

# Getting Data Into Microsoft Access



Tracy Greer • NICAR 2017

*h/t to Goodwill Community Foundation ([gcflearnfree.org](http://gcflearnfree.org)) for the sample data set*

# Hi!

My name is Tracy

- Managing Editor at the NPR member station in Phoenix
- Digital Media Editor at station and *North County Times*
- Resourceful New Mexican
- No techno-snark!
- Ask me about roller derby

**a little bit of lecture  
then**

**a little bit of lab  
then**

**a little bit of lecture**

# What Is Microsoft Access?

Access is a database management system (dbms), often shortened to “database” or “database software.”

**A database is a collection of related tables**, and a database management system is the interface.

Same term ends up being used interchangeably for all parts.

# Why Use Microsoft Access?

- More muscle than Excel but more user-friendly than MySQL
- Want to generate individual records
- Have multiple data tables that need to work together
- Useful for quickly filtering/analyzing data in separate tables
- Can be browser-based or desktop-based
- May be the only database software your shop has!

# How To Access Access

- Used to be routine part of old Microsoft Office package.
- Microsoft stopped including Access with some of its Office 365 (cloud) and Office 2016 (desktop) Business packages. You can still get it with Office 365 (cloud) Home, Personal, University, and Office 2016 (desktop) Professional.
- In a newsroom, likely to have Access 2013, 2010, 2007 or 2003. May only be on a few computers.

# How To Access Access

Not available for Macs!

- FileMaker Pro, other database management software
- [Wizard, Access DB Manager](#), other compatible alternatives
- Run Parallels on a Mac, with Access installed on PC side

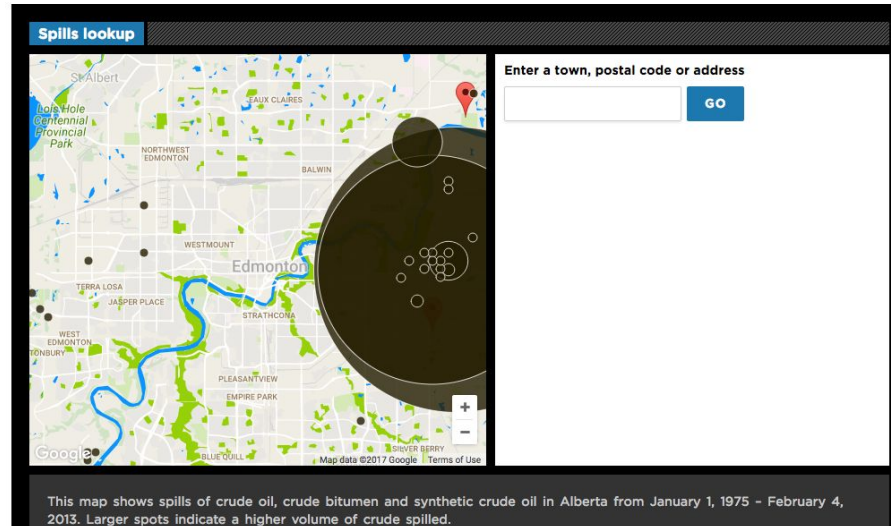
# **Project Examples**



## Crude Awakening: 37 years of oil spills in Alberta

### Oil in your backyard

You can find information on every spill of crude oil, crude bitumen and synthetic crude since 1975 in the map below, and search by location.



# Tampa Bay Times

## No Cash Left Behind: Public schools lose millions to crooks and cheaters

### MAKING MILLIONS

The top 20 tutoring companies doing business in Florida made at least \$1 million in the 2011-12 school year.

