

# Data Analysis: Exploring Weather Trend.

## Introduction

This project is to analyse the weather trend between two cities (Lagos and London) respectively according to the global weather trend, thereby comparing both cities weather with the global weather.

## Steps taken to Prepare the Data.

- Extraction of SQL data(done already).
- Open the Extracted data using Excel, then data cleaning operation was performed.
- Missing values were removed.
- Importing Pandas and Matplotlib to Python using Pycharm for the calculation and visualization of the data.
- Moving Average was calculated.

## Calculating moving Average

Moving Average was calculated using a python code:

```
def MeanFunction(check, input):  
    output = input.rolling(window = check, center=False, on = "year").mean().dropna()  
    return output  
  
average_span = 10  
moving_avg = MeanFunction(average_span, data)
```

## Key Considerations when deciding to analyze the data.

Some missing values were removed to avoid inconsistency with the data. Also to have a proper visualization when calculating the moving average and average span of 10 years was used.

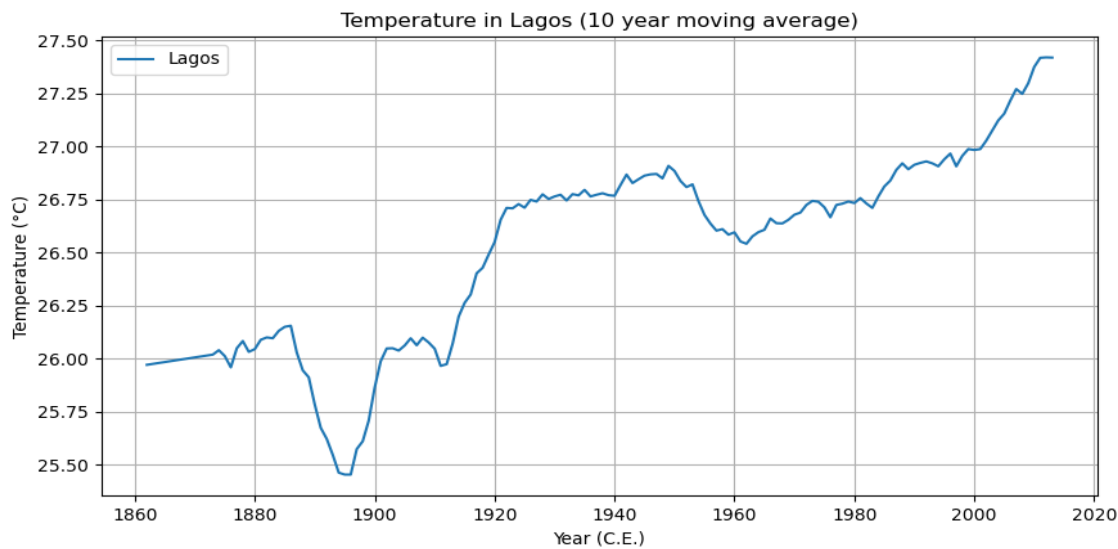
Python code used for the visualization.

```
plt.plot(moving_avg['year'], moving_avg['city_temp'], label='Lagos')  
plt.plot(moving_avg['year'], moving_avg['global_temp'], label='Global', color='orange')  
plt.legend(loc='best')  
plt.xlabel("Year (C.E.)")  
plt.ylabel("Temperature (°C)")  
plt.title("Temperature in Lagos Vs Global values ({0} year moving average)".format(average_span))  
plt.show()
```

