Udacity Data Analytics Term 1

Project 1: Explore Weather Trends

1. **Extract Data from database using SQL:**

City Data:

```
SELECT year, city, country, avg_temp
FROM city_data
WHERE country = 'United States' AND city = 'San Jose'
```

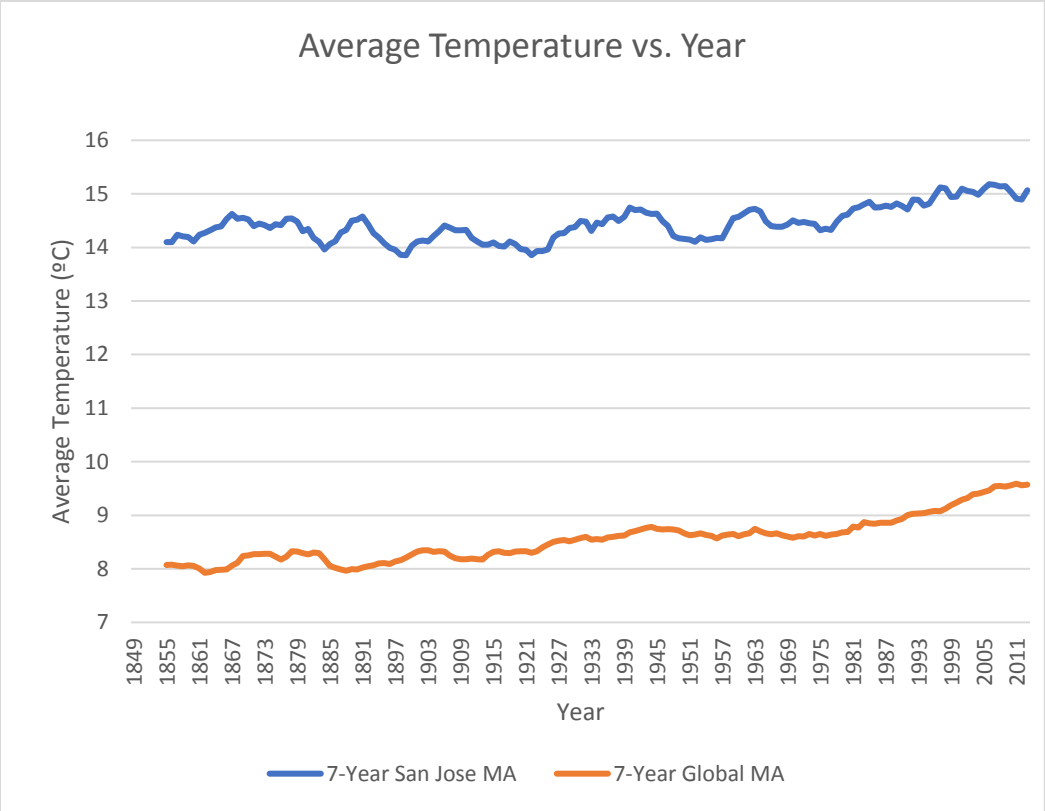
Global Data:

```
SELECT year,avg_temp
FROM global_data
WHERE year>=1849 AND year<=2013;
```

2. **Manipulate data in spreadsheet(Excel):**

city_avg_temp	7-Year San Jose MA	global_avg_temp	7-Year Global MA
14.12		7.98	
13.8		7.9	
14.39		8.18	
13.81		8.1	
14.4		8.04	
13.98		8.21	
14.2	14.1	8.11	8.074285714
14.1	14.09714286	8	8.077142857
14.78	14.23714286	7.76	8.057142857
14.19	14.20857143	8.1	8.045714286
13.71	14.19428571	8.25	8.067142857
13.81	14.11	7.96	8.055714286
14.88	14.23857143	7.85	8.004285714
14.43	14.27142857	7.56	7.925714286
14.43	14.31857143	8.11	7.941428571
15.18	14.37571429	7.98	7.972857143
14.32	14.39428571	8.18	=AVERAGE(F12:F18)

3. **Data Visualization:**



4. **Interpret Data**
    1. **Volatility:** San Jose has a more volatile 7-year moving average trend when compared to the 7-year global moving average, seen through the numerous hills and valleys. For example, from year 1879 to 1903, San Jose experienced two valleys (~14ºC) and one hill (~14.5ºC), whereas the global moving average line only had one valleys.
    2. **Change in Temperature:** From 1849 to 2011, the change in temperature for the global line was ~ 2ºC and the change in temperature in San Jose was ~1ºC. This shows that the global temperature of each is increasing at about double the rate.
    3. **Temperature Range:** San Jose temperatures are in the 14ºC to 15ºC range, whereas global temperature range between 8ºC to 10ºC
    4. **Temperature Spike:** From 1921 to 2011, both San Jose and Globe experience a somewhat steady increase. Whereas, between 1849 to 1921, the was constantly bouncing between a 14ºC to 14.5ºC range and 8ºC range, respectively.