Project 1: Exploring Weather Trends

Name: Nafisah Abdulkadir

Step 1: Data Extraction

1. SQL Code to extract avg_temp in Lagos, Nigeria

```
select year, avg_temp as Lagos_avg_temp
from city_data
where country = 'Nigeria'
and city like 'Lagos'
and year between 1873 and 2013
```

2. SQL Code to extract avg_temp in Lagos, Nigeria

```
select year, avg_temp as Global_avg_temp
from global_data
where avg_temp IS NOT Null
and year between 1873 and 2013
```

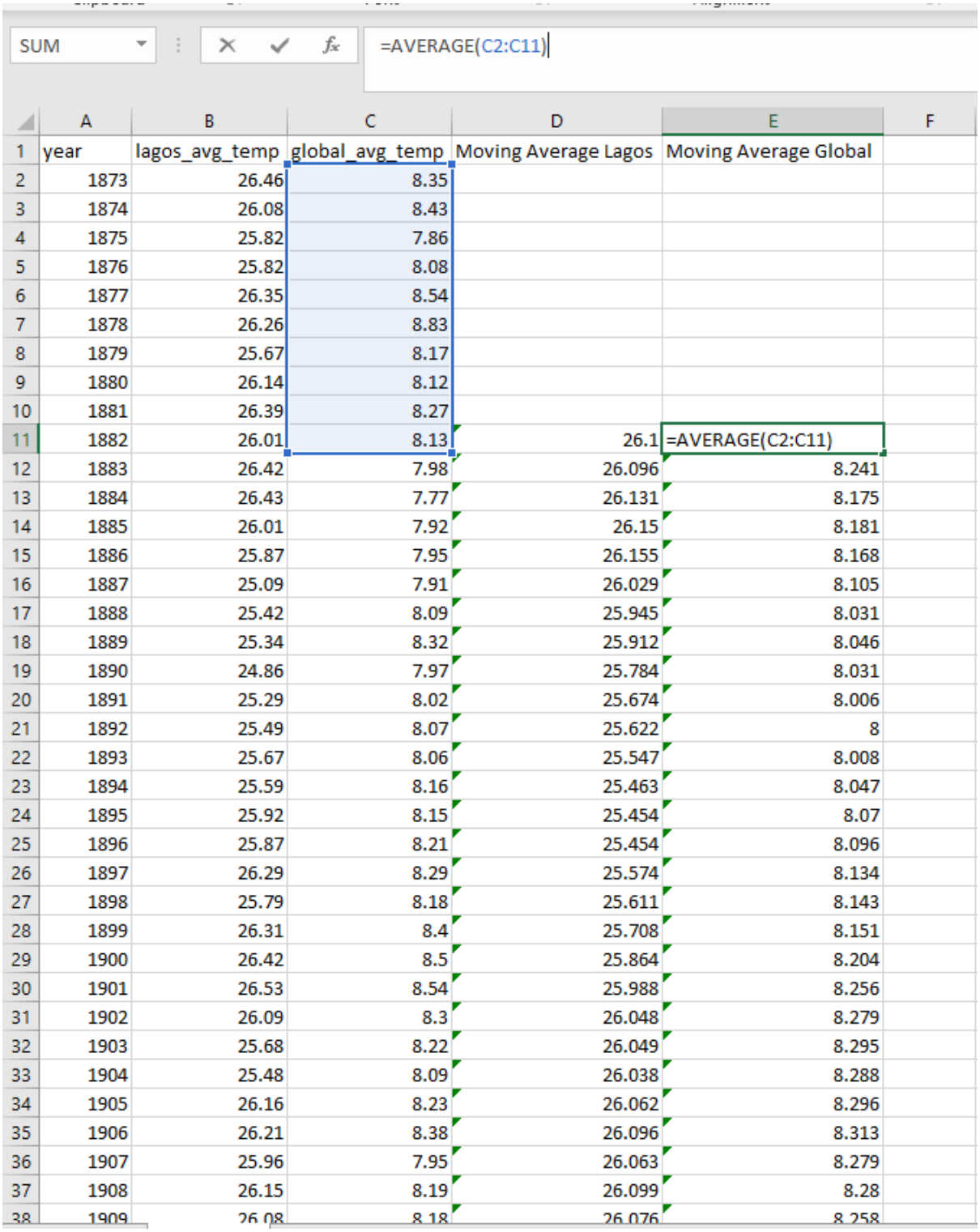
Step 2: Downloading the CSV File

I downloaded the CSV to my PC for further analysis of the extracted data

Step 3: Weather Trend Data Analysis using MS Excel and Power BI

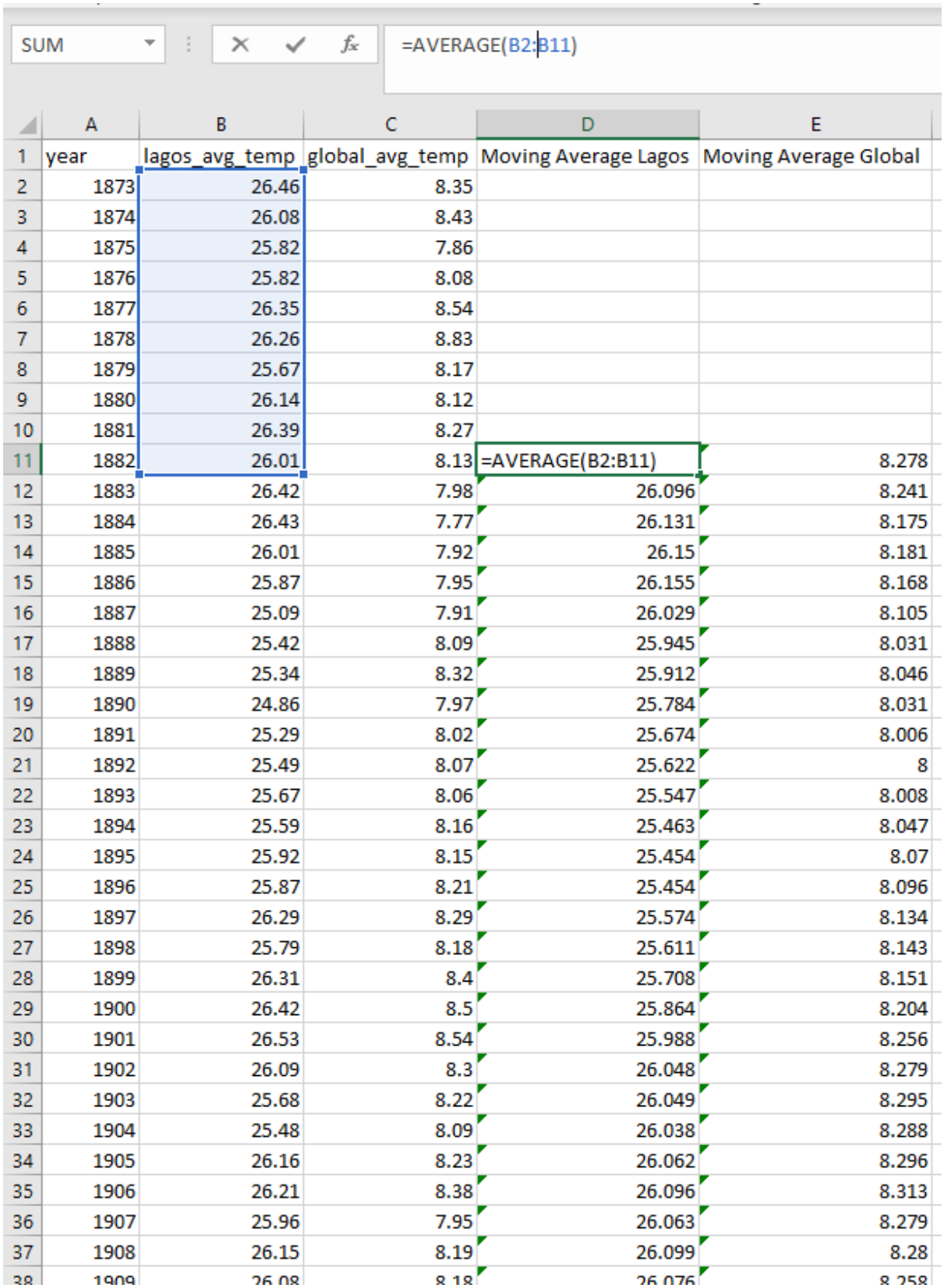
10years Moving Average was calculated on MS Excel and the chart plotted on Power BI. The graph was plotted between the year 1873 and the year 2013 and seen in the SQL query above. Kindly see the plot in the figure below.

