Mapping with CartoDB (Singapore Edition)

In this exercise we are going to use election data to build a map of the 2011 election results in singapore.

In order to complete this exercise you require a CartoDB account which can be created at http://cartodb.com

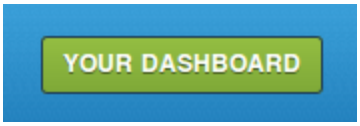
This exercise requires two key datasets:

1. The electoral boundaries of Singapore in 2011
2. The election results in 2011

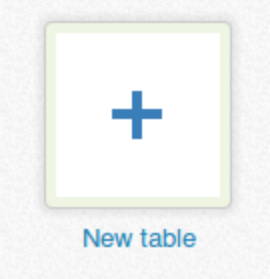
Both datasets are available from the course website.

Step 1 - Upload data

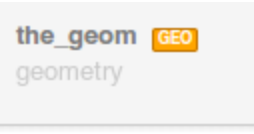
Once you are logged into cartoDB click the "**Your dashboard**" link in the top right hand corner.



In order to create maps in cartoDB we first need to upload some data tables. To do this find the "**new table**" link on the right hand side and upload the **electoral boundaries data file**. This file is a **KML** file containing a set of polygons and names of the various electoral districts in Singapore.



Step 2 - First maps



Once uploaded you will be presented with a tabular view of the data in this KML file. Looking through the table you should be able to find a column that has the **geo** icon displayed next to the column header.

This means that cartoDB has found some data it understands and can represent this on a map. It will also tell you the data type, in this case "**polygon**".

In order to view the map, simply click **map view** at the top of the screen.

We will ignore the colours for now and focus on the boundaries and data being displayed on the map. In order to make navigating easier, let's first add the names of each district to the map.

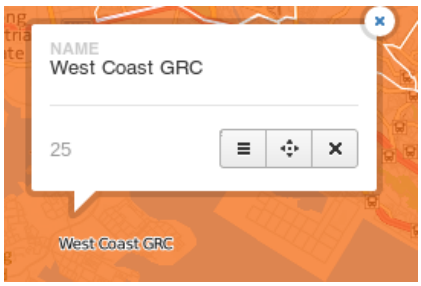
From the **sidebar** on the right of the screen, click the **wizards** icon.

This will bring in a side panel from which you can edit the display properties of the map. Keep the display in **simple** mode and change the **Label Text** to display the name of the district on the map.

You may choose to edit the font style and position of the text as you see appropriate.

Step 3 - Fixing data points

CartoDB has a rich map view and allows for some very powerful editing. You will notice on the west coast of Singapore, the West Coast GRC does not seem to cover all areas of Singapore.



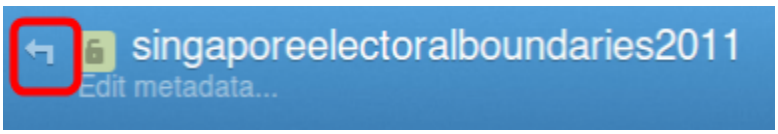
To fix this we can **click** on this region and select **edit geometry**.

This will allow you to simply drag the boundary points to their correct locations to include the parts of land not included in our input file. Once complete, click **done.**

Step 4 - Election data and merging

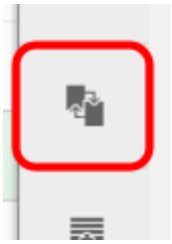
With the election boundaries mapped we now need to upload the voting data. This has been prepared and is available via the course website.

In order to upload the data, first navigate back to your dashboard by clicking the **back** link next to the table/map title in the top left of the screen.



From the dashboard, follow the instructions in **step 1** to upload the election votes data. Once uploaded, feel free to take a look at the contents of the file. You will notice that the file has no geometry data and only contains data pertaining to the parties that won the election in each district.

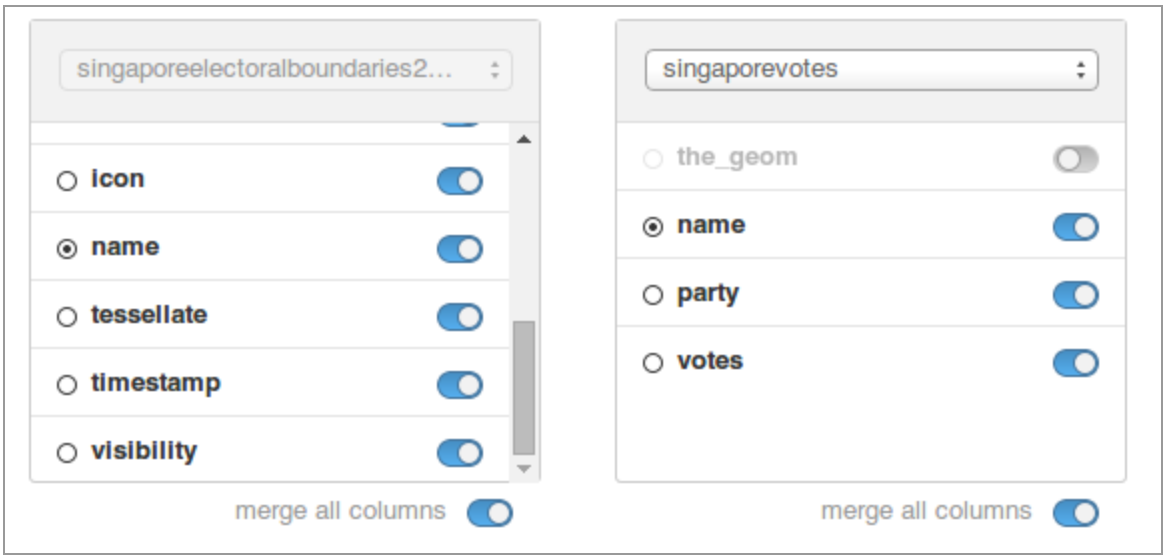
In order to merge this data with our boundaries dataset this is best done from the **boundaries table**. To return to your boundaries table **press the back button** again to return to your dashboard and then select the boundaries table. Ensure that you are in **data view.**



