

# Udacity Data Analyst Nanodegree

## Project No:1 Explore Weather Trends

Steps Followed to complete the project:


- Firstly, on the Udacity project workspace extracted the data from databases by applying the following SQL queries:

1. From city data table first check the count of records by using the inline query:

```
select count(*) from city_data
```

**Output: 70792**

Screenshot:

Input		HISTORY ▾	MENU ▾
SCHEMA 	<div>city_data ▾</div> <div>city_list ▾</div> <div>global_data ▾</div>	<pre>1 select count(*) from city_data 2</pre>	
		Success!	EVALUATE
Output 1 results		<a href="#">Download CSV</a>	
count			
70792			

2. Secondly fetched data from city data table by using below query:

```
select year,city,country,avg_temp from city_data where country='United States' and city='San Jose'
```

## Output Screenshot:

Input

HISTORY ▾MENU ▾

SCHEMA ↻

city\_data ▾

city\_list ▾

global\_data ▾

1 `select year,city,country,avg_temp from city_data where`

2 `country='United States' and city='San Jose'`

Success!

EVALUATE

Output 165 results

Download CSV

year	city	country	avg_temp
1849	San Jose	United States	14.12
1850	San Jose	United States	13.80
1851	San Jose	United States	14.39
1852	San Jose	United States	13.81
1853	San Jose	United States	14.40
1854	San Jose	United States	13.98
1855	San Jose	United States	14.20
1856	San Jose	United States	14.10

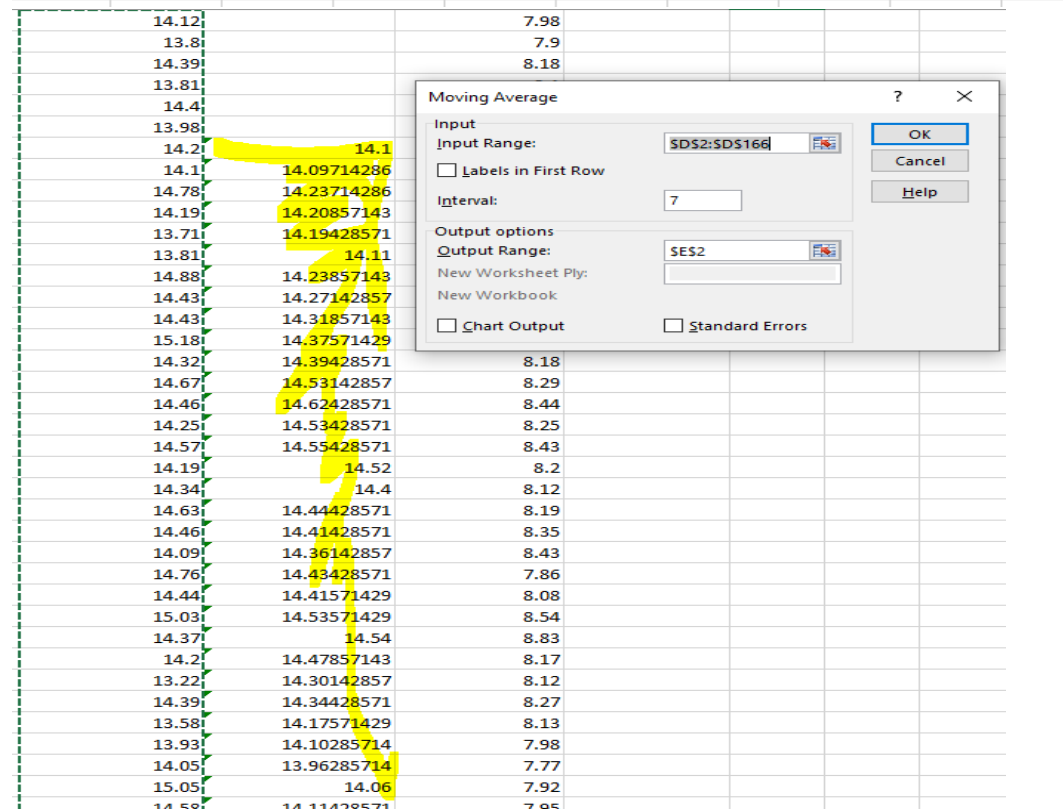
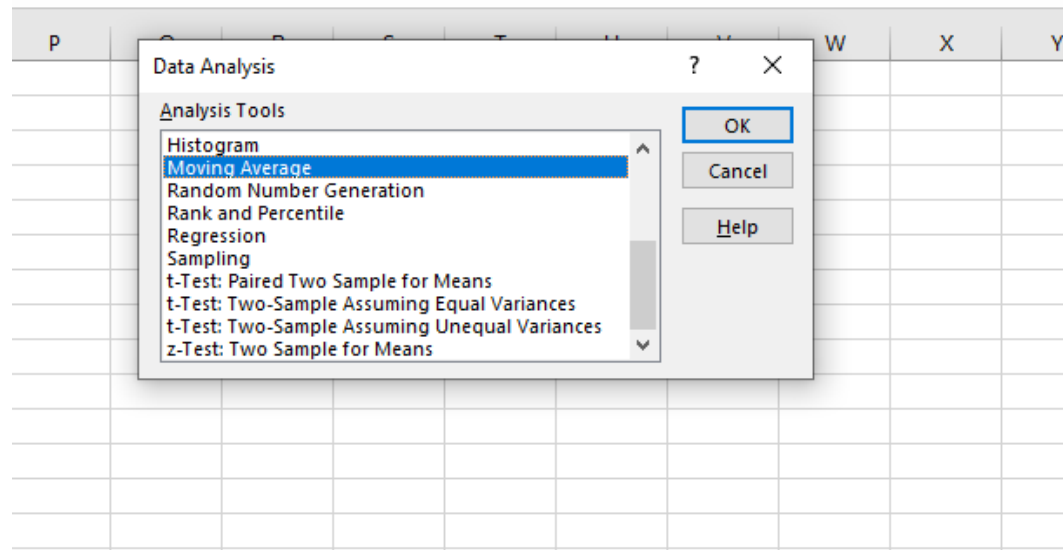
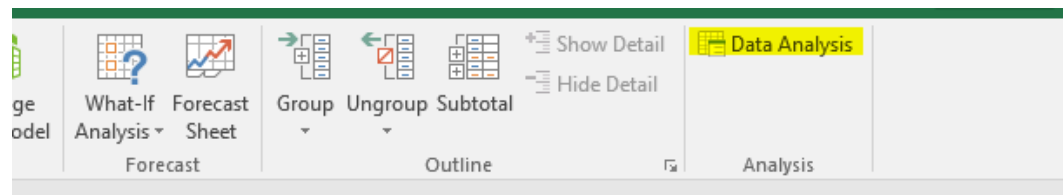
↑ Menu ↗ Expand

