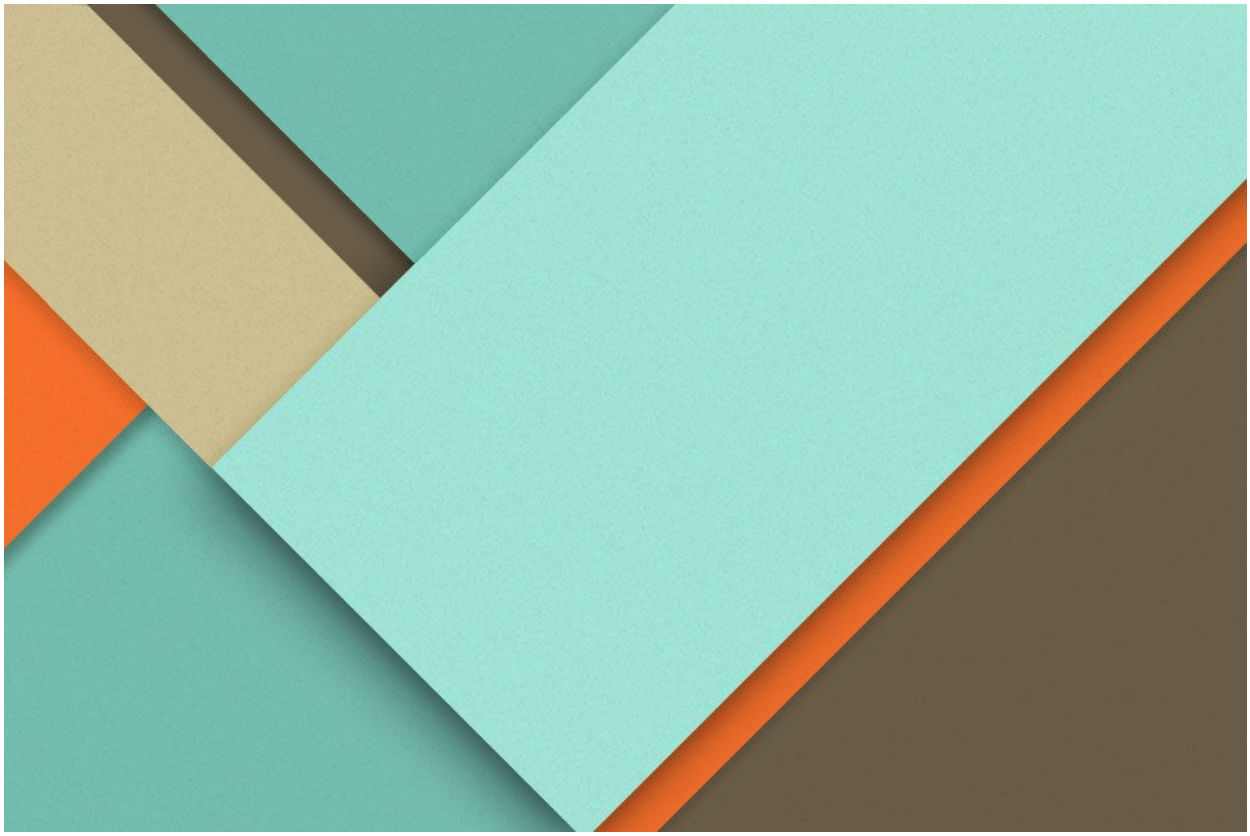

Exploring Weather Trends

Comparing Global Weather Trends with Kobe City's Weather in Japan

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17.11.2018

Overview

In this Project Report we are comparing the city weather's Trends in kobe city which is the city where I currently live with the global weather trends based on the data downloaded for this project.

For this project I used **Google Sheet** to calculate the moving average for Global and Kobe City's Temperature.

The moving average was calculated based on 5 years and 10 years. The **method used for calculation moving average** is to simple used the formula learned in class which =average(C1:C5). This is of course an example and vary based on the example. I used 10 years moving average data to plot individual data for global and kobe_city weather trends.