Provider	Location	Earnings (in millions)
I A. TUTOR U	Orlando	\$6.5
AFTER SCHOOL PROGRAMS INC.	Deerfield Beach	\$4.6
A. MARKEM INC.	Naples	\$3.5
SI2-SUPPLEMENTAL INSTRUCTIONAL SERVICES INC.	Estero	\$2.7
ACES TUTORING	Gotha	\$2.5
ATS PROJECT SUCCESS	Clinton Township, Mich.	\$1.7
FELC TUTORS	Miami Lakes	\$1.6
ALPHA ACADEMIC SERVICES INC.	Cooper City	\$1.6
A TO Z IN-HOME TUTORING, LLC	Fort Pierce	\$1.5
ROCKET LEARNING PARTNERS, LLC	Miami	\$1.5
ONE ON ONE LEARNING	Miami	\$1.5
A QUANTUM LEAP EDUCATIONAL SERVICES, LLC	Jacksonville	\$1.3
HILLSBOROUGH COUNTY PUBLIC SCHOOLS	Tampa	\$1.1
DEVELOPING OUR COMMUNITY INC.	Maitland	\$1.1
CLUB ZI IN-HOME TUTORING SERVICES INC.	Tampa	\$1
MANATEE STARS/ BRADEN RIVER ELEMENTARY	Bradenton	\$1
2-EXCEL LEARNING	Margate	\$1
BASIC LEARNING SKILLS INC.	Fort Myers	\$1
! "A.C.A.T."	Tampa	\$1
HUNTINGTON LEARNING CENTERS INC.	Oradell , N.J.	\$1

**Source:** Times research

Explore our [list of tutoring firms in Florida](#). and see which have had contracts terminated.

# Access Basics

# Access Basics



**Tables**

**Forms**

**Queries**

**Reports**

Access has four types of objects.

Think of your database like a folder of objects.

Your database can have multiple objects, and each can be created, modified, saved individually.

# Access Tables

Tables = lists of data

Multiple columns and rows (or records) in a single table

Multiple tables in a database

Employee Database Navigation								
Menu Items								
Customers								
ID	First Name	Last Name	Street Address	City	State	Zip Code	Email	
1	Tracey	Beckham	7 East Walker Dr.	Raleigh	NC	27612	beck@email.com	
2	Lucinda	George	789 Brewer St.	Cary	NC	27513	lugeo@email.com	
3	Jerrold	Smith	211 St. George Ave.	Raleigh	NC	27610	texj@email.com	
4	Brett	Newkirk	47 Hillsborough St.	Raleigh	NC	27608	newkb@email.com	
5	Chloe	Jones	23 Solo Ln.	Raleigh	NC	27609	lo@email.com	
6	Quinton	Boyd	4 Cypress Cr.	Durham	NC	27714	denqui@email.com	
7	Alex	Hinton	1011 Hodge Ln.	Cary	NC	27513	dhoda@email.com	
8	Nisha	Hall	123 Huntington St.	Raleigh	NC	27612	hall@email.com	
9	Hillary	Clayton	2516 Newman	Raleigh	NC	27606	mshill@email.com	
10	Kiara	Williams	9014 Miller Ln.	Durham	NC	27714	rogki@email.com	
11	Katy	Jones	456 Denver Rd.	Cary	NC	27513	yjonesk@email.com	

