

# International Debt Analysis Project

## Business Intelligence – Technology

### Project Approach – Structural Query Language(SQL)

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**Code Platform Used :** SQLite DB browser

### Project Code :

**1) International Debt Analysis :** we are going to analyze 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. In below of this code ,we are selecting first 10 rows from international debt data which was taken from the World Bank data Source

### Code :

```
1 SELECT *
2 FROM international_debt
3 LIMIT 10;
```

### Output :

	country_name	country_code	indicator_name	indicator_code	debt
1	Afghanistan	AFG	Disbursements on external debt, long...	DT.DIS.DLXF.CD	72894453.7
2	Afghanistan	AFG	Interest payments on external debt, ...	DT.INT.DLXF.CD	53239440.1
3	Afghanistan	AFG	PPG, bilateral (AMT, current US\$)	DT.AMT.BLAT.CD	61739336.9
4	Afghanistan	AFG	PPG, bilateral (DIS, current US\$)	DT.DIS.BLAT.CD	49114729.4
5	Afghanistan	AFG	PPG, bilateral (INT, current US\$)	DT.INT.BLAT.CD	39903620.1
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	23779724.3
8	Afghanistan	AFG	PPG, multilateral (INT, current US\$)	DT.INT.MLAT.CD	13335820
9	Afghanistan	AFG	PPG, official creditors (AMT, current ...	DT.AMT.OFFT.CD	100847181.9
10	Afghanistan	AFG	PPG, official creditors (DIS, current ...	DT.DIS.OFFT.CD	72894453.7

**2) Finding the number of distinct countries :** From the first ten rows, we can see the amount of debt owed by Afghanistan in the different debt indicators. But we have to analyse different countries rather than only one country. And as observing from above data ,there are repetitions in the country names because a country is most likely to have debt in more than one debt indicator which is the reason.

### Code :

```
4
5 SELECT
6     COUNT(DISTINCT(country_name)) AS total_distinct_countries
7 FROM international_debt;
8
```

### Output :

	total_distinct_countries
1	124

**3) Finding the distinct debt indicators :** We can see there are a total of 124 countries present on the table above . As we saw in the first section, there is a column called indicator\_name that briefly specifies the purpose of taking the debt. Just beside that column, there is another column called indicator\_code which symbolizes the category of these debts. Knowing about these various debt indicators will help us to understand the areas in which a country can possibly be indebted to.

**Code :**

```

9  SELECT
10     DISTINCT(indicator_code) as distinct_debt_indicators
11 FROM international_debt
12 GROUP BY distinct_debt_indicators
13 ORDER BY distinct_debt_indicators;
14

```

**Output :**

	distinct_debt_indicators		distinct_debt_indicators
1	DT.AMT.BLAT.CD	13	DT.DIS.OFFT.CD
2	DT.AMT.DLXF.CD	14	DT.DIS.PCBK.CD
3	DT.AMT.DPNG.CD	15	DT.DIS.PROP.CD
4	DT.AMT.MLAT.CD	16	DT.DIS.PRVT.CD
5	DT.AMT.OFFT.CD	17	DT.INT.BLAT.CD
6	DT.AMT.PBND.CD	18	DT.INT.DLXF.CD
7	DT.AMT.PCBK.CD	19	DT.INT.DPNG.CD
8	DT.AMT.PROP.CD	20	DT.INT.MLAT.CD
9	DT.AMT.PRVT.CD	21	DT.INT.OFFT.CD
10	DT.DIS.BLAT.CD	22	DT.INT.PBND.CD
11	DT.DIS.DLXF.CD	23	DT.INT.PCBK.CD
12	DT.DIS.MLAT.CD	24	DT.INT.PROP.CD
13	DT.DIS.OFFT.CD	25	DT.INT.PRVT.CD

**4) Total amount of debt owned by all the countries :** Since the financial debt of a particular country represents its economic state. So now , we are going to find the total amount of debt that is owned by different countries.

