DSCI 532

Data Visualization 2

4 Geospatial visualization

Lecture learning goals

1. Explain what GeoJSON files are
2. Download and use GeoJSON files for different regions
3. Plot GeoJSON data
4. Appropriate project geospatial data
5. Create Choropleth and point maps
6. Describe common pitfalls of Choropleths and how to remedy them
7. Link maps to interactivity
8. Inlude maps in a dashboard
9. Drive callbacks via selections in a map

Required activities

- Chapter 15 in Fundamentals of Data Visualization

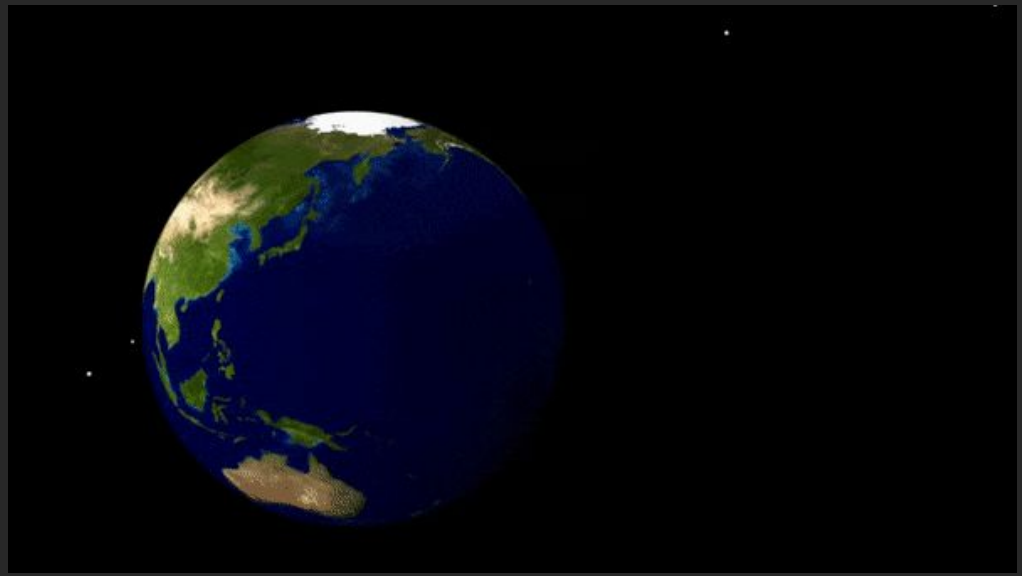
Optional activities

- Revisit lecture 7 and 8 from 574
- Learn more about Altair maps
- Learn more about Plotly maps in R

You can read these either before or after class

What’s wrong with this map?

World map projections



All maps are wrong, but some are useful

https://www150.statcan.gc.ca/n1/pub/92-195-x/2011001/other-autre/mapproj-projcarte/m-c-eng.htm

Mercator projection (1569)

Africa == Greenland

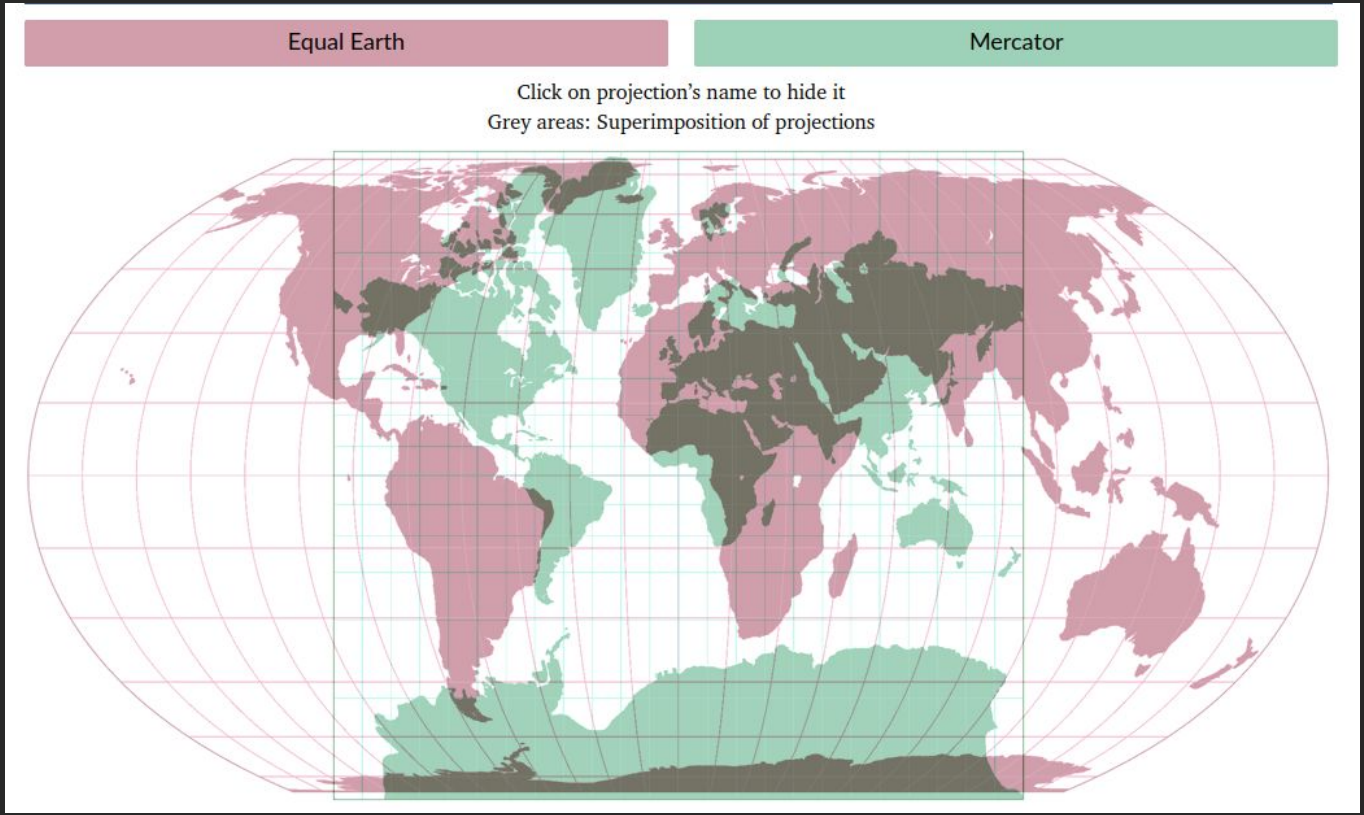
https://map-projections.net/compare.php?p1=equalearth&p2=mercator-84

