

Case Study

Analyze International Debt Statistics

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BACKGROUND INFORMATION

A country may also take debt to manage its economy. For example, infrastructure spending is one costly ingredient required for a country's citizens to lead comfortable lives. The World Bank is the organization that provides debt to countries.

In this project, I am analyzing international debt data collected by The World Bank. The dataset contains information about the amount of debt (in USD) owed by developing countries across several categories.

DATA

The data used in this project is provided by **The World Bank**. It contains both national and regional debt statistics for several countries across the globe as recorded from 1970 to 2015.

PROBLEM STATEMENT

- What is the highest total amount of debt that is owed by the countries listed in the dataset?

- Which country owns the maximum amount of debt and what does that amount look like?

- What is the average amount of debt owed by Indonesia across different debt indicators?

```
-- Create Database
CREATE DATABASE IF NOT EXISTS international_debt;
USE international_debt;
```

● Create Database "international_debt"

```
-- Table: international_debt
CREATE TABLE international_debt
(
  country_name CHAR(50),
  country_code CHAR(50),
  indicator_name TEXT,
  indicator_code TEXT,
  debt decimal(15,3)
);
```

● Create Table "international_debt" that contains columns :

- Country_name
- Country code
- Indicator_name
- indicator_code
- debt

Table view

	country_name	country_code	indicator_name	indicator_code	debt
▶	Afghanistan	AFG	Disbursements on external debt, long-term (DIS...	DT.DIS.DLXF.CD	72894453.700
	Afghanistan	AFG	Interest payments on external debt, long-term ...	DT.INT.DLXF.CD	53239440.100
	Afghanistan	AFG	PPG, bilateral (AMT, current US\$)	DT.AMT.BLAT.CD	61739336.900
	Afghanistan	AFG	PPG, bilateral (DIS, current US\$)	DT.DIS.BLAT.CD	49114729.400
	Afghanistan	AFG	PPG, bilateral (INT, current US\$)	DT.INT.BLAT.CD	39903620.100
	Afghanistan	AFG	PPG, multilateral (AMT, current US\$)	DT.AMT.MLAT.CD	39107845.000
	Afghanistan	AFG	PPG, multilateral (DIS, current US\$)	DT.DIS.MLAT.CD	23779724.300
	Afghanistan	AFG	PPG, multilateral (INT, current US\$)	DT.INT.MLAT.CD	13335820.000
	Afghanistan	AFG	PPG, official creditors (AMT, current US\$)	DT.AMT.OFFT.CD	100847181.900
	Afghanistan	AFG	PPG, official creditors (DIS, current US\$)	DT.DIS.OFFT.CD	72894453.700
	Afghanistan	AFG	PPG, official creditors (INT, current US\$)	DT.INT.OFFT.CD	53239440.100
	Afghanistan	AFG	Principal repayments on external debt, long-ter...	DT.AMT.DLXF.CD	100847181.900
	Albania	ALB	Disbursements on external debt, long-term (DIS...	DT.DIS.DLXF.CD	317194512.500
	Albania	ALB	Interest payments on external debt, long-term ...	DT.INT.DLXF.CD	165602386.900
	Albania	ALB	Interest payments on external debt, private no...	DT.INT.DPNG.CD	87884000.000

Number of rows : 5000

Number of columns : 5

```
SELECT COUNT(DISTINCT(country_name)) AS total_distinct_countries,  
COUNT(DISTINCT(country_code)) AS total_distinct_country_code,  
COUNT(DISTINCT(indicator_name)) AS total_indicator_name,  
COUNT(DISTINCT(indicator_code)) AS total_indicator_code  
FROM international_debt;
```

Finding the numbers of distinct countries, country code, indicator name, and indicator code

Result

	total_distinct_countries	total_distinct_country_code	total_indicator_name	total_indicator_code
▶	124	124	25	25

The result shows that :

