

Explore Weather Trends

By: Ardian Ajvazi

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Goal

Create a visualization and prepare a write up describing the similarities and differences between global temperature trends and temperature trends in the closest big cities where I live or want to live.

Outline

Use Udacity's built in program to extract data using SQL

```
// STEP 1 find city near me in the United States.
SELECT *
  FROM city_list
 WHERE country LIKE 'United States'

//STEP 2 look the global_data
SELECT * FROM global_data

/* STEP 3 JOIN both tables and select which columns we
want and assign unique names to identify easier.*/
SELECT
  city_data.city AS city,
  city_data.avg_temp AS City_Avg_Temp,
  city_data.year
FROM city_data
 WHERE city LIKE 'Seattle'
       OR city LIKE 'New York'

// STEP 4 Download .csv file from Udacity.
```

Use different libraries to create line-charts of our data.

```
import plotly.plotly as py # using to draw our graph online
import plotly.graph_objs as go
import plotly.figure_factory as FF
import numpy as np
import pandas as pd

// Read our .csv file and assign data to variable. Results by city and global.
dataCities = pd.read_csv('city_results.csv')
dataGlobal = pd.read_csv('Global_results.csv')

//Selecting data of specific city
Seattle = dataCities[(dataCities.city=='Seattle')]
NewYork = dataCities[(dataCities.city=='New York')]
Global = dataGlobal

// Passing data to x and y axis.
trace1 = go.Scatter(
    x=Global['year'],
    y=Global['global_avg_temp'],
    mode='lines',
    name='Global_Avg_Temp'
)
trace2 = go.Scatter(
    x=Seattle['year'],
    y=Seattle['city_avg_temp'],
    mode='lines',
    name='Seattle_Avg_Temp'
)
trace3 = go.Scatter(
    x=NewYork['year'],
    y=NewYork['city_avg_temp'],
    mode='lines',
    name='NewYork_Avg_Temp'
)

// Layout to add names to axis.
layout = go.Layout(
    title='Exploring Weather Trends',
    xaxis=dict(
        title='Year'
    ),
    yaxis=dict(
        title='Temperature in ( C )'
    )
)

fig = go.Figure(data=[trace1, trace2, trace3], layout=layout)

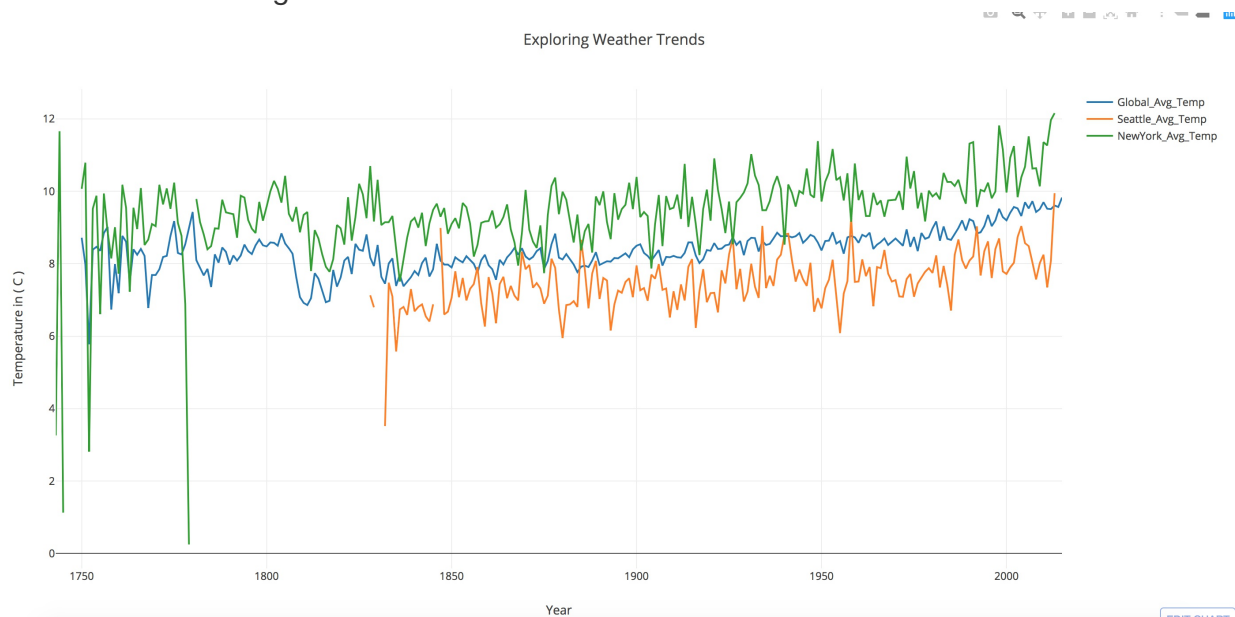
py.plot(fig, filename='Exploring Weather Trends')
```

Link to view Line-Chart online.