Equal Earth projection (2018)

Africa
==
14 x Greenland

https://map-projections.net/compare.php?p1=equalearth&p2=mercator-84

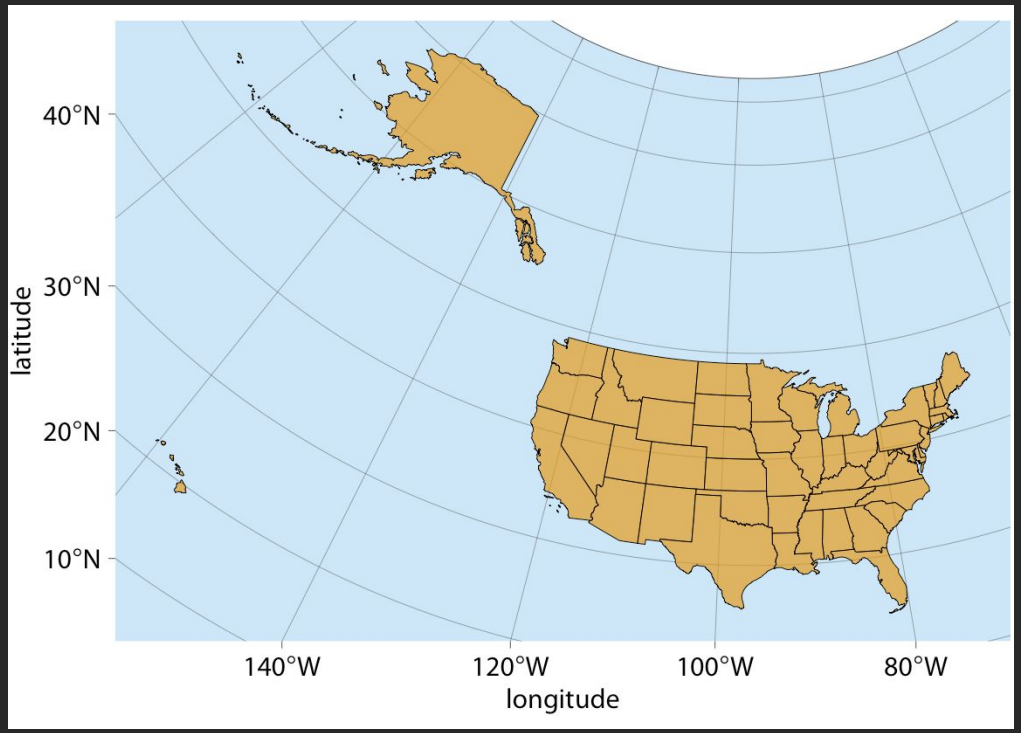
Comparison



https://map-projections.net/compare.php?p1=equalearth&p2=mercator-84

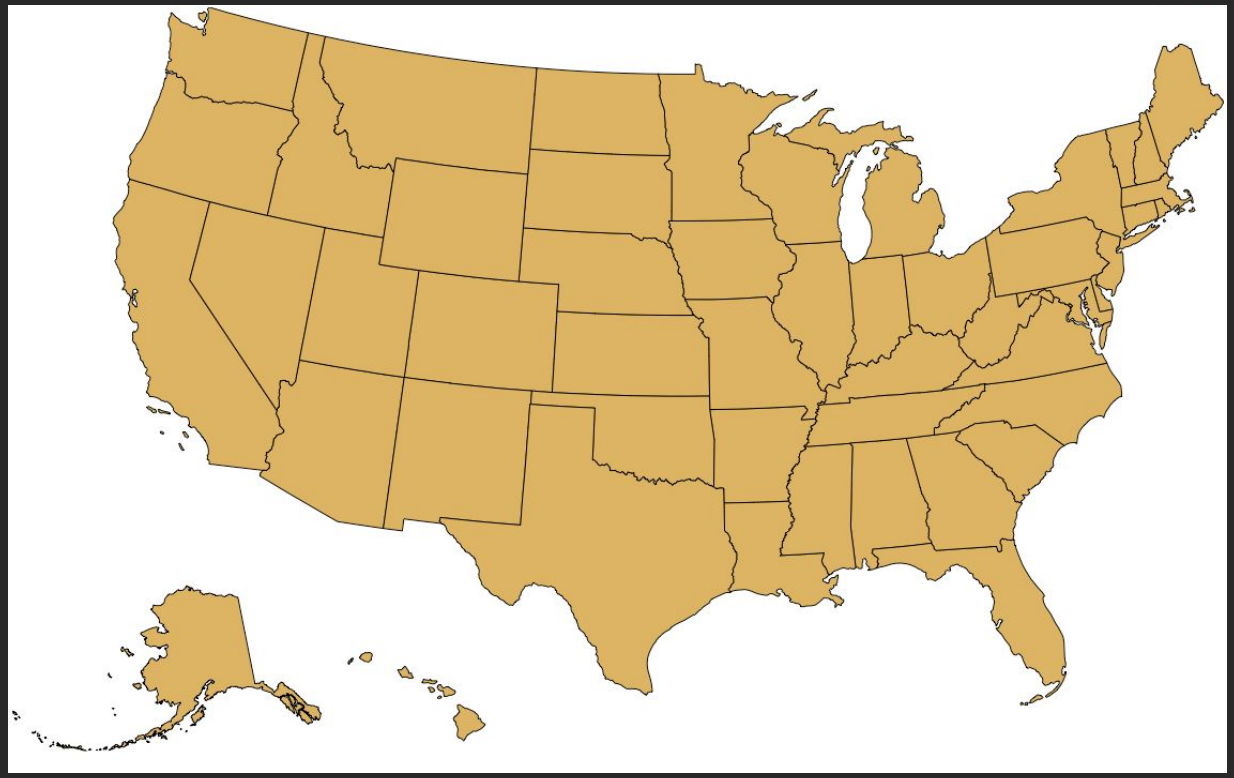
Mercator for smaller areas

