

Maps and Google Fusion Tables

Version 3 — November 2013

Based on John Keefe's "Intro to Data Viz" workshop, Sept. 20, 2012: <http://bit.ly/RtNvYG>

Basic concept: Pins on a map

Mad Men map, WNYC radio, New York:

<http://wny.cc/XSVZwn>

Have a look at the map.

Exercise

Create a new, blank Fusion Table:

<http://drive.google.com/>

1. Create > Fusion Table (if you don't see *Fusion Table*: click "Connect more apps")
2. Create empty table (just wait)
Gives you four sample columns. You can have many more, or many fewer. And we only want two of these, anyway. So ignore Date and Number.
3. Now let's add info:
Edit > Add row
Type "This is where I work" in the Text box.
Type an address, such as "123 N. Main St., Gainesville, FL 32601" in Location.
That's exactly how WNYC made the *Mad Men* map, according to John Keefe.
4. Add about three new rows, each with a different address, all in one city.

Changing how stuff looks: "Map of Location" tab

Click the tab (Map of Location). Wait for geocoding.

Change the map icons:

Click the Map of Location tab (again), to get menu, then click "Change map styles."
You will see what to do to get a different marker. More on this later.

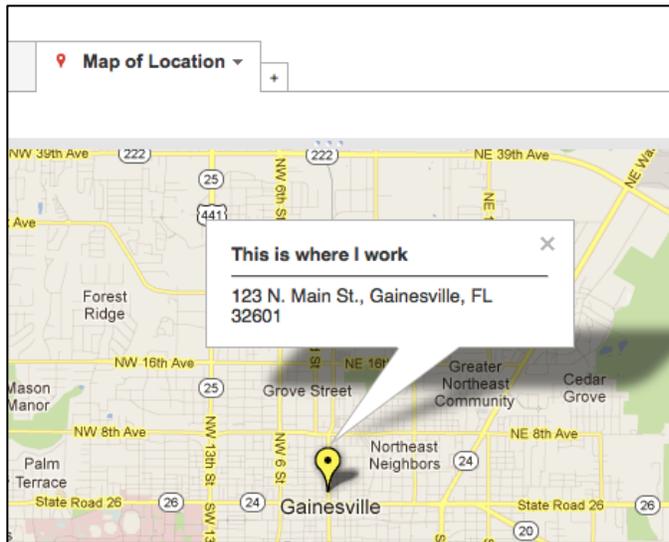
Change the style of the info boxes:

Click the "Map of Location" tab, to get menu, then click "Change info window layout."
Click **Custom** tab.

Make changes like this (yes, with HTML and CSS) — *do NOT change red parts*:

```
<div class='googft-info-window' style='font-family: sans-serif'>  
<b>{Text}</b><br>  
<hr>  
{Location}  
</div>
```

Save info window layout when finished.



If you mess it up, it's because you don't know HTML and CSS. But don't feel sad; this is really simple. You can look up how to change these little things with HTML very easily.

Make a map fast, from existing spreadsheet

(Use Google spreadsheets or Excel, either way.)

Get the data into a spreadsheet. Either type it, or paste it, or gather data in a Google Form, whatever. Then:

1. Save the spreadsheet as CSV (this is *necessary*, even if it is a Google spreadsheet!)
2. In Google Drive: Create > Fusion Table
3. Import new table > From this computer [Choose File]
4. Browse, find that CSV file on your computer, then > Next. Next. Finish.

Use this one (open link, then **File** menu > **Download as** > **Comma Separated Values .csv**):

<http://bit.ly/Pjd8gp>

Always make sure you have ONE column that **includes the complete address** — Zip code and everything — and *use that column to spawn the map*. (Not separate columns for Zip code, state, etc.—Fusion Tables needs the address all in one cell.) If you have the right kind of address, Fusion Tables will make that column yellow:

Alachua County Schools

Fla. Dept. of Ed.

File Edit Tools Help

Rows 1 Cards 1 Map of Merged...