In order to merge the two tables, select the **merge tables** option from the sidebar (ensuring you are in **data view**).

From the next screen select **Column Join**. Note that cartoDB can do a spatial join, which is super useful for counting points inside polygons.

From the next screen ensure that you **merge all columns** from both tables and **select the bullet point next to name in both columns** (as shown below).



Once done click **merge tables**. This will create you a new table.

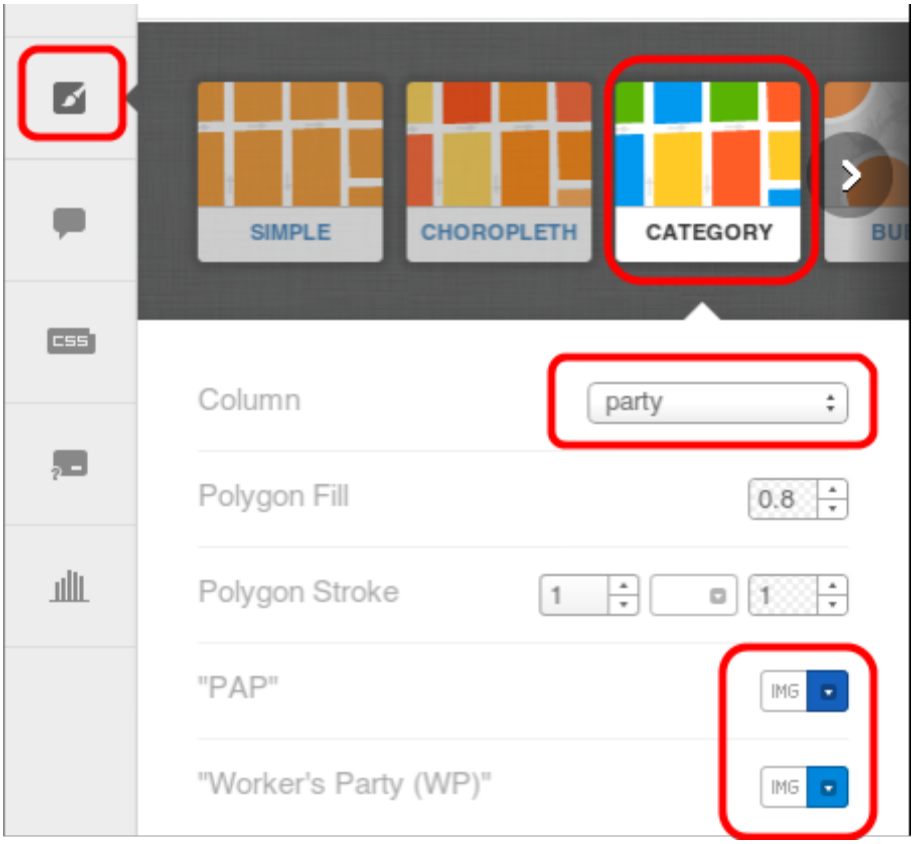
Step 5 - Finishing up

From the **map view** of your new table you will notice that the customisation we did in step 2 has been lost. Repeat step 2 to add them back in.

```
#singaporeelectoralboundaries2011_merge::labels {
  text-name: [name];
  text-face-name: 'DejaVu Sans Book';
  text-size: 10;
  text-label-position-tolerance: 10;
  text-fill: #000;
  text-halo-fill: #FFF;
  text-halo-radius: 1;
  text-dy: -10;
  text-allow-overlap: true;
  text-placement: point;
  text-placement-type: simple;
}
```

The next step will remove these labels again, however we can manually copy the code in order to preserve them. To do this click the **css** icon in the sidebar and then copy and paste the text that adds the labels to each polygon to a new text document somewhere outside of cartodb (e.g. notepad or wordpad).

Once you have this text copied, select the **wizards icon** from the sidebar and this time select **category** from the options. This time select the **column** name **party** and you will see that there are two parties that won different districts and these will now be shaded on the map.



For completeness, you could also add the proper party colours in the section at the bottom of the screen. PAP is colour code "**#1560bd**" and Worker's Party is "**#0087dc**" according to wikipedia (http://en.wikipedia.org/wiki/Category:Singapore_political_party_colour_templates)

Finally copy and paste your district names css back into the css panel and click **Apply style** to update the map.

Note: You can embed and share your map directly from CartoDB, making it easy to include on other websites.

Extension exercise - Building friendliness

On the website you will find a building friendliness (disability access data) about buildings in Singapore. Why not see if you can upload and use this data in some way. There are lots of guides to using CartoDB available from http://docs.cartodb.com/tutorials.html