Udacity Data Analyst Nano Degree Programme

Project 1 Submission

Project Title:

Comparison of Lagos, Nigeria & Global Temperature Data (1849-2013).

***NB:** The line graph can be found on the last page.*

Objective:

Your goal will be to create a visualization and prepare a write up describing the similarities and differences between global temperature trends and temperature trends in the closest big city to where you live.

Steps Taken:

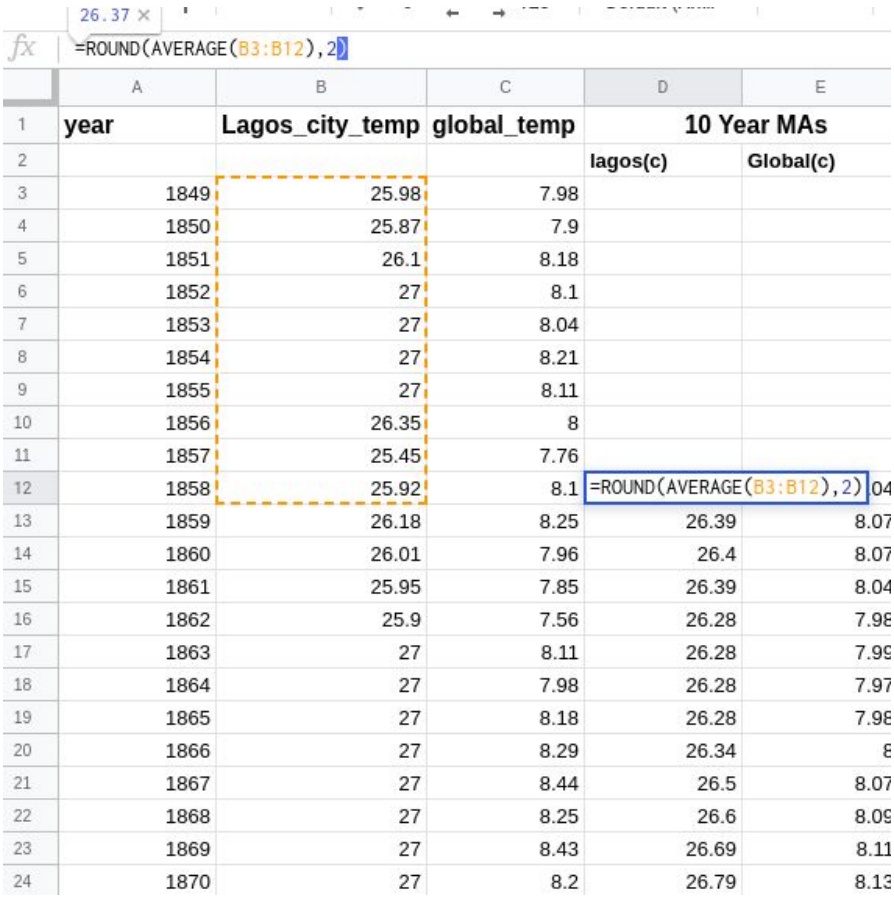
1. I extracted the data from SQL using the following code:

```
SELECT city_data.year, city_data.avg_temp
AS city_temp, global_data.avg_temp AS global_temp
FROM city_data JOIN global_data
ON global_data.year = city_data.year
WHERE city_data.country = 'Nigeria' and city_data.city = 'Lagos';
```

2. I downloaded the generated CSV file and opened it in Google sheets for my analysis.

3. I created two different columns to calculate ten years moving averages (1849-2013) of my city's temperature data and global temperature data respectively.
4. How I calculated the moving averages:
    a. I selected the values of the first ten years and use the Excel AVERAGE() function to calculate the average of the ten years temperature values.
    b. I used the ROUND() function to round to two decimal places.
    c. Below are evidence of the function used:

```
=ROUND(AVERAGE(B3:B12),2)
```



	A	B	C	D	E
1	year	Lagos_city_temp	global_temp	10 Year MAs	
2				lagos(c)	Global(c)
3	1849	25.98	7.98		
4	1850	25.87	7.9		
5	1851	26.1	8.18		
6	1852	27	8.1		
7	1853	27	8.04		
8	1854	27	8.21		
9	1855	27	8.11		
10	1856	26.35	8		
11	1857	25.45	7.76		
12	1858	25.92	8.1	=ROUND(AVERAGE(B3:B12),2)	04
13	1859	26.18	8.25	26.39	8.07
14	1860	26.01	7.96	26.4	8.07
15	1861	25.95	7.85	26.39	8.04
16	1862	25.9	7.56	26.28	7.98
17	1863	27	8.11	26.28	7.99
18	1864	27	7.98	26.28	7.97
19	1865	27	8.18	26.28	7.98
20	1866	27	8.29	26.34	8
21	1867	27	8.44	26.5	8.07
22	1868	27	8.25	26.6	8.09
23	1869	27	8.43	26.69	8.11
24	1870	27	8.2	26.79	8.13

5. I filled missing values in the Lagos data with the average of the temperature data from (1849-2013).
    a. I calculated the mean of all the values in the Lagos column using the Excel AVERAGE() and ROUND() function and I used to fill the blank spaces in the columns

b. The formula I used:

```
=ROUND(AVERAGE(Lagos_Global_Data!B3:B167))
```

6. I plotted a line graph to compare the calculated figures over a period of (1849-2013).
7. I labelled the X-axis as Average Temp (10 yrs.) and Y-axis as Year, legends as Lagos (c) and Global (c).

