

# Choropleth Lead

In this activity, we will use two datasets, a polygon map of the 5 boroughs of New York and GeoJSON containing all of the lead related complaints in New York. We will combine these datasets to create a choropleth map displaying the number of lead-related complaints in each borough.

## Instructions

- We will use two datasets for this activity:
  1. A dataset containing the geographical information of the boroughs. We will use this to create a base-map.
  2. A dataset containing information about lead-related complaints in New York. We will use this to create an info-layer.
- Our first dataset will be from the data library already available on CARTO. From the **DATA LIBRARY** tab under **Datasets** , choose the **ny\_boroughs** dataset. If it is not available on CARTO's website, it is also available in the [Data Folder](#).



8 DATASETS    LIKED    DATA LIBRARY

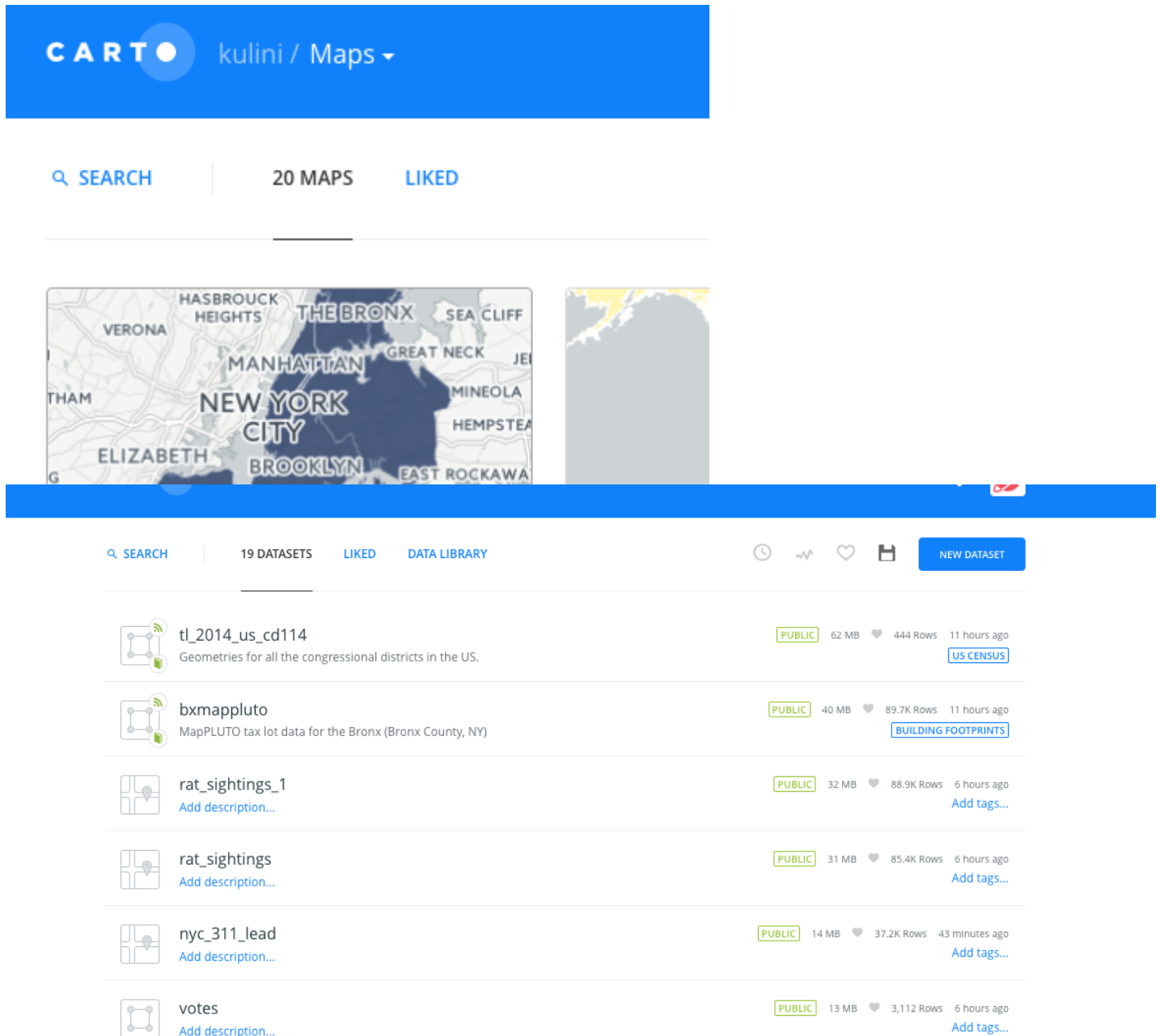
### Groups

- Take a moment to examine the **ny\_boroughs** dataset from within CARTO. Although the CSV file is several megabytes in size, the information actually contained within is sparse, only pertaining to the geographical coordinates of New York City:

