Explore Weather Trend Project Rubric:

Explore Weather Trends

Analysis

CRITERIA	MEETS SPECIFICATIONS
Student is able to extract data from a database using SQL.	• The SQL query used to extract the data is included. • The query runs without error and pulls the intended data.
Student is able to manipulate data in a spreadsheet or similar tool.	Moving averages are calculated to be used in the line chart.
Student is able to create a clear data visualization.	• A line chart is included in the submission. • The chart and its axes have titles, and there's a clear legend (if applicable).
Student is able to interpret a data visualization.	• The student includes four observations about their provided data visualization. • The four observations are accurate.

SQL Queries:

Select City

```
SELECT city
FROM city_list
WHERE country = 'United States'
```

Select City Data

```
SELECT year, avg_temp
FROM city_data
WHERE city = 'San Jose'
ORDER BY year
```

Select All Global Data

```
SELECT year, avg_temp
FROM global_data
ORDER BY year
```

Select Global Data for Same Year Interval as City Data

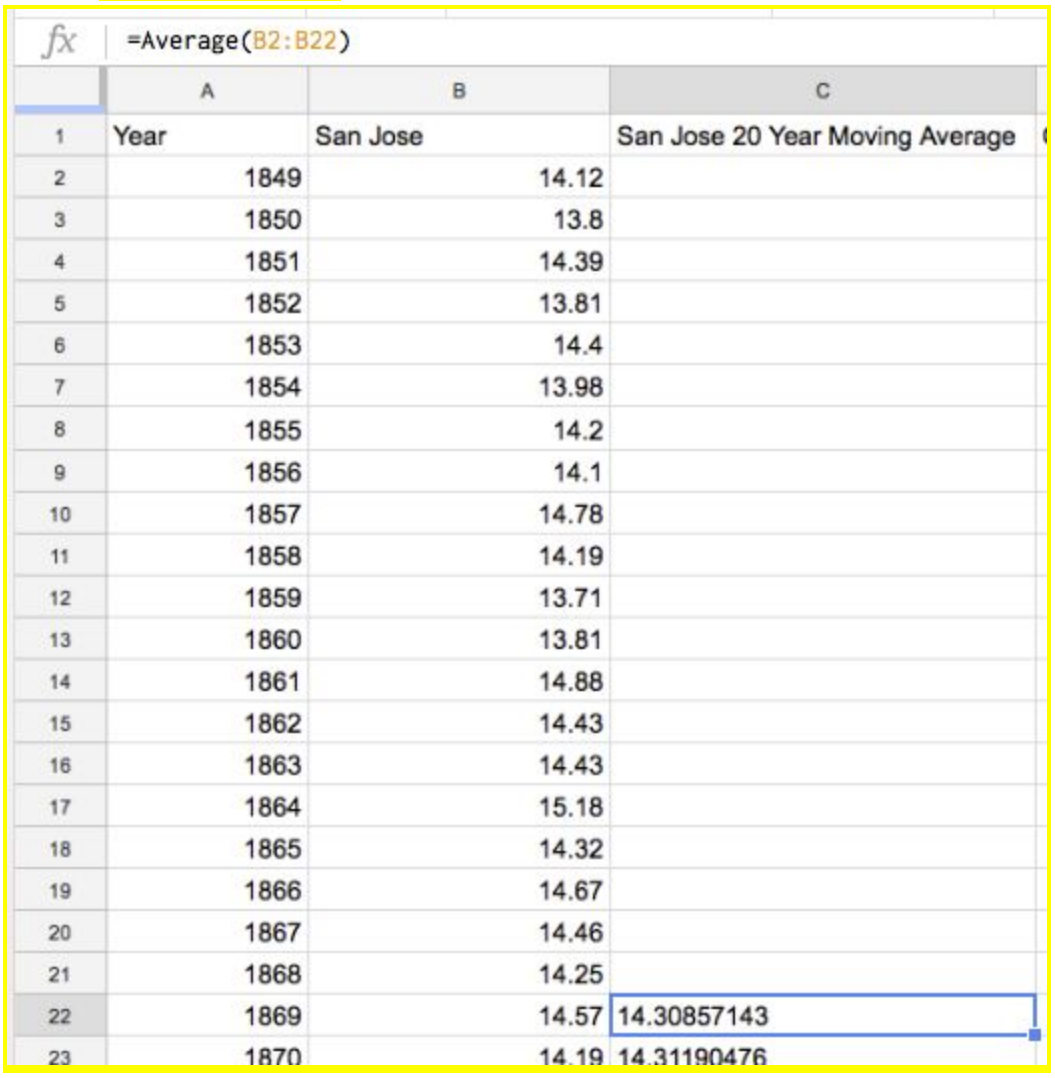
```
SELECT year, avg_temp
FROM global_data
WHERE year BETWEEN 1849 AND 2013
ORDER BY year
```

