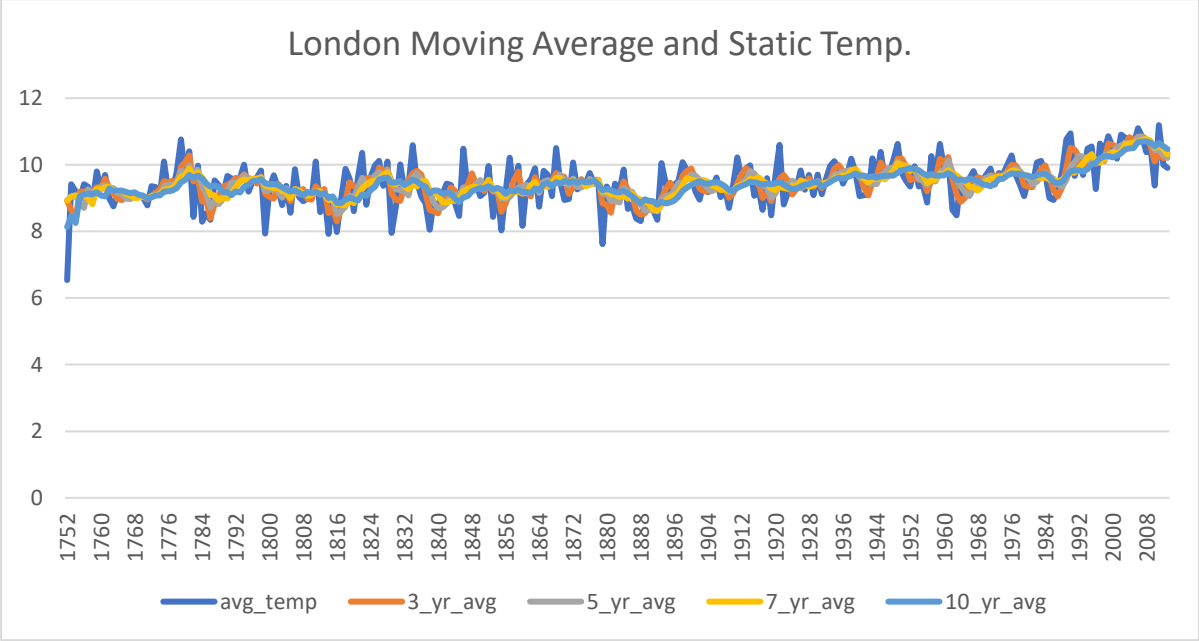
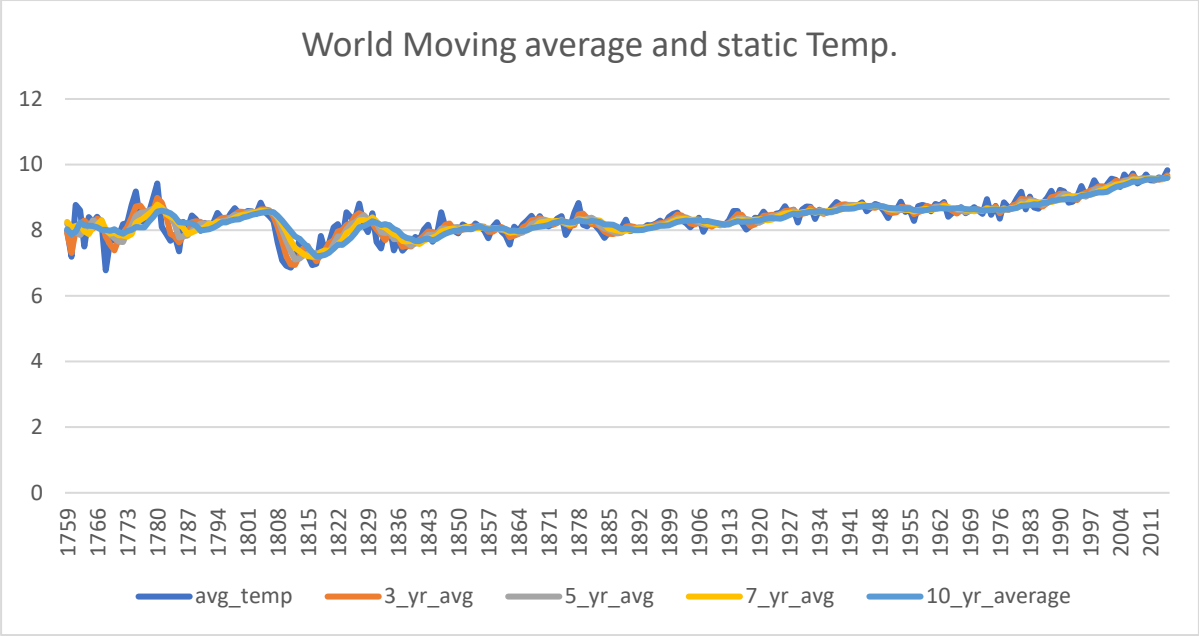
Summary:

1. Data was extracted from within the Udacity interactive shell using basic SQL scripts
    a. The cities table was explored using the following query to identify cities in the United Kingdom
        i. Select * from city_list where country = 'United Kingdom'
    b. Based on this analysis London was determined to be the most suitable
    c. London data was extracted using the following query
        i. Select * from city_data where country ='United Kingdom' and city = 'London'
    d. World data was extracted using the following query
        i. Select * from global_data
2. Data was then pulled into excel using the data and from csv/text file functions
3. A tab and exploratory analysis was performed on the London data, using a 3 year, 5 year, 7 year and 10 year moving averages to compare the volatility. This was done by creating a new column for each moving average calculation and then starting with the 3_yr_avg taking the average of the current period and prior two periods. For the 5_yr_avg this was done by taking the average of the current period and the prior 4 periods and so on up to 10 years.
    a.



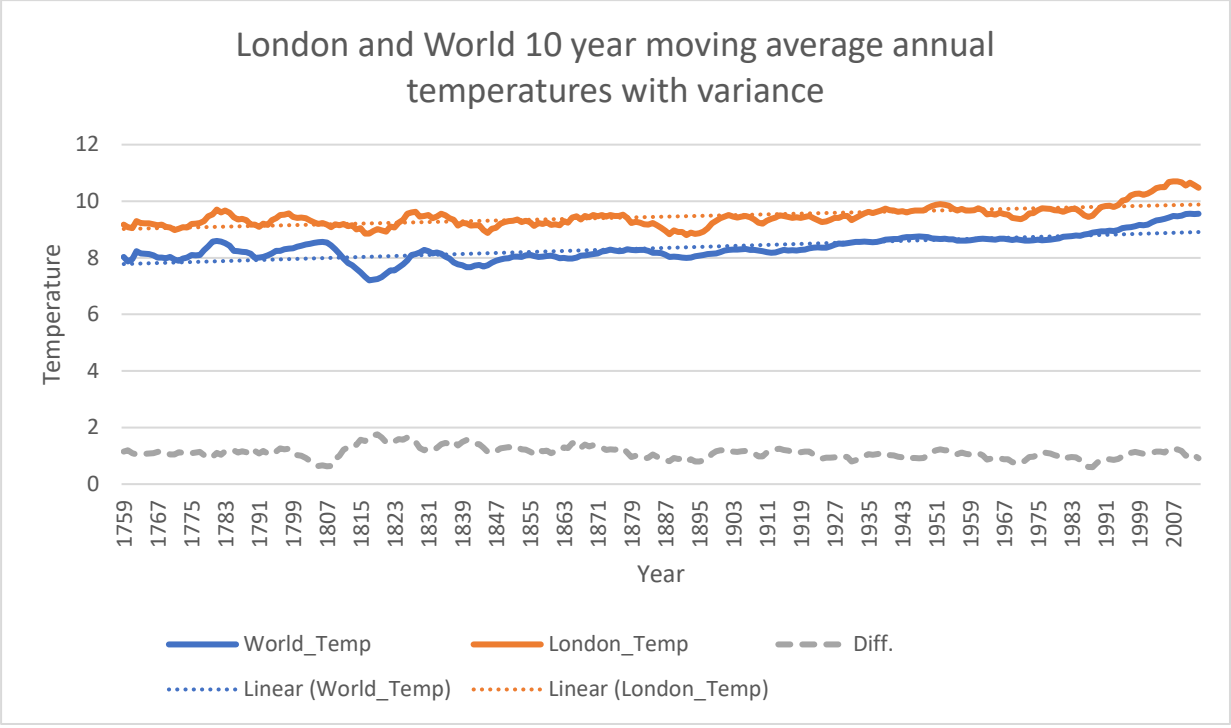
4. A tab and exploratory analysis was performed on the World data, using 3 year, 5 year, 7 year and 10 year moving averages to compare the volatity. This was done by creating a new column for each moving average calculation and then starting with the 3_yr_avg taking the average of the current period and prior two periods. For the 5_yr_avg this was done by taking the average of the current period and the prior 4 periods and so on up to 10 years.

a.



5. Based on these two views a 10 year moving average was selected to maximise smoothing and focus on wider trends across the centuries. (Note comparison was only available from 1759 to 2013 due to differences in the available corpus of temperatures)

a.



6. Observations around the 10 year rolling average annual temperature comparing London and the World
    a. In general both the world temperature and London temperature have been increasing over the last 250 years.
    b. The trend line suggest a roughly comparable 1 degree increase for both London and the World
        i. London from 8 to 9
        ii. World from 9 to 10
    c. There has been a mostly consistent 1.5 degree difference between London and the world for the noted time period
        i. While there appears to be some fluctuation further smoothing would likely eliminate this
    d. There looks to be a noticeable material drop in the London temperature during the early 1800s, which looks to outstrip the comparable subdued decrease in World temperatures
        i. This is further confirmed by noticing the spike to 2 degree differential in the grey dotted line for the same period

ii. It would be interesting to know what was happening during this period of time, as I believe this was when the UK and London were experiencing increased industrial production and you would expect temperatures to rise in fact.