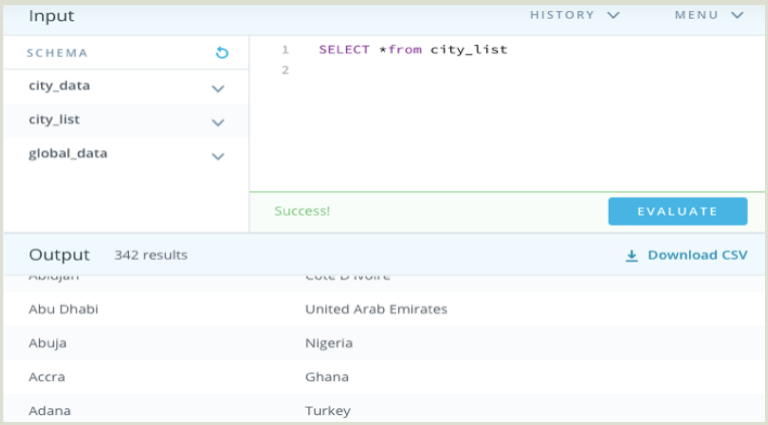
HOW TO PRERARE THE DATA :



use the SQL in Udacity, lecture "3-Accessing Data With SQL"
to extract the data , Then I apply the steps :

a) SELECT * FROM city_list
b) SELECT * FROM city_data
c) SELECT * FROM global_data

Download CSV, open the files with excel
Open a new page, insert a table with filters for the data to be more usable and cleaner to prepare it for analysis .

I chose my favorite city forever "Tokyo", and compare the temperatures with global

- the moving average = 10_ years
- Display years: 2000 – 2013

-The picture shows how the moving average was calculated

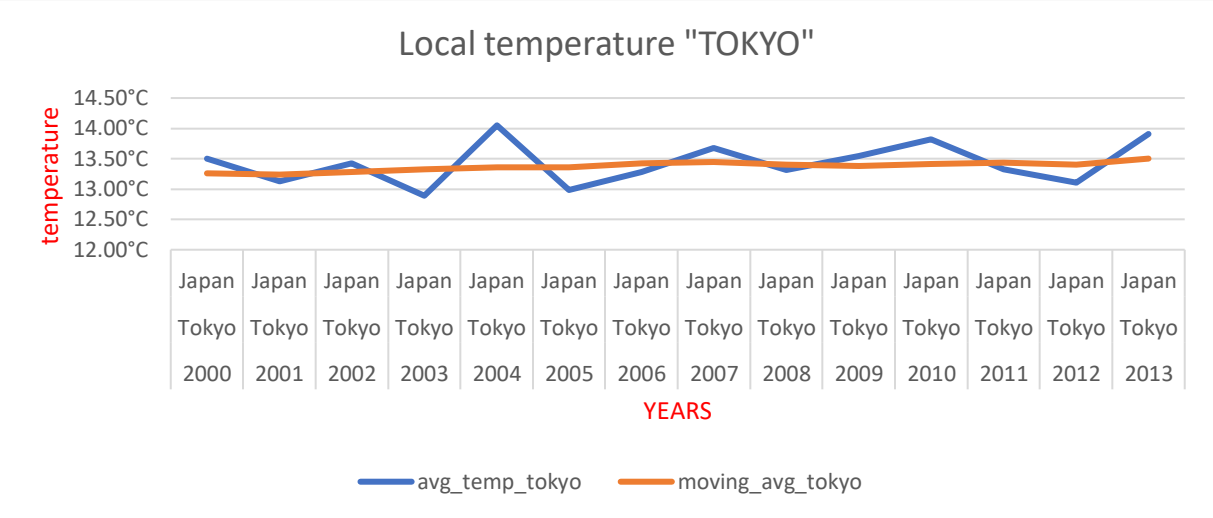
E63901 =AVERAGE(D63892:D63901)

