

Nano degree: Data Analyst

Project 1: Explore Weather Trends

STEPS carried out to complete the project:

STEP#1:

I extracted the average temperature data of my city using the following query on the workspace given on udacity's website and then i downloaded the CSV file:

```
SELECT *  
FROM city_data  
WHERE country = 'Pakistan' AND city = 'Lahore'
```





STEP#2:

I extracted the average global temperature data using the following query on the workspace given on udacity's website and then i downloaded the CSV file:

```
SELECT *  
FROM global_data
```

STEP#3:

I then opened up the CSV file, using Microsoft EXCEL, containing data of global average temperature and calculated the 20 year moving average by selecting the average temperature columns of first twenty rows and taking average of the values.

C21    =AVERAGE(B2:B21)					
	A	B	C	D	E
1	year	avg_temp	20-Year MA		
2	1750	8.72			
3	1751	7.98			
4	1752	5.78			
5	1753	8.39			
6	1754	8.47			
7	1755	8.36			
8	1756	8.85			
9	1757	9.02			
10	1758	6.74			
11	1759	7.99			
12	1760	7.19			
13	1761	8.77			
14	1762	8.61			
15	1763	7.5			
16	1764	8.4			
17	1765	8.25			
18	1766	8.41			
19	1767	8.22			
20	1768	6.78			
21	1769	 59	8.006		
22	1770	7.69	7.9545		
23	1771	7.85	7.948		
24	1772	8.19	8.0685		
25	1773	8.22	8.06		

STEP#4:

I then opened up the CSV file using Microsoft EXCEL containing data of my city's average temperature and calculated the 20 year moving average by selecting the average temperature columns of first twenty rows and taking average of the values.

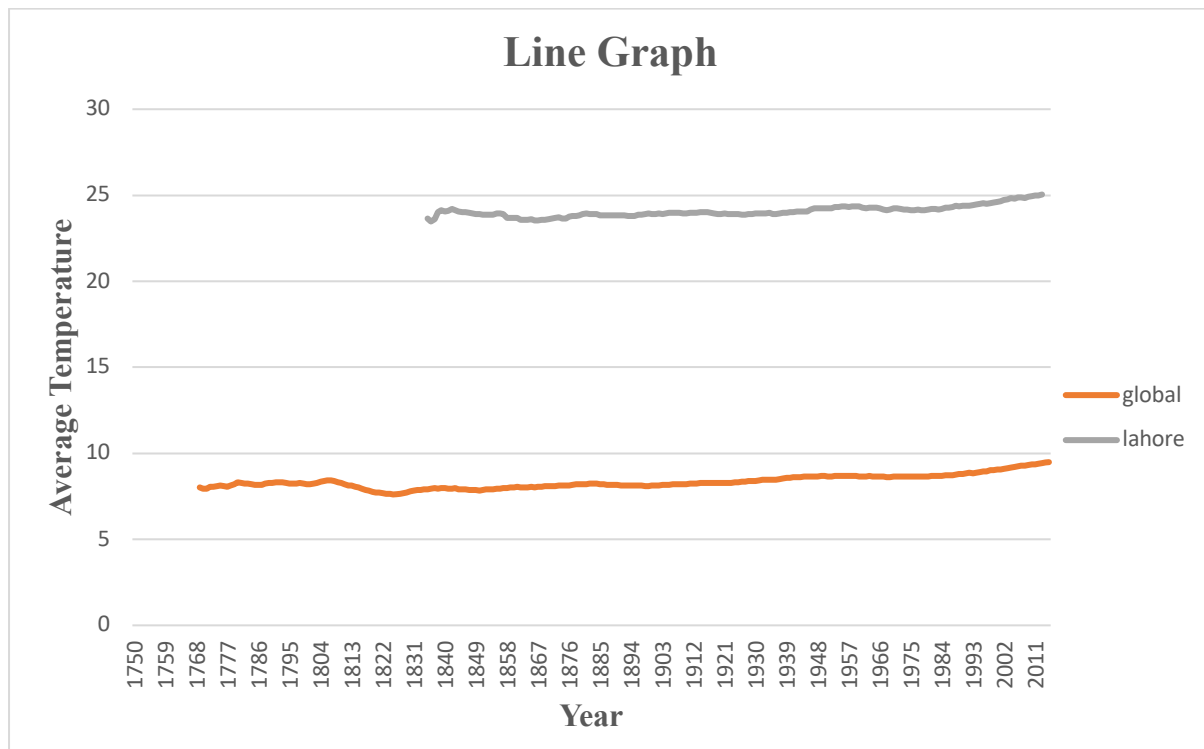
E21 =AVERAGE(D2:D21)						
	A	B	C	D	E	F
1	year	city	country	avg_temp	20-Year MA	
2	1816	Lahore	Pakistan	24.69		
3	1817	Lahore	Pakistan	22.74		
4	1818	Lahore	Pakistan	23.43		
5	1819	Lahore	Pakistan	22.83		
6	1820	Lahore	Pakistan	24.22		
7	1821	Lahore	Pakistan	23.71		
8	1822	Lahore	Pakistan	23.81		
9	1823	Lahore	Pakistan	24.41		
10	1824	Lahore	Pakistan			
11	1825	Lahore	Pakistan			
12	1826	Lahore	Pakistan			
13	1827	Lahore	Pakistan			
14	1828	Lahore	Pakistan			
15	1829	Lahore	Pakistan			
16	1830	Lahore	Pakistan			
17	1831	Lahore	Pakistan			
18	1832	Lahore	Pakistan			
19	1833	Lahore	Pakistan	23.73		
20	1834	Lahore	Pakistan	23.73		
21	1835	Lahore	Pakistan	36	23.6509091	
22	1836	Lahore	Pakistan	22.74	23.4736364	
23	1837	Lahore	Pakistan	24.37	23.6218182	
24	1838	Lahore	Pakistan	27.7	24.01	
25	1839	Lahore	Pakistan		24.128	

