PROJECT REPORT

FLIP ROBO

CAUSE OF DEATH

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ACKNOWLEDGEMENT

It is my gratification to present this report. I, would like to thanks FlipRobo Technologies and my batch’s SME Khushboo Garg Mam for providing us this dataset and giving us chance to explore and get insights of such an informative world-wide data related to health-issues and deaths because of it.

Working on this dataset gave many insights and information about the various diseases that have affected or caused deaths across all the countries around the globe.

Introduction

- ## Problem Statement:

A straightforward way to assess the health status of a population is to focus on mortality – or concepts like child mortality or life expectancy, which are based on mortality estimates. A focus on mortality, however, does not take into account that the burden of diseases is not only that they kill people, but that they cause suffering to people who live with them. Assessing health outcomes by both mortality and morbidity (the prevalent diseases) provides a more encompassing view on health outcomes. This is the topic of this entry. The sum of mortality and morbidity is referred to as the 'burden of disease' and can be measured by a metric called 'Disability Adjusted Life Years' (DALYs). DALYs are measuring lost health and are a standardized metric that allow for direct comparisons of disease burdens of different diseases across countries, between different populations, and over time. Conceptually, one DALY is the equivalent of losing one year in good health because of either premature death or disease or disability. One DALY represents one lost year of healthy life. The first 'Global Burden of Disease' (GBD) was GBD 1990 and the DALY metric was prominently featured in the World Bank's 1993 World Development Report. Today it is published by both the researchers at the Institute of Health Metrics and Evaluation (IHME) and the 'Disease Burden Unit' at the World Health Organization (WHO), which was created in 1998. The IHME continues the work that was started in the early 1990s and publishes the Global Burden of Disease study.

- ## Motivation for the Problem Undertaken:

Measuring how many people die each year and why they have died is one of the most informative ways of assessing the effectiveness of a country's health system. Mortality data allow health authorities to evaluate how they prioritize public health programs.

Aggregation was done over estimates of "Total Deaths", "Deaths by Cause" and by "Country/ Territory" to estimate regional and global cause specific mortality rates.

Analytical Problem Framing

- **Analytical Modelling of the Problem:**

  1. Checking the year wise count of total deaths from 1990-2019
     -Displaying Total Deaths of all Countries in Descending order

  2. Analysis with respect to either
     a) Each Disease that has affected which Top 10 Countries ‘or’
     b) Top 10 Diseases of each Country

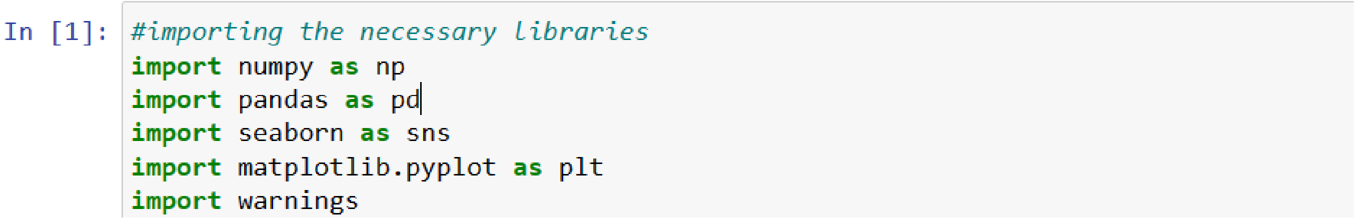
Hardware and Software Requirements and Tools Used

- **Languages Used:** Python

- **Platform Used:** Jupyter Notebook

- **Libraries and Metrics used:**

Following are the libraries used to carry our analysis

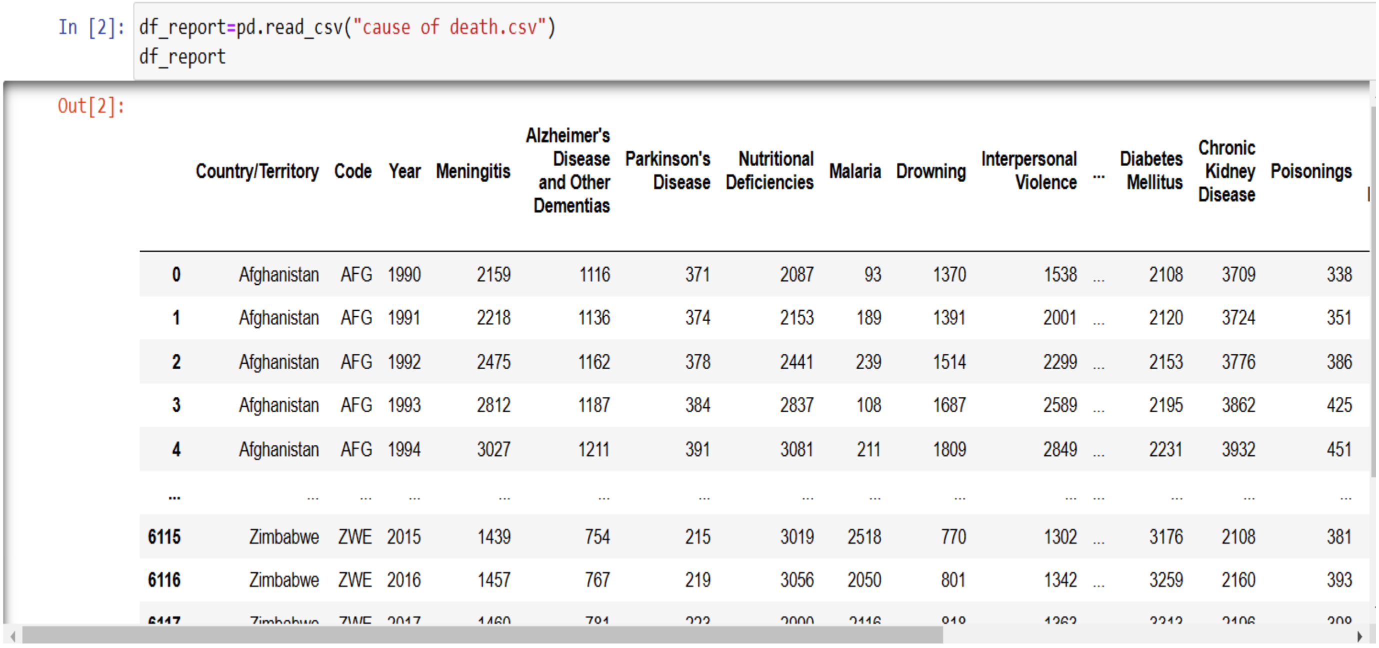


```
In [1]: #importing the necessary libraries
        import numpy as np
        import pandas as pd
        import seaborn as sns
        import matplotlib.pyplot as plt
        import warnings
```

Data Sources and their formats

In this Dataset, we have Historical Data of different cause of deaths for all ages around the World. The key features of this Dataset are: Meningitis, Alzheimer's Disease and Other Dementias, Parkinson's Disease, Nutritional Deficiencies, Malaria, Drowning, Interpersonal Violence, Maternal Disorders, HIV/AIDS, Drug Use Disorders, Tuberculosis, Cardiovascular Diseases, Lower Respiratory Infections, Neonatal Disorders, Alcohol Use Disorders, Self-harm, Exposure to Forces of Nature, Diarrheal Diseases, Environmental Heat and Cold Exposure, Neoplasms, Conflict and Terrorism, Diabetes Mellitus, Chronic Kidney Disease, Poisonings, Protein-Energy Malnutrition, Road Injuries, Chronic Respiratory Diseases, Cirrhosis and Other Chronic Liver Diseases, Digestive Diseases, Fire, Heat, and Hot Substances, Acute Hepatitis.

