

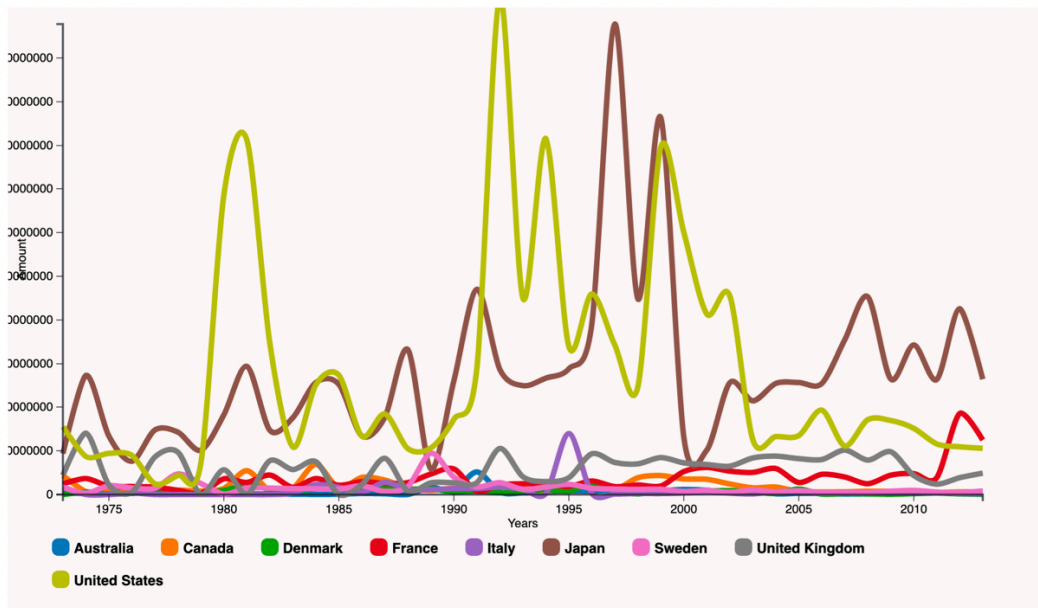
Chinmay Wyawahare

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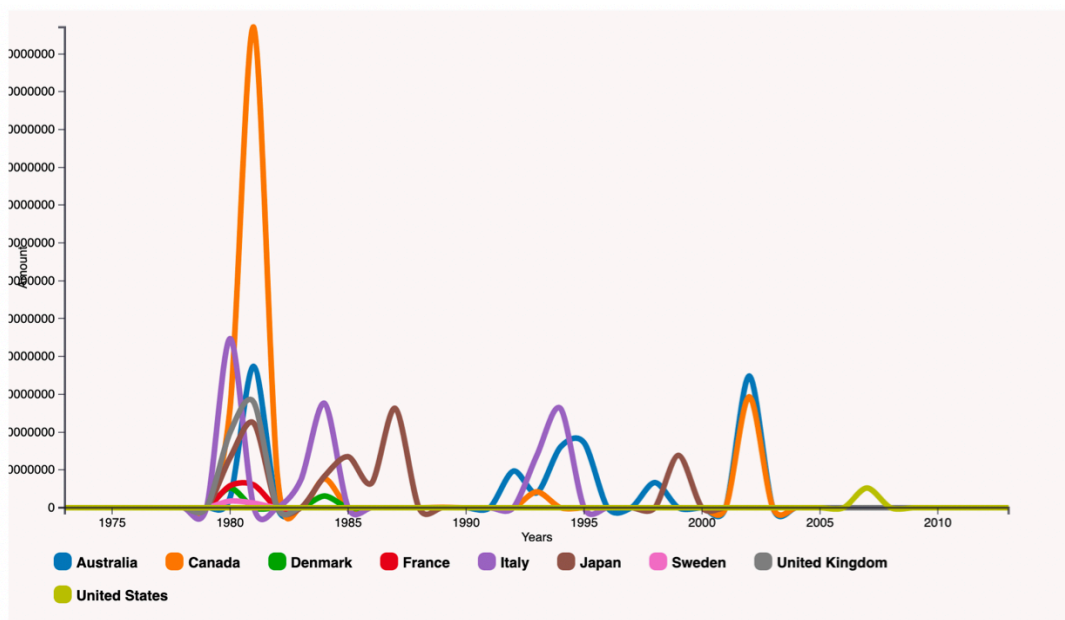
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Mini Project 2: Graph Design (Time)

