Exercise: Graph Design (Time)

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 the attributes and entities (countries) relevant for the assignment.*

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

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 2 visualizations you should create.

- **Visualization 1:** a) How does the amount donated vs. amount received change over time across all countries?; b) Are there countries that mostly send or mostly receive and countries that have a similar amount of donations they receive and send?; c) Are there countries that change their role over time? That is, they used to mostly send donations and turn into mostly receiving donations and vice-versa?; d) Are there countries in which you can find a sudden increase ("peak") or a sudden decrease ("valley")?

- **Visualization 2:** Focusing on the Coalesced Purpose of the donations, focus on the top 10 donations purposes. What are the top 10 purposes of disbursements (in terms of total amount of disbursement) and how does their relative amount compare over time? E.g., are there purposes that tend to be prominent for a period of time and others that become more prominent during other periods? Hint: looking at the graph one should be able to say something like: “Ah! During these years donations were mostly about X but then there were way more donations about Y”.

- **[OPTIONAL] Visualization 3:** Build an interactive version of the visualization you developed for “Visualization 2” so that it is possible to ask the same question but for specific countries, that is, visualize the evolution over time of the top-10 donation purposes for a selected country (it’s ok to focus on the top-10 overall, not top-10 for the selected country).

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.

You have to submit the following:

1) Submit one or more (hand-drawn) sketches that show your thinking (do not use Tableau or other tools). The sketches can contain multiple solutions. If your sketch contains more than one solution you have to describe pros and cons of each one and explain which one you decided to implement and why. If you submit only one sketch then add only a justification for your design and why you think it works for the problem assigned.
2) Submit a screenshot of the visualization you developed in D3.
3) Submit your D3 code in a separate file.