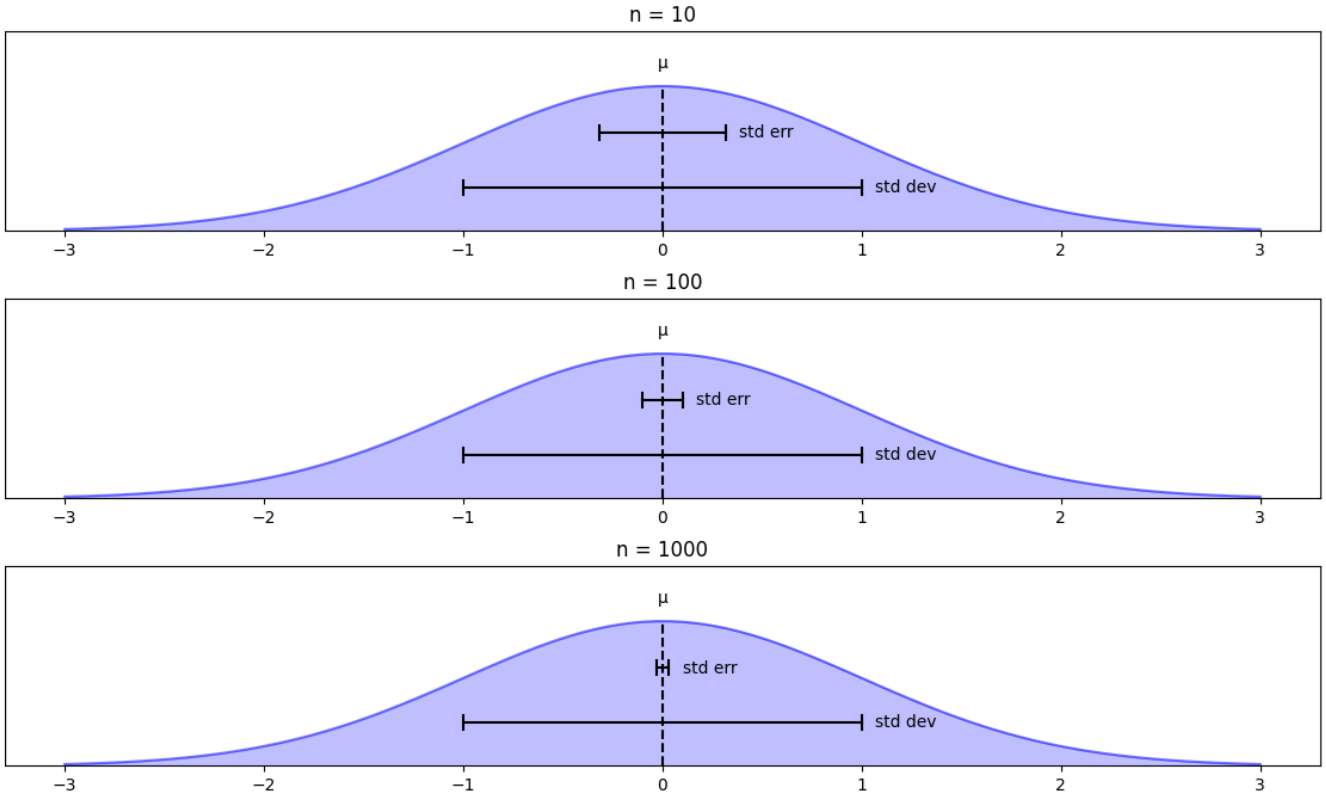
Data Visualizations

Uncertainty

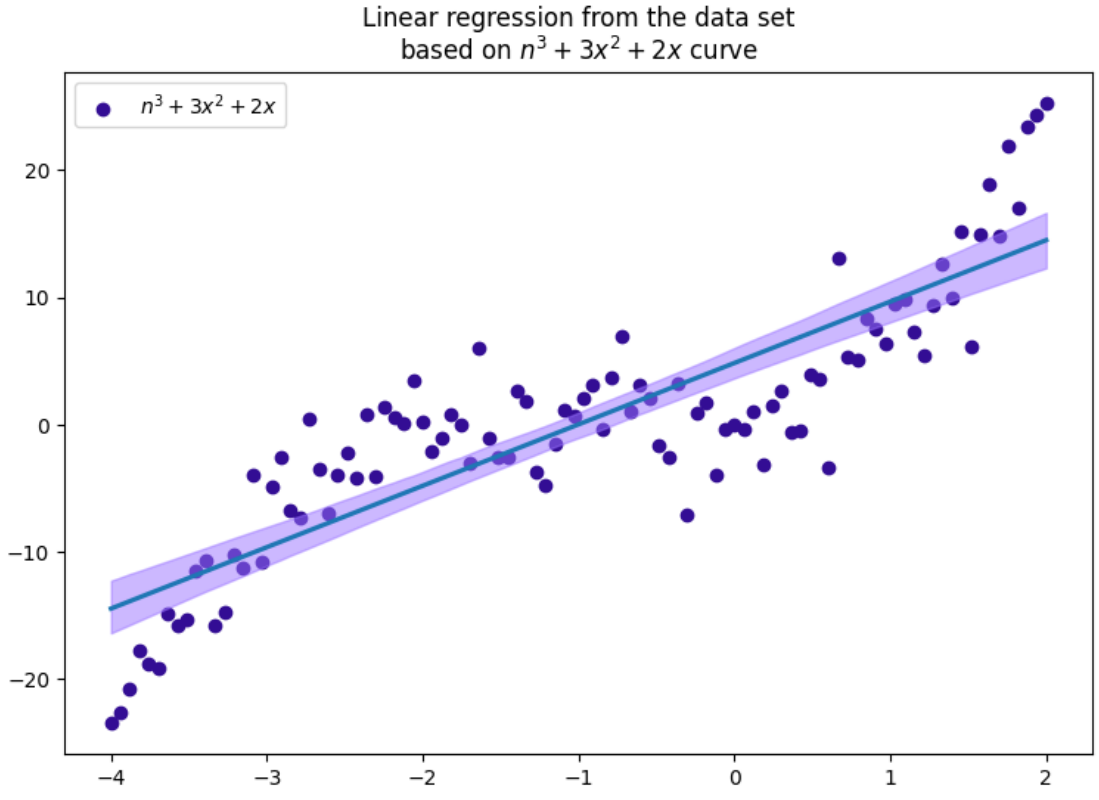
Standard error

$$SE = \frac{\sigma}{\sqrt{n}} \qquad CI = \bar{x} \pm z\frac{\sigma}{\sqrt{n}}$$