1. Visualization 1:



Amount donated vs time

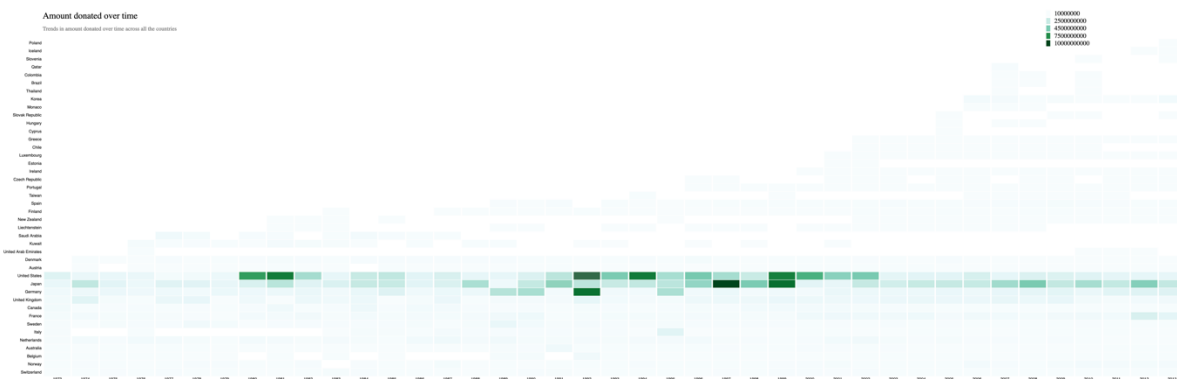


Amount received vs time

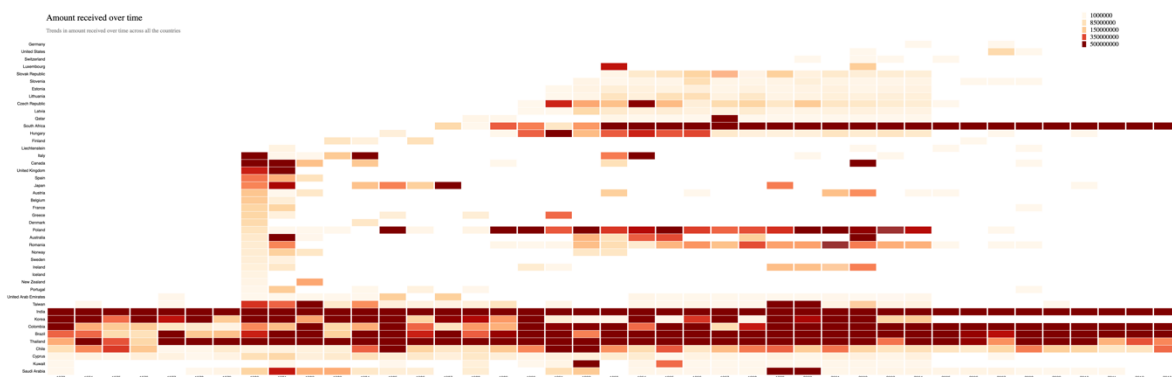
I have used multiple line charts to visualize amount donated and amount received over time across all the countries. To avoid the clutter because of the number of countries involved, I have reduced the number of countries to 10 to clearly understand the change in the amount donated and amount received over time across all the countries.

1. a) Amount donated and the amount received changes drastically over time across all the countries. Many countries exhibit peaks and valleys in their graphs in the amount received and amount donated across time.
2. b) Countries like Sweden, United Kingdom, France and Denmark have a similar amount of donations they receive and send.
3. c) Many countries change their role to donor and vice versa over time. United States is the significant donor over the entire time. Countries like Canada, Australia, United Kingdom, Italy change from donor to receiver in the period 1980 – 1985 and 2000 – 2005.
4. d) We can observe sudden peaks and valleys for countries like Canada, Australia, United Kingdom in the donor graph and countries like United States, Japan, United Kingdom exhibit sudden peaks and valleys in the donor graph.

Since, it is not feasible to use multiple line charts for this data, another alternate visualization is heatmaps. I have created two heatmaps – donor and recipient heatmaps. This allows us to visualize data for all the countries. I have sorted the data using year and donated amount for donor heatmaps and using year and received amount for receiver heatmap.

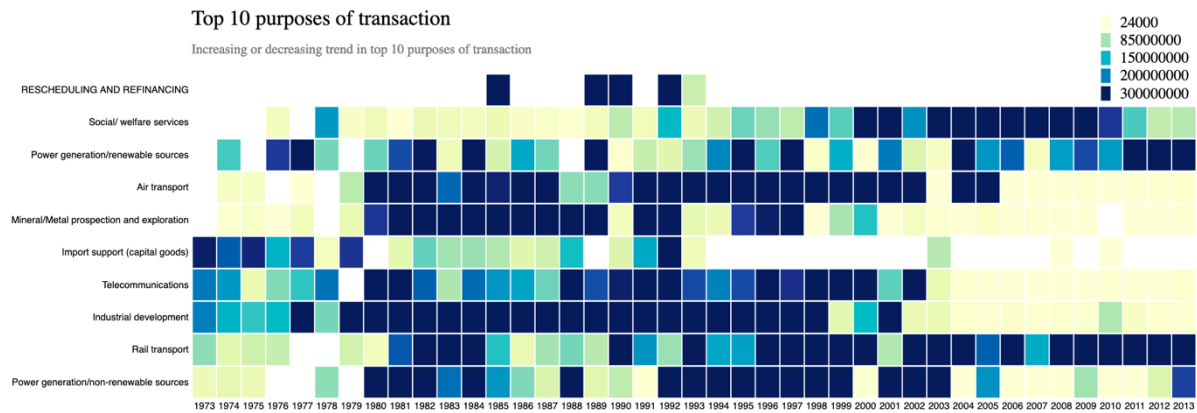


Amount donated over time



Amount received over time

2. Visualization 2:



Top 10 purposes of transaction

I have used heatmaps to visualize the top 10 purpose of donations over time. Each cell in the heatmap represents a purpose of donations amongst the top 10 purpose of donations. I have specified legend to describe the color scales used to represent the range of values corresponding to that color scale.

