

Causes of Death STEP4

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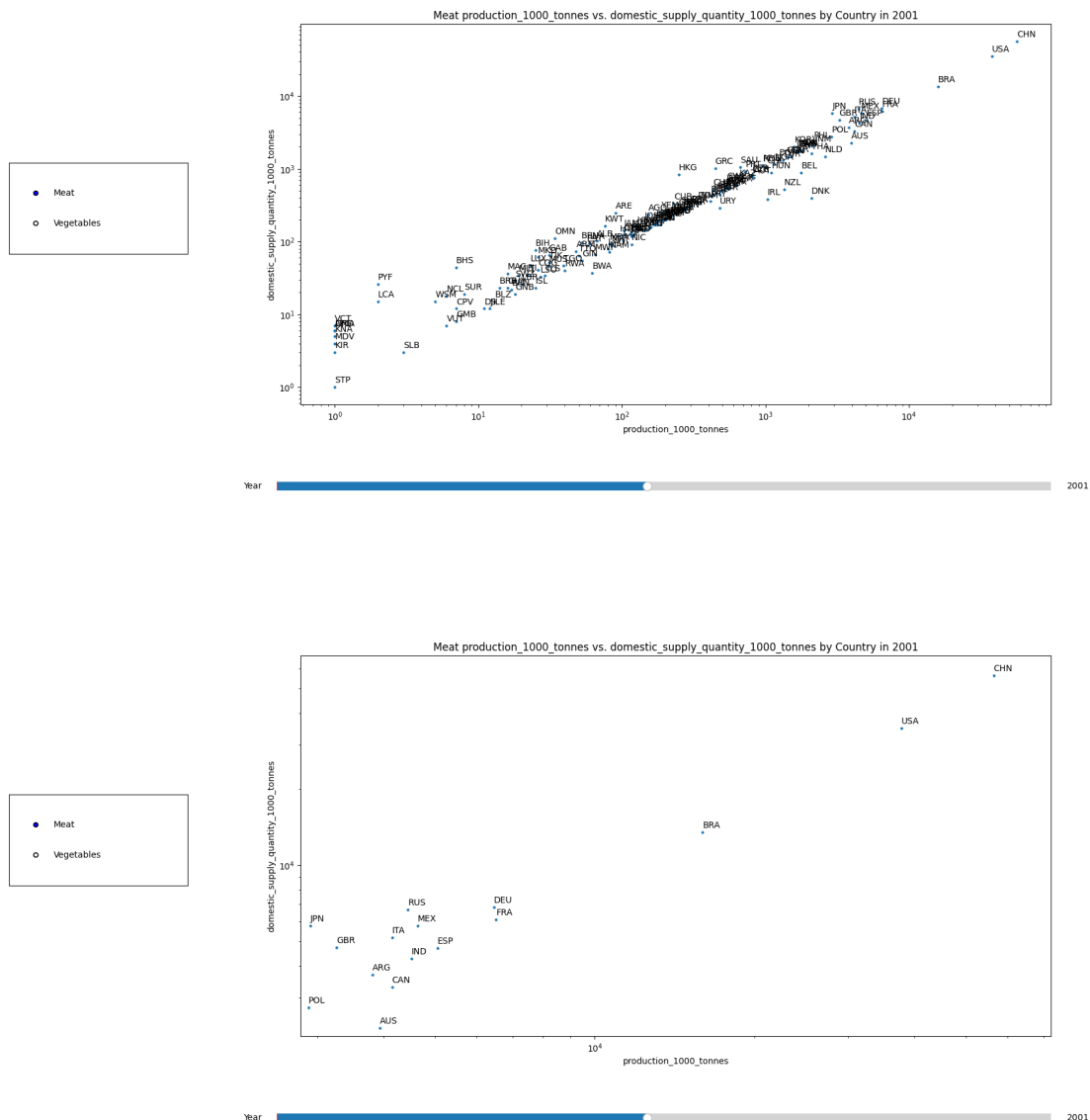
CS306 Spring 22-23

[GitHub Repository](#)