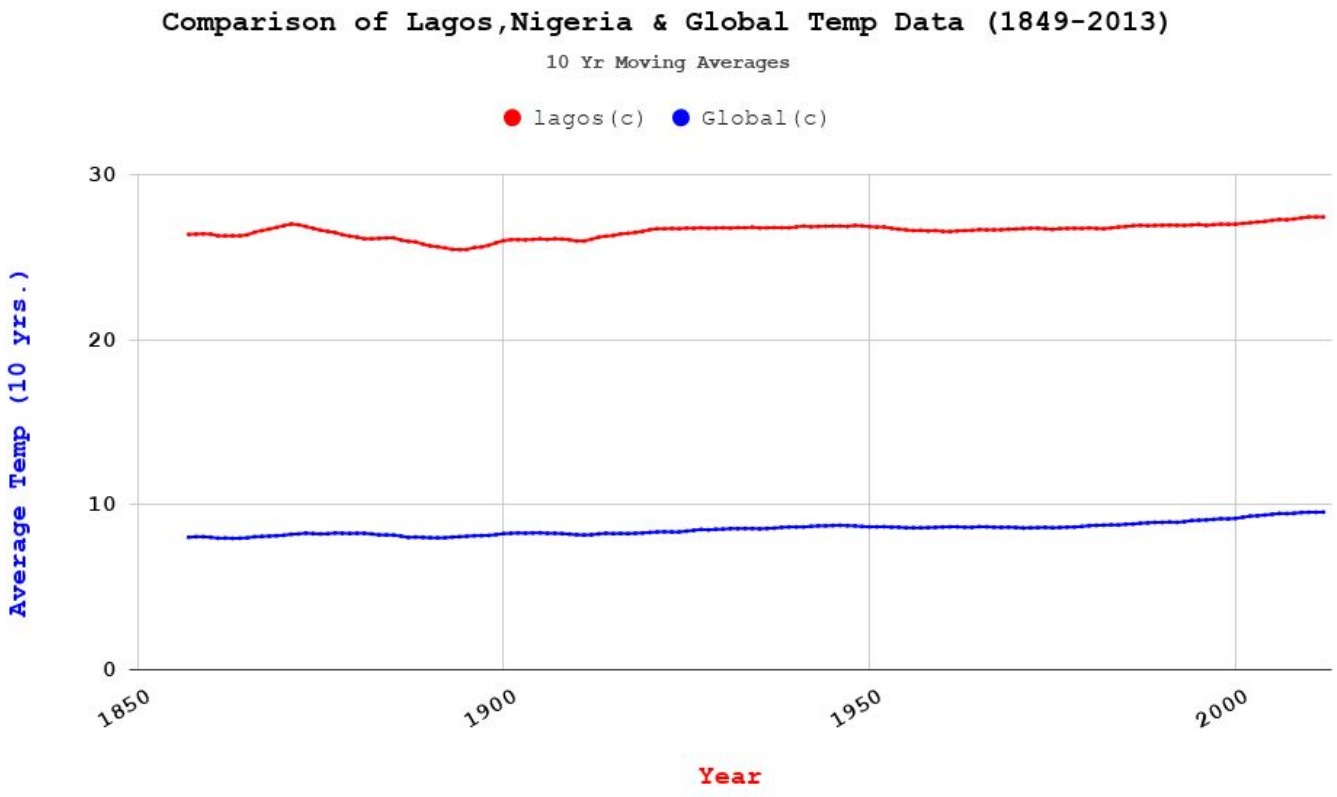
Observations:

1. From the line chart, over the years, the average temperature in Lagos has been consistently hotter than the global temperature generally.
2. Both Lagos and Global temperature have been on a steady upward trend from 1849-2013.
3. Lagos experienced a nearly stable temperature degree of 27-degree Celcius from 2002 - 2013.
4. The global temperature experienced a nearly stable temperature degree of 8-degree Celcius until 1995 when it went north at 9-degree Celcius.

Conclusion(s):

We can infer from the data computed and the line graph plotted that climate change is real.

Link to work: https://bit.ly/udacity-project1-patrickO


Comparison of Lagos,Nigeria & Global Temp Data (1849-2013)
10 Yr Moving Averages
lagos(c)
Global(c)
Average Temp (10 yrs.)
30
20
10
0
1850
1900
1950
2000
Year