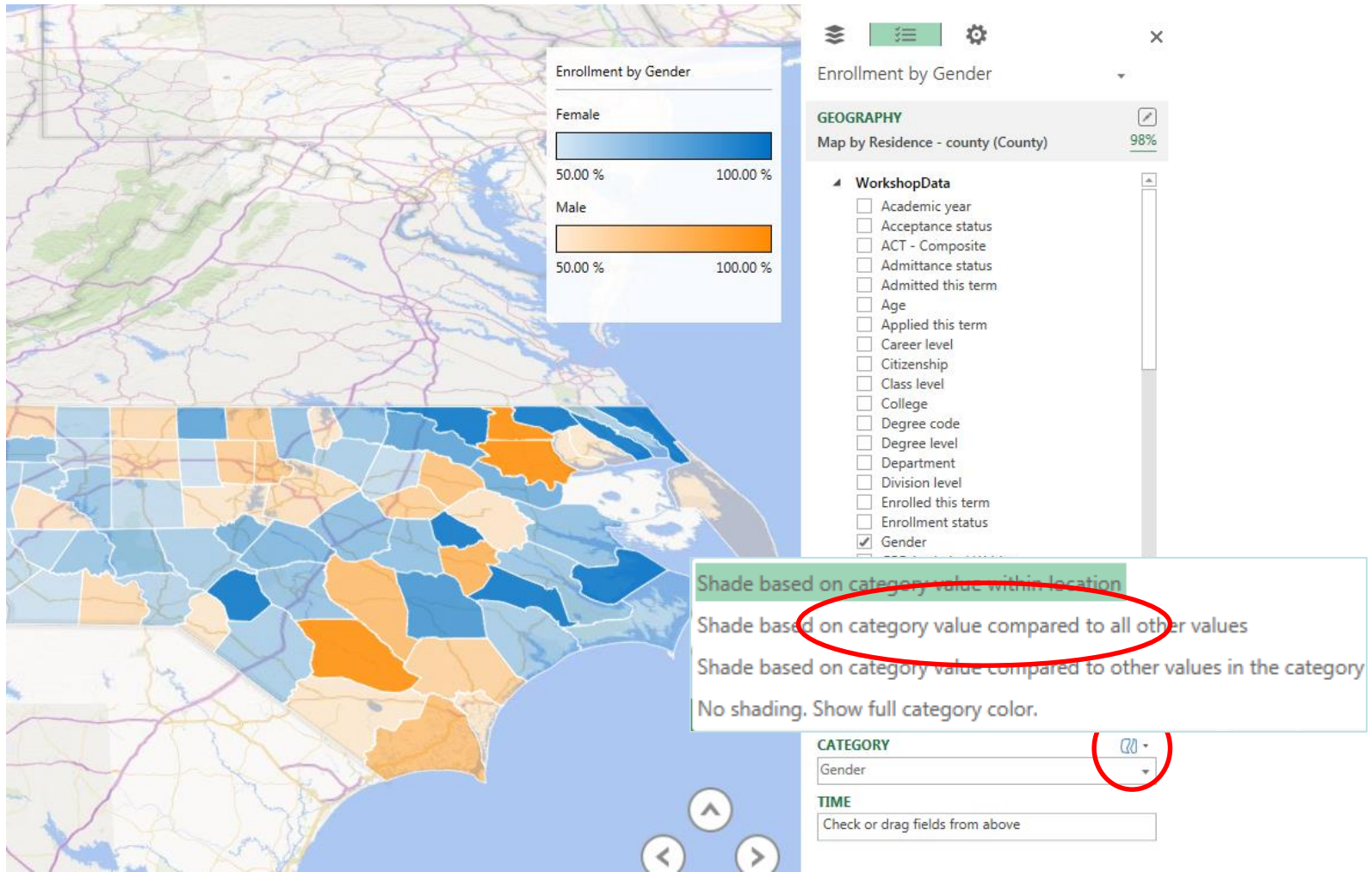
Displaying Data – Power Map



Displaying Data – Power Map



Displaying Data – Power Map



Displaying Data – Power View

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



Displaying Data – Power View

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

- Main Workspace:** Contains 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 diagram showing a data table on the left and a visualization on the right, connected by a double-headed arrow.
- Filters Pane:** Titled "Filters" with a "VIEW" section. It includes the instruction: "To filter the view, drag fields from the field list."
- Power View Fields Pane:** Titled "Power View Fields" with a close button. It shows "ACTIVE" and "ALL" tabs, a tree view containing "Map_data", and a section for "Drag fields between areas below:" with a "FIELDS" label and an empty input box.