Data Story

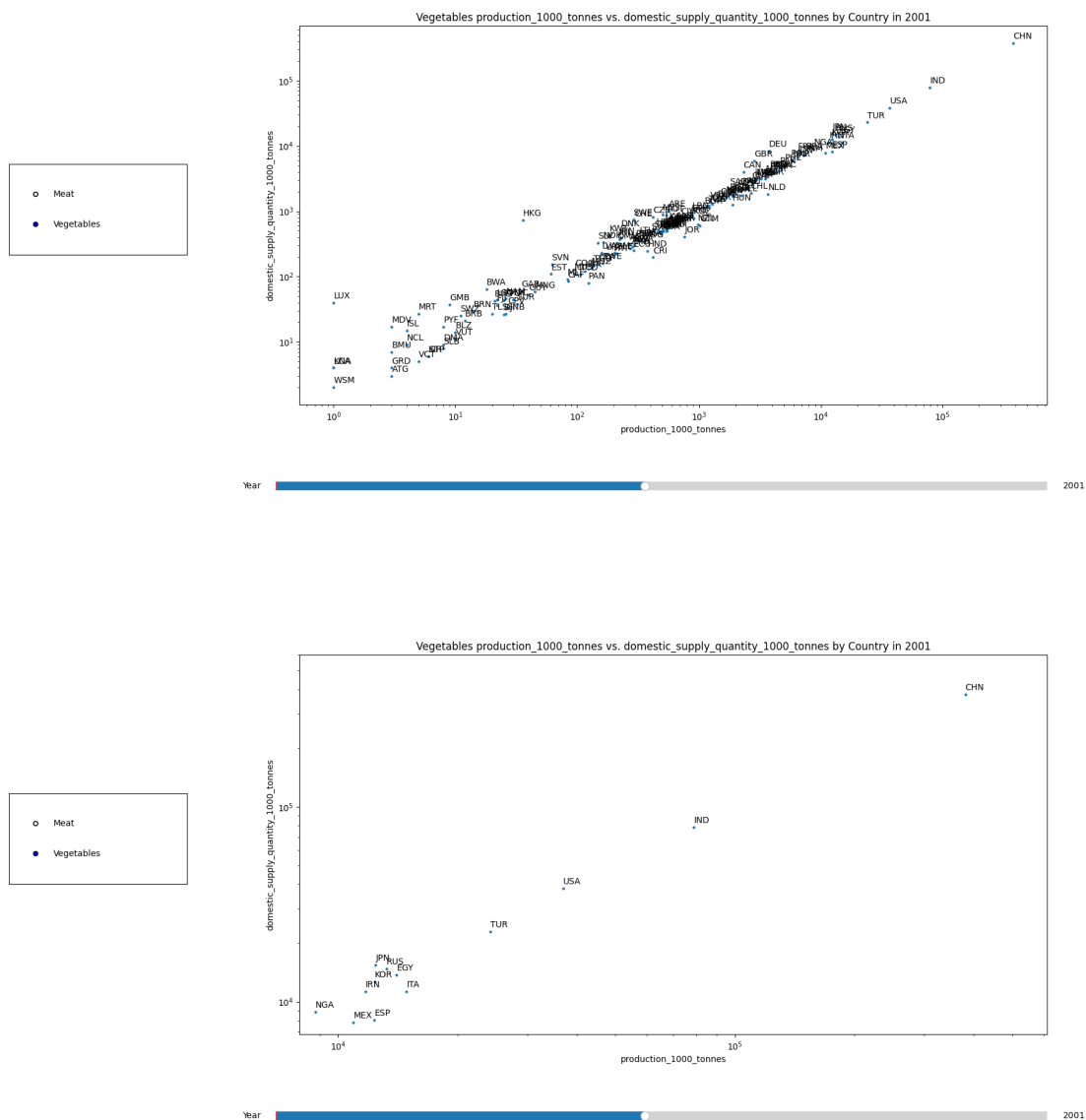
Food Management (Alaa Almouradi):

My python code generates an interactive figure that allows you to go through the years and choose between Meat and Vegetables to show production vs supply of each country in that year and food category. I took the following Snapshots to explain the data story:



For "Meat", it is obvious from the graph that there is a correlation between production and supply, as high producing countries also rank high on supply. It can also be seen that in the zoomed in figure that in the year 2001 China ranked highest in both production and supply, followed by the USA and Brazil. Countries that produce less than they supply would indicate

