Udacity Project - Explore Weather Trends
By Andrey Gorelov

First steps required me to extract the data from the Udacity website using SQL.
Since there were three tables, Ineeded to download each one of them to better observe the data I had to work with.

To download the files I did the following:

```
SELECT *
FROM city_data
```
(I was able to download a CSV file that had a name of the city, country and the average temperature)

```
SELECT *
FROM city_list
```
(Here I got the list of all the cities and countries that are going to be on the list, which was a smaller version of the previous file without the average temperature indicators.)

```
SELECT *
FROM global_data
```
(Third file that lets me see year since 1750 till 2015 and the average Global Temperature for those years.)

In addition, I could also extract data just about Milan's Temperature by using the following statement

```
SELECT *
FROM city_data
Where city = 'Milan'
```

I could even further filter out the statement (since we know that Milan is in Italy and see less irrelevant columns)

```
SELECT year, city, avg_temp
FROM city_data
Where city = 'Milan'
```

After the files have been downloaded to CSV, I exported them from Excel to Google Sheets. I then combined all the files (by copy + paste) into one file to make it easier for me to observe the data.
Now, I needed to create Charts to allow me to see Average and Changing Temperature of Milan (I live in Switzerland and that's the closest biggest city to me) compared to the Global Temperature. For that I needed two main Charts.

My first Chart had Years as X-axis to illustrate the timeline. The first Series was Average Temperature of Milan (which I obtained from city_data file) by selecting all the numbers from year 1750 till 2013. The second Series was Average Global Temperature (which I obtained from global_data file) by also selecting the numbers from the same years. Thus I had my Chart Number 1 complete.
For the Second Chart I had to calculate a (7Years) Moving Average of the Temperature for Milan and Global.
For Milan, I created a box which had an average formula inside and selected the first 7 years. After that the formula would be complete and I just had to drag the formula box till the last average temperature year for Milan, which automatically made the calculation for me. I did the exact same procedure for Global Temperature. For the Chart Number 2 to be complete I just had to insert the outcomes for the Moving Averages for both Milan and Global where I could see the difference.
As a last modification, both charts were given a name, as well as properly naming both axis and Series, and giving a name to each line inside the chart.

Observations:

Differences

Both charts show that the average temperature in Milan is lower than the Global average temperature. While Milan has its temperature scale shifts up and down around 6, the global temperature shifts around 8 for both Average and Moving Average charts. It has also been consisted in that trend since the year 1750 till 2015 where the global average temperature surpasses Milan's.
Next, although both graphs can illustrate a drop or increase in temperature (whether it is Average Temperature or Moving Average), we can observe that the jump or decrease does not happen accordingly for Milan and Global. It can be viewed on multiple occasions that if Milan's temperature has gone up the Global Temperature could have decreased on average in the same years.

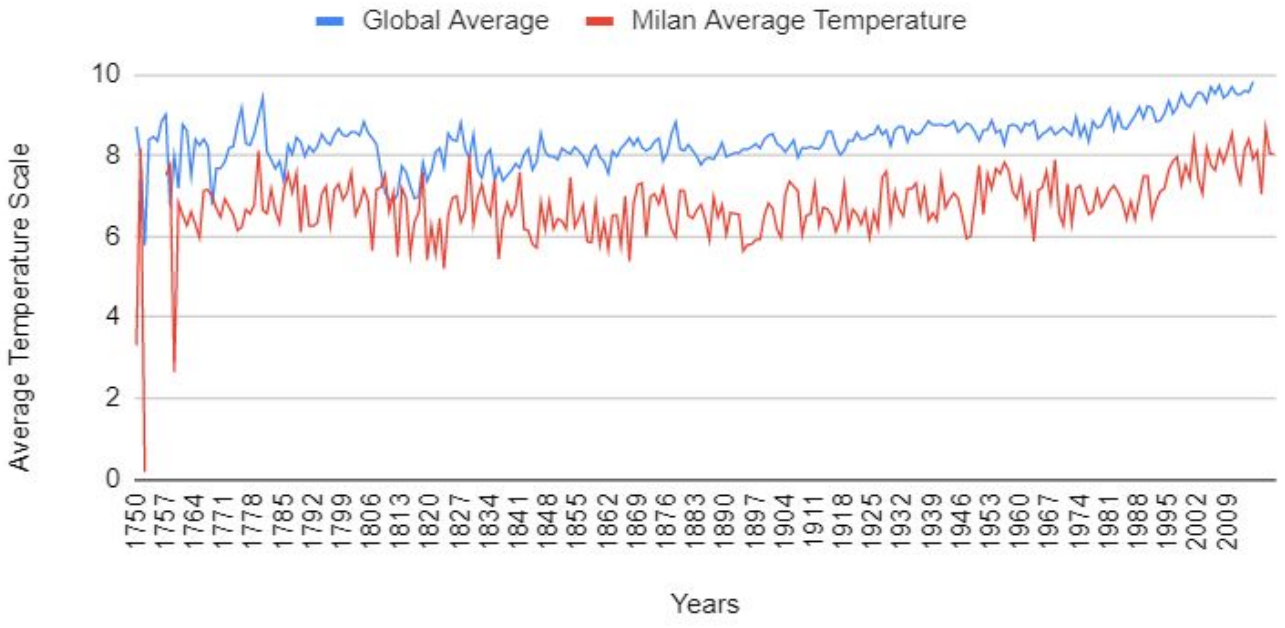
Similarities

Although I did mention before that while comparing the temperatures we could see that the increase or decrease does not happen accordingly, one similarity is the fact that Milan's and Global Temperature are constantly jumping up and down without having a straight increase or decrease in scale.
The next similarity, and probably the main one, is the fact that through time an average temperature for Milan and Global Temperatures are increasing. It can clearly be seen after the year of 1900. It can be better seen on the Chart Number 2 where the lines are of temperature scale are rising to surpass the all time highests for both Milan and Global Temperatures. This indicates that the temperature is rising dramatically and shows signs that in the future the temperature will continue to rise.

Below you can find a screenshot of TWO Charts that I made in Google Sheets.

Average Global and Milan Temperature

Chart Number 1



Moving Average (7Years)

Chart Number 2