For the third plot, I wanted to have better visibility with the fluctuation in temperature. So I used moving average for 5 years.

I first wanted to see the fluctuation for the global trends and kobe_city trends. But then even though I could see the difference by putting side to side the two plots, it was not optimal. So I decided to put both the weather data for both global and kobe city on the same plot. Then you could clearly see the difference. For example data for kobe city only begin in 1841 while global data begins in 1750. On individual plots it's not so evident to see. Also the bin size adjust and its clearly visible that kobe_city is much warmer than the global weather.

The **SQL command** used to retrieve data from the database is:

Select * from city_data

Select * from city_list

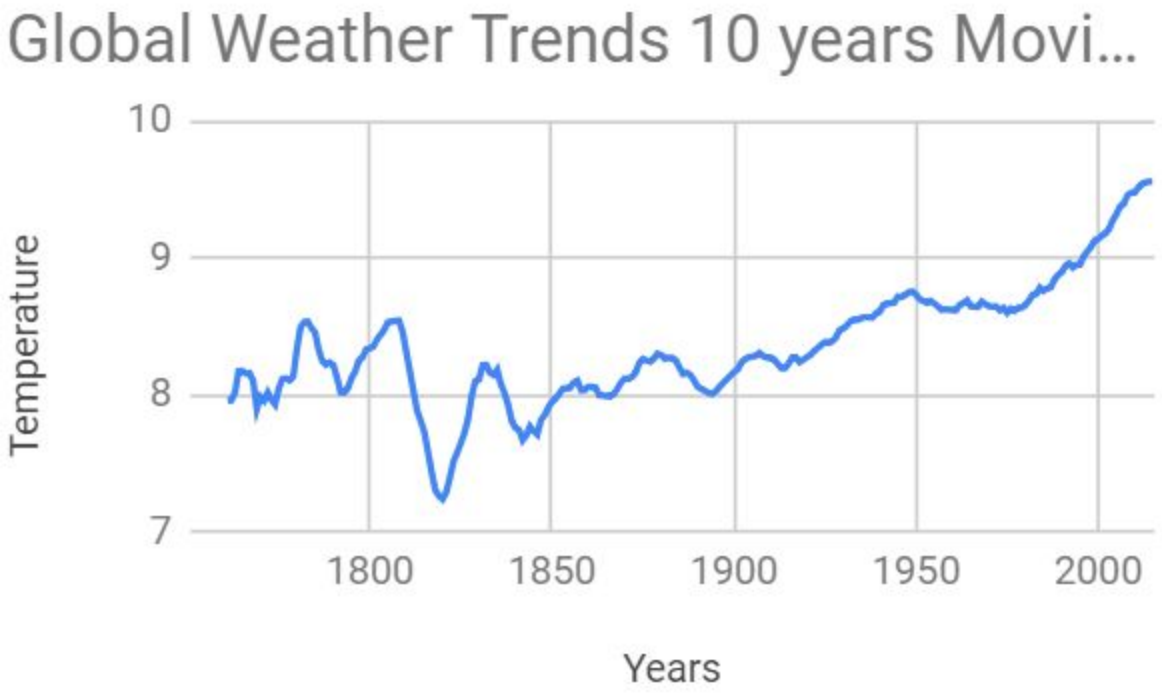
Select * from global_data.

I then downloaded city_data and global_data files in csv format. And re-uploaded them in google sheet where I could begin the analysis.

In the following section I will explain more about the observation that I could make.

