Explore-Weather-Trends

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1. Extracting the data from the database using SQL.

There was a workspace in the section that was connected to a database. I needed to export the temperature data for the world as well as for the closest big city to where I live. I found a list of cities and countries in the city_list table. I wrote the following SQL query to extract the nearest city to my location:

```
SELECT *
FROM city_list
WHERE country LIKE 'Uzb%'
```

In this way, I got only one result. 'Tashkent' was the only city that was included in the table. Therefore, I chose it as the closest city to my location. Next, to extract all the data realted to this city I wrote the following SQL query:

```
SELECT year, avg_temp
FROM city_data
WHERE city = 'Tashkent'
```

Then, I exported the results to CSV and downloaded for analysing and creating a line chart. Analogously, to extract all the temperature data for the world table, I simply wrote the following SQL query:

```
SELECT *
FROM global_data
```

Similarly, as in the case above, I exported the results to CSV and downloaded for analysing and creating a line chart.

2. Opening up the CSV and creating line charts.

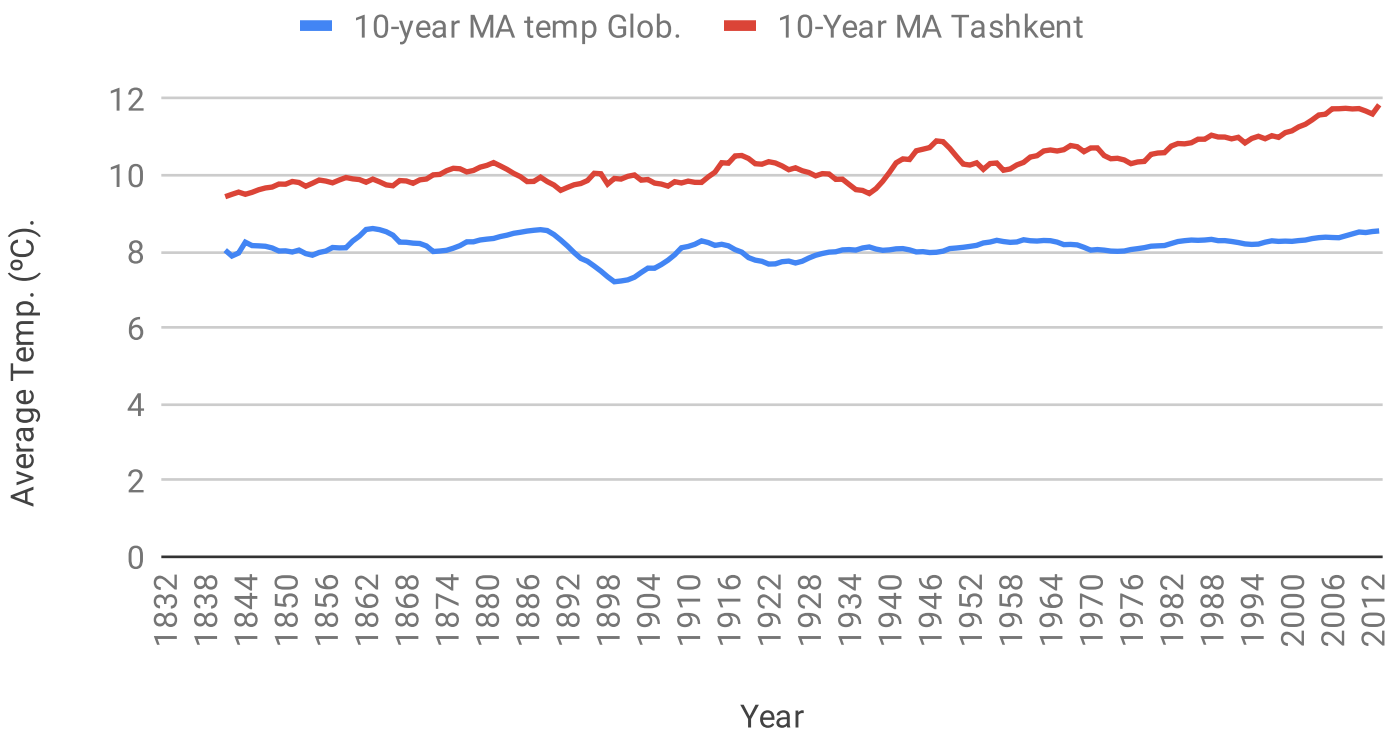
I opened the CSV files using Google sheets. Before plotting the line charts, I calculated the 10-year moving average in order to smooth out the lines and making trends more observable for each dataset that was extracted earlier. To calculate the moving average, I simply used the ready-made 'AVERAGE' function on Google Sheets. Initially, I chose AVERAGE(B2:B11) and then filled the remaining fields automatically. Next, I created line charts for each global and city level dataset putting 'year' on the horizontal axis and moving average temperature on the vertical axis. Then I put these two datasets together in order to create a general line chart that compares my city's temperatures with the global temperatures. The correspoding line charts are on the following pages.

