Weather Trends

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Objective

To analyze global temperature data and compare the global temperature trends with major US cities.

Goals

My goal in this project is to extract data from database provided by Udacity, create a visualization to help me deduce information like similarities and differences between global and city temperature trends over the last 150+ years.

Project Outline

For the purpose of this project I considered temperature of four cities San Francisco, Boston, Chicago and Las Vegas. I used SQL queries & Apple Spreadsheet software called Numbers during this project and followed below steps to achieve my goal of this project.

Step 1: Extracted Data from DB

First I extracted the data from Udacity database into CSV file using below SQL query.

```
SELECT
  global.year,
  global.avg_temp global_temp,
  sf.avg_temp sf_temp,
  ch.avg_temp ch_temp,
  bo.avg_temp bo_temp,
  lv.avg_temp lv_temp
FROM global_data global
INNER JOIN city_data sf
  ON global.year = sf.year
INNER JOIN city_data ch
  ON global.year = ch.year
INNER JOIN city_data bo
  ON global.year = bo.year
INNER JOIN city_data lv
  ON global.year = lv.year
WHERE sf.city = 'San Francisco'
AND ch.city = 'Chicago'
AND bo.city = 'Boston'
AND lv.city = 'Las Vegas';
```

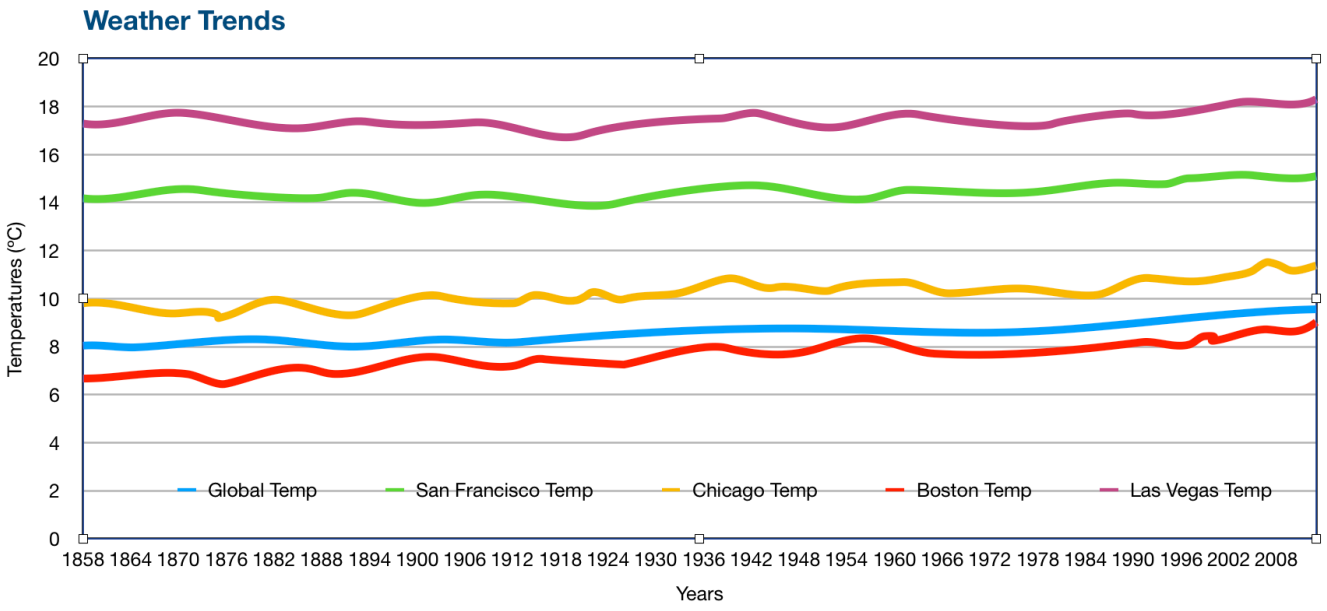
Step 2: Created Moving Average.

Then I used Apple's software Numbers to create 10-Year moving average of city and global temperature.

year	global_temp	sf_temp	ch_temp	bo_temp	lv_temp	Global Temp	San Francisco Temp	Chicago Temp	Boston Temp	Las Vegas Tem
1849	7.98	14.12	9.34	6.58	17.17					
1850	7.9	13.8	9.89	6.72	16.85					
1851	8.18	14.39	10.17	6.61	17.15					
1852	8.1	13.81	9.82	6.69	16.91					
1853	8.04	14.4	10.21	7.12	17.79					
1854	8.21	13.98	10.96	6.95	17.36					
1855	8.11	14.2	9.71	6.92	17.58					
1856	8	14.1	8.66	5.92	17.18					
1857	7.76	14.78	8.76	6.64	17.79					
1858	8.1	14.19	10.53	6.56		=AVERAGE(B2:B11)		05	6.671	17.288

Step 3: Created Line Graph from Moving Average

Finally I created line graph using moving average created in Step 2.



Observations

My findings from above weather trend graph are as follows.

1. It can be inferred from the graph that global temperature is increased by almost 2 degrees in last 150 years
2. Other thing we can notice from graph that San Francisco, Chicago and Las Vegas are hotter on average compared to the global average whereas Boston is cooler.
3. We can observe from graph that temperature of all cities considered in this example fluctuated over the years i.e. went up and down whereas comparatively global temperature never came down that much.
4. If we compare temperature rise of all cities we can see Boston's temperature increased more than any other city in the example.