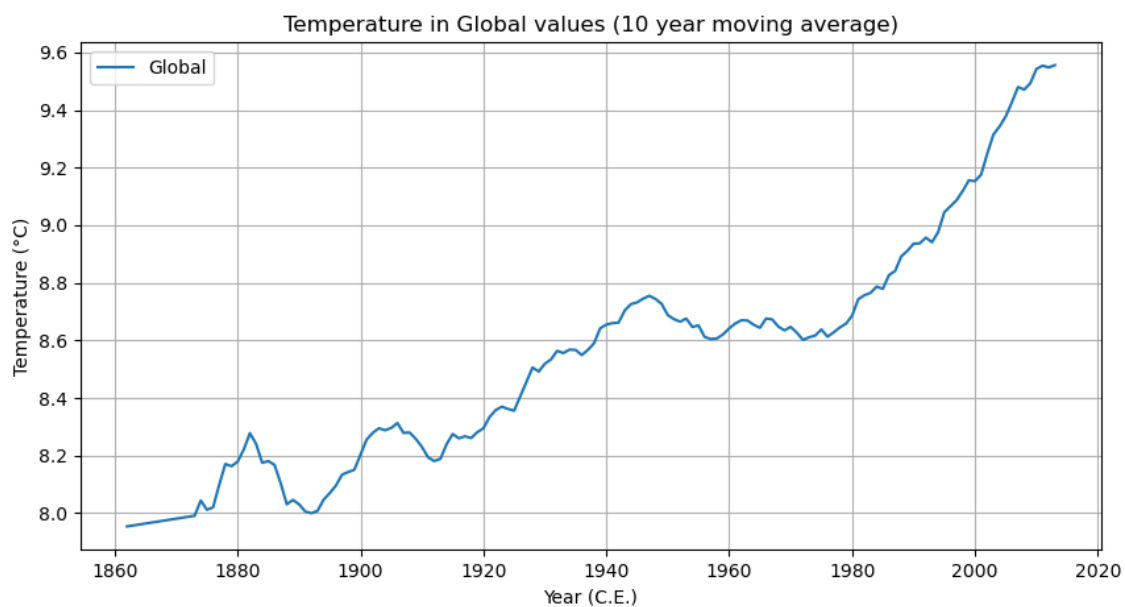
The Outputs are display below:

Lagos weather trend comparing to Global trend.

I have analysed the weather trend of lagos separately as shown below.

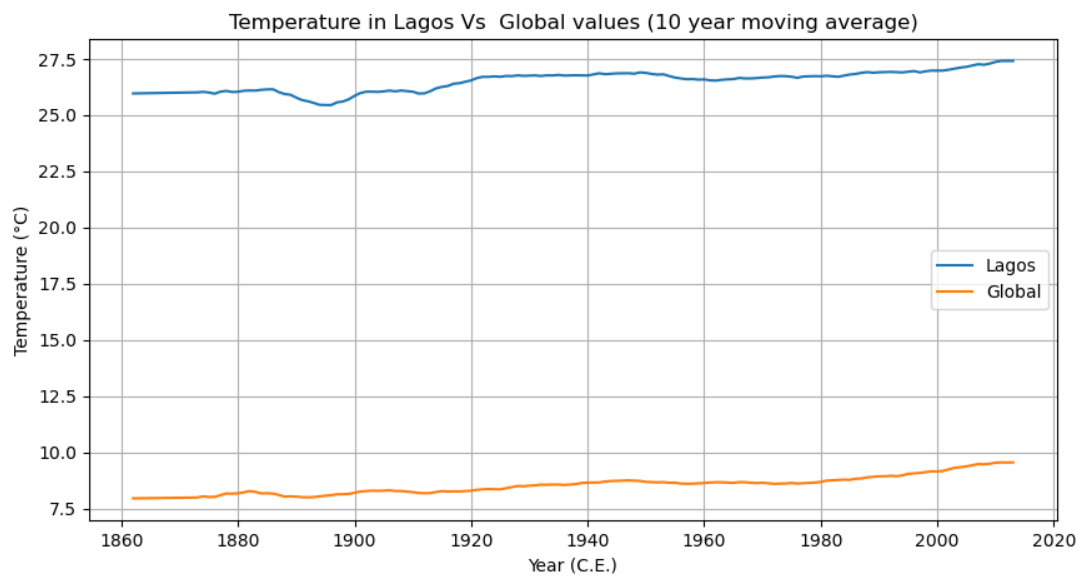


The lagos weather trend shows the steady increase in rise in temperature over the years. It also shows certain rise and fall of the temperature.



Compare to lagos temperature, the global temperature shows a rapid increase in temperature over the years.