Projections for disjoint regions



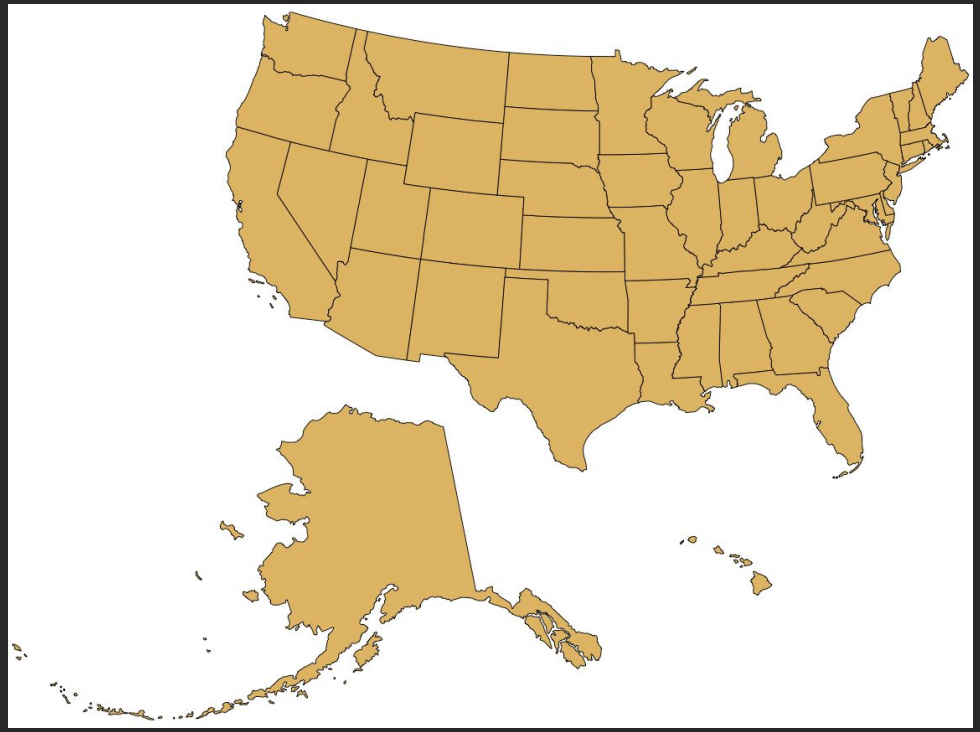
https://map-projections.net/compare.php?p1=equalearth&p2=mercator-84

Projections for disjoint regions



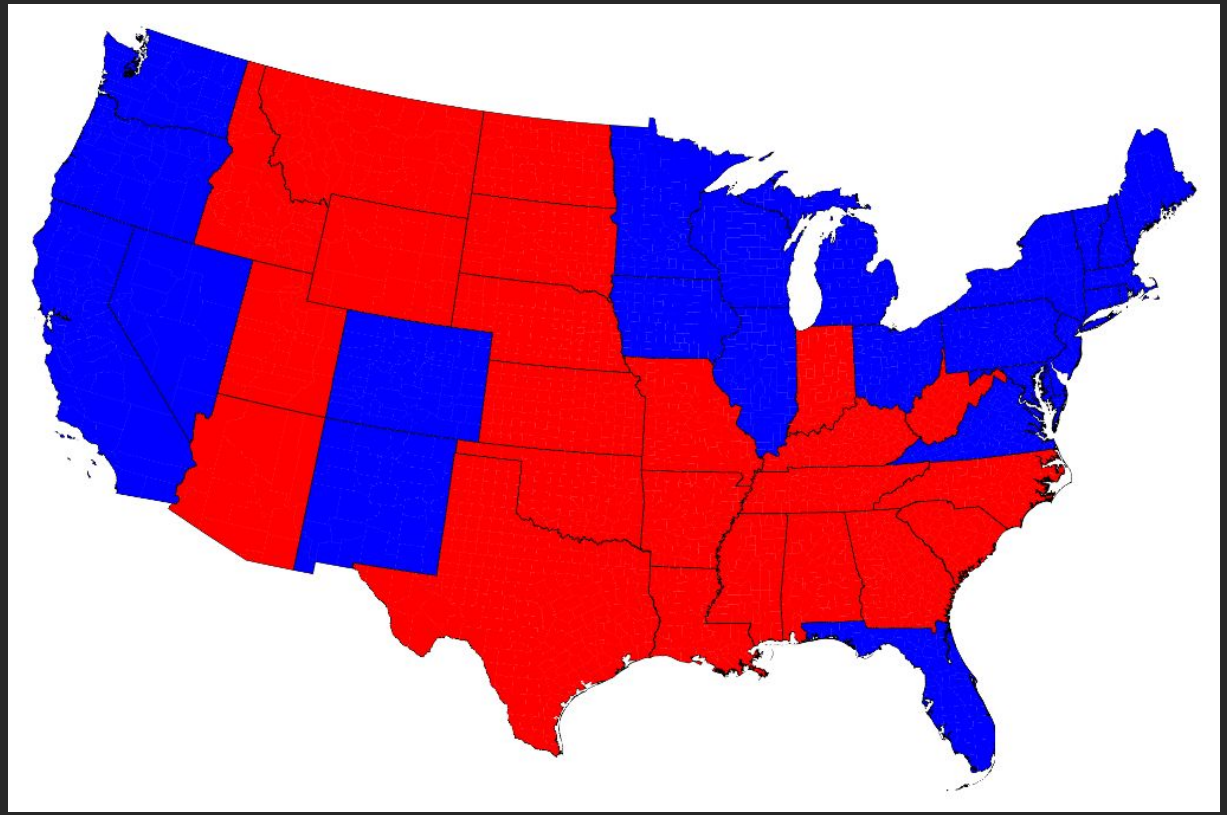
https://map-projections.net/compare.php?p1=equalearth&p2=mercator-84