# Access Forms

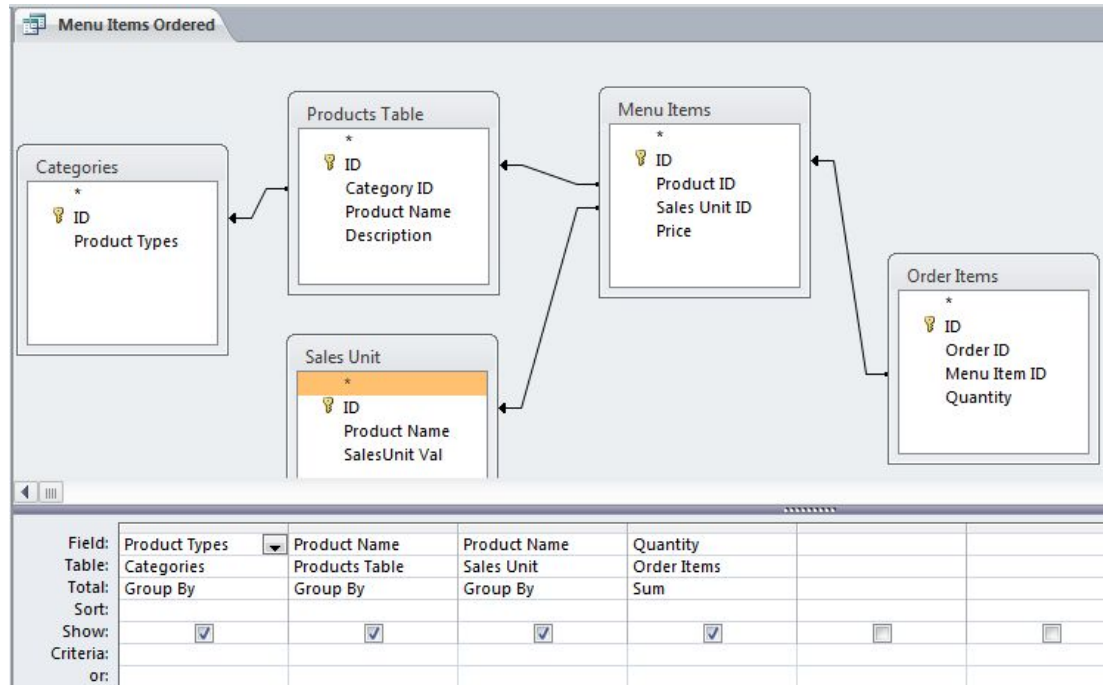
Forms are user-friendly ways to add data into tables

The screenshot shows an Access form titled 'Orders'. At the top is a 'New Order' button. Below it are fields for 'Customer' (Whitman), 'Order #' (5), and 'Pickup Date' (12/4/2013). There is a 'Notes' text area and checkboxes for 'Pre Order' and 'Paid' (checked). At the bottom is an 'Add Item' button and a table of items.

Category	Product	Quantity	"Unit"	Price	Subtotal
Cookies	Chocolate Chip	2	Single	\$1.50	\$3.00
Cookies	Fudge Brownie	1	Single	\$2.00	\$2.00
Cookies	Ginger Shortbread	1	Half-Dozen	\$10.50	\$10.50
Pastries	Brownies	1	One Dozen	\$19.00	\$19.00

# Access Queries

Queries = power! Quickly pull data from multiple tables.



# Access Reports

The pretty way to display or export query results.

Bakery Menu Report			
			
320 Glenwood Place, Raleigh, NC 27601   songbirdbakery@email.com   919-555-1624			
<b>Cookies</b>	Sugar	Soft, moist and simply delightful.	\$7.50
<b>Cookies</b>	Sugar	Soft, moist and simply delightful.	\$14.00
<b>Cookies</b>	Sugar	Soft, moist and simply delightful.	\$1.50
<b>Cookies</b>	Chocolate Chip	Overloaded with chocolate chips, and a little bit of cookie too.	\$7.50



**Queries and Reports?**

# **Getting Data Into Access**

# Getting Data Into Access Tables

Boo! Hiss!

But ...

## Manual Entry

It's important to understand where the data goes in the tables so you can learn to spot errors.

# Getting Data Into Access Tables

Import

Easiest way to get data into Access so you can create queries and reports.

Existing Files

Only certain file formats allowed!

Make sure the data is clean.

# **File Formats**

File Extension	File Type	Import into Access?
<b>.mdb</b> or <b>.accdb</b>	Microsoft Access	<b>Yes</b>
<b>.dbf</b>	database file	<b>Yes</b>
<b>.xls</b>	Microsoft Excel	<b>Yes</b>
<b>.csv</b>	comma-separated values	<b>Yes</b>
<b>.txt</b> or <b>.asc</b>	plain text files	<b>Conditional</b>
<b>.xml</b>	Extensible Markup Language	<b>Conditional</b>
<b>.html</b>	Hypertext Markup Language	<b>Conditional</b>
<b>.pdf</b>	Portable Document Format	<b>No</b>
<b>.doc</b>	Microsoft Word	<b>No</b>

# File Formats

A note about .txt, .asc, .xml, .html files ...

