THE OUTLINE:

1. Found New York city from the city_list table in the database.

   ```
   SELECT *
   FROM city_list
   WHERE country = 'United States' AND city = 'New York';
   ```

2. Extracted the average temperatures for New York city by year (ºC) from the city_data table, then download the results into a CSV file.

   ```
   SELECT *
   FROM city_data
   WHERE country = 'United States' AND city = 'New York';
   ```

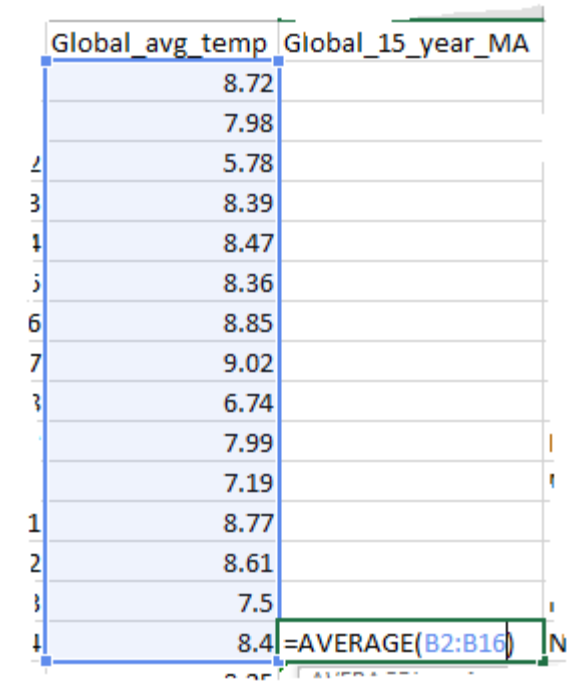
3. Extracted the average global temperatures by year (ºC) from the global_data table, then download the results into a CSV file.

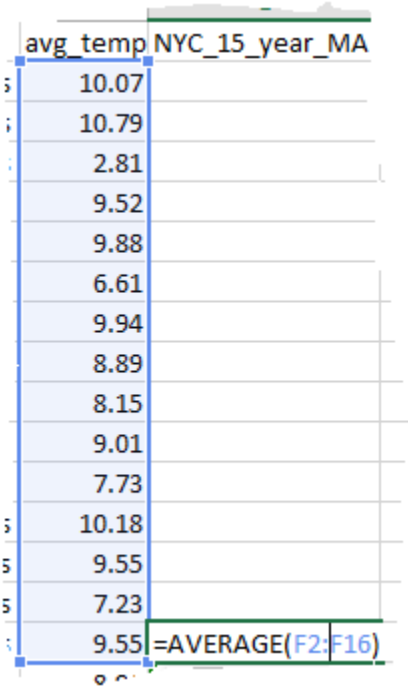
   ```
   SELECT *
   FROM global_data;
   ```

4. Opened up the city_data and global_data CSV files in Excel for analysis. Copied city_data and global_data into one worksheet then properly aligned them to make sure that both average temp columns start from year 1750.

MOVING AVERAGE CALCULATION:

- **Calculated moving averages for global and New York city data set using the Average function in Excel:**
  1. Selected the cell to the right of the global average temp and type the formula =AVERAGE(B2:B16). B2:B16 is the global average temp for the first fifteen years then dragged this cell's AutoFill Handle down to the range. Used the same Average function formula in Excel to calculate the New York city 15 year average temp. See screenshot



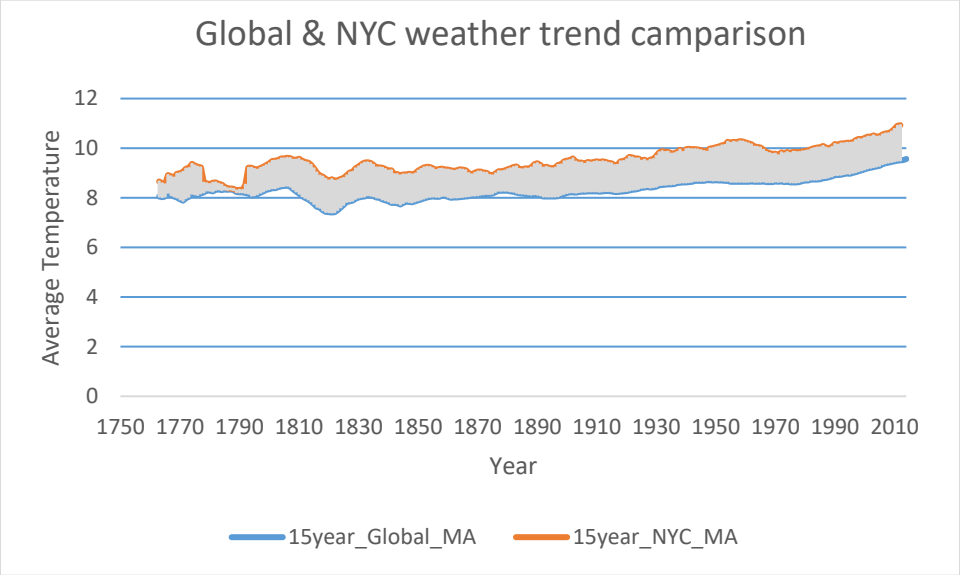


2. Selected the formula cells then clicked the **Decrease Decimal** button to adjust the decimal places of moving average results as needed.

LINE CHARTS:

1. Selected the cell range for the 15 year global moving average column and the cell range for the 15 year NYC moving average column then inserted a Line chart type.

2. Right clicked on the X-axis (horizontal) and clicked ‘Select Data’ →Clicked ‘Edit’ under the Horizontal (catergory) axis labels → Selected the cell range for the year column → Clicked ‘OK’
3. Selected following Chart elements:
    a. Axes
    b. Axis Titles
    c. Chart Title
    d. Gridlines
    e. Legend
    f. Up/Down Bars



MY OBSERVATIONS:

- New York city appears to be getting hotter on average compared to the global average as indicated by New York city average temp between 9.20 degree Celcius and 11.20 versus the global average temp between 8.20 degree Celcius and 9.80 degree Celcius. The difference appears to be consistent overtime.
- Given that the global average temperature seems to only go as far back as 1750 while the New York city average temperature only goes as far back as 1743 with no average temp between 1746-1749, I recalculated New York city average temp for the first 15 years starting from 1750, but New York city still appears to be hotter on average compared to the global average and the difference appears to be consistent overtime.
- The overall trend, however, seems to show that the world is getting warmer. The trend has been consistent over the last 250+ years.
- There seems to be a perfect positive correlation (0.8) between New York average temp and global average temp, which one variable is perfectly explained by the other. Please see the Correlation Coefficient tab in the attached excel spreadsheet.
- The line chart seems to support the definition of global warning as recent increase in the world's temperature that is believed to be caused by the increase of certain gases (such as carbon dioxide) in the atmosphere resulting especially from air pollution. Since our data doesn't go

beyond 1700s, we can probably link the start of that increase in world's temperature to the First Industrial Revolution of Textiles and Steam between 1712 and 1830.