Including the snapshot of the data set provided and loaded



In [2]:

```
df_report=pd.read_csv("cause of death.csv")
df_report
```

Out[2]:

	Country/Territory	Code	Year	Meningitis	Alzheimer's Disease and Other Dementias	Parkinson's Disease	Nutritional Deficiencies	Malaria	Drowning	Interpersonal Violence	...	Diabetes Mellitus	Chronic Kidney Disease	Poisonings
0	Afghanistan	AFG	1990	2159	1116	371	2087	93	1370	1538	...	2108	3709	338
1	Afghanistan	AFG	1991	2218	1136	374	2153	189	1391	2001	...	2120	3724	351
2	Afghanistan	AFG	1992	2475	1162	378	2441	239	1514	2299	...	2153	3776	386
3	Afghanistan	AFG	1993	2812	1187	384	2837	108	1687	2589	...	2195	3862	425
4	Afghanistan	AFG	1994	3027	1211	391	3081	211	1809	2849	...	2231	3932	451
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6115	Zimbabwe	ZWE	2015	1439	754	215	3019	2518	770	1302	...	3176	2108	381
6116	Zimbabwe	ZWE	2016	1457	767	219	3056	2050	801	1342	...	3259	2160	393
6117	Zimbabwe	ZWE	2017	1460	781	223	[illegible]	2116	818	1363	...	3313	2106	398

Data Inputs- Logic- Output Relationships

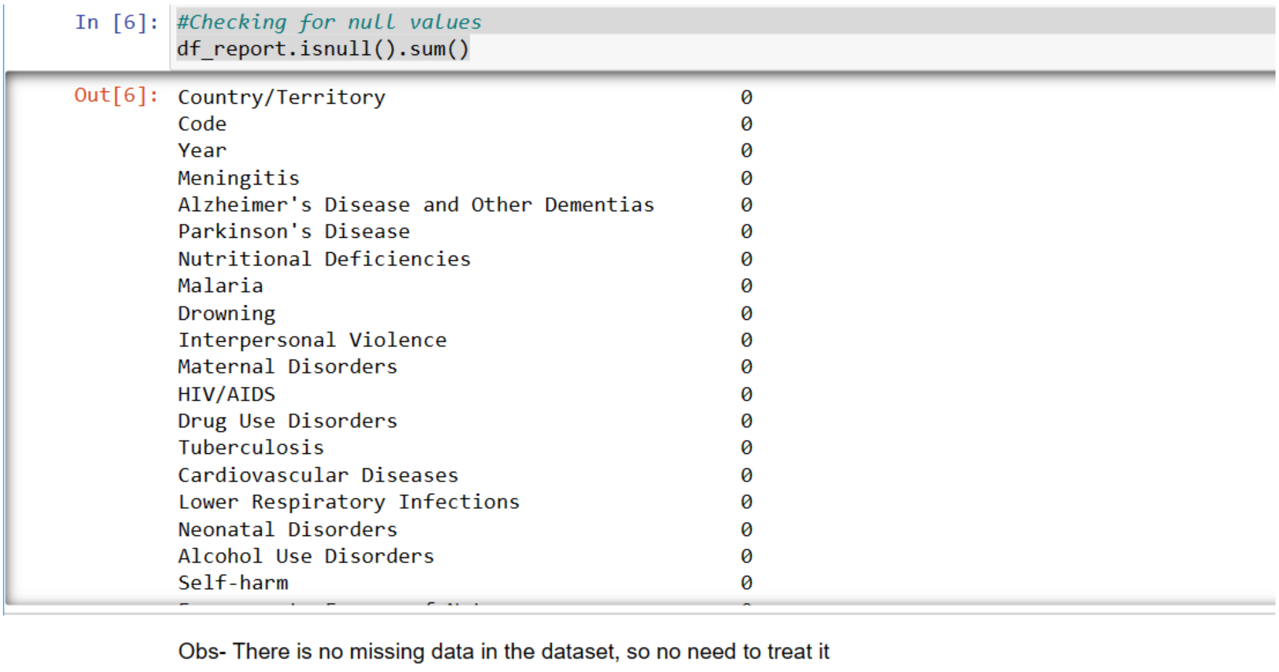
There are total 34 columns, of which 31 are the various causes of disease and 6120 rows containing 30 years data(1990-2019) of 204 Countries. Below are the details of all the input variables and their entries.

- 01. Country/Territory - Name of the Country/Territory
- 02. Code - Country/Territory Code
- 03. Year - Year of the Incident
- 04. Meningitis - No. of People died from Meningitis
- 05. Alzheimer's Disease and Other Dementias - No. of People died from Alzheimer's Disease and Other Dementias
- 06. Parkinson's Disease - No. of People died from Parkinson's Disease
- 07. Nutritional Deficiencies - No. of People died from Nutritional Deficiencies
- 08. Malaria - No. of People died from Malaria
- 09. Drowning - No. of People died from Drowning
- 10. Interpersonal Violence - No. of People died from Interpersonal Violence
- 11. Maternal Disorders - No. of People died from Maternal Disorders
- 12. Drug Use Disorders - No. of People died from Drug Use Disorders
- 13. Tuberculosis - No. of People died from Tuberculosis
- 14. Cardiovascular Diseases - No. of People died from Cardiovascular Diseases
- 15. Lower Respiratory Infections - No. of People died from Lower Respiratory Infections
- 16. Neonatal Disorders - No. of People died from Neonatal Disorders
- 17. Alcohol Use Disorders - No. of People died from Alcohol Use Disorders
- 18. Self-harm - No. of People died from Self-harm
- 19. Exposure to Forces of Nature - No. of People died from Exposure to Forces of Nature
- 20. Diarrheal Diseases - No. of People died from Diarrheal Diseases
- 21. Environmental Heat and Cold Exposure - No. of People died from Environmental Heat and Cold Exposure
- 22. Neoplasms - No. of People died from Neoplasms
- 23. Conflict and Terrorism - No. of People died from Conflict and Terrorism
- 24. Diabetes Mellitus - No. of People died from Diabetes Mellitus
- 25. Chronic Kidney Disease - No. of People died from Chronic Kidney Disease
- 26. Poisonings - No. of People died from Poisoning
- 27. Protein-Energy Malnutrition - No. of People died from Protein-Energy Malnutrition
- 28. Chronic Respiratory Diseases - No. of People died from Chronic Respiratory Diseases
- 29. Cirrhosis and Other Chronic Liver Diseases - No. of People died from Cirrhosis and Other Chronic Liver Diseases
- 30. Digestive Diseases - No. of People died from Digestive Diseases
- 31. Fire, Heat, and Hot Substances - No. of People died from Fire or Heat or any Hot Substances
- 32. Acute Hepatitis - No. of People died from Acute Hepatitis