ny\_boroughs   
 Updated 6 hours ago

										<a href="#">+ ADD ROW</a> <a href="#">+ ADD COLUMN</a> <a href="#">EXPORT</a>	
cartodb_id number	the_geom geometry	borocode number	fid number	boroname string	shape_area number	shape_leng number	updated_at date	created_at date			
1	Polygon	5	1	Staten Island	1623827185.9	330466.075042	2015-03-30T00:00:00Z	2015-03-30T00:00:00Z			
2	Polygon	2	2	Bronx	1186972591.12	464399.046165	2015-03-30T00:00:00Z	2015-03-30T00:00:00Z			
3	Polygon	1	3	Manhattan	636446736.178	358408.459918	2015-03-30T00:00:00Z	2015-03-30T00:00:00Z			
4	Polygon	3	4	Brooklyn	1937596577.21	741185.900241	2015-03-30T00:00:00Z	2015-03-30T00:00:00Z			
5	Polygon	4	5	Queens	3045167504.84	897040.298751	2015-03-30T00:00:00Z	2015-03-30T00:00:00Z			

- Now, we will obtain the dataset of 311 lead related complaints. This is supplied inside the [Data Folder](#) as `nyc-311-lead.csv`. The lead data has already filtered through 311 Requests (non-emergency requests in NYC) for lead-related complaints.
- Once the file has been obtained, we will need to upload it to CARTO. On the landing page, click on **Maps** to access the drop-down menu, then on the **NEW DATASET** button in the new page.



- Now click on **CONNECT DATASET**, followed by **Data file**. Upload `nyc-311-lead.csv`. This may take a few moments to complete. If you haven't already, upload the `ny_boroughs` dataset from here as well.
- Now we create our base map with `ny_boroughs` dataset. From the dashboard, click on the **NEW MAP** button. It should be available under the **DATASETS** tab. Select the dataset, then create a new map.

**CARTO** ceckenrode / Datasets ▾ GUIDES DOCUMENTATION

1 dataset selected [Select all](#) [Duplicate dataset](#) [Create map](#) [Change privacy...](#) [Lock dataset...](#) [Delete dataset...](#)

	<b>nyc_311_lead</b> <a href="#">Add description...</a>	<b>PUBLIC</b> 14 MB 37.2K Rows 3 hours ago <a href="#">Add tags...</a>
	<b>rat_sightings</b> <a href="#">Add description...</a>	<b>PUBLIC</b> 32 MB 88.9K Rows 4 days ago <a href="#">Add tags...</a>
	<b>ny_boroughs</b> <a href="#">Add description...</a>	<b>PUBLIC</b> 1 MB 5 Rows 4 days ago <a href="#">Add tags...</a>
	<b>mcdonaldsgeojson_3</b> <a href="#">Add description...</a>	<b>PUBLIC</b> 2 MB 14.2K Rows 5 days ago <a href="#">Add tags...</a>
	<b>mcdonaldsgeojson_2</b> <a href="#">Add description...</a>	<b>PUBLIC</b> 2 MB 14.2K Rows 5 days ago <a href="#">Add tags...</a>
	<b>mcdonaldsgeojson_1</b> <a href="#">Add description...</a>	<b>PUBLIC</b> 2 MB 14.2K Rows 5 days ago <a href="#">Add tags...</a>