Displaying Data – Power View

Power View Fields ×

ACTIVE | **ALL**

Map_data

- Academic year
- Acceptance status
- Σ ACT - Composite
- Admittance status
- Admitted this term
- Σ Age
- Applied this term
- Career level
- Citizenship
- Class level
- College
- Degree code
- Degree level
- Department
- Division level
- Enrolled this term



Displaying Data – Power View

The screenshot displays the Power View interface. On the left, a 'Filters' pane is visible with a list of counties under the 'Residence - county' filter. The 'Alamance' county is highlighted in blue. A red circle is drawn around the entire 'Filters' pane. On the right, the 'Power View Fields' pane is shown with a list of fields. The 'Residence - county' field is checked and circled in red. The 'ACTIVE' tab is selected, and the 'ALL' tab is also visible.

Filters

- Residence - county
- Alamance
- Alexander
- Alleghany
- Anson
- Ashe
- Avery
- Beaufort
- Bertie
- Bladen
- Brunswick
- Buncombe
- Burke
- Cabarrus

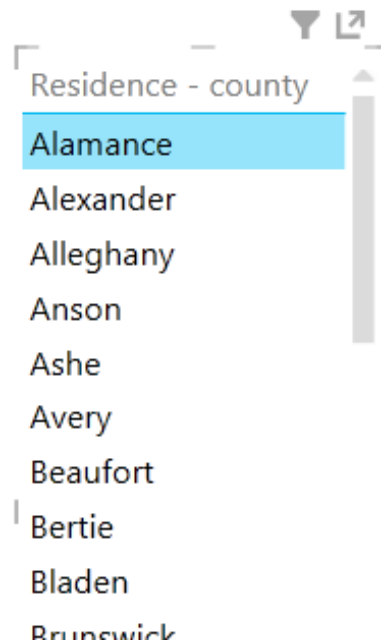
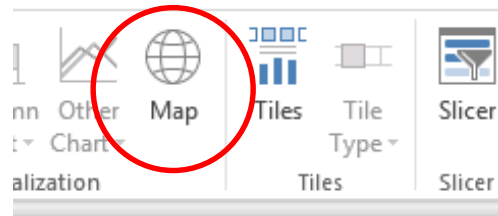
Power View Fields

ACTIVE | ALL

- Σ ID
- Σ Institutional cumulative GPA
- Is new student this term
- Is transfer student
- Program code
- Program name
- Race or ethnicity
- \oplus Residence - county
- \oplus Residence - county
- \oplus Residence - state
- Σ SAT - Critical reading
- Σ SAT - Math
- Semester
- Term
- Σ Total degree credit hours earned at institution
- Σ Transfer hours applied to degree
- Σ UG GPA



