Step 1: Exploring the data

Write a SQL query to check the infomation of the data in the global_data

```
SELECT *
FROM global_data;
```

Write a SQL query to check which year we have the highest temperature in the global_data

```
SELECT *
FROM global_data
ORDER BY avg_temp;
```

Write a SQL query to check the to check the cities in Nigeria and pick the closest city to me using city_data

```
SELECT DISTINCT(city)
FROM city_data
WHERE country = 'Nigeria';
```

There were seven cities represented in Nigeria in the dataset, and the closest big city to where I live that's in the city_list data is Lagos. So I queried the data in the city_data with the city lagos, to get the temperature over the years in the city.

Step 2: Getting the data

Write a SQL query to extract the global data. Export to CSV.

```
SELECT *
FROM global_data;
```

Write a SQL query to extract the global data and the closet big city, Lagos.

```
SELECT g.year,
    c.city,
    c.country,
     g.avg_temp AS global_avg_temp,
    c.avg_temp AS lagos_avg_temp
FROM global_data AS g
JOIN city_data AS c
ON g.year = c.year
```

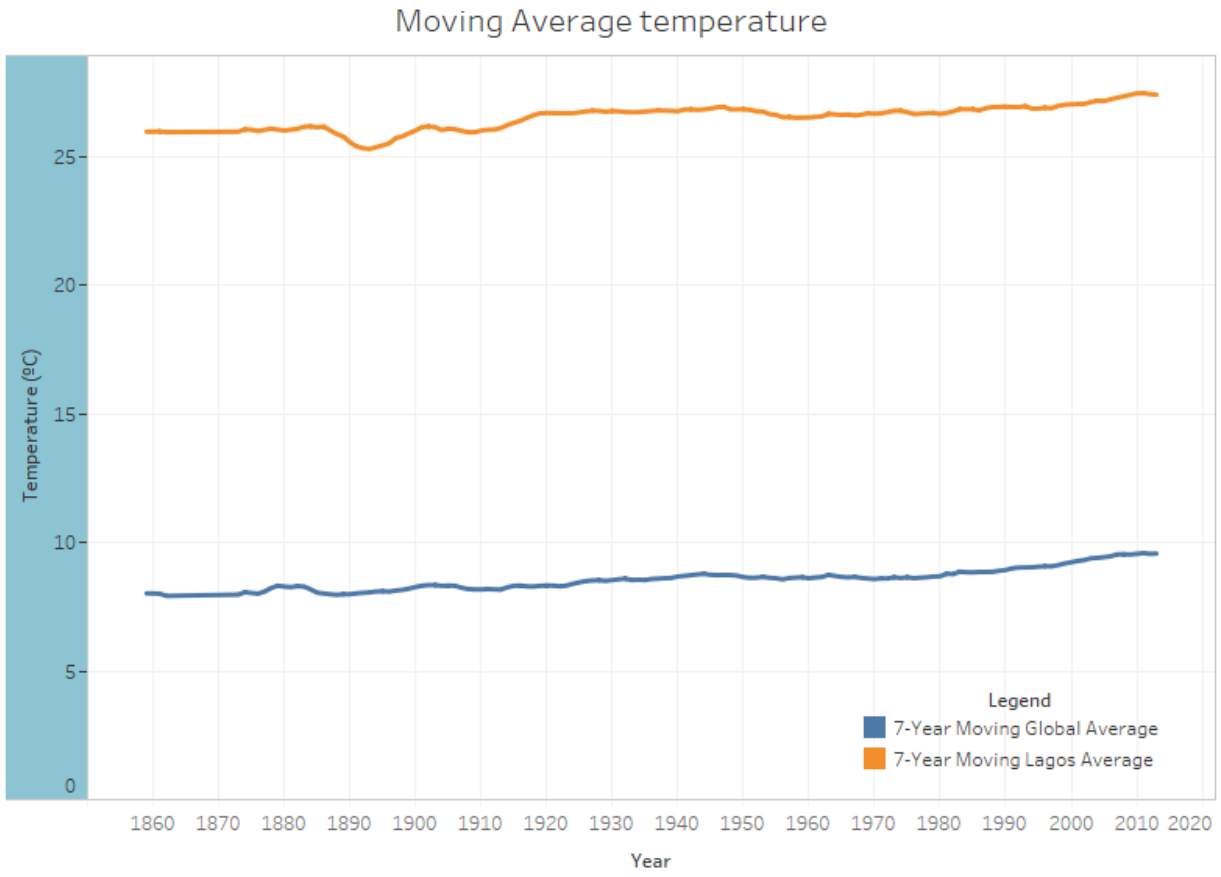
WHERE c.city= 'Lagos';

I noticed that no data was collected in Lagos between 1852 and 1855, or between 1863 and 1862. As a result, I had to remove values for which data was not collected that year and query the data that was collected. Export to CSV format.

```
SELECT g.year,
        c.city,
        c.country,
        g.avg_temp AS global_avg_temp,
        c.avg_temp AS lagos_avg_temp
FROM global_data AS g
JOIN city_data AS c
ON g.year = c.year
WHERE c.city= 'Lagos'
AND c.avg_temp IS NOT NULL;
```

STEP 3: Visualization

Moving averages are used to smooth out data in order to make it easier to spot long-term trends and avoid being distracted by daily fluctuations. Excel was used to open the files and calculate a moving average of seven years. A line chart was created in Tableau to compare the temperatures in Lagos with global temperatures. Instead of using annual averages, the global moving average temperature and the Lagos city moving average temperature were used to smooth the lines and make trends more visible.



The following were observed from the graph above:

1. Lagos's average temperature is higher than the global average.

2. Between 1892 and 1893, Lagos city's average temperature decreased.

3. It is clear that there is a rapid upward trend beginning around 1980 (the earth is getting hotter); the highest value for the global average temperature is in 2015, the most recent data available.

4. In terms of trend, it appears that a slight, noticeable increase in global average temperature began around 1850, followed by a brief stagnation around 1950, and then a strong increase began around 1980.

5. Since 1990, both the global average temperature and the temperature in Lagos city have been consistent over the last few hundred years.