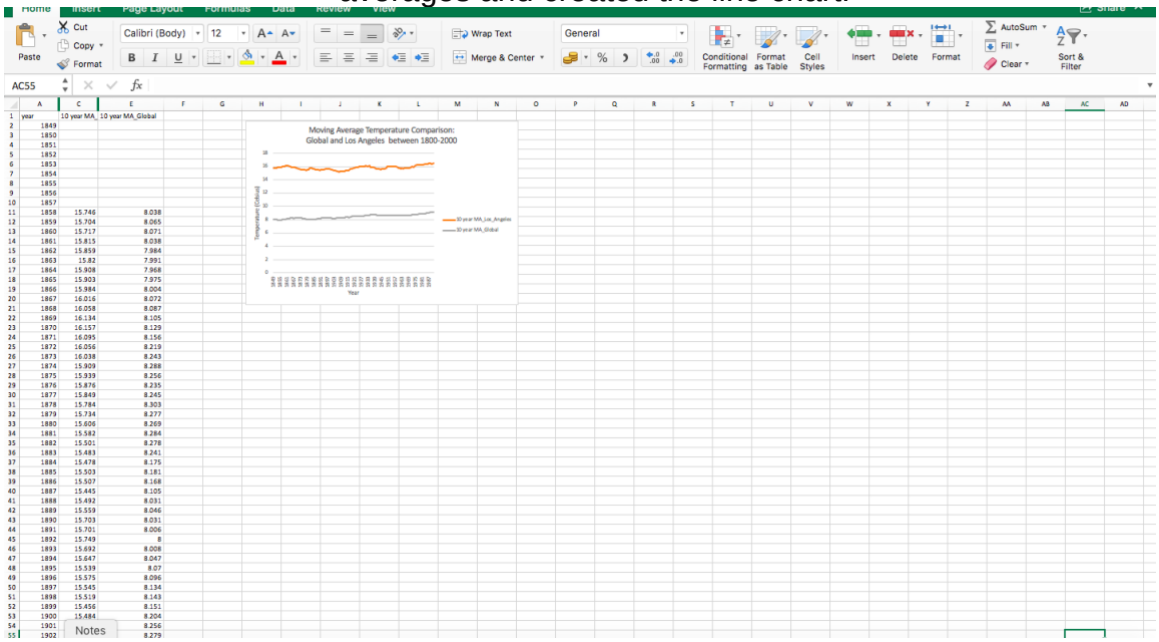
Exploring Weather Trends Project 1
By Parvina Pasilova

Outline:
I used SQL and Excel to analyze my data. First, I used SQL to extract data from temperature databases. Following is the SQL query that was used to extract data.

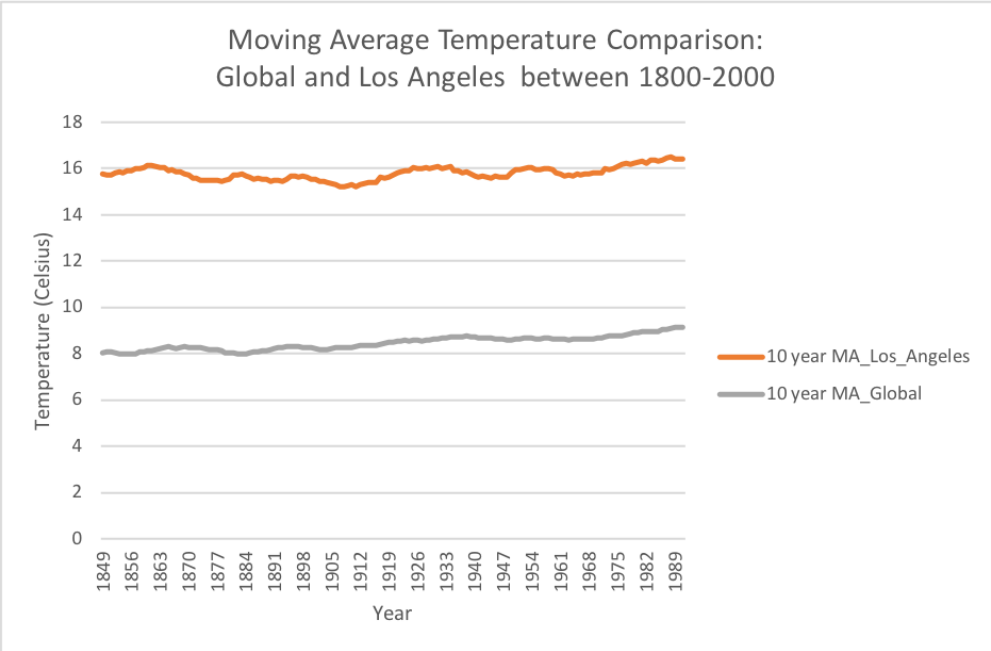
```
SELECT  cd.country, cd.year, cd.avg_temp AS los_angeles, g.avg_temp AS
glob_avr_temp
FROM city_data cd
JOIN global_data g
ON g.year=cd.year
WHERE g.year>=1800 AND g.year<=2000 AND cd.year>=1800 AND
cd.year<=2000 AND cd.city='Los Angeles' AND cd.country='United States'
ORDER BY cd.year
```

Next, I downloaded the results in CSV file and opened it on Excel spreadsheet to calculate the moving average for 10 years. To do that, first I created two new columns called 10-year MA for LA, and 10-year MA for Global. From there I used the average function to calculate the 10 year moving averages for both columns. Afterwards, I created a line chart below. One of the key considerations to visualize the trends in my project involved getting a dataset for 200 years. If I used the datasets for 10 years, I would lose some observations. The reason why I used 200 years is to be able to have thorough analyzes on the overall trend of global and local temperatures.

Here is the screenshot of the excel spreadsheet I used to calculate the moving averages and created the line chart.



Data Visualization:



Observations:

The Los Angeles, USA average temperature is hotter compared to the global temperature average. The difference between global temperature and Los Angeles, USA temperatures has been consistent, and both observations show that the world temperature trend is getting hotter.

Yet, the average temperature in Los Angeles, USA has been more volatile compared to global temperatures. For example, the LA temperature data shows there was a temperature change from 16 Celsius to around 15 Celsius in late 1800's.

The data shows that the changes in my city's temperature over time shows upward trend where the temperature rise. Celsius and the average temperature was approximately 15 Celsius beginning of the 1800's and since 1970's temperature has been increasing over 16 Celsius. The similar scenario can be seen in global temperatures as well where the temperature rise was around 8 Celsius beginning of the 1800's and from 1970's it can be detected the temperature rise from 8 Celsius to approximately going upwards to 10 Celsius.

Overall, the trend for the world temperature shows the world is getting hotter, and our observation from the above data confirms this statement. My observation from the above data shows that Global temperatures and Los Angeles temperatures between the years of 1800-2000 show the upward trend specifically the rise in temperature has been exponentially rising since 1970's. One explanation for this trend perhaps the effect of climate change that is expected to bring hotter temperatures.