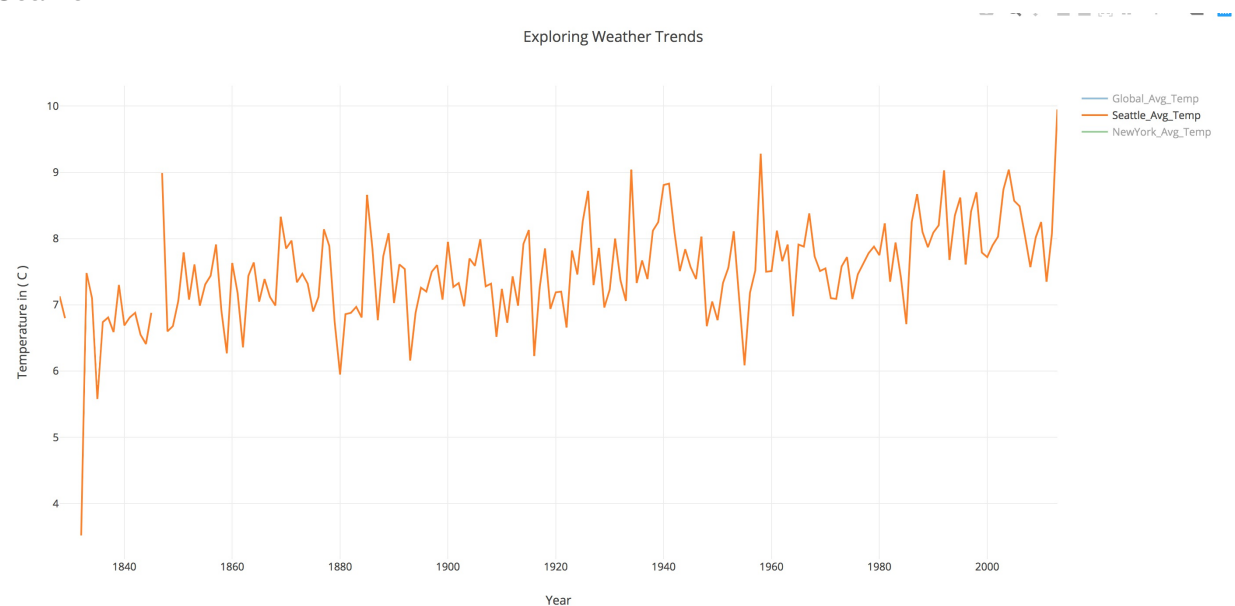
Link: (<https://plot.ly/~ardianajvazi/14/exploring-weather-trends/#/>)

Photos.

