1) **Extraction of Database from SQL code:**

   CITY:
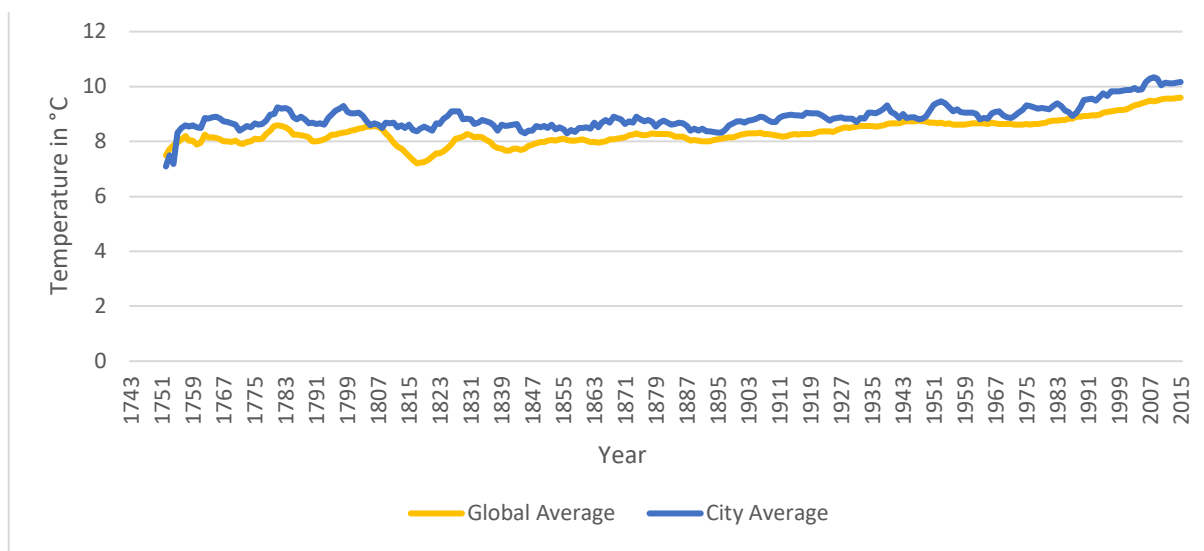
   Select * From city_data
   Where country = 'Germany' AND city = 'Berlin';

   World:

   Select * From global_data

2) **Data manipulation using Excel:**

   I.   Convert the CSV data using "Data – Text to columns" into Tabs
   II. **Moving Average Formula: 9 day moving average** =AVERAGE(B2:B11)
   III. The line graph:

3) **Observations:**

   - It is observable from the graph that the global average temperature is lesser that the Berlin's (City) average temperature.
   - It should also be noted that the temperature has been increasing year on year with an exception during the year 1815 which saw the global average plummeting compared to the city average.
   - Regarding the global average, it had stayed consistent for almost 200 years with temperature around 8 ° C but it started to increase around 1914 which has been the case till 2013.
   - The data shows a different correlation with respect to Global and city's temperature. From 1788 till 1805, the global average temperature had been increasing while the city's average temperature was reducing. This is one of

the few occurrences which repeated itself during 1941 to 1950 although for a short period of time.
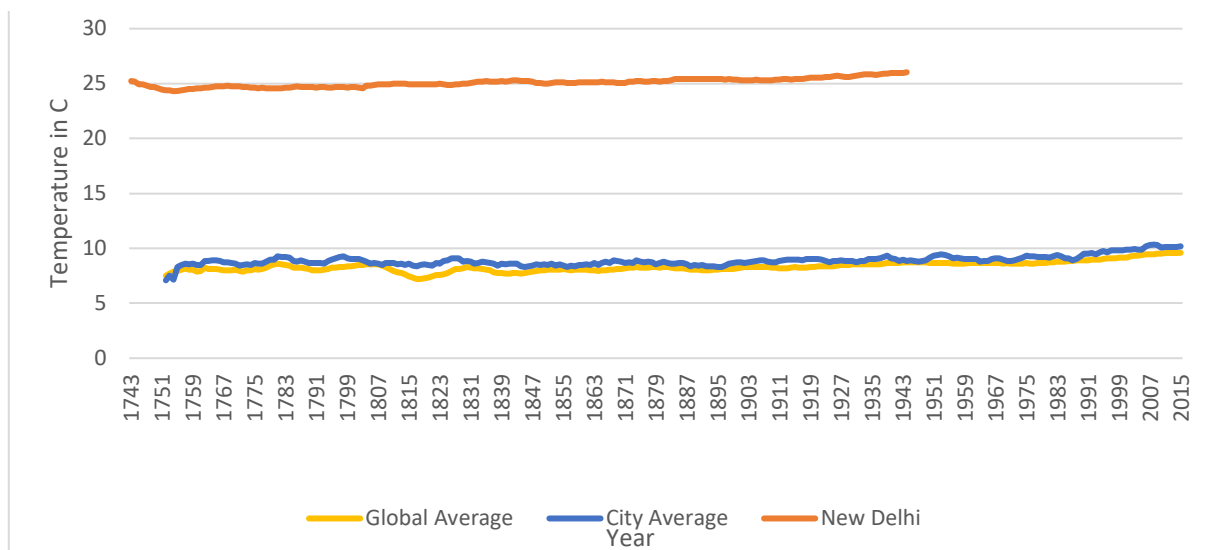
4) Correlation Coefficient:

- The correlation coefficient measures/checks the linear relationship between two array of data's. It varies from -1 to +1.
- The correlation for the provided data is 0.8 which means that, when the Global temperature increases, there is an increase in the city's temperature. The both move in the same direction.
- In this case, since the positive correlation is strong, we can expect and with little certainty that whenever there is an increase in the global temperature, there will be an increase in the city temperature.

5) Estimation of City's average temperature:

Since the correlation factor is strong for the dependent and independent array of data, I believe we would be able to determine the Cities temperature based on the Global average temperature.

6) Multiple Cities:

- Adding New Delhi and comparing with the data, we find that Delhi has an average temperature of 25°C with increasing temperature from 1920.
- The global average temperature is way low when compared with the New Delhi's temperature with almost around a constand temperature difference of 15°C.
- Based on this data we can see that Berlin has temperature almost on par with the global temperature.

Attributes:

1) **https://www.investopedia.com/terms/c/correlationcoefficient.asp**
2) https://www.accountingcoach.com/blog/what-is-the-coefficient-of-correlation