Filter No filters applied

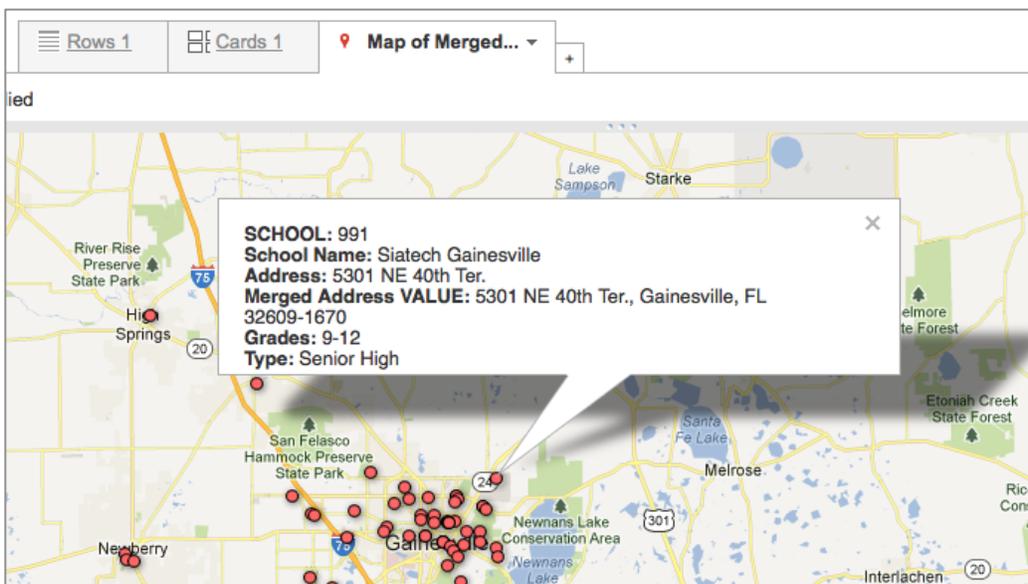
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SCHOOL	School Name	Address	Merged Address VALUE	Grades	Type
221	A. L. Mebane Middle School	16401 NW 140th St.	16401 NW 140th St., Alachua, FL 32615-4422	6-8	Middle/Junior
52	A.Quinn Jones/Excep.Stu	1108 NW 7th Ave.	1108 NW 7th Ave., Gainesville, FL 32601-4949	K-12	Combination Elementary & Secondary
112	Abraham Lincoln Middle	1001 SE 12th St.	1001 SE 12th St., Gainesville, FL 32604-8484	6-8	Middle/Junior

(These data came from the Florida DOE: <http://bit.ly/VBk46W>)

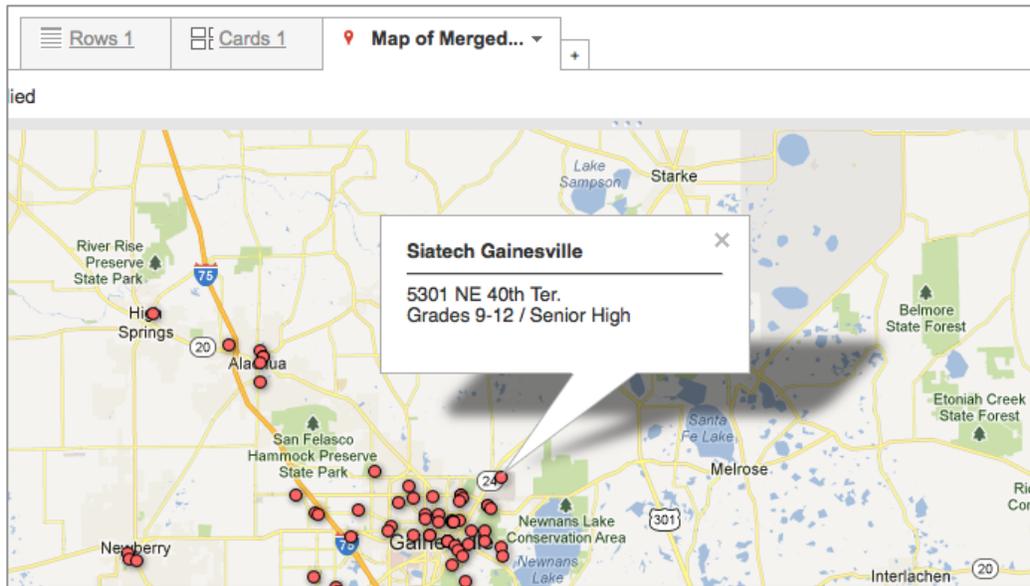
Now, go to your “Map of” tab ... wait for geocoding. *This will take longer!*

Warning about automatic geocoding in Fusion Tables: If you do this with a LARGE dataset, you must use another method to geocode the addresses. Google has **limits** on how many locations one IP address can geocode per day.



Remember how to change the ugly info window? (Go back to page 1.)

Make your info window look *nice*, like the one below:



Icon options: How to customize map markers

We have different kinds of schools, yes? So why not make different map markers for each type?

