Homework # 4
Data Visualization III

This assignment covers the contents of the *Data Visualization III* lab (March 9/10, POLI 001/002 respectively). You will use the `QoG` data sets we have been using so far to select variables of your choice for this assignment. The `QoG` codebook can be found on-line and on Canvas.

Submit an R script with code that produces the tasks requested in this assignment. I will evaluate your submission by running your code. For written/explanatory answers just add comments to your code in the corresponding section. Please be as concise as possible in your written answers, if any. As long as you answer what you are supposed to, I will not grade based on the length of your explanation.

You can work in groups, consult class materials and code found online; but please write your own code and submit one assignment per student.

> **Due**: End of day on Monday, March 20, 2023
> **How**: Canvas assignment submission link
> **Files**: hw04-Lastname.R
> **Max grade**: 10 points

1. [4 pts] **Your data:** Using the `QoG` data sets select and/or construct some variables of your interest. Briefly explain to me what those variables are and what is the relationship/issue you want to explore with them.
   - You'll need at least 3 different variables because below you'll be asked to produce a multivariate graph using 3 variables; but you can choose as many variables as you want and plot different things in the tasks below.
   - You can use either or both the cross section and time series data sets and focus on one country over time, multiple countries in one year, and/or multiple countries over time.
   - Try to select variables related to a topic that interests you. I will use this task to assess common interests between you and inform you of possible synergies in light of the final group project.
2. [1.5 pts] **Hypothesis testing plot:** Define a hypothesis you want to test and plot the t-test testing it. Explain your conclusion given the plot output.
3. [2 pts] **Bivariate plot:** Produce a bivariate plot of your choice exploring the potential association between two of your variables of interest. What did you expect to see and what do you actually see?
4. [2.5 pts] **Multivariate plot:** Produce a multivariate plot of your choice exploring the potential association between three of your variables of interest. You must choose a different plot type than in 3. What did you expect to see and what do you actually see?