Must be really clean for import!

Works best when exported from another source.

Not so much when scraped from a web page or written as plain text. Get it into .csv or .xls for easy import.

# File Formats

## Scraped Source Code HTML

```
1 <!DOCTYPE html><html lang="en"><head><meta http-equiv="X-UA-Compatible" content="IE=edge"><script type="text/javascript">window.NREUM||(NREUM={});NREUM.U
2
3 currentUser = {};
4 UserLoggedIn = false;
5 source = "";
6 Tracking = {"lives":{"rid":"webyp-756255e5-4949-432f-acb0-502794ff33ad","ptid":"www.yellowpages.com","aid":"webyp","eid":"YPU","enc":1,"version":"10844",
7 YPFB = {"appId":"150853628282807";
8 YPFB = {"adsense":{"maps":{},"plus":{"clientId":"257161415943-pb2742146njskdt4pljocnq7as66.apps.googleusercontent.com"}};
9 YPU = {"googleJsApi":{"maps.googleapis.com/maps/api/js?channel=webcallback=YPU.initializeGoogleMaps&v=3.27&client=gme-yellowpagescomllc","geoLocation":
10 optimizely = optimizely || {}
11 optimizely.push(["customTag", "hugoPopTag", YPU.popTagOptimizely]);
12 </script><title>Restaurant Supply in Raleigh, North Carolina with Reviews - YP.com</title><meta name="charset" content="utf-8"><meta name="viewport" cont
13 </script><script>(function(G,o,o,g,L,e){G[g]<G[g]]function(){(G[g]['q']<G[g]]{[]}).push(
14 arguments),G[g]['t']<new Date;L<o.createElement(O),e<o.getElementsByTagName(
15 O)[0];L.async<1;L.src<"/www.google.com/adsense/search/async<ads.js";
16 e.parentNode.insertBefore(L,e)})();window,document,'script','_googleCs');</script><script>ValidationJSON = {};
17 </script><script>var gaq = _gaq || [];
18 gaq.push(['_setAccount', 'UA-9709876-1']);
19 gaq.push(['_trackPageview']);
20 (function(){
21 var ga = document.createElement('script');
22 ga.type = 'text/javascript'; ga.async = true;
23 ga.src = ('https:' == document.location.protocol ? 'https://ssl' : 'http://www') + '.google-analytics.com/ga.js';
24 var s = document.getElementsByTagName('script')[0]; s.parentNode.insertBefore(ga, s);
25 })(/script><script type="text/javascript" src="http://c.amazon-adsystem.com/amzn<ads.js"></script><script type="text/javascript">try {
26 amznads.getAds('3111');
27 } catch(e) { /*ignore*/ }</script><script> Tracking, currentUser, UserLoggedIn, YPU are all in base.jade
28 YPFB = {"appId":"150853628282807";
29 var utilWidgetHost = "http://util.yellowpages.com"
30 TripAdvisor = {};
31 if (typeof newRelic !== 'undefined') {
32 newRelic.setPageViewName('/srp');
33 }
34 </script></head><body><script> Begin comScore Tag
35 var comscore = comscore || [];
36 comscore.push(['cl12', c2:6035991, c3:"", c4:"", c5:"", c6:"", c15:""]);
37 (function() {
38 var s = document.createElement("script"), el = document.getElementsByTagName("script")[0]; s.async = true;
39 s.src = (document.location.protocol == "https:" ? "https://sb" : "http://b") + ".scorecardresearch.com/beacon.js";
40 el.parentNode.insertBefore(s, el);
41 })();
42 // End comScore Tag
43 </script><script><script><h3 class="n">8. <sup>8</sup><a href="/raleigh-nc/mip/used-restaurant-equipment-decor-469333987?id=469333987" data-ana
47 data-original="http://i4.yepdn.com/blob/861db08a526c31464284902bb1f9873131d5_50x50_crop.jpg?59864"
48 class="no-tracks lazy"><script><h3 class="n">9. <sup>9</sup><a href="/raleigh-nc/mip/jr-sales-corp-80389957?id=80389957" data-analytics="{<target:<nam
50 data-original="http://i4.yepdn.com/blob/5a91196d8db855afaa006de840c5abb594596a9_50x50_crop.jpg?59864"
51 class="no-tracks lazy"><script><h3 class="n">10. <sup>10</sup><a href="/raleigh-nc/mip/edward-don-co-465334173?id=465334173" data-analytics="{<target:<
53 data-original="http://i4.yepdn.com/blob/98f68a789e435ab8dc3dd965a7366964eaf1156d_50x50_crop.jpg?59864"
54 class="no-tracks lazy"><script><h3 class="n">14. <sup>14</sup><a href="/nationwide/min/upsolve-breadcrumb-point-of-sale-5333124247?id=1001672386289" da
```

