

1. The World Bank's international debt data

Debt serves as a crucial financial tool not only for individuals but also for nations aiming to enhance their economic stability and infrastructure. Governments often incur debt to fund large-scale projects, such as building roads, hospitals, and schools, which are essential for improving the quality of life for their citizens. [The World Bank](#) plays a significant role in providing financial assistance to countries, particularly developing nations, to support these initiatives.

In this project, we delve into the International Debt Data curated by The World Bank. This dataset encompasses detailed information about the debt (in USD) held by various developing countries, categorized across multiple indicators. Our analysis aims to uncover key insights, such as:

- **Total Debt Analysis:** Understanding the cumulative debt burden of countries in the dataset.
- **Debt Distribution:** Identifying which countries hold the most significant debt and the nature of that debt.
- **Debt Indicators:** Exploring the diversity and frequency of different debt indicators.
- **Comparative Studies:** Comparing debt figures of specific countries against others to gauge economic standings.

```
SELECT*from IDA
LIMIT 10
```

	country_name character varying (150)	country_code character varying (30)	indicator_name character varying (300)	indicator_code character varying (150)	debt numeric
1	Afghanistan	AFG	Disbursements on external debt, long-term (DIS, current US\$)	DT.DIS.DLXF.CD	72894453.700000003
2	Afghanistan	AFG	Interest payments on external debt, long-term (INT, current US...	DT.INT.DLXF.CD	53239440.100000001
3	Afghanistan	AFG	PPG, bilateral (AMT, current US\$)	DT.AMT.BLAT.CD	61739336.899999999
4	Afghanistan	AFG	PPG, bilateral (DIS, current US\$)	DT.DIS.BLAT.CD	49114729.399999999
5	Afghanistan	AFG	PPG, bilateral (INT, current US\$)	DT.INT.BLAT.CD	39903620.100000001
6	Afghanistan	AFG	PPG, multilateral (AMT, current US\$)	DT.AMT.MLAT.CD	39107845
7	Afghanistan	AFG	PPG, multilateral (DIS, current US\$)	DT.DIS.MLAT.CD	23779724.300000001
8	Afghanistan	AFG	PPG, multilateral (INT, current US\$)	DT.INT.MLAT.CD	13335820
9	Afghanistan	AFG	PPG, official creditors (AMT, current US\$)	DT.AMT.OFFT.CD	100847181.900000006
10	Afghanistan	AFG	PPG, official creditors (DIS, current US\$)	DT.DIS.OFFT.CD	72894453.700000003

2.Total Debt of Each Country:

The first ten rows show the amount of debt owed by Afghanistan in the different debt indicators. However, we do not know the number of different countries present in the table. The country names repeat because a country is likely to have debt in more than one debt indicator. We cannot perform our statistical analyses holistically without a count of unique countries. In this section, we calculate the total debt owed by each country to understand the overall debt landscape.

```
SELECT country_name, SUM(debt) AS total_debt
FROM IDA
GROUP BY country_name
ORDER BY total_debt DESC
LIMIT 10;
```

	country_name character varying (150)	total_debt numeric
1	China	285793494734.200001568
2	Brazil	280623966140.800007581
3	South Asia	247608723990.600003211
4	Least developed countries: UN classification	212880992791.900000988
5	Russian Federation	191289057259.200001943
6	IDA only	179048127207.299999298
7	Turkey	151125758035.300003616
8	India	133627060958.399997148
9	Mexico	124596786217.300001668
10	Indonesia	113435696693.499999149

This query aggregates the total debt for each country by summing the debt values associated with each country_name. It groups the data by country_name, orders the results in descending order to highlight the countries with the highest total debt, and limits the output to the top 10 countries. This provides a clear view of which countries bear the largest debt burdens.

3. Finding out the distinct debt indicators:

Understanding the variety of debt indicators is crucial for analyzing the different types of debt categories tracked in the dataset. This insight helps in identifying the specific areas where countries incur debt

```
select distinct(indicator_code) as distinct_indicator
from IDA
order by distinct_indicator
```

This query retrieves all unique indicator_code values from the IDA table, ordering them alphabetically. By identifying distinct debt indicators, we can categorize and analyze the different types of debt obligations that countries have, facilitating more targeted analyses.