Data Pre-processing

1. **<u>Checking for null values:</u>** We should deal with the problem of missing values

df_report.isnull().sum()

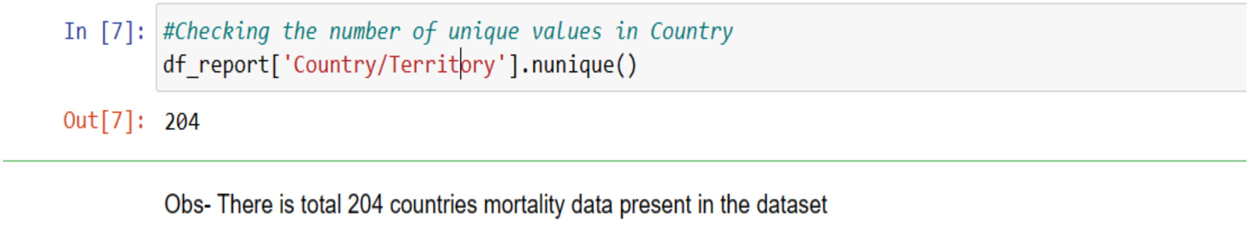


```
In [6]: #Checking for null values
        df_report.isnull().sum()

Out[6]: Country/Territory                         0
        Code                                      0
        Year                                      0
        Meningitis                                0
        Alzheimer's Disease and Other Dementias   0
        Parkinson's Disease                       0
        Nutritional Deficiencies                  0
        Malaria                                   0
        Drowning                                  0
        Interpersonal Violence                    0
        Maternal Disorders                        0
        HIV/AIDS                                  0
        Drug Use Disorders                        0
        Tuberculosis                              0
        Cardiovascular Diseases                   0
        Lower Respiratory Infections              0
        Neonatal Disorders                        0
        Alcohol Use Disorders                     0
        Self-harm                                 0
```

Obs- There is no missing data in the dataset, so no need to treat it

2. **<u>Checking for Country Count</u>**

df_report['Country/Territory'].nunique()

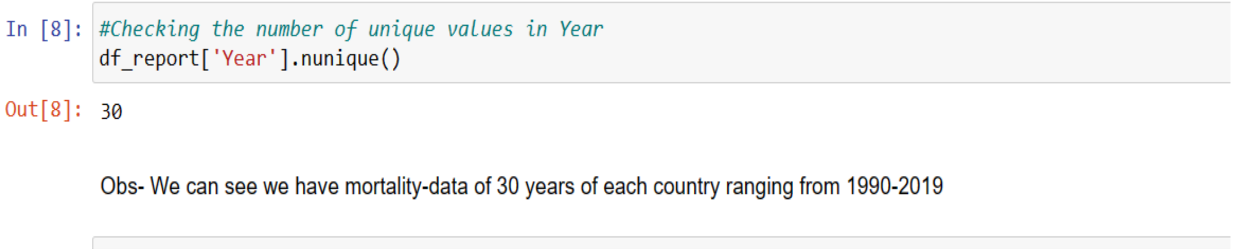


```
In [7]: #Checking the number of unique values in Country
        df_report['Country/Territory'].nunique()

Out[7]: 204
```

Obs- There is total 204 countries mortality data present in the dataset

3. **<u>Checking for total number of Years Count</u>**

df_report['Year'].nunique()



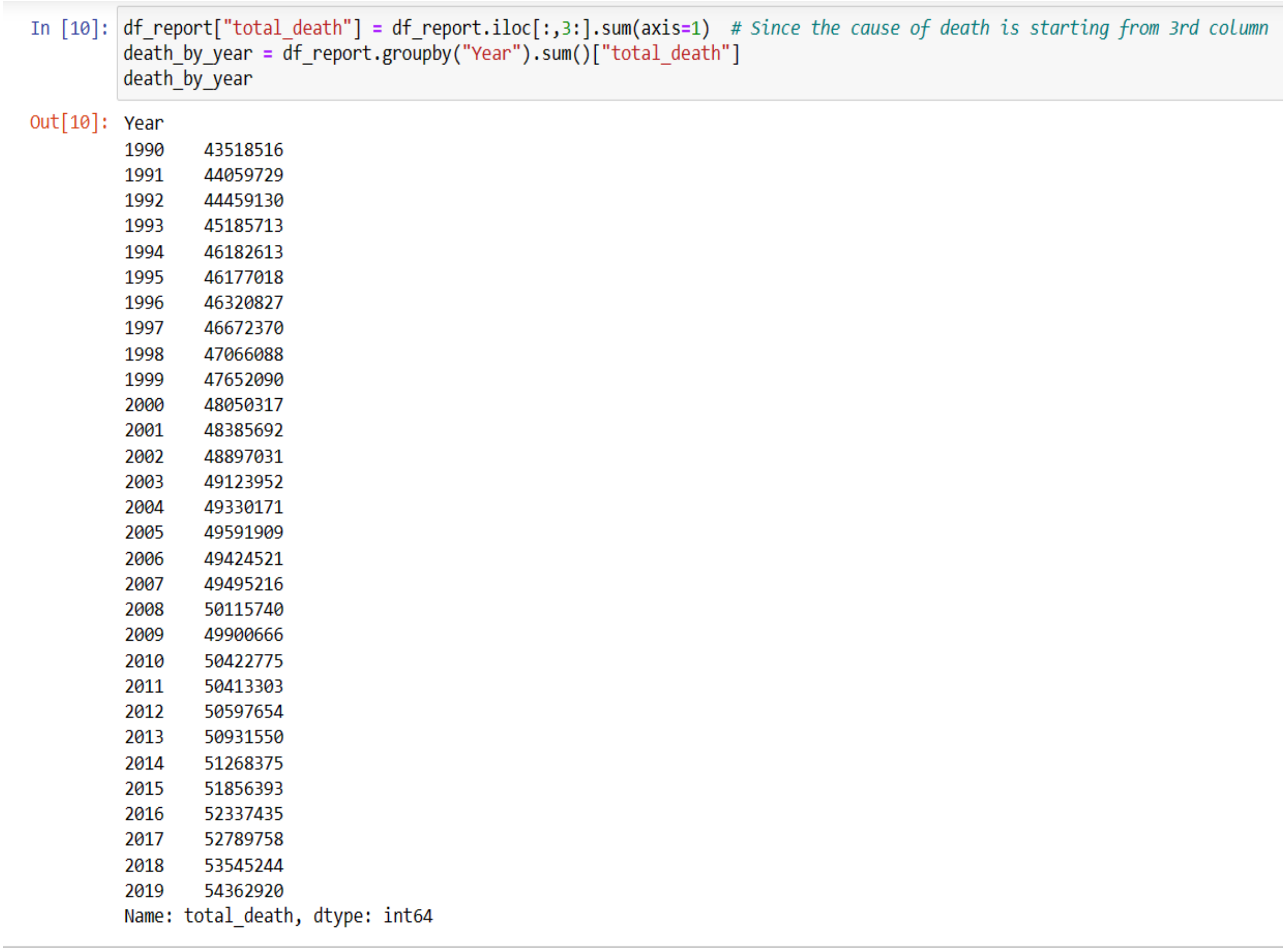
```
In [8]: #Checking the number of unique values in Year
        df_report['Year'].nunique()

Out[8]: 30
```