Moving Average Computation on MS Excel



SUM | =AVERAGE(C2:C11)

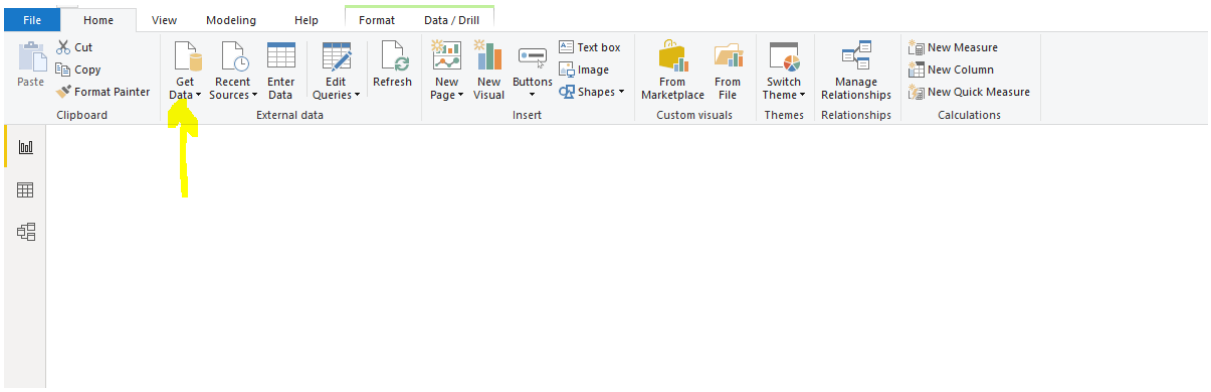
	A	B	C	D	E	F
1	year	lagos_avg_temp	global_avg_temp	Moving Average Lagos	Moving Average Global	
2	1873	26.46	8.35			
3	1874	26.08	8.43			
4	1875	25.82	7.86			
5	1876	25.82	8.08			
6	1877	26.35	8.54			
7	1878	26.26	8.83			
8	1879	25.67	8.17			
9	1880	26.14	8.12			
10	1881	26.39	8.27			
11	1882	26.01	8.13	26.1	=AVERAGE(C2:C11)	
12	1883	26.42	7.98	26.096	8.241	
13	1884	26.43	7.77	26.131	8.175	
14	1885	26.01	7.92	26.15	8.181	
15	1886	25.87	7.95	26.155	8.168	
16	1887	25.09	7.91	26.029	8.105	
17	1888	25.42	8.09	25.945	8.031	
18	1889	25.34	8.32	25.912	8.046	
19	1890	24.86	7.97	25.784	8.031	
20	1891	25.29	8.02	25.674	8.006	
21	1892	25.49	8.07	25.622	8	
22	1893	25.67	8.06	25.547	8.008	
23	1894	25.59	8.16	25.463	8.047	
24	1895	25.92	8.15	25.454	8.07	
25	1896	25.87	8.21	25.454	8.096	
26	1897	26.29	8.29	25.574	8.134	
27	1898	25.79	8.18	25.611	8.143	
28	1899	26.31	8.4	25.708	8.151	
29	1900	26.42	8.5	25.864	8.204	
30	1901	26.53	8.54	25.988	8.256	
31	1902	26.09	8.3	26.048	8.279	
32	1903	25.68	8.22	26.049	8.295	
33	1904	25.48	8.09	26.038	8.288	
34	1905	26.16	8.23	26.062	8.296	
35	1906	26.21	8.38	26.096	8.313	
36	1907	25.96	7.95	26.063	8.279	
37	1908	26.15	8.19	26.099	8.28	
38	1909	26.08	8.18	26.076	8.258	