## Clean HTML

```
1 <!DOCTYPE html>
2 <html>
3 <body>
4 <table id="example" class="display nowrap" width="100%" cellpadding="0">
5 <thead>
6 <tr>
7 <th>Name</th>
8 <th>Address</th>
9 <th>City/State/Zip</th>
10 <th>Phone</th>
11 </tr>
12 </thead>
13
14 <tbody>
15 <tr>
16 <td>PFS Sales Co</td>
17 <td>4701 Beryl Rd</td>
18 <td>Raleigh, NC 27606</td>
19 <td>(919) 829-1116</td>
20 </tr>
21 <tr><td>National Food Equipment Services LLC</td>
22 <td>Local locations</td>
23 <td>Raleigh, NC 27604</td>
24 <td>(800) 558-0504</td>
25 </tr>
26 <tr><td>United Restaurant Equipment Co</td>
27 <td>2654 S Saunders St</td>
28 <td>Raleigh, NC 27603</td>
29 <td>(919) 832-4546</td>
30 </tr>
31 <tr><td>K&S Restaurant Supply</td>
32 <td>3800 Tryon Rd</td>
33 <td>Raleigh, NC 27606</td>
34 <td>(919) 828-3388</td>
35 </tr>
36 <tr><td>Georgia's Restaurant Equipment Inc</td>
37 <td>Local locations</td>
38 <td>Raleigh, NC 27603</td>
39 <td>(919) 796-8448</td>
40 </tr>
41 <tr><td>Hobart Service</td>
42 <td>3200 Lake Woodard Dr Ste 100</td>
43 <td>Raleigh, NC 27604</td>
44 <td>(919) 255-3561</td>
45 </tr>
46 <tr><td>Restaurant Equipment</td>
47 <td>3800 Tryon Rd</td>
48 <td>Raleigh, NC 27606</td>
49 <td>(919) 828-3488</td>
50 </tr>
```



# File Formats

## Plain Text as you write

```
Cookie Recipes Plain Text.txt
Chocolate Chip Cookies
Yield 5 dozen
1 cup sugar
1/2 cup brown sugar firmly packed
1 cup shortening
1 teaspoon vanilla
2 large eggs
2 1/4 cups flour
1 teaspoon baking soda
1 teaspoon salt
1 (12 ounce) package chocolate chips
Preheat oven to 375°.
In a mixing bowl, cream together the first five ingredients.
After creaming the first five ingredients add the last four and make
sure everything is mixed together well.
Drop by tablespoonfuls on to cookie sheets and bake for 9-10 minutes.
For M&M cookies: Replace chocolate chips with M&M plain baking bits.

Sugar Cookies
Yield 2 dozen
2 large eggs
2/3 cup vegetable oil
2 teaspoons vanilla
3/4 cup white sugar
2 cups flour
2 teaspoons baking powder
1/2 teaspoon salt
Beat together eggs, oil, vanilla and sugar; add flour, baking powder
and salt and mix well.
Drop by heaping teaspoon approx 3" apart on an ungreased cookie sheet.
Flatten with bottom of glass moistened with water and dipped in sugar.
Bake at 400°F for 6-10 minutes or just until lightly golden.
```

