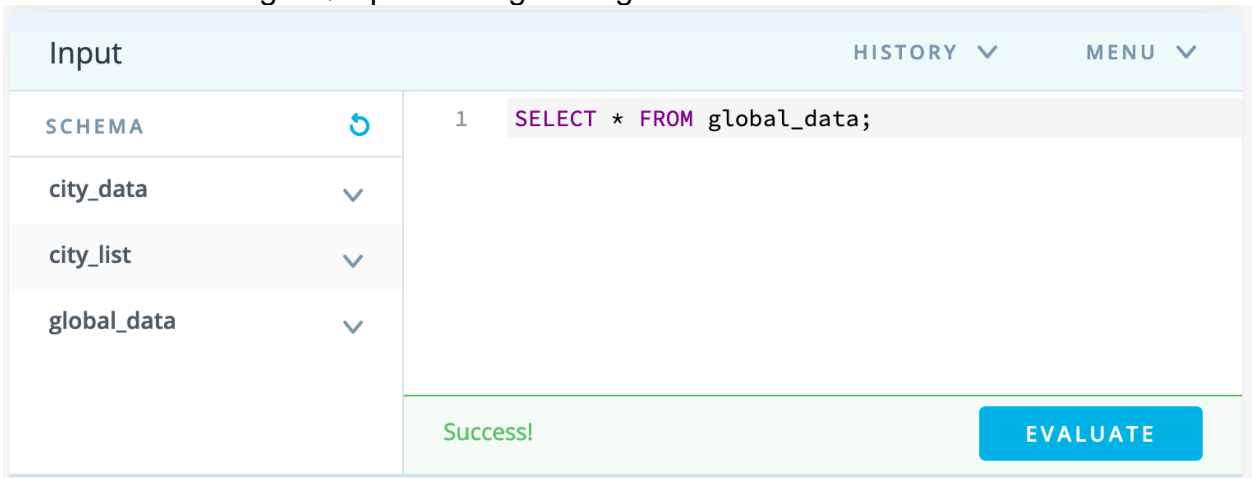
Kate Morics – Project 1

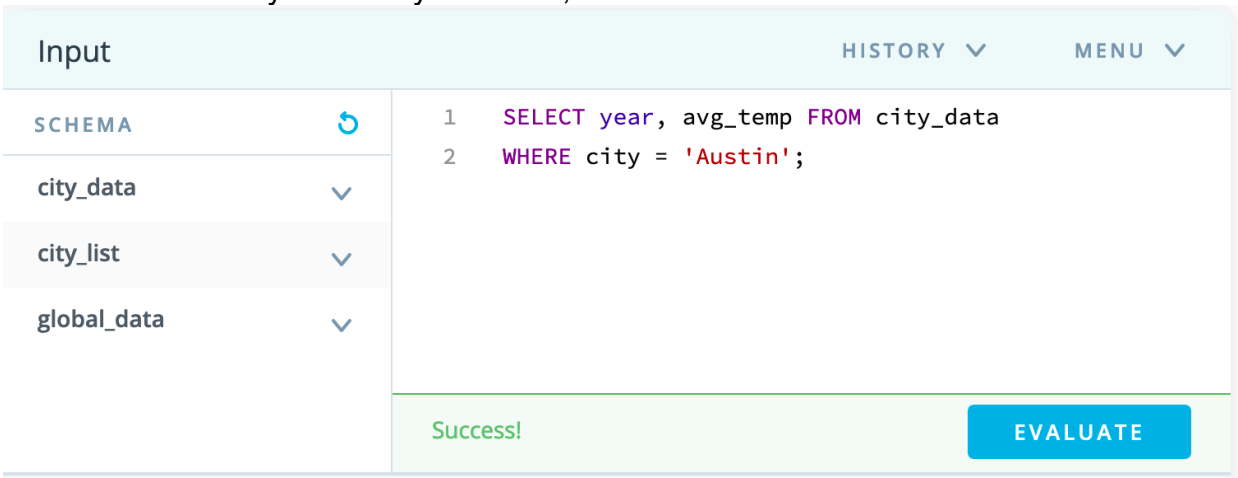
Project Outline:

1. **Extracting data:**

   I used the following SQL queries to get the global weather data:



   And the data for my home city of Austin, TX:



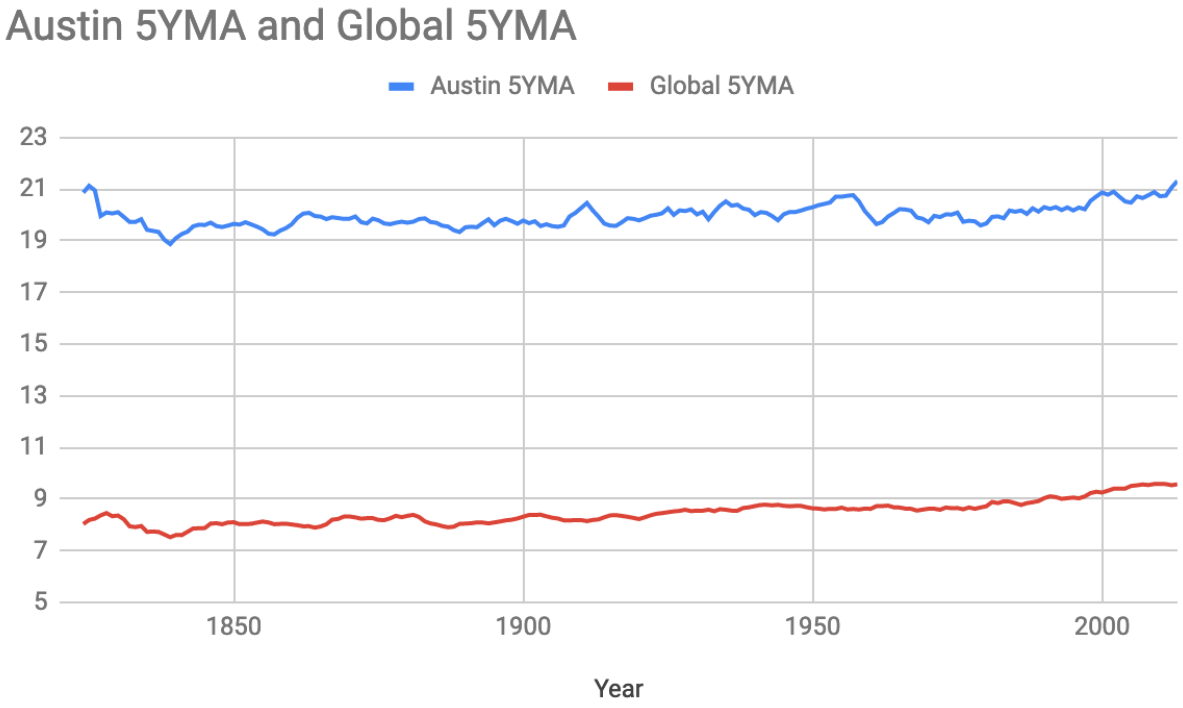
2. **Calculating moving averages:**

   The first challenge I encountered was the fact that the earliest year for which data from Austin was available was 1820, while the global weather data starts in 1750. I decided to exclude years 1750-1819 from my analysis of the global data to make the comparison cleaner.

   I decided to calculate both 5-year and 10-year moving averages to see which would yield a better visual. I copied the csv data from the SQL queries above into two Google sheets. The average temperature was in column B, so I created a new column (C) called “5 Year MA” and placed the equation =AVERAGE(B2:B6) in the 6th cell, then copied the equation into the rest of the cells in that column. Then I created another column (D) called “10 Year MA” and placed the equation =AVERAGE(B2:B11) in the 11th cell, and copied it into the rest of the cells. I did

the same steps in both sheets, then created a line chart in Google sheets for each result.

I found that the 10-year moving average line was a little bit too smooth to analyze, as it didn't clearly show much variation within the line. I created a third sheet including the year (A), Austin's average temperature (B), the global average temperature (C), and columns for the 5-year moving average for Austin (D) and the globe (E). I put the equation =AVERAGE(B2:B6) in cell D6 and below, and the equation =AVERAGE(C2:C6) in cell E6 and below. I edited the minimum and maximum values displayed on the y-axis to get a clearer picture of the data and got this result:



3. **Analyzing the Data:**

- Austin's temperature is consistently higher than the national average, which is not surprising given the fact that Texas is notoriously hot and does not have very harsh winters.
- Both sets of data show an overall increase in temperature since 1820, however the overall increase in the global average temperature is larger than in Austin. Austin's moving average increased from 20.86 to 21.8 in the period reported – only 0.94 difference. The global moving average, however, increased from 8.034 to 9.608 – a difference of 1.574.
- The global temperature line is smoother, with more gradual rises and falls. This is probably because the range of temperatures used to calculate the global average is much wider than the range used for temperate Austin.

- There is a spike around 1909-1915 in Austin's moving average that doesn't seem to be reflected in the global moving average, which increases fairly steadily throughout the same period with no large rises or falls.