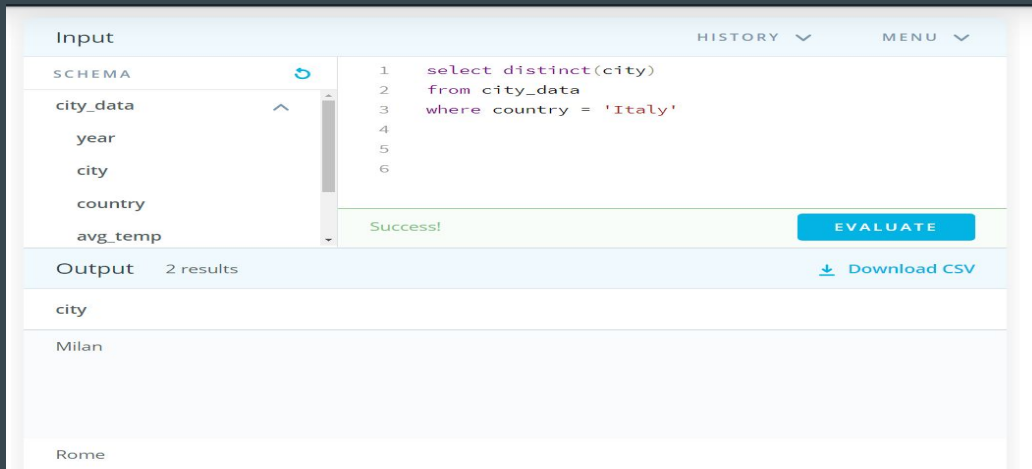


# Explore Weather Trends:

# Extract data from database:

First of all I had to choose the city closest to where i live; to do that I filtered the data with a SQL queries from the city\_data table as follow:

The city closest to me was Milan.



The screenshot shows a web-based SQL interface. On the left, under the 'Input' tab, a schema for 'city\_data' is listed with columns: year, city, country, and avg\_temp. The 'city' column is selected. In the center, a SQL query is entered: `select distinct(city) from city_data where country = 'Italy'`. Below the query, a green bar indicates 'Success!'. On the right, there are buttons for 'HISTORY', 'MENU', and 'EVALUATE'. Below the query editor, the 'Output' section shows '2 results' and a 'Download CSV' link. The output table has a single column 'city' and two rows: 'Milan' and 'Rome'.

city
Milan
Rome

# Data manipulation

To analyze the temperature trend, i wrote an SQL query to visualize in the same table the average global temperature and Milan average temperature .

In this way there are only the years in which both Milan and the rest of the world have data.

Data set is ranged 1750-2013

The screenshot shows a SQL query editor interface. On the left, a 'SCHEMA' panel lists three tables: 'city\_data', 'city\_list', and 'global\_data', each with a dropdown arrow. The main editor area contains a SQL query with line numbers 1 through 6. Below the query, a green 'Success!' message is displayed next to a blue 'EVALUATE' button. The bottom section, titled 'Output', shows '264 results' and a 'Download CSV' link. Below this is a table with five columns: 'year', 'city', 'country', 'average\_milan\_temperature', and 'avgerage\_global\_temperature'. The first row of data shows the year 1750 for Milan, Italy, with an average Milan temperature of 7.51 and an average global temperature of 8.72.

```
1 select cd.year, cd.city, cd.country, cd.avg_temp
2 as average_milan_temperature , gd.avg_temp as
3 avgerage_global_temperature
4 from global_data gd
5 join city_data cd on cd.year = gd.year
6 where cd.city = 'Milan'
```

Success!

EVALUATE

Output 264 results [Download CSV](#)

year	city	country	average_milan_temperature	avgerage_global_temperature
1750	Milan	Italy	7.51	8.72

