

## Outline :

1. The tools used in this project are SQL and Excel
2. Firstly I extracted the data in CSV format by using following SQL code where I have joined two tables namely *city\_data* and *global\_data* tables into one and selected Bangalore as my city,

```
SELECT global_data.year AS year, global_data.avg_temp AS g_avg,  
city_data.avg_temp AS city_avg FROM global_data JOIN city_data  
ON global_data.year = city_data.year AND city_data.city='Bangalore';
```

3. I have calculated moving average for 7years by firstly creating two columns with attributes GMA (global moving average) and CMA (city moving average).

**Step1:** select the cell to which we need to calculate the moving average i.e. 7<sup>th</sup> cell of GMA

**Step2:** select the function symbol at the top then select the AVERAGE function

**Step3:** select/dragg the first 7 cells of g\_avg where it stores the global average temp, and hence we got the GMA for first 7 elements

**Step4:** For rest GMA of successive cells use *ctrl+d* .

**Step5:** Repeat the above steps to calculate CMA.

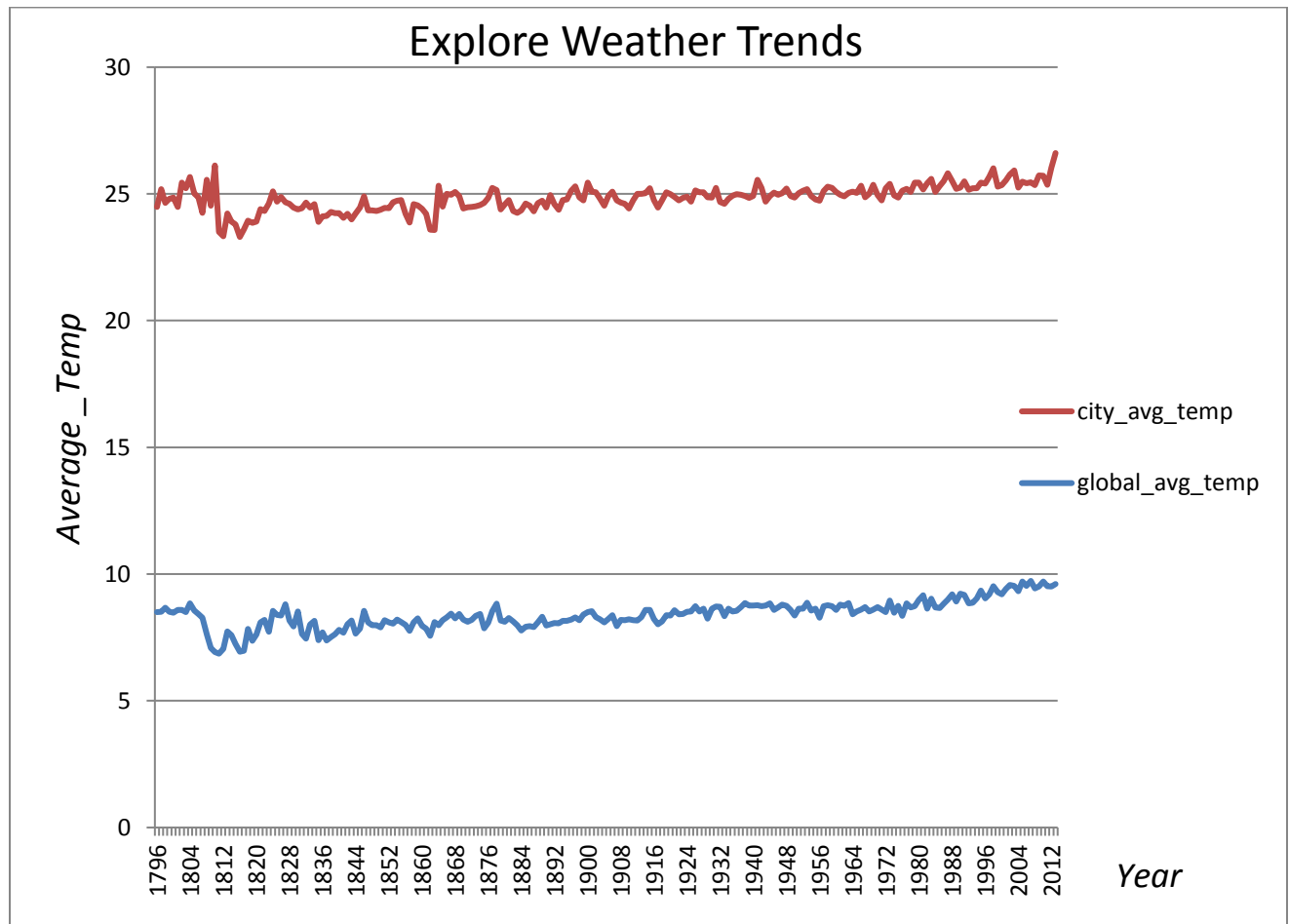
Key considerations while considering the visualization trend are,

1. Any values in given data must not be a null.
2. Both the `global_data` and `city_data` must share common years.
3. Since we required plotting two data sets, also to get better readability from the out coming trends, I considered plotting it along Y-axis and since Years are common for both dataset, I plotted Years along X-axis.
4. The visualization was too volatile, moving average helped to smooth out the data. Which are evident by comparing the below two Line charts.