Displaying Data – Power View



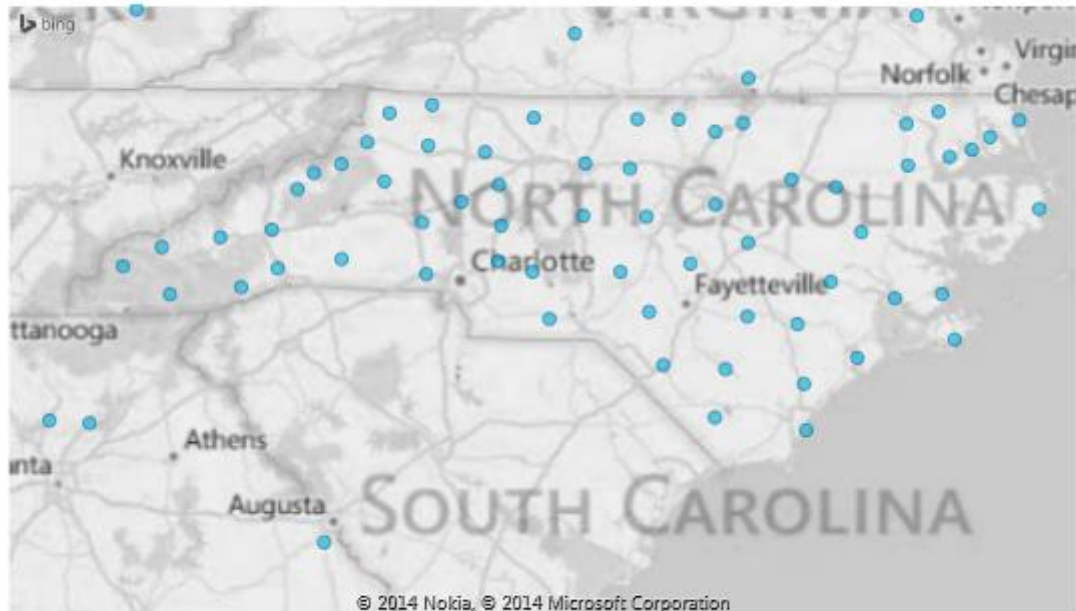
Displaying Data – Power View



Displaying Data – Power View

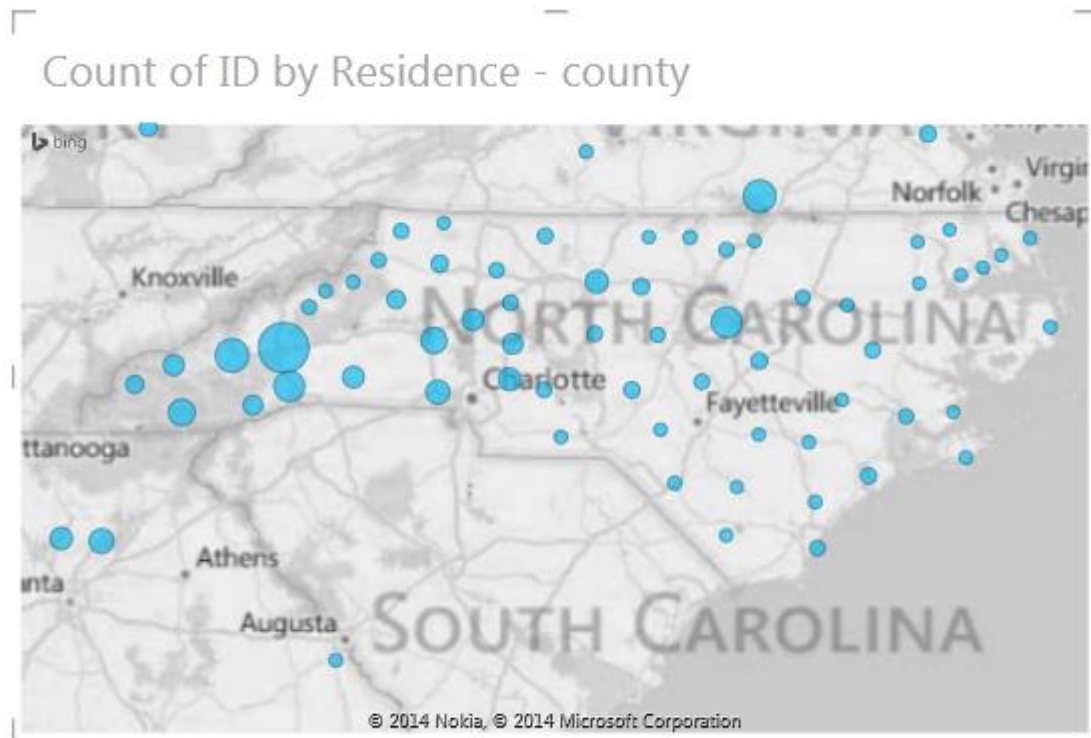
Zoom and reposition

Residence - county



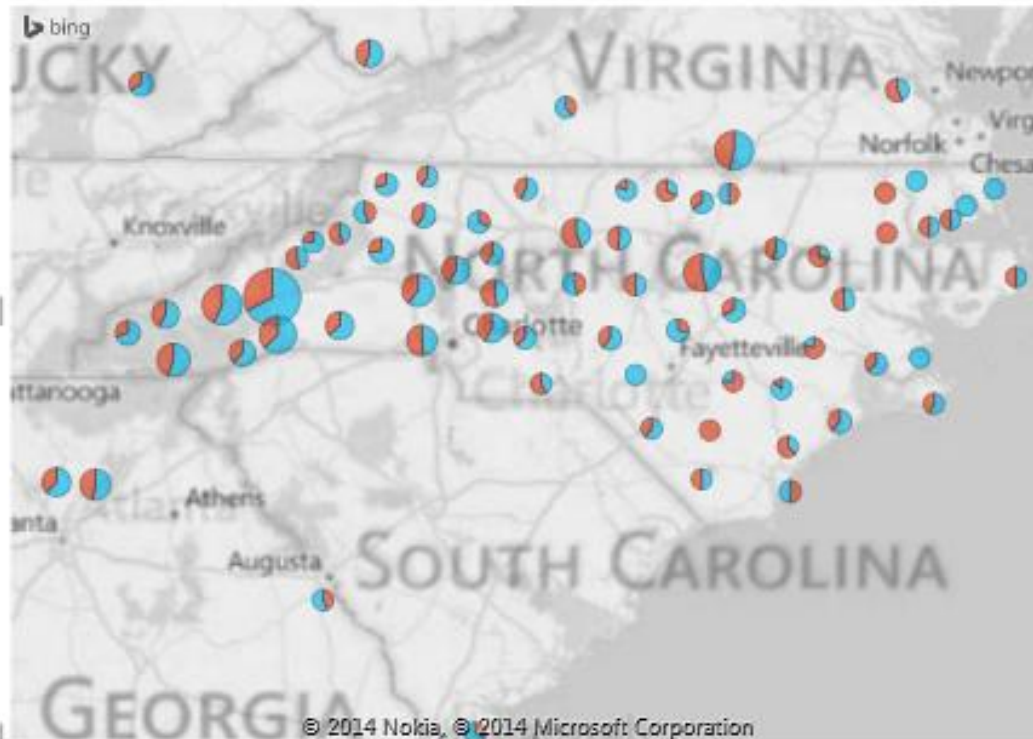
Displaying Data – Power View

Add magnitude to the map by selecting ID (count)



Displaying Data – Power View