	distinct_indicator character varying (150) 🔒
1	DT.AMT.BLAT.CD
2	DT.AMT.DLXF.CD
3	DT.AMT.DPNG.CD
4	DT.AMT.MLAT.CD
5	DT.AMT.OFFT.CD
6	DT.AMT.PBND.CD
7	DT.AMT.PCBK.CD
8	DT.AMT.PROP.CD
9	DT.AMT.PRVT.CD
10	DT.DIS.BLAT.CD
11	DT.DIS.DLXF.CD
12	DT.DIS.MLAT.CD
13	DT.DIS.OFFT.CD
14	DT.DIS.PCBK.CD
15	DT.DIS.PROP.CD
16	DT.DIS.PRVT.CD
17	DT.INT.BLAT.CD
18	DT.INT.DLXF.CD
19	DT.INT.DPNG.CD
20	DT.INT.MLAT.CD
21	DT.INT.OFFT.CD

4. The number of Distinct Countries:

Before conducting any comprehensive analysis, it's essential to know how many unique countries are represented in the dataset. This provides context for the scale of the data and ensures that subsequent analyses account for all relevant countries without duplication.

```
select count(distinct(country_name)) as total_num_country
from IDA
```

	total_num_country bigint 🔒
1	124

This query counts the number of distinct country_name entries in the IDA table, providing the total number of unique countries included in the dataset. Knowing the number of unique countries helps in understanding the breadth of the dataset and ensures accurate statistical analyses.

5. Total Amount of Debt Owed by All Countries:

To gain a high-level perspective of the overall debt burden, it's important to calculate the aggregate debt owed by all countries combined. This provides an understanding of the total debt magnitude managed within the dataset.

```
SELECT ROUND((SUM(debt)/1000000),2) AS total_debt  
FROM IDA;
```

	total_debt numeric
1	3079734.49

This query calculates the sum of all debt values in the IDA table, converts the total to millions of USD by dividing by 1,000,000, and rounds the result to two decimal places. The ROUND function enhances readability by presenting the total debt in a more interpretable format, highlighting the aggregate debt across all countries in the dataset.

6. Total Debt per Debt Indicator Across All Countries:

Different debt indicators represent various categories or purposes of borrowing. By calculating the total debt associated with each debt indicator, we can identify which types of debt are most prevalent or substantial across all countries.

```
SELECT indicator_name, SUM(debt) AS total_debt  
FROM IDA  
GROUP BY indicator_name  
ORDER BY total_debt DESC;
```

	indicator_name character varying (300)	total_debt numeric
1	Principal repayments on external debt, long-term (AMT, current US\$)	732203681785.900007852
2	Principal repayments on external debt, private nonguaranteed (PNG) (AMT, current U...	407734352371.200009566
3	Disbursements on external debt, long-term (DIS, current US\$)	264701069677.499998268
4	PPG, official creditors (DIS, current US\$)	238995981248.899997555
5	Interest payments on external debt, long-term (INT, current US\$)	203858984388.700003680
6	PPG, private creditors (AMT, current US\$)	176762021992.400001428
7	PPG, official creditors (AMT, current US\$)	147707307422.300000818
8	PPG, bilateral (DIS, current US\$)	138214739815.000002206
9	PPG, multilateral (DIS, current US\$)	100781241433.900000183
10	Interest payments on external debt, private nonguaranteed (PNG) (INT, current US\$)	96412456709.299999676
11	PPG, bilateral (AMT, current US\$)	86939595428.499999858
12	PPG, bonds (AMT, current US\$)	74701052388.099999988
13	PPG, private creditors (INT, current US\$)	70534537648.699999603
14	PPG, commercial banks (AMT, current US\$)	61728974378.499998811
15	PPG, multilateral (AMT, current US\$)	60767711993.799999168
16	PPG, bonds (INT, current US\$)	55526602985.299998955
17	PPG, other private creditors (AMT, current US\$)	40331995225.800000082
18	PPG, official creditors (INT, current US\$)	36911990030.700000301
19	PPG, bilateral (INT, current US\$)	20019380844.300000410
20	PPG, multilateral (INT, current US\$)	16892609186.399999701
21	PPG, private creditors (DIS, current US\$)	16500133028.599999751

This query aggregates the debt for each indicator_name, grouping the data accordingly. It then orders the results in descending order based on the total debt, highlighting which debt indicators contribute most significantly to the overall debt landscape. This helps in understanding the dominant areas where countries are incurring debt.

