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Project 1: Weather Trends

Outline

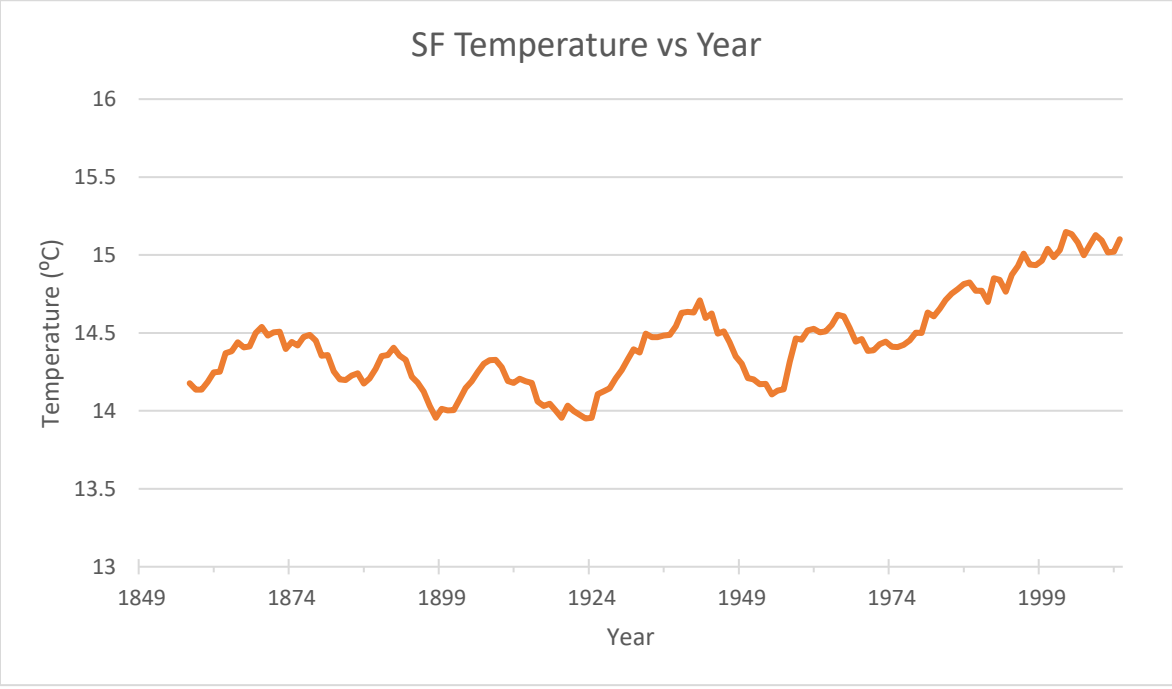
I began this project by first querying the data from the data base and saving them to a CSV. I live in San Francisco so I used this as my city data. The 2 queries I used were:

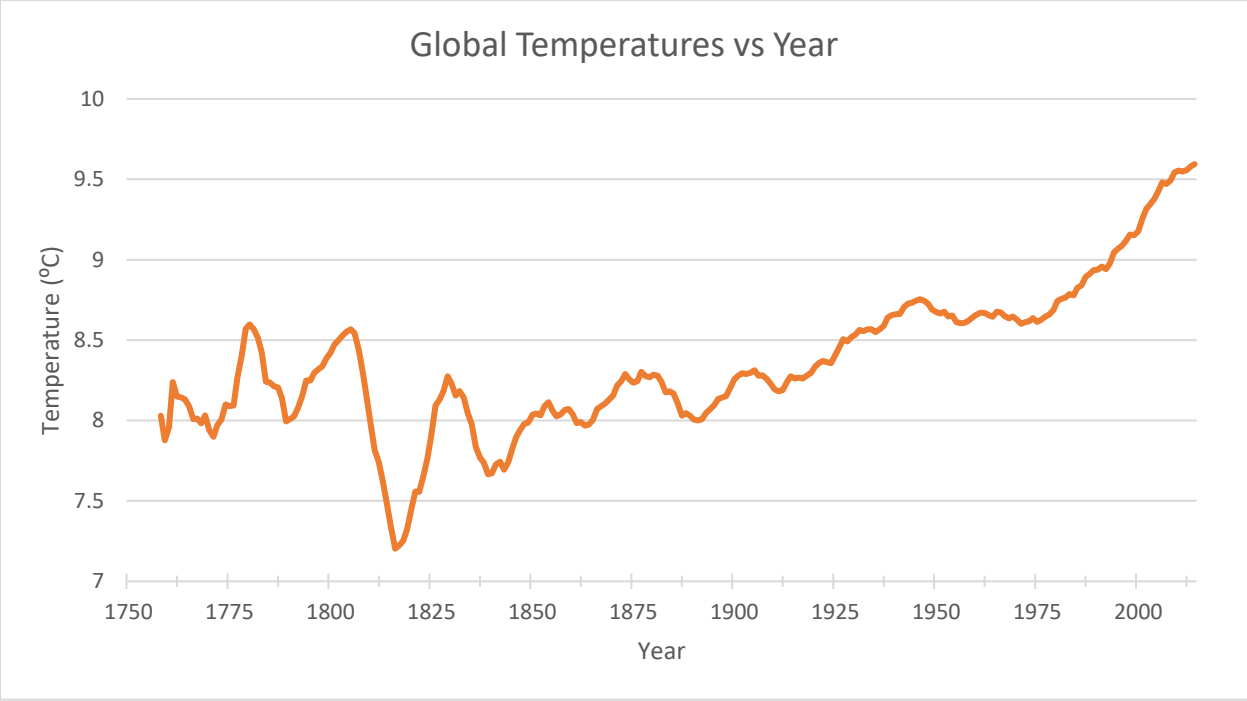
1) SELECT year, avg_temp FROM city_data WHERE city = 'San Francisco';
2) SELECT * FROM global_data;