<https://ceckenrode.carto.com/dashboard/datasets#/create-map>

- Click on **ADD ANALYSIS**

Untitled Map 7 ⋮

**PUBLIC** Map not published yet

**LAYERS** **WIDGETS** [ADD](#)

**Positron Labels**  
Labels

**ny\_boroughs**  
[ADD ANALYSIS](#)  
a0 ny\_boroughs

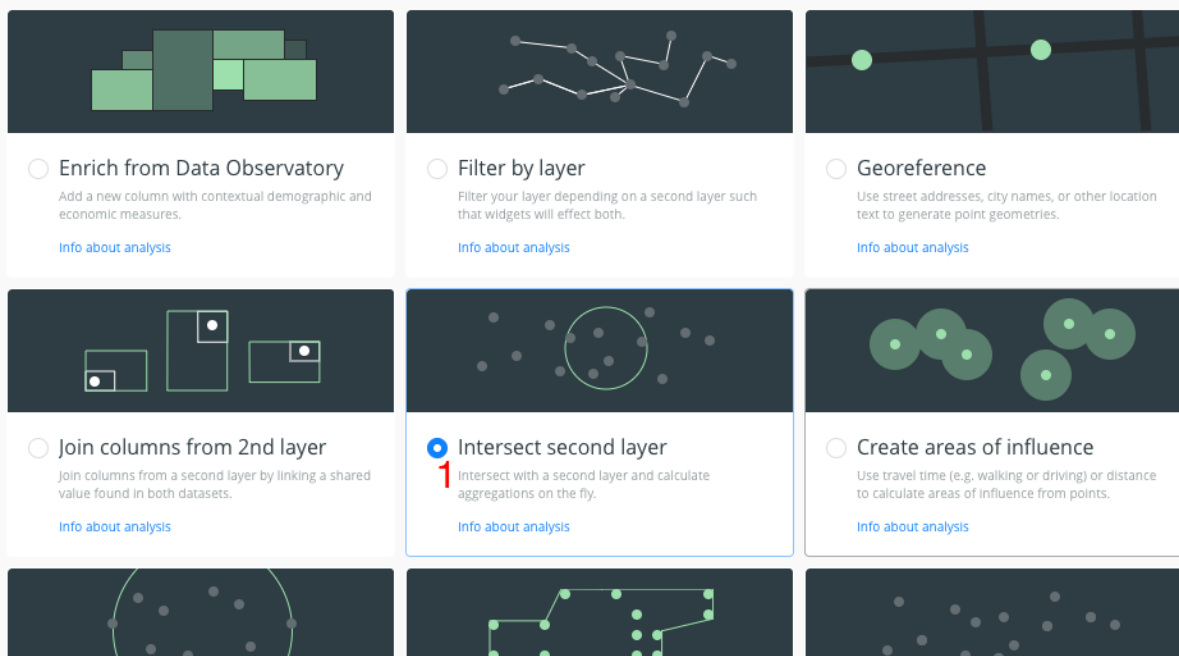
**Positron**  
Basemap

- Click next on the **Intersect** second layer option, which will allow us to merge the two datasets.