7. Country with the Highest Total Debt:

"Human beings cannot comprehend very large or very small numbers. It would be useful for us to acknowledge that fact." – [Daniel Kahneman](#) . That is more than 3 *million million* USD, an amount which is really hard for us to fathom.

```
SELECT country_name, SUM(debt) AS total_debt
FROM IDA
GROUP BY country_name
ORDER BY total_debt DESC
LIMIT 1;
```

	country_name character varying (150)	total_debt numeric
1	China	285793494734.200001568

So, it was *China*. A more in-depth breakdown of China's debts can be found [here](#).

This query sums the debt for each country_name, groups the data by country, and orders the results in descending order to bring the country with the highest total debt to the top. The LIMIT 1 clause ensures that only the top country with the highest debt is returned, providing a clear identification of the most indebted nation in the dataset.

8. Average Debt Amount Across Indicators:

Calculating the average debt for each debt indicator helps in understanding the typical debt burden associated with each category. This can reveal which debt indicators generally involve larger or smaller amounts of borrowing.

```
SELECT indicator_name, AVG(debt) AS average_debt
FROM IDA
GROUP BY indicator_name
ORDER BY average_debt DESC;
```

This query computes the average debt for each indicator_name by grouping the data accordingly. It then orders the results in descending order based on the average debt, highlighting which debt indicators typically involve higher average debt amounts. This insight aids in assessing the typical financial commitments tied to different debt categories.

	indicator_name character varying (300)	average_debt numeric
1	Principal repayments on external debt, long-term (AMT, current US\$)	5904868401.499193612
2	Principal repayments on external debt, private nonguaranteed (PNG) (AMT, current U...	5161194333.812658349
3	Disbursements on external debt, long-term (DIS, current US\$)	2152041216.890243888
4	PPG, official creditors (DIS, current US\$)	1958983452.859836046
5	PPG, private creditors (AMT, current US\$)	1803694101.963265321
6	Interest payments on external debt, long-term (INT, current US\$)	1644024067.650806481
7	PPG, bilateral (DIS, current US\$)	1223139290.398230108
8	Interest payments on external debt, private nonguaranteed (PNG) (INT, current US\$)	1220410844.421518983
9	PPG, official creditors (AMT, current US\$)	1191187963.083064523
10	PPG, bonds (AMT, current US\$)	1082623947.653623188
11	PPG, multilateral (DIS, current US\$)	839843678.615833335
12	PPG, bonds (INT, current US\$)	804733376.598550709
13	PPG, other private creditors (AMT, current US\$)	746888800.477777779
14	PPG, commercial banks (AMT, current US\$)	734868742.601190462
15	PPG, private creditors (INT, current US\$)	719740180.088775506
16	PPG, bilateral (AMT, current US\$)	712619634.659836064
17	PPG, multilateral (AMT, current US\$)	490062193.498387090
18	PPG, private creditors (DIS, current US\$)	311323264.690566033
19	PPG, official creditors (INT, current US\$)	297677338.957258067
20	PPG, commercial banks (DIS, current US\$)	293305195.594117648
21	PPG, bilateral (INT, current US\$)	164093285.609016397

9. Top 10 Indicators with Highest Average Debt:

Focusing on the top 10 debt indicators with the highest average debt provides a more concentrated view of the most significant debt categories. This helps in prioritizing areas that contribute most substantially to the overall debt burden.

```
SELECT indicator_code AS debt_indicator, indicator_name, AVG(debt) AS average_debt
FROM IDA
GROUP BY indicator_code, indicator_name
ORDER BY average_debt DESC
LIMIT 10;
```

This query calculates the average debt for each combination of `indicator_code` and `indicator_name`. By grouping the data on both these fields, it ensures that each debt indicator is uniquely identified. The results are ordered in descending order based on the `average_debt`, and the `LIMIT 10` clause restricts the output to the top 10 indicators with the highest average debt. This highlights the most

substantial debt categories across the dataset.

	debt_indicator character varying (150) 🔒	indicator_name character varying (300) 🔒	average_debt numeric 🔒
1	DT.AMT.DLXF.CD	Principal repayments on external debt, long-term (AMT, current US\$)	5904868401.499193612
2	DT.AMT.DPNG.CD	Principal repayments on external debt, private nonguaranteed (PNG) (AMT, current U...	5161194333.812658349
3	DT.DIS.DLXF.CD	Disbursements on external debt, long-term (DIS, current US\$)	2152041216.890243888
4	DT.DIS.OFFT.CD	PPG, official creditors (DIS, current US\$)	1958983452.859836046
5	DT.AMT.PRVT.CD	PPG, private creditors (AMT, current US\$)	1803694101.963265321
6	DT.INT.DLXF.CD	Interest payments on external debt, long-term (INT, current US\$)	1644024067.650806481
7	DT.DIS.BLAT.CD	PPG, bilateral (DIS, current US\$)	1223139290.398230108
8	DT.INT.DPNG.CD	Interest payments on external debt, private nonguaranteed (PNG) (INT, current US\$)	1220410844.421518983
9	DT.AMT.OFFT.CD	PPG, official creditors (AMT, current US\$)	1191187963.083064523
10	DT.AMT.PBND.CD	PPG, bonds (AMT, current US\$)	1082623947.653623188

