Project: Explore Weather Trends

Steps:

1. Check for availability of city in city_list data
   SQL code: SELECT *
   FROM city_list
   WHERE city LIKE 'Austin'

2. Extract data for Austin from city_data
   SQL code: SELECT *
   FROM city_data
   WHERE city LIKE 'Austin'
   Download and save the CSV file

3. Extract data global temperatures from global_data
   SQL code: SELECT * FROM global_data
   WHERE year >= '1820'
   Extract from year 1820 since the temperatures for Austin are available from year 1820.
   Download and save csv file

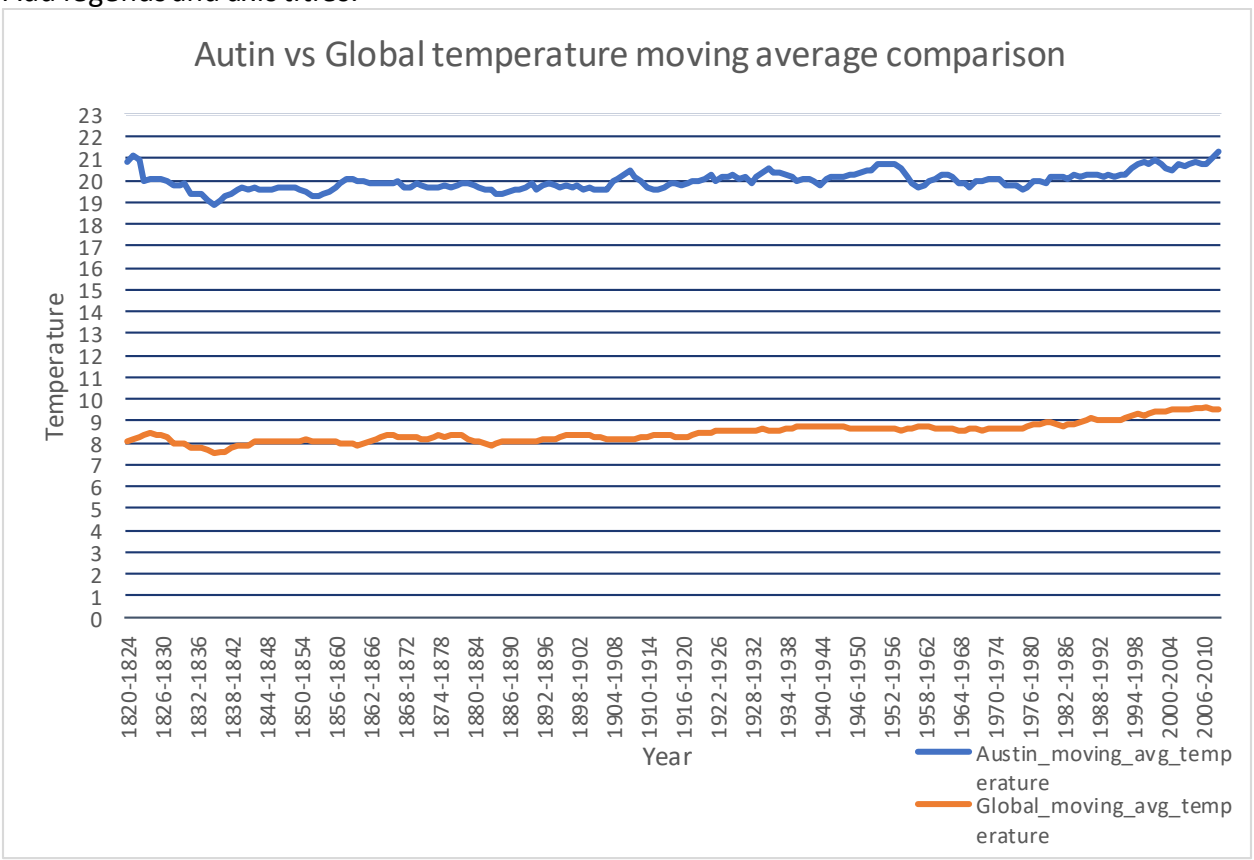
4. Copy data for global temperatures to the CSV file with the Austin temperatures for various years. Insert two new columns . One to the right of Austin temperature and other to the right of global temperature.

5. Calculate the moving average for 5 years in the new columns using Austin and global temperature data.
   Formula used: AVERAGE (D2:D6). Do the same for the cells below and in the global_moving_average column

=AVERAGE(D2:D6)

year	city	country	avg_temp	Austin_moving_avera	global_avg_temp	Global_moving_average
1820	Austin	United States	18.83		7.62	
1821	Austin	United States	20.75		8.09	
1822	Austin	United States	25.48		8.19	
1823	Austin	United States	19.34		7.72	
1824	Austin	United States	19.9	20.86	8.55	8.034
1825	Austin	United States	20.15	21.124	8.39	8.188
1826	Austin	United States	19.87	20.948	8.36	8.242
1827	Austin	United States	20.52	19.956	8.81	8.366
1828	Austin	United States	20.02	20.092	8.17	8.456
1829	Austin	United States	19.71	20.054	7.94	8.334
1830	Austin	United States	20.39	20.102	8.52	8.36
1831	Austin	United States	18.96	19.92	7.64	8.216
1832	Austin	United States	19.55	19.726	7.45	7.944

6. Plot a line chart by selecting cells with data in the Austin_moving_average and global_moving_average columns. Select insert -line chart.
7. Ensure the x axis is the temperature by selecting format chart option and editing the horizontal axis to be the temperature column starting from 1820-1824 and in five year intervals.
8. Add legends and axis titles.



Observations:

1. The data shows that the global average temperature is significantly higher than the Austin temperature throughout the years. This indicates that Austin has been cooler throughout the years.
2. The global average temperature shows a spike in temperature from years – (1953-1957), (1908-1912), (1822-1826) and (1997-2001). This spike in temperature is not seen in Austin. The temperature in Austin remains relatively constant for these years. This shows that Austin could be unaffected by global temperature spikes.
3. The global average temperature and Austin temperature show an increase from years 1992 to 2010. This increase is seen almost every year indicating that there could be a global rise in temperature.
4. The global average temperature shows a greater amount of variation than the Austin temperature. From 1902 to 1966, the global temperature has several spikes and lows while Austin temperature remains close to 8.7. Similarly, the spikes and lows are more significantly shown in global average temperature for years from 1820 to 1858 when comparing with the Austin Temperature. This shows that temperature in Austin has been mostly cooler with small increases in temperatures while global average temperature has shown sudden drops and spikes.