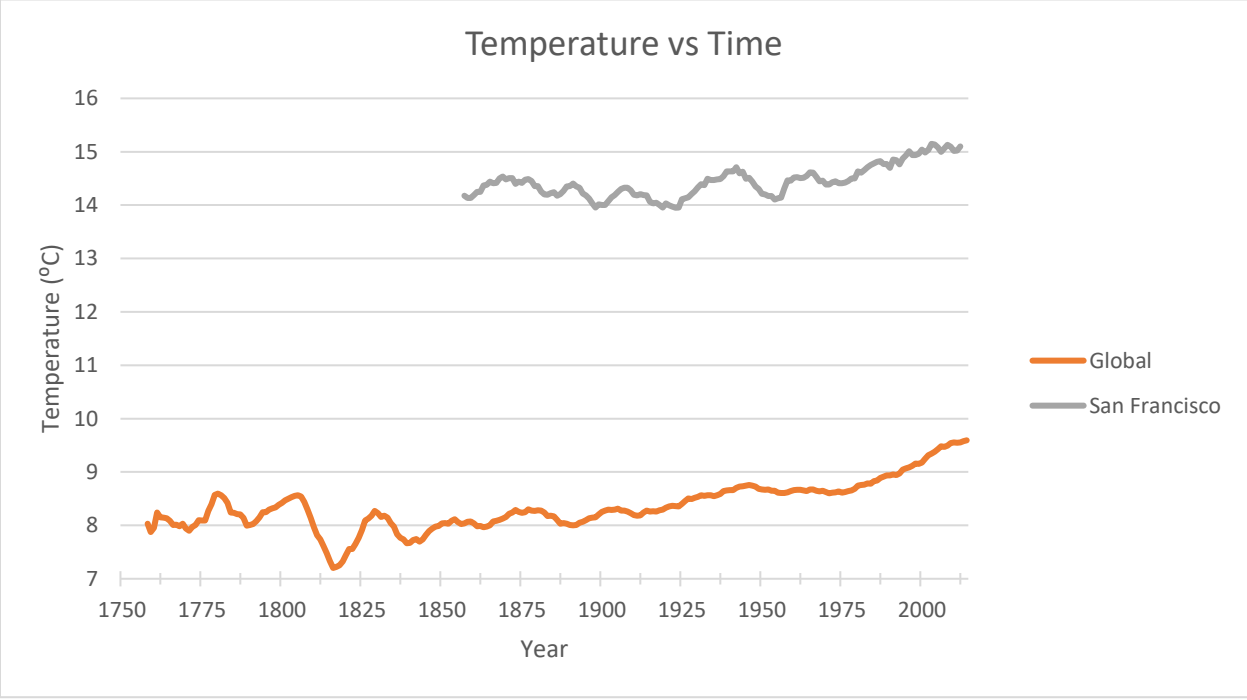
The first query obtains the averages temperatures with the corresponding years for just San Francisco from the city_data table, while the second selects all the values from the global_data table.

Next I created a line chart in excel for this data. I used a moving average of 10 years to smooth out the year to year fluctuations and identify the overall trend. The results were then plotted separately and alongside one another and the results are shown below.

Data




Global Temperatures vs Year
Temperature (°C)
10
9.5
9
8.5
8
7.5
7
1750
1775
1800
1825
1850
1875
1900
1925
1950
1975
2000
Year


Temperature vs Time
Temperature (°C)
16
15
14
13
12
11
10
9
8
7
1750
1775
1800
1825
1850
1875
1900
1925
1950
1975
2000
Year
Global
San Francisco

Observations

1) **San Francisco's average temperature is higher than the global temperature**. This can be seen quite clearly by looking at the Temperature vs Time graph.

2) **Both the global temperature and SF's temperature have increased over time.** The global average is now about 1.5^{o}C higher than it was in 1750, and San Francisco's temperature has increased about 1^{o}C since 1850. The global temperature increase suggests that the temperature spike seen in San Francisco was likely seen in other cities around the world. It also suggests that San Francisco's increased temperature is less than the average increase seen by cities around the world

3) **Both the global temperature and SF temperature started to spike around 1950.** Looking at the individual graphs we see that the majority of the temperature increase for both cases occurred after 1950. This spike does not fit in with the many years preceding it, suggesting that something changed around this time that led to the temperature spikes. We see this in the graphs as well; before about 1950 the temperature fluctuates up and then back down every 10-20 years, but since 1950 it has been on a steady upwards trend (in both cases).

4) **The global temperature has varied over a wider range than San Francisco.** This suggests that there are other cities that fluctuate in temperature a lot more than San Francisco, causing this larger temperature increase/decrease on the global stage. This also makes sense, because coastal cities tend to vary less with temperature over time.