



Data Analyst Nanodegree

Project -1-

Title:

Exploring Weather Trends

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Overview:

In this project I used the data extracted from Udacity portal, to analyze the temperature in my city which is Riyadh and compare it to the global temperature.

Tools:

SQL: To extract the data

Excel: To Calculate 10Y MAs and plot them as linecharts.

Steps:

Step1: Used SQL to extract the data by the following queries:

- **SELECT * FROM city_data WHERE** country = 'Saudi Arabia' : To search for the nearest city in Saudi Arabia
- **SELECT * FROM city_data WHERE** city = 'Riyadh' **AND** country = 'Saudi Arabia' : To extract Riyadh yearly avg. temperature.
- **SELECT * FROM global_data:** To extract the yearly avg. global temperature.

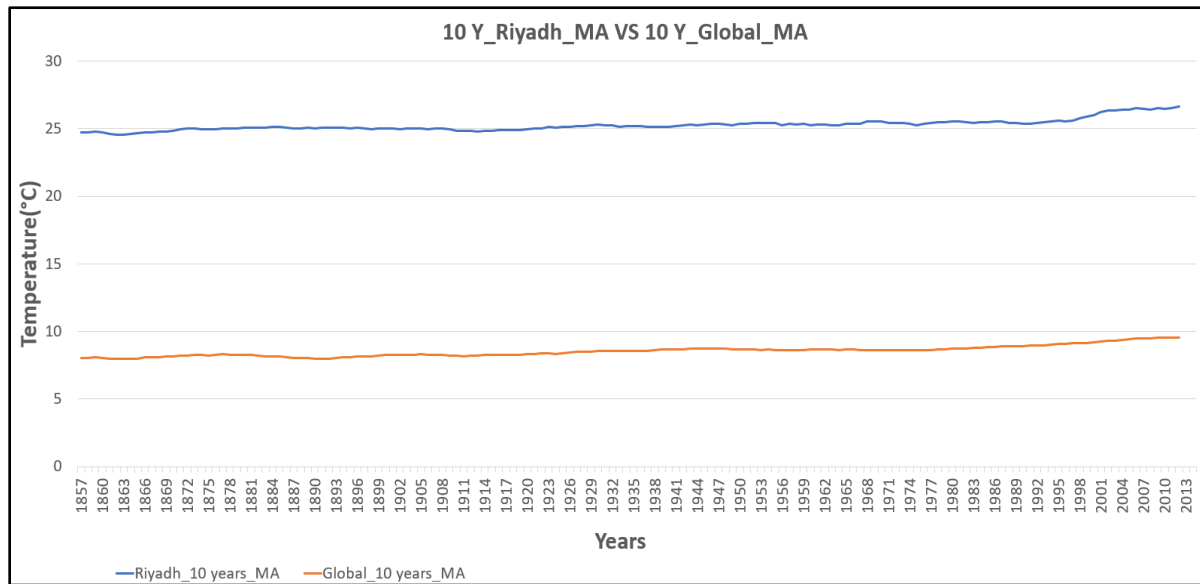
Step 2: After extracting the CSVs, excel was used to visualize the data and clean them

Step 3: Calculating 10 years moving average using average formula in MS Excel for Riyadh temperature and global temperature with the same periods. The reason that 10 years was chosen for the calculation is to make the results less sensitive to the change and to smooth them out.

Please refer to the figure below for a sample of the calculations:

year	Global_avg_temp	Riyadh_avg_temp		
1848	7.98	24.56		
1849	7.98	24.8		
1850	7.9	24.34		
1851	8.18	25.03		
1852	8.1	24.85		
1853	8.04	24.93		
1854	8.21	24.72		
1855	8.11	24.92		
1856	8	24.57	Riyadh_10 years_MA	Global_10 years_MA
1857	7.76	24.26	=AVERAGE(C2:C11)	8.026
1858	8.1	25.01	AVERAGE(number1, [number2], ...)	8.038
1859	8.25	24.95	24.758	8.065
1860	7.96	24.94	24.818	8.071
1861	7.85	24.13	24.728	8.038
1862	7.56	23.77	24.62	7.984
1863	8.11	24.28	24.555	7.991
1864	7.98	25.03	24.586	7.968
1865	8.18	25.23	24.617	7.975

Step 4: Plot the two MAs to compare them using linechart as shown in the figure below :



Observations:

- 1- On average Riyadh is much hotter than global temperature
- 2- It is observed that Riyadh has been increasing overtime especially between 1998 and 2013
- 3- Global temperature has been increasing constantly overtime
- 4- Global temperature increased more than Riyadh
- 5- For each single period global temperature was always less than Riyadh temperature