#### 4. Linecharts

##### a. Line chart without Moving Average in consideration

Below given line chart has Average\_temp plotted on Y-axis and year on X-axis without considering Moving Average.

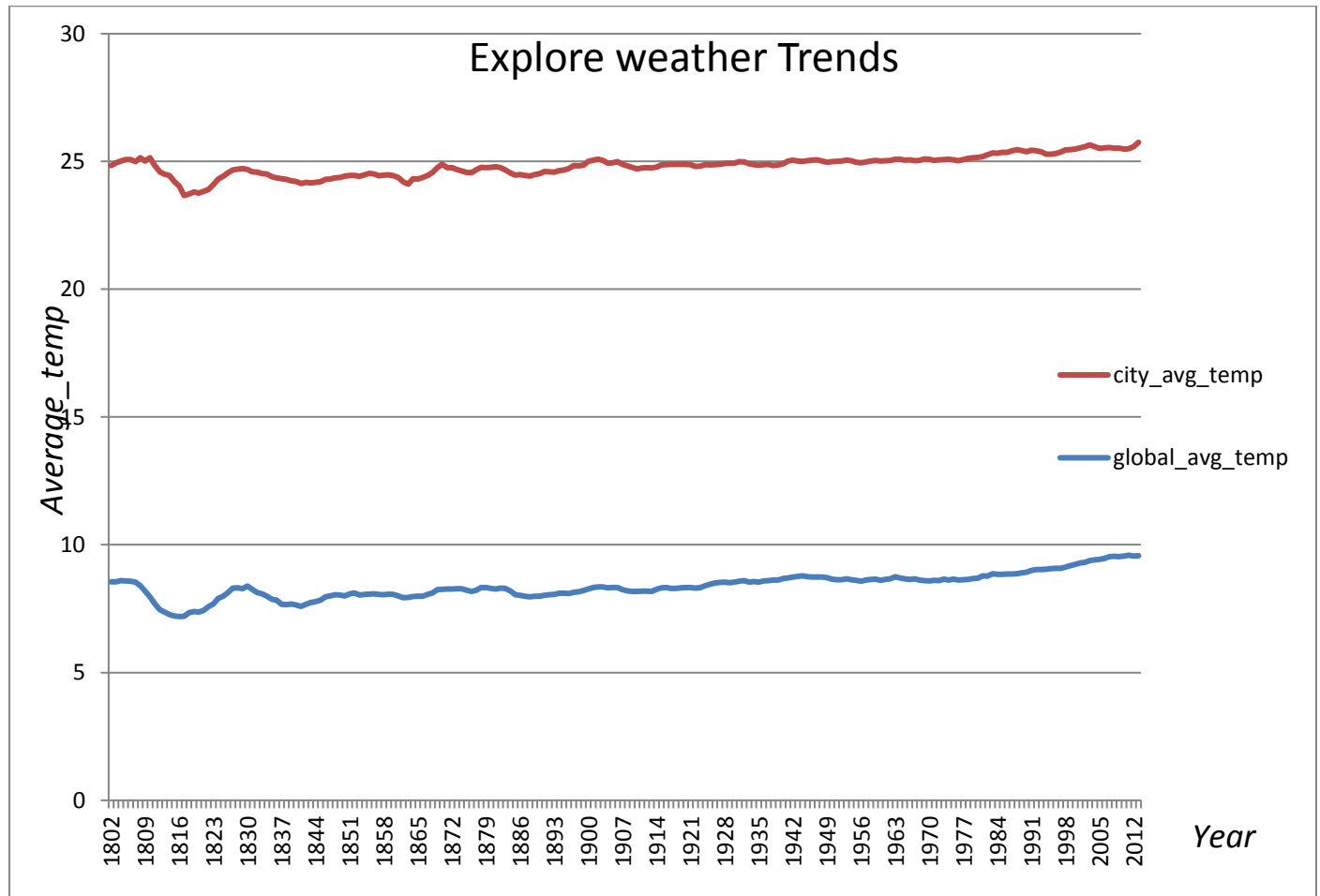


##### Observations:

Above graph consist of two datasets one with Bangalore's average temperature represented as *city\_avg\_temp* in RED line and other with global average temperature represented as *global\_avg\_temp* in BLUE

line, since both the dataset are too volatile we consider to smooth the curves by plotting Moving average for both the datasets .

*b. Line chart with Moving Average in consideration*



**Observations:**

1. Compared to the global average Bangalore city is way much hotter ,As global average temperature trends in between 7 to 9 degree where as Bangalore city average temperature trends in between 23 to 26 degree on an average .which is more than 10 degree than the global average from past more than 200 years.

2. For the Year between 1809 – 1823 the average temperature for both global and city had decreased by 2-3 degrees which we can say was the coolest years for past 2 centuries.
3. From the year 1886, for both global average and city average the temperature is gradually increasing and consistent since then.
4. By seeing the curve pattern, we can say that Bangalore's average temperature could rise up to 1-2 degree whereas world's average temperature could rise by another 0.5-1 degree in coming years.
4. Overall by looking at the trends we can say that the global temperature as well as city temperature are on the rise and hence world is becoming hotter place.