Obs- We can see we have mortality-data of 30 years of each country ranging from 1990-2019

Data Analysis and Visualization

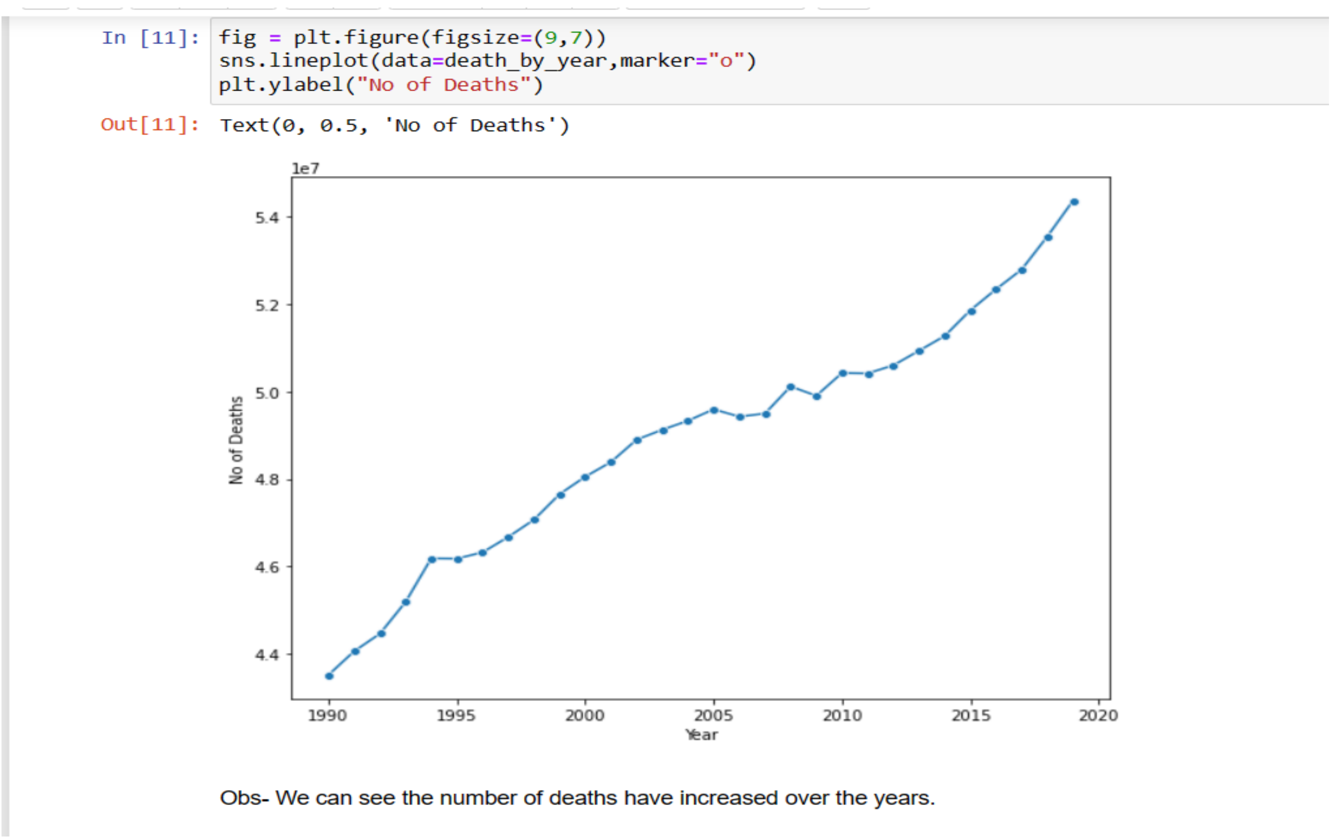
For getting the insights of relationship between the various features we considered doing certain analysis(We carried on our analysis with respect to either a)Each Disease that has affected which Top 10 Countries ‘or’ b) Top 10 Diseases of each Country throughout so as to get detailed insights of which country has been affected the most and with which disease.) and visualization to discover any hidden patterns.

1. Checking the year wise count of total deaths from 1990-2019



```
In [10]: df_report["total_death"] = df_report.iloc[:,3:].sum(axis=1)  # Since the cause of death is starting from 3rd column
         death_by_year = df_report.groupby("Year").sum()["total_death"]
         death_by_year

Out[10]: Year
         1990    43518516
         1991    44059729
         1992    44459130
         1993    45185713
         1994    46182613
         1995    46177018
         1996    46320827
         1997    46672370
         1998    47066088
         1999    47652090
         2000    48050317
         2001    48385692
         2002    48897031
         2003    49123952
         2004    49330171
         2005    49591909
         2006    49424521
         2007    49495216
         2008    50115740
         2009    49900666
         2010    50422775
         2011    50413303
         2012    50597654
         2013    50931550
         2014    51268375
         2015    51856393
         2016    52337435
         2017    52789758
         2018    53545244
         2019    54362920
         Name: total_death, dtype: int64
```

1.1 Plotting a line plot to check total deaths of all years(1990-2019)



In [11]:
```
fig = plt.figure(figsize=(9,7))
sns.lineplot(data=death_by_year,marker="o")
plt.ylabel("No of Deaths")
```

Out[11]:
```
Text(0, 0.5, 'No of Deaths')
```

Obs- We can see the number of deaths have increased over the years.

- **Further Analysis:**

We carried on our analysis with respect to either :