	A	B	C	D	E
1	year	city	country	avg_temp_tokyo	moving_avg_tokyo
63892	1845	Tokyo	Japan	11.95	
63893	1846	Tokyo	Japan	12.4	
63894	1847	Tokyo	Japan	12.21	
63895	1848	Tokyo	Japan	12.14	
63896	1849	Tokyo	Japan	12.14	
63897	1850	Tokyo	Japan	11.71	
63898	1851	Tokyo	Japan	11.76	
63899	1852	Tokyo	Japan	11.73	
63900	1853	Tokyo	Japan	11.86	
63901	1854	Tokyo	Japan	12.24	12.01

* Due to the increase in tourism to Japan in these years " 2000 – 2013", it is necessary to study the temperatures to prepare suitable tourism reports for the tourists

year	city	country	avg_temp_tokyo	moving_avg_tokyo
2000	Tokyo	Japan	13.50°C	13.26°C
2001	Tokyo	Japan	13.13°C	13.24°C
2002	Tokyo	Japan	13.42°C	13.29°C
2003	Tokyo	Japan	12.89°C	13.33°C
2004	Tokyo	Japan	14.05°C	13.35°C
2005	Tokyo	Japan	12.99°C	13.35°C
2006	Tokyo	Japan	13.28°C	13.42°C
2007	Tokyo	Japan	13.68°C	13.45°C
2008	Tokyo	Japan	13.31°C	13.40°C
2009	Tokyo	Japan	13.55°C	13.38°C
2010	Tokyo	Japan	13.82°C	13.41°C
2011	Tokyo	Japan	13.32°C	13.43°C
2012	Tokyo	Japan	13.11°C	13.40°C
2013	Tokyo	Japan	13.91°C	13.50°C

- In the beginning, I focus on studying the local temperatures with showing the moving average, as the moving averages enable us to read easily to calculate expectations for the required range



Now what do we conclude from the chart ?

- The lowest temperature recorded is 12.89 ° C in 2003
- The highest temperature is 14.05 ° C in 2004
- Also, based on the above data, it is expected to coincide with the months: March, April and May which be the spring season "The most beautiful season for visiting Japan"

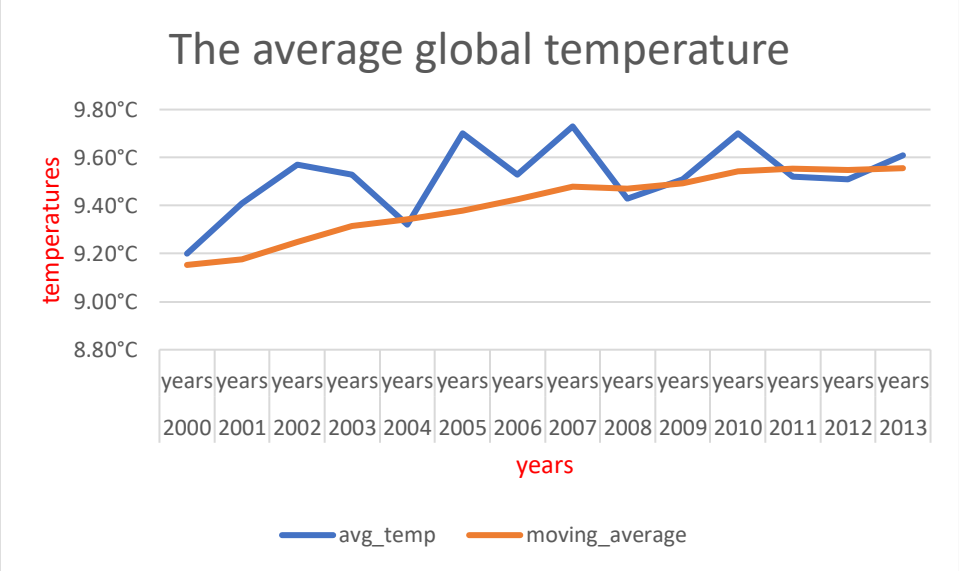
Where tourists can enjoy different spring scenery, the most important of which is cherry blossoms in April and sometimes in March, but it should be noted that the weather is often cooler, especially after sunset.

