# Project 1: Explore Weather Trends

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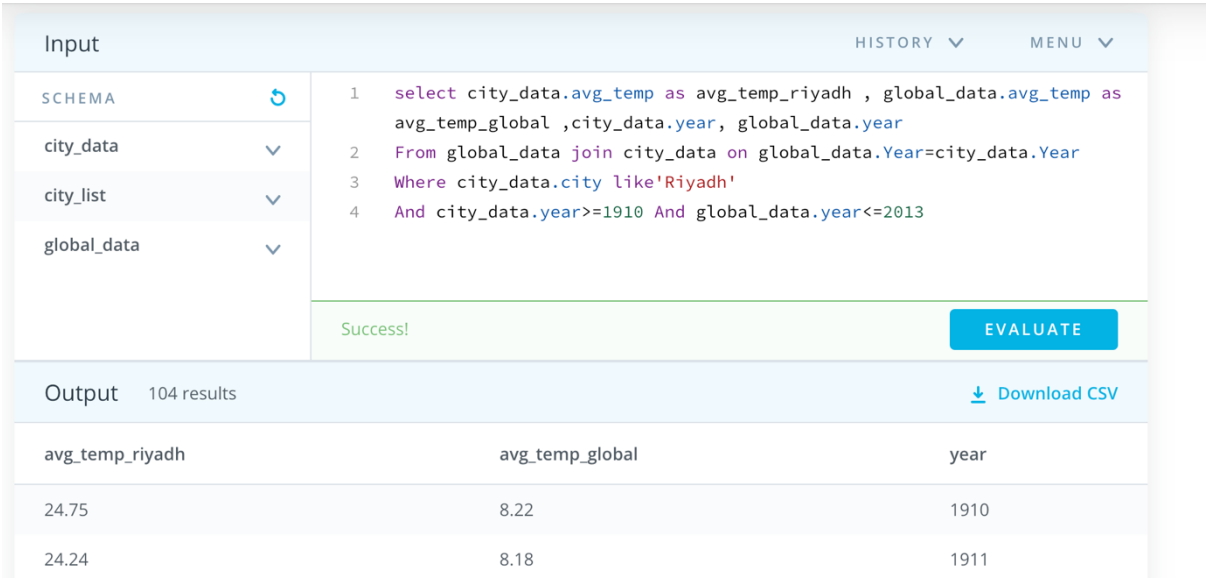
- **What tools did you use for each step?**

  - SQL : was used to extract data from database
  - EXCEL : was used to calculate the moving average
  - Tableau : make the line chart.




- **Sql query used are :**

```
Select city_data.avg_temp as avg_temp_riyadh , global_data.avg_temp
as avg_temp_global ,city_data.year, global_data.year
From global_data join city_data on global_data.Year=city_data.Year
Where city_data.city like'Riyadh'
And city_data.year>=1910 And global_data.year<=2013
```

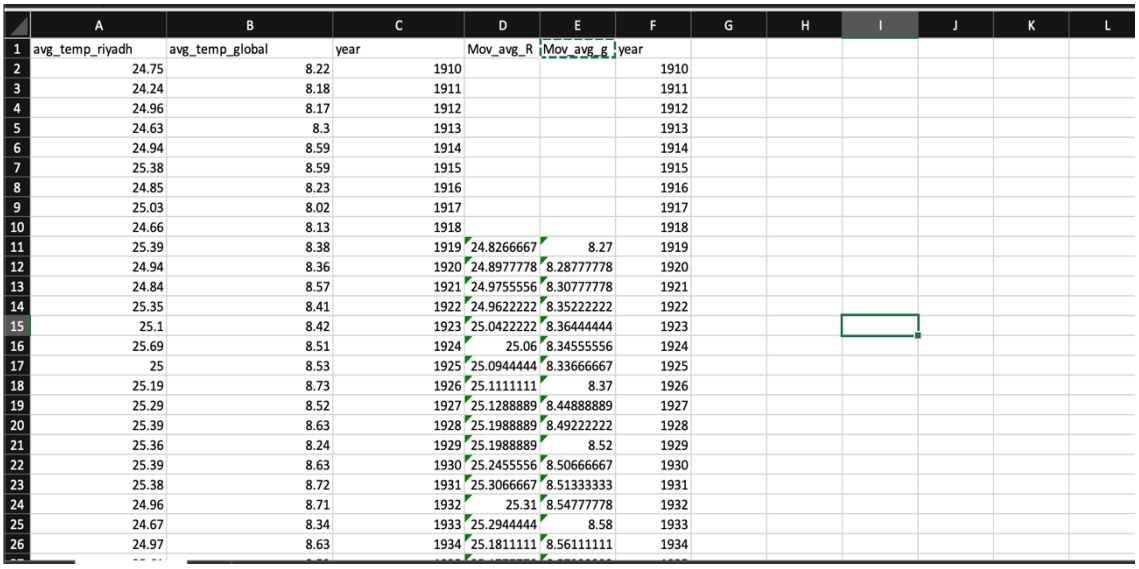


- **How did you calculate moving average?**

  I calculated the moving average of 10 years by using the command =average(a2:a10) and then dragging down till the last value .

