WEATHER TREND

DAND PROJECT

EXTRACTING AND UNDERSTANDING THE DATA

- SQL commands were used in accessing and extracting data from the database.
- I used `select * from city_list;` to see the list of cities in the data collected.
- Then I used `select * from city_list where country='Nigeria';` to see the list of cities from Nigeria in the dataset. With this, I realized 7 cities in Nigeria's weather data was recorded, including Lagos, the city I reside in. 3 of the cities lie in the south, while 4 are in the north.
- To extract Lagos' weather data, I queried the database with `select * from city_data where city='Lagos';`
- `select * from city_data where country='Nigeria';` was used to extract data of the 7 cities from Nigeria.
- Finally, I used `select * from global_data;` to extract the globe's weather data.
- The extracted data were opened in excel for analysis.

NIGERIA WEATHER TREND?

I created a pivot table from Nigeria's data which shows that only Lagos' data was recorded in the first 3 years, other cities record began in 1856, also missing values were observed between 1863 and 1872 (10 years)

Sum of avg_temp	Column Labels							
Row Labels	Abuja	Ibadan	Kaduna	Kano	Lagos	Maiduguri	Port Harcourt	(blank)	Grand Total
1849					25.98				25.98
1850					25.87				25.87
1851					26.1				26.1
1852									
1853									
1854									
1855									
1856	26.93	26.92	26.69	26.32	26.35	28.03	26.19		187.43
1857	24.67	24.97	24.7	25.43	25.45	27.28	25.16		177.66
1858	25.87	25.93	25.68	25.98	25.92	27.7	25.75		182.83
1859	25.31	25.66	25.18	25.78	26.18	27.72	25.96		181.79
1860	25.52	25.77	25.16	25.31	26.01	27.29	25.95		181.01
1861	25.56	25.82	25.25	25.25	25.95	27.12	25.76		180.71
1862	26.94	26.81	26.35	25.22	25.9	26.96	25.96		184.14
1863									
1864									
1865									
1866									
1867									
1868									
1869									
1870									
1871									
1872									
1873	25.77	25.87	25.66	26.55	26.46	28.49	26.39		185.19

I copied the pivot table data into another sheet, taking in data from the year 1856, filled in the missing values for each city the cities' mode, and calculated the 10 years moving averages for each year.

C11 =AVERAGE(B2,B11)

