Exploring Weather Trends Project 1

The tools that I use: Excel
CSV files: city_data.csv, city_list.csv, global_data.csv

Steps and SQL that I used to extract the data from the data base

1) Get the data from city list and discover what is the nearest city to me.

SELECT *

From city_list

The city nearest to me is San jose, california

2) Get the data from city_data regarding city ”San jose”

SELECT *

FROM city_data

WHERE city = 'San Jose';

3) Get the global data.

SELECT *

FROM global_data;

Download all these to csv files and then open them up with Excel.

- What tools did you use for each step? (Python, SQL, Excel, etc)
- How did you calculate the moving average?
- What were your key considerations when deciding how to visualize the trends?
- **Line chart** with local and global temperature trends
- At least **four observations** about the similarities and/or differences in the trends

- **Below are the outline** of steps taken to prepare the data to be visualized in the chart

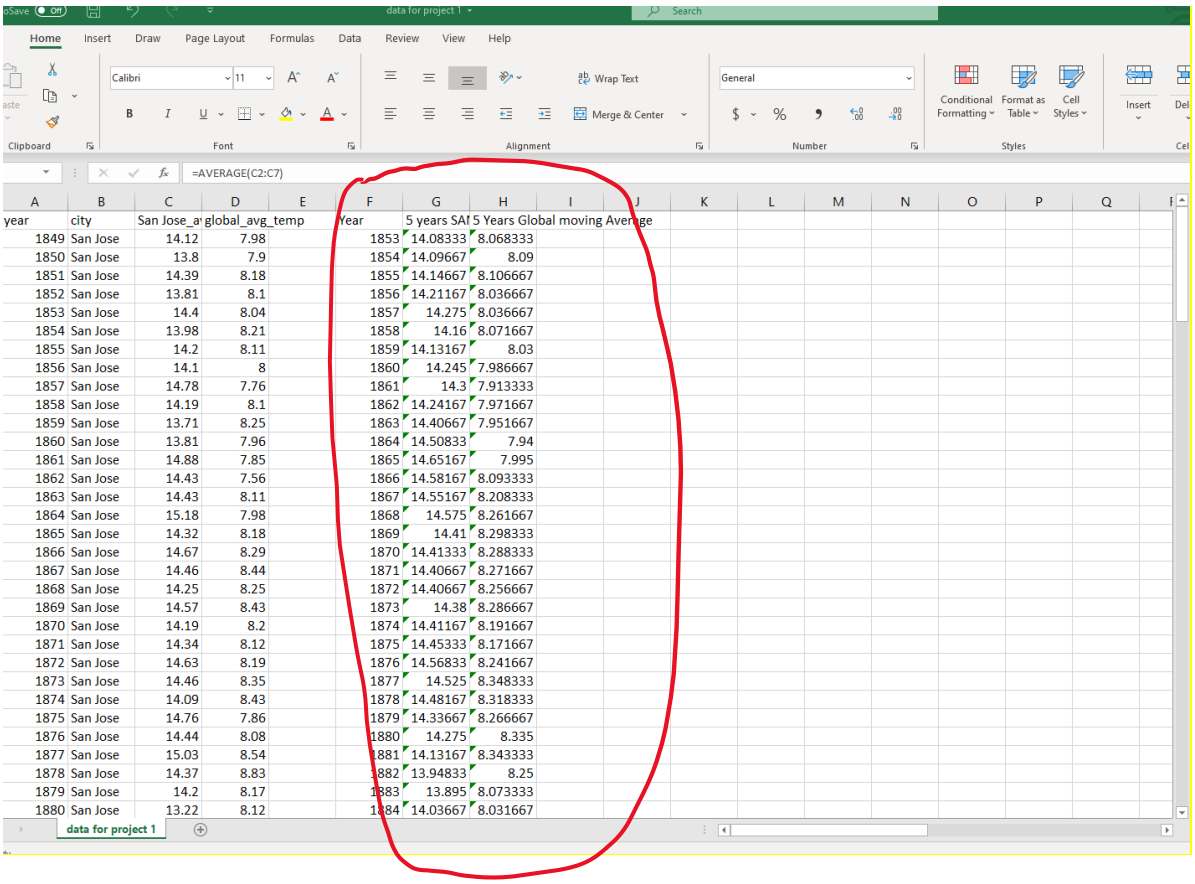
1) Open up the excel file city_list.csv to look up the nearest city to me and find that the nearest city to me is “San Jose”. Then open up the city_data.csv and global_data.csv in excel.