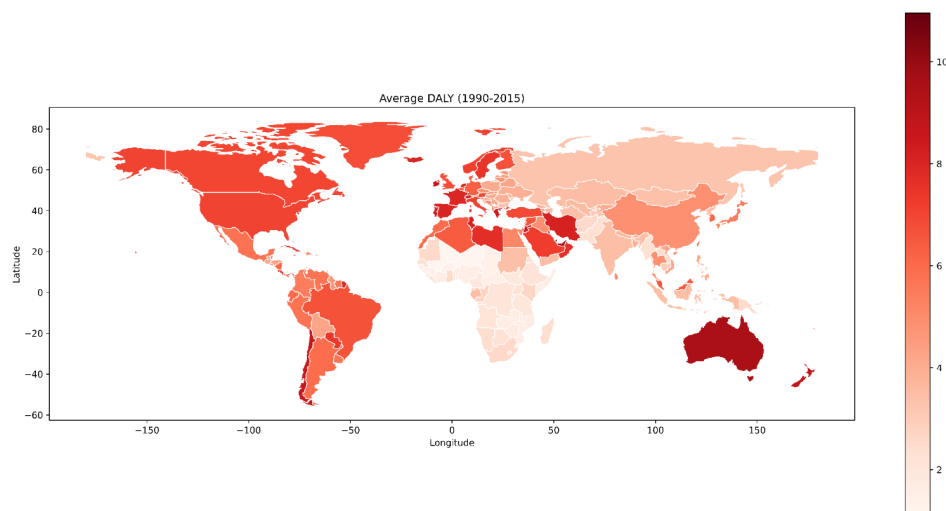
either importing or use of old produce, while countries that produce more than they supply would indicate export or storage of produce.



For "Vegetables" the correlation can also be observed. China can be seen to also rank highest in vegetable production and supply, but this time followed by India then the USA. It can also be seen that Turkey has a higher presence in the vegetables category than the meat category, indicating the attention paid to vegetable production in the country.

Mental Disorders and DALY (M Safwan Yasin):

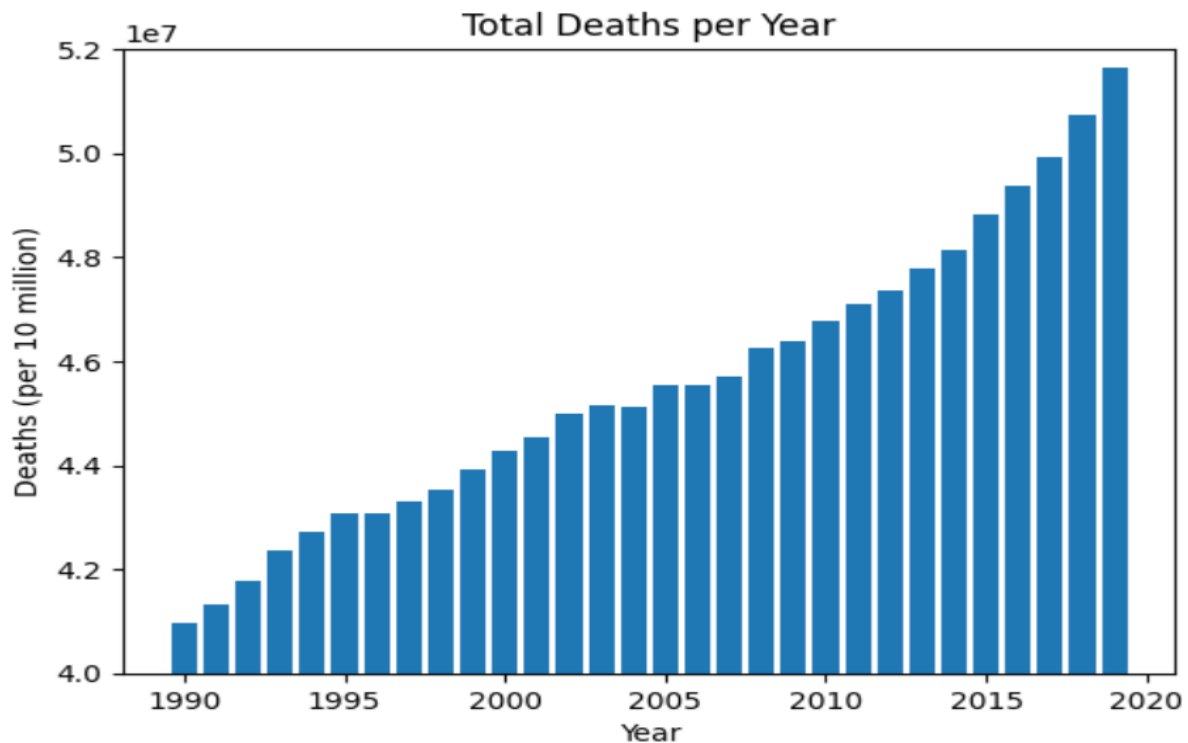
The python code visualizes data about the average presence of DALY between 1990 and 2015 in each country. I chose a scatter map to portray the data since it was geographical in nature. As it can be seen from the legend in the figure below, a country depicted with a darker shade of red indicates a higher value of DALY. This implies that countries with a higher value of DALY have a greater prevalence of illness, disability and premature mortality, thus requiring a greater need for healthcare intervention. A higher value of DALY also indicates more years of healthy life lost due to illness or disability.