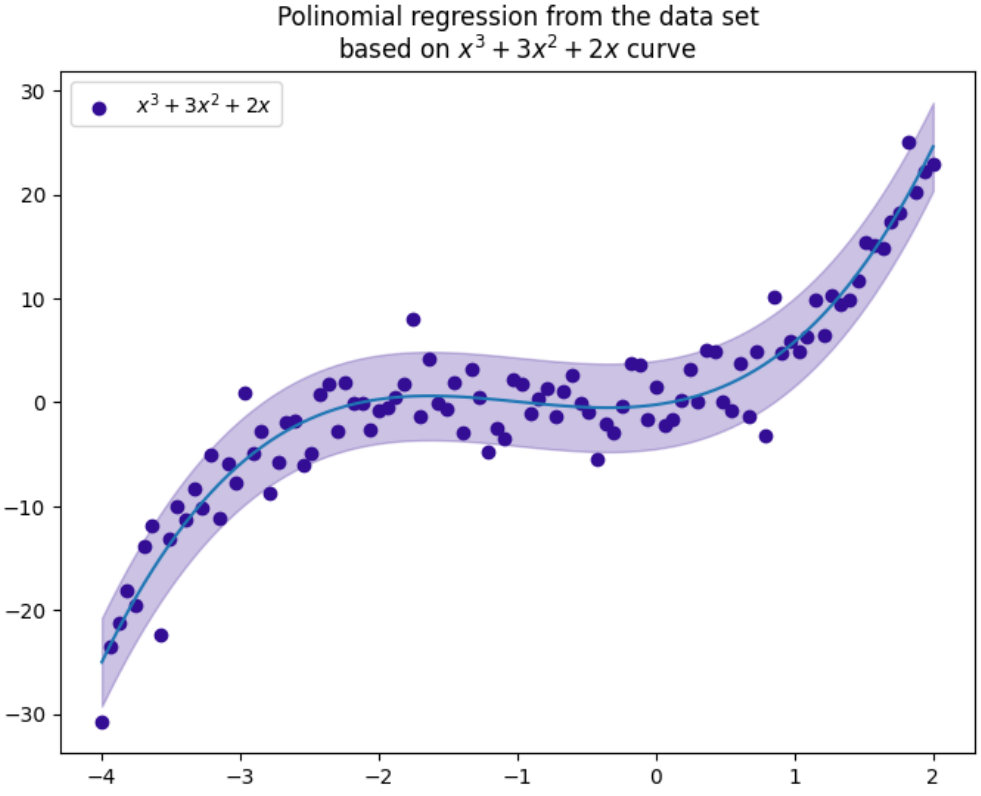
Standard error



Uncertainty range for linear regression



Uncertainty range for polynomial regression



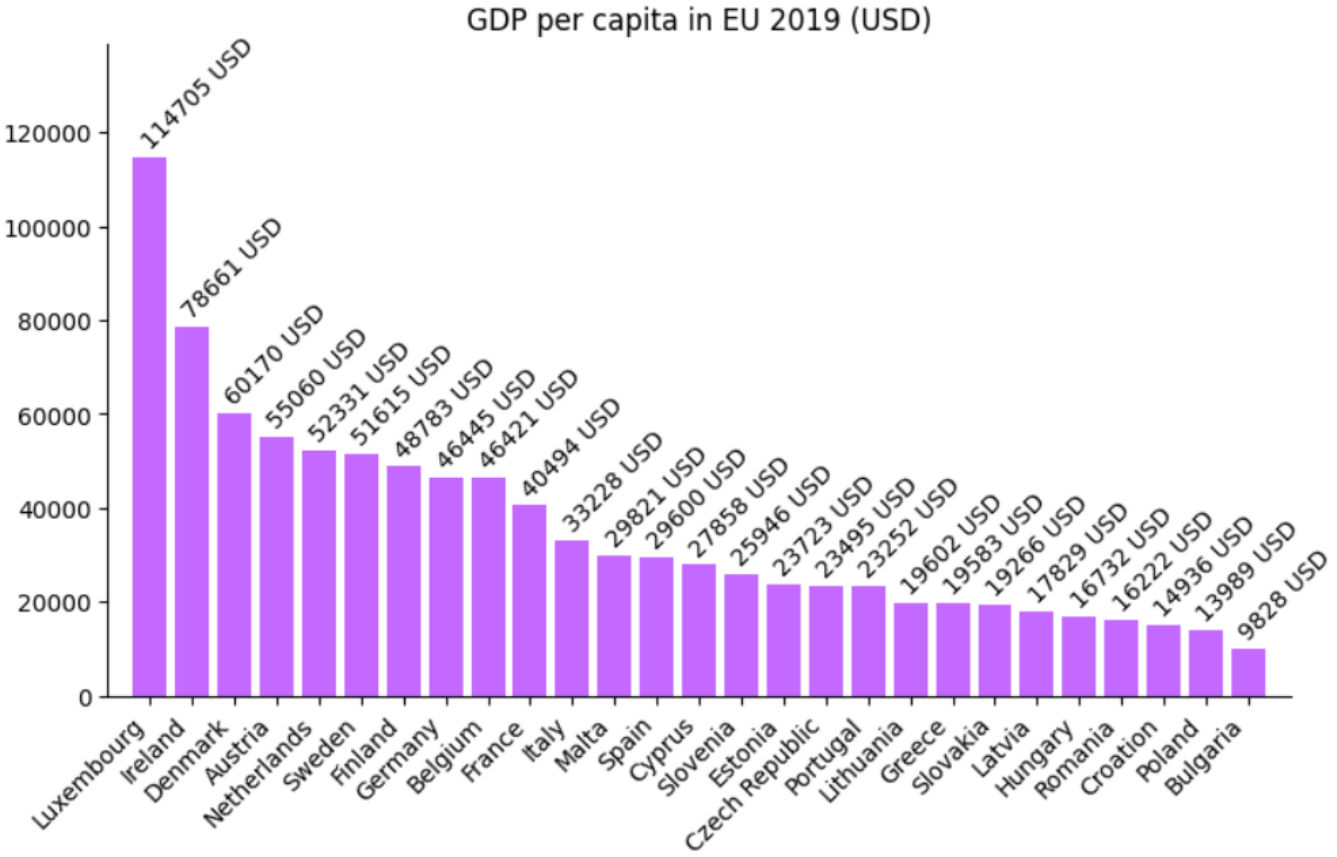
Geospatial

Ways of representing a map

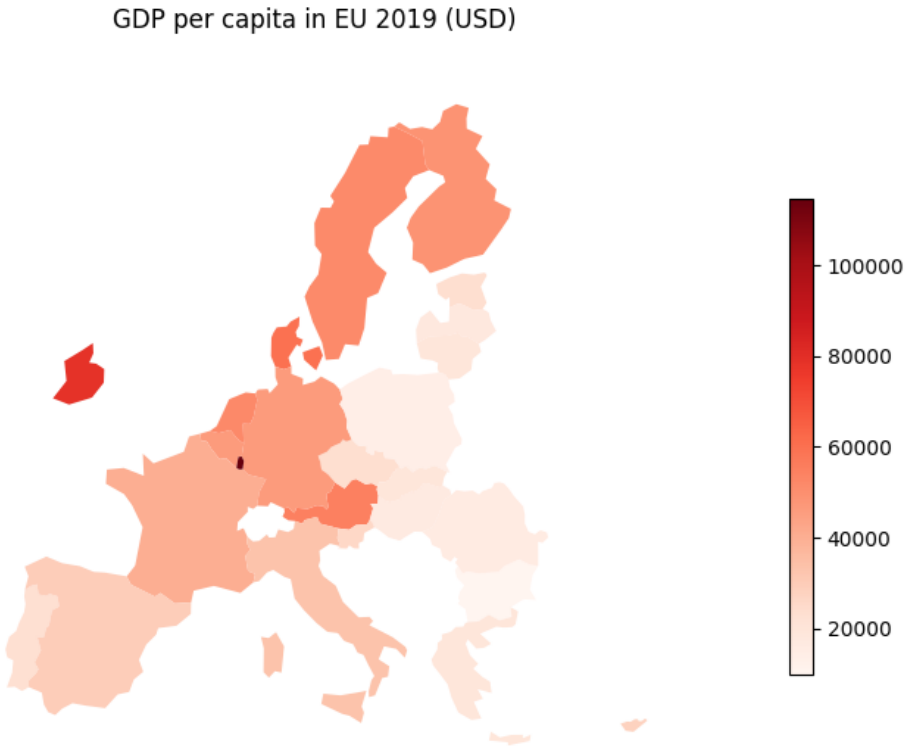
Why we need maps?

	country	GDP per capita (USD)