2) Notice that the “year” in city_data.csv is range from 1849 to 2013. Open the global_data.csv sheet . Select the data (the “year” and “avg_temp”) between 1849 to 2013 and then copy data to city_data sheet. Remove the last two data “2014 “and “2015” and their avg_temp since the city data does not contain any data for 2014 and 2015.

3) go through the data and check if there is any missing data. Since we already have the year column, we will need to delete one of the “year” column. We also do not need the “country” column for the line chart, so we will delete it as well. Name the **avg_temp** data that we copied from **global_data.csv** as **global_avg**. The other **avg_temp** in city_data sheet we just named it as “San Jose avg_temp”.

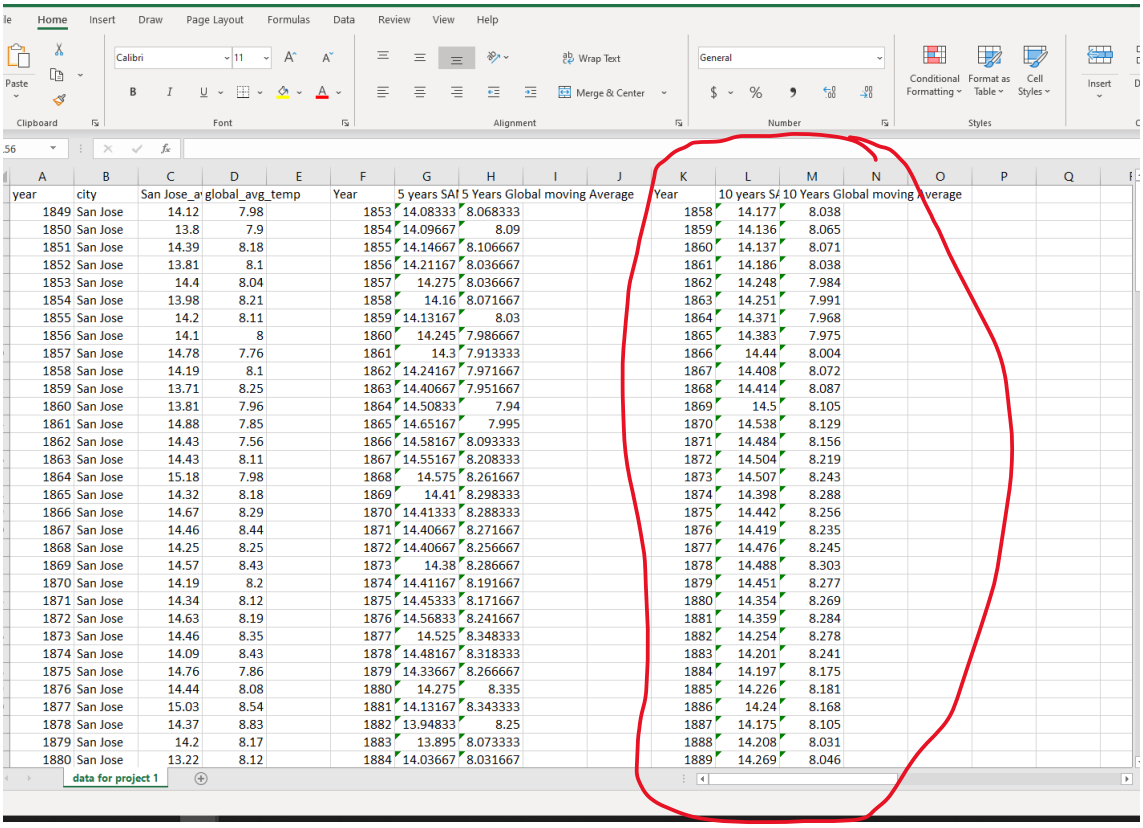
4) In order to find the 5 year 10 year moving average. I typed the name of the column to be “ 5 years moving Average for San Jose”, column H as “10 years moving Average for Global”.