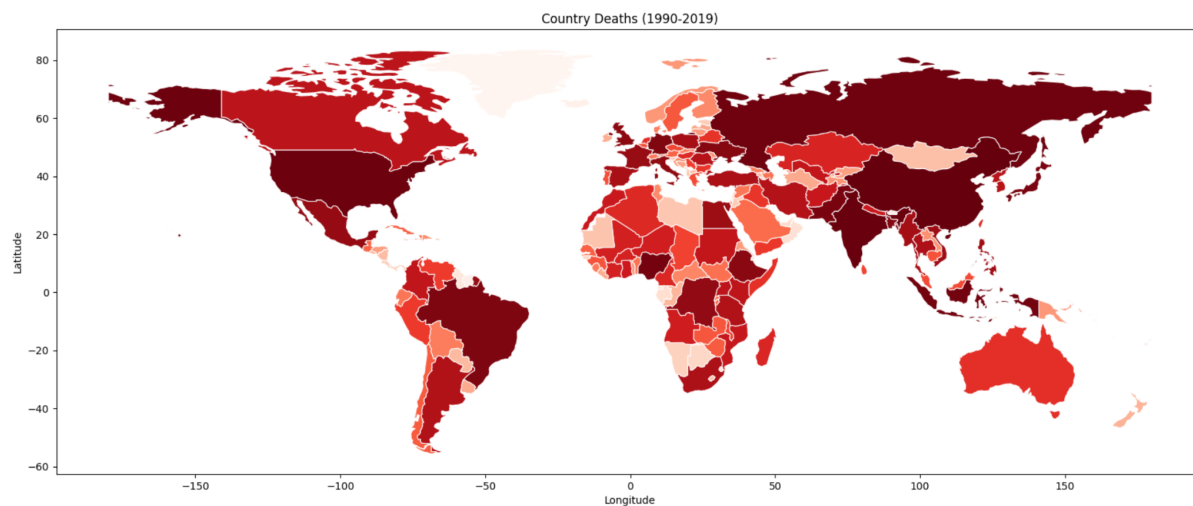
From the figure, it can be interpreted that generally countries in Western Europe, Oceania, North Africa, the Middle East and the Americas had higher values of DALY. This can be attributed to multiple reasons such as environmental issues (pollution, unsafe water etc.), lifestyle choices (tobacco and alcohol use, poor diet, lack of exercise etc), or a limited access to healthcare facilities. Lastly, it is also important to note that a **higher value of DALY can indicate a higher death rate within a country.**

Causes of Death (Fatma Khalil):