Count of ID by Residence - county, and Gender



Gender
● Female
● Male

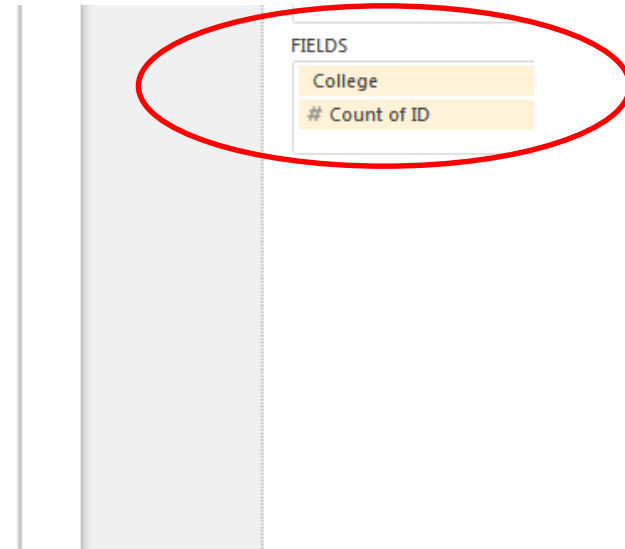
Displaying Data – Power View

- **Add new elements**
 - Click off of existing elements (so nothing is selected)
 - Choose new field from list
 - By default, listing
 - Add additional elements (i.e., ID Count) to construct a table