Projections for disjoint regions

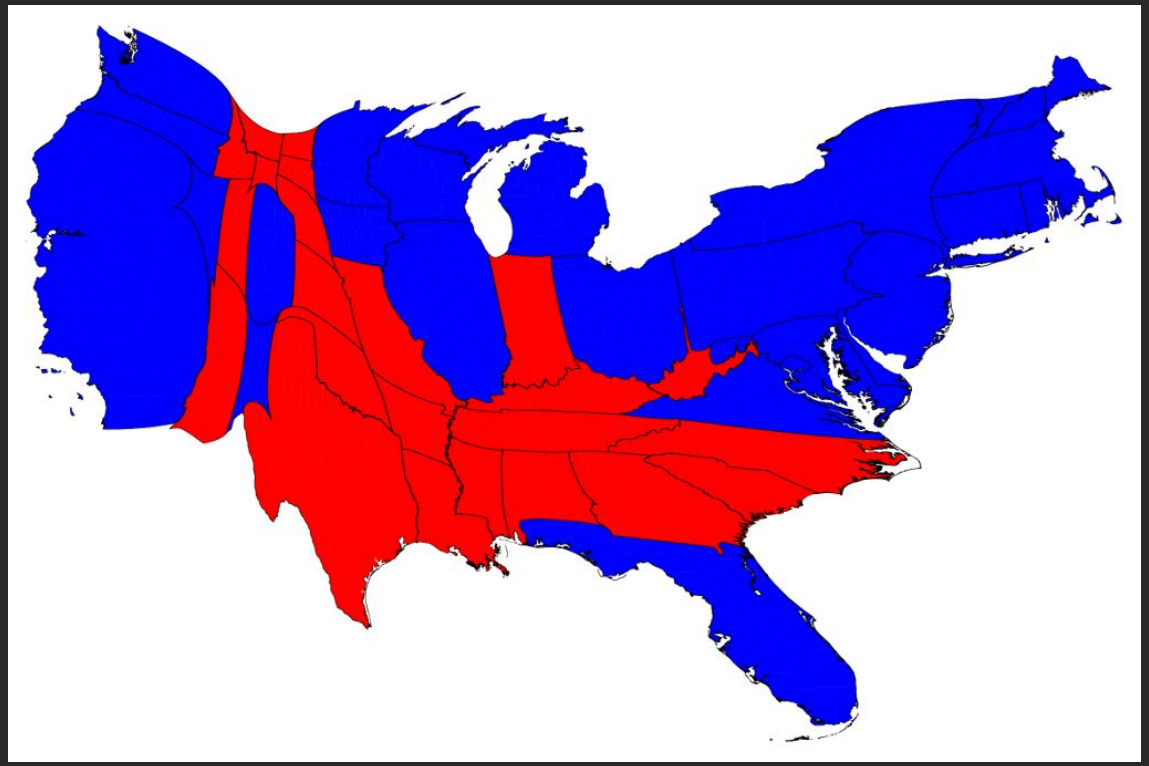


https://map-projections.net/compare.php?p1=equalearth&p2=mercator-84

Choropleths