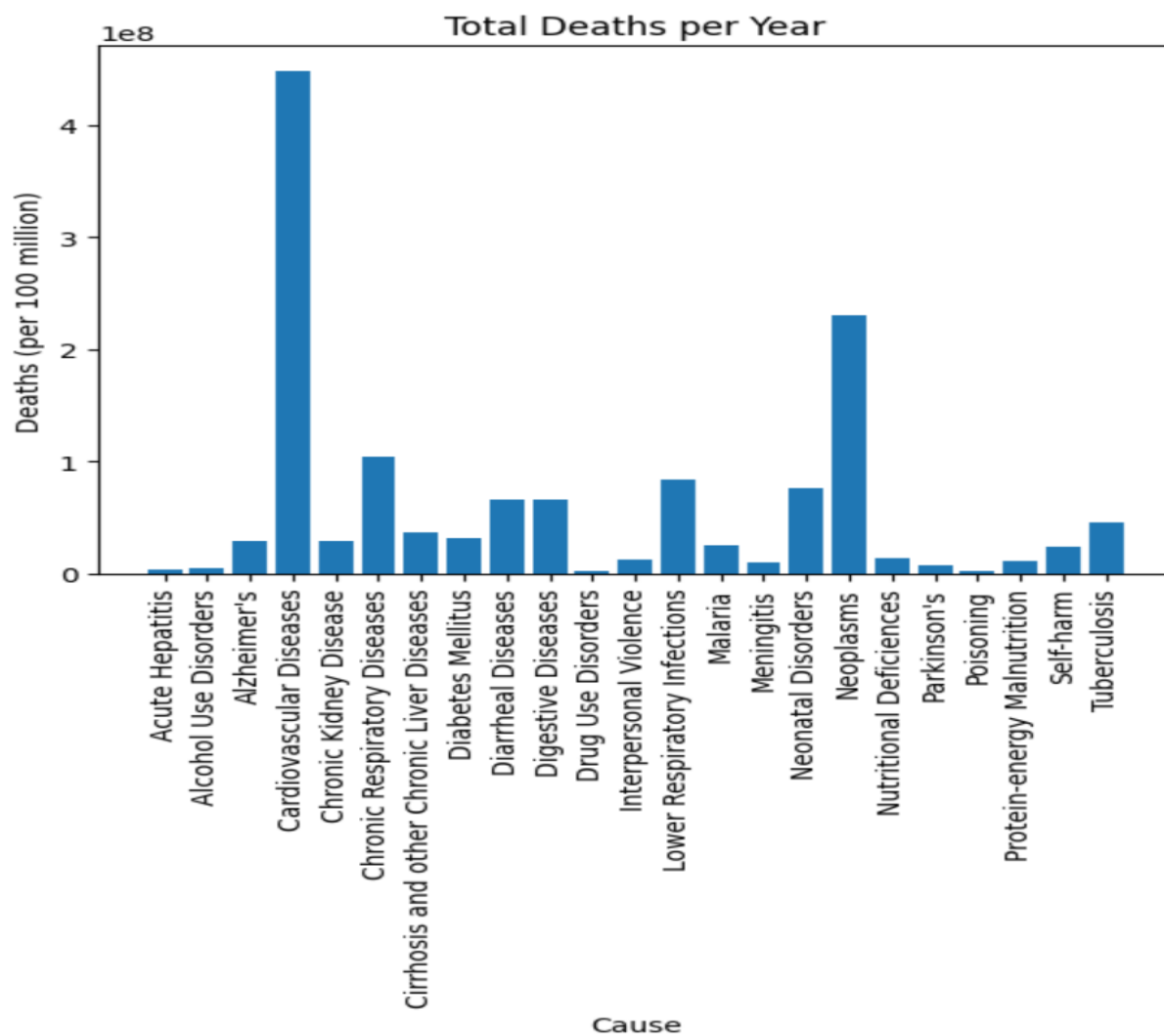
I chose to visualize my data using a column chart using python and matplotlib library. I wanted to plot the total number of deaths that occurred from the years 1990 to 2019. From the plot we can derive that as the years go on, the amount of deaths per year increases. However this plot does not give an explanation to why this increase happens. Naturally we can derive that an increasing population would be the cause, but there are other underlying reasons for that increase as well.



I then used an area map in order to draw some conclusions. The map was written in python using the code from fellow team member Safwan Yasin. The map below shows how many deaths occurred in a country from the years 1990 to 2019. The darker the red is, the more deaths are there in the country. At first glance, it can also be concluded that a high population is a reason for the large amount of deaths. But upon further inspection countries with the highest death count are also countries that consume a greater amount of meat. The increased consumption of meat makes a person more susceptible to cardiovascular diseases, and thus making it a major cause of death.



This fact is not only corroborated by fellow team member Alaa Almouradi's finding, but through a further column chart I have made; as shown below.