3. Lastly using the Global Data table for extracting the data. Likewise, the query used is following:  
**select year,avg\_temp from global\_data  
where year > 1849 and year<2013**

## Output Screenshot:

Input		HISTORY ▾	MENU ▾
SCHEMA	↻	<pre>1 select year,avg_temp from global_data 2 where year &gt; 1849 and year&lt;2013 3</pre>	
city_data	▾		
city_list	▾		
global_data	▾		
		Success!	EVALUATE
Output		163 results	Download CSV
year	avg_temp		
1850	7.90		
1851	8.18		
1852	8.10		
1853	8.04		
1854	8.21		
1855	8.11		
1856	8.00		
1857	7.76		

4. Lastly downloaded the files in the CSV format from the workspace to my local.
- Second step is to open the city file and insert data from global data file i.e. from year 1849 to 2012.
  1. Create a new column named 7 years San Jose MA and find the moving average for 7 intervals using data analysis toolkit pack in excel the screenshots are available below:



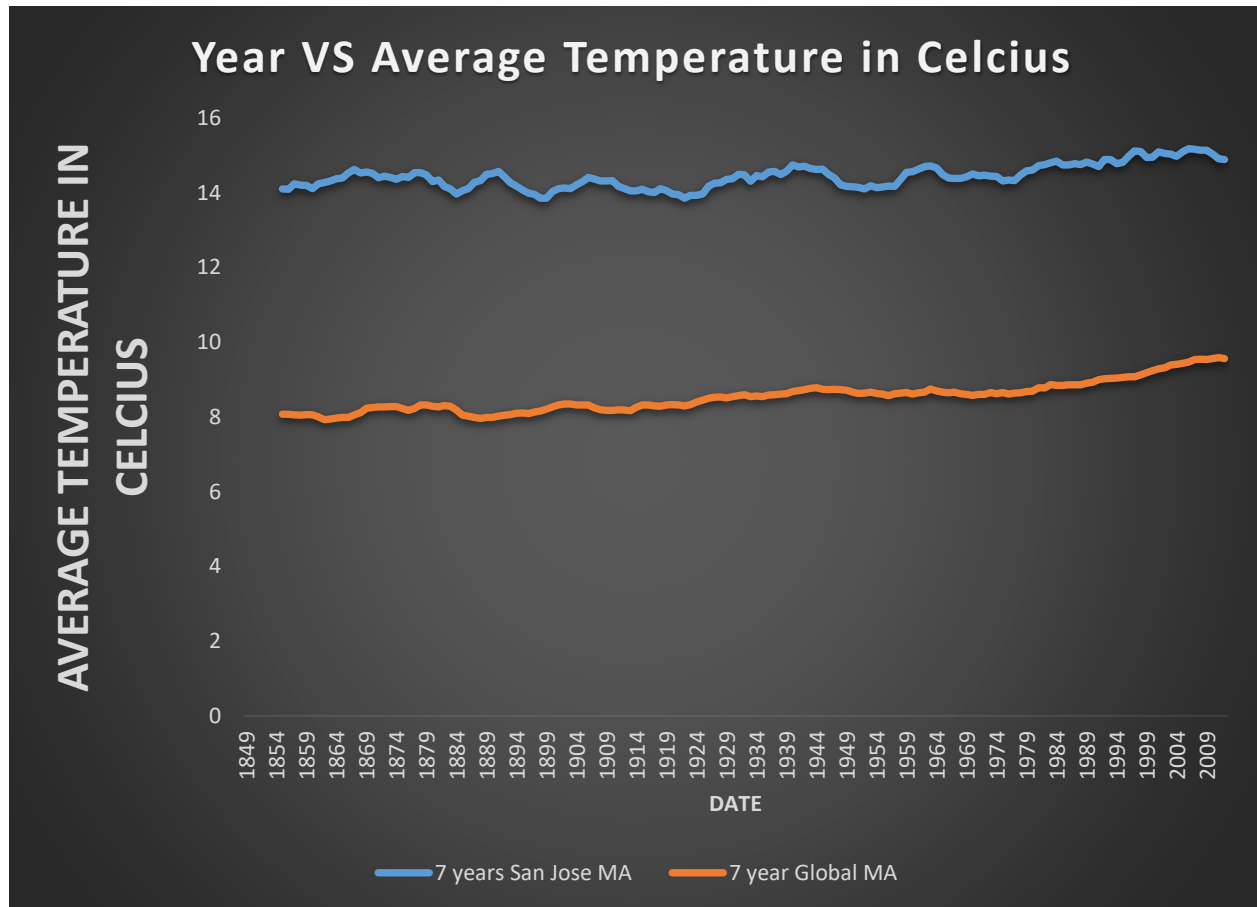
This Gives the following output

2. The same has been done for the Global MA to find moving average for 7 years. The screen shot is below

year	city	country	avg_temp San Jose	7 years San Jose MA	Global Avg_temp	7 year Global MA
1849	San Jose	United States	14.12		7.98	
1850	San Jose	United States	13.8		7.9	
1851	San Jose	United States	14.39		8.18	
1852	San Jose	United States	13.81		8.1	
1853	San Jose	United States	14.4		8.04	
1854	San Jose	United States	13.98		8.21	
1855	San Jose	United States	14.2	14.1	8.11	8.074285714
1856	San Jose	United States	14.1	14.09714286	8	8.077142857
1857	San Jose	United States	14.78	14.23714286	7.76	8.057142857
1858	San Jose	United States	14.19	14.20857143	8.1	8.045714286
1859	San Jose	United States	13.71	14.19428571	8.25	8.067142857
1860	San Jose	United States	13.81	14.11	7.96	8.055714286
1861	San Jose	United States	14.88	14.23857143	7.85	8.004285714
1862	San Jose	United States	14.43	14.27142857	7.56	7.925714286
1863	San Jose	United States	14.43	14.31857143	8.11	7.941428571
1864	San Jose	United States	15.18	14.37571429	7.98	7.972857143
1865	San Jose	United States	14.32	14.39428571	8.18	7.984285714
1866	San Jose	United States	14.67	14.53142857	8.29	7.99
1867	San Jose	United States	14.46	14.62428571	8.44	8.058571429
1868	San Jose	United States	14.25	14.53428571	8.25	8.115714286
1869	San Jose	United States	14.57	14.55428571	8.43	8.24