- There are **124 distinct countries** with international debt. The total country codes are also 124. This makes sense because each country must have only one country code.
- There are **25 indicators** for international debt. The total indicator codes are also 25. This makes sense because each indicator must have only one indicator code.

```
-- Totaling the amount of debt owned by the countries
SELECT
    ROUND(SUM(debt)/1000000, 2) AS total_debt
FROM international_debt;
```

Totaling the amount of debt owned by all countries

Result

total_debt
3079734.49

Total debt :
3079734.49\$

```
-- Country with the highest debt
SELECT
  country_name,
  SUM(debt) AS total_debt
FROM international_debt
GROUP BY country_name
ORDER BY total_debt DESC
LIMIT 3;
```

Identifying the **top 3** countries with the highest debt

Result

	country_name	total_debt
▶	China	285793494734.200
	Brazil	280623966140.800
	South Asia	247608723990.600

Top 3 countries :
1. China
2. Brazil
3. South Asia

The country with the highest debt is **China**

```

-- Average amount of debt across indicators
SELECT
  indicator_code AS debt_indicator,
  indicator_name,
  AVG(debt) AS average_debt
FROM international_debt
GROUP BY debt_indicator,indicator_name
ORDER BY average_debt DESC
LIMIT 10;

```

Calculating the **average debt** based on indicators and displaying the **top 10**.

Result

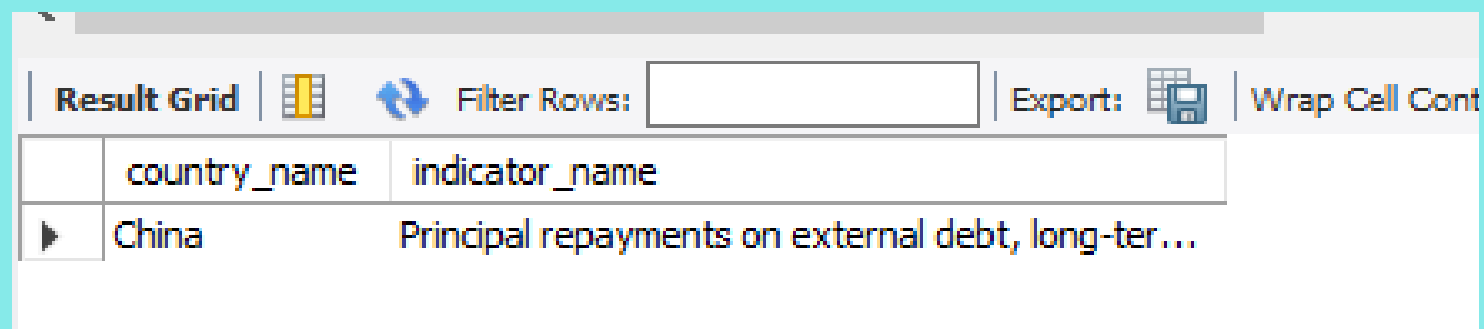
debt_indicator	indicator_name	average_debt
DT.AMT.DLXF.CD	Principal repayments on external debt, long-ter...	5904868401.4991935
DT.AMT.DPNG.CD	Principal repayments on external debt, private ...	5161194333.8126582
DT.DIS.DLXF.CD	Disbursements on external debt, long-term (DIS...	2152041216.8902439
DT.DIS.OFFT.CD	PPG, official creditors (DIS, current US\$)	1958983452.8598361
DT.AMT.PRVT.CD	PPG, private creditors (AMT, current US\$)	1803694101.9632653
DT.INT.DLXF.CD	Interest payments on external debt, long-term ...	1644024067.6508065
DT.DIS.BLAT.CD	PPG, bilateral (DIS, current US\$)	1223139290.3982301
DT.INT.DPNG.CD	Interest payments on external debt, private no...	1220410844.4215190
DT.AMT.OFFT.CD	PPG, official creditors (AMT, current US\$)	1191187963.0830645
DT.AMT.PBND.CD	PPG, bonds (AMT, current US\$)	1082623947.6536232