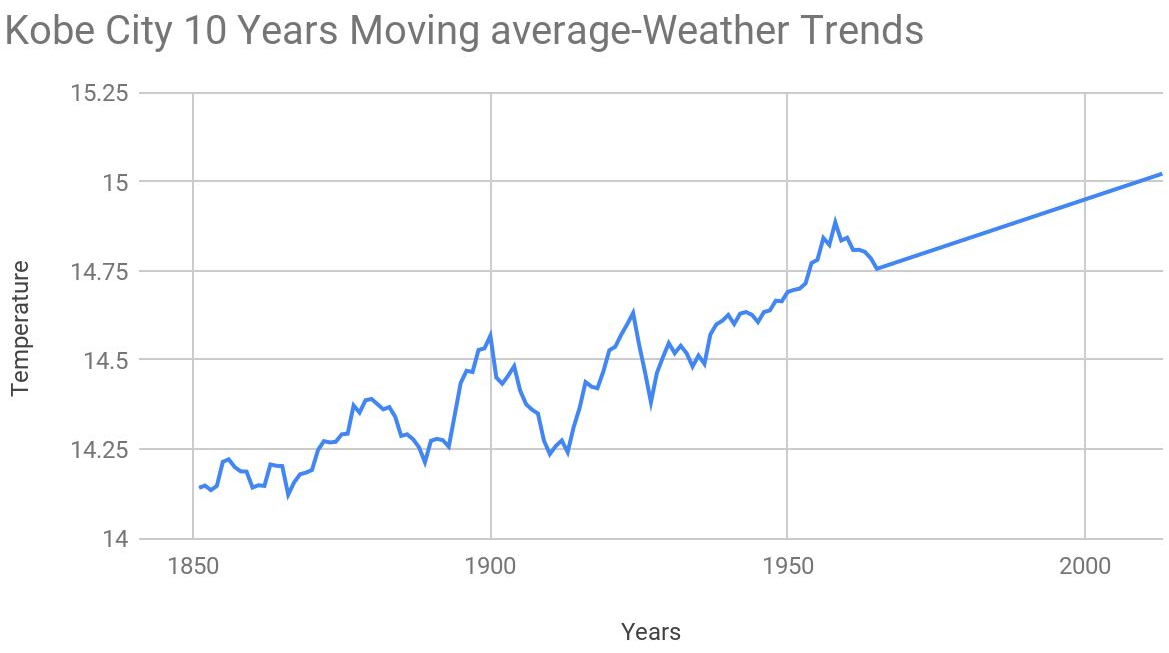
Global weather trends

- A 10 years Moving was used for the chart below, I previously tried to plot a 5 years moving average but the pick and lows were still too frequent to be able to observe a general tendency.
- The data provided goes from the year 1750 to the year 2015
- Apart from a all time low temperature in 1821 (7.2), the global weather has been fluctuating in the 8 degrees range.
- From around the 80's we can still observe minor fluctuation but the main tendency has been upward. In 2015 reaching the highest temperature ever of 9.5 degree.



Kobe City weather trends

- A 10 years Moving was used for the chart below, I previously tried to plot a 5 years moving average but the pick and lows were still too frequent to be able to observe a general tendency.
- The data provided goes from the year 1841 to the year 2013.
- We can see that this line chart tendency is upward. From 1966 the temperature is not longer fluctuating between highs and lows.
- We can observe a neat and steady increase from around the year 1966 to the year 2013 where the data ends. Like a pick.
- Prior to that regular fluctuations can be observed that hypothetically attributed to changing seasons.



Global Weather Trends Vs Kobe City weather trends-Observations:

- Moving average used for this graph is 5 years.
- The weather data globally start in 1750 while the weather data available start in 1841. This explains the difference in size for both line. Since the goal of this project is to compare both, only the region from 1841 is considered.
- The weather is much more warmer in kobe city compared to to the global weather average. The average in kobe city being around 14-15 Degree. The global average being 8-9 degrees.
- As discussed with the 2 previous graph, the temperature is increasing both globally and in Kobe City, an upward tendency can be observed on both line.
- Fluctuations in in the temperature are most pronounced on the temperature line for kobe city compared to the blue line which represent the global trends. Those regular fluctuation could hypothetically be due to seasonal change which could affect the temperature.
- From around the late 50's , The fluctuations in kobe_city temperature abruptly stops to give place to a neat line while globally the increase has been slower.