1870	San Jose	United States	14.19	14.52	8.2	8.252857143
1871	San Jose	United States	14.34	14.4	8.12	8.272857143
1872	San Jose	United States	14.63	14.44428571	8.19	8.274285714
1873	San Jose	United States	14.46	14.41428571	8.35	8.282857143
1874	San Jose	United States	14.09	14.36142857	8.43	8.281428571
1875	San Jose	United States	14.76	14.43428571	7.86	8.225714286
1876	San Jose	United States	14.44	14.41571429	8.08	8.175714286
1877	San Jose	United States	15.03	14.53571429	8.54	8.224285714
1878	San Jose	United States	14.37	14.54	8.83	8.325714286
1879	San Jose	United States	14.2	14.47857143	8.17	8.322857143
1880	San Jose	United States	13.22	14.30142857	8.12	8.29
1881	San Jose	United States	14.39	14.34428571	8.27	8.267142857
1882	San Jose	United States	13.58	14.17571429	8.13	8.305714286
1883	San Jose	United States	13.93	14.10285714	7.98	8.291428571
1884	San Jose	United States	14.05	13.96285714	7.77	8.181428571
1885	San Jose	United States	15.05	14.06	7.92	8.051428571
1886	San Jose	United States	14.58	14.11428571	7.95	8.02

- Step 3: Visualizations and findings:

1. Create a line chart between Year and Average temperature in Celsius where we compare 7 years Average San Jose moving average and Global Moving average temperatures. The screenshot of the line chart is inline.



- Findings:

- 1 **Temperature Change:** From 1849 to 2011, the world line's temperature decreased by 2°C, whereas San Jose's temperature decreased by 1°C. This demonstrates that each's global temperature is rising at a rate that is roughly twice as fast.

- 2 **Temperature Range:** San Jose experiences temperatures between 14 and 15 degrees Celsius, while the world as a whole experiences temperature between 8 and 10 degrees Celsius.
- 3 **Spike in Temperature:** From 1921 to 2011, temperatures in San Jose and Globe rose gradually. Between 1849 and 1921, however, the temperature fluctuated continually between a range of 8°C and 14°C, respectively.
- 4 **Over all Conclusion:** Due to the multiple hills and valleys, San Jose's 7-year moving average trend is more unpredictable than the 7-year worldwide moving average trend. For instance, San Jose experienced two valleys (14°C each) and one hill (14.5°C), whereas the worldwide moving average line only experienced one valley between the years of 1879 and 1903.

