## SQL Query

### Find which cities are avalable in the data

select \* from city\_list where country = 'Turkey'

### Get the “Istanbul” data

select \* from city\_data where city = 'Istanbul'

### Get the global data

select \* from global\_data

### To get the yearly basis global and local data

SELECT a.Year, a.avg\_temp global\_temp, b.avg\_temp local\_temp

FROM global\_data a INNER JOIN city\_data b ON a.year = b.year

where b.city = 'Istanbul'

## Outline

* First, I wrote an SQL Query to match the corresponding records of the same year,
* Then copy the result to an Excel spreadsheet
* Calculate the moving averages for 5 years period
* I wanted to minimize the sharp fluctuation affect of the yearly trend, instead see the average trend of the weather

## Moving Average (With 5 years period)

### Global Data Basic Stats

|  |  |  |  |
| --- | --- | --- | --- |
| MinOfavg\_temp | AvgOfavg\_temp | MaxOfavg\_temp | StDevOfavg\_temp |
| 5.78 | 8.369473684 | 9.83 | 0.58474741 |

### Local Data Basic Stats (Istanbul)

|  |  |  |  |
| --- | --- | --- | --- |
| MinOfavg\_temp | AvgOfavg\_temp | MaxOfavg\_temp | StDevOfavg\_temp |
| 10.37 | 13.47677903 | 9.48 | 0.8544374 |

* Overall according to the basic statistics the Local weather is more hot then the global weather.
* Over the years the weather gets hot according to the previous years.
* Both global and local weather gives the same trends at some points that is they both decrease or increase.
* Global weather has more smoother increase after the year 1844 but the local weather has more fluctuation

## Correlation Coefficient

I used the pearson’ s correlation coefficient formula

I have got the result by this calculation

**Correlation Coefficient = 0.718**

Correlation coefficient formulas are used to find how strong a relationship is between data. The formulas return a value between -1 and 1, where:

* 1 indicates a strong positive relationship.
* -1 indicates a strong negative relationship.
* A result of zero indicates no relationship at all.

**According to the definition we can say that there is almost a strong correlation between the local and global weather.**

## Point Estimation

Yes we can estimate the local temperature by mean with unknown standard deviation with T-table We can accept the confidence interval %95 of two side;

x : mean of sample : 8.36

s : unknown standart deviation : 0.58

T : distribution : T(%95) = 1.984

α/2 = 0.025

n = sample size : 266 -1 = 265

* By using the formula the result is

8.28 < µ < 8.36