10. Countries with the Highest Long-Term Disbursement of External Debt:

Long-term external debt disbursements are critical for understanding countries' strategies in managing their finances and funding large-scale projects. Identifying countries with the highest long-term disbursements provides insights into where significant investments are being made.

```
SELECT country_name, SUM(debt) AS total_disbursement
FROM IDA
WHERE indicator_code = 'DT.DIS.DLXF.CD'
GROUP BY country_name
ORDER BY total_disbursement DESC;
```

This query filters the IDA table for records where the indicator_code is 'DT.DIS.DLXF.CD', representing long-term external debt disbursements. It then sums the debt for each country_name, groups the data by country, and orders the results in descending order based on the total disbursement. This provides a ranked list of countries based on their long-term external debt obligations, highlighting where significant external financing is allocated.

	country_name character varying (150) 🔒	total_disbursement numeric 🔒
1	Least developed countries: UN classification	40160766261.599998474
2	IDA only	34531188113.199996948
3	South Asia	29306216064.700000763
4	Cameroon	18186662060.400001526
5	China	15692563746.100000381
6	India	11005547326.200000763
7	Angola	10924018093.100000381
8	Egypt, Arab Rep.	9552207423.5
9	Bangladesh	9050557611.899999619
10	Vietnam	6494121653.199999809
11	Pakistan	5301166769.899999619
12	Kenya	4266494939.699999809
13	Indonesia	4177287375.800000191
14	Brazil	4092388651.400000095
15	Ethiopia	2681493007.300000191
16	Sri Lanka	2547120639.900000095
17	Belarus	2525227414.900000095
18	Turkey	2514443147.099999905
19	Morocco	1971794584.400000095
20	Tunisia	1820582243.5
21	Peru	1701637273.299999952

11. Debt Comparison: Afghanistan vs. Other Countries

Comparing the total debt of Afghanistan with that of other specific countries allows for a relative understanding of its debt position. This comparative analysis is essential for assessing economic standings and financial health relative to peers or regional counterparts

```
SELECT country_name, SUM(debt) AS total_debt
FROM IDA
WHERE country_name IN ('Afghanistan', 'India')
GROUP BY country_name;
```

	country_name character varying (150) 🔒	total_debt numeric 🔒
1	Afghanistan	680943227.100000020
2	India	133627060958.399997148

This query focuses on comparing the total debt of Afghanistan with that of India. By using the IN clause, it filters the IDA table to include only records for these two countries. It then sums the debt

for each country_name, groups the data accordingly, and presents the total debt figures side by side. This direct comparison facilitates an understanding of how Afghanistan's debt position stacks up against India's.

12. Total Bilateral Debt (PPG, Bilateral) for Each Country

Bilateral debt refers to debt agreements between two countries. Calculating the total bilateral debt for each country helps in understanding the extent of direct financial obligations between nations, which can influence diplomatic and economic relations.

```
SELECT country_name, SUM(debt) AS total_bilateral_debt
FROM IDA
WHERE indicator_code LIKE 'DT.%BLAT.CD'
GROUP BY country_name
ORDER BY total_bilateral_debt DESC;
```

This query filters the IDA table for records where the indicator_code matches the pattern 'DT.%BLAT.CD', indicating bilateral debt categories. It then sums the debt for each country_name, groups the data by country, and orders the results in descending order based on the total bilateral debt. This provides a ranked list of countries based on their bilateral debt obligations, offering insights into direct financial ties between nations.