The formula that I used to calculate the 5 years moving average are “ =AVERAGE(C2:C7)” and “= AVERAGE (D2:D7). The partial of the screenshot is attached below.



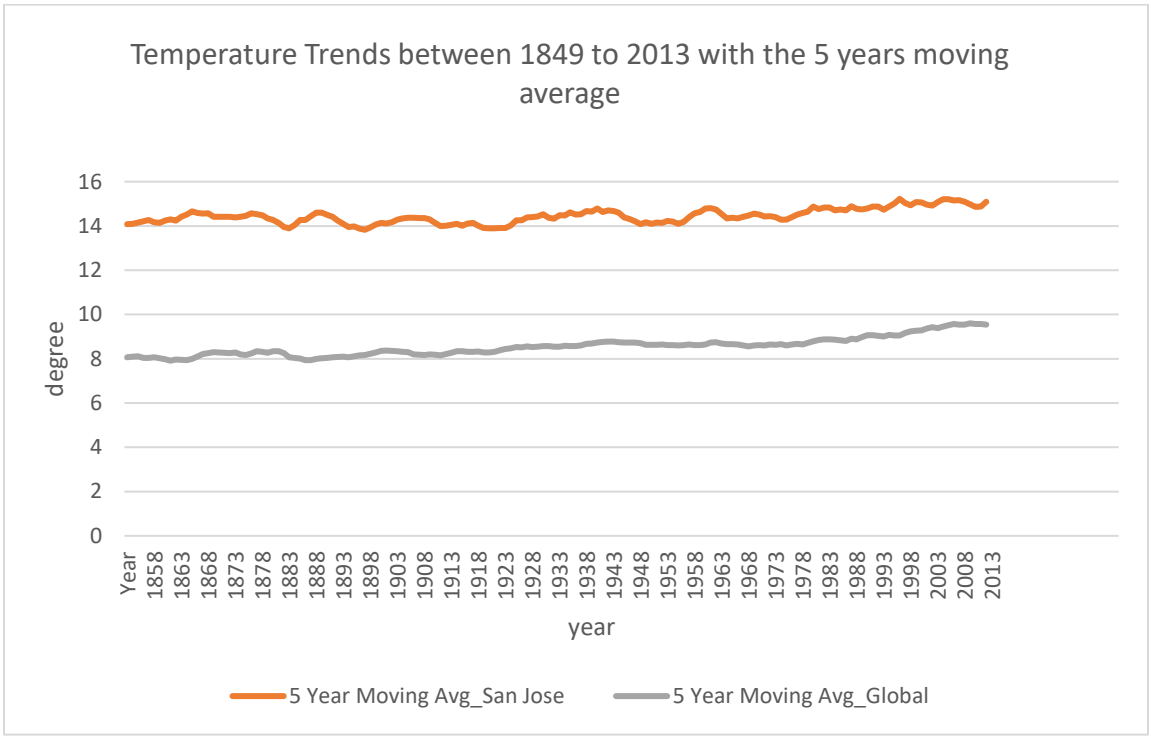
year	city	San Jose_a	global_avg_temp		Year	5 years SAI	5 Years Global moving Average
1849	San Jose	14.12	7.98		1853	14.08333	8.068333
1850	San Jose	13.8	7.9		1854	14.09667	8.09
1851	San Jose	14.39	8.18		1855	14.14667	8.106667
1852	San Jose	13.81	8.1		1856	14.21167	8.036667
1853	San Jose	14.4	8.04		1857	14.275	8.036667
1854	San Jose	13.98	8.21		1858	14.16	8.071667
1855	San Jose	14.2	8.11		1859	14.13167	8.03
1856	San Jose	14.1	8		1860	14.245	7.986667
1857	San Jose	14.78	7.76		1861	14.3	7.913333
1858	San Jose	14.19	8.1		1862	14.24167	7.971667
1859	San Jose	13.71	8.25		1863	14.40667	7.951667
1860	San Jose	13.81	7.96		1864	14.50833	7.94
1861	San Jose	14.88	7.85		1865	14.65167	7.995
1862	San Jose	14.43	7.56		1866	14.58167	8.093333
1863	San Jose	14.43	8.11		1867	14.55167	8.208333
1864	San Jose	15.18	7.98		1868	14.575	8.261667
1865	San Jose	14.32	8.18		1869	14.41	8.298333
1866	San Jose	14.67	8.29		1870	14.41333	8.288333
1867	San Jose	14.46	8.44		1871	14.40667	8.271667
1868	San Jose	14.25	8.25		1872	14.40667	8.256667
1869	San Jose	14.57	8.43		1873	14.38	8.286667
1870	San Jose	14.19	8.2		1874	14.41167	8.191667
1871	San Jose	14.34	8.12		1875	14.45333	8.171667
1872	San Jose	14.63	8.19		1876	14.56833	8.241667
1873	San Jose	14.46	8.35		1877	14.525	8.348333
1874	San Jose	14.09	8.43		1878	14.48167	8.318333
1875	San Jose	14.76	7.86		1879	14.33667	8.266667
1876	San Jose	14.44	8.08		1880	14.275	8.335
1877	San Jose	15.03	8.54		1881	14.13167	8.343333
1878	San Jose	14.37	8.83		1882	13.94833	8.25
1879	San Jose	14.2	8.17		1883	13.895	8.073333
1880	San Jose	13.22	8.12		1884	14.03667	8.031667