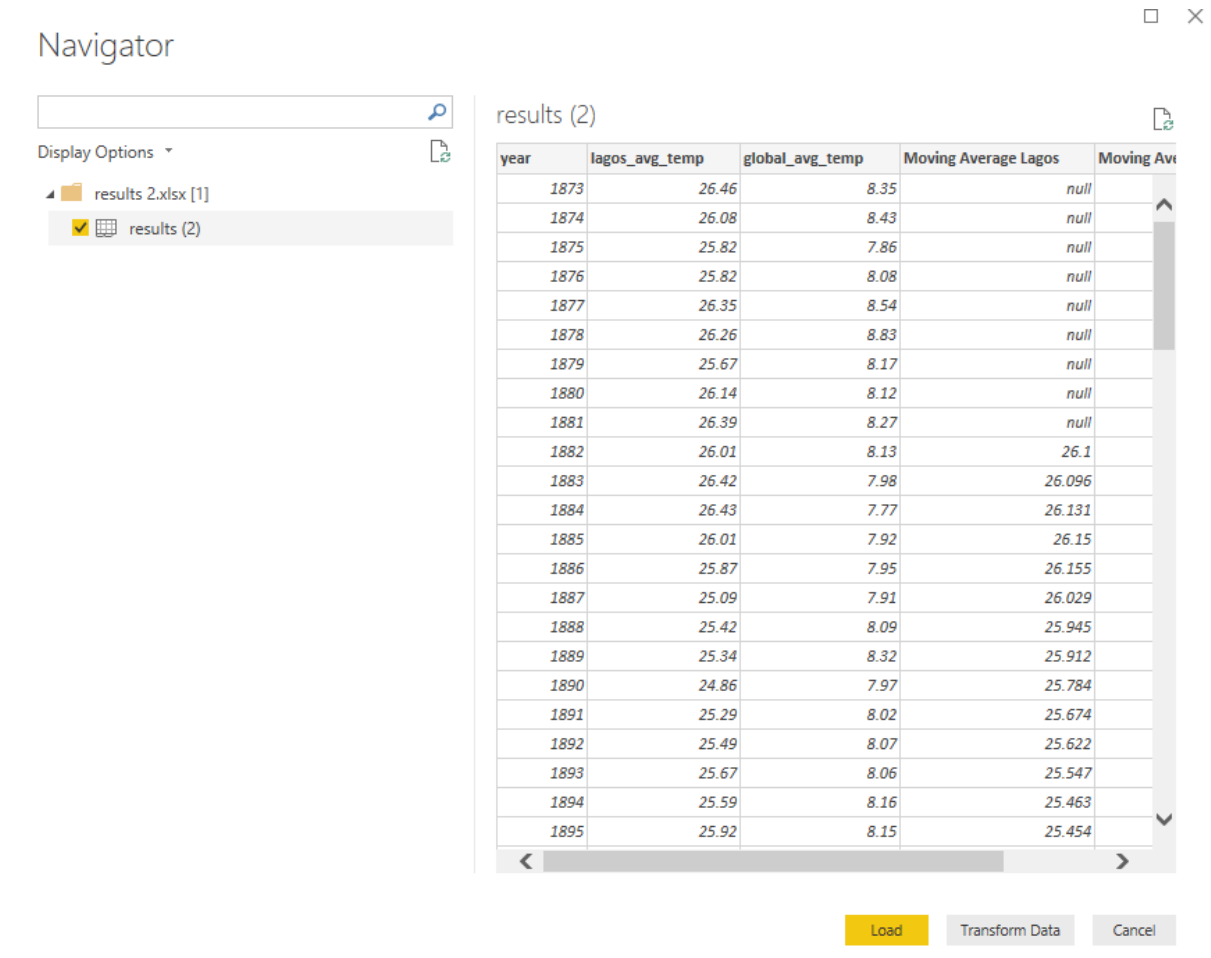


	A	B	C	D	E
1	year	lagos_avg_temp	global_avg_temp	Moving Average Lagos	Moving Average Global
2	1873	26.46	8.35		
3	1874	26.08	8.43		
4	1875	25.82	7.86		
5	1876	25.82	8.08		
6	1877	26.35	8.54		
7	1878	26.26	8.83		
8	1879	25.67	8.17		
9	1880	26.14	8.12		
10	1881	26.39	8.27		
11	1882	26.01	8.13	=AVERAGE(B2:B11)	8.278
12	1883	26.42	7.98	26.096	8.241
13	1884	26.43	7.77	26.131	8.175
14	1885	26.01	7.92	26.15	8.181
15	1886	25.87	7.95	26.155	8.168
16	1887	25.09	7.91	26.029	8.105
17	1888	25.42	8.09	25.945	8.031
18	1889	25.34	8.32	25.912	8.046
19	1890	24.86	7.97	25.784	8.031
20	1891	25.29	8.02	25.674	8.006
21	1892	25.49	8.07	25.622	8
22	1893	25.67	8.06	25.547	8.008
