Workshops for Ukraine Spatial Data Visualization with Python
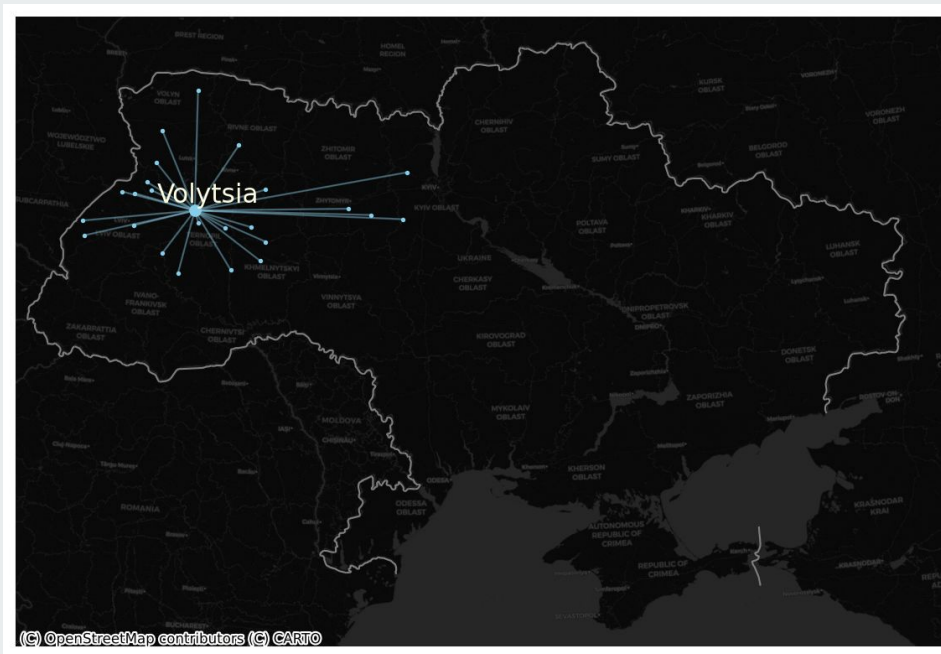
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Introduction

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https://github.com/marcinszwagrzyk/Geo_Python_Ukraine_2024/tree/master

Plan of the workshop

3 parts

- Presenting round earth on a flat surface
- Basics of cartographic methods
- tableau of maps

Live coding session, do not worry about keeping the pace:

- it is advised to rather listen and observe than to code in parallel,
- the code is shared with You

Presenting earth on a flat surface

A map projection is a systematic method of representing the surface of Earth, onto a two-dimensional plane.

- We cannot represent Earth on a flat surface without distortions
- Each map projection has its purpose and different kind and size of distortions
- Distortions vary in space - some areas on a map may be truthfully reproduced, while other areas may be heavily distorted
- Using the cartographic projection (regarding the purpose of the map) lead to substantial (even infinite) errors


Map Projection Families

https://docs.qgis.org/
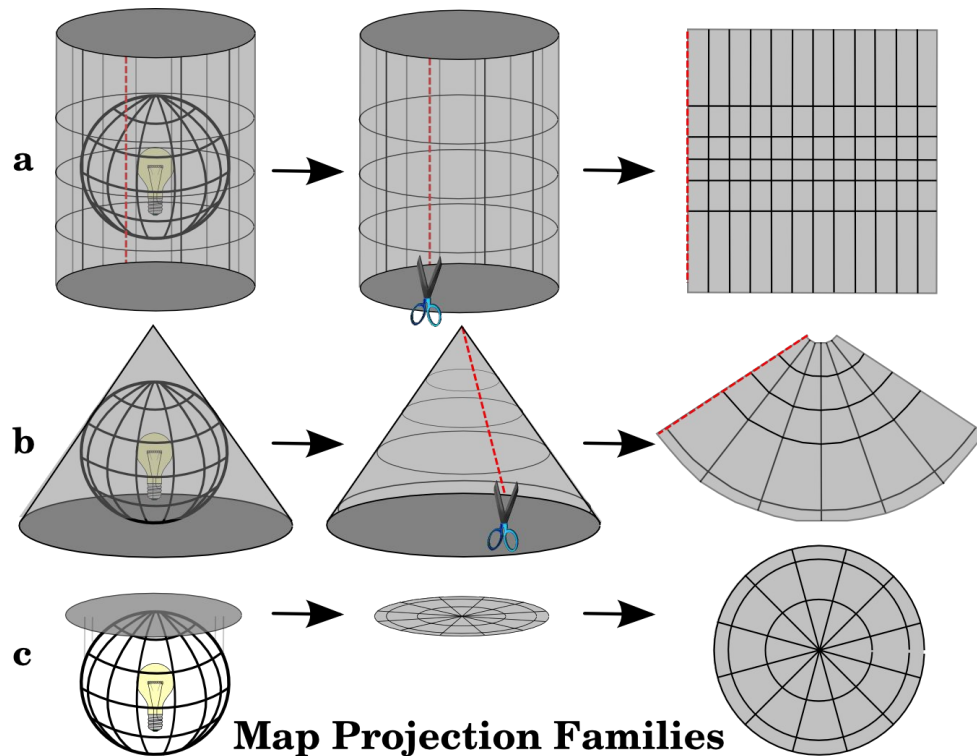
CRS, Cartographic Projections etc

CRS stands for Coordinate Reference System. It is a framework used to define and interpret spatial coordinates A CRS provides a standardized way to specify locations on the Earth's surface.