**Code:**

```

15 SELECT ROUND(SUM(debt)/1000000, 2) as total_debt FROM international_debt;
16

```

**Output:**

	total_debt
1	6159468.98

**5) Finding the country that holds the highest debt than other countries :** we have the exact total of the amounts of debt owed by several countries, let's now find out the country that owns the highest amount of debt along with the amount. Here the debt is calculated by the sum of different debts owned by a country based on the categories.

**Code:**

```

17 SELECT
18     country_name,
19     ROUND(SUM(debt)/1000000, 2) as total_debt
20 FROM international_debt
21 GROUP BY country_name
22 ORDER BY total_debt DESC
23 LIMIT 1;

```

**Output :**

	country_name	total_debt
1	China	571586.99

**6) Finding out the average amount of debt across indicators :** So hence , China is the country with highest debt owning from the previous data . We already have an clear view of the different debt indicators in which the countries owe their debts. Now , we are going to find out the average of how much debt a country owes.

**Code:**

```

25
26 SELECT indicator_code as debt_indicator,
27     ROUND(AVG(debt)/1000000, 2) as average_debt, indicator_name
28 FROM international_debt
29 GROUP BY debt_indicator, indicator_name
30 ORDER BY average_debt DESC
31 LIMIT 10;
32

```

**Output:**

	debt_indicator	average_debt	indicator_name
1	DT.AMT.DLXF.CD	5904.87	Principal repayments on external deb...
2	DT.AMT.DPNG.CD	5161.19	Principal repayments on external deb...
3	DT.DIS.DLXF.CD	2152.04	Disbursements on external debt, long...
4	DT.DIS.OFFT.CD	1958.98	PPG, official creditors (DIS, current ...
5	DT.AMT.PRVT.CD	1803.69	PPG, private creditors (AMT, current ...
6	DT.INT.DLXF.CD	1644.02	Interest payments on external debt, ...
7	DT.DIS.BLAT.CD	1223.14	PPG, bilateral (DIS, current US\$)
8	DT.INT.DPNG.CD	1220.41	Interest payments on external debt, ...
9	DT.AMT.OFFT.CD	1191.19	PPG, official creditors (AMT, current ...
10	DT.AMT.PBND.CD	1082.62	PPG, bonds (AMT, current US\$)

**7) Gathering the data of highest amount of principal repayments :** As observing from the above data , ( DT.AMY.DLXF.CD) indicator dominates the chart of average debt part . Also ,we can see that there are some variations between the indicators after the second indicator. So now, we can display the data which shows the countries with their debts interms of high to low as it helps to know the economic status of a particular country.

**Code:**

```

33 SELECT
34     country_name,
35     ROUND(AVG(debt)/1000000,2) as average_debt,
36     indicator_name,
37     indicator_code
38 FROM international_debt
39 GROUP BY country_name, indicator_name, indicator_code
40 HAVING indicator_code = 'DT.AMT.DLXF.CD'
41 ORDER BY average_debt DESC
42 LIMIT 10;

```

### Output :

	country_name	average_debt	indicator_name	indicator_code
1	China	96218.62	Principal repayments on external deb...	DT.AMT.DLXF.CD
2	Brazil	90041.84	Principal repayments on external deb...	DT.AMT.DLXF.CD
3	Russian Federation	66589.76	Principal repayments on external deb...	DT.AMT.DLXF.CD
4	Turkey	51555.03	Principal repayments on external deb...	DT.AMT.DLXF.CD
5	South Asia	48756.3	Principal repayments on external deb...	DT.AMT.DLXF.CD
6	India	31923.51	Principal repayments on external deb...	DT.AMT.DLXF.CD
7	Indonesia	30916.11	Principal repayments on external deb...	DT.AMT.DLXF.CD
8	Kazakhstan	27482.09	Principal repayments on external deb...	DT.AMT.DLXF.CD
9	Mexico	25218.5	Principal repayments on external deb...	DT.AMT.DLXF.CD
10	Least developed countries: UN ...	25197.03	Principal repayments on external deb...	DT.AMT.DLXF.CD

**8)Finding out the common debt indicator :** China has the highest amount of debt in the long-term debt (DT.AMT.DLXF.CD) category. Here , we are going to find the common indicator in which the countries owe their debt.