0	Austria	55060
1	Belgium	46421
2	Bulgaria	9828
3	Croation	14936
4	Cyprus	27858
5	Czech Republic	23495
6	Denmark	60170
7	Estonia	23723
8	Finland	48783
9	France	40494

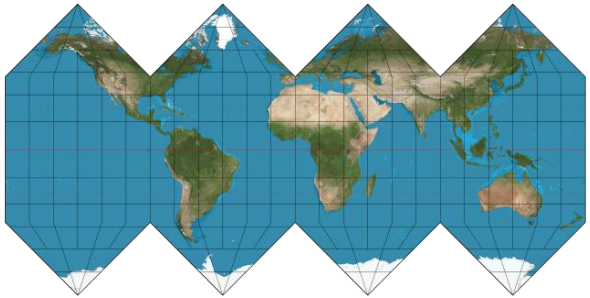
Why we need maps?

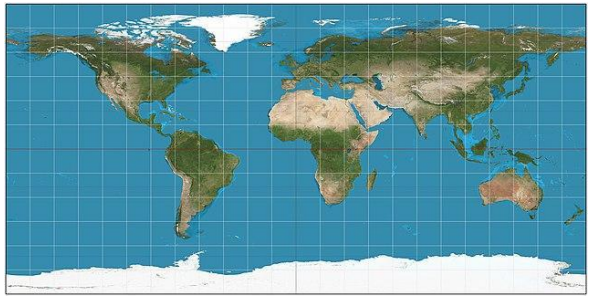


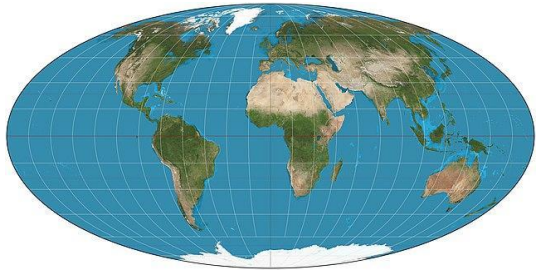
Why we need maps?

