



Vacation Safely During Covid-19

Getting back to a new normal.

During the Covid-19 pandemic in the US, families, now more than ever, need to get out of their homes. However, a vacation destination must be as safe as possible. What is needed is a tool that maps destination venues and Covid-19 hotspots to equip parents with the tools to plan safely.



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Introduction

Each year more than 100 million Americans visit Florida along with 13 million non-residents. With its famous beaches, resorts, and theme parks what is not to love about Florida? However, since Covid-19 hit America, non-essential travel waned in the second quarter of 2020.

The Problem: Where can I safely travel and stay in Florida during the Covid-19 pandemic?

Many families wanting to get in a vacation before school starts need a tool that will allow them to find attraction that they are interested in travel to, while staying clear of Covid-19 hotspots. A tool that provides this data would be invaluable.

Data

Three types of data are required to make this tool useable;

1. Since the Covid-19 data is reported by county, I will get the county GeoJson file from https://freddye.carto.com/tables/florida_counties/public/map
This data is updated daily so that the tool remain accurate for the consumer.
2. Covid-19 data is available at <https://www.worldometers.info/coronavirus/usa/florida/>
I use the Total Cases, Total Deaths and Total Test columns.
 $\text{Total Test} / \text{Total Cases}$ is used to calculate the Positivity Rate, and $\text{Total Deaths} / \text{Total Cases}$ is used to calculate the Death Rate.
3. Venue data from Foursquare.com is used to plot venue categories and locations

Methodology

The first step is to gather the Covid-19 cases data from the WorldOMeters.info web site. This data includes County and State Totals, TotalCases, NewCases, TotalDeaths, NewDeaths, ActiveCases and TotalTests. For the purposes of this application we will only use TotalCases to map the outbreak hotspots.

Although TotalTests and TotalDeaths are collected, they tend to be inflammatory and not relevant to the consumer since there are so many confounding variables associated with these values. So, these will not be used in the maps.

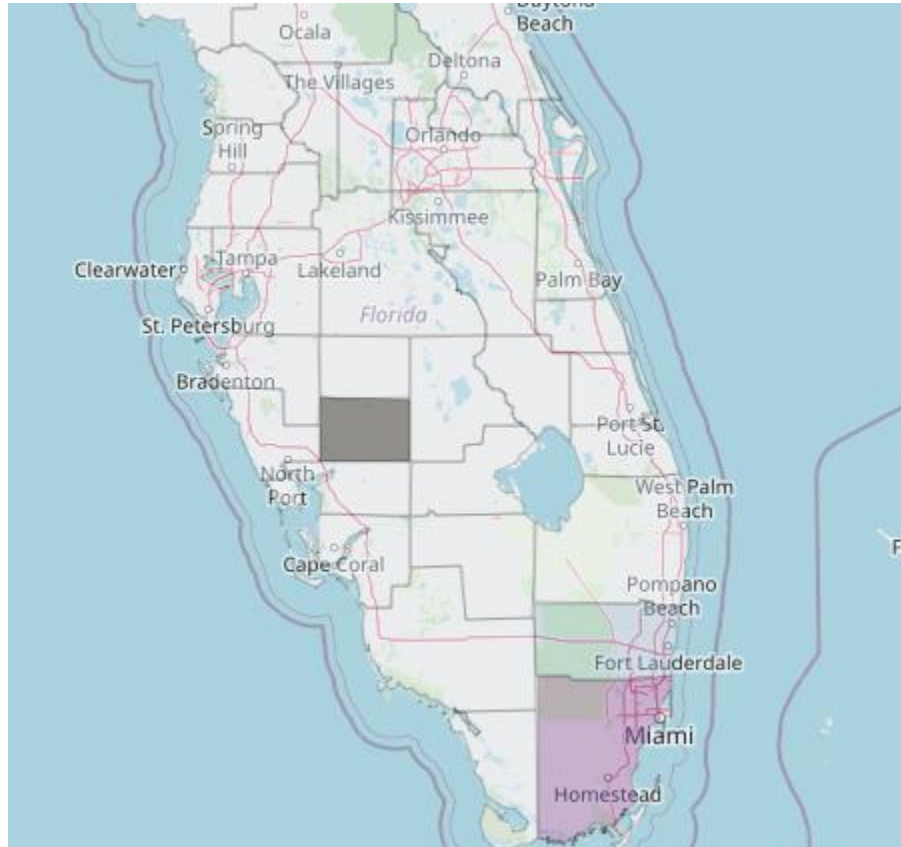
Cleaning the data involved removing unused columns, also removing total rows, setting all NaN values to 0, and removing counties with the name 'Unassigned'.