### Code:

```
44
45 SELECT
46     indicator_name,
47     COUNT(indicator_code) as indicator_count
48 FROM international_debt
49 GROUP BY indicator_code,indicator_name
50 ORDER BY indicator_count DESC
51 LIMIT 24;
52
```

### Output :

	indicator_name	indicator_count
1	Principal repayments on external deb...	248
2	PPG, multilateral (AMT, current US\$)	248
3	PPG, official creditors (AMT, current ...	248
4	Interest payments on external debt, ...	248
5	PPG, multilateral (INT, current US\$)	248
6	PPG, official creditors (INT, current ...	248
7	Disbursements on external debt, long...	246
8	PPG, bilateral (AMT, current US\$)	244
9	PPG, official creditors (DIS, current ...	244
10	PPG, bilateral (INT, current US\$)	244
11	PPG, multilateral (DIS, current US\$)	240
12	PPG, bilateral (DIS, current US\$)	226
13	PPG, private creditors (AMT, current ...	196

	indicator_name	indicator_count
12	PPG, bilateral (DIS, current US\$)	226
13	PPG, private creditors (AMT, current ...	196
14	PPG, private creditors (INT, current ...	196
15	PPG, commercial banks (AMT, curren...	168
16	PPG, commercial banks (INT, current ...	168
17	Principal repayments on external deb...	158
18	Interest payments on external debt, ...	158
19	PPG, bonds (AMT, current US\$)	138
20	PPG, bonds (INT, current US\$)	138
21	PPG, other private creditors (AMT, ...	108
22	PPG, other private creditors (INT, ...	108
23	PPG, private creditors (DIS, current ...	106
24	PPG, commercial banks (DIS, current ...	102

**9) Debt Issues :** There are a total of six debt indicators in which all the countries listed in our dataset have taken debt. The indicator DT.AMT.DLXF.CD is also there in the list. So, this gives us a clue that all these countries are suffering from a common economic issue. So now , let's find the amount of debt across the indicators along with the respective countries.

**Code:**

	country_name	indicator_name	maximum_debt
1	China	Principal repayments on external deb...	96218620835.7
2	Brazil	Principal repayments on external deb...	90041840304.1
3	China	Principal repayments on external deb...	72392986213.8
4	Russian Federation	Principal repayments on external deb...	66589761833.5
5	Turkey	Principal repayments on external deb...	51555031005.8
6	South Asia	Principal repayments on external deb...	48756295898.2
7	Brazil	PPG, private creditors (AMT, current ...	43598697498.6
8	Russian Federation	Principal repayments on external deb...	42800154974.9
9	Brazil	Principal repayments on external deb...	41831444053.3
10	Least developed countries: UN ...	Disbursements on external debt, long...	40160766261.6
11	Turkey	Principal repayments on external deb...	39916197430
12	Least developed countries: UN ...	PPG, official creditors (DIS, current ...	37273977350.5
13	Brazil	PPG, other private creditors (AMT, ...	35119003750
14	IDA only	Disbursements on external debt, long...	34531188113.2
15	IDA only	PPG, official creditors (DIS, current ...	33258230166.9
16	India	Principal repayments on external deb...	31923507000.8
17	Indonesia	Principal repayments on external deb...	30916112653.8
18	South Asia	Disbursements on external debt, long...	29306216064.7
19	South Asia	PPG, official creditors (DIS, current ...	28991897351.5
20	Kazakhstan	Principal repayments on external deb...	27482093686.4