## Plain Text for import

```
December Orders Plain Text.txt
"Cakes", "Black Forest", "Single", 8.00, 1, 8.00
"Cakes", "Black Walnut", "Single", 5.00, 1, 5.00
"Cakes", "Bûche de Noel (Christmas Cake)- Winter", "Single",
12.00, 1, 12.00
"Cakes", "Carrot Cake", "Single", 8.00, 1, 8.00
"Cakes", "Cheesecake", "Single", 18.00, 1, 18.00
"Cakes", "Coconut", "Single", 2.00, 1, 2.00
"Cakes", "Cookies n' Cream", "Single", 1.00, 1, 1.00
"Cakes", "French Vanilla", "Single", 1.00, 1, 1.00
"Cakes", "Fudge Chocolate", "Single", 6.00, 1, 6.00
"Cakes", "German Chocolate", "Single", 2.00, 1, 2.00
"Cakes", "Gingerbread - Winter", "Single", 4.00, 1, 4.00
"Cakes", "Italian Rum", "Single", 4.00, 1, 4.00
"Cakes", "Red Velvet", "Single", 1.00, 1, 1.00
"Cookies", "Butter Pecan", "One Dozen", 1.00, 12, 12.00
"Cookies", "Butter Pecan", "Single", 1.00, 1, 1.00
"Cookies", "Butterscotch", "Single", 3.00, 1, 3.00
"Cookies", "Chocolate Banana Walnut", "One Dozen", 1.00, 12, 12.00
"Cookies", "Chocolate Banana Walnut", "Single", 1.00, 1, 1.00
"Cookies", "Chocolate Chip", "Half-Dozen", 1.00, 6, 6.00
"Cookies", "Chocolate Chip", "One Dozen", 2.00, 12, 24.00
"Cookies", "Chocolate Chip", "Single", 5.00, 1, 5.00
"Cookies", "Cranberry Walnut", "One Dozen", 3.00, 12, 36.00
"Cookies", "Fudge Brownie", "One Dozen", 7.00, 12, 84.00
"Cookies", "Fudge Brownie", "Single", 3.00, 1, 3.00
"Cookies", "Ginger Shortbread", "Half-Dozen", 1.00, 6, 6.00
"Cookies", "Ginger Shortbread", "One Dozen", 5.00, 12, 60.00
"Cookies", "Oatmeal Raisin", "One Dozen", 1.00, 12, 12.00
"Cookies", "Peanut Butter", "Half-Dozen", 1.00, 6, 6.00
"Cookies", "Snickerdoodle", "One Dozen", 1.00, 12, 12.00
"Cookies", "Snickerdoodle", "Single", 3.00, 1, 3.00
"Cookies", "White Chocolate Macademia Nut", "Half-Dozen", 3.00, 6, 18.00
"Cookies", "White Chocolate Macademia Nut", "One Dozen", 2.00, 12, 24.00
"Cookies", "White Chocolate Macademia Nut", "Single", 3.00, 1, 3.00
```

# Sample Data

# Pre-Existing Database

Fictional business owner database for a bakery tracking orders, customers, products, etc.

File: **Songbird\_Bakery.accdb**

Access > File > Open > Songbird\_Bakery.accdb

Should see a variety of objects (tables, forms, queries, reports)

# Let's Add More Tables!

- Discounts Excel.xlsx

*Open Cookbooks XML.xml in Notepad*

- Cookbooks XML.xml

# Using The Wizard

- Data Type - property that determines what type of info a field will store and display
- Primary Key - unique identifier for each record
- Save Your Steps - import macro

# **Adding Data To Existing Tables**

# Adding Data To Existing Tables

Three ways to do this:

- Manually entering new records
- Importing a file into existing table
- Creating a form tied to existing table

## Adding: Manually Enter

Open Table (sample: **Discounts**), OK to be in Datasheets View

Skip to last record using tools at bottom of table

Complete all fields:

ID: *automatically generates*

Discount Type: Brownie Lovers Club

Discount Amount: \$2.50

Discount Description: Buy five brownies, get the sixth free



# Adding: Import To Existing Table

Go to:

<https://github.com/tracygreer/Access>

Click on:

Customers To Add.xlsx

Click “download”

# Adding: Import To Existing Table

Is data clean, do fields line up?