Top 10 highest average debts based on indicators. The indicator with the highest average debt is **DT.AMT.DLXF.CD**


```
-- The highest amount of principal repayments
SELECT
  country_name,
  indicator_name
FROM international_debt
WHERE debt = (SELECT
  MAX(debt)
  FROM international_debt
  WHERE indicator_code='DT.AMT.DLXF.CD');
```

Identifying the country with the highest amount of principal repayments with indicator code DT.AMT.DLXF.CD

Result



The screenshot shows a 'Result Grid' window with a toolbar containing 'Filter Rows', 'Export', and 'Wrap Cell Cont' options. The grid displays a single row of data.

country_name	indicator_name
China	Principal repayments on external debt, long-ter...

In the category of indicator code DT.AMT.DLXF.CD, **China** stands out as the country with the highest amount of principal repayment.

```
-- The most common debt indicator
SELECT indicator_code,
       COUNT(indicator_code) AS indicator_count
FROM international_debt
GROUP BY indicator_code
ORDER BY indicator_count DESC, indicator_code DESC
LIMIT 20;
```

Identifying top 20 most common debt indicator

Result

	indicator_code	indicator_count
▶	DT.INT.OFFT.CD	124
	DT.INT.MLAT.CD	124
	DT.INT.DLXF.CD	124
	DT.AMT.OFFT.CD	124
	DT.AMT.MLAT.CD	124
	DT.AMT.DLXF.CD	124
	DT.DIS.DLXF.CD	123
	DT.INT.BLAT.CD	122
	DT.DIS.OFFT.CD	122
	DT.AMT.BLAT.CD	122
	DT.DIS.MLAT.CD	120
	DT.DIS.BLAT.CD	113
	DT.INT.PRVT.CD	98
	DT.AMT.PRVT.CD	98
	DT.INT.PCBK.CD	84
	DT.AMT.PCBK.CD	84
	DT.INT.DPNG.CD	79
	DT.AMT.DPNG.CD	79
	DT.INT.PBND.CD	69
	DT.AMT.PBND.CD	69

There are 6 debt indicators that serve as the most common indicators, with a total of 124 being utilized.

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

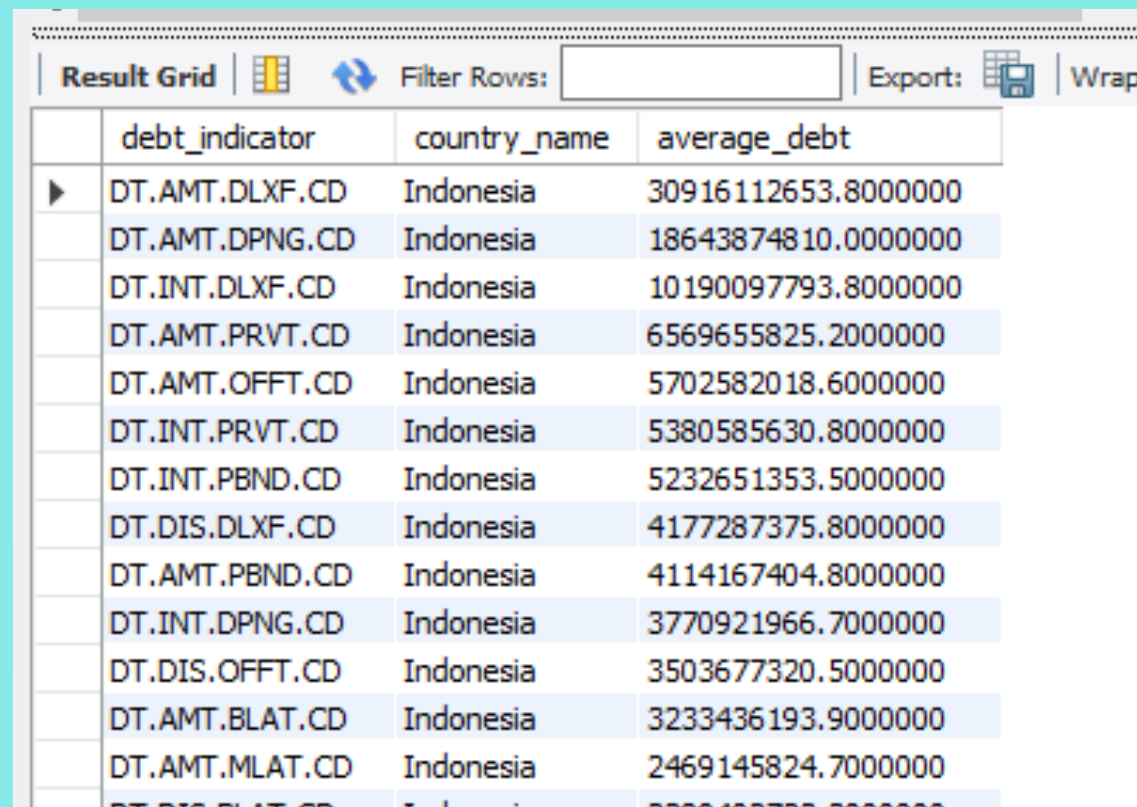
country_name	maximum_debt
China	96218620835.700
Brazil	90041840304.100
Russian Federation	66589761833.500
Turkey	51555031005.800
South Asia	48756295898.200
Least developed countries: UN classification	40160766261.600
IDA only	34531188113.200
India	31923507000.800
Indonesia	30916112653.800
Kazakhstan	27482093686.400