STEP#5:

I then merged the moving averages of both the tables into a single table by creating a new excel file to create a line chart.

	A	B	C	D
1	year	global	lahore	
2	1750			
3	1751			
4	1752			
5	1753			
6	1754			
7	1755			
8	1756			
9	1757			
10	1758			
11	1759			
12	1760			
13	1761			
14	1762			
15	1763			
16	1764			
17	1765			
18	1766			
19	1767			
20	1768			
21	1769	8.006		
22	1770	7.9545		
23	1771	7.948		
24	1772	8.0685		
25	1773	8.06		
26	1774	8.075		
27	1775	8.116		
28	1776	8.0885		
29	1777	8.0505		
30	1778	8.1405		
31	1779	8.19		
32	1780	8.302		
33	1781	8.2685		
34	1782	8.233		
35	1783	8.242		
36	1784	8.215		
37	1785	8.1705		

Line Graph:



Observations:

Observation#1: Is your city hotter or cooler on average compared to the global average? Has the difference been consistent over time?

Answer: According to the visualization, the city of Lahore is way hotter as compared to the global average. But if we notice both of them, it can be deduced that the difference has been consistent over time.

Observation#2: How do the changes in your city's temperatures over time compare to the changes in the global average?

Answer: The changes in the temperature of the city of Lahore and the global average temperature has been increasing from 1980's onwards as shown by the line graph. The changes has been consistent. But the latest data shows the temperature at its maximum.

Observation#3: What does the overall trend look like? Is the world getting hotter or cooler? Has the trend been consistent over the last few hundred years?

Answer: The trend has been more or less consistent until the beginning of 1980s. since then there has been a rise in both the global and the city's average. The trend has been consistent from the mid of 18th century to the mid of 19th century. Being the maximum in 2011.

Observation#4: What has been the trend from the beginning of 18th century to the mid of 18th century?

Answer: During the prescribed time period, the line graph shows some deviations along both the extremes, globally as well as locally.