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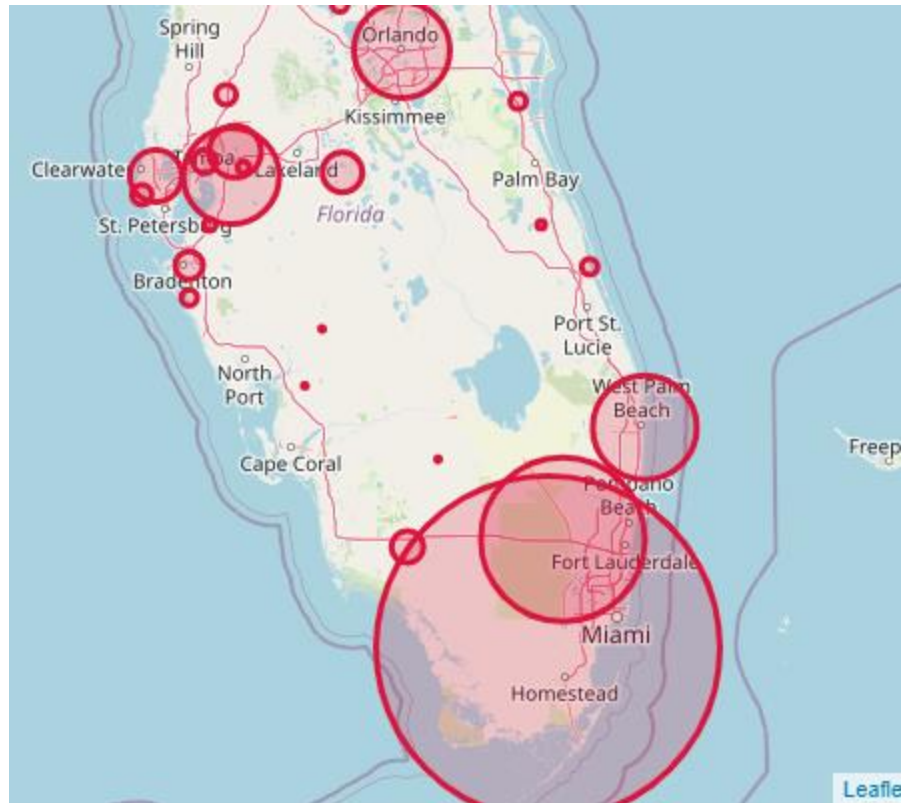


Next, I used geocoder to collect and post coordinate values for each county into the data set. I found that I had to fix the coordinates for Orange County Florida because geocoder incorrectly returned the data for Orange County NY.

After that I pulled the geojson data from the downloaded file so that I could add the boundaries to the Folium Choropleth heat map. I colored the counties according to their TotalCases value. However, since the data ranged from 0 – 95,000 cases, this type of display was found to be inadequate for the desired outcome, I decided to try using a bubble map instead.



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AS you can see the bubble map is far superior at identifying hotspots and making it very clear as the impact of Covid-19 in the impacted area. These would be viewed by the consumer as areas to stay away from.

The next step is to get from the consumer what area they are interested in (North Florida, Central Florida or South Florida), what venue type they are interested in (Beaches, Parks or Theme Parks), and the radius that they want venue values to be returned. For some reason, that I was unable to determine, the widgets in my program did not display in GitHub nor Nbviewer, so I have placed a screen shot here for reference.

