Practice Assignment 08

Create a GitHub repository called “st2195_assignment_8” and include the following Python scripts:

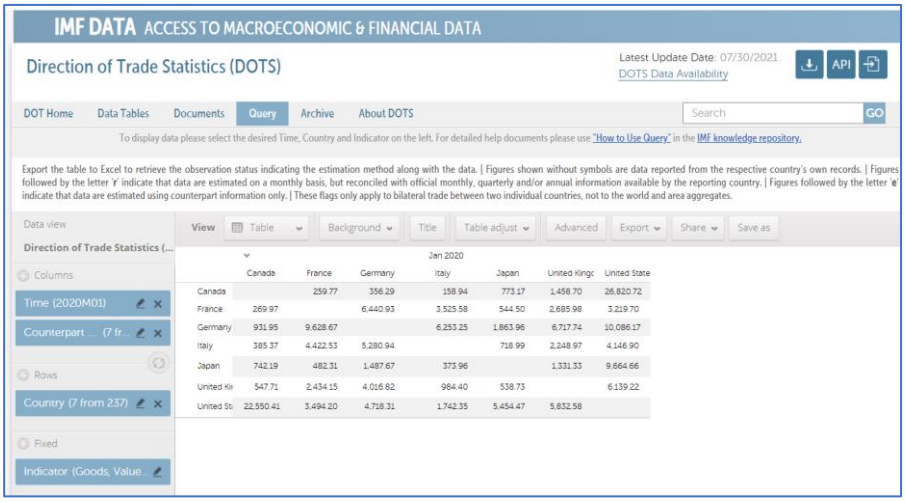
1. assignment_8_1.ipynb to replicate assignment 7 in Python [5 points]
2. assignment_8_2.ipynb to describe the latest bilateral trade data for the G7 (this aggregate can be computed using bilateral imports and exports data available on the IMF Direction of Trade Statistics) with the three network graphical representations in the module on network visualisation [2.5 points]
3. assignment_8_3.ipynb to repeat the second bullet point using one year ago data and compare the output with the latest results using a 3x2 subplot containing all the network representations [2.5 points]

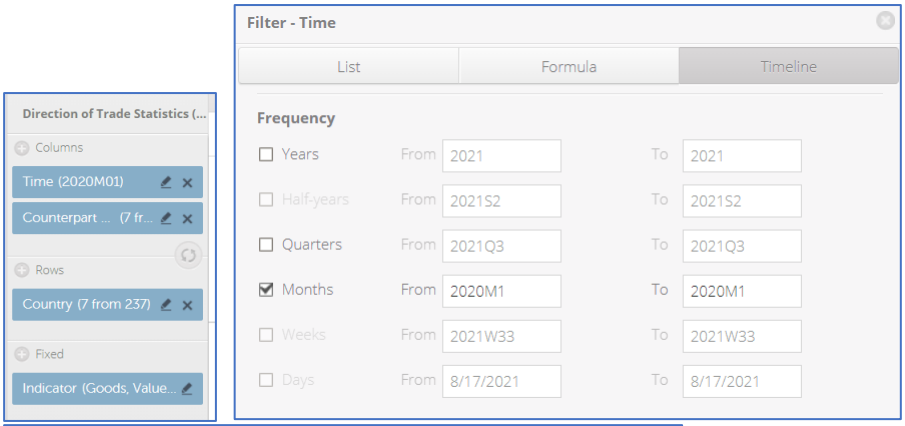
Note 1: please upload the data used for the second and third bullet points in csv format in your repository.

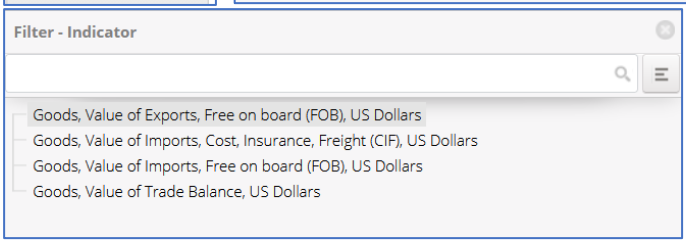
Note 2: describe in the README.md file the measure used for aggregating bilateral imports and exports. Be careful with the definition of the data downloaded from the IMF DTS.

Additional Notes and Hints:

- **assignment_8_1.ipynb – tasks for practice assignment 7 listed below**
    - Generate a series of bar charts to describe the gender, ticket class and survival of the passengers onboard.
    - Generate a histogram for the passengers' age. Furthermore, describe the passengers' age using the following two boxplots: age per ticket class, and age based on survival.
    - Generate a histogram for the travel fare and a table showing the number of people who did not pay – you may want to check on Google why a handful of people was on board for free!
    - A chart of your choice to describe the family size per ticket class
    - A series of stacked bar charts to show the how survival differs for different gender and ticket class
    - A violin chart describing how survival related to age and gender
    - A violin chart describing the survival rate related to age and ticket class

- **assignment_8_2.ipynb & assignment_8_3.ipynb are on network visualisations**
    - How to download the bilateral trade data for the G7 countries (available from IMF Direction of Trade Statistics)?
        - Go to "IMF Direction of Trade Statistics" (use this link -- https://data.imf.org/?sk=9D6028D4-F14A-464C-A2F2-59B2CD424B85&sId=1390030341854)
        - Note: G7 countries are France, Germany, Italy, Japan, the United States, the United Kingdom, and Canada
        - Let's extract 2020M1 (i.e., Jan 2020) and 2021M1 (i.e., Jan 2021) stats. You can choose another month, quarter, year, etc.
        - 





- Steps to extract 2020M1 stats into an Excel file:
    1. Columns = Time (select Timeline -> Frequency -> Months = “2020M1 to 2020M1”) and Counterpart (select G7 countries individually).
    2. Rows = Country (select G7 countries individually)
    3. Export to .xlsx
- Repeat above set of 3 steps for 2021M1 stats.

- The 3 network graphical representations in the module on network visualization are:
    1. Spring layout
    2. Random layout
    3. Circular layout

- If you encounter an error "error in random state" when drawing the network graph, try installing a different version of the decorator library
    - Type "pip install decorator==5.0.5" in anaconda prompt