Displaying Data –Power View

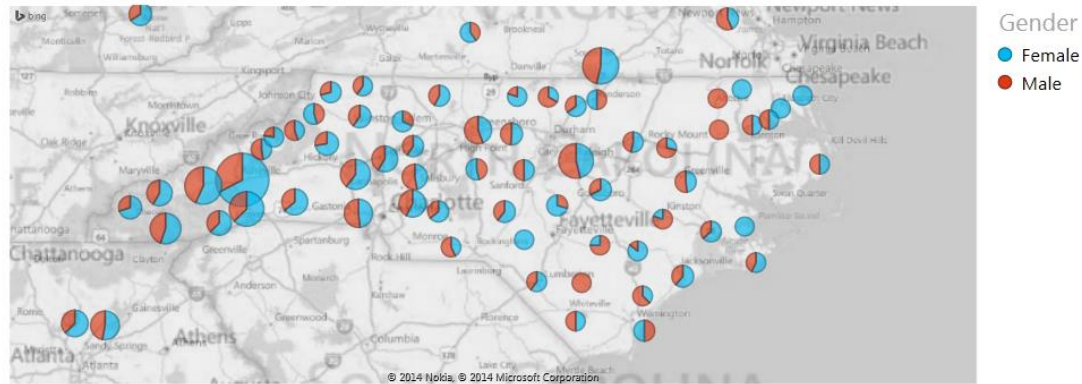
College	Count of ID
College of Information Studies	1,301
College of Journalism	516
College of Veterinary Medicine	3,061
No college	2,150
School of Architecture	1,783
School of Engineering	658
Total	5,332



Displaying Data – Power View

Enrollment by County

Count of ID by Residence - county, and Gender



Degree level ▲	Count of ID
Bachelors	5,156
Doctorate	15
Graduate	70
Masters	553
N/A	1
Undergraduate	128
Unknown	2
Total	5,332

College	Count of ID
College of Information Studies	1,301
College of Journalism	516
College of Veterinary Medicine	3,061
No college	2,150
School of Architecture	1,783
School of Engineering	658
Total	5,332

Is new student this term ▼	Count of ID
Yes	4,811
No	5,050
NA	763
Total	5,332



Displaying Data – Power View

Filters < X

VIEW | MAP

Academic year

(All)

Search...

<input type="checkbox"/> (All)	
<input type="checkbox"/> 2003-2004	1909
<input type="checkbox"/> 2004-2005	2280
<input type="checkbox"/> 2005-2006	3031
<input type="checkbox"/> 2006-2007	3364
<input type="checkbox"/> 2007-2008	3365
<input type="checkbox"/> 2008-2009	3852
<input type="checkbox"/> 2009-2010	4169
<input type="checkbox"/> 2010-2011	4076
<input type="checkbox"/> 2011-2012	4112
<input type="checkbox"/> 2012-2013	4016
<input type="checkbox"/> 2013-2014	1114

Program name

(All)

Search...

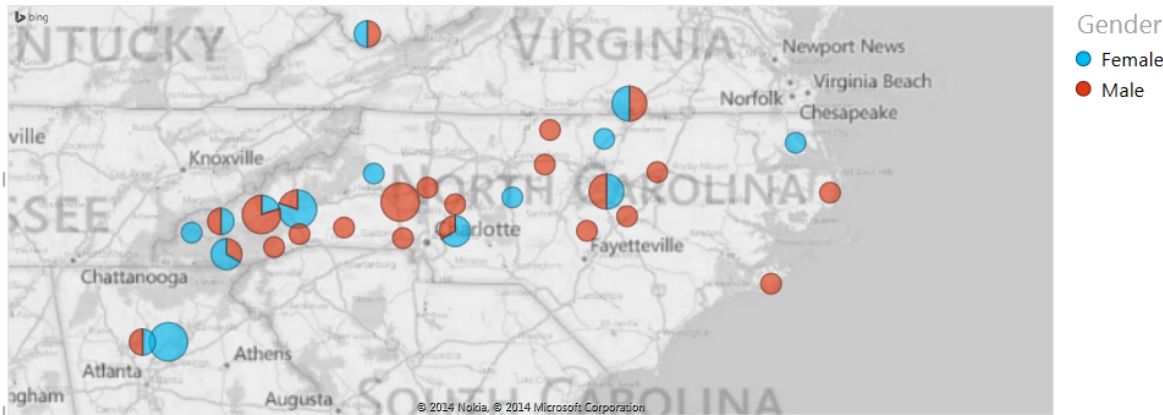
<input type="checkbox"/> (All)	
<input type="checkbox"/> Aerospace Engineering	2311
<input type="checkbox"/> Architecture	6744
<input type="checkbox"/> Biomedical Research	8899
<input type="checkbox"/> Ecosystem Health	1603
<input type="checkbox"/> Equine Health	2769
<input type="checkbox"/> Information Management	3702