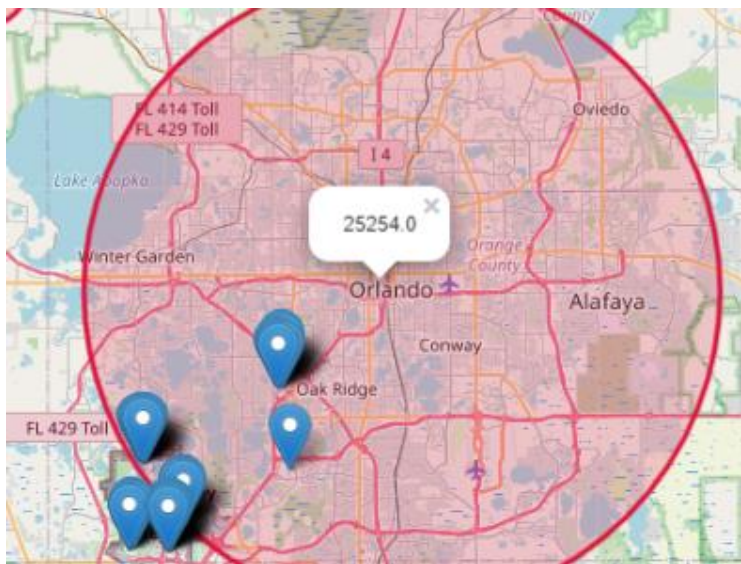
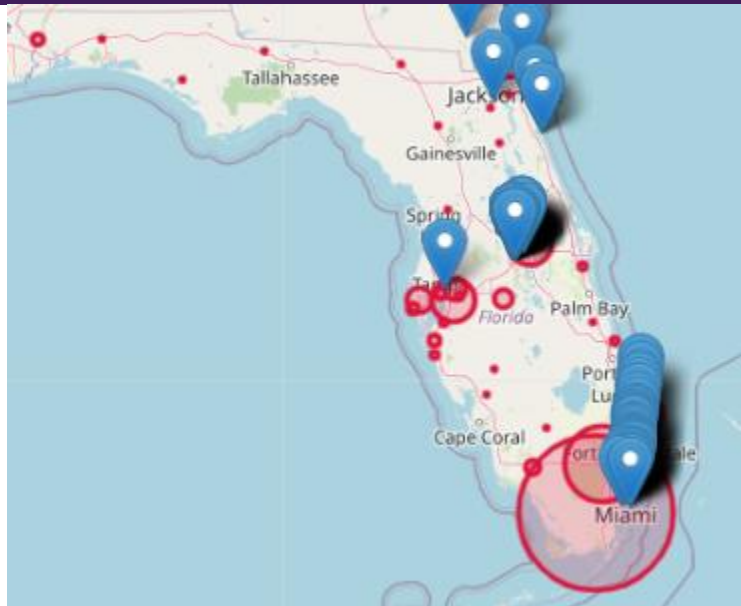
```
34 form #display form for user input
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Search Distance: miles	<input type="range" value="5"/>	5
Select Area	North Florida ▼	
Select Venue	Beach ▼	

```
1 import vam1
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After building the URL request string and querying FourSquare with a venue search, I filled a dataframe with the venue name and coordinates for plotting them on the bubble map. This way the markers are displayed in relationship to the Covid-19 cases values.

Results



The resulting map gives clear indication of where destinations are in relation to outbreak hotspots and their Total Case counts. This will allow the consumer to make the best educated plans for safe travel to Florida and our would famous attractions.

Observations

One point of caution in the effort is that the visual representation of Total Case count on a map might be misleading to someone unfamiliar with the use of a bubble map. Since a bubble map depicts relative counts, using a graphical image, the bubble, with the count determining the bubbles size, the untrained consumer might mistakenly think that the impact



of the cases extends to the areas on the map covered by the bubble. This should be covered with instructions to the consumer prior to allowing them use of the map.

Conclusion

As a Floridian, I am concerned by the portrayal of Florida as some kind dead zone of Covid-19 patients. As can be seen by this map there is so much of this state that has not been touched by the pandemic. I object to the scare tactics of the evening news, and its impact on an entire state economy. The role of data scientist should include taking what you are passionate about and using the correct data and visualization share your passion, not fear, with others.