

Module-03, Python for Data Analysis

Data Visualization (Geographical-Plotting)

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Geographical Potting

- Geographical plotting is usually challenging to due the verious formats the data can come in.
- We will focus on using plotly for plotting.
- Matplotlib also a basemap extension.



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Offline Plotly Usage

- Get imports and set everything up to be working offline.
- Now set up everything so that the figures show up in the notebook:
- More info on other options for Offline Plotly usage can be found lab section.
- So we made Choropleth Maps for nationally and globally.
- Now we need to begin to build our data dictionary. Easiest way to do this is to use the dict() function of the general form:

```
type = 'choropleth',  
locations = list of states  
locationmode = 'USA-states'  
colorscale=
```

Either a predefined string:

```
'pairs' 'Greys' 'Greens' 'Bluered' 'Hot' 'Picnic' 'Portland' 'Jet' 'RdBu'  
'Blackbody' 'Earth' 'Electric' 'YlOrRd' 'YlGnBu'
```

or create a custom colorscale

```
text= list or array of text to display per point
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```
z= array of values on z axis (color of state)
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```
colorbar = 'title':'Colorbar Title')
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Choropleth US Maps

- Plotly's mapping can be a bit hard to get used to at first in real data.
- Real data of 2011 US Agriculture Exports by State.

code	state	category	total exports	beef	pork	poultry	dairy	fruits fresh	fruits proc	total fruits	veggies fresh	veggies proc	total veggies	corn	wheat	cotton	tex
AL	Alabama	state	1390.63	34.4	10.6	481.0	4.06	8.0	17.1	25.11	5.5	8.9	14.33	34.9	70.0	317.61	Alabama Bee 34.4 Dair 4.06 Fruit: 25.1..
AK	Alaska	state	13.31	0.2	0.1	0.0	0.19	0.0	0.0	0.00	0.6	1.0	1.56	0.0	0.0	0.00	Alaska Bee 0.2 Dair 0.19 Fruits 0.0 Ve..
AZ	Arizona	state	1463.17	71.3	17.9	0.0	105.48	19.3	41.0	60.27	147.5	239.4	386.91	7.3	48.7	423.95	Arizona Bee 71.3 Dair 105.48 Fruit: 60..
AR	Arkansas	state	3586.02	53.2	29.4	562.9	3.53	2.2	4.7	6.88	4.4	7.1	11.45	69.5	114.5	665.44	Arkansas Bee 53.2 Dair 3.53 Fruit: 6.8..
CA	California	state	16472.88	228.7	11.1	225.4	929.95	2791.8	5944.6	8736.40	803.2	1303.5	2106.79	34.6	249.3	1064.95	California Bee 228.7 Dair 929.95 Fruit..

- We need to plot choropleth map.



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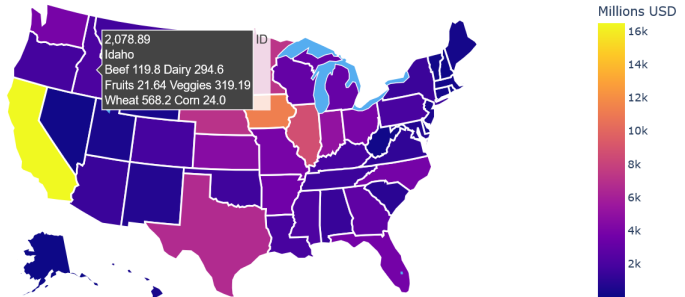
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Choropleth US Maps

map

2011 US Agriculture Exports by State



World Choropleth Map

- Now let's see an example with a World Map:
- The 2014 GDP data set

	COUNTRY	GDP (BILLIONS)	CODE
0	Afghanistan	21.71	AFG
1	Albania	13.40	ALB
2	Algeria	227.80	DZA
3	American Samoa	0.75	ASM
4	Andorra	4.80	AND

- This example shown as world choropleth map.



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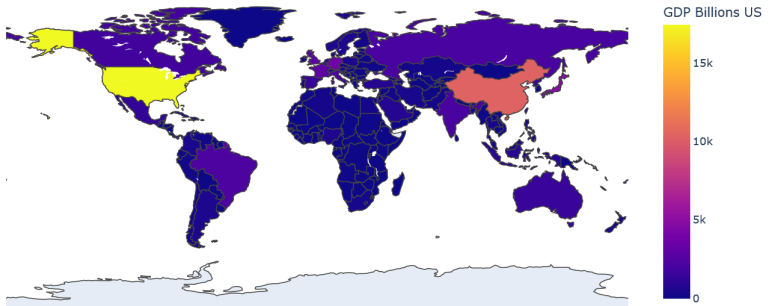
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World Choropleth Map

- map

2014 Global GDP



Great Job
Thank yo

