Project-Exploring Weather Trends

- **Extracting the data**

  In this step we extract the data from the given workspace using SQL commands and then download the csv file. We choose our city as Delhi to compare with the global trends and extract data from 1796 to 2013.
  Commands used-:
  1. SELECT * FROM city_list;
  2. SELECT * FROM city_data WHERE city = 'Delhi';
  3. SELECT * FROM global_data WHERE year BETWEEN 1796 AND 2013;

- **Calculating the moving average**

  After extracting the data, we calculate the moving averages in an excel spreadsheet using the function AVERAGE (item1, item2).
  We have calculated 5-year moving average in this database of the city Delhi in country India while doing the same for global temperatures using this function.

- **Calculating the Perason correlation coefficient**

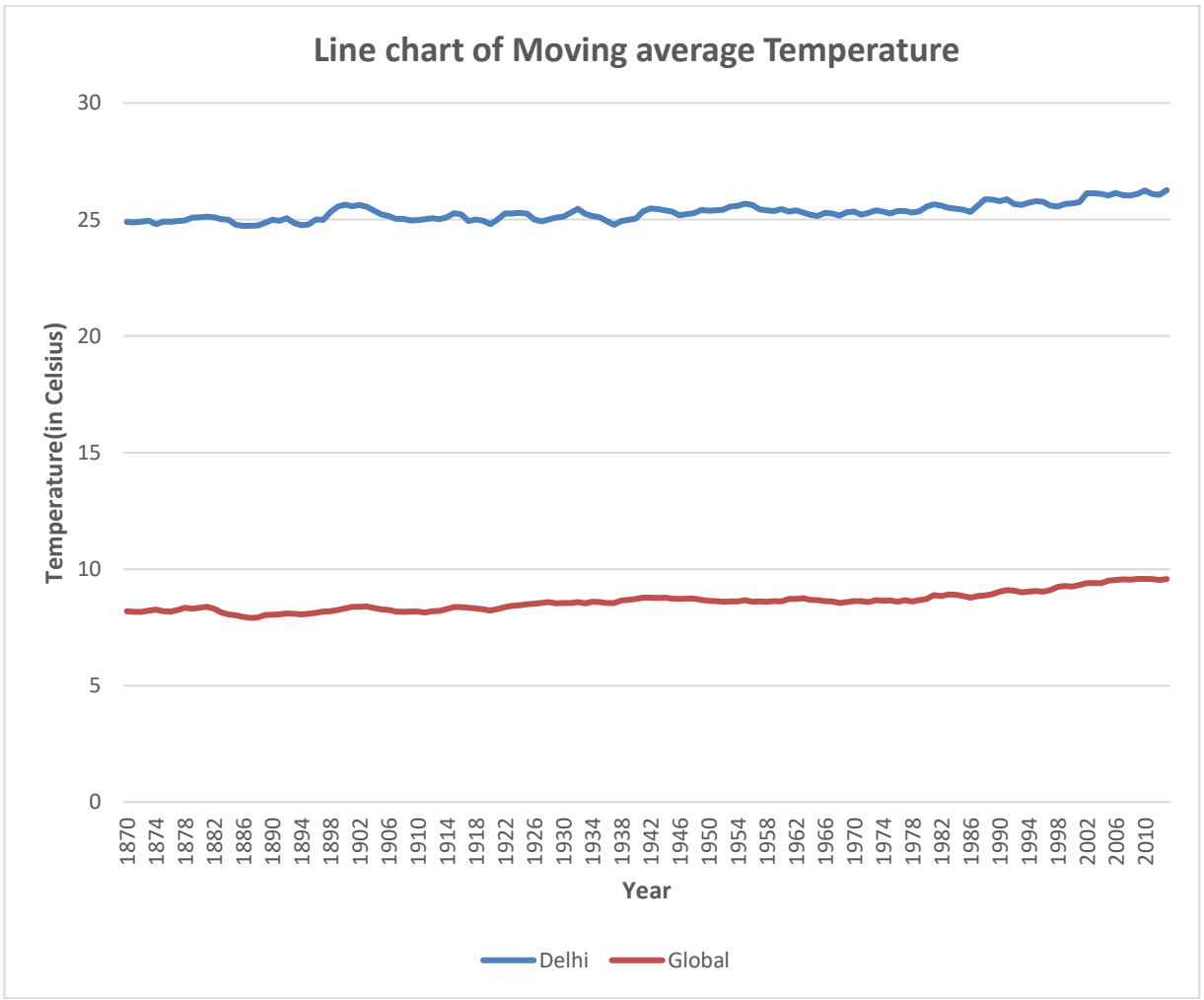
  We calculate Pearson correlation coefficient in our excel spreadsheet using the function PEARSON (array1, array 2).

- **Key consideration**

  My key consideration for comparing the data based on 5-year moving average was because it is a sufficient amount of time to smooth the disparities that might come along in data.
  Also, data from year 1808-1812 and 1858-1869 has been removed due to insufficient data, which further helps us to vision the trend more clearly. Hence, we will compare the trends from 1870 to 2013.

- **<u>Line chart</u>**

  After deciding how we want to visualize the data we then proceed further to plot the 5-year moving average of both Local (Delhi) and Global temperatures using the tools provided in excel spreadsheet.
  The line chart plotted is given below-:



Here X-axis is labeled as the Year and Y-axis is labeled as Temperature in degree Celsius.
Red line shows us the 5-year moving average of Global temperature whereas blue line shows us the same for Local (Delhi) temperature.

- **<u>Key observations</u>**

- We can see that the global temperature has been lower than the local Delhi temperature throughout the centuries by almost 17 Degree Celsius. Average Local (Delhi) temperature was 25.33 Celsius whereas Global temperature was 8.6 degrees Celsius.

- There has been an increasing temperature trend overall in both the temperatures as they have increased by almost 2-3 degree Celsius during the last 200 years.

- Temperatures are at an all-time high now as they have been increasing steadily overall since the 1870s.

- There seems to be a above average correlation between Local and global temperature with Pearson correlation coefficient (p)=0.64.

- There have been some years in between like during the 1890s when both the trends differ as Delhi temperature increased dramatically when compared to the Global temperature which remained almost constant