**Computer can do all the maths for us, we just need to be:**
- **aware**
- **unambiguous**

World Mollweide Projection
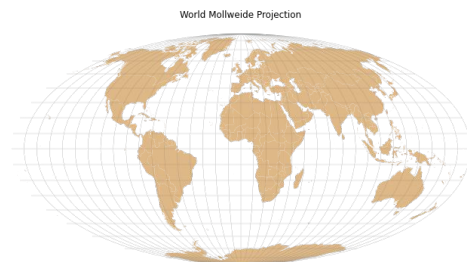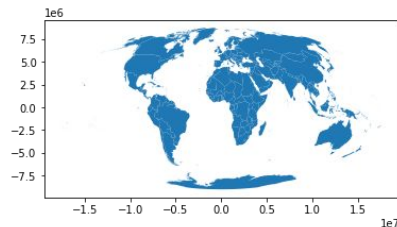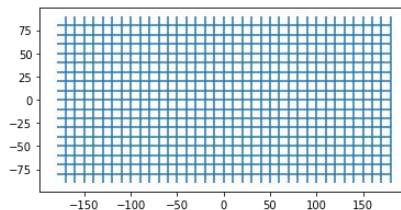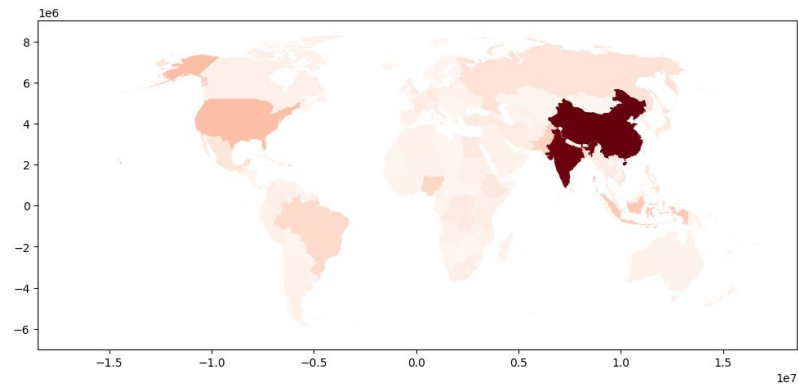
Cartographic methods

Graduated color symbology is used to show a quantitative difference between mapped features by varying the color of symbols. Data is classified into ranges that are each assigned a different color from a color scheme to represent the range.
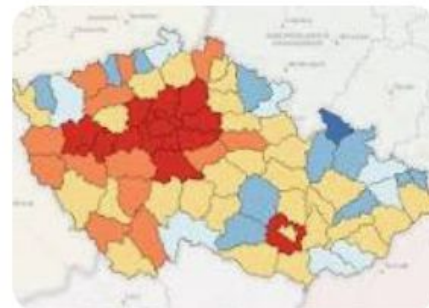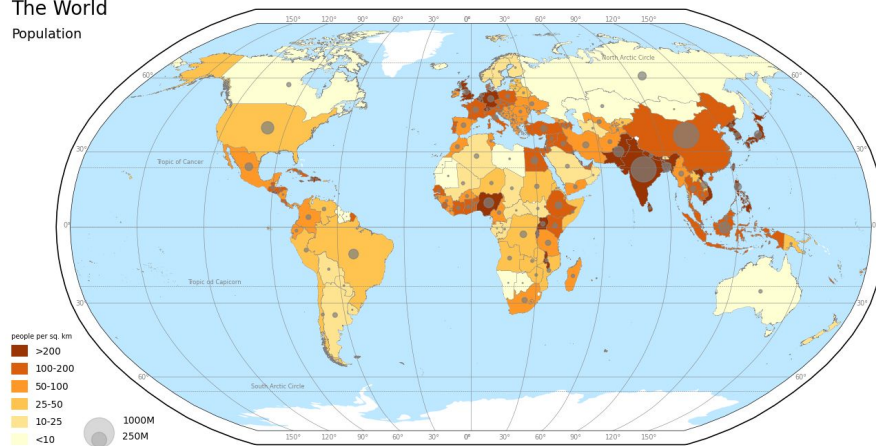

Graduated symbols are used to show a quantitative difference between mapped features by varying the size of symbols. Data is classified into ranges that are each then assigned a symbol size to represent the range. For instance, if your classification scheme has four classes, four different symbol sizes are assigned.

Cartography in Python - is it possible?

Resources

Python libs
https://shapely.readthedocs.io/en/stable/index.html
https://geopandas.org/en/stable/index.html

Datasets
https://www.geoboundaries.org
https://www.naturalearthdata.com/

Cartographers
https://twitter.com/PythonMaps
https://twitter.com/gontsa