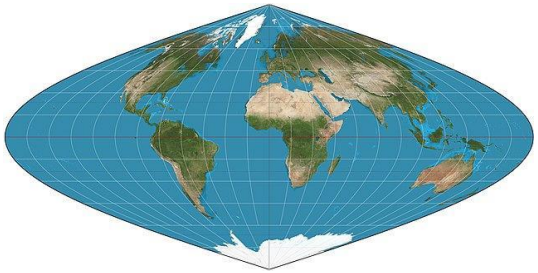


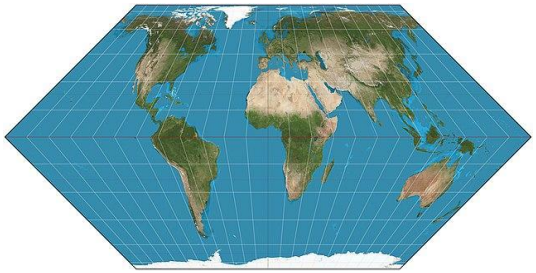
Many, many different projections…

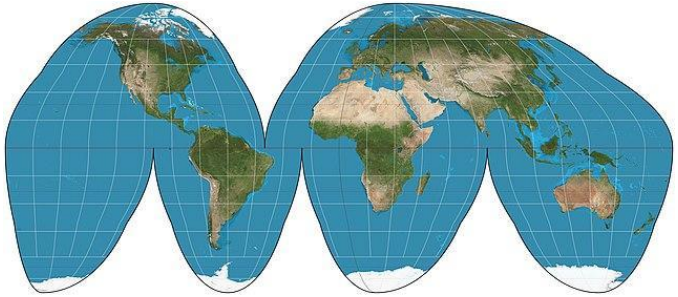




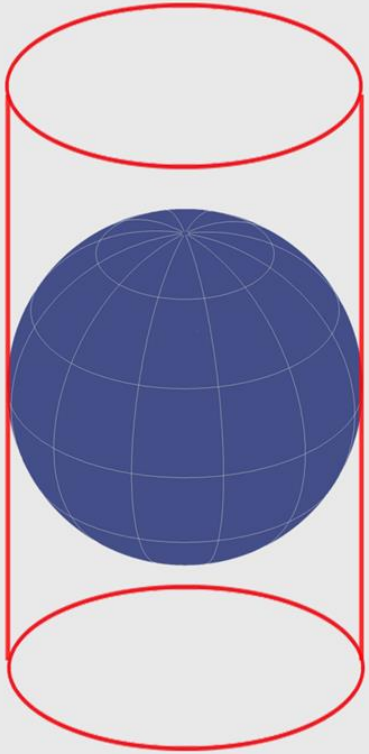




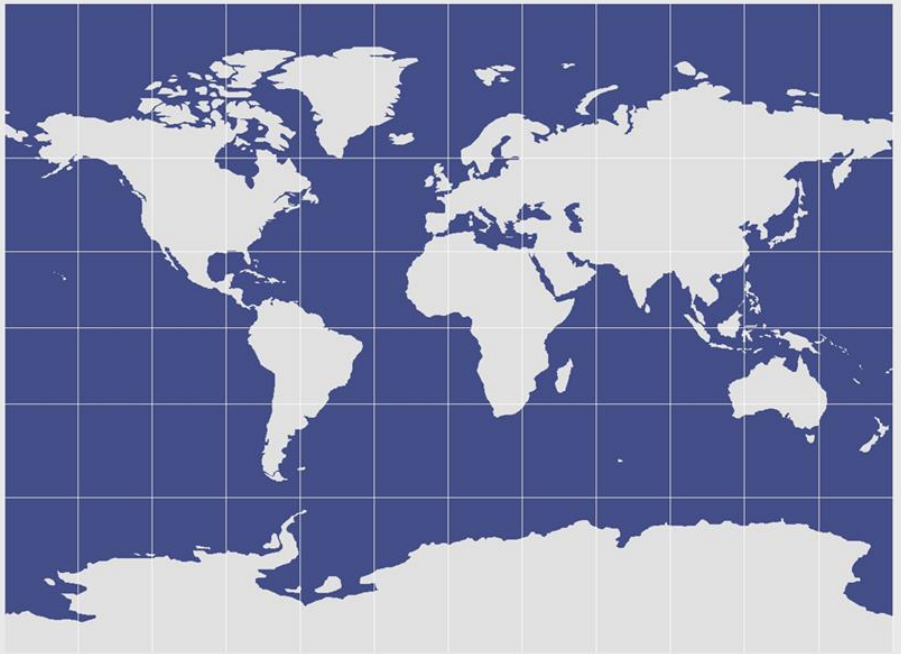




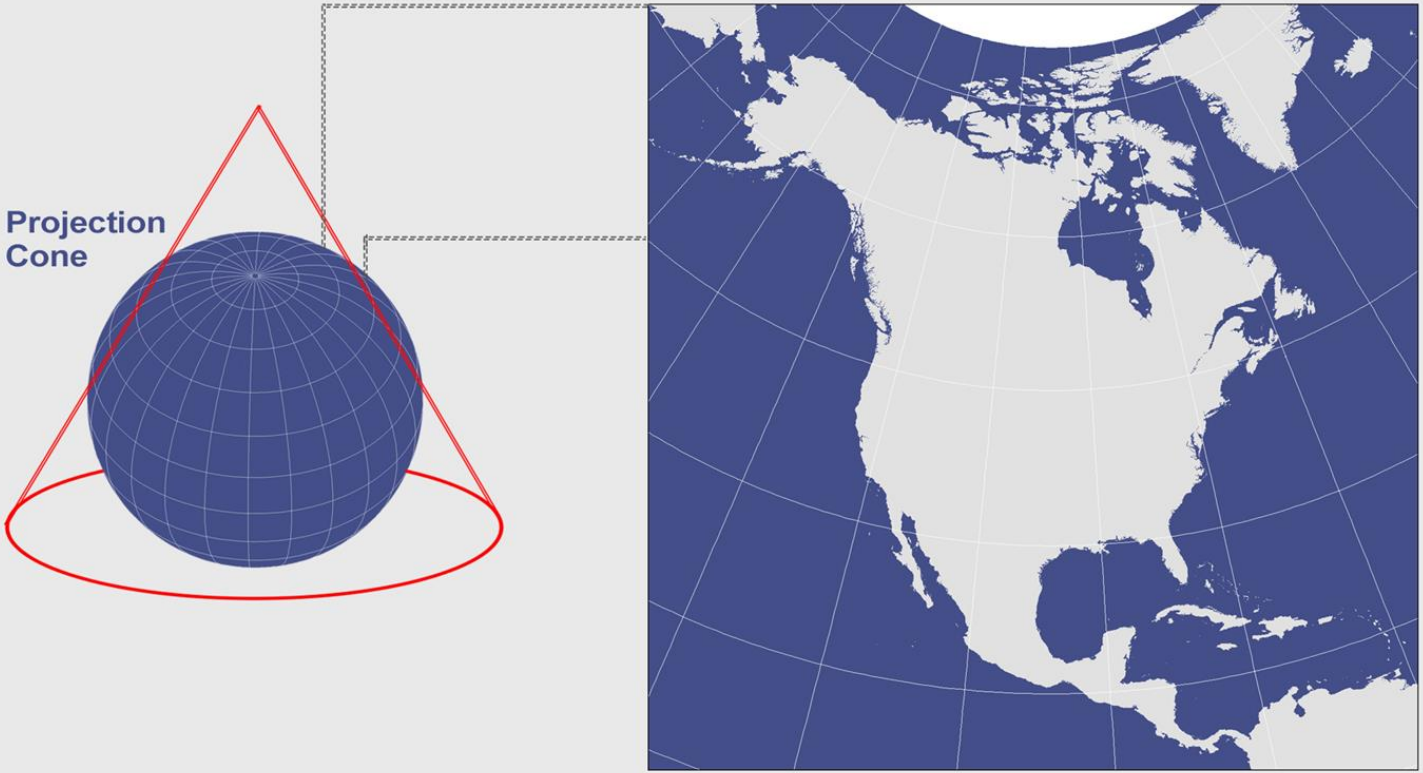