* **Now we start analyzing the global temperature data with a moving average calculation**

A	B	C
year	avg_temp	moving_average
2000	9.20°C	9.15°C
2001	9.41°C	9.18°C
2002	9.57°C	9.25°C
2003	9.53°C	9.32°C
2004	9.32°C	9.34°C
2005	9.70°C	9.38°C
2006	9.53°C	9.43°C
2007	9.73°C	9.48°C
2008	9.43°C	9.47°C
2009	9.51°C	9.49°C
2010	9.70°C	9.54°C
2011	9.52°C	9.55°C
2012	9.51°C	9.55°C
2013	9.61°C	9.56°C

Apparently:

-The lowest temperature recorded is 9.20°C in 2000
-And The highest temperature is 9.73°C in 2007



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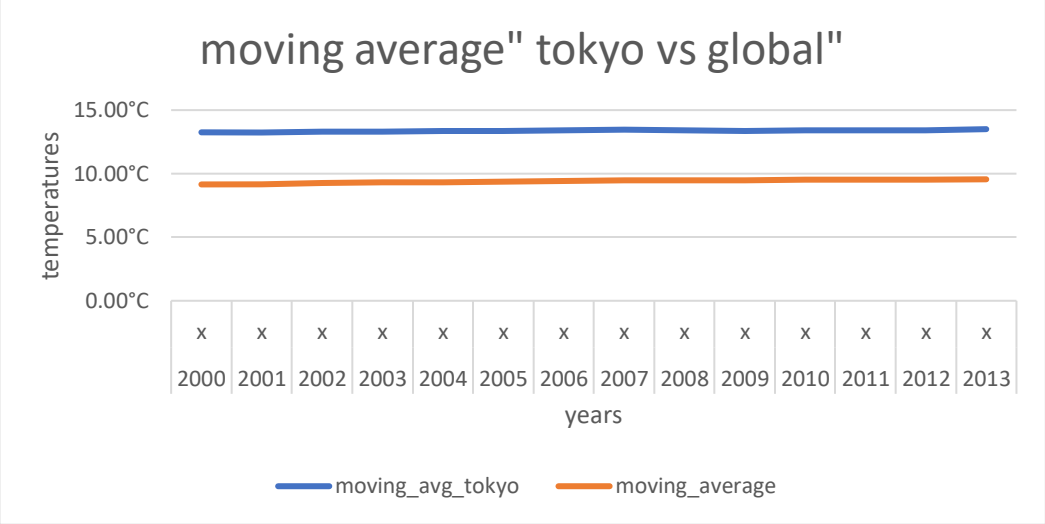
It is the clear difference between local and global temperatures

So that Tokyo increases its temperature by 3.69 °C in the lower temperature
And the difference in high temperatures by 4.32 °C in the highest temperature record for Tokyo.

Based on the previous:

1) In general, we notice an increasing rise in recorded temperatures, whether at the local or global level, and perhaps one of the reasons for this increase is environmental pollution.
2) Depending on the geographical location, Tokyo has all its four seasons and records moderate temperatures, which makes preparing for tourist trips a good idea.
3) Compared to global ،The average temperature of the Tokyo increases by 3.69 °C in the lower temperature And the difference in high temperatures by 4.32 °C in the highest temperature.



4) Moving averages at the local and global levels are almost constant and have the same slight variations in trends.
5) **Important note**: In **2004**, Tokyo recorded 14.05°C, the highest temperature in the data, while at the same time global temperatures recorded a decrease of 9.32°C.
Meaning that the temperature increase in Tokyo coincided with a relatively low rate in the rest of the countries, based on the recorded data, with a difference of 4.73 degrees recorded for Tokyo.

After that, Tokyo recorded a drop in temperatures
In **2005**, it recorded a temperature of 12.99°C, down 1.06°C degrees from the previous year **2004**, and 3.29°C higher than the world temperature

6) Finally, I highly recommend visiting Tokyo in the spring or autumn season to enjoy the beautiful scenery, but a little advice do not forget to carry a jacket with you to protect from some cold surprises, especially after sunset.