## Add a new analysis

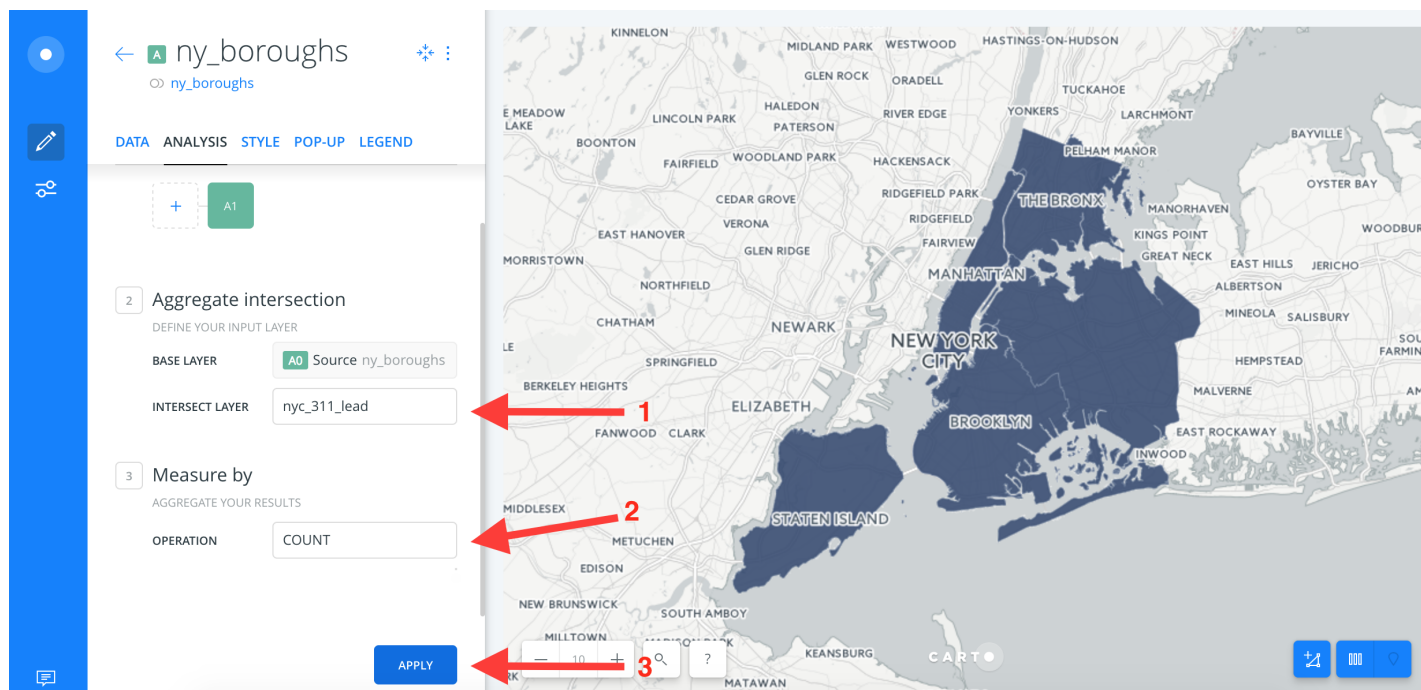
Select the analysis you want to add

ALL CREATE AND CLEAN ANALYZE AND PREDICT TRANSFORM



2 ADD ANALYSIS

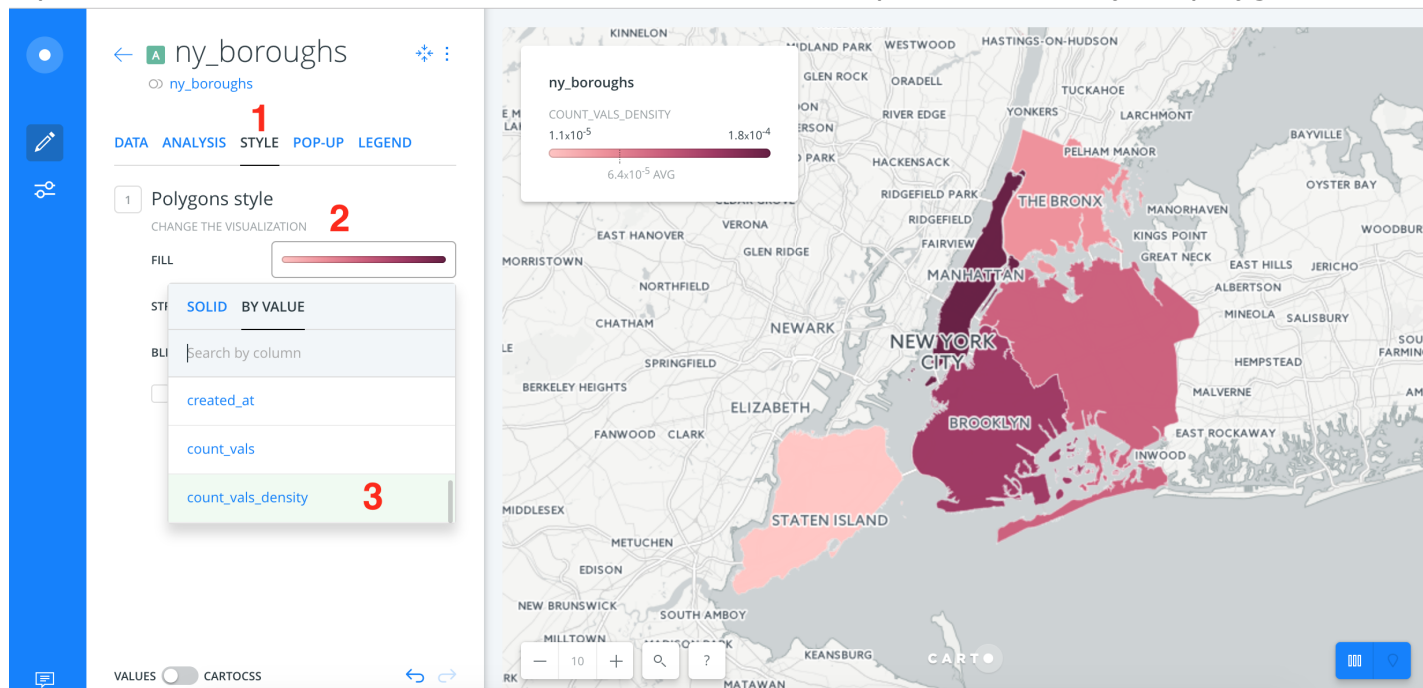
- Under **Aggregate intersection** select the correct dataset for lead complaints. **OPERATION** should display **COUNT**. When you click **APPLY**, it will take CARTO a few moments to process the information.



- Finally, we style our map. As we have done previously, we click on the **STYLE** tab, followed by the **FILL** color bar, then under **BY VALUE**, **count\_vals\_density**. **count\_vals** and

`count_vals_density` are new columns that have been created by joining the two datasets. We end up with a choropleth map of lead related complaints in NYC!

- Select the column `count_vals` instead of `count_vals_density`, and watch what happens to the map shading. With `count_vals`, the borough with the highest number of complaints will be shaded the darkest, whereas, with `count_vals_density`, the borough with the darkest shading will have the highest concentration of lead related complaints. `count_vals_density` is often represented as a decimal number. This is the number of complaints divided by the polygon area.



## Bonus

Add popups to display the borough name and number of lead-related complaints when clicked on.

- View a [working demo](#)