Identifying other viable debt issues such as maximum debt each country, and displaying top 10.

"**China** has the highest debt among countries, followed by **Brazil** in the second position. and **Indonesia** is one of the top 10 countries with the highest debt.

```
SELECT
  indicator_code AS debt_indicator,
  country_name,
  AVG(debt) AS average_debt
FROM international_debt
WHERE country_name="Indonesia"
GROUP BY debt_indicator,country_name
ORDER BY average_debt DESC
LIMIT 25;
```

Calculating the average debt based on indicators for Indonesia



debt_indicator	country_name	average_debt
DT.AMT.DLXF.CD	Indonesia	30916112653.8000000
DT.AMT.DPNG.CD	Indonesia	18643874810.0000000
DT.INT.DLXF.CD	Indonesia	10190097793.8000000
DT.AMT.PRVT.CD	Indonesia	6569655825.2000000
DT.AMT.OFFT.CD	Indonesia	5702582018.6000000
DT.INT.PRVT.CD	Indonesia	5380585630.8000000
DT.INT.PBND.CD	Indonesia	5232651353.5000000
DT.DIS.DLXF.CD	Indonesia	4177287375.8000000
DT.AMT.PBND.CD	Indonesia	4114167404.8000000
DT.INT.DPNG.CD	Indonesia	3770921966.7000000
DT.DIS.OFFT.CD	Indonesia	3503677320.5000000
DT.AMT.BLAT.CD	Indonesia	3233436193.9000000
DT.AMT.MLAT.CD	Indonesia	2469145824.7000000
DT.DIS.BLAT.CD	Indonesia	2288482722.2000000

The highest average debt for Indonesia based on debt indicators is **DT.AMT.DLXF CD**

CONCLUSION



The country with the highest total amount of debt is **China**, with a total international debt of 285793494734.2 \$. China also holds the maximum amount of debt, which is 96218620835.7\$



The indicator with the highest average debt is DT.AMT.DLXF.CD. This category includes repayment of long term debts. Countries take on long-term debt to acquire immediate capital.



Top 3 average amount of debt owed by Indonesia across different debt indicators

Indicator code	Indicator name	Average debt
DT.AMT.DLXF.CD	Principal repayments on external debt, long-term (AMT, current US\$)	30916112653.8
DT.AMT.DPNG.CD	Principal repayments on external debt, private nonguaranteed (PNG) (AMT, current US\$)	18643874810.0
DT.INT.DLXF.CD	Interest payments on external debt, long-term (INT, current US\$)	10190097793.80