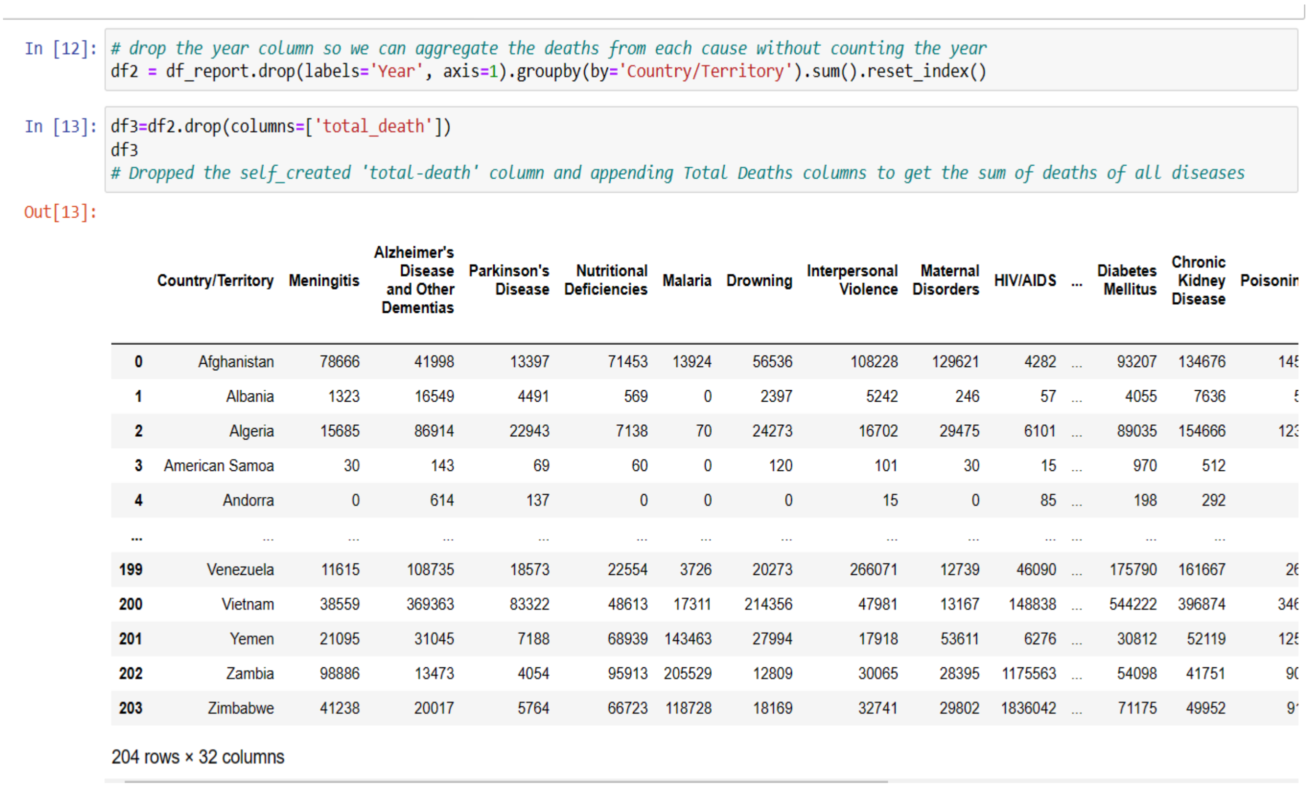
a) Each Disease (Cause_of_death) that has affected which Top 10 Countries ‘or’

b) Top 10 Diseases of each Country

throughout so as to get detailed insights of which country has been affected the most and with which disease.

- **Steps Followed:**

a) We want to take a look at the total global deaths and which countries lead in total deaths.
b) Thus, we are aggregating across the DataFrame and would therefore drop the 'Year' column.
c) And the Total Global Deaths from 1990-2019 will be displayed at end



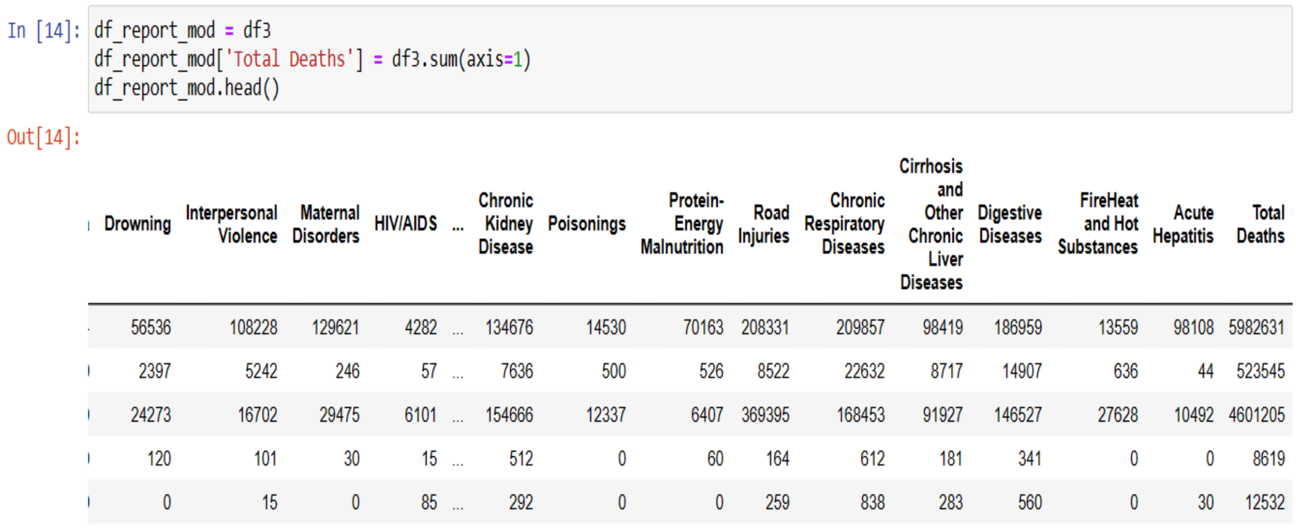
In [12]:
```
# drop the year column so we can aggregate the deaths from each cause without counting the year
df2 = df_report.drop(labels='Year', axis=1).groupby(by='Country/Territory').sum().reset_index()
```

In [13]:
```
df3=df2.drop(columns=['total_death'])
df3
# Dropped the self_created 'total-death' column and appending Total Deaths columns to get the sum of deaths of all diseases
```

Out[13]:

	Country/Territory	Meningitis	Alzheimer's Disease and Other Dementias	Parkinson's Disease	Nutritional Deficiencies	Malaria	Drowning	Interpersonal Violence	Maternal Disorders	HIV/AIDS	...	Diabetes Mellitus	Chronic Kidney Disease	Poisonin
0	Afghanistan	78666	41998	13397	71453	13924	56536	108228	129621	4282	...	93207	134676	145
1	Albania	1323	16549	4491	569	0	2397	5242	246	57	...	4055	7636	5
2	Algeria	15685	86914	22943	7138	70	24273	16702	29475	6101	...	89035	154666	123
3	American Samoa	30	143	69	60	0	120	101	30	15	...	970	512	
4	Andorra	0	614	137	0	0	0	15	0	85	...	198	292	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
199	Venezuela	11615	108735	18573	22554	3726	20273	266071	12739	46090	...	175790	161667	26
200	Vietnam	38559	369363	83322	48613	17311	214356	47981	13167	148838	...	544222	396874	346
201	Yemen	21095	31045	7188	68939	143463	27994	17918	53611	6276	...	30812	52119	125
202	Zambia	98886	13473	4054	95913	205529	12809	30065	28395	1175563	...	54098	41751	90
203	Zimbabwe	41238	20017	5764	66723	118728	18169	32741	29802	1836042	...	71175	49952	9