External Data > Import Excel

Browse for file in Wizard

Select table to append records to

Run the Wizard

Double-check your new records in table

# Adding: Create A Form

A user-friendly interface to add content to an existing table

Create > Form Wizard

Choose target table, then select fields to enter

Choose layout style and give form a title

Choose “modify form design”

# Adding: Create A Form

In Design View select Design Tab

Choose Button and draw it on the layout

Choose Record Operations > Add New Record

Choose Text > give button a name

Repeat with Record Operations > Save Record

Back to Form View for data entry

# **Tables Made From Scratch**

# Tables Made From Scratch

Create > Table > Design View

Open **Employees - Manual Entry.txt** in Notepad

Set fields and field type and save

Switch to Datasheet View

Manually enter content

# **Database Made From Scratch**

# Database Made From Scratch

What if you have external files (.xls, .csv, .xml, etc.) but no database to add them to?

Access Home > New > Blank Access Database

Import all files related to the project to create tables

Save the database as a .accdb or .mdb file



**Bad Data**

# When Good Data Goes Bad

- Not all data is ready to be used!
- Know what you're looking for so you can spot abnormalities and troubleshoot
- Example: CDC Youth Risk Behavior Survey  
<http://tinyurl.com/bad-data-2017>

# When Good Data Goes Bad

SADCQN																
site	year	weight	stratum	PSU	record	age	sex	grade	race4	race7	bmipct	q67	qn8	qn9	qn10	qn1
AL	1991	59.277	1	1	7	5			1	6					2	
AL	1991	63.5552	15	1	8		2	4	2	3			1	1	1	
AL	1991	54.4759	5	1	9		2	4	2	3				1	1	
AL	1991	73.9484	12	1	10	1	2	3	2	3			2	2	2	
AL	1991	78.2424	8	2	11	2	2	2	2	3				2	1	
AL	1991	56.4935	3	1	12	2	2	4	4				1	1	2	
AL	1991	98.1638	8	2	1								1	2	1	
AL	1991	69.1663	15	2	2	1		2	4				1	2	1	
AL	1991	80.3232	15	1	3	2		3	1	6			2	1	1	
AL	1991	66.5061	20	2	4	4		2	1	6			1	2	1	
AL	1991	89.3992	5	1	5	5		1	1	6			1	2	2	
AL	1991	63.1244	1	1	6	5			2	3			2		1	
AL	1991	141.3714	13	1	15	3	2	1	1	6			1	2	2	
AL	1991	105.206	3	1	16	3	2	1	2	3			1	2	1	
AL	1991	127.6129	11	1	17	3	2	1	1	6				2	1	
AL	1991	127.1775	20	1	18	3	2	1	1	6			1	1	2	
AL	1991	121.1215	5	2	19	3	2	1	1	6			1	1	2	
AL	1991	141.3714	13	1	20	3	2	1	2	3			1	2	2	
AL	1991	86.6484	5	1	21	3	2	1	2	3			1	2	2	
AL	1991	90.3925	8	2	22	3	2	1	1	6				1	2	
AL	1991	82.4302	4	2	23	3	2	1	1	6			1	1		

# When Good Data Goes Bad

- Limited to two tables (forms? queries? reports?)
  - Table columns didn't have headers
  - Not sure what we're looking at!
- 
- Fixes: match columns with data key and rename
  - Fixes: create own queries, reports

**Questions?**