

Exploring Weather Trends - Project

An analysis on the raising temperature trends across the globe, I am based out of Chennai, but considered Bangalore as local city, even though Chennai and Bangalore have varied temperatures, that is the closely city I could arrive in the provided data set. A comparative analysis was done with temperature trends in Bangalore and average global temperature. The following steps were performed to arrive at the observations

Step 1: Analyse the available data in SQL:

SQL data provided had three tables,

- city_list - This contains a list of cities and countries in the database. Look through them in order to find the city nearest to you. (Country/ City)
- city_data - This contains the average temperatures for each city by year (°C). (Year/City/Country/Average Temperature)
- global_data - This contains the average global temperatures by year (°C)). (Year/ Average Temperature)

Note: The data from city_data is ignored as the same city/country information is available in city_list.

Step 2: Query the SQL and extract the necessary information

Performed a left inner join to marry the table's city_data and global_data for each of the year for which local information is available.

SQL query used:

```
Select c.year,c.City,c.avg_temp as Bangalore ,g.avg_temp as Global
from city_data c left join global_data g on c.year=g.year
where c.city ='Bangalore' order by c.year
```

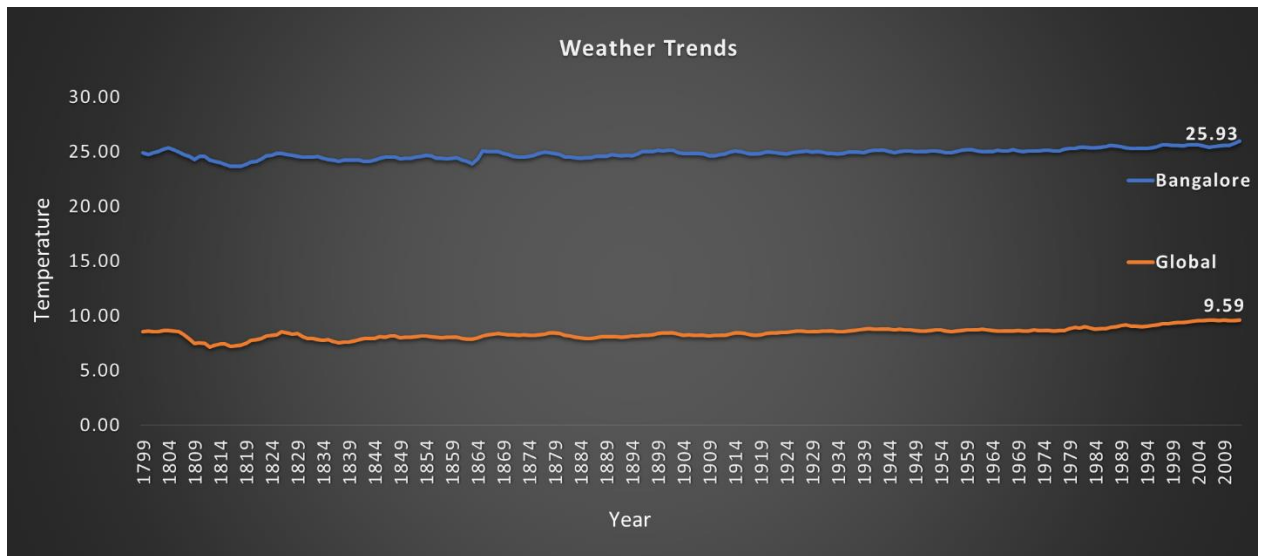
The resulting yearly average data is extracted as an .csv file

Step 3: Calculate the Moving average

- Microsoft Excel is used to analyse the .csv file data
- Added new columns – Bangalore and Global to calculate the rolling average
- Used Data Analysis feature of Excel to calculate the moving average with interval as '4' years
- Rolling average provided a smooth increase to the data by taking an average of 4 years rather than actual average temperature
- For few of the years 1811 and 1812, where we data challenge for continues 4 years, the rolling average is calculated with 6 years interval
- Removed the N/A values for the first three years, they will not have a rolling average

Step 4: Visualizing the Details

- Line graph is a best illustration for a time series data, as we are comparing the trends across years, used year in x axis and temperature in y axis
- Plotted the temperature trends of both Bangalore and Global in the same graph with two line of different colour



Observations/Insights:

1. World has become hotter gradually, in the last 200 years(from 1813 to 2013), there is 24% increase globally and Bangalore has seen 7% increase in temperature
2. Every year, the average temperature raises by 0.5 % globally and Bangalore records 0.7% increase
3. Bangalore is 66% hotter than the average global temperature, the temperature is higher than the average global temperature at all times
4. Bangalore recorded the lowest temperature 23.65 °C on 1817
5. Global temperature was at the lowest 7.14 °C on 1813
6. Hottest year for Bangalore is 2013 with 26.61 °C and global it is 2007 with 9.73 °C