1. Click the “Map of ...” tab, to get menu, then click “Change map styles.”
2. Click “Column” tab.
3. Click the button at “Use icon ...” and then use the menu to **choose the column that has icon names** in it. (Naturally this will not work if you did not make a column containing icon names. You must make this yourself.)

Where to find the custom icon names:

Choose custom icons, add their names in one column to your spreadsheet:

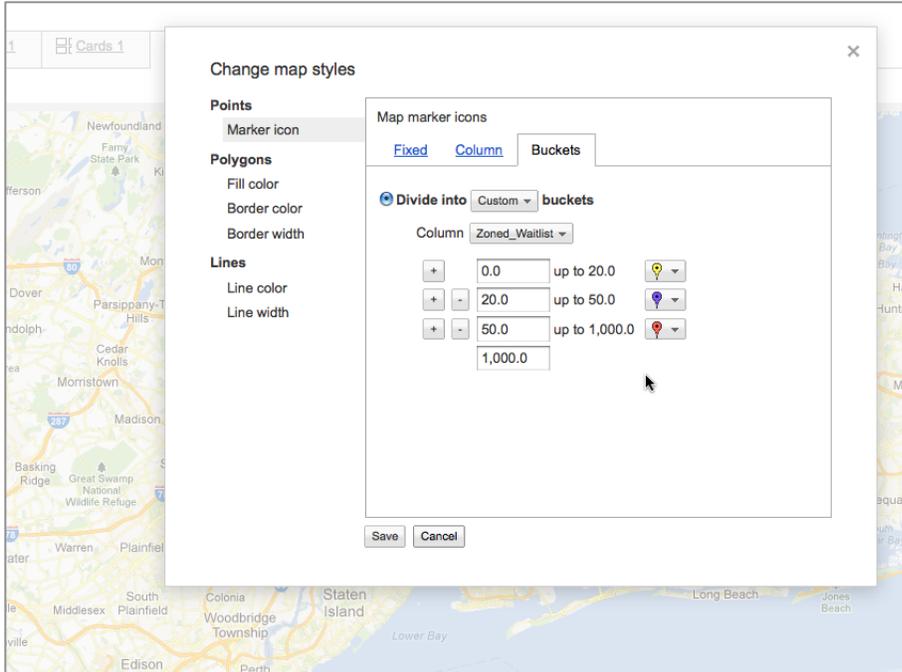
<http://bit.ly/V4QJWL>

From:

<http://support.google.com/fusiontables/answer/2679986/?hl=en&>

Buckets: Another way to customize map markers

1. Click the “Map of ...” tab, to get menu, then click “Change map styles.”
2. Click “Buckets” tab.
3. Click the button at “Divide into ...” but don’t change the number. Instead ...
4. Choose a column that is numeric (buckets *only work with numbers*). No numeric columns? Then *this won’t work* for your data. (**We will use buckets later.**)



Keefe used the **buckets** method on the New York City school waiting list map:
<http://wny.cc/SuJJQj>

You'll notice there is a beautiful **legend** on that map, explaining the colors of the markers. See: <https://support.google.com/fusiontables/answer/185991>

Zip codes, district shapes, and data

Keefe and WNYC made a big online project about 2012 mayoral candidates in New York (now offline). He used this site to get campaign contribution data:
<http://www.nyccfb.info/>

This is the complete data for one candidate, **John Liu**:
<http://bit.ly/W5zstF>

From *that huge file*, Keefe simplified the data to three columns: Zip, Amount, and Count. His simplified file (open link, *then* **File** menu > **Download as** > **Comma Separated Values .csv**):

<http://bit.ly/UP7ota>

Create a new **Fusion Table** with that fresh CSV:

1. In Google Drive: Create > Fusion Table
2. Import new table > From this computer [Choose File]
3. Browse, find that CSV file on your computer, then > Next. Next. Finish.
4. **Hold onto this until page 7.** Don't do anything to it until then.

