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. This 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, in the top right hand corner of the screen you should be able to select **maps** or **datasets**. Click **maps** and then click the **new map** button.

On the next screen ensure you select **connect dataset** from the available options and then upload a **data file**. Here you can drag and drop or browse to 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. Click **connect dataset** to upload this file. It may take a while to upload and process.

Once the map has loaded, give it a name “Singapore election map 2011 ”. This can be done by either double clicking “Untitled Map” or by clicking the *3 dots* next to the map name and clicking rename.

Step 2 - First maps

Once uploaded you will be presented with a map view of the polygons plotted. If you zoom in on the bottom left corner of Singapore you might notice that some of the points of the polygon here don’t entirely cover the whole of Singapore.

You can click on the polygon and select the pencil icon to edit the points. Note that it is not advised the operation be attempted with polygons that are large and/or have thousands of points in them as your browser might struggle to render them all in edit mode.

When complete click back from the top left of the screen to return to the top level menu with the name of your map at the top.

Step 3 - Election data and intersecting

In order to add the election data we need to add a new layer to the map.

From the side bar select add new layer and connect the **election winners** dataset.

Once this layer is added we need to **intersect** in with the boundaries dataset.

To do this we intersect them based upon **key matching**. Both datasets contain a **name** column that defines the names of the regions in Singapore and we can intersect the datasets based upon this.

To do this first click on the first layer (l**ayer A**) and then select the **analysis** option (shown left). Finally click **add new analysis**.

This will bring up a new screen with many analysis options. There are some very powerful operations in this menu and it is worth reading a bit about each on this screen before continuing.

The option that is needed to join our two datasets in "**Join columns from 2nd layer**".

Select this and click **add analysis**.

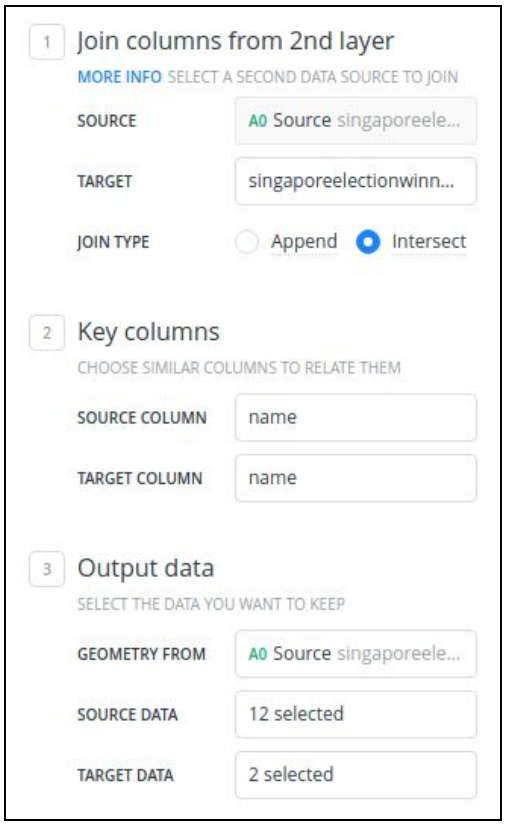
On the next screen select the following options (as shown on the right).

Target: **Election Winners dataset (layer)**
Join type: **Intersect**

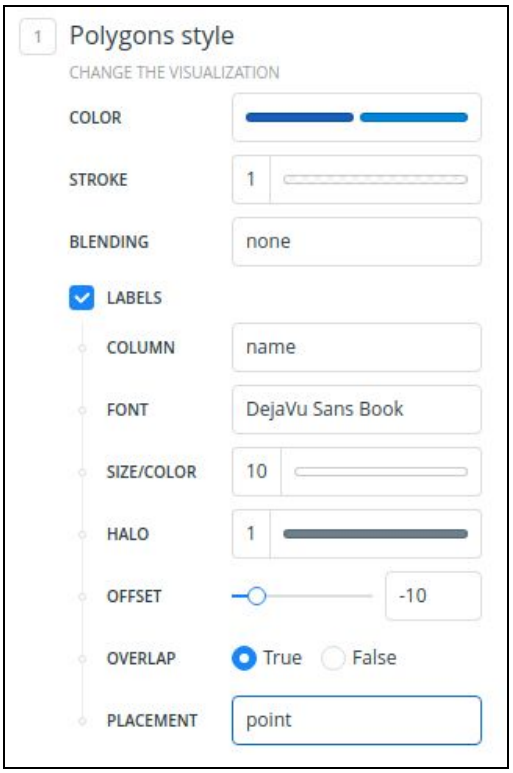
Key columns: Both **name**

Output data (source): **All**
Output data (target): **party** & **votes**

Once done click **apply**.



Step 4 - Showing election results



Once the analysis is added you might get a pop-up asking you if you want to style the analysis. You can either click yes here or select **style** from the top menu (next to analysis).

Click the color bar next to the word color and change this to **by value**, selecting the "right_party" column as the source for the value. This will reshade the map showing which party won each region.

For completeness, you could also add the proper party colors. To do this click the color bar that is selected and you can edit the colors for each party from here. 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)

Before leaving the style menu you can also choose to show labels for each polygon. Simply tick the box to turn these on and select the column that you wish to show on the map.

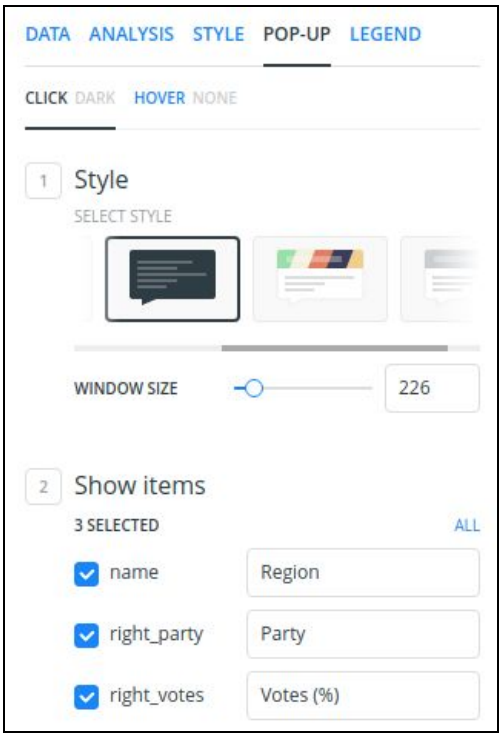
Step 5 - Legends and pop-ups

Alongside style you can also add a legend and pop-ups to your map.

A legend will always be shown while pop-ups appear when a polygon is clicked.

As you can see on the right, you can easily create and customise a legend, selecting as many items from the data to show as you wish.

As shown on the right you might also want to rename the column titles in the legend so they make more sense to users.



Changing the base map

You can change the basemap by click the option at the bottom of the main screen where your layers are displayed.

Carto has lots of options for the type of base map you use. They are all open licensed maps each suit different needs.

Why not try the simple watercolour one as shown on the right.

Extension exercise - Building friendliness

On the course 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, you might want to try **intersecting layers** in analysis.

There are lots of guides to using CartoDB available from http://docs.cartodb.com/tutorials.html