Guide for Quidel Animation

Yinzhuo Ding

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1 Data

This repository uses 'googleVis' package in R to create map animations based on Quidel Total data. Six different levels of data are saved in the database:

- **US Nation**
- **HHS Region**: 10 regions same as the CDC HHS Regions in DICE.The format is like 'USA.R1';
- **State**: 46 states included. Washington DC(DC), Idaho(ID), Maine(ME), Rhode Island(RI), Puerto Rico(PR) and Vermont(VT) are missing. The format is like 'USA.R14.AL';
- **County**: 570 counties included. The format is like 'USA.R6.AR.Washington County';
- **City**: 1098 cities included. The format is like 'USA.R9.AZ.Phoenix';
- **Zip**: 1311 zipcodes included. The format is like 'USA.10701'.

And currently we have two partial seasons:

- week 35,2015 - week 26, 2016;
- week 27,2016 - current week.

So totally we have 3036 areas of data in 79 weeks.

2 GeoInformation

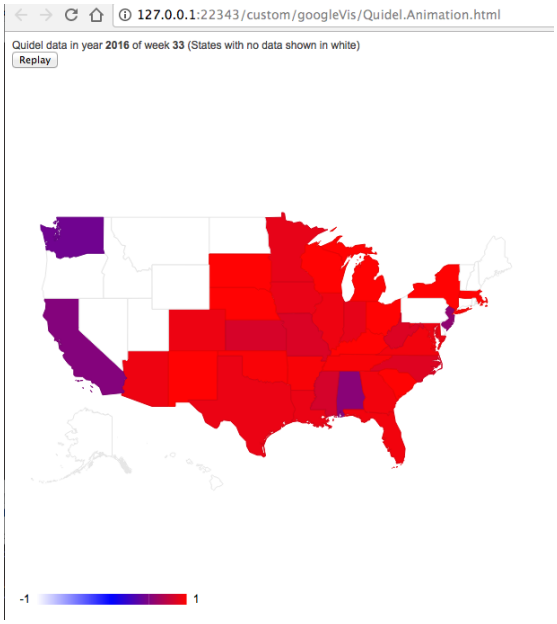
Under this directory is the geo information – **latitude and longitude** corresponding with the area name for all the levels. These information should be useful when creating animation using 'markers' or creating Motioncharts.
Notice that for the Region level, I choose a 'representative state' and save its geo information to represent the whole region; For other levels, the geo information is exactly where the state/county, etc locates.
All the information was obtained using the 'geocode' function from 'ggmap'.

3 Animation Code

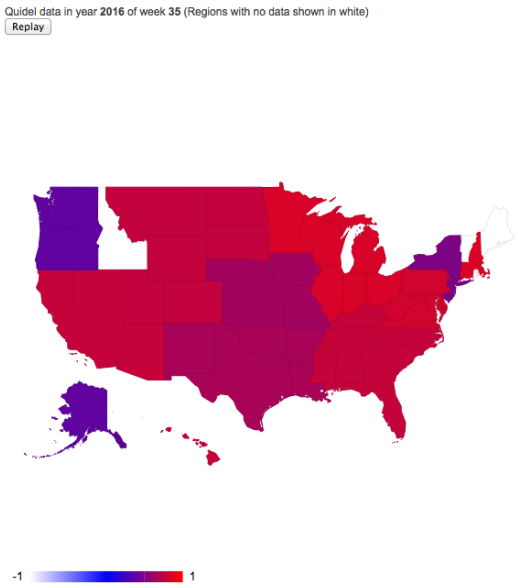
There are currently two types of animation: **gvisGeoChart and MotionChart**.
The gvisGeoCharts are created seperately for different levels, saved in **'gist_levelname.R'**; **MotionChart.R** is one function where you can pass the level you want by 'level' parameter and it will automatically generate the corresponding result. Details of these two functions would be introduced.

3.1 Gist files

The functions are named as 'GeoAnimation.levelname'. Available levels are nation,region and state.
At present, there are two parameters in the functions, the first one represents the data, the second one represents the flu year we want to see.
To run the functions, you can call, for example:
plot(GeoAnimation.state(qdata,showyear = 2016)) then there would be an annimation pop up in your browser like the following:



Notice that before generating animation, we first remove those states with less than X-Total specimens in a season (X<100), then we normalized the data for each area so the value of each state ranges from 0 to 1.
For nation/state level, we have one version of this animation that we fill the color in corresponding location just like the picture above.
For region level, we provided two versions: First one is still filling colors:



Another option is to use the markers to represent each region, both color and size represents the value. This is generated by:
plot(GeoAnimation.Region.Marker(qdata,showyear = 2016))