3. Observations.

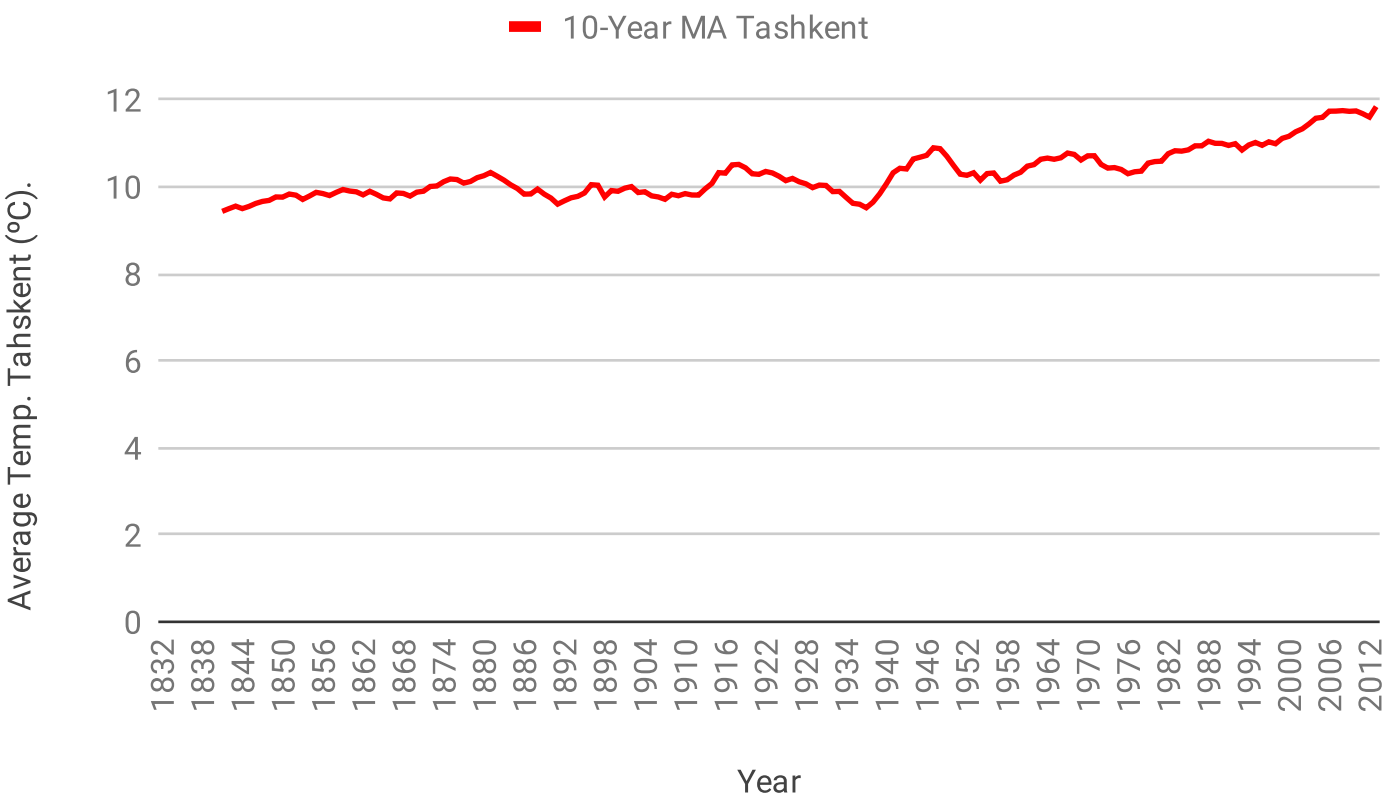
Looking at the line chart that compares my city's temperatures with the global one, I made the following observations about the similarities and differences between the world averages and my city's averages, as well as overall trends:

- The average temperature in my city has always been higher than the world temperature for the entire period.
- The difference has always been consistent over time and the temperature started increasing sharply in my city from the mid 70s.
- During this period, the coldest temperature in the world was at 1898, whereas in my city it was at the beginning of the period.
- So far, the highest temperature in the world was at the end of the period for the world and for my city as well.
- The overall trend for both in the world and in my city is increasing. The world is getting hotter slowly, especially in the last two decades.

Avg_temp Change Global vs. Tashkent Over The Last Cent.



City Average Temp. Change Over The Last Ceturies



Global Average Temp. Change Over The Past Centuries