Mercator projection



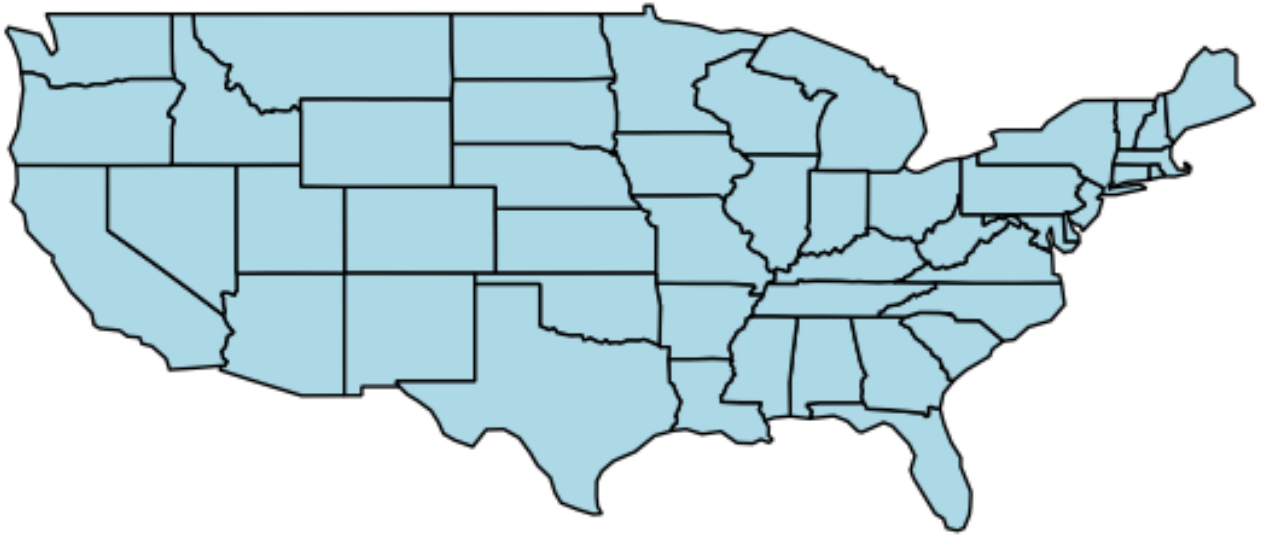
Projection
Cylinder



Albers projection



Mercator projection

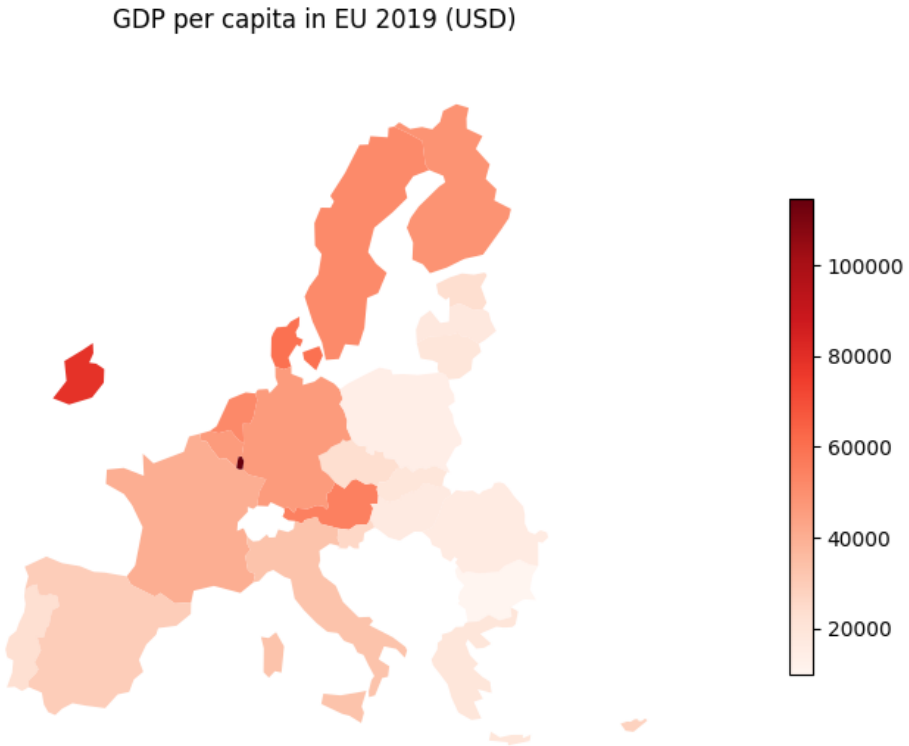


Albers projection

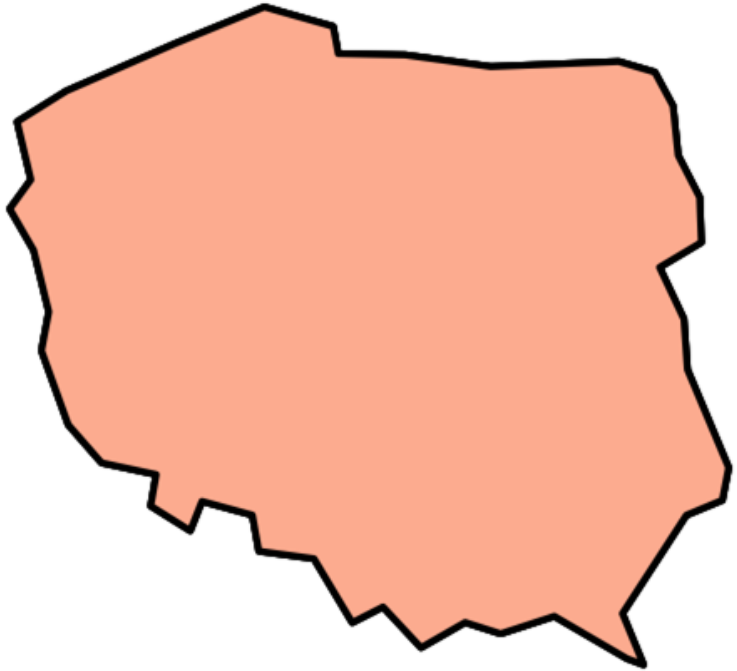
Mercator vs. Albers projection comparison