23	1894	25.59	8.16	25.463	8.047
24	1895	25.92	8.15	25.454	8.07
25	1896	25.87	8.21	25.454	8.096
26	1897	26.29	8.29	25.574	8.134
27	1898	25.79	8.18	25.611	8.143
28	1899	26.31	8.4	25.708	8.151
29	1900	26.42	8.5	25.864	8.204
30	1901	26.53	8.54	25.988	8.256
31	1902	26.09	8.3	26.048	8.279
32	1903	25.68	8.22	26.049	8.295
33	1904	25.48	8.09	26.038	8.288
34	1905	26.16	8.23	26.062	8.296
35	1906	26.21	8.38	26.096	8.313
36	1907	25.96	7.95	26.063	8.279
37	1908	26.15	8.19	26.099	8.28
38	1909	26.08	8.18	26.076	8.258

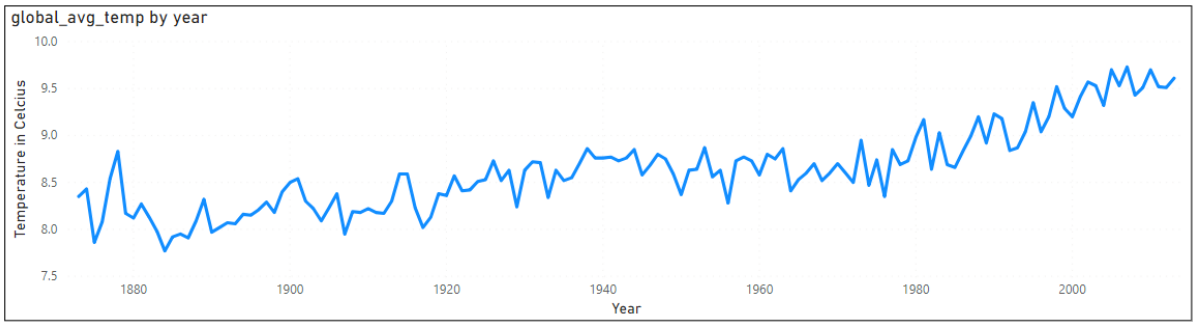
Moving Average Plot on Power BI

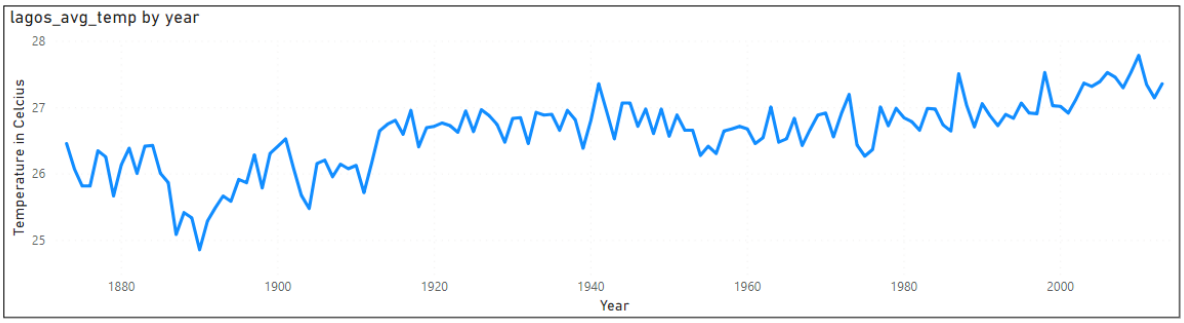
The data was imported into Power BI as seen below

