Exploring Weather Trends Project

Steps taken are as follows:

1) **Data Extraction**
2) **Data Cleaning**
3) **Data visualization**

1) **Data Extraction:**

   In this SQL was used to extract the data and downloaded in to csv file.

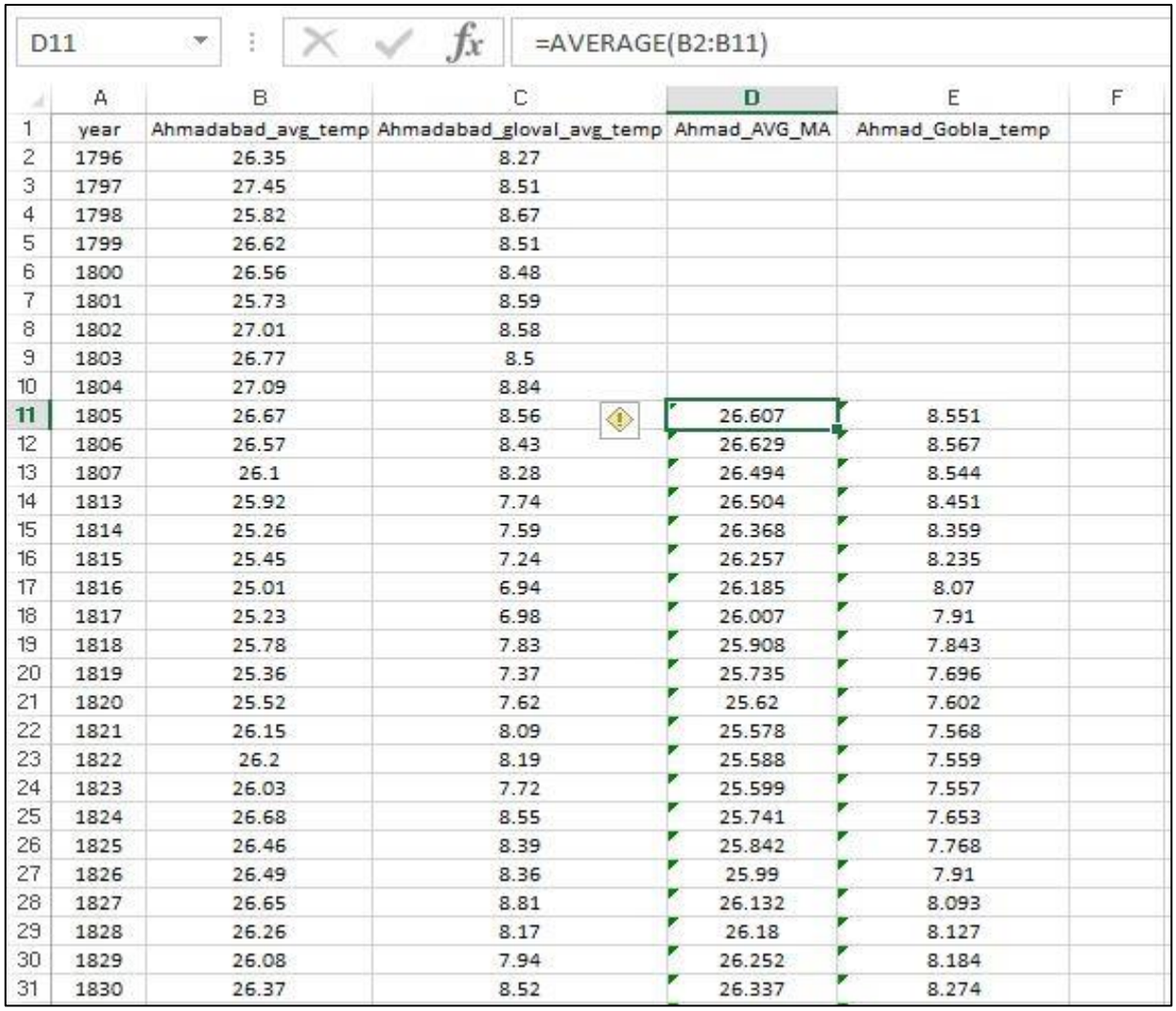
   Query 1:
   SELECT year,avg_temp
   FROM city_data
   WHERE city='Ahmadabad'

   Query 2:
   SELECT *
   FROM global_data

2) **Data Cleaning**

   After that I opened the CSV file in to Microsoft Excel which I will use for data analyzing and visualization, there are some missing value in city avg_temp compared to global_temp as in avg_temp data started from 1796 and global_temp started from 1750.so I removed all year and corresponding avg_temp values that are not in global_temp set.