Types of map visualizations

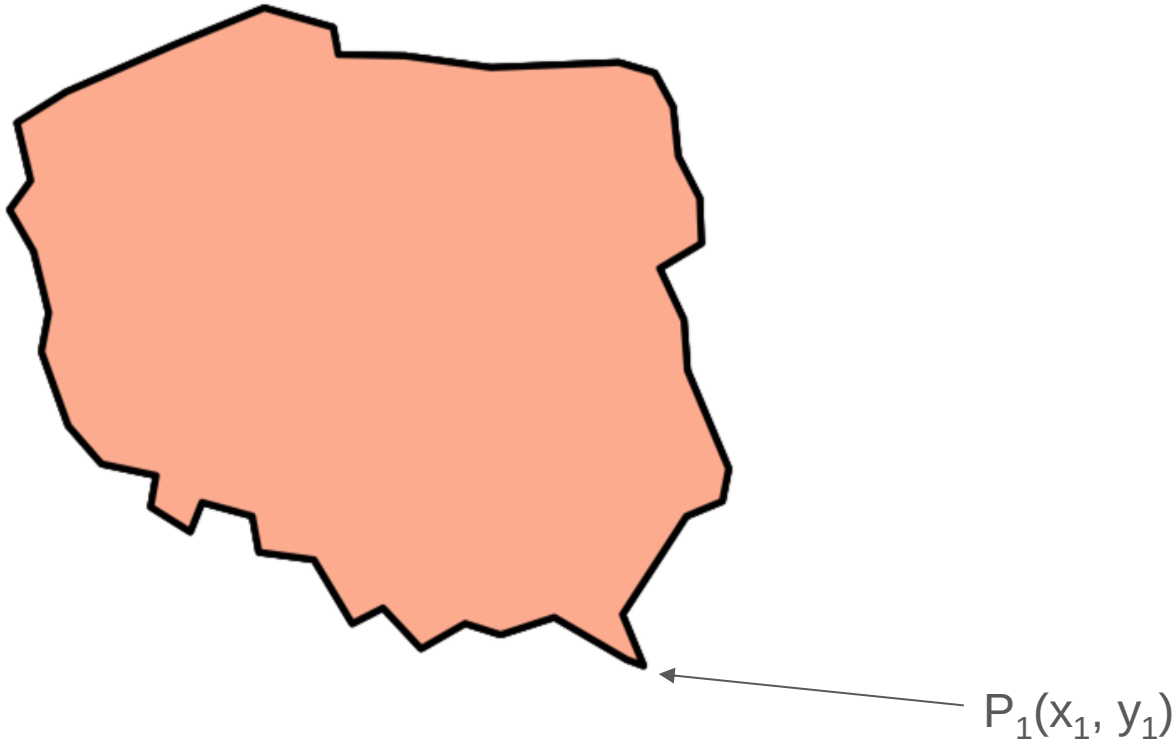
Choropleth



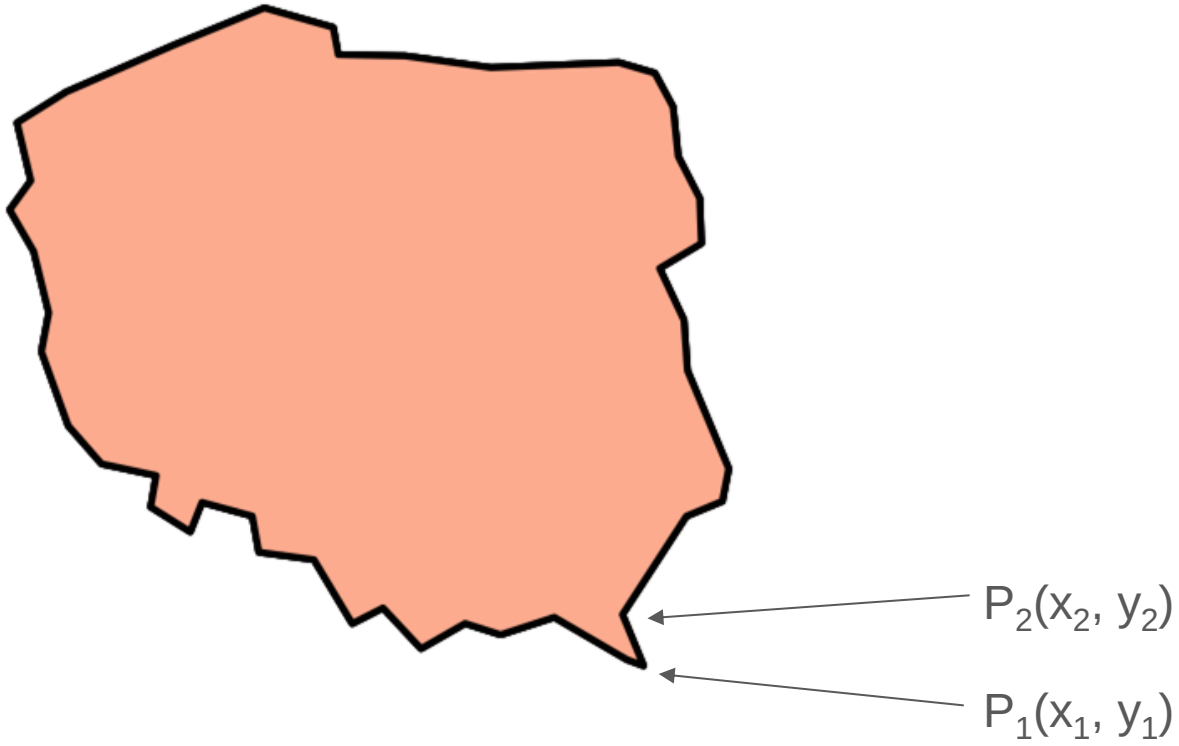
Choropleth



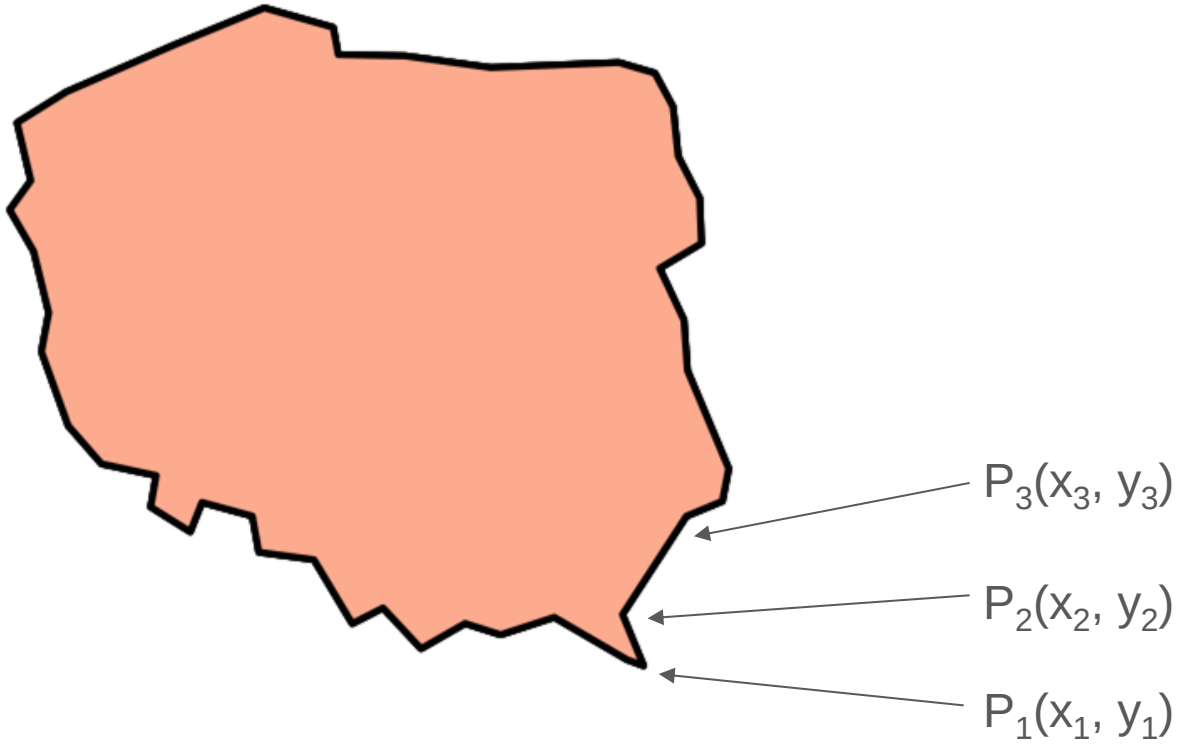
Choropleth