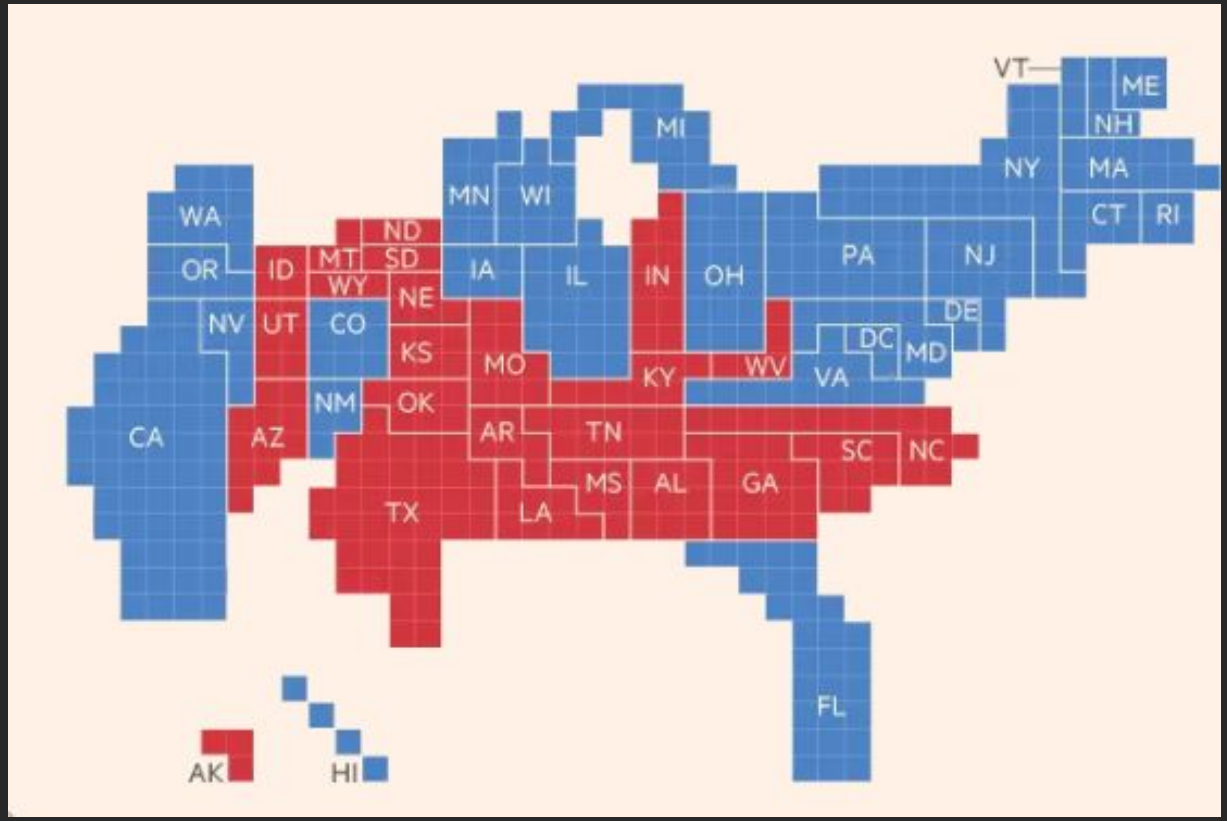


Cartograms



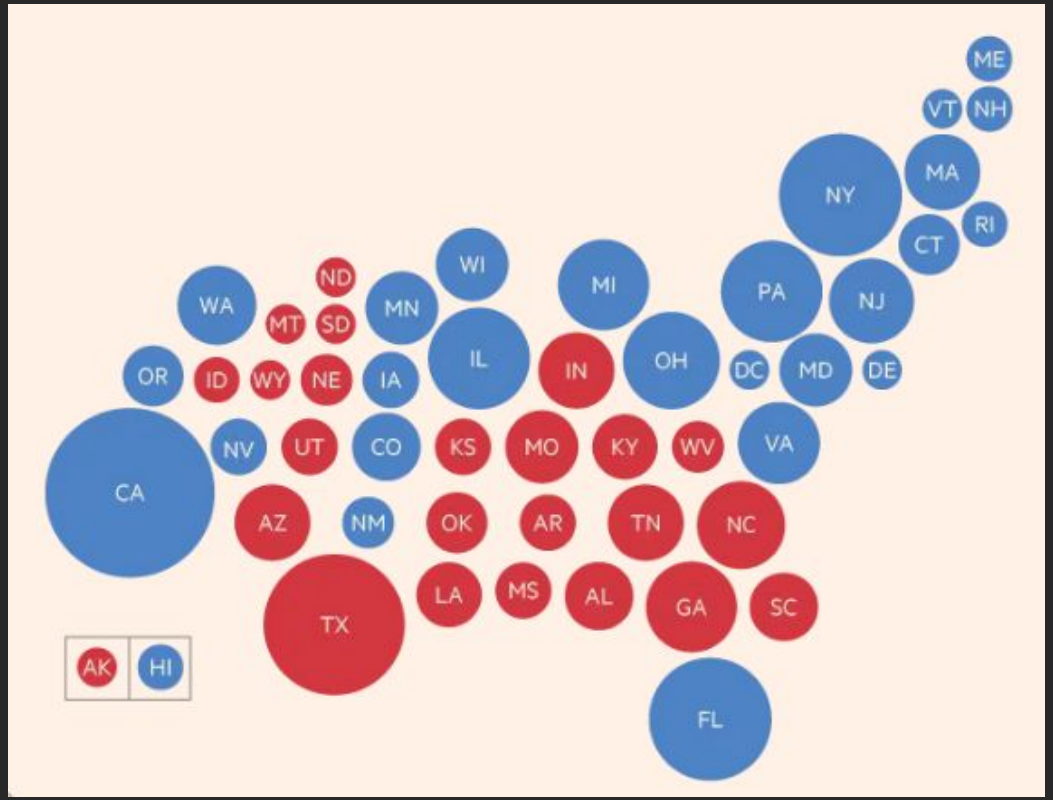
http://www-personal.umich.edu/~mejn/election/2012/