  For tow columns : avg_temp_riyadh and avg_temp_global

  New columns : Mov_avg_R and Mov_avg_g



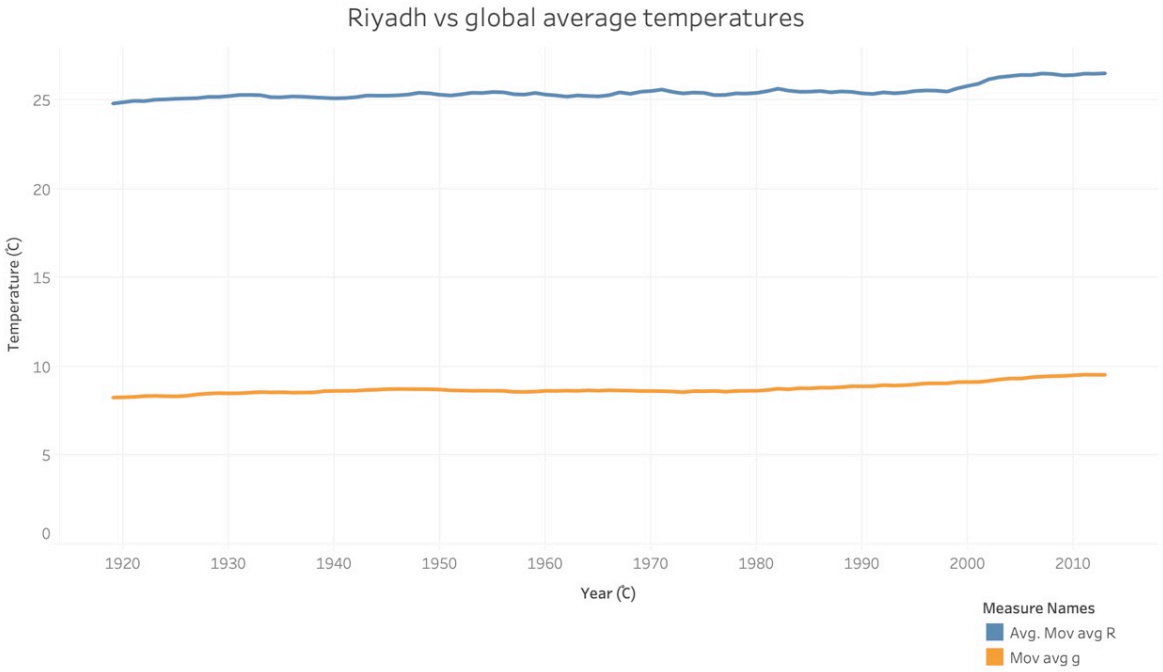
| | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | avg_temp_riyadh | avg_temp_global | year | Mov_avg_R | Mov_avg_g | year | | | | | | |
| 2 | 24.75 | 8.22 | 1910 | | | 1910 | | | | | | |
| 3 | 24.24 | 8.18 | 1911 | | | 1911 | | | | | | |
| 4 | 24.96 | 8.17 | 1912 | | | 1912 | | | | | | |
| 5 | 24.63 | 8.3 | 1913 | | | 1913 | | | | | | |
| 6 | 24.94 | 8.59 | 1914 | | | 1914 | | | | | | |
| 7 | 25.38 | 8.59 | 1915 | | | 1915 | | | | | | |
| 8 | 24.85 | 8.23 | 1916 | | | 1916 | | | | | | |
| 9 | 25.03 | 8.02 | 1917 | | | 1917 | | | | | | |
| 10 | 24.66 | 8.13 | 1918 | | | 1918 | | | | | | |
| 11 | 25.39 | 8.38 | 1919 | 24.8266667 | 8.27 | 1919 | | | | | | |
| 12 | 24.94 | 8.36 | 1920 | 24.8977778 | 8.28777778 | 1920 | | | | | | |
| 13 | 24.84 | 8.57 | 1921 | 24.9755556 | 8.30777778 | 1921 | | | | | | |
| 14 | 25.35 | 8.41 | 1922 | 24.9622222 | 8.35222222 | 1922 | | | | | | |
| 15 | 25.1 | 8.42 | 1923 | 25.0422222 | 8.36444444 | 1923 | | | | | | |
| 16 | 25.69 | 8.51 | 1924 | 25.06 | 8.34555556 | 1924 | | | | | | |
| 17 | 25 | 8.53 | 1925 | 25.0944444 | 8.33666667 | 1925 | | | | | | |
| 18 | 25.19 | 8.73 | 1926 | 25.1111111 | 8.37 | 1926 | | | | | | |
| 19 | 25.29 | 8.52 | 1927 | 25.1288889 | 8.44888889 | 1927 | | | | | | |
| 20 | 25.39 | 8.63 | 1928 | 25.1988889 | 8.49222222 | 1928 | | | | | | |
| 21 | 25.36 | 8.24 | 1929 | 25.1988889 | 8.52 | 1929 | | | | | | |
| 22 | 25.39 | 8.63 | 1930 | 25.2455556 | 8.50666667 | 1930 | | | | | | |
| 23 | 25.38 | 8.72 | 1931 | 25.3066667 | 8.51333333 | 1931 | | | | | | |
| 24 | 24.96 | 8.71 | 1932 | 25.31 | 8.54777778 | 1932 | | | | | | |
| 25 | 24.67 | 8.34 | 1933 | 25.2944444 | 8.58 | 1933 | | | | | | |
| 26 | 24.97 | 8.63 | 1934 | 25.1811111 | 8.56111111 | 1934 | | | | | | |

- **What were your key considerations when deciding how to visualize the trends ?**

  My key consideration was to observe an increase or decrease in moving average temperature

  Chosing the number 10 for waiting average it will  leads to less noise in the graph and shows the important details in the graph

- **Create the line chart ( Tableau )**




- **OBSERVATIONS:-**

Here are some observed between the global and local moving average temperature data:

⇒ The temperature in Riyadh avg is higher than the average global temperature.
⇒ Riyadh and the global avg temperature , have been increase over the years.
⇒ In the city of Riyadh in the earlier years,it had a cooler average temperature.
⇒ Recent years, my city is different, and it is hotter, while the mean global temperature is moderate.
⇒ The temperature in middle age is considered fluctuating in my city and the world.