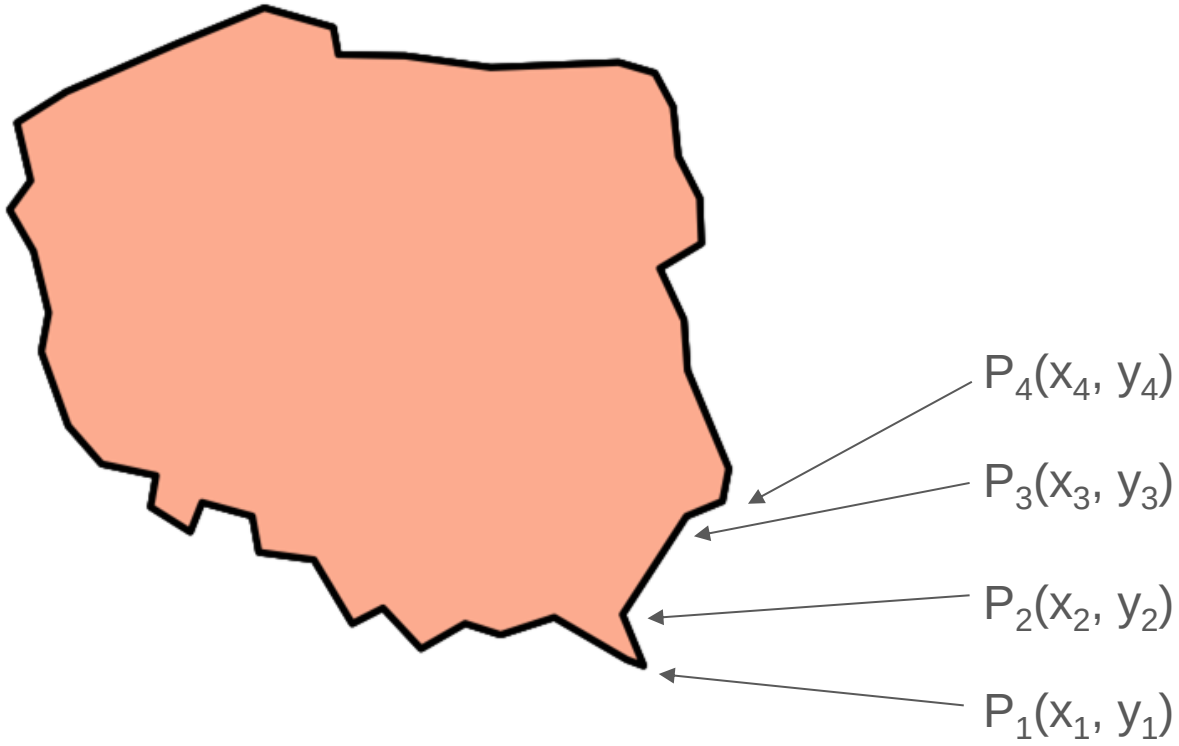
Choropleth



Choropleth

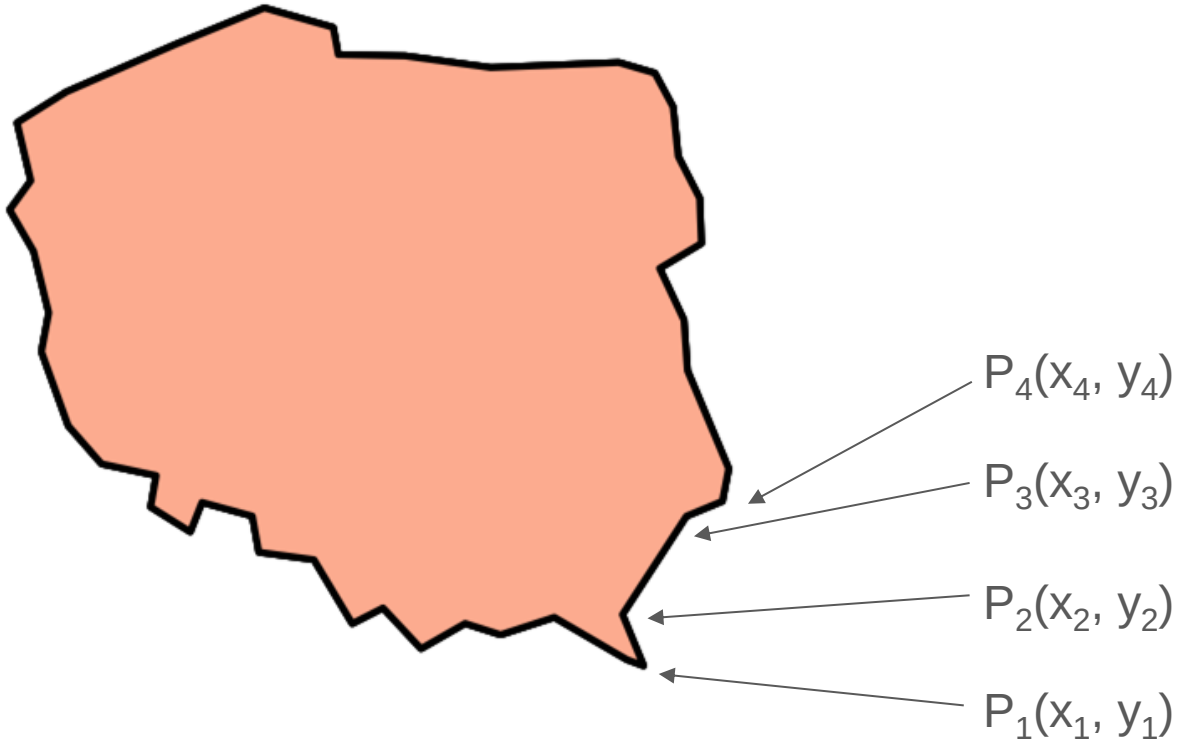


Choropleth



Choropleth

Poland = [
$P_1(x_1, y_1)$,
$P_2(x_2, y_2)$,
…,
$P_n(x_n, y_n)$
]