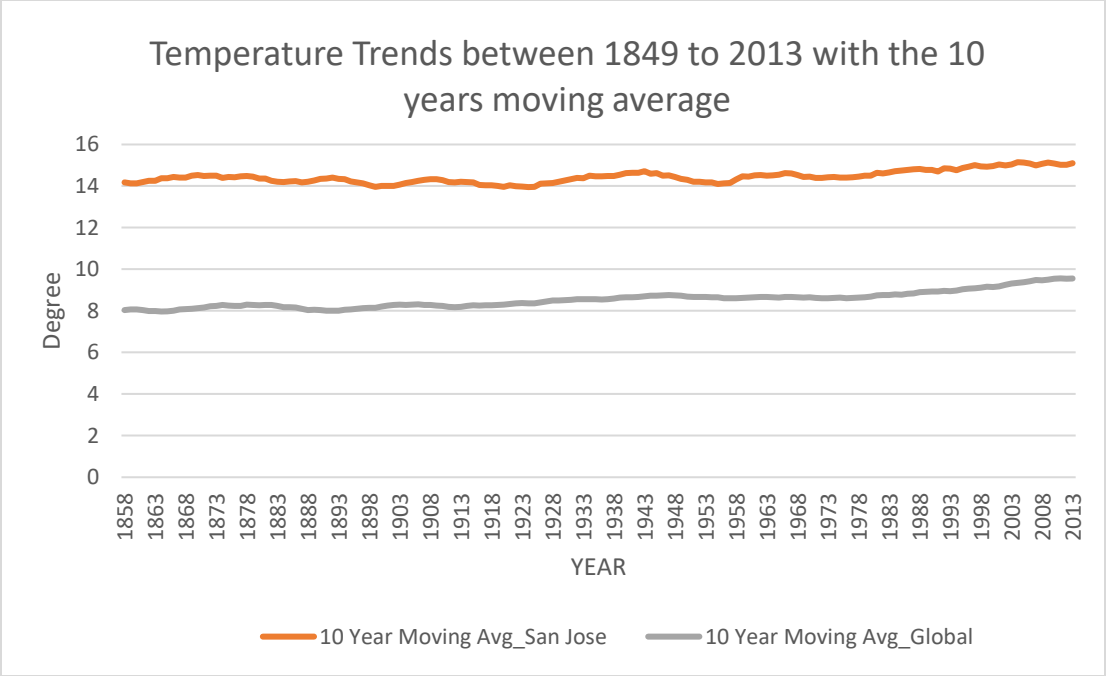
The formula that I used to calculate the 10 years moving average are " =AVERAGE(C2:C11)" and "= AVERAGE (D2:D11). The partial of the screenshot is attached below. You can find the data at column K to M. A partial of the screenshot is attached below.



