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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, accessing 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:

 $https://firebasestorage.googleapis.com/v0/b/fao-aquastat.appspot.com/o/Excel%2FAfrica-dams_eng.xls?alt=media\&token=b621f090-60cf-46f1-8472-9003ce314066$

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
- gnb0135_beutifulsoup_DTM scrapper

To correct:

- 1. For didactic reasons, makes more sense to have the imports together with the section that they are being used into
- 2. Ask the students to copy one file name as example.
- 3. run the helper function there to see the output
- 4. let them do again a polygon with that output
- 5. Now look at the full picture and let them do the lists by themselves
- 6. create the gdf and give them the previous notebook as parallel.
- 7. Instructions on how to change the visibility and display the labels on QGIS. Maybe add a clipping operation or an intersection.

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