204 rows × 32 columns

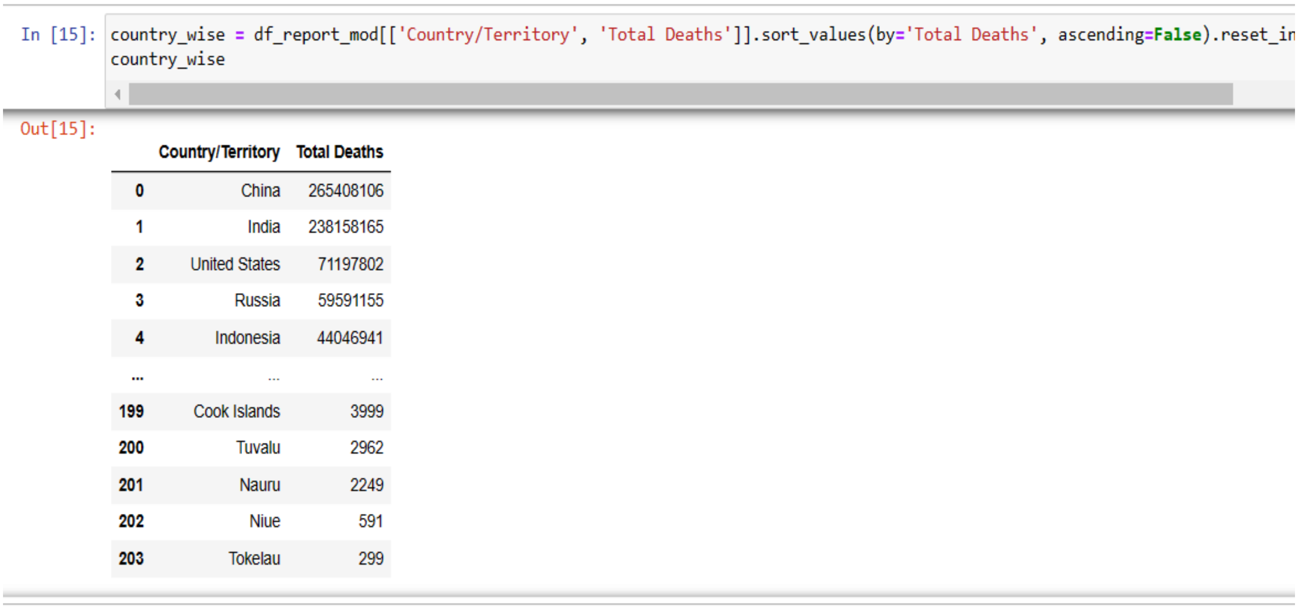


In [14]:
```
df_report_mod = df3
df_report_mod['Total Deaths'] = df3.sum(axis=1)
df_report_mod.head()
```

Out[14]:

Drowning	Interpersonal Violence	Maternal Disorders	HIV/AIDS	...	Chronic Kidney Disease	Poisonings	Protein-Energy Malnutrition	Road Injuries	Chronic Respiratory Diseases	Cirrhosis and Other Chronic Liver Diseases	Digestive Diseases	FireHeat and Hot Substances	Acute Hepatitis	Total Deaths
56536	108228	129621	4282	...	134676	14530	70163	208331	209857	98419	186959	13559	98108	5982631
2397	5242	246	57	...	7636	500	526	8522	22632	8717	14907	636	44	523545
24273	16702	29475	6101	...	154666	12337	6407	369395	168453	91927	146527	27628	10492	4601205
120	101	30	15	...	512	0	60	164	612	181	341	0	0	8619
0	15	0	85	...	292	0	0	259	838	283	560	0	30	12532

2. Displaying Total Deaths of all Countries in Descending order



In [15]:

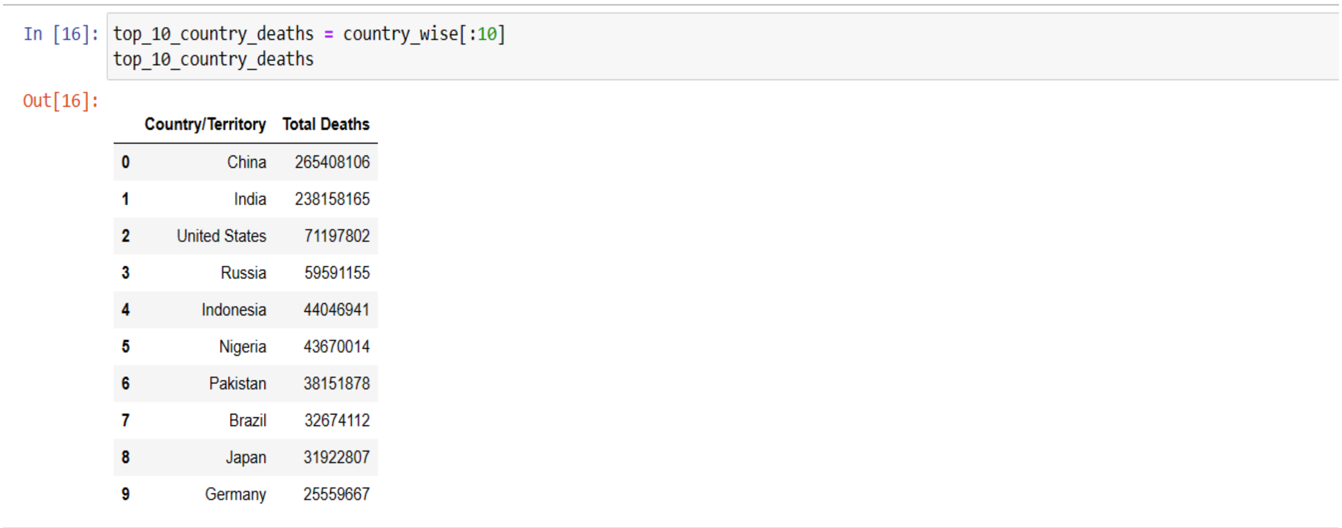
```
country_wise = df_report_mod[['Country/Territory', 'Total Deaths']].sort_values(by='Total Deaths', ascending=False).reset_in
country_wise
```

Out[15]:

	Country/Territory	Total Deaths
0	China	265408106
1	India	238158165
2	United States	71197802
3	Russia	59591155
4	Indonesia	44046941
...	...	...
199	Cook Islands	3999
200	Tuvalu	2962
201	Nauru	2249
202	Niue	591
203	Tokelau	299

Obs- We can see the maximum mortality rate is of China while the least is of Tokelau, (However, population too plays important role, since more the population, more would be the mortality rate)

3. Displaying Top 10 countries with max no. of deaths

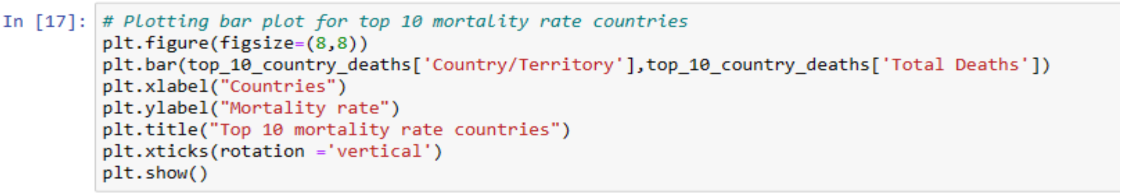


```
In [16]: top_10_country_deaths = country_wise[:10]
         top_10_country_deaths

Out[16]:
```

