

Global Temperature Change

Project 1

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Outline



INTRODUCTION



RESULT



SUMMARY

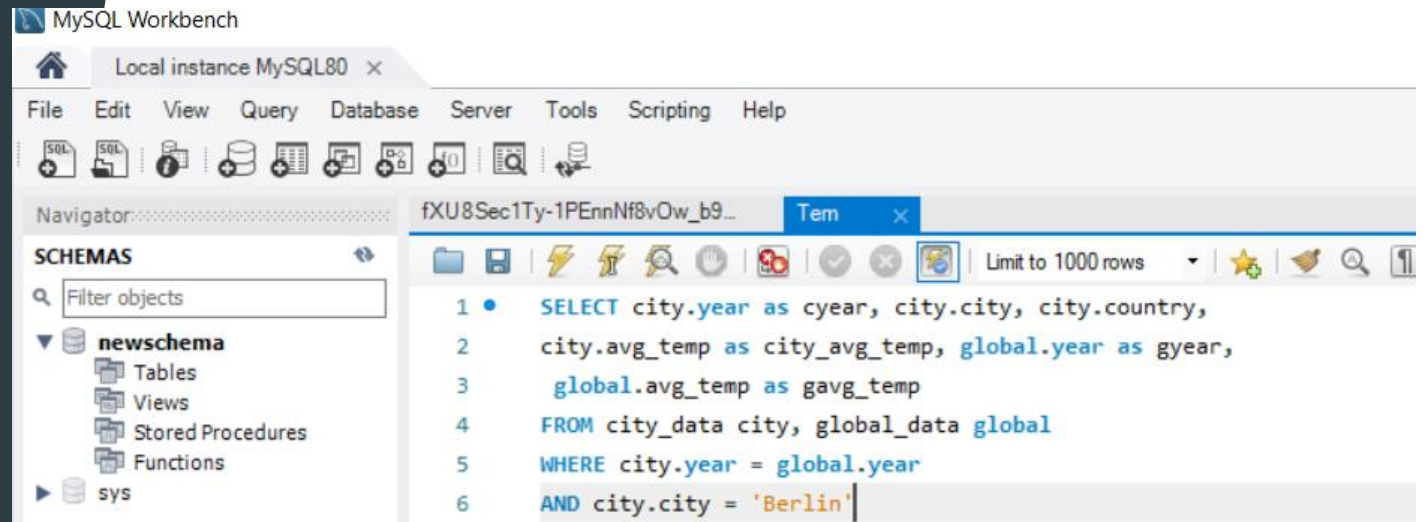
Introduction

- ▶ In this project, I used two main tools which are Microsoft Excel and Python.
- ▶ I chose the Temperature Change of Berlin from 1760 to 2013 to compare with Global Temperature Change.



Introduction

- In addition I used followed queries to extract csv file from database:



Result

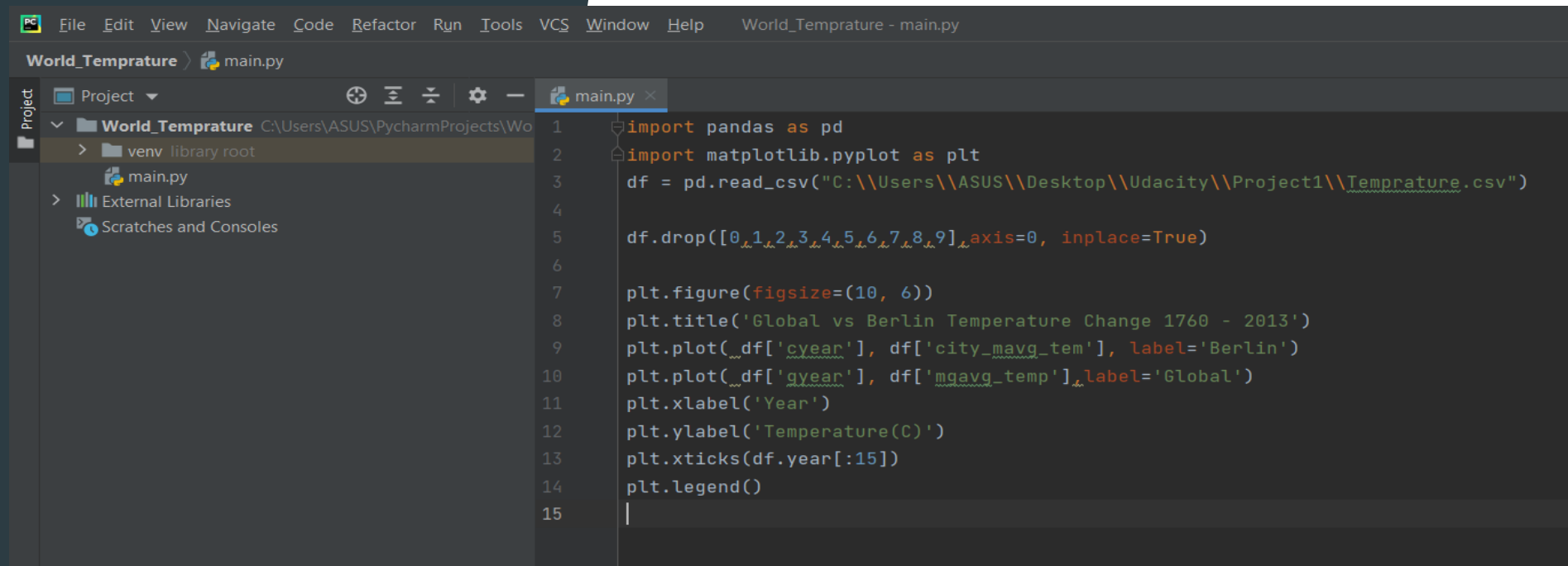
- ▶ After extraction of csv file, I preferred to use Excel to check and clean the data (however, in the data there were no mistakes). The reason of using Excel was that data was small.
- ▶ For moving average I used =Average() function for 10 year in Excel.
- ▶ For this reason, my average starts from 1760.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
	cyear	city	country	city_avg_temp	gyear	gavg_temp	city_mavg_tem	
1	1750	Berlin	Germany	9.83	1750	8.72		
2	1751	Berlin	Germany	9.75	1751	7.98		
3	1752	Berlin	Germany	4.84	1752	5.78		
4	1753	Berlin	Germany	8.72	1753	8.39		
5	1754	Berlin	Germany	8.49	1754	8.47		
6	1755	Berlin	Germany	8.26	1755	8.36		
7	1756	Berlin	Germany	9.62	1756	8.85		
8	1757	Berlin	Germany	9.15	1757	9.02		
9	1758	Berlin	Germany	8.25	1758	6.74		
10	1759	Berlin	Germany	9.04	1759	7.99		
11	1760	Berlin	Germany	8.99	1760	8.19	8.630909091	7.953636
12	1761	Berlin	Germany	9.47	1761	8.77	8.598181818	7.958182
13	1762	Berlin	Germany	8.53	1762	8.61	8.487272727	8.015455
14	1763	Berlin	Germany	8.62	1763	7.5	8.830909091	8.171818
15	1764	Berlin	Germany	8.91	1764	8.4	8.848181818	8.172727
16	1765	Berlin	Germany	8.54	1765	8.25	8.852727273	8.152727
17	1766	Berlin	Germany	8.87	1766	8.41	8.908181818	8.157273
18	1767	Berlin	Germany	8.14	1767	8.22	8.773636364	8.1
19	1768	Berlin	Germany	8.03	1768	6.78	8.671818182	7.896364
20	1769	Berlin	Germany	8.46	1769	7.69	8.690909091	7.982727
21	1770	Berlin	Germany	8.5	1770	7.69	8.641818182	7.955455
22	1771	Berlin	Germany	7.45	1771	7.85	8.501818182	8.015455
23	1772	Berlin	Germany	9.13	1772	8.19	8.470909091	7.962727
24	1773	Berlin	Germany	9.52	1773	8.22	8.560909091	7.927273
25	1774	Berlin	Germany	8.46	1774	8.77	8.546363636	8.042727
26	1775	Berlin	Germany	10.1	1775	9.18	8.654545455	8.113636

Result

- ▶ Below you can see codes which I utilized in the Python to show visualization:

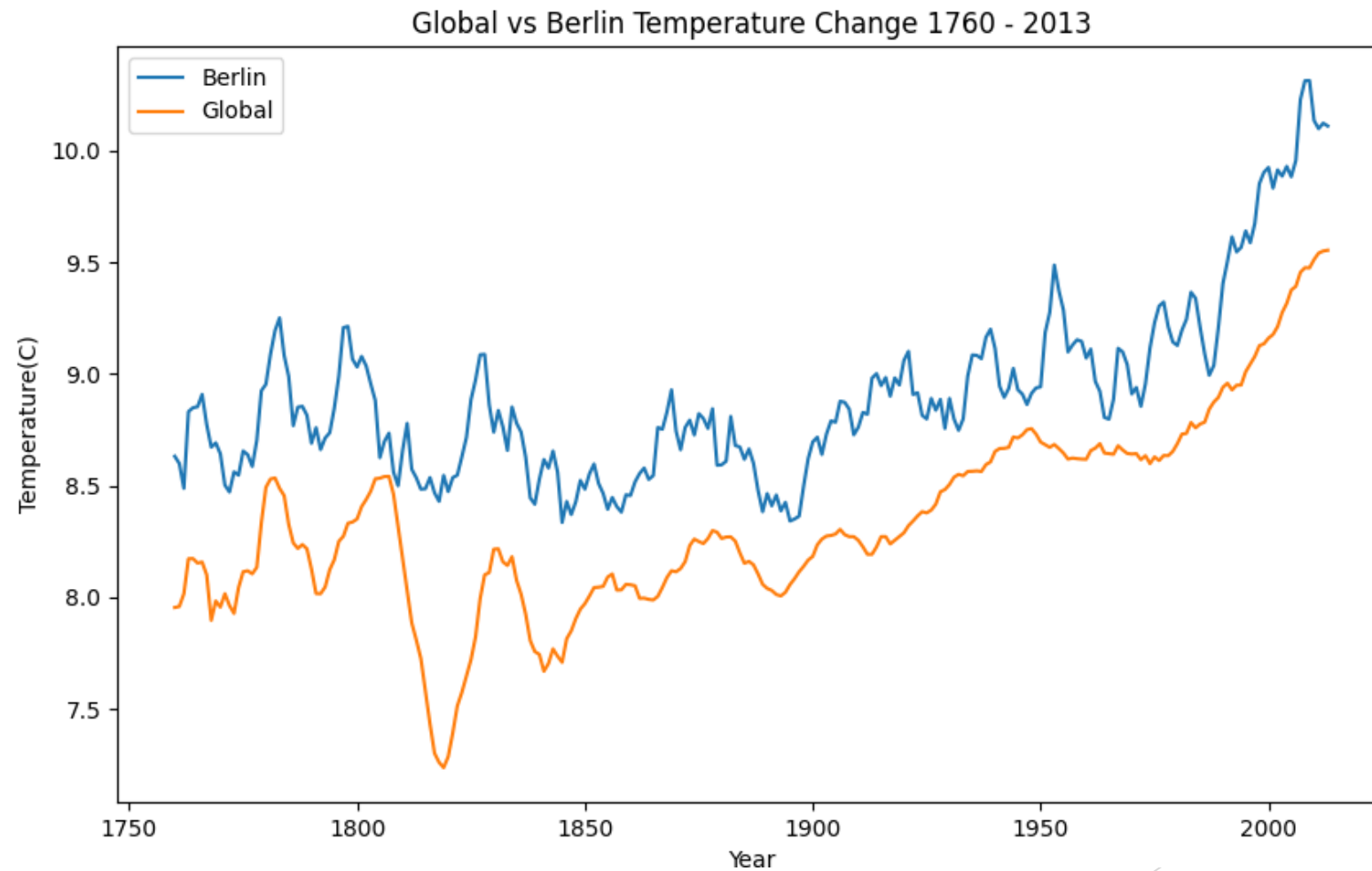


The screenshot shows the PyCharm IDE interface. The top menu bar includes File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, and Help. The title bar indicates the file is 'World_Temperature - main.py'. The left sidebar shows the project structure for 'World_Temperature' at 'C:\Users\ASUS\PycharmProjects\Wo'. It includes a 'venv' directory, a 'library root', and the 'main.py' file. The main editor window displays the following Python code:

```
1 import pandas as pd
2 import matplotlib.pyplot as plt
3 df = pd.read_csv("C:\\Users\\ASUS\\Desktop\\Udacity\\Project1\\Temprature.csv")
4
5 df.drop([0,1,2,3,4,5,6,7,8,9],axis=0, inplace=True)
6
7 plt.figure(figsize=(10, 6))
8 plt.title('Global vs Berlin Temperature Change 1760 - 2013')
9 plt.plot(df['cyear'], df['city_mavg_tem'], label='Berlin')
10 plt.plot(df['gyear'], df['mgavg_temp'], label='Global')
11 plt.xlabel('Year')
12 plt.ylabel('Temperature(C)')
13 plt.xticks(df.year[:15])
14 plt.legend()
15 |
```

Result

Line graph from Phyton



Summary

- ▶ At first, the graph shows the strong fluctuation between years.
- ▶ From 1900s ,in the line graph we can see that the both averages of temperature started to increase regularly.
- ▶ Due to the data , it could be said that the average temperature of Berlin fluctuates more than the Average temperature of Global.
- ▶ I found interesting fact that in 1752 we can observe the lowest temperature in the graph. I think that it could be related to coldest weather which we have not been observed in recent years.

Summary

- ▶ Due to volcanic eruption of Tamborra in 1815, in Indonesia, from 1816 to 1819 it was caused dramatic change in the global temperature , it was affected the circulation of global wind, it decreased the global temperature in the world, for this reason this years are called years without summer.(weatherweb.net, last accessed 04.06.2021,)
- ▶ Finally, due to the data, it must be made some events or decisions to prevent the global temperature change and protect the environment.

Reference

- ▶ <https://premium.weatherweb.net/weather-in-history-1800-to-1849-ad/>

Thanks for
Attention

