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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 Preparati
- 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.xl sx?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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