GeoJSON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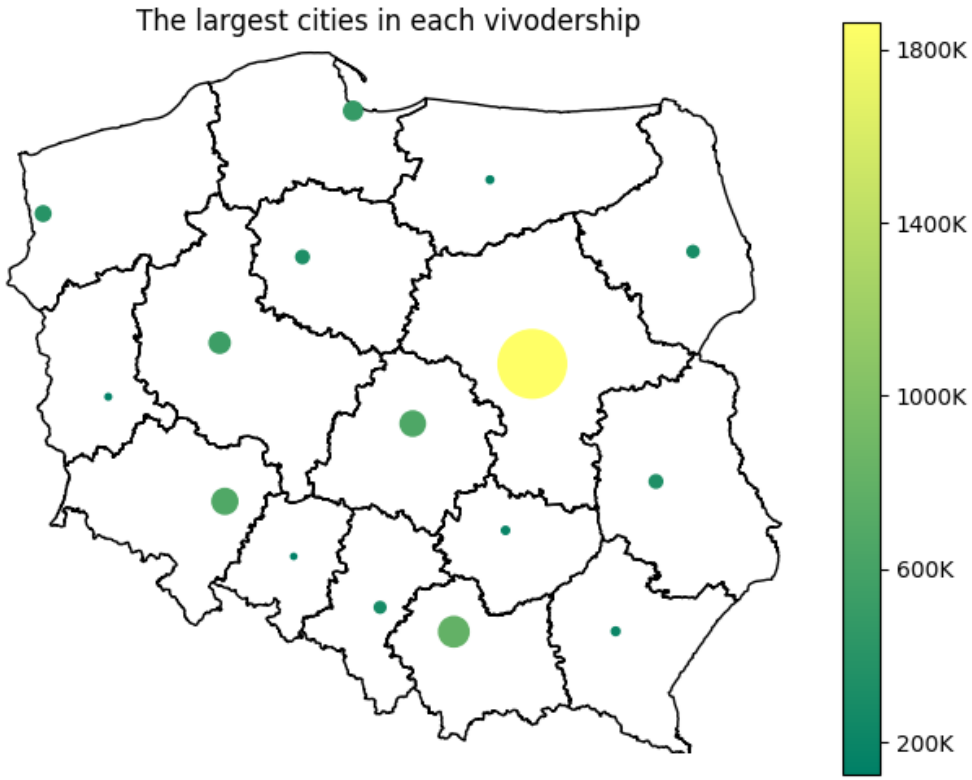
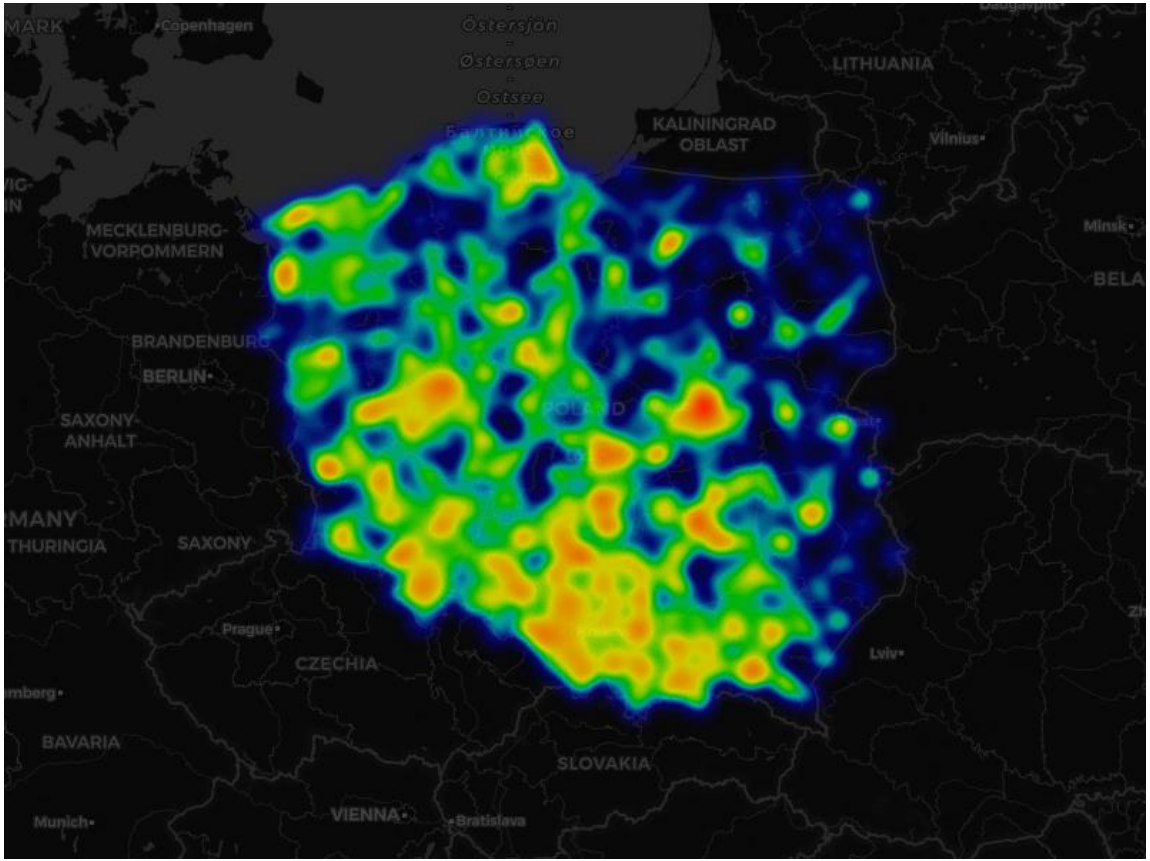
]
}

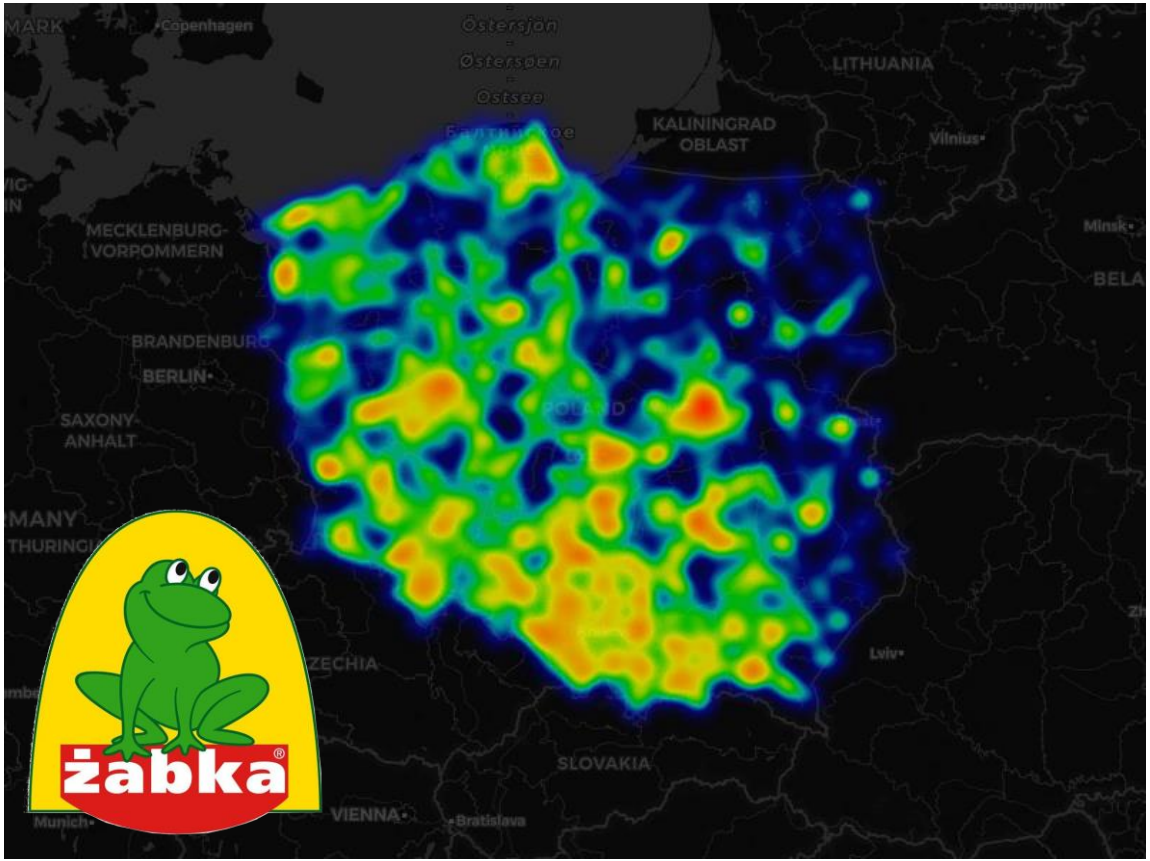
Bubble graph on map



Cartogram heatmap



Cartogram heatmap



References

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- https://en.wikipedia.org/wiki/Map_projection
- https://en.wikipedia.org/wiki/List_of_map_projections
- https://en.wikipedia.org/wiki/Mercator_projection
- https://en.wikipedia.org/wiki/Albers_projection
- https://math.univ-lyon1.fr/~alachal/diaporamas/diaporama_cartographie3/Cylindrical_Projections.htm
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- https://clauswilke.com/dataviz/visualizing-uncertainty.html