Displaying Data – Power View

Enrollment by County

Count of ID by Residence - county, and Gender



Degree level	Count of ID
Bachelors	77
Masters	12
Total	89

College	Count of ID
College of Information Studies	55
College of Journalism	34
Total	89

Is new student this term	Count of ID
Yes	2
No	87
Total	89

Filters

VIEW | MAP

Academic year is 2013-2014

- Search...
- (All)
 - 2003-2004 227
 - 2004-2005 235
 - 2005-2006 310
 - 2006-2007 286
 - 2007-2008 285
 - 2008-2009 299
 - 2009-2010 285
 - 2010-2011 356
 - 2011-2012 361
 - 2012-2013 319
 - 2013-2014 89

Program name is Journalism or Library Science

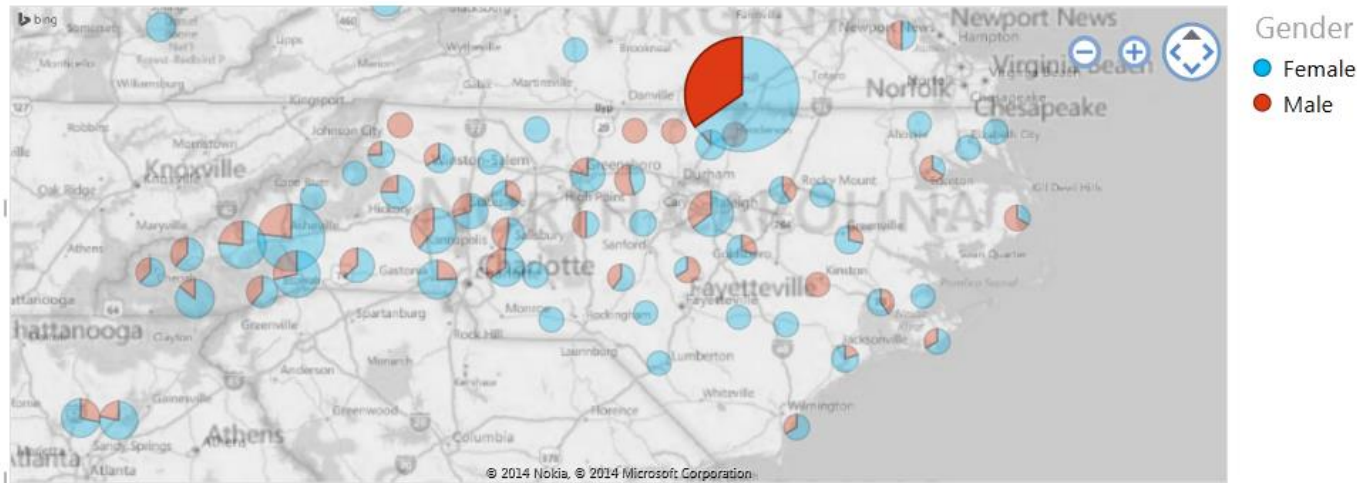
- Search...
- (All)
 - Aerospace Engineering 91
 - Architecture 161
 - Biomedical Research 460
 - Ecosystem Health 47
 - Equine Health 76
 - Information Management 100
 - Journalism 34
 - Landscape Architecture 20
 - Library Science 55
 - Undeclared 35
 - Veterinary Biosciences 35



Displaying Data – Power View

Enrollment by County

Count of ID by Residence - county, and Gender



Degree level ▲	Count of ID
Bachelors	18
Total	18

College	Count of ID
College of Information Studies	4
College of Veterinary Medicine	7
School of Architecture	5
School of Engineering	3
Total	18

Is new student this term ▼	Count of ID
No	18
Total	18



Questions



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/>)



Contact Information

Henson Sturgill, Technical Support Analyst
hdsturgill@wcu.edu

Tim Metz, Asst. Vice Chancellor of Inst. Planning & Effectiveness
tdmetz@wcu.edu

Alison Joseph, Business and Technology Applications Analyst
ajoseph@wcu.edu

Office of Institutional Planning and Effectiveness
oipe.wcu.edu, (828) 227-7239

With the help of David Onder, Elizabeth Snyder, and Billy Hutchings

