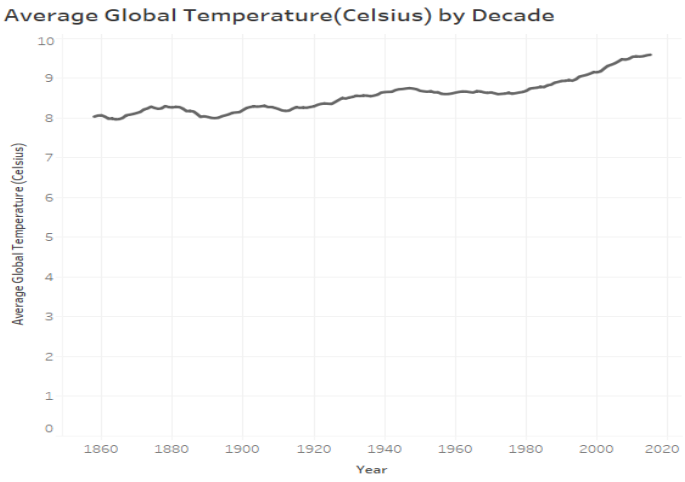
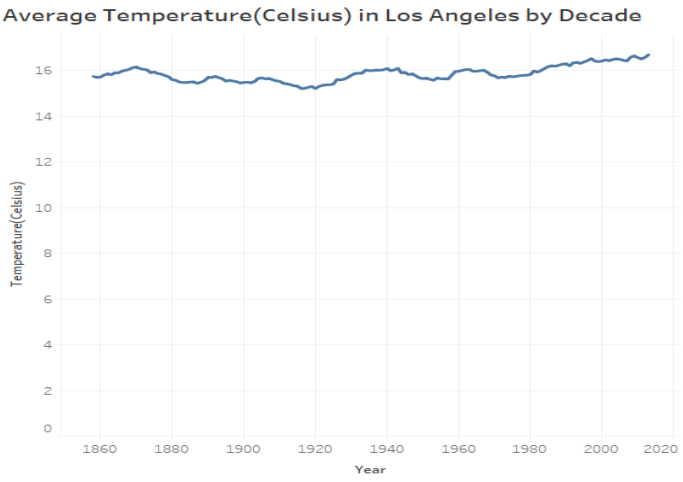
Exploring Weather Trends Report

In this project, both global and local weather trends were analyzed in order to identify any overlapping patterns between the two. Furthermore, it is important to note that we wanted to ascertain if the temperatures have been steadily climbing over time or has there been any exaggeration to this claim. The data was stored in a SQL database therefore, it was queried in order to be analyzed. There were two tables that we were interested in, the **city_data** table and the **global_data** table. Upon examination of the data, it became apparent that in the latter, the date starts at 1750. This would not work because the dates in the city_data table were starting from 1849 so the query was adjusted for that fact.

After running the SQL queries and exporting the data as csv files, analysis began. After initially visualizing the temperature trend, the line chart was too noisy because of the excessive data points. Therefore, a solution of using moving averages was implemented. In Excel, the average temperature for 10 years was implemented, therefore, we are analyzing temperatures by decade to have a smoother line graph. The same process was repeated for the city data for Los Angles. Afterwards, line plots were made for both of which can be observed below.





The data was extracted in SQL, moving averages calculated in Excel by utilizing the AVERAGE function, and the plots were made in Tableau.

There are several things to observe in these plots. First and foremost, the most apparent observation is that in both the city and globally, the average temperature is steadily increasing throughout the decades. Another important thing to note is that the average global temperature seems to be increasing at a more rapid rate compared to the city of Los Angeles where the temperature seems to be increasing at a slower rate because the curve is a little more level. Furthermore, it also seems that Los Angeles has historically been warmer compared to the global temperatures because the average global temperatures begin around 8 degrees Celsius and for Los Angeles it is around 13 degrees Celsius. Another striking aspect about the average global temperatures is that a sharp rise in temperature trend can be observed post 1980 and into the new millennium, indicating that there is indeed something external contributing to the rise in temperatures. There are some fluctuations between the decades, however, overall they are rising.

The SQL queries used in to extract the data

```
SELECT *
FROM city_data
WHERE city = 'Los Angeles' AND Country = 'United States';
```

```
SELECT *
FROM global_data
WHERE year >= 1849;
```