Sensitivity: Personal

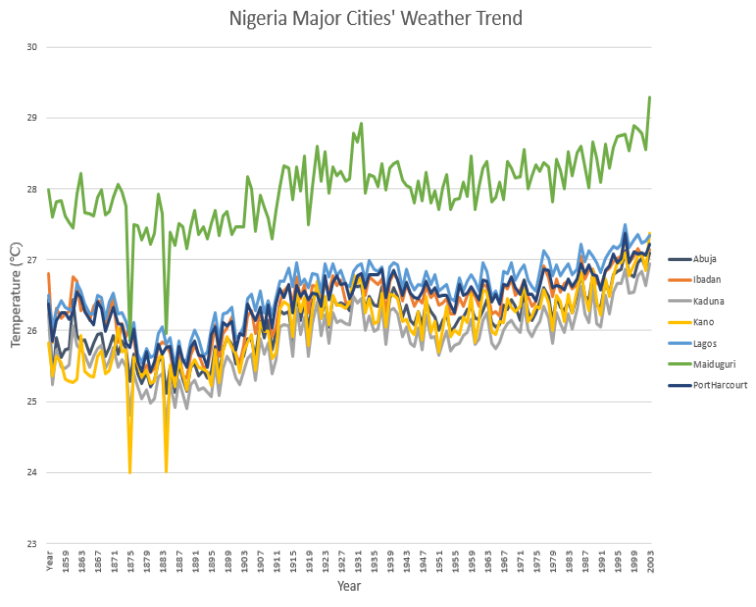
Year	Abuja		Ibadan		Kaduna		Kano		Lagos		Maiduguri		Port Harcourt	
1856	26.93		26.92		26.69		26.32		26.35		28.03		26.19	
1857	24.67		24.97		24.7		25.43		25.45		27.28		25.16	
1858	25.87		25.93		25.68		25.98		25.92		27.7		25.75	
1859	25.31		25.66		25.18		25.78		26.18		27.72		25.96	
1860	25.52		25.77		25.16		25.31		26.01		27.29		25.95	
1861	25.56		25.82		25.25		25.25		25.95		27.12		25.76	
1862	26.94		26.81		26.35		25.22		25.9		26.96		25.96	
1863	25.93		26.7		25.79		25.31		26.66		27.93		26.55	
1864	25.93		26.7		25.79		25.31		26.66		27.93		26.55	
1865	25.93	26.43	26.7	26.81	25.79	26.24	25.31	25.815	26.66	26.505	27.93	27.98	26.55	26.37
1866	25.93	25.3	26.7	25.835	25.79	25.245	25.31	25.37	26.66	26.055	27.93	27.605	26.55	25.855
1867	25.93	25.9	26.7	26.315	25.79	25.735	25.31	25.645	26.66	26.29	27.93	27.815	26.55	26.15
1868	25.93	25.62	26.7	26.18	25.79	25.485	25.31	25.545	26.66	26.42	27.93	27.825	26.55	26.255
1869	25.93	25.725	26.7	26.235	25.79	25.475	25.31	25.31	26.66	26.335	27.93	27.61	26.55	26.25
1870	25.93	25.745	26.7	26.26	25.79	25.52	25.31	25.28	26.66	26.305	27.93	27.525	26.55	26.155
1871	25.93	26.435	26.7	26.755	25.79	26.07	25.31	25.265	26.66	26.28	27.93	27.445	26.55	26.255
1872	25.93	25.93	26.7	26.7	25.79	25.79	25.31	25.31	26.66	26.66	27.93	27.93	26.55	26.55
1873	25.77	25.85	25.87	26.285	25.66	25.725	26.55	25.93	26.46	26.56	28.49	28.21	26.39	26.47
1874	25.8	25.865	25.98	26.34	25.51	25.65	25.55	25.43	26.08	26.37	27.4	27.665	25.97	26.26
1875	25.42	25.675	25.6	26.15	25.17	25.48	25.41	25.36	25.82	26.24	27.37	27.65	25.76	26.155
1876	25.72	25.825	25.98	26.34	25.48	25.635	25.38	25.345	25.82	26.24	27.29	27.61	25.63	26.09
1877	25.97	25.95	26.15	26.425	25.71	25.75	25.96	25.635	26.35	26.505	27.84	27.885	26.25	26.4

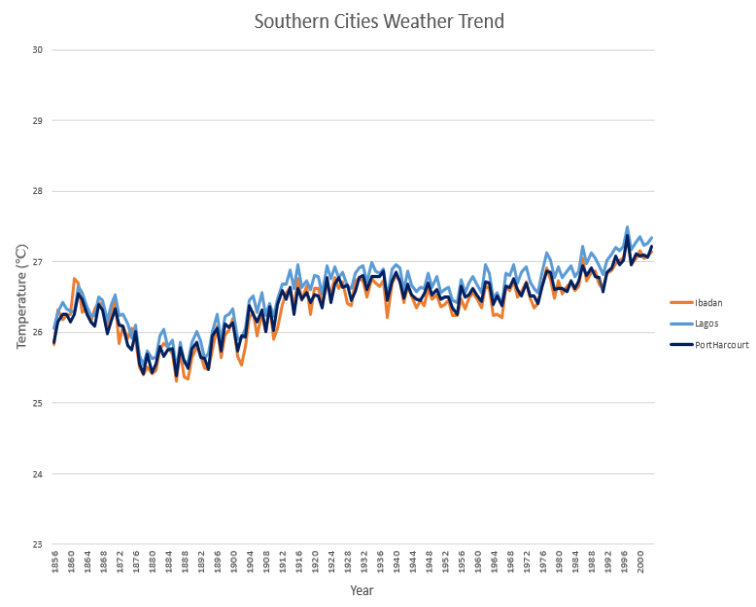
NIGERIA WEATHER TREND?