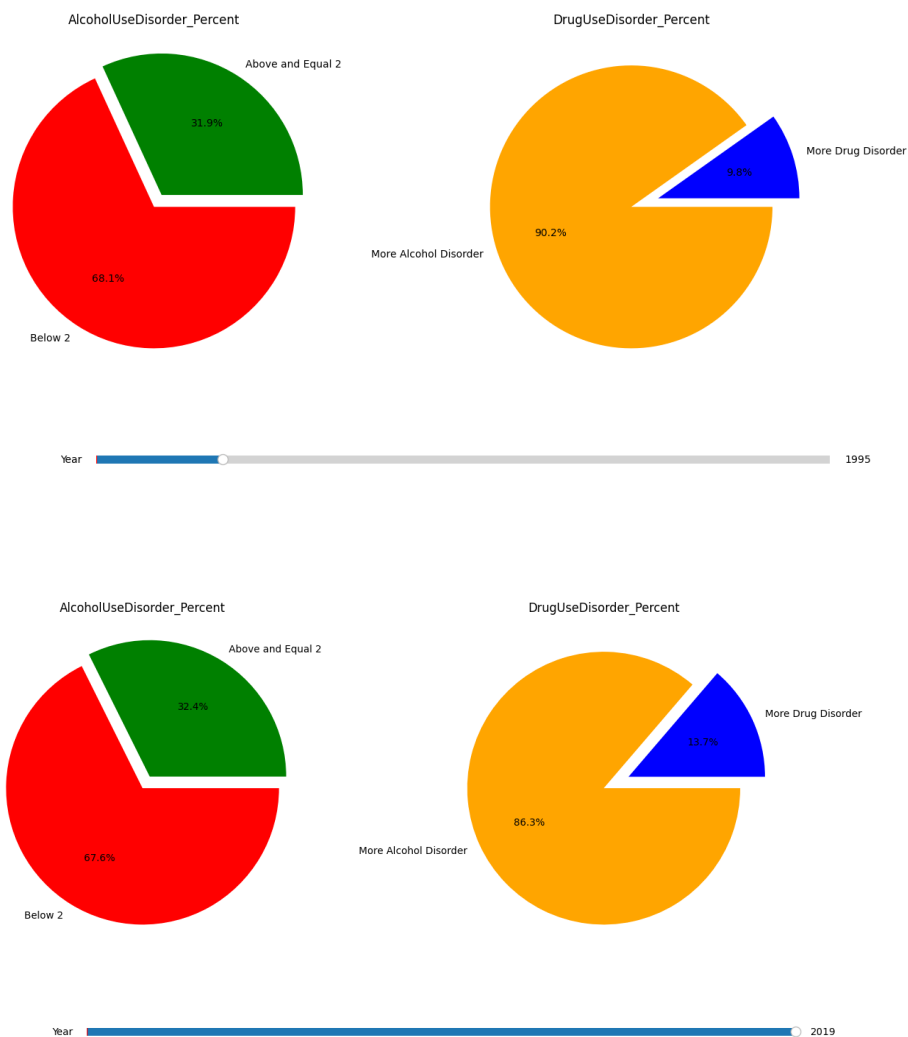


Substance Abuse (Filzah Azeem):

For my data, I chose to generate pie charts for each of my views that I created in STEP 3. My code generates an interactive pie chart which allows you to scroll through the years to see the percentages of the countries. In `AlcoholUseDisorder_Percent`, it checks yearly which countries have an alcohol use percent of greater than or equal to 2 per year and displays the result against the ones that have alcohol less than 2.

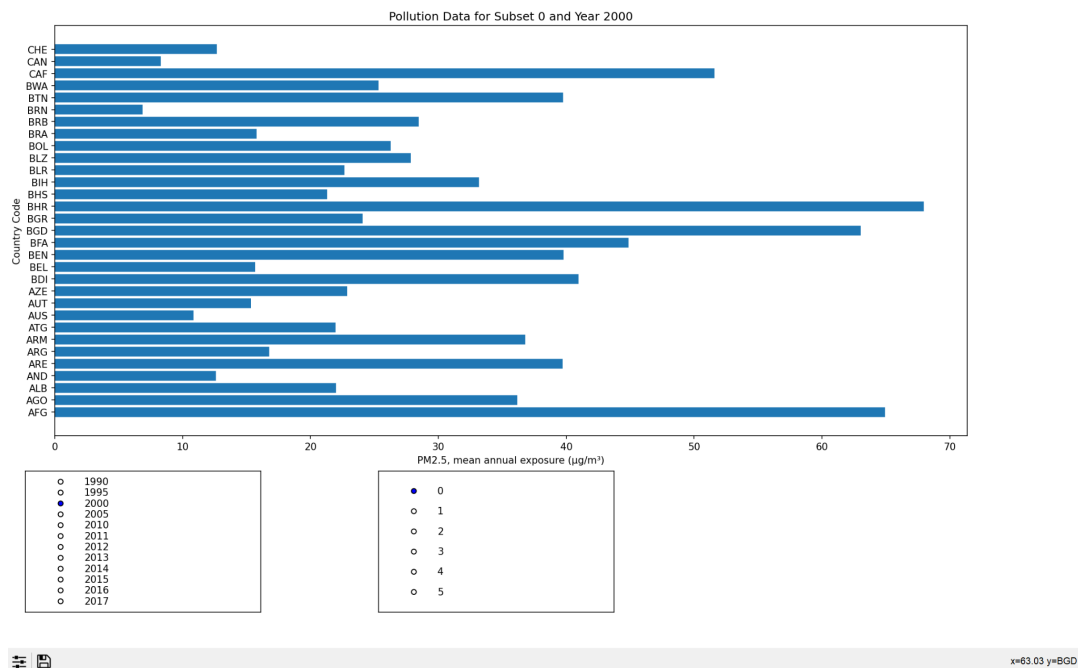
In `DrugUseDisorder_Percent`, it shows the countries that have more drug use disorders as compared to alcohol use disorders and shows the percentages of the countries that show this against the ones that have more alcohol disorders than drug use disorders.