	country_name character varying (150)	total_bilateral_debt numeric
1	Least developed countries: UN classification	39308485777.300002098
2	Cameroon	27211346559.299999237
3	South Asia	25711835938.300001859
4	IDA only	25507759448.000000001
5	Angola	18317134882.500000596
6	Egypt, Arab Rep.	14687247831.899999619
7	India	8496511755.499999643
8	China	7047344848.999999643
9	Bangladesh	6837567630.699999988
10	Vietnam	6198339116.000000119
11	Pakistan	6176936929.700000048
12	Indonesia	5999653455.100000262
13	Belarus	4382934580.099999785
14	Brazil	3609743116.299999833
15	Sri Lanka	3075510202.399999976
16	Georgia	2609851526.800000093
17	Kenya	2440063127.100000024
18	Ghana	2134313424.500000000
19	Ecuador	2018149842.199999929
20	Ethiopia	1984553191.599999904

13. Most Common Debt Indicators:

Identifying the most frequently occurring debt indicators reveals which debt categories are most prevalent in the dataset. This helps in understanding common debt types and prioritizing areas for further analysis.

```
SELECT indicator_code, COUNT(indicator_code) AS indicator_count
FROM IDA
GROUP BY indicator_code
ORDER BY indicator_count DESC, indicator_code DESC
LIMIT 20;
```

This query counts the number of occurrences for each indicator_code in the IDA table by grouping the data accordingly. It then orders the results in descending order based on the indicator_count and, in cases of ties, further orders by indicator_code in descending order. The LIMIT 20 clause ensures that only the top 20 most common debt indicators are displayed. This highlights the debt categories that appear most frequently across the dataset.

	indicator_code character varying (150) 🔒	indicator_count bigint 🔒
1	DT.INT.OFFT.CD	124
2	DT.INT.MLAT.CD	124
3	DT.INT.DLXF.CD	124
4	DT.AMT.OFFT.CD	124
5	DT.AMT.MLAT.CD	124
6	DT.AMT.DLXF.CD	124
7	DT.DIS.DLXF.CD	123
8	DT.INT.BLAT.CD	122
9	DT.DIS.OFFT.CD	122
10	DT.AMT.BLAT.CD	122
11	DT.DIS.MLAT.CD	120
12	DT.DIS.BLAT.CD	113
13	DT.INT.PRVT.CD	98
14	DT.AMT.PRVT.CD	98
15	DT.INT.PCBK.CD	84
16	DT.AMT.PCBK.CD	84
17	DT.INT.DPNG.CD	79
18	DT.AMT.DPNG.CD	79
19	DT.INT.PBND.CD	69
20	DT.AMT.PBND.CD	69

14. Highest Amount of Principal Repayments:

Principal repayments are the portions of debt that reduce the outstanding balance. Identifying the highest principal repayments helps in understanding which debt obligations are being reduced the most, indicating financial commitments and debt management effectiveness.

```
SELECT country_name, indicator_name, debt AS highest_debt
FROM IDA
WHERE indicator_code = 'DT.AMT.DLXF.CD'
ORDER BY debt DESC
LIMIT 1;
```

	country_name character varying (150)	indicator_name character varying (300)	highest_debt numeric
1	China	Principal repayments on external debt, long-term (AMT, current US...	96218620835.699996948

This query filters the IDA table for records where the indicator_code is 'DT.AMT.DLXF.CD', representing principal repayments. It then orders the results by the debt amount in descending order and limits the output to the top record. This identifies the country and corresponding debt indicator associated with the highest principal repayment, providing insight into significant debt reduction efforts within the dataset.

15. Top 10 Countries by Highest Single Debt Entry

While total debt provides an overview of a country's debt burden, identifying the highest single debt entries reveals significant individual debt obligations. This can highlight large-scale financing projects or substantial financial commitments undertaken by countries.

```
SELECT country_name, MAX(debt) AS maximum_debt
FROM IDA
GROUP BY country_name
ORDER BY maximum_debt DESC
LIMIT 10;
```

	country_name character varying (150) 🔒	maximum_debt numeric 🔒
1	China	96218620835.699996948
2	Brazil	90041840304.100006104
3	Russian Federation	66589761833.5
4	Turkey	51555031005.800003052
5	South Asia	48756295898.199996948
6	Least developed countries: UN classification	40160766261.599998474
7	IDA only	34531188113.199996948
8	India	31923507000.799999237
9	Indonesia	30916112653.799999237
10	Kazakhstan	27482093686.400001526

This query identifies the highest single debt entry for each country_name by using the MAX function. It groups the data by country, orders the results in descending order based on the maximum_debt, and limits the output to the top 10 countries. This provides a list of countries with the largest individual debt obligations, offering insights into significant financial commitments that may impact their economic stability.