Comparing both weather trend as shown belows:



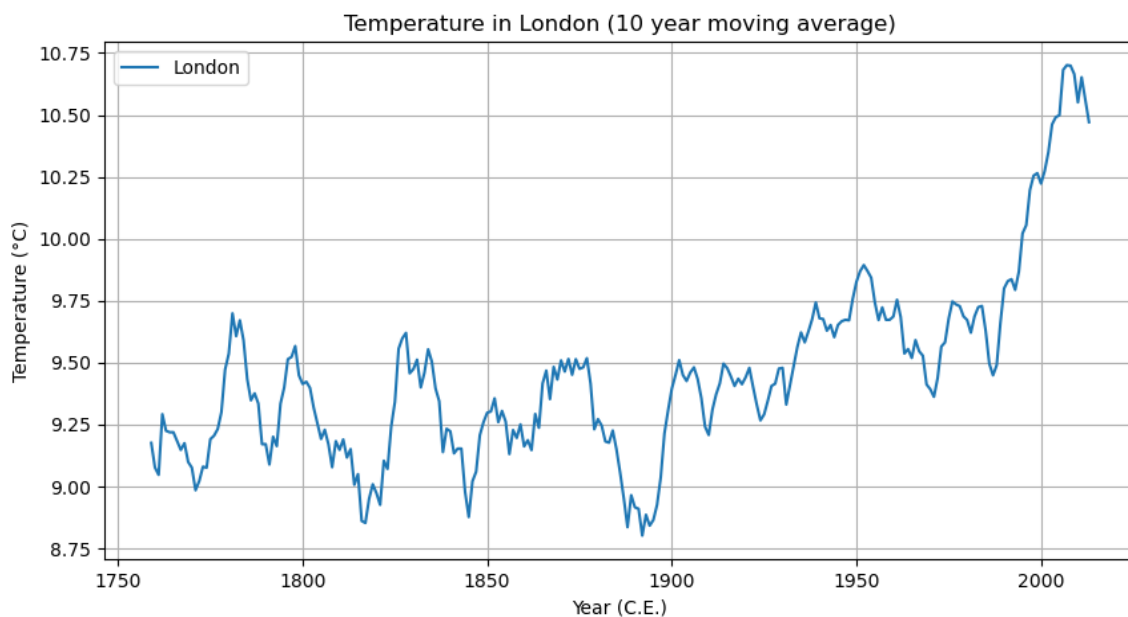
Observation of trend between Lagos temperature and Global temperature.

Similarities and Differences

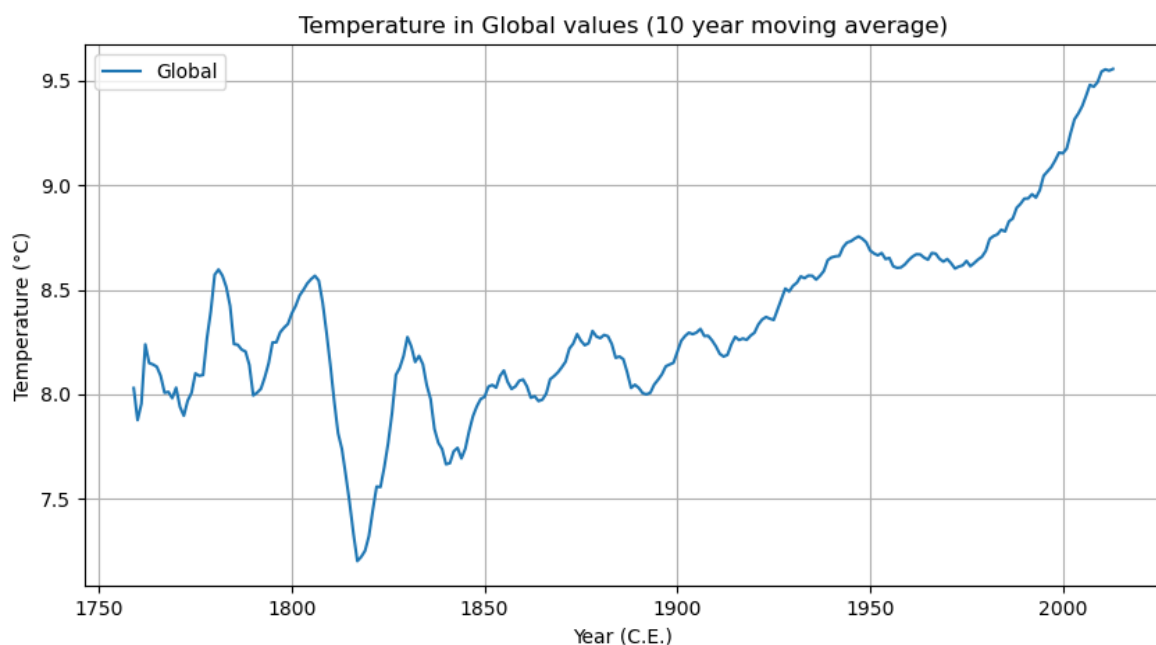
1. The graphs shows increase in weather conditon over the years.
2. Lagos weather shows a fall in weather condition in the early years but a steady rise over the years.
3. Global weather shows a rapid increase in the weather condition over the years
4. The graph shows both lagos and the globe is experiencing hot weather conditions over the years.
5. Both weather condition shows consistency in their increase over the years.

