SDG Africa Partnership

Workshop with Ellen and Charles, two scientists from Makerere University Kampala, Uganda, together with Clein and Rolf from HSRW 🙂

2023-11-07

- Download and install of QGIS
- Download and install anaconda
- conda environment creation
- installation of libraries according to https://github.com/rolfbecker/EE_3.07_Geodata_WS2022/tree/main/gdms0020_Course_Preparation
- Correction of packages: jupyterlab pandas geopandas shapely fiona pyproj rasterio sqlalchemy psycopg2 ipython-sql bs4
- https://cs231n.github.io/python-numpy-tutorial/ up to numpy

Extra material:

- pandas tutorial (comprehensive): https://github.com/ageron/handson-ml3/blob/main/tools_pandas.ipynb

2023-11-08

- * Finished the numpy tutorial from cs231. Skipped the image processing for now
- * Followed partially the hands-on-ml3 tutorial (tools_pandas.ipynb). Material covered:
- * import pandas and alias
- * Series: create from list, give index, give name, create from dictionary. slicing, alignment, plotting
- * Handle time with pd.date_range()
- * Creating a Dataframe: by dictionary.
- * selecting columns, accesing values, filtering, transposing. **skipped multi-indexing, stacking and unstacking**,
- * datafream read: read_csv and read_excel. And dat frame write

Homework: explore the real data: https://firebasestorage.googleapis.com/v0/b/fao-aquastat.appspot.com/o/Excel%2FAfrica-dams_eng.xlsx?alt=media&token=b621f090-60cf-46f1-8472-9003ce314066

2023-11-09

- **first notebook gnb0101_DWD_**

To correct:

1. 1) Explain what the grabfile function is doing with doc string
2. 2) Show them what the problem of the file is by uploading in QGIS
3. 3) Let them import the file by themselves, So they see the problem again
4. 4) Notice that station ID is being read as integer. So correct that by a dtype dictionary
5. 5) Update the administrative boundaries links

- **geopandas notebook gnb0131_Geopandas_**

To correct:

1. Give the LL and UR coordinates and let the. figure out the rest
2. Show an example of usage for Point and for Line in shapely. Ask then for creating the polygon
3. geopandas as a tool to have data frames with georeferenced data. So let them use the example and modify the data as they need it
4. Show how to find the correct item in the documentation
5. Let them practice by repeating the steps with a different bounding box or with a different shape

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