Geoanalytics – CheatSheet

1. Geopandas

Python package for working with geospatial data

Documentation
https://geopandas.org/

Useful functions & tips:

- Geopandas.read_file()
    - reads *geojson, shp* file formats.
- Geopandas.GeoDataFrame()
    - *geometry* argument tells GeoPandas which column is a shapely object. When Longitude and Latitude are stored in separate columns, *geopandas points_from_xy()* can be used to transform coordinates into a list of *shapely.Point* objects and set it as a *geometry*.
    - *crs* argument tells GeoPandas where the coordinates of geometries are located on the Earth. Most frequently, for working with latitude and longitude, *'epsg:4326'* should be passed (globally) or *'epsg:2180'* (Poland; GUS).
- GeoDataFrame.to_crs()
    - changes the representation of locations from one coordinate system to the other.
- Geopandas.sjoin()
    - performs a spatial join between two geometry objects
    - *how* argument tells GeoPandas what type of spatial join should be performed *(e.g. left, right, inner)*
    - *op* argument tells GeoPandas whether or not to join the attributes of one object to another, based on their geometric relationship (e.g. *intersects, contains*).

2. Shapely

Python package for computational geometry

Documentation
https://shapely.readthedocs.io/en/stable/manual.html

3. Scipy

Python package for mathematics, science and engineering

Documentation
https://docs.scipy.org/doc/scipy/reference/

Example of research:
How to match the closest points between two GeoDataFrames?
https://gis.stackexchange.com/questions/222315/geopandas-find-nearest-point-in-other-dataframe