The PDF of EXCEL DATA WAS PROVIDED BELOW

year	city	country	avg_temp San Jose	7 years San Jose MA	Global Avg_temp
1849	San Jose	United States	14.12		7.98
1850	San Jose	United States	13.8		7.9
1851	San Jose	United States	14.39		8.18
1852	San Jose	United States	13.81		8.1
1853	San Jose	United States	14.4		8.04
1854	San Jose	United States	13.98		8.21
1855	San Jose	United States	14.2	14.1	8.11
1856	San Jose	United States	14.1	14.09714286	8
1857	San Jose	United States	14.78	14.23714286	7.76
1858	San Jose	United States	14.19	14.20857143	8.1
1859	San Jose	United States	13.71	14.19428571	8.25
1860	San Jose	United States	13.81	14.11	7.96
1861	San Jose	United States	14.88	14.23857143	7.85
1862	San Jose	United States	14.43	14.27142857	7.56
1863	San Jose	United States	14.43	14.31857143	8.11
1864	San Jose	United States	15.18	14.37571429	7.98
1865	San Jose	United States	14.32	14.39428571	8.18
1866	San Jose	United States	14.67	14.53142857	8.29
1867	San Jose	United States	14.46	14.62428571	8.44
1868	San Jose	United States	14.25	14.53428571	8.25
1869	San Jose	United States	14.57	14.55428571	8.43
1870	San Jose	United States	14.19	14.52	8.2
1871	San Jose	United States	14.34	14.4	8.12
1872	San Jose	United States	14.63	14.44428571	8.19
1873	San Jose	United States	14.46	14.41428571	8.35
1874	San Jose	United States	14.09	14.36142857	8.43
1875	San Jose	United States	14.76	14.43428571	7.86
1876	San Jose	United States	14.44	14.41571429	8.08
1877	San Jose	United States	15.03	14.53571429	8.54
1878	San Jose	United States	14.37	14.54	8.83
1879	San Jose	United States	14.2	14.47857143	8.17
1880	San Jose	United States	13.22	14.30142857	8.12
1881	San Jose	United States	14.39	14.34428571	8.27
1882	San Jose	United States	13.58	14.17571429	8.13
1883	San Jose	United States	13.93	14.10285714	7.98
1884	San Jose	United States	14.05	13.96285714	7.77
1885	San Jose	United States	15.05	14.06	7.92
1886	San Jose	United States	14.58	14.11428571	7.95
1887	San Jose	United States	14.38	14.28	7.91
1888	San Jose	United States	14.7	14.32428571	8.09
1889	San Jose	United States	14.81	14.5	8.32
1890	San Jose	United States	14.05	14.51714286	7.97
1891	San Jose	United States	14.46	14.57571429	8.02
1892	San Jose	United States	14.05	14.43285714	8.07
1893	San Jose	United States	13.4	14.26428571	8.06
1894	San Jose	United States	13.8	14.18142857	8.16