Shape files (for counties, etc.) come from the U.S. Census Bureau: <http://1.usa.gov/TS0jpY>

Codes that create shapes on maps:

Need to convert: **SHP to KML** (those are two file types or formats)

You can convert them at <http://shpescape.com/>

Or at <http://cartodb.com/>

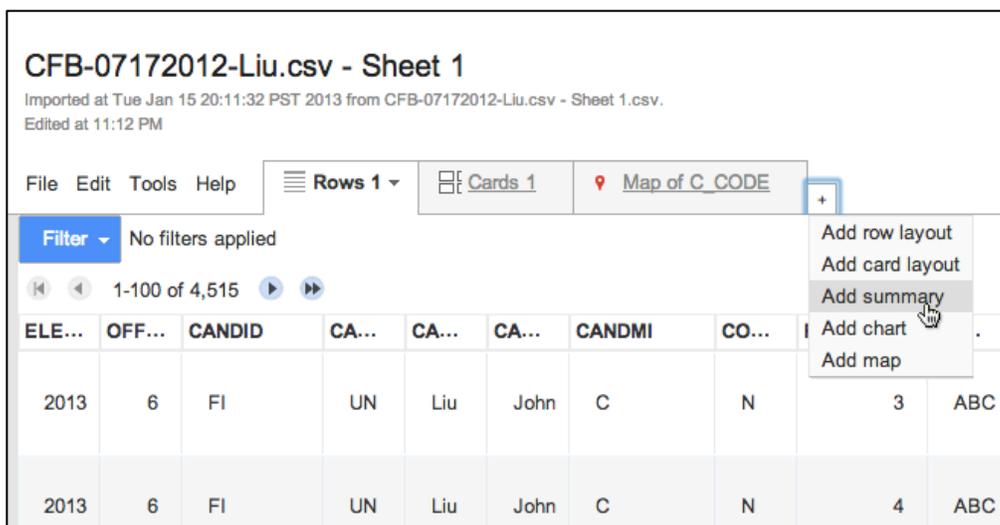
Since Keefe uses NYC Zip codes *often*, in his maps for WNYC radio, **he has already done the work**. It is here (later, you will need to *copy the long, long URL*):

<http://bit.ly/TTsiLY>

So for any other state (for your own work), you **download the SHP file**, and you **run it through the converter**, and then you get a crazy file like John’s — and THEN you can just map that. You make it once, and you use *the same file* forever after that.

This next part is **stuff Keefe already did** (producing the simplified CSV file you have already downloaded). For possible future reference, here is how he combined all contributions in one Zip code into a single row (**don’t do this**; skip to page 7 and “Merging the summary and the SHP/KML shape data”):

Add Summary: This is on a menu that hangs on the rightmost edge of the tabs.

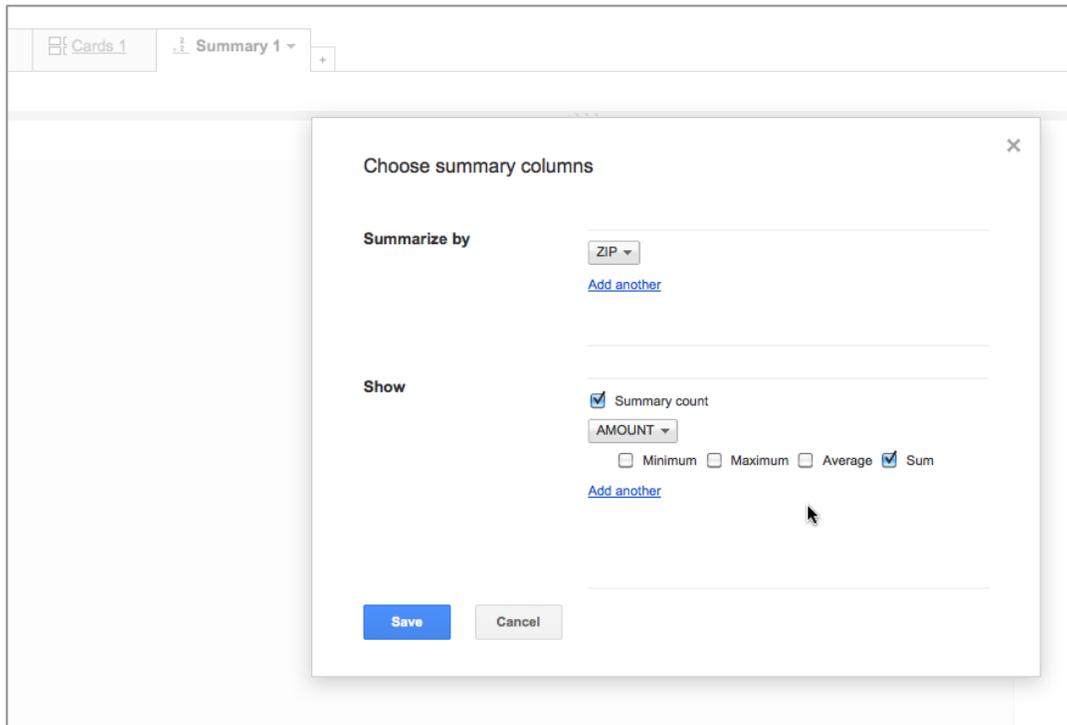


What it will do: Create **a SUMMARY column** that adds all the money (sum) for each Zip code.

