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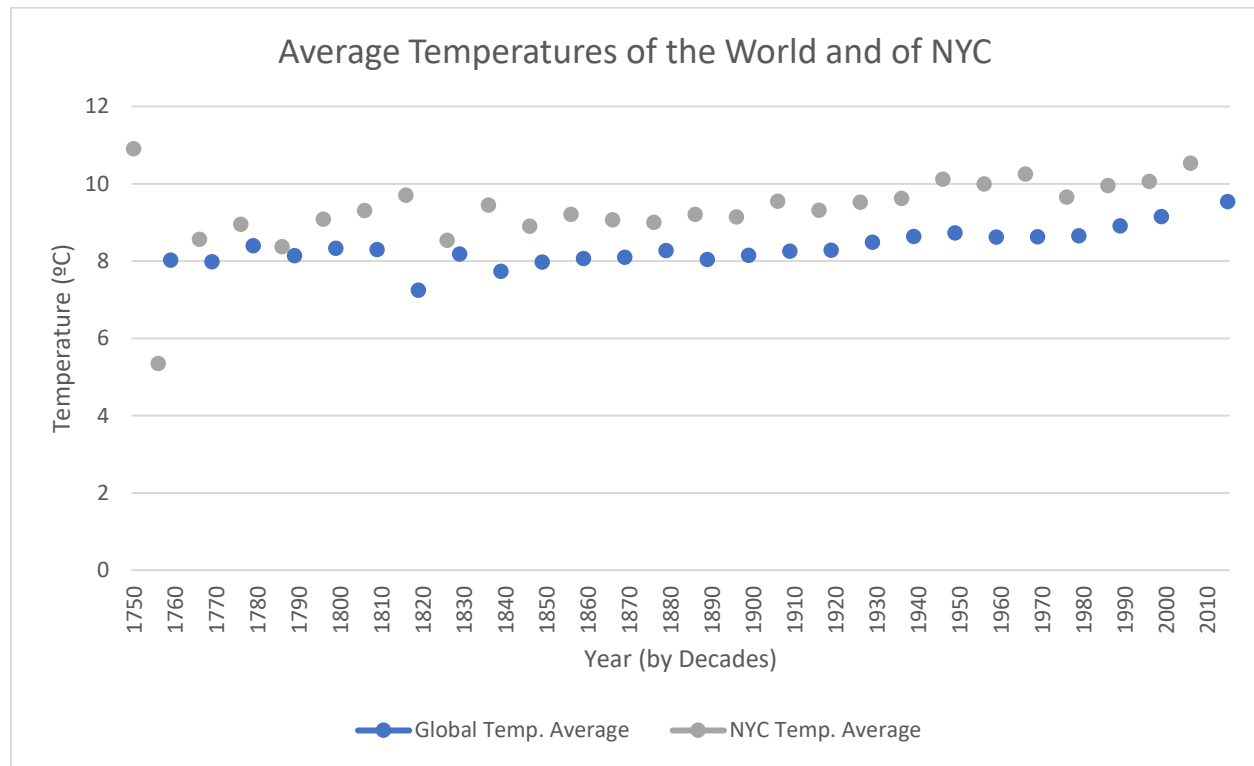
Project I – Exploring Weather Trends

For the first project, it was required to question the similarities and differences between the average temperature of the closest big city from my residence and the global average temperature, both of which was measured over time. Approaching this task required several steps, which will be presented in an outline form down below:

Outline for Building Data Visualizations

1. Extracting the data from the tables within the database
 - Using SQL (Structured Query Language) to extract data from tables titled *city_data* and *global_data* – these two tables held necessary data to then place in a spreadsheet or a Jupyter Notebook
 - Extracted data from both tables via a provided workspace; written statements used to extract data are as follows:
 - a) `SELECT * FROM city_data`
WHERE city = 'New York'; - to extract data from table *city_data* to obtain all data pertaining to only the city of New York's temperature changing over time
 - b) `SELECT * FROM global_data`; - to extract data from table *global_data* to obtain the data of the world's temperature changing over time
2. Opening the CSV files after obtaining them from the database
 - Using Microsoft Excel to open the extracted CSV files as Excel notebooks – decided to use Excel as it is easily accessible, and it provides a plethora of tools for data visualization
 - Calculated the *moving average* of the data in each CSV file by finding the averages by decade – in other words, the moving average of every ten years was calculated to smooth out the visuals and make them easier to interpret visually.
 - My considerations for visualizing the data in this manner was due to having more immediate access to visualization tools in Excel, being able to expedite the data into .xlsx files for greater ease of manipulation and also being able to conduct moving averages so the data can be illustrated more efficiently for others to observe.

This chart displays the average temperatures of both New York City and of the world and allows for comparison of the two



Observations of Weather Trends

The chart that is displayed in the report illustrate average temperatures of New York City and of the world, respectively. In comparison to the global average temperature, it appears that New York City is, hotter than the global average. According to the chart, the temperature in New York City remains consistently hotter than the global average temperature. In fact, the consistency in New York City's higher temperature begins at the 1800s, where the data points of the city and of the world are shown to be further apart, indicating the gap between temperature values. Interestingly, the temperatures of both NYC and of the world are remarkably closer than others in the 1790s and in the 1830s.

Regarding the time that has passed, both the New York average and global average temperature increase which indicates that both the city in the world are in fact getting hotter. In other words, both New York City and the world itself are on a similar trend of increasing temperatures as time passes. One thing to note regarding New York City's temperatures is that around the 1740s the 1750s the temperature was drastically lower than the average that it is seen starting at the 1760s. This could be accounted as an outlier in the data but nevertheless this is a data point that exist within New York City temperatures and is absent in global average temperatures. You will also notice that there is a data point sitting higher than the others at the

beginning of the chart. This data point is another outlier because the years within the global temperature data starts at the 1750s while the temperature data for New York City begins at the 1740s, which were omitted since it makes more sense to simply start at the 1750s for both sets of data. Overall, the world is getting hotter and in the past hundred years, the increase in temperature has been consistent.