1895	San Jose	United States	13.95	14.07428571	8.15
1896	San Jose	United States	14.22	13.99	8.21
1897	San Jose	United States	13.81	13.95571429	8.29
1898	San Jose	United States	13.77	13.85714286	8.18
1899	San Jose	United States	14.04	13.85571429	8.4
1900	San Jose	United States	14.64	14.03285714	8.5
1901	San Jose	United States	14.34	14.11	8.54
1902	San Jose	United States	14.07	14.12714286	8.3
1903	San Jose	United States	14.12	14.11285714	8.22
1904	San Jose	United States	14.5	14.21142857	8.09
1905	San Jose	United States	14.39	14.3	8.23
1906	San Jose	United States	14.81	14.41	8.38
1907	San Jose	United States	14.34	14.36714286	7.95
1908	San Jose	United States	14.01	14.32	8.19
1909	San Jose	United States	14.05	14.31714286	8.18
1910	San Jose	United States	14.17	14.32428571	8.22
1911	San Jose	United States	13.46	14.17571429	8.18
1912	San Jose	United States	13.95	14.11285714	8.17
1913	San Jose	United States	14.38	14.05142857	8.3
1914	San Jose	United States	14.33	14.05	8.59
1915	San Jose	United States	14.3	14.09142857	8.59
1916	San Jose	United States	13.61	14.02857143	8.23
1917	San Jose	United States	14.06	14.01285714	8.02
1918	San Jose	United States	14.14	14.11	8.13
1919	San Jose	United States	13.6	14.06	8.38
1920	San Jose	United States	13.72	13.96571429	8.36
1921	San Jose	United States	14.24	13.95285714	8.57
1922	San Jose	United States	13.61	13.85428571	8.41
1923	San Jose	United States	14.13	13.92857143	8.42
1924	San Jose	United States	14.1	13.93428571	8.51
1925	San Jose	United States	14.34	13.96285714	8.53
1926	San Jose	United States	15.14	14.18285714	8.73
1927	San Jose	United States	14.24	14.25714286	8.52
1928	San Jose	United States	14.32	14.26857143	8.63
1929	San Jose	United States	14.25	14.36	8.24
1930	San Jose	United States	14.25	14.37714286	8.63
1931	San Jose	United States	14.93	14.49571429	8.72
1932	San Jose	United States	14.24	14.48142857	8.71
1933	San Jose	United States	13.93	14.30857143	8.34
1934	San Jose	United States	15.31	14.46142857	8.63
1935	San Jose	United States	14.12	14.43285714	8.52
1936	San Jose	United States	15.13	14.55857143	8.55
1937	San Jose	United States	14.36	14.57428571	8.7
1938	San Jose	United States	14.35	14.49142857	8.86
1939	San Jose	United States	14.81	14.57285714	8.76
1940	San Jose	United States	15.12	14.74285714	8.76
1941	San Jose	United States	14.98	14.69571429	8.77