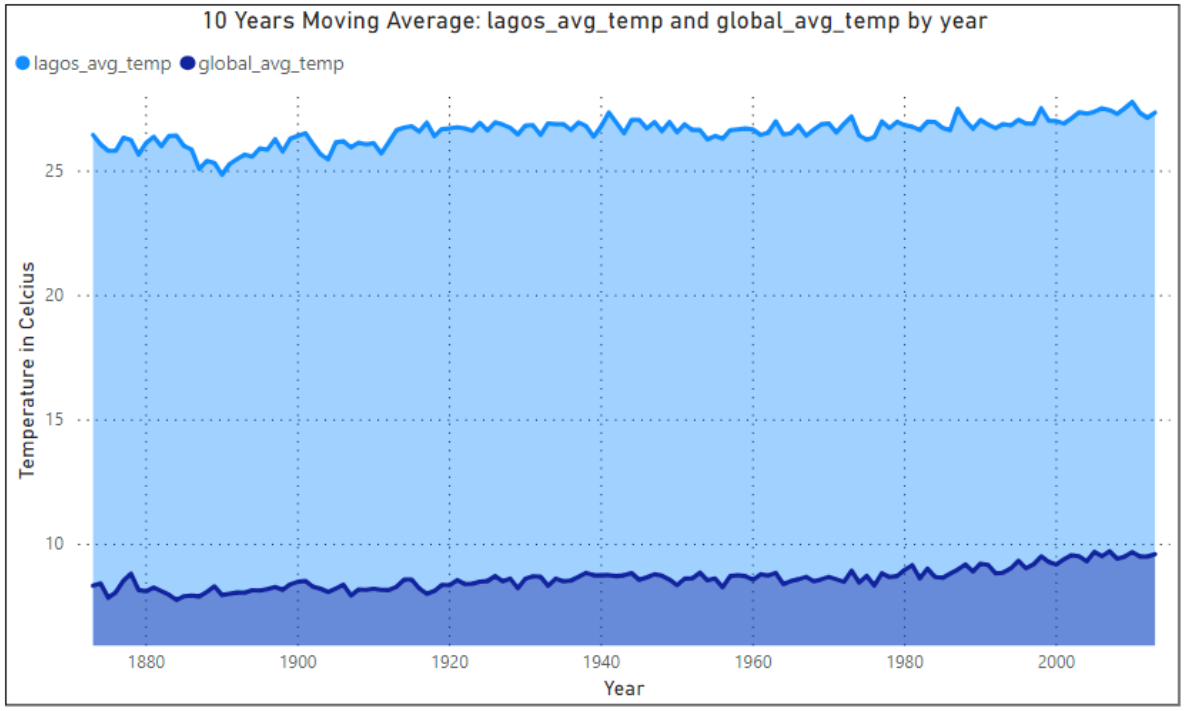




year	lagos_avg_temp	global_avg_temp	Moving Average Lagos	Moving Ave
1873	26.46	8.35	null	
1874	26.08	8.43	null	
1875	25.82	7.86	null	
1876	25.82	8.08	null	
1877	26.35	8.54	null	
1878	26.26	8.83	null	
1879	25.67	8.17	null	
1880	26.14	8.12	null	
1881	26.39	8.27	null	
1882	26.01	8.13	26.1	
1883	26.42	7.98	26.096	
1884	26.43	7.77	26.131	
1885	26.01	7.92	26.15	
1886	25.87	7.95	26.155	
1887	25.09	7.91	26.029	
1888	25.42	8.09	25.945	
1889	25.34	8.32	25.912	
1890	24.86	7.97	25.784	
1891	25.29	8.02	25.674	
1892	25.49	8.07	25.622	
1893	25.67	8.06	25.547	
1894	25.59	8.16	25.463	
1895	25.92	8.15	25.454	







Deductions from the plots above:

1. It was observed that there was an increase over the years both in the city and the global temperature
2. The temperature In my city was found to be a lot hotter than the global temperature with an approximate average difference of 17.97 Degree's Celsius

3. From the trend, it was observed that the global temperature began to peak and drop in the last 100 years and in the last 20yrs, the increase grew consistently
4. There was a slight decrease in the city's temperature in the late 18th century and it began to rise again in the 19th century.