Guided Project: Storytelling Data Visualization

- Read in the euro-daily-hist_1999_2022.csv file into a pandas DataFrame – store the file into a variable named exchange_rates
- Inspect the first and the last five rows to understand the structure of the dataset
- Use the DataFrame.info() method to learn some basic facts about the dataset
    - What is the number of rows and columns?
    - Are there null values?
    - What is the data type of each column?

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1. Rename the [US dollar] and Period\Unit: columns to something easier to type – US_dollar and Time.
    - Change the Time column to a datetime data type.
    - Sort the values by Time in ascending order.
    - Reset the index (and drop the initial index).
2. Isolate the Time and the US_dollar columns. Assign them to a different variable named euro_to_dollar
3. Run the Series.value_counts() method on the US_dollar column
4. Convert the US_dollar column to a float data type

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- If we look at the line's shape, we see many small wiggles – rather than seeing a smooth line. The wiggles, however, have meaning: they are the visual representation of the daily variation in the exchange rate. The rate goes up and down, up and down again, day to day. The rate only shows clear upward or downward trends in the longer run (months or years).
- Depend on our goals, we may not want to show that daily variation on our graph. If we want to hide it and show only the long-term trends, we can use the rolling mean (moving average).
- We can calculate the mean for each day using the pd.Series.rolling().mean() method.
  - Ex: values['daily_values'].rolling(2).mean()
  - Calculate the rolling means for the US_dollar column using a moving window of 30 days. Add the rolling means to a new column named rolling_mean .

A few story ideas

- We show how the euro-dollar rate has changed during the coronavirus pandemic. We can show the 2020 data and the 2016-2019 data as a baseline. We can use a line plot.
- We show how the euro-dollar rate changed during the 2007-2008 financial crisis. We can also show the data for 2006 and 2009 for comparison. We can use a line plot
- We show comparatively how the euro-dollar rate changed under the last three US presidents (George W.Bush (2001-2009), Barack Obama (2009-2017), and Donald Trump (2017-2021). We can use a line plot.

Note one idea regarding the storytelling data visualization you want to build

Sketching a Graph

Using pen and paper, sketch the graph you want to create

Next Steps

- Creating a graph for a different currency
- Creating a graph for multiple currencies – perhaps you can compare their evolution