1942	San Jose	United States	14.2	14.70714286	8.73
1943	San Jose	United States	14.72	14.64857143	8.76
1944	San Jose	United States	14.17	14.62142857	8.85
1945	San Jose	United States	14.41	14.63	8.58
1946	San Jose	United States	13.83	14.49	8.68
1947	San Jose	United States	14.51	14.40285714	8.8
1948	San Jose	United States	13.65	14.21285714	8.75
1949	San Jose	United States	13.9	14.17	8.59
1950	San Jose	United States	14.66	14.16142857	8.37
1951	San Jose	United States	14.06	14.14571429	8.63
1952	San Jose	United States	14.11	14.10285714	8.64
1953	San Jose	United States	14.42	14.18714286	8.87
1954	San Jose	United States	14.18	14.14	8.56
1955	San Jose	United States	13.74	14.15285714	8.63
1956	San Jose	United States	14.08	14.17857143	8.28
1957	San Jose	United States	14.59	14.16857143	8.73
1958	San Jose	United States	15.41	14.36142857	8.77
1959	San Jose	United States	15.39	14.54428571	8.73
1960	San Jose	United States	14.59	14.56857143	8.58
1961	San Jose	United States	14.65	14.63571429	8.8
1962	San Jose	United States	14.22	14.70428571	8.75
1963	San Jose	United States	14.19	14.72	8.86
1964	San Jose	United States	14.24	14.67	8.41
1965	San Jose	United States	14.14	14.48857143	8.53
1966	San Jose	United States	14.74	14.39571429	8.6
1967	San Jose	United States	14.5	14.38285714	8.7
1968	San Jose	United States	14.66	14.38428571	8.52
1969	San Jose	United States	14.51	14.42571429	8.6
1970	San Jose	United States	14.76	14.50714286	8.7
1971	San Jose	United States	13.89	14.45714286	8.6
1972	San Jose	United States	14.25	14.47285714	8.5
1973	San Jose	United States	14.58	14.45	8.95
1974	San Jose	United States	14.41	14.43714286	8.47
1975	San Jose	United States	13.82	14.31714286	8.74
1976	San Jose	United States	14.72	14.34714286	8.35
1977	San Jose	United States	14.63	14.32857143	8.85
1978	San Jose	United States	14.96	14.48142857	8.69
1979	San Jose	United States	14.99	14.58714286	8.73
1980	San Jose	United States	14.74	14.61	8.98
1981	San Jose	United States	15.22	14.72571429	9.17
1982	San Jose	United States	14	14.75142857	8.64
1983	San Jose	United States	15.07	14.80142857	9.03
1984	San Jose	United States	14.97	14.85	8.69
1985	San Jose	United States	14.23	14.74571429	8.66
1986	San Jose	United States	15	14.74714286	8.83
1987	San Jose	United States	14.95	14.77714286	8.99
1988	San Jose	United States	15.08	14.75714286	9.2

1989	San Jose	United States	14.45	14.82142857	8.92
1990	San Jose	United States	14.73	14.77285714	9.23
1991	San Jose	United States	14.5	14.70571429	9.18
1992	San Jose	United States	15.53	14.89142857	8.84
1993	San Jose	United States	14.97	14.88714286	8.87
1994	San Jose	United States	14.21	14.78142857	9.04
1995	San Jose	United States	15.31	14.81428571	9.35
1996	San Jose	United States	15.56	14.97285714	9.04
1997	San Jose	United States	15.75	15.11857143	9.2
1998	San Jose	United States	14.38	15.10142857	9.52
1999	San Jose	United States	14.41	14.94142857	9.29
2000	San Jose	United States	15.02	14.94857143	9.2
2001	San Jose	United States	15.25	15.09714286	9.41
2002	San Jose	United States	15	15.05285714	9.57
2003	San Jose	United States	15.43	15.03428571	9.53
2004	San Jose	United States	15.37	14.98	9.32
2005	San Jose	United States	15.17	15.09285714	9.7
2006	San Jose	United States	15.02	15.18	9.53
2007	San Jose	United States	14.94	15.16857143	9.73
2008	San Jose	United States	15.05	15.14	9.43
2009	San Jose	United States	15.02	15.14285714	9.51
2010	San Jose	United States	14.67	15.03428571	9.7
2011	San Jose	United States	14.5	14.91	9.52
2012	San Jose	United States	15.05	14.89285714	9.51

## 7 year Global MA

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## Year VS Average Temperature in Celcius

