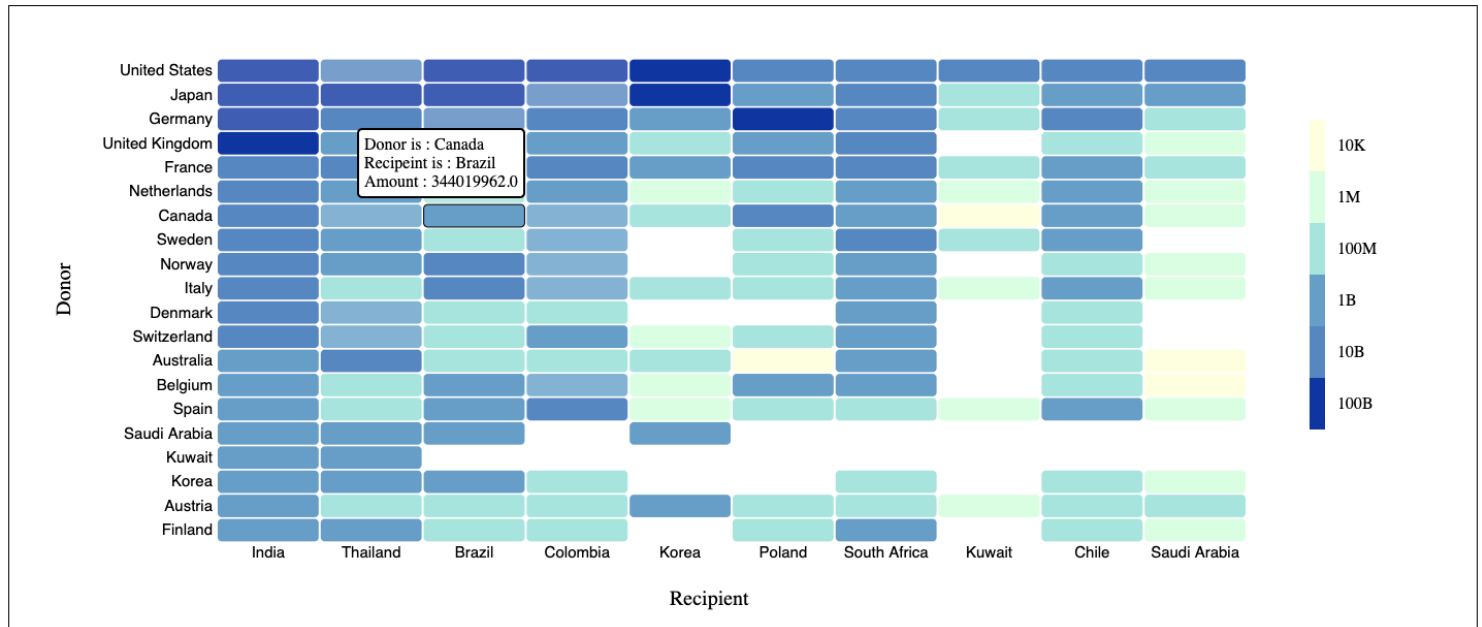


Exercise: Graph Design (Networks)

Visualization 1: Create an overview of the relationships between countries so that it is possible to see who donates to whom and how much. The main question one should be able to answer is: who are the major donors and to which countries do they donate the most and how much? And conversely, who are the major receivers and which countries do they receive from the most and how much? We only care about the top 10 recipients and the top 20 donors overtime for this question.



I have used heatmap to create an overview of relationships between the countries. Top 20 Donors are selected as per Total Amount Donated. Top 10 Recipient are selected as per Total amount Received. Countries on the y axis are sorted as per sum of donations given, Countries on the x axis are sorted as per sum of donations received. I have used Discrete continuous scale. Interactions has been added in order to get exact value of donation as well as get to know donor and receiver.

