

Data Visualization Project

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About the Data

The dataset chosen is about the indicators for the International Debt for Middle and Low Income Countries.

The dataset has one table relevant to the project. This table which was initially of size 67095 rows x 61 columns is converted into table of size 3824415 rows x 6 columns by pivoting on years which were initially spread out as columns.

The table use has 6 columns namely **Country Name, Country Code, Indicator Name, Indicator Code, Year and Value**. Value is floating point data which corresponds to the value for the given country's indicator for given year. Year is a integer value ranging from 1970 to 2026. However as data after 2018 is missing for most values, we have considered the data only till 2018.



Purpose of Visualization

Sustainable borrowing is an important tool for economic growth and poverty eradication. It boosts countries' capacity for long-term financing to invest in infrastructure, education, employment, and health. However, the rapid rise in debt accumulation and the shifts in debt composition pose new challenges for managing it. For both borrowers and creditors to safeguard debt sustainability, and for governments to design effective macroeconomic policies, debt transparency is critical.

By this visualization, we want to focus on the trends of developing and underdeveloped nations with respect to their Debt Handling methodologies over time. We also want to compare and contrast the current situations, economic and geopolitical, with the data.



Visualization Techniques

As discussed in the Phase-1 report, we introduced the concept of the 4 types of visualization in our project. The entire field of Data Visualization can be divided completely in these 4 types.

These 4 types are:

1. Expose: Showing the raw data in a organized tabular form.
2. Show: Displaying the data visually using graphs and charts.
3. Explain: Explain what the data shown means
4. Explore: Allow user to interact, question and draw intuition about the data by giving an interactive UI to the user.



Visualization Techniques

In our project, we aim to use all these approaches as we believe that by the introduction video and the explanation given by us, the users themselves will be eager to tinker with the visualization.

Of this, the first three techniques were already made mandatory for the project, but considering that one must not limit anybody after introducing one to a interesting subject; we went with plotly library on Python to make UIs that would allow the user to gain more information than we provide them with our explanation.



Conclusion

Today's landscape of development finance is marked by the growing debt vulnerabilities of low- and middle-income countries. The post-2008 financial crisis era is characterized by a rapid rise in lending to them, fueled by factors including buoyant commodity prices, quantitative easing, and low interest rates in high-income countries. With increased access to international capital markets, many low- and middle-income countries shifted away from traditional sources of financing and experienced a sharp rise in external debt, raising new concerns about sustainability.

We have thus made a visualization of the provided data and provided a UI for the end user to further play with it. We have compared the various socio-economic state of the countries with their debt indicators and also characterized countries by their markets.



Link to demo

<https://youtu.be/ec349NDIVPo>