See image, next page:

ZIP
AMOUNT
(check) Sum

This will total all the contributions in ONE Zip code, for EACH Zip code.



After you save, you will have to do a bunch of steps. They are here: <http://support.google.com/fusiontables/answer/2530693/?hl=en&>
But remember, you're *not doing this* for this exercise!

Merging the summary and the SHP/KML shape data

Okay, ready? You have your **Fusion Table** named "**Liu contribs aggregated,**" yes?

Now is the time to copy *the long, long URL* containing the shape file data.

Open this link and get that URL: <http://bit.ly/TTsiLY>

1. **File** menu > Merge (this is in your NEW table, with *summary* in its name)
2. Merge: Select a table > paste that long URL at the bottom, where you see this tiny text: *Or paste a web address here:*
3. Click Next
4. Merge: Confirm source of match > one side says **ZIP** and the other side says **geometry** (this is the SHP/KML stuff)
5. **Change geometry to ZCTA5CE10** (it's a menu; we're choosing Zip codes)
6. Click Next.
7. *Don't change anything.*
8. Click Merge.
9. Merged table created > View table

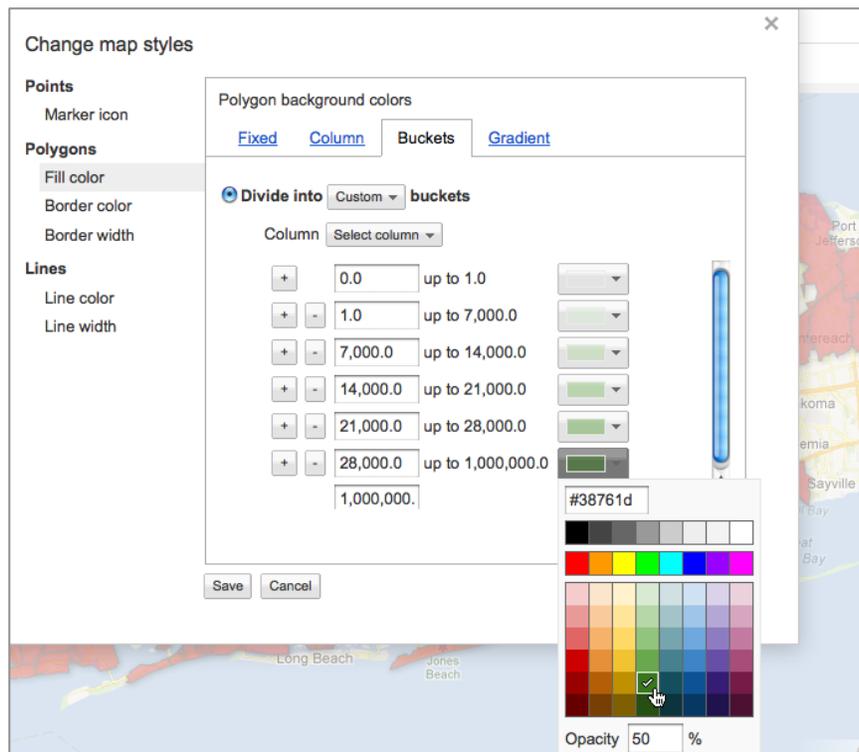
Wait for a while. When the table appears, click the “Map of ...” tab. Zoom in on New York.

Changing the colors to indicate the amount of money donated

Here’s where you get to use the buckets!

1. “Map of ...” tab > Change map styles
2. Polygon > Fill color > Buckets
3. Divide into CUSTOM buckets (get *Custom* from the menu that says 2)
4. Column: SUM(AMOUNT)
5. Use + buttons to add enough boxes (each box gets a sum of money)
6. Boxes, amount, color (Keefe selected this distribution, with increments of \$7,000):
 - 0 = blank (no color: make opacity 0%)
 - 1 = color
 - 7000 = color
 - 14000 = color
 - 21000 = color
 - 28000 = color
 - 1000000 = color

If you go straight down one color bar, your map will be pretty, the lightest shade will be the least money, and the darkest shade will be the most money.



Click Save. Enjoy your map.