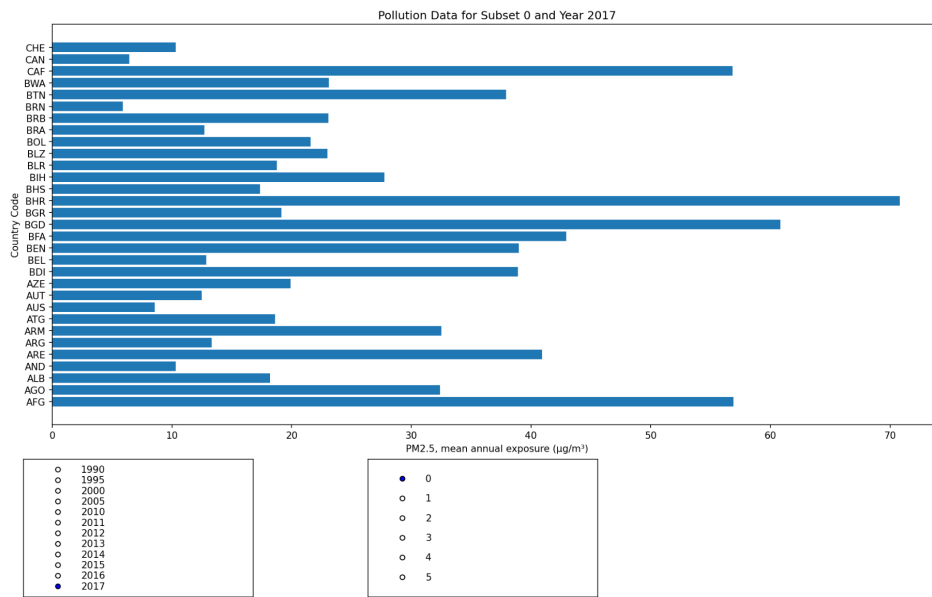
Generally, there wasn't much of a difference between the years 1990 and 2019, we just see a slight shift in the percentages of countries that exhibit more drug use disorders than alcohol use disorders.



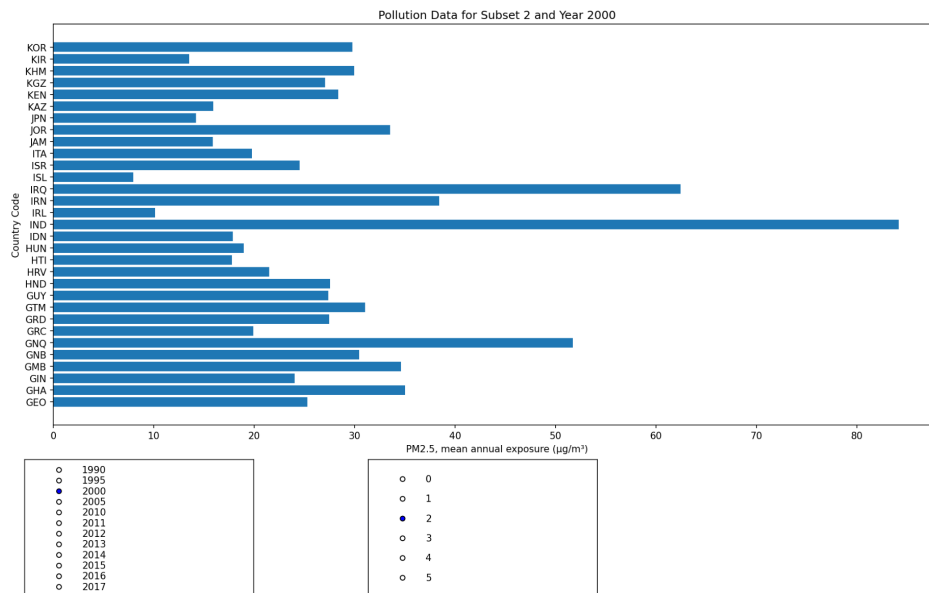
Air Pollution (Saleh Alshurafa):

