SQL:

Determine Your City:

I live in Houston and know that this is a huge Metropolitan area so my first thought was to find all the cities that start with the letter “H” and see if Houston was a city in this data set. The query I used is below in red and returned 14 result including Houston.

```
SELECT *FROM city_list
WHERE city LIKE 'H%'
```

Extract Global Data:

This is the query used to extract the global data

```
SELECT *FROM global_data
```

Extract Houston Data:

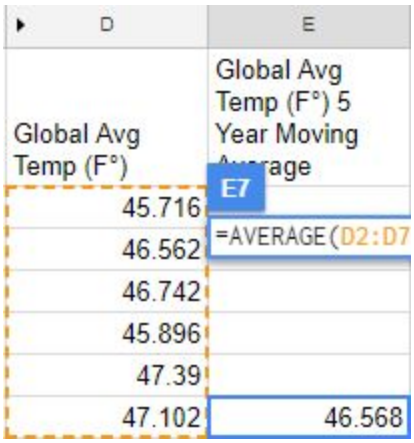
```
SELECT *FROM city_data
WHERE city = 'Houston'
```

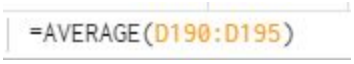
Analysis Outline:

Once I extracted both the Global Data and Houston’s Data I noticed the following:

- The Global Data had more observations than Houston dating back to 1750 for the Global Data and 1820 for Houston’s Data
    - **I left out the extra global data points from the comparison**
- The Temperature of the Data Points were both in C° and in Houston we measure the Temperature in F°
    - **I converted the temperature to F° by multiplying the C° by (9/5) and adding 32**

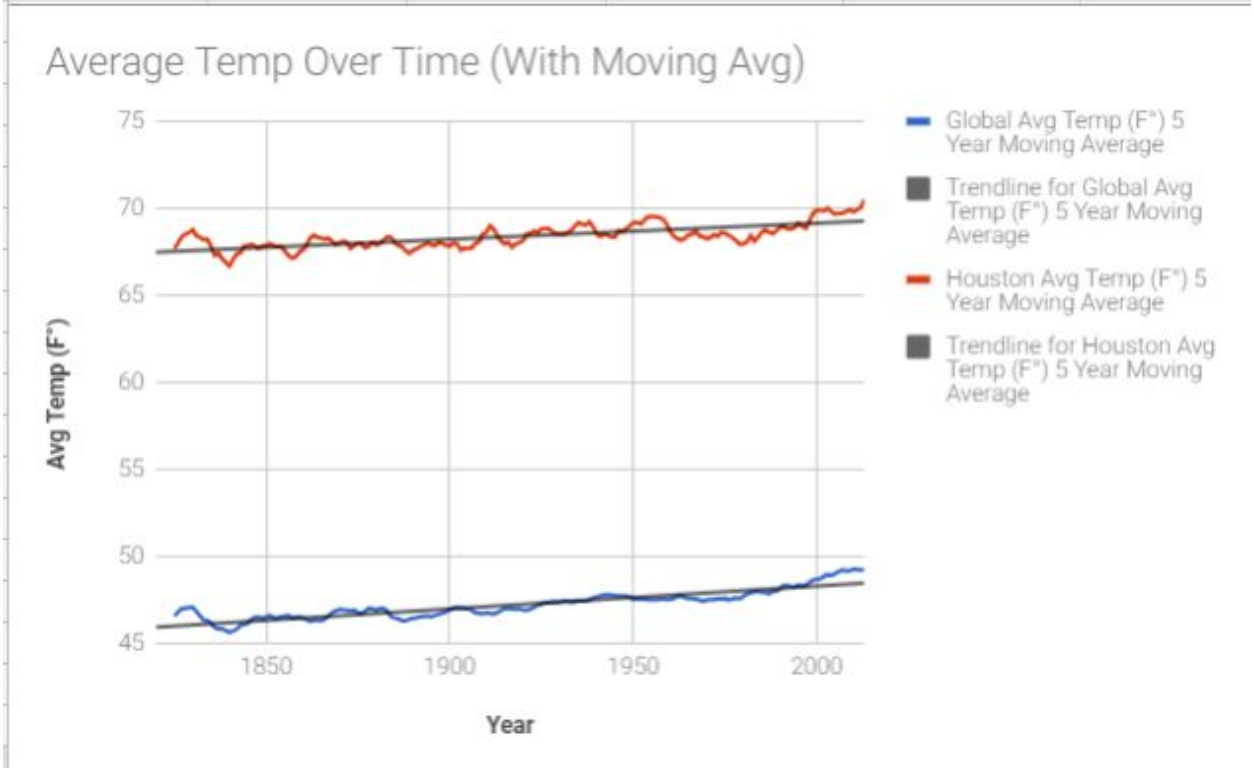
I used a Moving Average of 5 years. Below are the steps I took to calculate the moving average:

- I used Google's AVERAGE formula for cells D2 - D7 which were the first 5 years in the combined data Set
  - 

- The previous Google Sheet Formula was drugged down until I reached the bottom of the data set, thus copying the formula always using the previous 5 cells as the range
  - 

Visualization:

	Global Moving Average Range & Mean (F°)	Houston Moving Average Range & Mean (F°)		Difference Between Global Temp and Houston Temp (F°)	
Range:	3.66	3.83		21.17	
Mean:	47.23	68.40			



Summary of observations:

While both the Global Temp and the temperature of Houston are increasing over time the range for the moving averages are as follows: (Global Temperature = 3.66) (Houston's Temperature = 3.83).This tells us that the difference over time between the Highest and Lowest temperature from both variables is less than 4° F and the moving average over time has not increased by more than 4 ° since 1820

Houston on Average is about 21.17 °F Hotter than the Global Population with the Moving Avg temp in Houston being 68.4 °F and the Global Moving AVG being 47.2°F
Looking at the year 2000 and observing trendline you will notice that both the Global Temperature and Houston's Temperature are higher than the predicted trend. This could tell us that we may be going into a point of hotter temperatures past the year 2000
Observing the trendlines once again it its apparent that the moving average of the Global Temperature follows the predicted trend closer than Houston's Temperature. Although both variables have a Range of less than 4° F, Houston's temperature fluctuate more often.

Excel link:

Link to Excel Observations