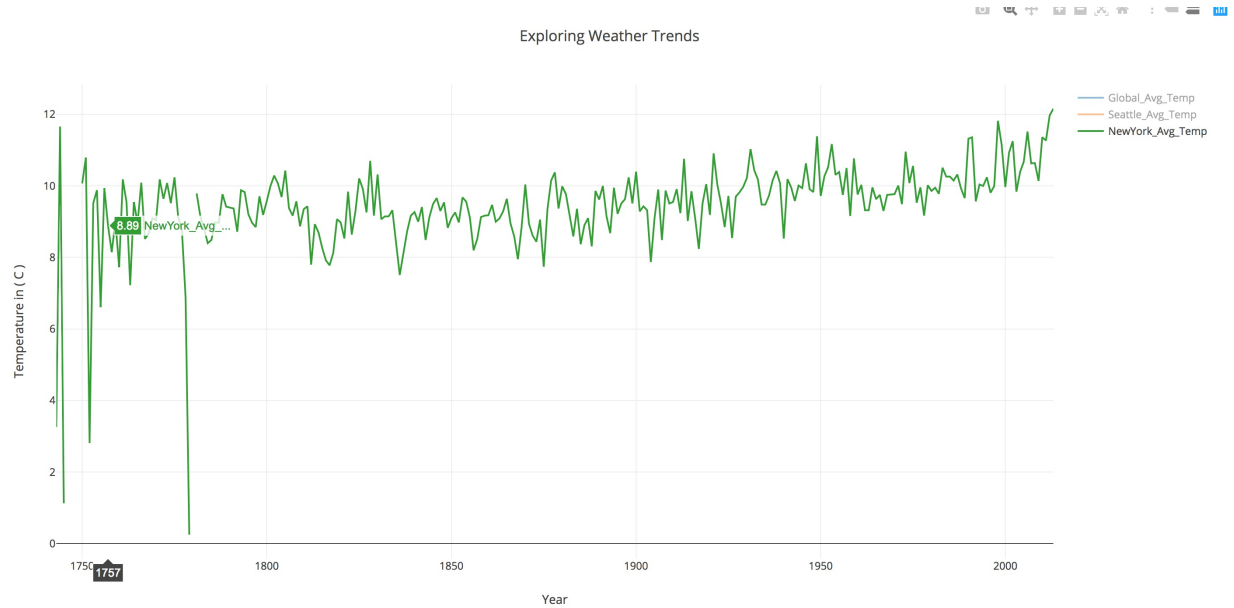
Combined cities and global



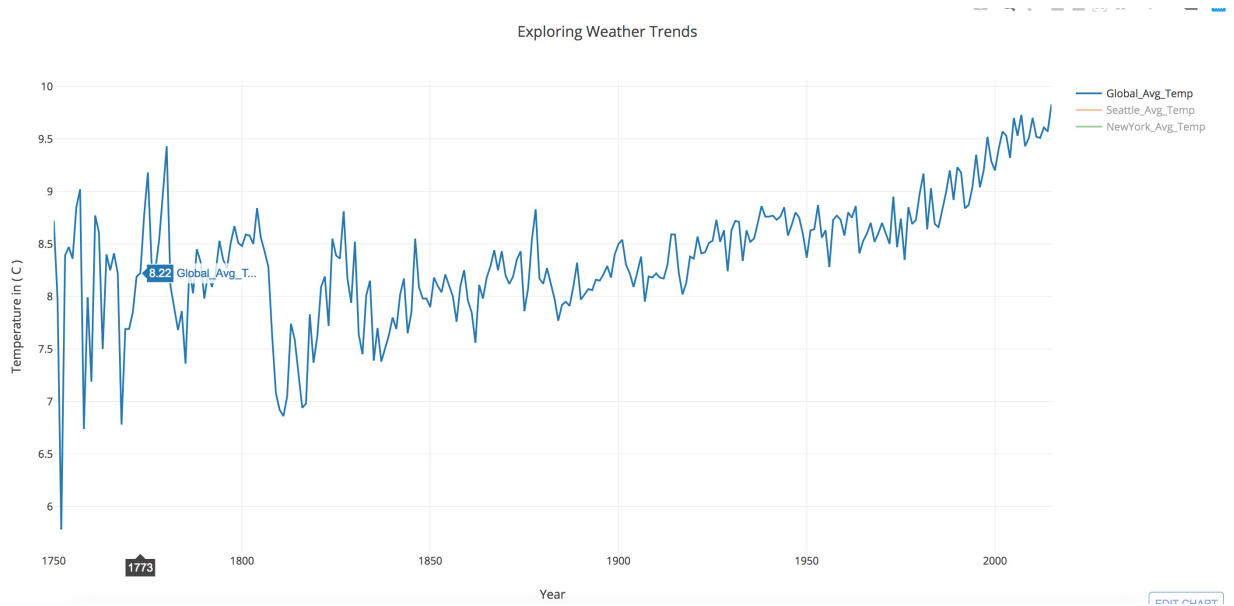
Seattle



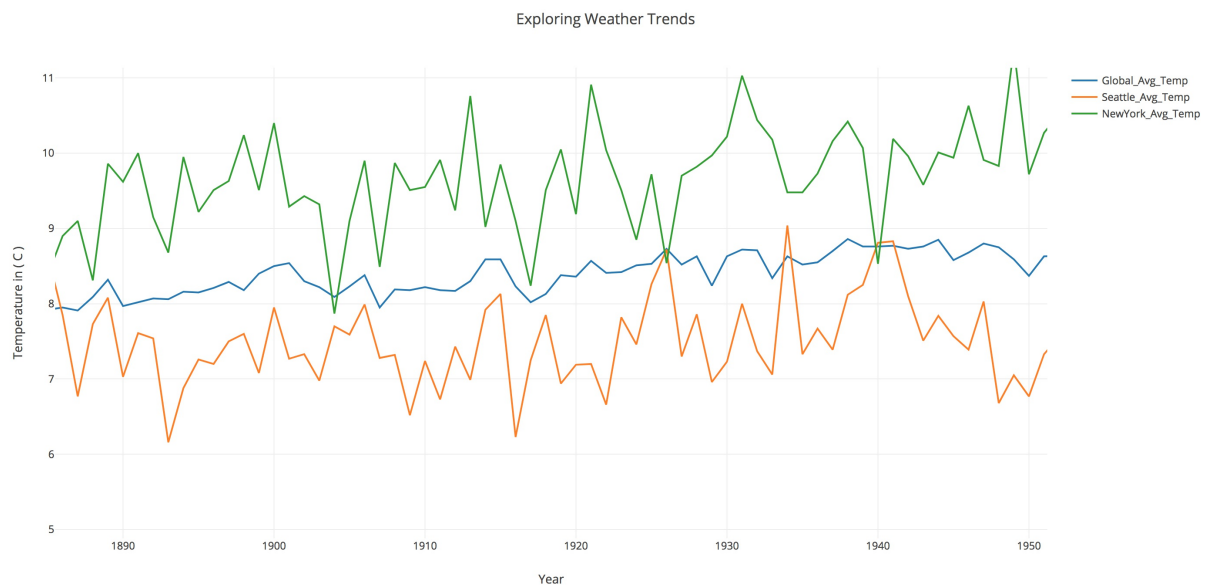
New York



Global



Zoomed in year



Observation

1. New York's average_temp was above the global average majority of the time.
2. Seattle's average_temp was below the global average majority of the time.
3. The results seem pretty constant at this. Small rise in global temperature.
4. The rises that we see could be a result of new industries but hard to say.

Resources

- Used Plotly to handle line-charts: (<https://plot.ly/python/line-charts/>)
- Link to GitHub: (https://github.com/ardianajvazi/Udacity_Exploring_Weather_Trends)