Cartograms



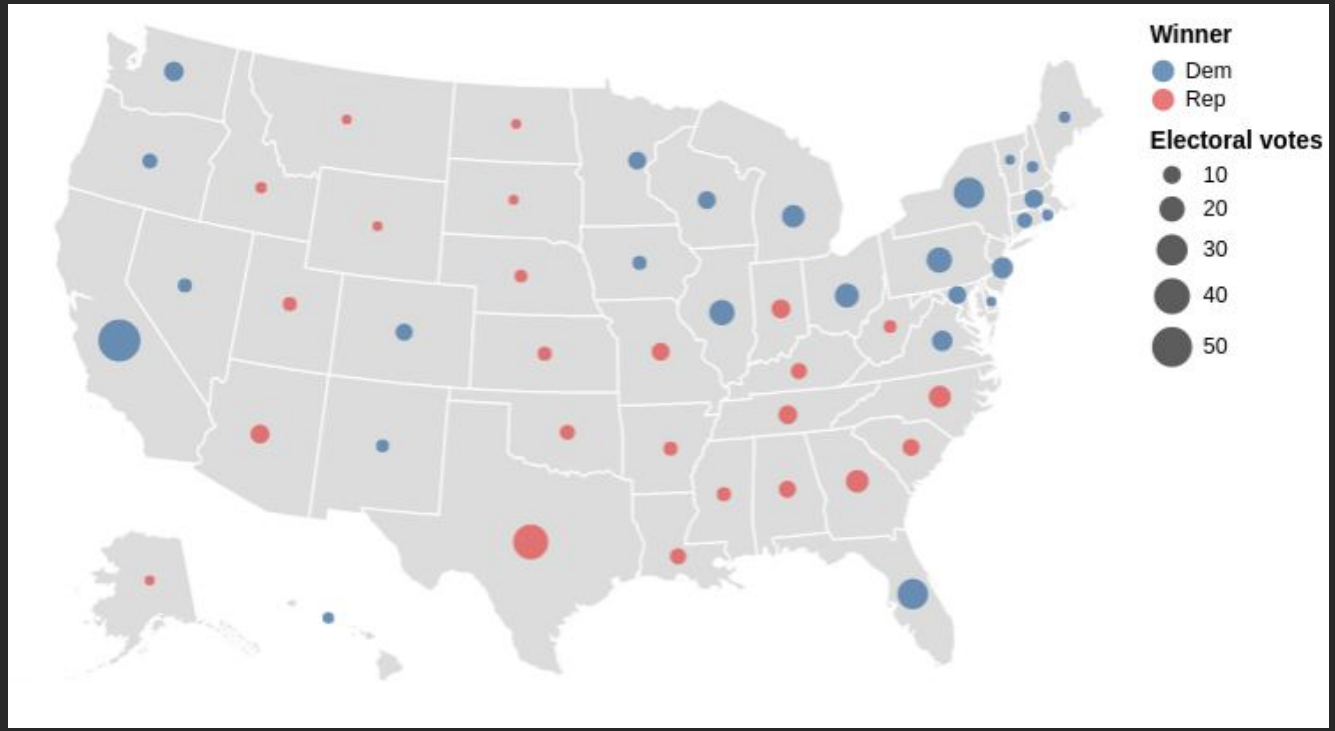
https://www.ft.com/content/3685bf9e-a4cc-11e6-8b69-02899e8bd9d1

