

Exercise 12: Twitter Heat Map

Tweets from Brazil

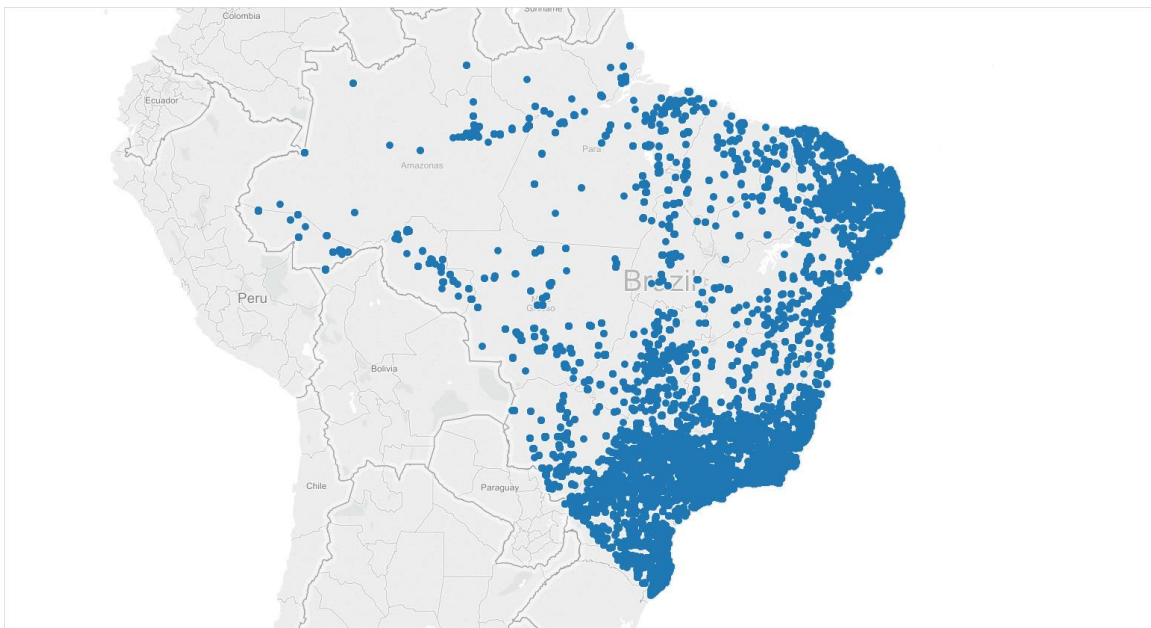
Objectives

1. Learn how to create a geographic heat map and apply zoom controls to more easily analyze dense spatial data
2. Practice creating Calculated Fields

Create Initial Twitter Map

The data set you will use for this exercise represents a day's worth of Brazilian tweets in August 2013.

To start, you will be creating the following map of tweet counts in Brazil. There are instructions on the next page to assist you.



Question 1. How many marks are in your map? _____



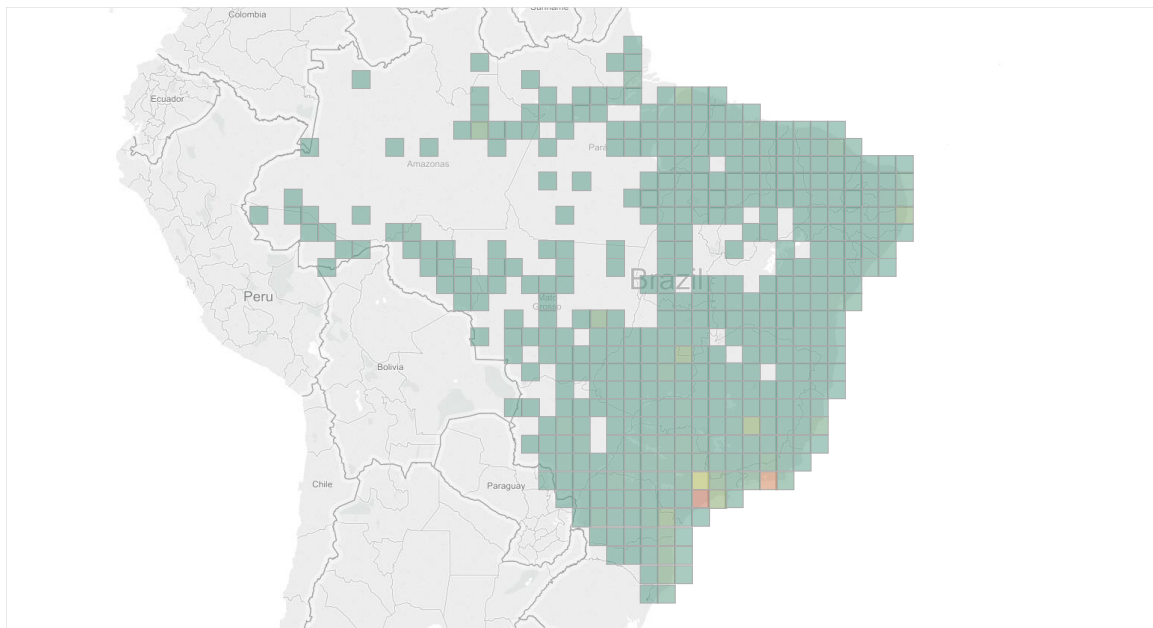
Note: Too many marks in your view can make it difficult to identify meaningful patterns. It can also reduce performance.