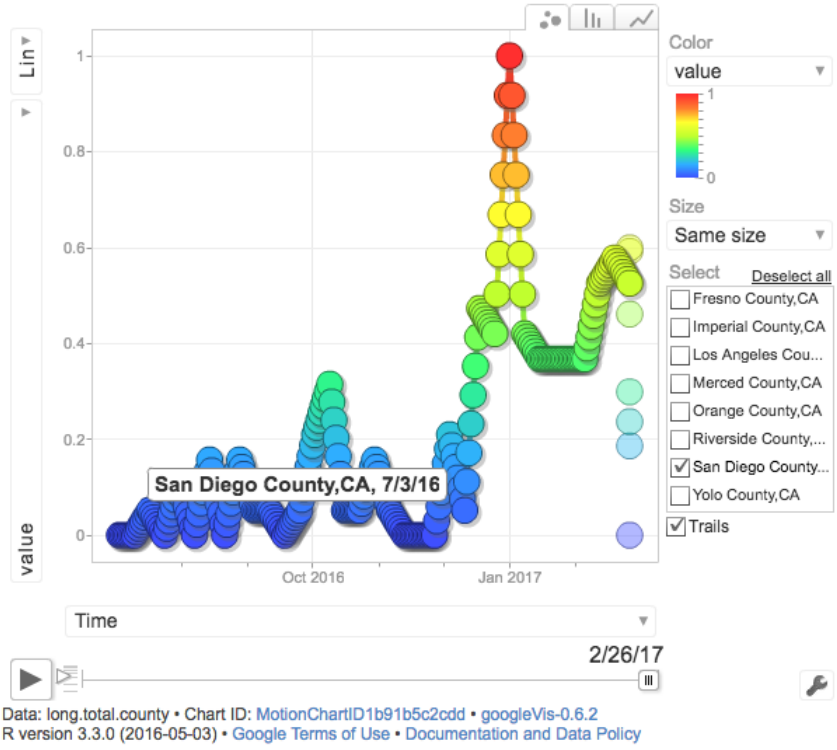
3.2 MotionChart

Due to the huge volumn of samples in county/city/zip levels, the gvisGeoChart would result some delays in visulizing, so we tried MotionChart Version. Cur-

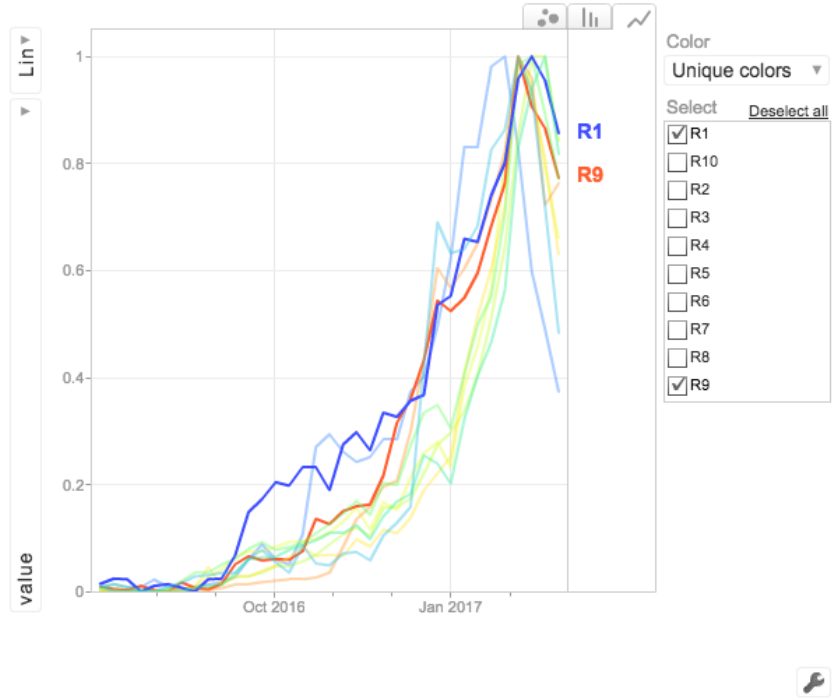
rently MotionChart provides county level , and we can also see nation/state/region levels animation.
This function has four parametes:

- **qdata:** Quidel data same as GeoAnimation;
- **showyear:** Season to show, currently available in 102015 or 2016;
- **level:** Geo level you want to see: 'nation','region'.'state' or 'county';
- **state.abbr:** If level = 'county', then you have to claim the state abbreviation you want to focus. Default is 'NULL' for other levels.

Here are examples:
You can call:
plot(MotionChart.state(qdata,showyear = 2016,level = 'county',state.abbr = 'CA')) and get:



This motionchart provides you multiple choices, you can choose the x-axis and y-axis like Time/Alphabetical/lon,etc, and you can also keep track of the counties you are most interested, also you can choose the color options: same color or corresponding to a certain variable.
It also provides linechart and barchart option by clicking the top right. The following is generated by:
plot(MotionChart.state(qdata,showyear = 2016,level = 'region'))



Data: long.total.region • Chart ID: MotionChartID1b940856f33 • googleVis-0.6.2
R version 3.3.0 (2016-05-03) • Google Terms of Use • Documentation and Data Policy

In this example, we choose the unique color for each region.