My python code generates an interactive horizontal bar graph where a user can choose a specific year and a subset of countries to check the mean annual exposure to air pollution for microorganisms per meter cube in that country. Countries were split into such subsets because having all countries in one graph is unreadable and thus they were split into subsets so that a user can read the data more comfortably. Below are screenshots of a generated graph where we check the data for 2 different subsets of countries over 2 different years:

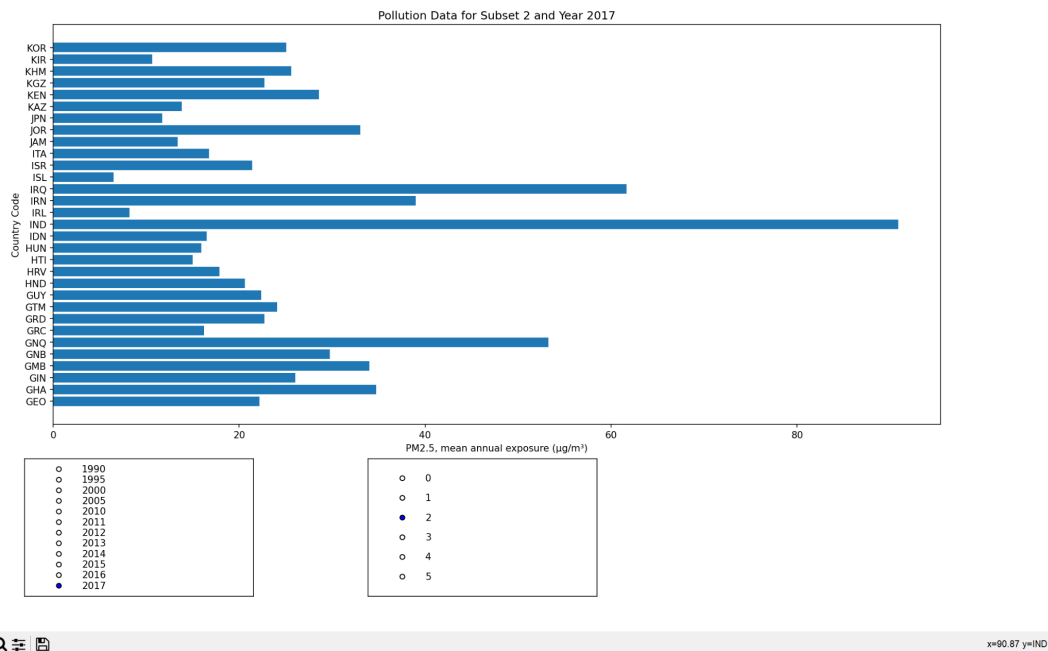




x=60.84 y=BGD



x=84.16 y=IND



The figures above give us a sense of which countries are the ones suffering the most from air pollution, which countries are not improving in their fight against air pollution, which countries are reducing air pollution, and what could be the reasons behind their struggles or success. For example, we can see that India, Bangladesh, Afghanistan, Iraq, and Equatorial Guinea are among the countries with the highest mean annual exposure rates. If we focus on India we can see that in the year 2000, India had a mean annual exposure of 84.16 microorganisms per cubic meter. Then, in the year 2017, India's mean annual exposure rate reached 90.87 microorganisms per cubic meter. This indicates that India has probably not improved their counter pollution mechanisms which is resulting in more exposure to pollution. On the other hand, Bangladesh has shown improvement going from 63.03 in 2000 to 60.84 microorganisms per cubic meter in 2017 which could indicate that they have taken some steps to reduce pollution but still need to take larger steps since they still have a really high mean annual exposure rate. If we compare the 5 countries we mentioned above, we can find that they have some common features such as high poverty rates and pretty low GDP per capita. This could explain why they have some of the highest mean annual exposure rates among the countries in their subsets. Additionally, this tells us that we should look at other countries who also have similar characteristics to see if they also have high mean annual exposure rates. Indeed we find that the Central African Republic which also has a high poverty rate and a low GDP per capita is another country that has a high mean annual exposure rate. This shows that high poverty rates and low GDP per capita can be one of the main factors that contribute to air pollution especially since countries like Iceland, South

Korea, and Ireland who have really high GDP per capita and not-so-high poverty rates have much lower mean annual exposure rates than our 5 countries. Thus, we should look more into how GDP per capita and high poverty rates contribute to air pollution and what we can do to stop that.