Create Initial Twitter Map Instructions

1. Open the **Exercise 12 Twitter Heat Map** starter workbook and take a look at the underlying data. You may need to open the file from Tableau Server.
2. Create the map view shown above
 - Hint: Double click measures **Latitude** and **Longitude**, then on the Toolbar select **Analysis > Aggregate Measures** to turn off aggregation so that you get a mark for every tweet in the data set.
3. Take a look at the bottom left of your workspace – it shows the number of marks displayed in your map view.

Create Heat Map

To help you better analyze your dense Twitter data, you will aggregate the data points by rounding **Latitude** and **Longitude**. You will then create the following heat map of tweet counts in Brazil. There are detailed instructions on the next page to assist you.




Question 2. How many marks in this viz? _____ How does that compare to the previous one? _____

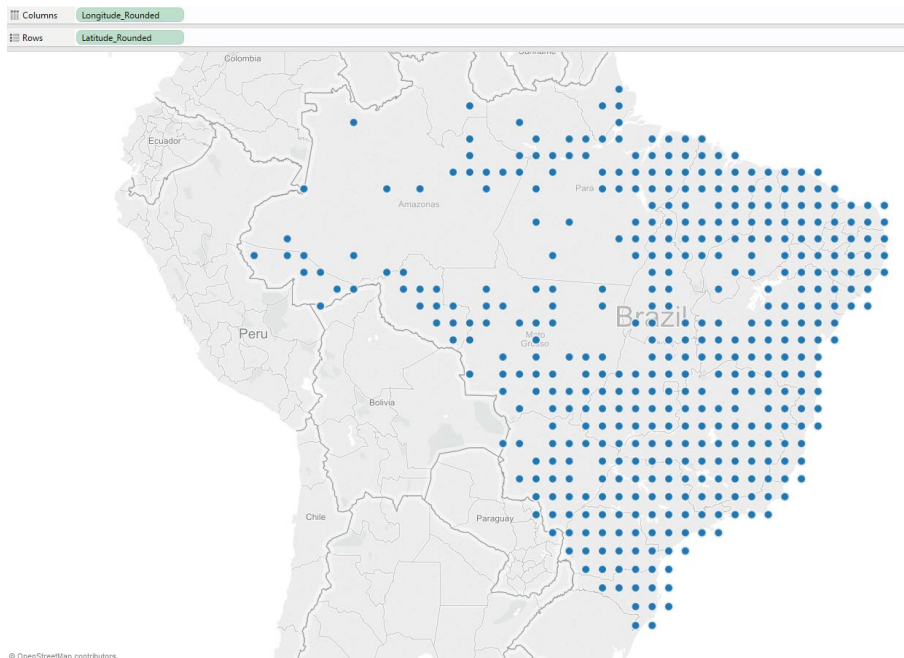
Question 3. Which Brazilian grid cell had the *highest* number of tweets?



Question 4. Which Brazilian grid cell had the *second highest* number of tweets?


Create Heat Map Instructions

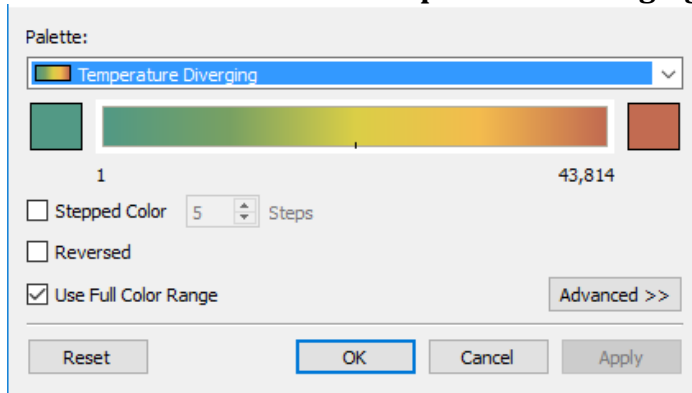
1. Create two calculated fields, one where **Latitude** is rounded with no decimal places and another where **Longitude** is rounded with no decimal places
 - Hint: On **Measures** pane, right click and select **Create Calculated Field**. Name this field **Latitude_Rounded** and enter the following formula: `ROUND([Latitude],0)`.
 - Duplicate the new field and replace "Latitude" text with "Longitude".
2. Change the geographic roles of **Latitude_Rounded** to **Latitude** and **Longitude_Rounded** to **Longitude**
 - Hint: Select carrot  of each field in the **Measures** pane and select **Geographic Role** to update the geographic role
3. Add a new sheet. Make sure the sheet uses **Aggregate Measures** this time. In this new sheet, double click **Latitude_Rounded** and **Longitude_Rounded** to create a view. *Note:* The default aggregation for **Latitude_Rounded** and **Longitude_Rounded** will be Avg because the default aggregation for their predecessors was Avg. This will create a view with a single point.
4. Update the aggregation for **Latitude_Rounded** and **Longitude_Rounded** in the row and column shelves to **Dimension**.
Your view should look similar to the following image.



