Exercise: Graph Design (Geo)

[Last revision: Apr. 2020]

In this assignment, you have to design visualization solutions for questions related to the AidData dataset. This dataset contains information about financial transactions for aid purposes between two countries. Given the data structure and analytical questions presented below, your goal is to sketch views that would help an analyst to obtain the answer for those questions.

Data

In the AidData dataset, each row represents a financial transaction between two countries. The dataset contains the following attributes:

- **Year:** year of the commitment
- **Donor:** country providing the financial resource
- **Recipient:** country or organization receiving the money
- **Commitment Amount:** the total amount of financial resources provided
- **Coalesced Purpose Name:** the purpose of the transaction

Below is an example of the data:

Year	Donor	Recipient	Commitment Amo...	Coalesced Purpose Name
1996	United States	Peru	19,085,570	Radio/television/print media
1996	United States	Brazil	272,863,443	Energy generation and supply, purpose unspeci...
1996	United States	Argentina	34,107,930	Power generation/non-renewable sources
1996	United States	Argentina	68,215,861	Power generation/non-renewable sources
1996	United States	Argentina	73,788,687	Power generation/non-renewable sources
1996	United States	Argentina	102,323,791	Power generation/non-renewable sources
1996	United States	Argentina	115,966,963	Power generation/non-renewable sources
1996	United States	Bolivia	27,286,344	Power generation/non-renewable sources
1996	United States	Bolivia	150,074,894	Power generation/non-renewable sources

**Note: The full dataset has many more columns and it also includes international organizations other than countries. The description here focuses only on the attributes and entities (countries) relevant for the assignment.*

You can find a (simplified and reduced) copy of the data here (use this one!):
https://drive.google.com/open?id=1YiuHdfZv_JZ-igOemKJMRaU8dkucfmHxOP6Od3FraW8

You can find the full dataset with descriptions here (to understand gather more background information about the data set):
https://www.aiddata.org/data/aiddata-core-research-release-level-1-3-1

Goal

Your goal is to create 3 independent visualizations of the same data set, each one with the intent of answering the questions stated below. For each numbered visualization, you should be able to create a data visualization that answers **all** of the questions specified.

These are the 3 visualizations you should create.

- **Visualization 1:** How do the countries compare in terms of how much they receive and donate from other countries? Are there countries that donate much more than they receive or receive much more than they donate?

- **Visualization 2:** Do the countries that mostly receive or mostly donate tend to cluster around specific geographical areas of the world? Are there neighboring countries that have radically different patterns in terms of how much they receive vs. how much they donate?

- **[OPTIONAL / EXTRA POINTS] Visualization 3:** Are there any major differences in how the top 5 most frequent purposes of disbursements distribute geographically in terms of countries that receive donations? Are there countries that tend to receive more of certain types of donations than others?

Remember

The questions above are a very useful tool for you to verify whether you are producing a good solution or not. As you go about solving this exercise you can use the questions above as an evaluation tool in two main ways:

1. Verify that you can indeed answer the questions with your visualization. If you can't fully answer the questions it means your solution has some problems.
2. Compare multiple solutions to the same problem and ask yourself: "which one makes it easier for me to answer these questions?", where easier may mean, more accurately, with less effort or faster.

Instructions

For this assignment, your goal is to come up with effective visualization designs to answer the questions posed and to communicate their answers found in the data.

Your coded solutions must use D3 and not other visualization libraries. Also, your final submission **will not be on Observable**. Instead, you will make a website using HTML, CSS, and D3 + JavaScript. You can find a project template in the info-vis-project-template GitHub repository.

Submissions for the mini-projects are split between two weeks.

Week 1:

- Submit one or more sketches that show your thinking about these problems. You can hand draw your sketches or use some drawing software.
- For each visualization problem you are encouraged to submit more than one solution. When you do that make sure to explain what are advantages and disadvantages of the proposed solutions.
- If you submit only one sketch then add only a single justification for your design and why you think it works for the problem assigned.
- NOTE: if you feel comfortable submitting draft solutions in D3 at this stage already it is totally fine to submit them in place of sketches.

Week 2:

- Submit a screenshot for each visualization you developed in D3.
- Note it is still ok in this final phase to submit more than one solution for a given visualization problem if you think there are some competing solutions that work well.
- Together with the screenshot, submit a zip file containing the code for your website.