London weather trend comparing to Global trend.

Analysing London weather trend as shown below.

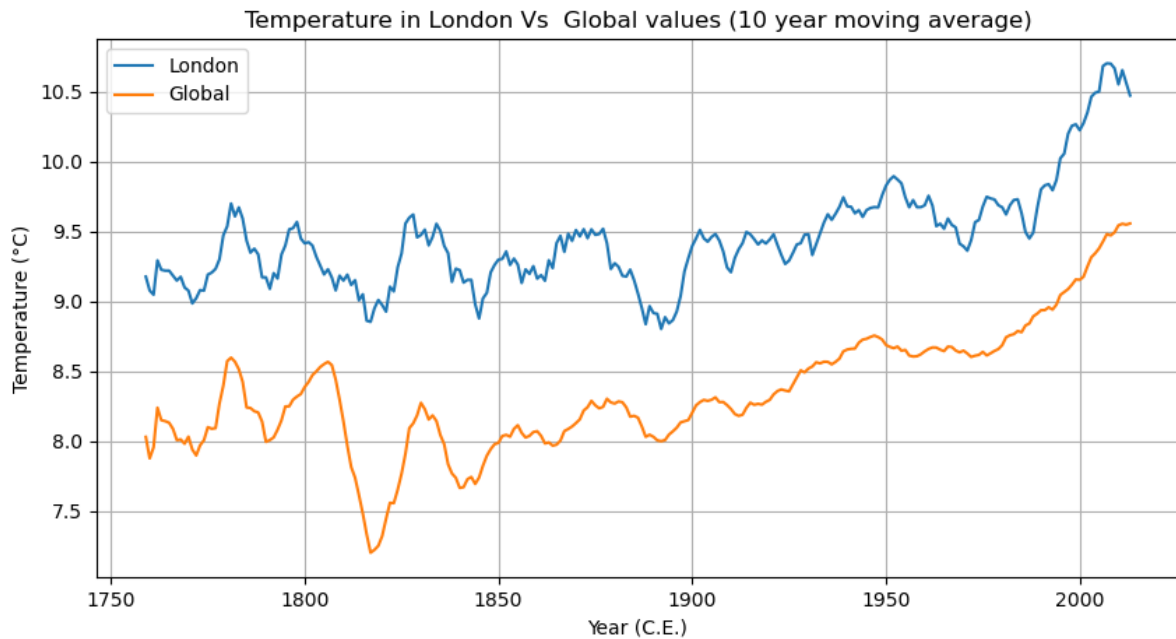


London weather shows a consistent rise and fall of the temperature over the years. But a spike in increase in temperature in year 2000.



Compared to london weather trend, Global weather condition shows rise and fall of the temperature in the early years, but a steady increase in temperature since 1850 to date.

Comparing both London and global weather trend in the graph below:



Observation of trend between London temperature and Global temperature.

Similarities and Differences

1. Both London and Global weather conditions show rise and fall in the temperature.
2. London weather condition shows steady rise in some years and fall in some years.
3. Global weather condition shows consistent rise and fall in temperature in the early years and shows steady increase over the years.
4. Both weather conditions show the temperature can be very hot and very cold at particular points.
5. Both weather conditions show an increase in temperature over the years.