   Data is shown below:-



D11 =AVERAGE(B2:B11)

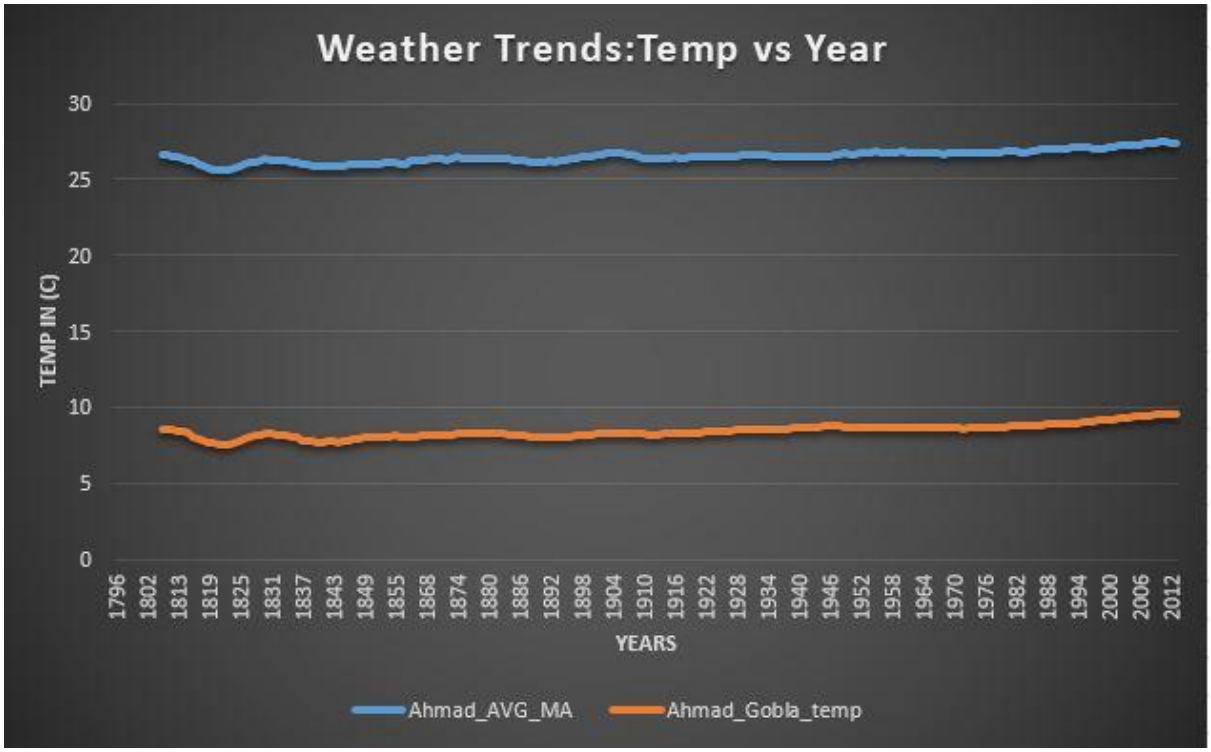
	A	B	C	D	E	F
1	year	Ahmadabad_avg_temp	Ahmadabad_gloval_avg_temp	Ahmad_AVG_MA	Ahmad_Gobla_temp	
2	1796	26.35	8.27			
3	1797	27.45	8.51			
4	1798	25.82	8.67			
5	1799	26.62	8.51			
6	1800	26.56	8.48			
7	1801	25.73	8.59			
8	1802	27.01	8.58			
9	1803	26.77	8.5			
10	1804	27.09	8.84			
11	1805	26.67	8.56	26.607	8.551	
12	1806	26.57	8.43	26.629	8.567	
13	1807	26.1	8.28	26.494	8.544	
14	1813	25.92	7.74	26.504	8.451	
15	1814	25.26	7.59	26.368	8.359	
16	1815	25.45	7.24	26.257	8.235	
17	1816	25.01	6.94	26.185	8.07	
18	1817	25.23	6.98	26.007	7.91	
19	1818	25.78	7.83	25.908	7.843	
20	1819	25.36	7.37	25.735	7.696	
21	1820	25.52	7.62	25.62	7.602	
22	1821	26.15	8.09	25.578	7.568	
23	1822	26.2	8.19	25.588	7.559	
24	1823	26.03	7.72	25.599	7.557	
25	1824	26.68	8.55	25.741	7.653	
26	1825	26.46	8.39	25.842	7.768	
27	1826	26.49	8.36	25.99	7.91	
28	1827	26.65	8.81	26.132	8.093	
29	1828	26.26	8.17	26.18	8.127	
30	1829	26.08	7.94	26.252	8.184	
31	1830	26.37	8.52	26.337	8.274	

For Better Visualization of data points, I calculated 10 years moving average for city_data and global_data.

Correlation of city_temp_moving average vs global_temp_moving average was calculated and it is 0.96128.

3) Data Visualization

I plotted a line graph with temperature moving average values on Y-axis and the year on x-axis to make data points more observable.



Observations:

1) **From 18th to 21st century global temperature is between 5-10 °C and for city temperature ranges from 25-30 °C thus we can say that climate is changing rapidly.**
2) **We can as year increases, global temperature also increases linearly.**
3) **Correlation of moving average was calculated of global and city and we got 0.96128 so it can be said it is fairly strong relationship.**
4) **We can see that after before 21st century in city the temperature increase was very less compared to sudden increase after 2000.**