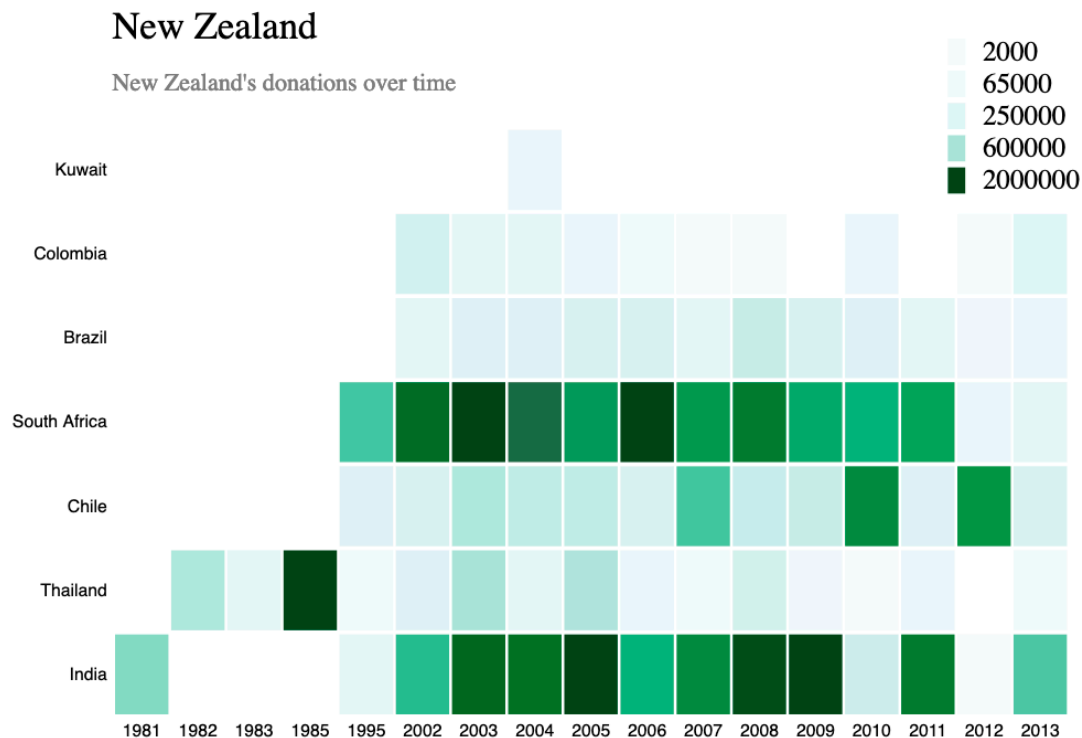
a) Top 10 purposes of donations over time in terms of total amount of disbursements are:

- (i) Air Transport
- (ii) Rail Transport
- (iii) Industrial Development
- (iv) Rescheduling and Refinancing
- (v) Power Generation Non-Renewable Sources
- (vi) Import Support (Capital Goods)
- (vii) Social Welfare Services
- (viii) Power Generation Renewable Sources
- (ix) Telecommunications
- (x) Mineral Metal Prospection and Exploration

b) 'Rescheduling and Refinancing' and 'Import Support(Capital Goods)' have the highest total amount of disbursements. 'Power Generation Renewable Sources' has the lowest total amount of disbursement amount top 10 purposes of donations.

c) Purposes like Air transport, Rescheduling and Refinancing, Import Support (Capital Goods) and Rail Transport show an increasing and decreasing trend (in terms of amount of disbursements). We can observe this trend by looking at the change of color.

3. Visualization 3:



New Zealand's donations to other countries over time

I have used heatmaps to visualize the set of countries it sends donations to change over time. For this visualization, I have picked New Zealand to observe the change of donations it sends to other countries which are Brazil, Chile, Columbia, India, Kuwait, South Africa and Thailand over time. Each cell in the heatmap represents amount donated to the corresponding country in the respective year. I have sorted the data using year and amount to observe trends in the amounts of donations over time.

a) We can observe peaks and valleys in the amount of donations received by the set of countries. We can observe changing trends in the amount of donations for the set of countries over time.

b) Countries like Thailand receives highest in the period 1985 – 1990. Countries like Chile and India receive high amounts but exhibit peaks and valleys during the period 2008 – 2013. India receives highest during the period 2008 – 2009. South Africa receives the highest in the period 2002 – 2003.