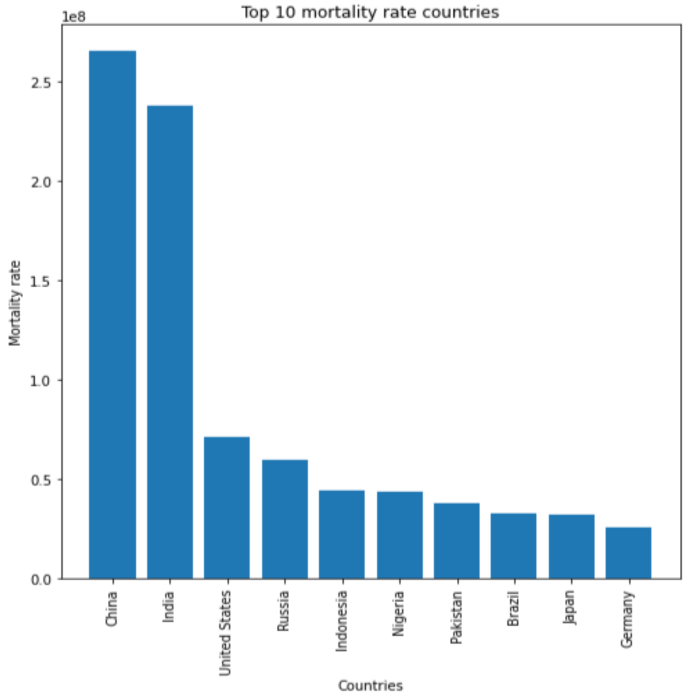
	Country/Territory	Total Deaths
0	China	265408106
1	India	238158165
2	United States	71197802
3	Russia	59591155
4	Indonesia	44046941
5	Nigeria	43670014
6	Pakistan	38151878
7	Brazil	32674112
8	Japan	31922807
9	Germany	25559667

Obs- The top 10 countries with max mortality rates are 1)China, 2) India, 3)United States, 4)Russia 59591155, 5)Indonesia 44046941, 6)Nigeria, 7) Pakistan, 8) Brazil, 9) JapaN, 10) German

3.1 Plotting a bar plot to view top 10 Countries death rates

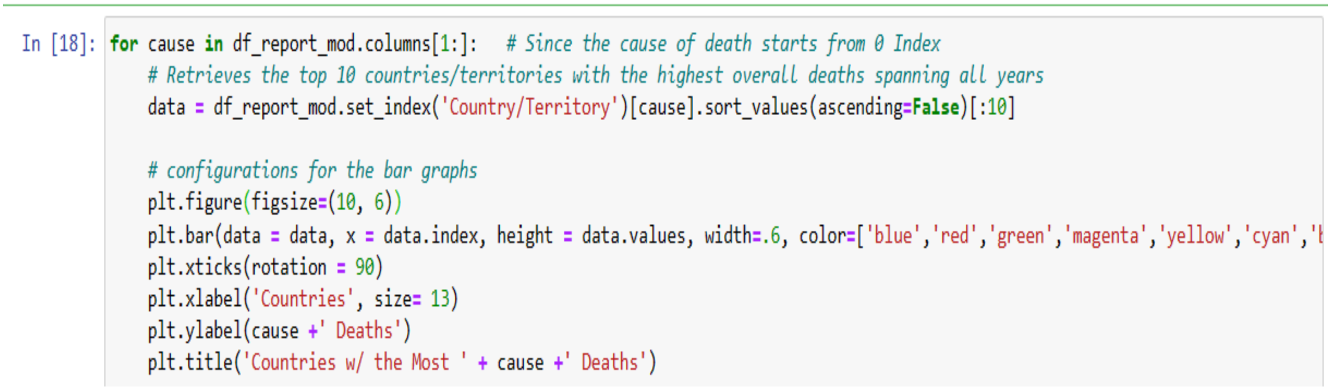


```
In [17]: # Plotting bar plot for top 10 mortality rate countries
         plt.figure(figsize=(8,8))
         plt.bar(top_10_country_deaths['Country/Territory'],top_10_country_deaths['Total Deaths'])
         plt.xlabel("Countries")
         plt.ylabel("Mortality rate")
         plt.title("Top 10 mortality rate countries")
         plt.xticks(rotation ='vertical')
         plt.show()
```



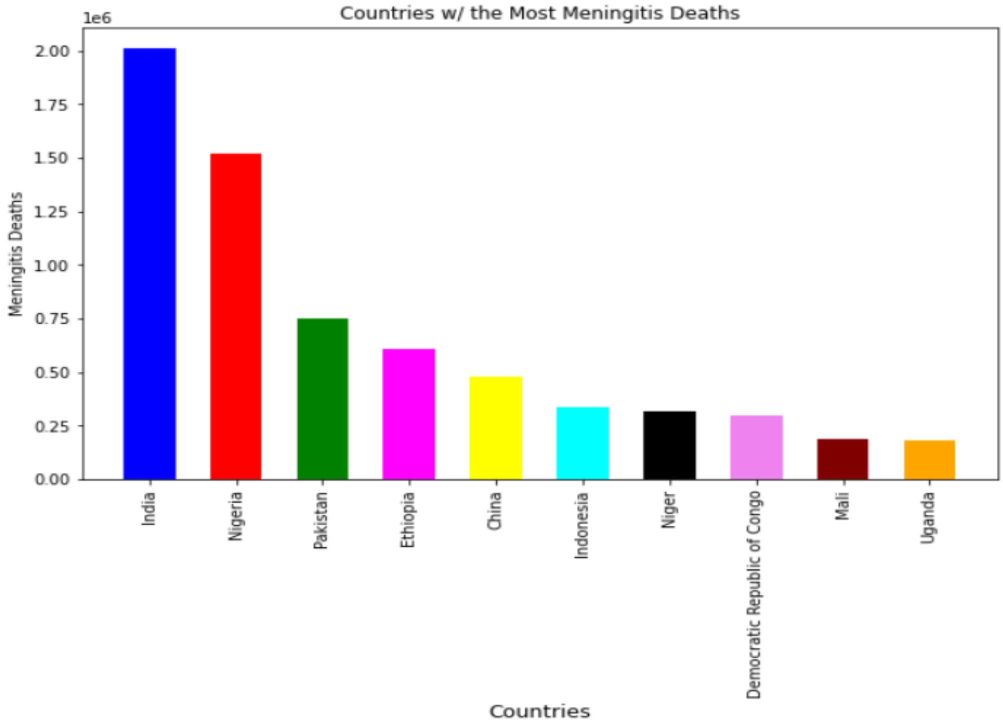
4. Displaying Every Cause of Death and top 10 Countries suffering from it

- We have taken every cause of death and have extracted the top 10 Countries (Sort function) suffering from that particular disease and plotted bar plots for the same

