

1. The World Bank's international debt data

In this project the international debt data collected by the World Bank will be analyzed in order to extract valuable information out of it.

The dataset contains the following variables:

- Country name
- Country code
- Indicator name
- Indicator code
- Amount of debt in USD

```
In [2]: ! pip install mysql-connector-python
! pip3 install pymysql
! pip3 install ipython-sql
! pip3 install mysqlclient

import pymysql
import pandas as pd

import mysql.connector
```

```
Requirement already satisfied: mysql-connector-python in c:\users\ricar\anaconda3\lib\site-packages (8.0.32)
Requirement already satisfied: protobuf<=3.20.3,>=3.11.0 in c:\users\ricar\anaconda3\lib\site-packages (from mysql-connector-python) (3.20.3)
Requirement already satisfied: pymysql in c:\users\ricar\anaconda3\lib\site-packages (1.0.2)
Requirement already satisfied: ipython-sql in c:\users\ricar\anaconda3\lib\site-packages (0.5.0)
Requirement already satisfied: ipython in c:\users\ricar\anaconda3\lib\site-packages (from ipython-sql) (7.31.1)
Requirement already satisfied: prettytable in c:\users\ricar\anaconda3\lib\site-packages (from ipython-sql) (3.6.0)
Requirement already satisfied: six in c:\users\ricar\anaconda3\lib\site-packages (from ipython-sql) (1.16.0)
Requirement already satisfied: ipython-genutils in c:\users\ricar\anaconda3\lib\site-packages (from ipython-sql) (0.2.0)
Requirement already satisfied: sqlparse in c:\users\ricar\anaconda3\lib\site-packages (from ipython-sql) (0.4.3)
Requirement already satisfied: sqlalchemy>=2.0 in c:\users\ricar\anaconda3\lib\site-packages (from ipython-sql) (2.0.4)
Requirement already satisfied: greenlet!=0.4.17 in c:\users\ricar\anaconda3\lib\site-packages (from sqlalchemy>=2.0->ipython-sql) (1.1.1)
Requirement already satisfied: typing-extensions>=4.2.0 in c:\users\ricar\anaconda3\lib\site-packages (from sqlalchemy>=2.0->ipython-sql) (4.3.0)
Requirement already satisfied: pygments in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (2.11.2)
Requirement already satisfied: backcall in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (0.2.0)
Requirement already satisfied: prompt-toolkit!=3.0.0,!>=3.0.1,<3.1.0,>=2.0.0 in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (3.0.20)
Requirement already satisfied: pickleshare in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (0.7.5)
Requirement already satisfied: decorator in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (5.1.1)
Requirement already satisfied: matplotlib-inline in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (0.1.6)
Requirement already satisfied: colorama in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (0.4.5)
Requirement already satisfied: traitlets>=4.2 in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (5.1.1)
Requirement already satisfied: jedi>=0.16 in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (0.18.1)
Requirement already satisfied: setuptools>=18.5 in c:\users\ricar\anaconda3\lib\site-packages (from ipython->ipython-sql) (63.4.1)
```

Requirement already satisfied: wcwidth in c:\users\ricar\anaconda3\lib\site-packages (from prettytable->ipython-sql) (0.2.5)
 Requirement already satisfied: parso<0.9.0,>=0.8.0 in c:\users\ricar\anaconda3\lib\site-packages (from jedi>=0.16->ipython->ipython-sql) (0.8.3)
 Requirement already satisfied: mysqlclient in c:\users\ricar\anaconda3\lib\site-packages (2.1.1)

In [3]: `%load_ext sql`

In [4]: `%sql mysql+mysqldb://root:***@localhost/debt`

In [5]: `%sql SELECT * FROM international_debt;`
 * mysql+mysqldb://root:***@localhost/debt
 2357 rows affected.