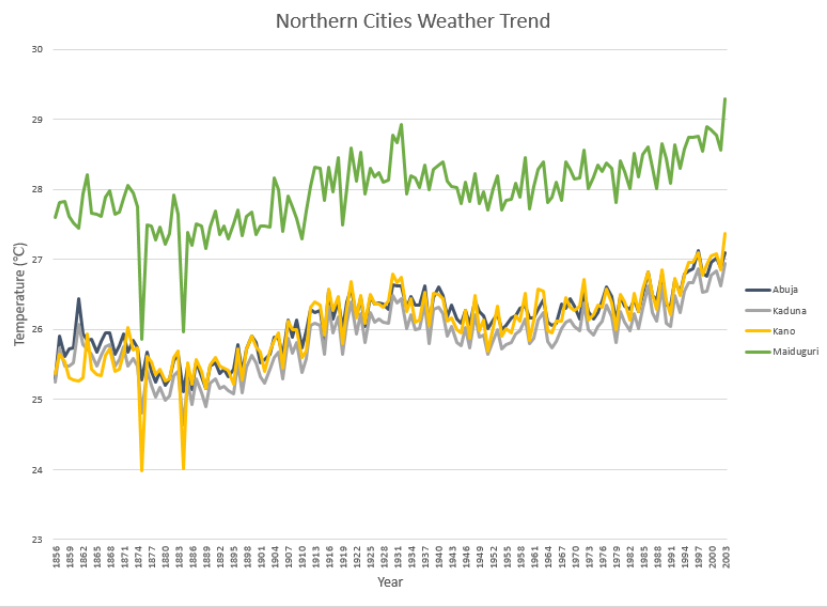
The chart below shows Nigeria cities' weather trend from 1856 to 2013. It appears the average temperature of the cities has been increasing over the years.

The southern states appear to have approximately the same temperature as shown in the chart below; with Lagos recording the highest average temperature, and Ibadan with the lowest average temperature.

The Northern states appear to have approximately the same temperature as shown in the chart below; except Maiduguri who appears to be far above others. We can also observe that Maiduguri and Kano have the same weather trend, while Abuja and Kaduna also have the same weather trend.



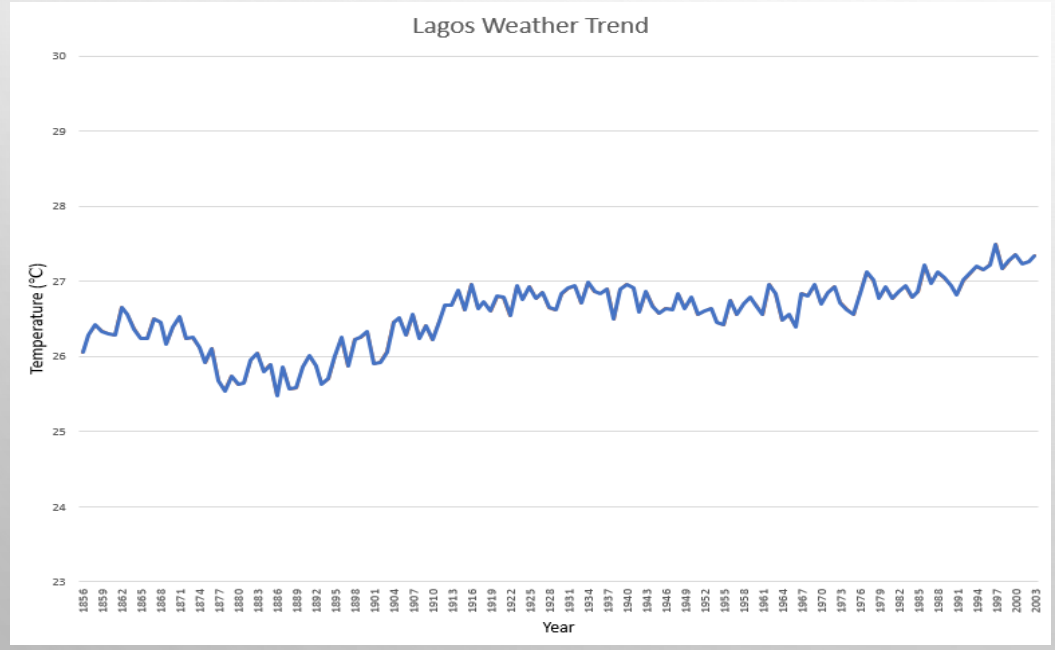




The southern states appear to generally have lower temperature than the Northern states, except for Maiduguri who has the highest average temperature among the cities whose temperature was observed in Nigeria.

CAN WE ESTIMATE LAGOS' TEMPERATURE FROM THE AVERAGE GLOBAL TEMPERATURE?

The chart below depicts Lagos' weather trend. With her 10 years moving average temperature ranging from 25.48 to 27.50



Using the chart below we can see that the globe, including Lagos has been experiencing an increased temperature over the years. It also appears that Lagos is approximately 3 times hotter than the global temperature. With this observation, using the right model, I think Lagos' average temperature can be estimated from the globe's.