Report for PS2

1.1

Country	Deaths
CHINA	2075045.0
TURKEY	1188881.0
IRAN	1011449.0
ITALY	498478.0
SYRIA	439224.0
HAITI	323478.0
AZERBAIJAN	317219.0
JAPAN	279085.0
ARMENIA	191890.0
PAKISTAN	145083.0

1.2
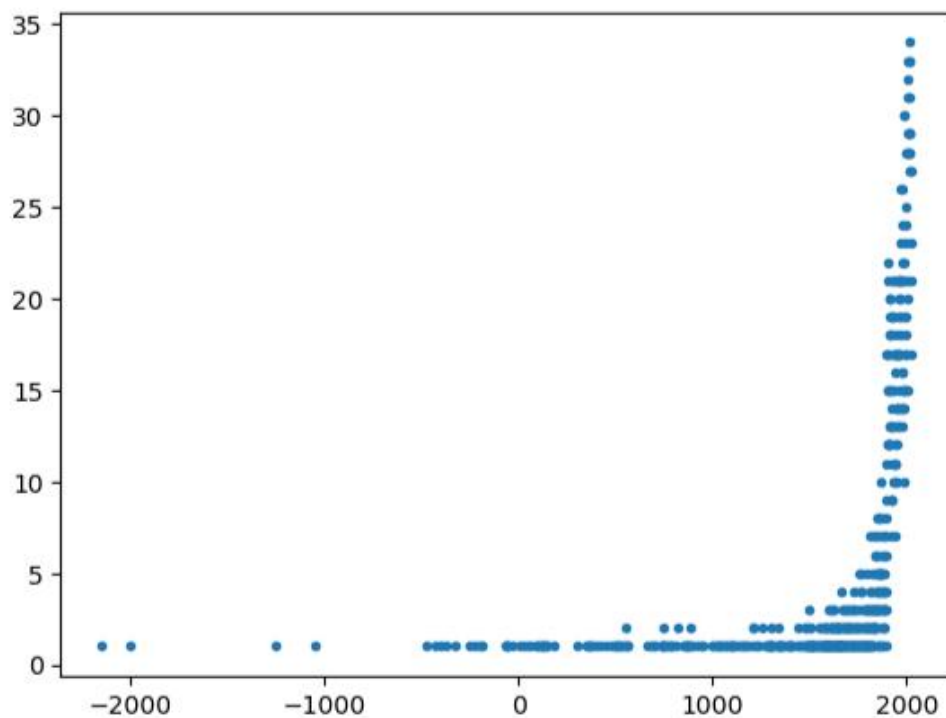
We can see from the picture the number of big earthquakes seem to increase. The reason for this probably falls on the development of the human capability of recording the disasters and passing them down to decedents as well as the advancement of technology to detect the earthquakes. Moreover, it seems fair that with the growth of population, even before the tech boom,the records of earthquakes grows since humans only is able to record things nearby.

1.3

The countries suffering most from earthquakes are China and Japan,which is fairly reasonable.
And the fact that the biggest earthquakes in China occurred in Shandong in 1668, which is also in accordance with the data in the table.

	name	number	date
14	CHINA	620	1668-7-25
33	JAPAN	414	2011-3-11
68	INDONESIA	411	2004-12-26
7	IRAN	384	856-12-22
9	TURKEY	335	2023-2-6
...	...	...	...
93	NORWAY	1	1819-8-31
126	CENTRAL AFRICAN REPUBLIC	1	1921-9-16
124	PALAU	1	1914-10-23
118	KIRIBATI	1	1905-6-30
155	COMOROS	1	2018-5-15