Out[5]:

country_name	country_code	indicator_name	indicator_code	debt
Afghanistan	AFG	Disbursements on external debt, long-term (DIS, current US\$)	DT.DIS.DLXF.CD	72894453.7
Afghanistan	AFG	Interest payments on external debt, long-term (INT, current US\$)	DT.INT.DLXF.CD	53239440.1
Afghanistan	AFG	PPG, bilateral (AMT, current US\$)	DT.AMT.BLAT.CD	61739336.9
Afghanistan	AFG	PPG, bilateral (DIS, current US\$)	DT.DIS.BLAT.CD	49114729.4
Afghanistan	AFG	PPG, bilateral (INT, current US\$)	DT.INT.BLAT.CD	39903620.1
Afghanistan	AFG	PPG, multilateral (AMT, current US\$)	DT.AMT.MLAT.CD	39107845.0

1. Total amount of debt owed by the countries

In [15]: `%%sql
SELECT ROUND(SUM(debt)/1000000, 2) AS total_debt
FROM international_debt;`
 * mysql+mysqldb://root:***@localhost/debt
 1 rows affected.

Out[15]:

total_debt
3079734.49

2. Country with the highest debt

```
In [16]: %%sql
SELECT country_name, SUM(debt) AS total_debt
FROM international_debt
GROUP BY country_name
ORDER BY total_debt DESC

* mysql+mysqldb://root:***@localhost/debt
1 rows affected.
```

```
Out[16]:
```

country_name	total_debt
China	285793494734.2

3. Average amount of debt across indicators

```
In [18]: %%sql
SELECT
    indicator_code AS debt_indicator,
    indicator_name,
    round(AVG(debt),2) AS average_debt
FROM international_debt
GROUP BY debt_indicator, indicator_name
ORDER BY average_debt DESC

* mysql+mysqldb://root:***@localhost/debt
10 rows affected.
```

```
Out[18]:
```

debt_indicator	indicator_name	average_debt
DT.AMT.DLXF.CD	Principal repayments on external debt, long-term (AMT, current US\$)	5904868401.5
DT.AMT.DPNG.CD	Principal repayments on external debt, private nonguaranteed (PNG) (AMT, current US\$)	5161194333.81
DT.DIS.DLXF.CD	Disbursements on external debt, long-term (DIS, current US\$)	2152041216.89
DT.DIS.OFFT.CD	PPG, official creditors (DIS, current US\$)	1958983452.86
DT.AMT.PRVT.CD	PPG, private creditors (AMT, current US\$)	1803694101.96
DT.INT.DLXF.CD	Interest payments on external debt, long-term (INT, current US\$)	1644024067.65
DT.DIS.BLAT.CD	PPG, bilateral (DIS, current US\$)	1223139290.4
DT.INT.DPNG.CD	Interest payments on external debt, private nonguaranteed (PNG) (INT, current US\$)	1220410844.42
DT.AMT.OFFT.CD	PPG, official creditors (AMT, current US\$)	1191187963.08
DT.AMT.PBND.CD	PPG, bonds (AMT, current US\$)	1082623947.65

4. The highest amount of principal repayments

```
In [19]: %%sql
SELECT
    country_name,
    indicator_name
FROM international_debt
WHERE debt = (SELECT MAX(debt)
              FROM international_debt)

* mysql+mysqldb://root:***@localhost/debt
1 rows affected.
```

```
Out[19]:
```

country_name	indicator_name
China	Principal repayments on external debt, long-term (AMT, current US\$)

5. The most common debt indicator

```
In [21]: %%sql
SELECT indicator_code , COUNT(*) AS indicator_count
FROM international_debt
GROUP BY indicator_code
ORDER BY indicator_count DESC , indicator_code DESC

* mysql+mysqldb://root:***@localhost/debt
10 rows affected.
```

```
Out[21]:
```

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

6. Maximum debt per country

```
In [22]: %%sql
SELECT country_name, MAX(debt) AS maximum_debt
FROM international_debt
Group by country_name
Order by maximum_debt DESC

* mysql+mysqldb://root:***@localhost/debt
10 rows affected.
```

```
Out[22]:
```

	country_name	maximum_debt
	China	96218620835.7
	Brazil	90041840304.1
	Russian Federation	66589761833.5
	Turkey	51555031005.8
	South Asia	48756295898.2
	Least developed countries: UN classification	40160766261.6
	IDA only	34531188113.2
	India	31923507000.8
	Indonesia	30916112653.8
	Kazakhstan	27482093686.4

```
In [ ]:
```