Tools:

SQL, **Google Sheets** for Visualization.

Used **20** years as the moving average calculation.

Review Feedback:

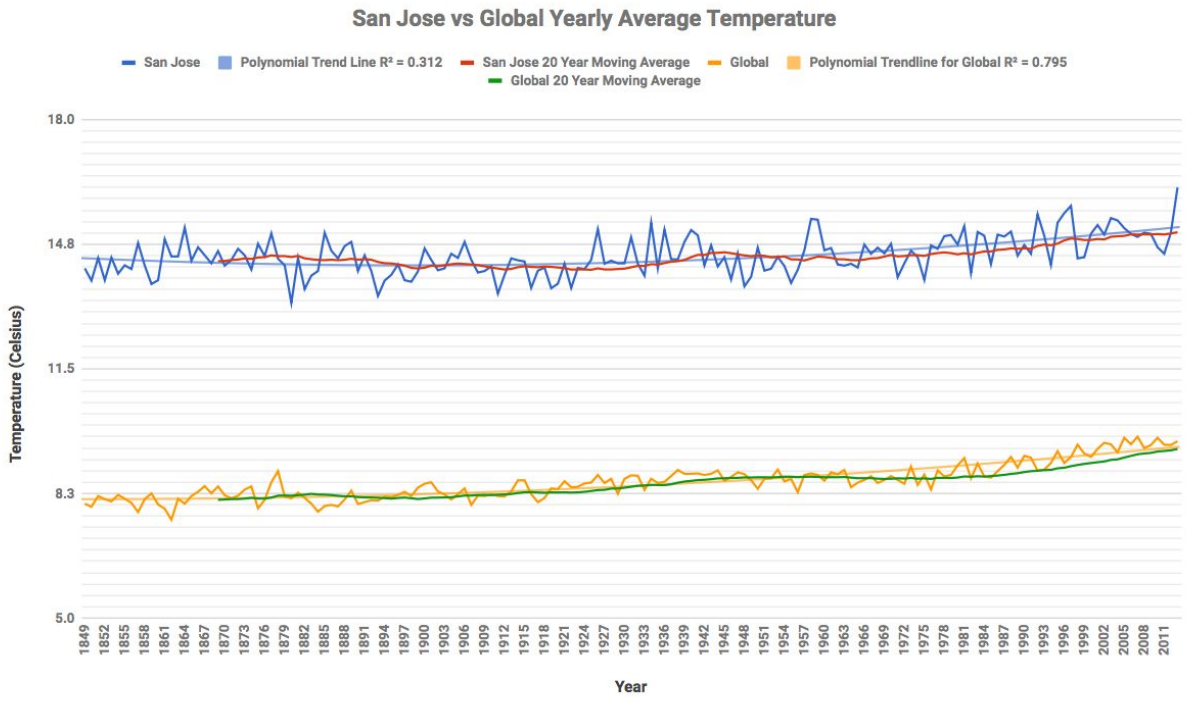


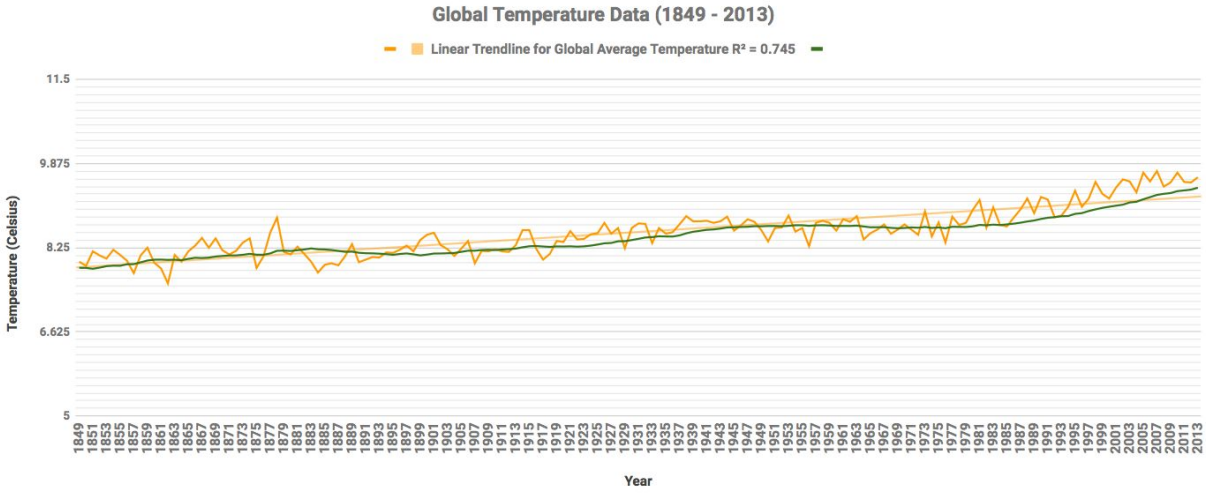
fx =Average(B2:B22)

	A	B	C
1	Year	San Jose	San Jose 20 Year Moving Average
2	1849	14.12	
3	1850	13.8	
4	1851	14.39	
5	1852	13.81	
6	1853	14.4	
7	1854	13.98	
8	1855	14.2	
9	1856	14.1	
10	1857	14.78	
11	1858	14.19	
12	1859	13.71	
13	1860	13.81	
14	1861	14.88	
15	1862	14.43	
16	1863	14.43	
17	1864	15.18	
18	1865	14.32	
19	1866	14.67	
20	1867	14.46	
21	1868	14.25	
22	1869	14.57	14.30857143
23	1870	14.19	14.31190476

Used **polynomial** trendline as it had the best R Squared value.

Data Visualization:





Observations:

1) San Jose is warmer than the global average temperature.

2) There is so much variation in the global temperature data before 1849 I question the accuracy for drawing meaningful observations. R Squared is very low 0.029 for 1750 - 1849 vs 0.745 for 1849 - 2015.

3) The global average temperature is increasing faster relative to the increase in the San Jose average temperature (For years > 1849).

City	Beginning 20 year moving average	Ending 20 year moving average	Rate of Change
San Jose	14.3	15.06	5.31%
Global	8.08	9.41	16.46%

4) San Jose has more variation in yearly average temperature. (For years > 1849).

Yearly Average Temperature	STDDEVP	VARP
San Jose	50.34%	25.34%
Global	45.88%	21.05%

5) The global data has more variation in the 20 year moving average temperature. (For years > 1849).

20 Year Moving Average Temperature	STDDEVP	VARP
San Jose	25.14%	6.32%
Global	33.78%	11.41%

6) There is a positive correlation for San Jose and global temperatures. The correlation coefficient for 20 year moving average is stronger than the yearly average.

Data	Correlation Coefficient between San Jose and Global Temperature
Yearly Average	53.60%
20 Year Moving Average	86.31%