year	city	San Jose_a	global_avg_temp	Year	5 years SA	5 Years Global moving Average	Year	10 years SA	10 Years Global moving Average
1849	San Jose	14.12	7.98	1853	14.08333	8.068333	1858	14.177	8.038
1850	San Jose	13.8	7.9	1854	14.09667	8.09	1859	14.136	8.065
1851	San Jose	14.39	8.18	1855	14.14667	8.106667	1860	14.137	8.071
1852	San Jose	13.81	8.1	1856	14.21167	8.036667	1861	14.186	8.038
1853	San Jose	14.4	8.04	1857	14.275	8.036667	1862	14.248	7.984
1854	San Jose	13.98	8.21	1858	14.16	8.071667	1863	14.251	7.991
1855	San Jose	14.2	8.11	1859	14.13167	8.03	1864	14.371	7.968
1856	San Jose	14.1	8	1860	14.245	7.986667	1865	14.383	7.975
1857	San Jose	14.78	7.76	1861	14.3	7.913333	1866	14.44	8.004
1858	San Jose	14.19	8.1	1862	14.24167	7.971667	1867	14.408	8.072
1859	San Jose	13.71	8.25	1863	14.40667	7.951667	1868	14.414	8.087
1860	San Jose	13.81	7.96	1864	14.50833	7.94	1869	14.5	8.105
1861	San Jose	14.88	7.85	1865	14.65167	7.995	1870	14.538	8.129
1862	San Jose	14.43	7.56	1866	14.58167	8.093333	1871	14.484	8.156
1863	San Jose	14.43	8.11	1867	14.55167	8.208333	1872	14.504	8.219
1864	San Jose	15.18	7.98	1868	14.575	8.261667	1873	14.507	8.243
1865	San Jose	14.32	8.18	1869	14.41	8.298333	1874	14.398	8.288
1866	San Jose	14.67	8.29	1870	14.41333	8.288333	1875	14.442	8.256
1867	San Jose	14.46	8.44	1871	14.40667	8.271667	1876	14.419	8.235
1868	San Jose	14.25	8.25	1872	14.40667	8.256667	1877	14.476	8.245
1869	San Jose	14.57	8.43	1873	14.38	8.286667	1878	14.488	8.303
1870	San Jose	14.19	8.2	1874	14.41167	8.191667	1879	14.451	8.277
1871	San Jose	14.34	8.12	1875	14.45333	8.171667	1880	14.354	8.269
1872	San Jose	14.63	8.19	1876	14.56833	8.241667	1881	14.359	8.284
1873	San Jose	14.46	8.35	1877	14.525	8.348333	1882	14.254	8.278
1874	San Jose	14.09	8.43	1878	14.48167	8.318333	1883	14.201	8.241
1875	San Jose	14.76	7.86	1879	14.33667	8.266667	1884	14.197	8.175
1876	San Jose	14.44	8.08	1880	14.275	8.335	1885	14.226	8.181
1877	San Jose	15.03	8.54	1881	14.13167	8.343333	1886	14.24	8.168
1878	San Jose	14.37	8.83	1882	13.94833	8.25	1887	14.175	8.105
1879	San Jose	14.2	8.17	1883	13.895	8.073333	1888	14.208	8.031
1880	San Jose	13.22	8.12	1884	14.03667	8.031667	1889	14.269	8.046

5. Then based on the data, I created the following 5 years, 10 years, Moving average for San Jose and global ‘s temperature trend.





At least **four observations** about the similarities and/or differences in the trends

1) San Jose City overall has a lower temperature degree compare to the Global temperature.
2) The Temperature trend in the two sets of comparisons are steady growth.
3) The temperature trend between San Jose City and global is around 6 degrees.
4) The highest temperature trend in San Jose is in year 1898 with 14.5 degree and the global is in year 2009 9.6 degree