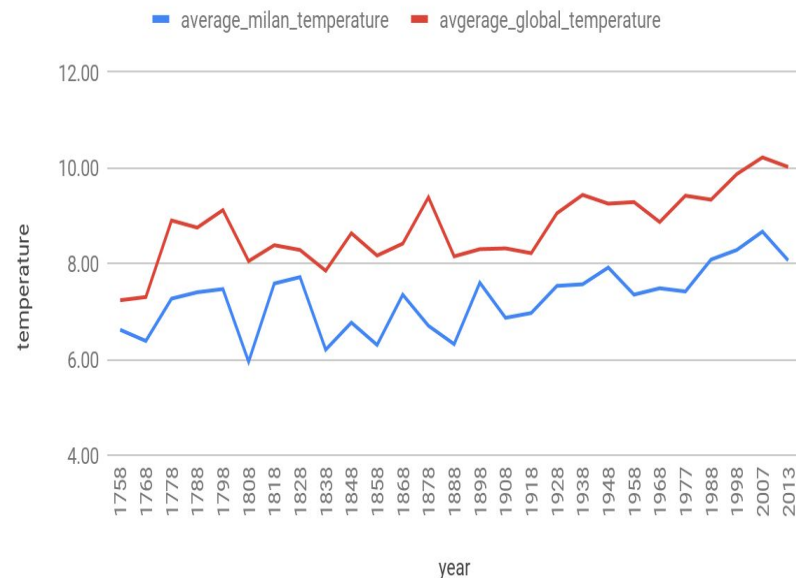
# Data visualization:

The first chart represent a comparison between the local city average temperature and the global average temperature

The moving average has been prepared on the same spreadsheet on a 10-year basis.

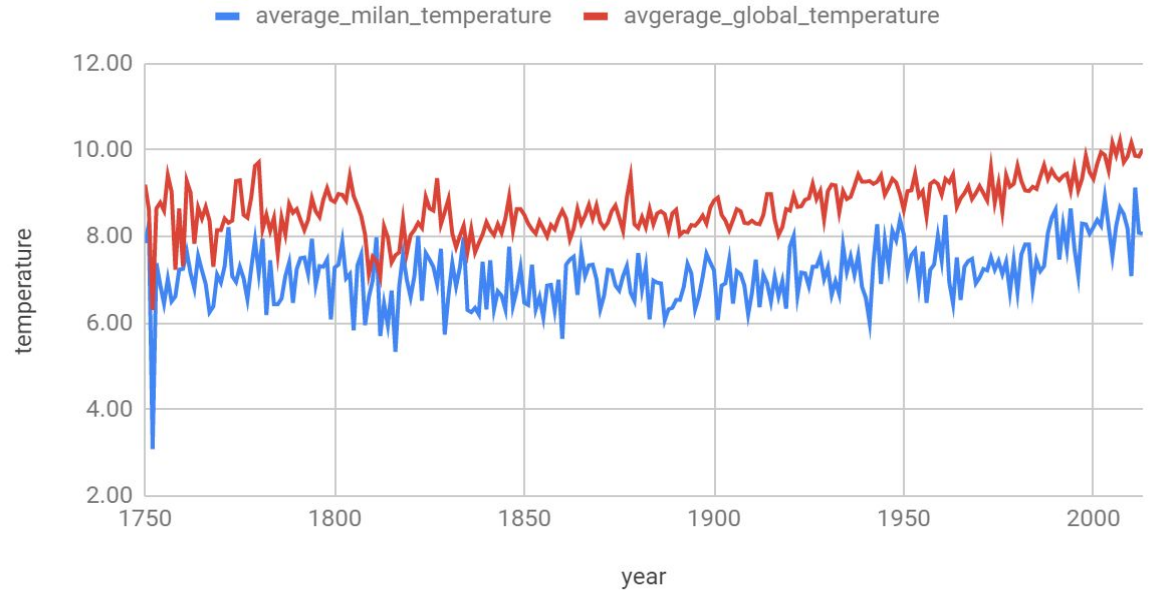
Charts are made with Google sheets.

Milan and global average temperature



This other chart shows the every year average temperature of both Milan and of the rest of the world.

### Global and Milan temperature change



# Observations:

From what we can see from this charts, the following informations may be deduced:

- Milan average temperature is 2 degrees colder than average global temperature.
- Both Milan and global average temperature are increasing proportionally.
- Last graph shows a great decrease of temperature in the world ( and Milan) perhaps determined by a natural event during 1752 year.
- We can see that global average temperature is increasing abnormally in the last 4 decades: until 1890s temperature had fluctuated around  $8^{\circ}$ , from then on, we notice a strong increase in temperature which had reached  $10^{\circ}$ .