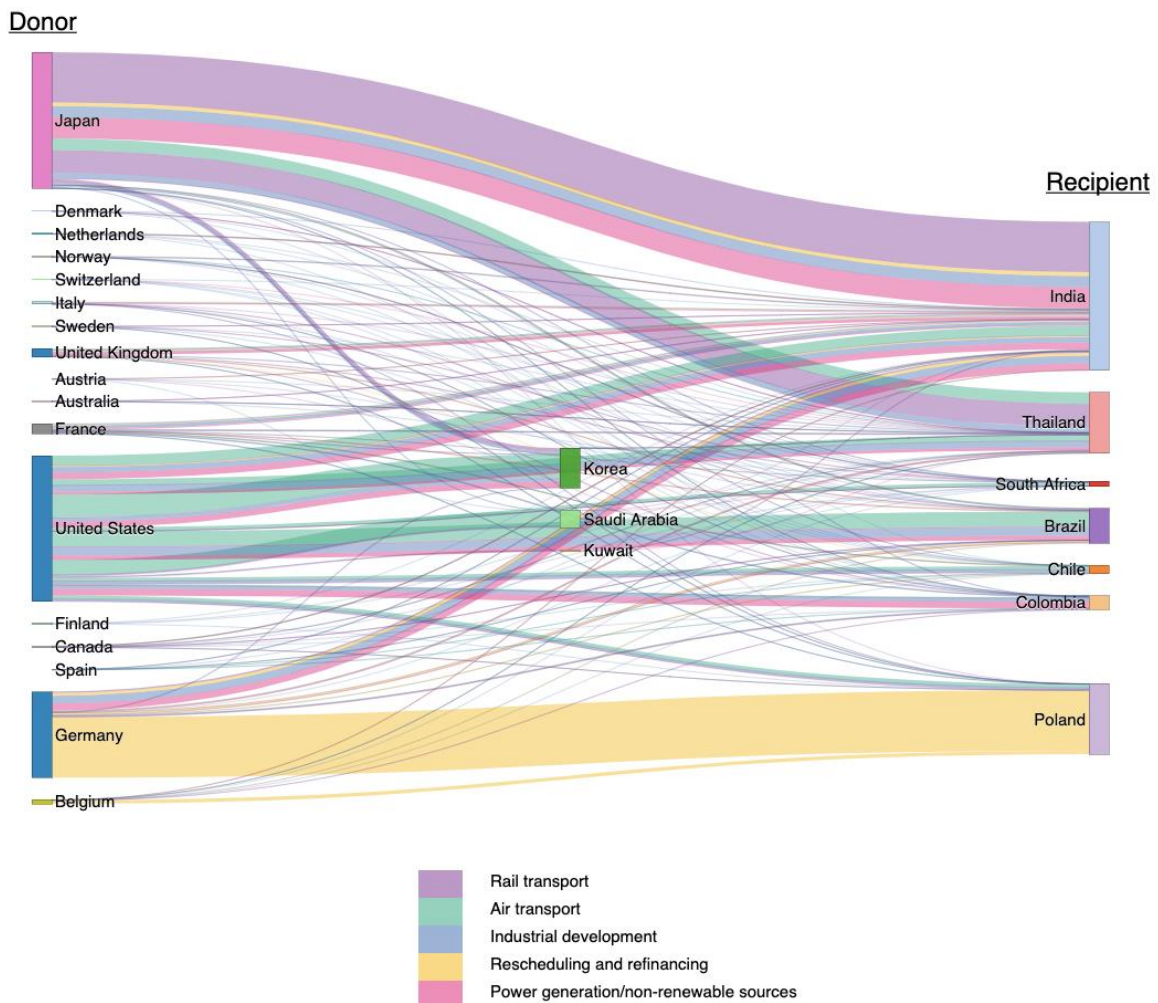
With this Visualization it is possible to :-

- See who donates to whom and how much ?
- Who are the major donors and to which countries do they donate the most and how much
- Who are the major receivers and which countries do they receive from the most and how much ?

Observations:

- US is top donor
- US and Japan donated a lot of money to Korea
- We see that US donates to almost every country, inversely Kuwait does not
- We see that India is top Recipient and received a major amount from UK
- We see that Germany donated lot of money to Poland

Visualization 2: Considering only the top 5 purposes of donation, how does the relationship between countries look like in terms of purposes? What purposes do countries donate to other countries? Are there countries that donate to a given country using multiple purposes? Or do countries always donate using one single purpose when donating to another country? The same as the previous question, we only care about the top 10 recipients and the top 20 donors here.



I have used Sankey diagram to illustrate how does the relationship between countries look like in terms of purposes. Top 5 Purposes have been selected by Total amount per purpose. Top 20 Donors are selected as per Total Amount Donated. Top 10 Recipient are selected as per Total amount Received. Countries on the left are Donors, Countries on the right are Recipients. Countries in the middle are both donors and recipients. Width of line is encoded with amount.

With this Visualization it is possible to observe :-

- What purposes do countries donate to other countries
- Are there countries that donate to a given country using multiple purposes? Or do countries always donate using one single purpose when donating to another country?

Observations:

- We can clearly see that Germany donates Poland for “rescheduling and refinancing” in huge amount.
- Japan majorly donates for Rail Transport
- US majorly donates for “Air transport”
- We see Korea receives as well as donates
- Japan and US donate for “Power generation/ Non-renewable sources” to India, Thailand
- India Receives donations for all the purposes