2.1

From the user guide, if the value of WIND-OBSERVATION type code falls on 9,we delete the data if the original data is missing and no longer valid, meanwhile the speed is filled 9999. Additionally, the speed quality code says that 1 means all checks passed. So considering the situation, we only need to consider the valid data of high quality so we run the filter like

```python
Data=Data.loc[(Data['VALID']!='9') &(Data['QUALITY']=='1')& (Data['SPEED']!=float(9999)/10) ]
```
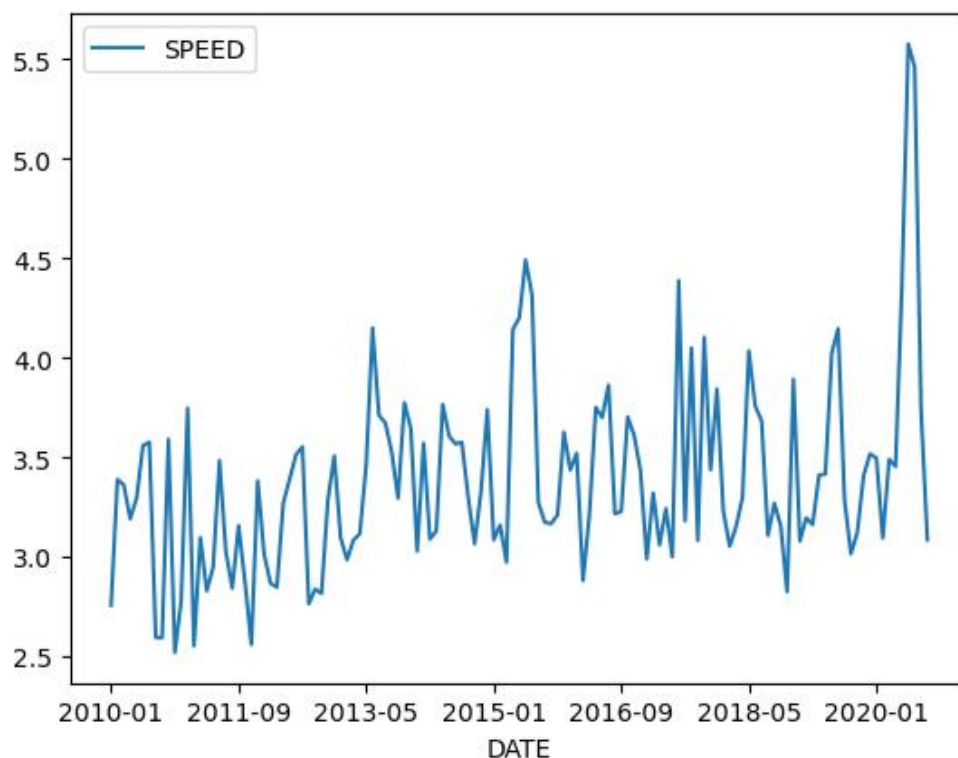
And after the filtering, the monthly averaged wind speed time series is plotted. We can see from the graph that though not very apparent, the wind speed seems to increase year by year,while it remains for scientifically examined to state the trend.

3.1/2

The origin data is from NCEI,SALT LAKE CITY INTERNATIONAL AIRPORT, UT US (USW00024127.csv) . It offers a monthly temperature from 1948 to 2023. So after the data extraction, we have the time series plots like below.
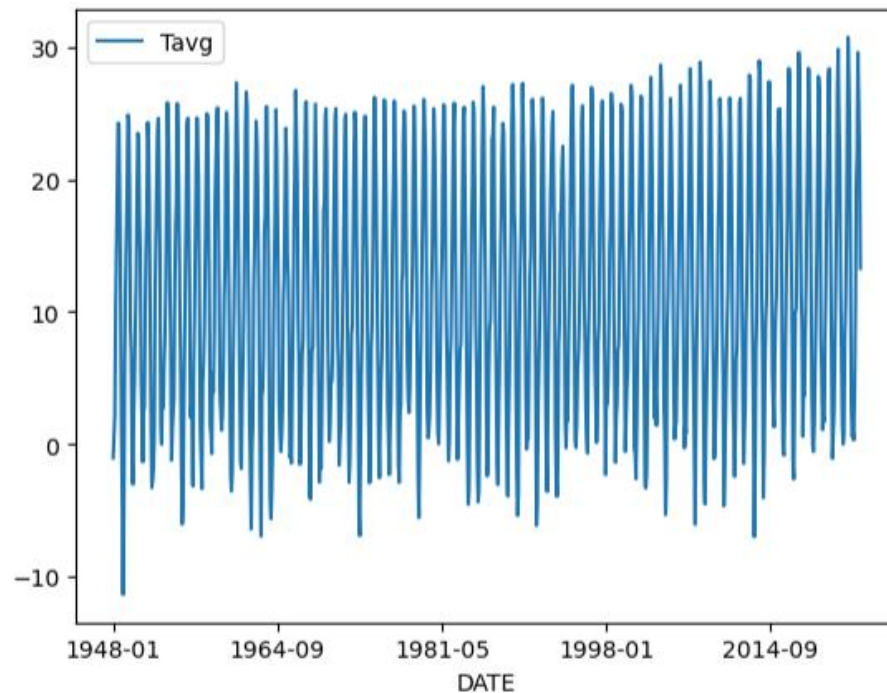
3.3

As for statistical checks,first it goes to the mean value and std for temperature. The final results are 11.5 degrees and 9.59 for mean and std, respectively.

And to see a annual trend, we plot a time series plot for annual temperature, and we can get an apparent trend of temperature increasing since the years proceed.

Then it goes to monthly averages and undoubtedly the temperatures climax in summer and rocket down in the winter.

Lastly, we check the coldest and hottest month in salt lake city during the data period and get the two temperatures as 30.73 and -11.36.