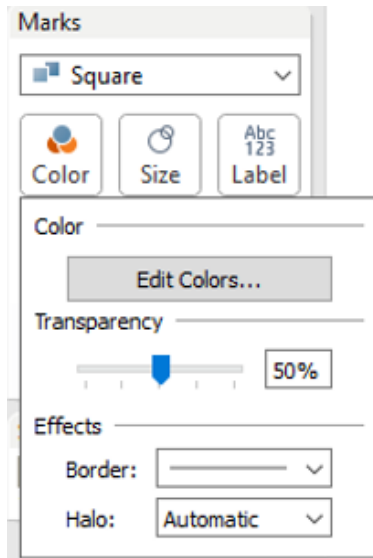
5. Change the mark type to **Square** and increase size until the squares touch.



6. Drag measure **Number of Records** to **Color** shelf 
7. Edit the color so that it is **Temperature Diverging**. Use full color range.



8. Select **Color**  and change transparency to 50%. Select a gray border.



Apply Zoom Controls

Another approach for analyzing dense data in Tableau is by applying zoom controls to zoom into the data. In this exercise step, you will be walked through applying zoom controls.

1. Edit your calculated fields, **Latitude_Rounded** and **Longitude_Rounded** by changing the number of decimal places to 1
 - Hint: **Latitude_Rounded** now has the formula below. Do the same for **Longitude_Rounded**.


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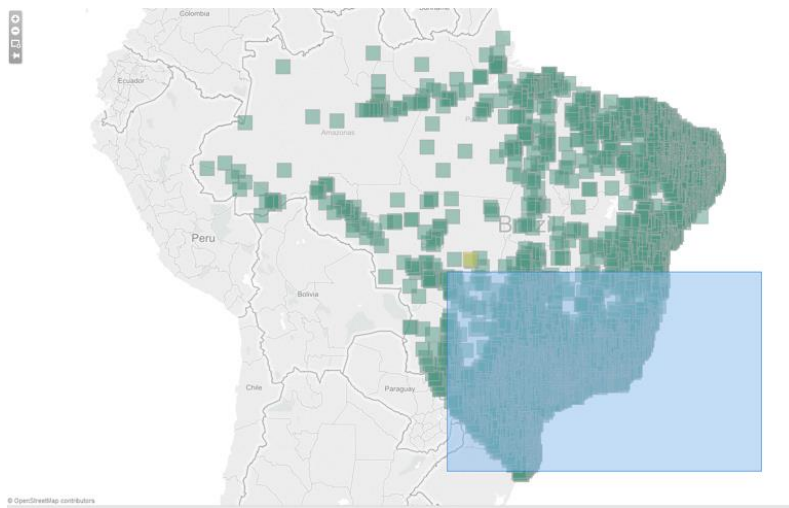
Name: Latitude_Rounded

Formula:

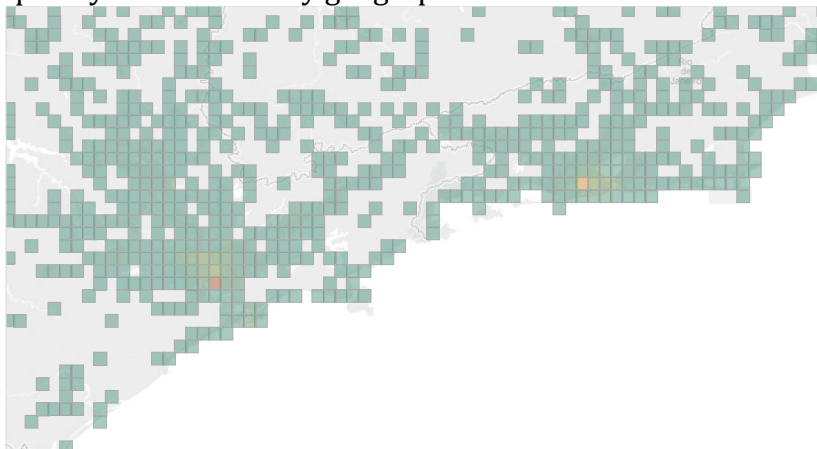
```
ROUND([Latitude],1)
```

Note: Your heat map will look much denser than before.

2. Select  in the zoom control
3. Lasso around the lower right part of Brazil as shown below to zoom into the boxed area.



4. Continue zooming further into the boxed area using steps 2-3 until you start seeing some color variation. Notice that by zooming into your data, you are quickly able to identify geographic areas that stand out.



You will likely need to adjust the size slider as you change the zoom level. You can also adjust the second parameter to Round() to control the grid size.



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Note, square grid cells cover very different areas if you have large grids covering a large portion of the globe, especially as you approach the poles. In those cases, you may want to use Hexagon shaped bins. Tableau provides the functions `hexbinx()` and `hexbiny()` to assist in creating hex bins. Calculations involving hexbins usually also require a scaling factor.