Cartograms

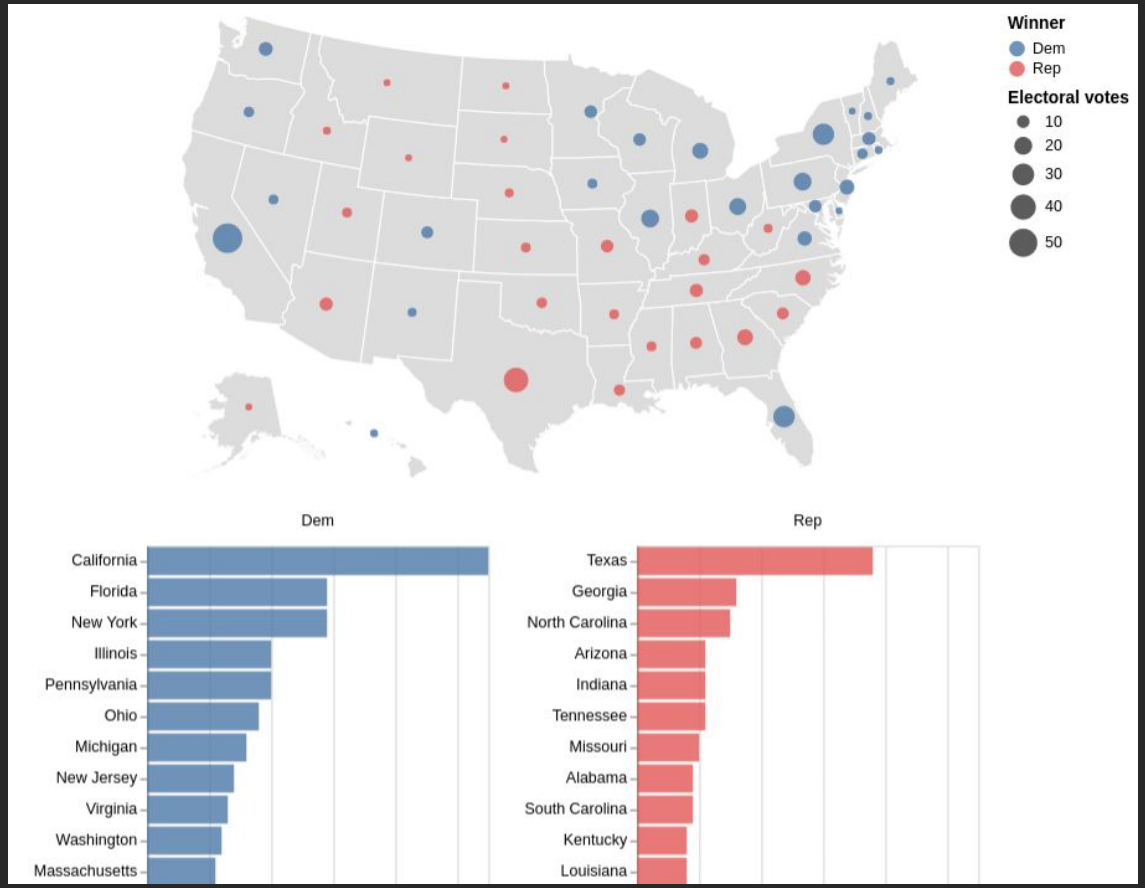


https://www.ft.com/content/3685bf9e-a4cc-11e6-8b69-02899e8bd9d1

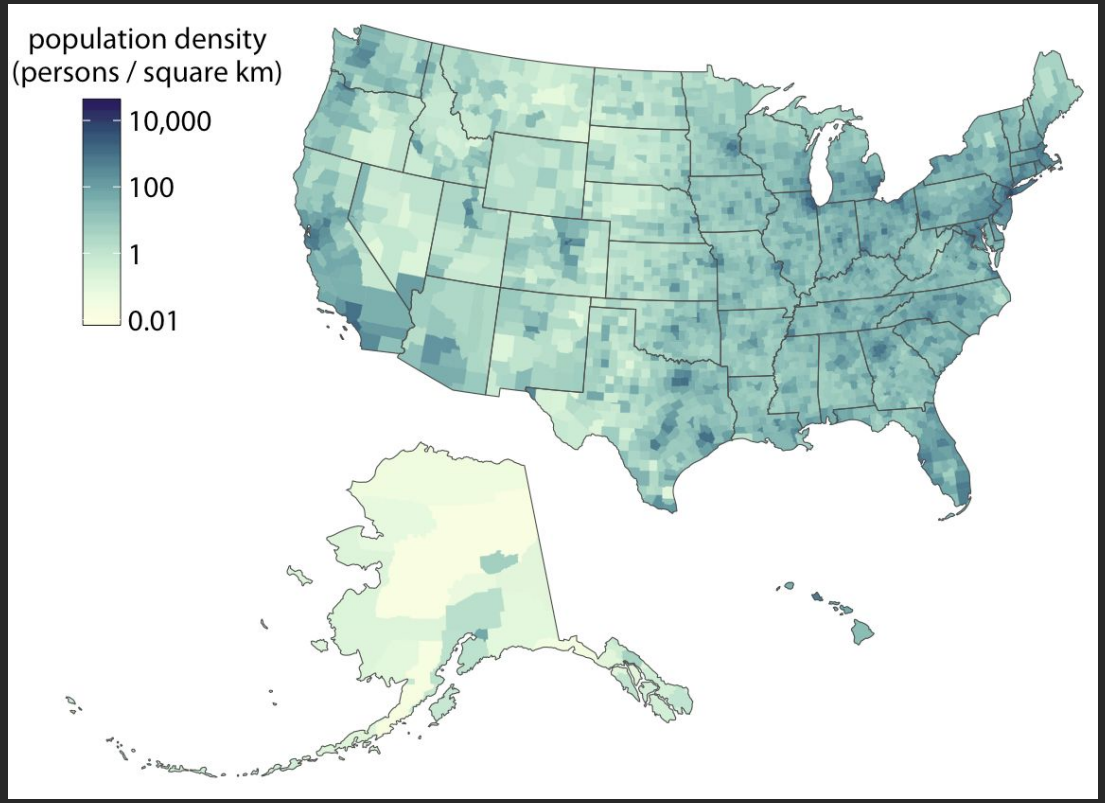
Cartograms



Cartogram + Helper chart

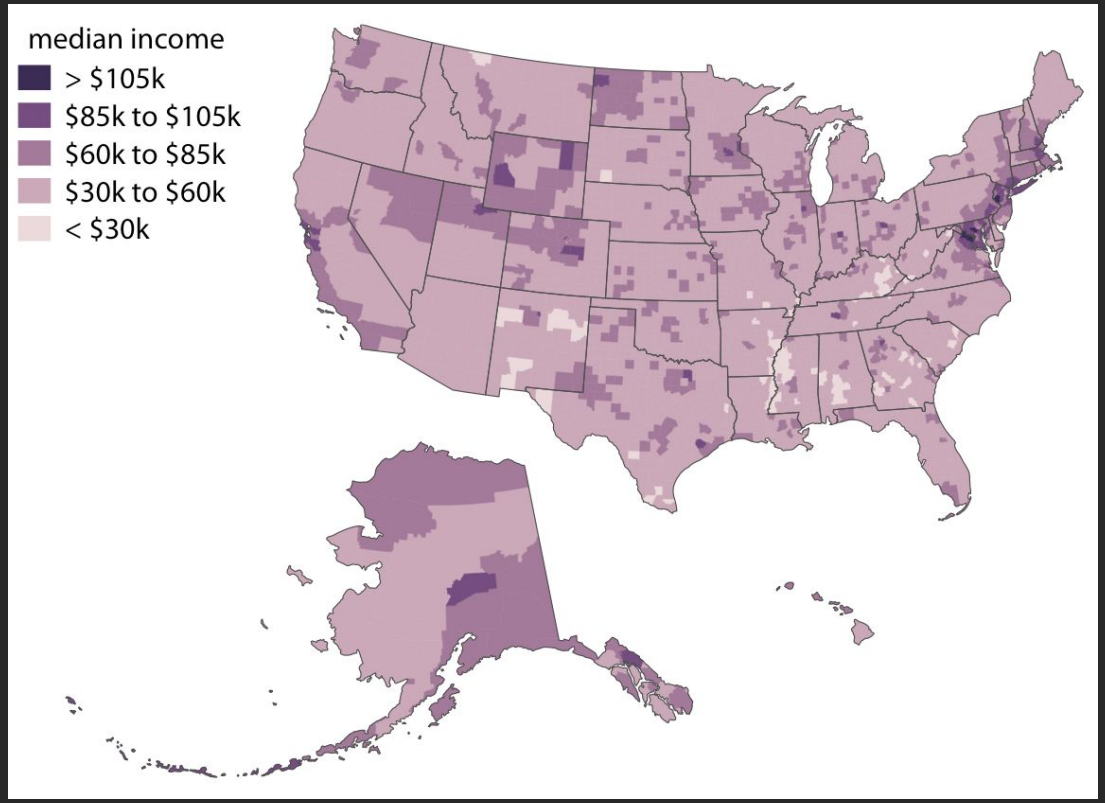


Choropleth with quant. color



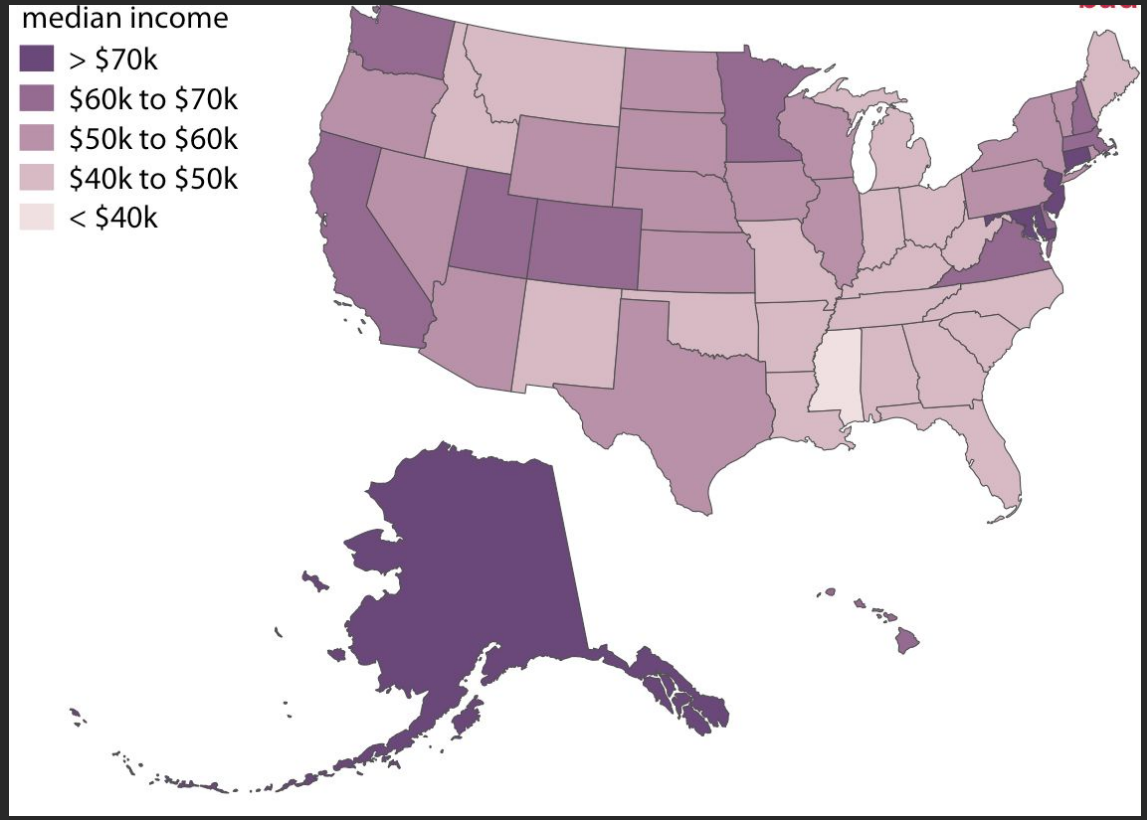
https://clauswilke.com/dataviz/geospatial-data.html

Choropleth with quant. color



https://clauswilke.com/dataviz/geospatial-data.html

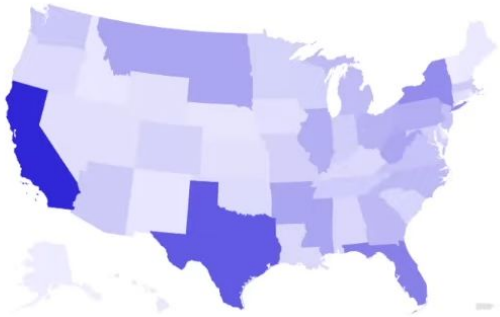
Choropleth with quant. color



https://clauswilke.com/dataviz/geospatial-data.html

Breaking down into smaller units

Choropleth map



Conveys value through colored regions

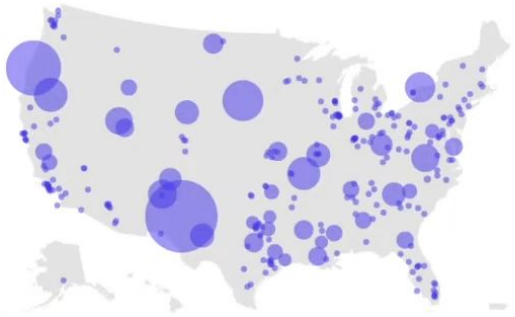
- ✓ Quick glances of the data
- ✗ Skewed towards bigger areas

Point map

Conveys value through the position of the symbols

- ✓ Shows density and clusters
- ✗ Can get too busy visually

Proportional symbol map



Conveys value through the position and size of the symbols

- ✓ Shows density and magnitude
- ✗ Comparisons can be difficult

https://www.youtube.com/watch?v=LPcEttrNV_E