Geographical Plotting

* Plotting geographical data can be difficult due to the different sources of data. Its best to find a library or module that fit your data and scenario.
* You can use the base map feature of matplotlib to plot geographical data. In this course, plotly will be used to plot interactive plots from geographical data.

# Choropleth maps 1

* To start do the following:
* import Plotly.plotly as py (plotly.plotly sub module deprecated, use chart\_studio.plotly)
* From plotly.offline import download\_plotly\_js, init\_notebook\_mode, plot, iplot (these enable offline use)
* Set init\_notebook\_mode(connected=True) to enable the plots to be displayed in the notebook
* Import plotly.graph\_objs as go
* To plot a choropleth map, the data is passed in with a dictionary with the following arguments:

Data variable:

* Type (always = choropleth)
* Locations is a list of states to be plotted.
* Location mode: e.g., ‘USA-states’
* Color scale:
* Z is the list of data points in the same order as locations.
* Text is a list of the hover text for each location in the same order as the locations.
* Marker is a nested dictionary i.e., a dictionary containing a dictionary of customizations arguments for the marker such as width, line color etc. marker = dict(line = dict(color = ‘x’, width = y)) where x is a color scheme or rgb with its code in the form ‘rgb (256, 256, 256)’ and y is an integer for the line width.
* Color bar can contain a dictionary of the title for the color bar

Layout variable which customizes the plot layout including:

* Geo is a dictionary nested in containing scope such as ‘usa’, lake color in the form ‘rgb (256, 256, 256)’ o a color scheme name, show lakes which is a boolean (True or False) etc.
* Title holds the title for the chart

Note that data and layout variables are always dictionaries respectively.

* Set a variable to call go (plotly.graph\_objs) on the data and layout e.g., s = go.Figure(data=[data], layout = layout)
* Then call iplot on the variable with iplot(s)

Note: if this data was in a data frame, you can easily reference them with pandas notation in the data variable instead of building out.

* showframe = False argument in geo removes frame from the plot generated.
* Projection argument in geo specifies the type of projection for the map such as Mercator, natural earth, 'foucaut sinusoidal etc.