COLLEGE OF ENGINEERING
COMPUTER SCIENCE
VIRGINIA TECH

Information Visualization

CS 5764

Homework # 2

In this assignment, you will practice different plots from the Matplotlib package. The dataset for the first phase of the assignment is "CONVENIENT_global_confirmed_cases" which can be found on the course GitHub. The dataset contains the confirmed COVID cases globally from Jan 23rd, 2020, till November 23rd, 2020. Some countries have multiple columns due to different reporting agencies.

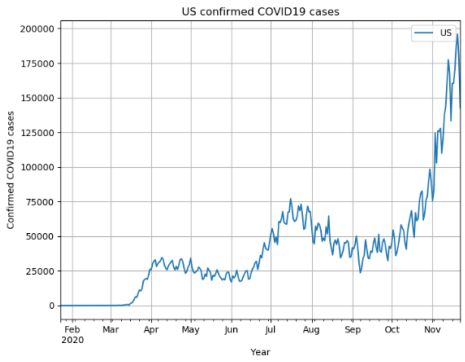
[Use **matplotlib package** only for plotting in this assignment]

1. Load the dataset using pandas package. Clean the dataset by removing the 'nan' and missing data.
2. The country "China" has multiple columns ("China.1", "China.2", …). Create a new column name it "China_sum" which contains the sum of "China.1" + "China.2", … column wise. [numbers may not be accurate]

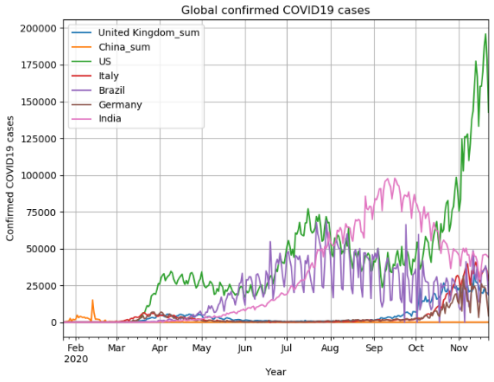
China.1	China.2	China.3	China.4	China.5	China.6
8.0	3.0	4.0	2.0	6.0	3.0
14.0	18.0	5.0	0.0	21.0	18.0
5.0	30.0	8.0	2.0	25.0	0.0
27.0	18.0	17.0	3.0	33.0	13.0
12.0	35.0	24.0	7.0	40.0	10.0
11.0	22.0	21.0	5.0	56.0	5.0

China_sum
95.00000
277.00000
486.00000
669.00000
802.00000
2632.00000

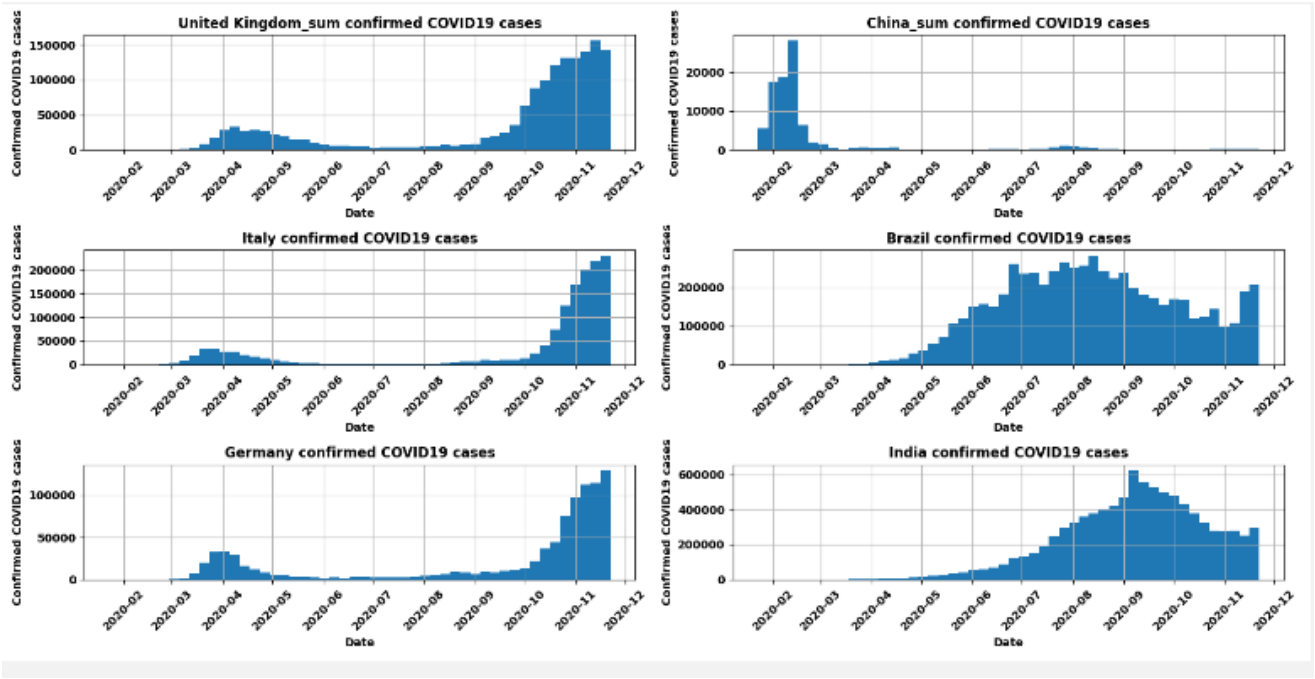
3. Repeat step 2 for the "United Kingdom".
4. Plot the COVID confirmed cases for the following US versus the time. The final plot should look like the following.
5. Repeat step 4 for the "United Kingdom", "China"," Germany"," Brazil", "India" and "Italy".
6. Plot the histogram plot of the graph in Question 4 versus time.
7. Plot the histogram plot of the graph in Question 5 versus time. Use subplot three-by-two. Not a shared axis.
8. Which country (from the list above) has the highest mean, variance and median of # of COVID confirmed cases?



Question 4



Question 5



Question 7

The dataset for this section of the LAB will is 'titanic.' To access the 'titanic' dataset you need to connect to the seaborn repository.

1- The titanic dataset needs to be cleaned due to nan entries. Remove all the nan in the dataset using "dropna()" method. Show the dataset is cleaned and display the first five rows of the dataset.

2- Develop a python program that plot the pie chart and shows the number of male and female on the titanic dataset. Display the total number of males and females on the console.

3- Develop a python program that plot the pie chart and shows the percentage of male and female on the titanic dataset. Display the percentage of males and females on the console.

4- Develop a python program that plot the pie chart showing the percentage of males who survived versus the percentage of males who did not survive. Display the numbers of the console.

5- Develop a python program that plot the pie chart showing the percentage of females who survived versus the percentage of females who did not survive. Display the numbers of the console.

6- Develop a python program that plots the pie chart showing the percentage passengers with first class, second class and third-class tickets. Display the numbers of the console.

7- Develop a python program that plots the pie chart showing the survival percentage rate based on the ticket class. Display the numbers of the console.

8- Develop a python program that plots the pie charts showing the percentage passengers who survived versus the percentage of passengers who did not survive with the first-class, second-and third-class ticket category. Display the numbers of the console.

9- Using the matplotlib and plt.subplots [3x3] create a dashboard which includes all the pie charts above. Note: Use the figure size = (16,8).

All the figures should have the appropriate title and legend with the correct label.