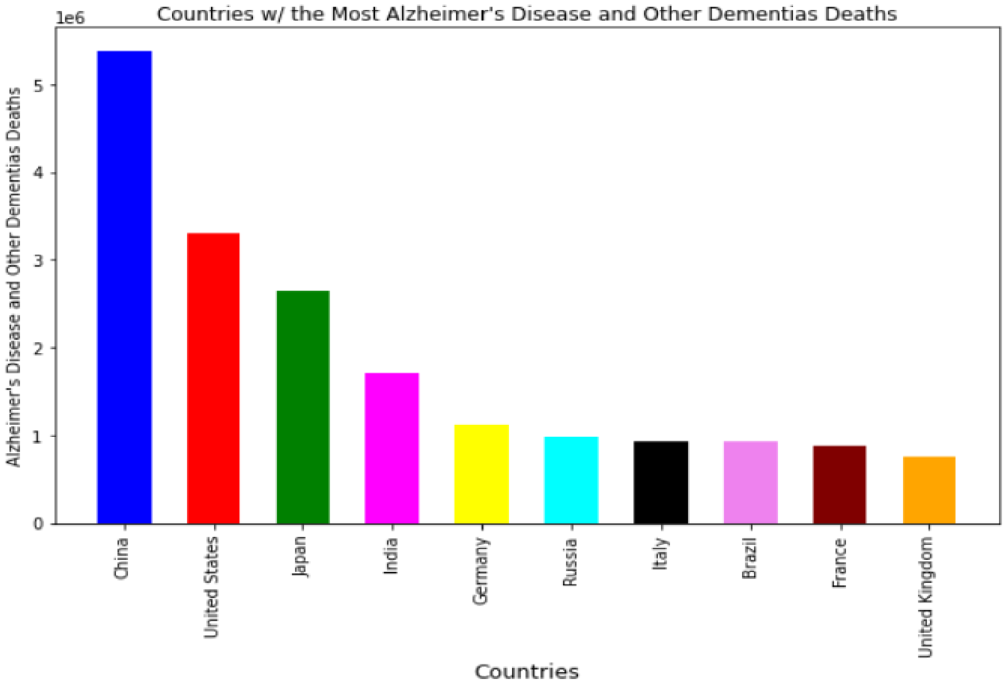


```
In [18]: for cause in df_report_mod.columns[1:]:   # Since the cause of death starts from 0 Index
             # Retrieves the top 10 countries/territories with the highest overall deaths spanning all years
             data = df_report_mod.set_index('Country/Territory')[cause].sort_values(ascending=False)[:10]

             # configurations for the bar graphs
             plt.figure(figsize=(10, 6))
             plt.bar(data = data, x = data.index, height = data.values, width=.6, color=['blue','red','green','magenta','yellow','cyan','b
             plt.xticks(rotation = 90)
             plt.xlabel('Countries', size= 13)
             plt.ylabel(cause +' Deaths')
             plt.title('Countries w/ the Most ' + cause +' Deaths')
```

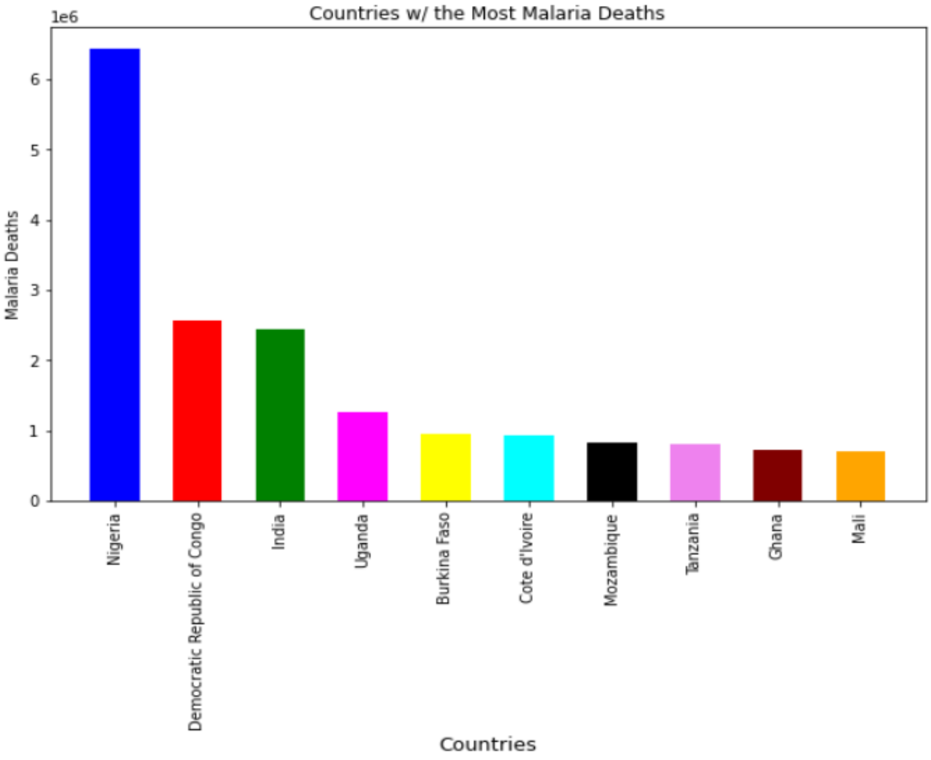
Including snapshots of few cause_of_deaths below:



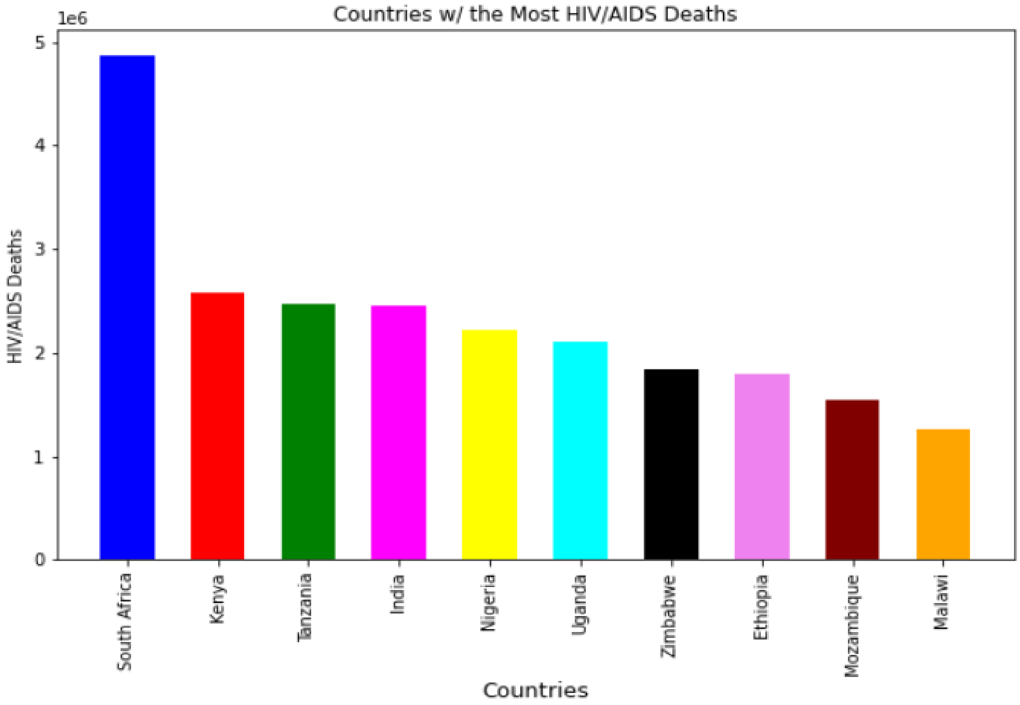
- **Observation-** The maximum deaths because of **Meningitis** has occurred in India, Nigeria followed by Pakistan. Ethiopia, China, Indonesia, Niger, Democratic Republic of Congo, Mali, Uganda



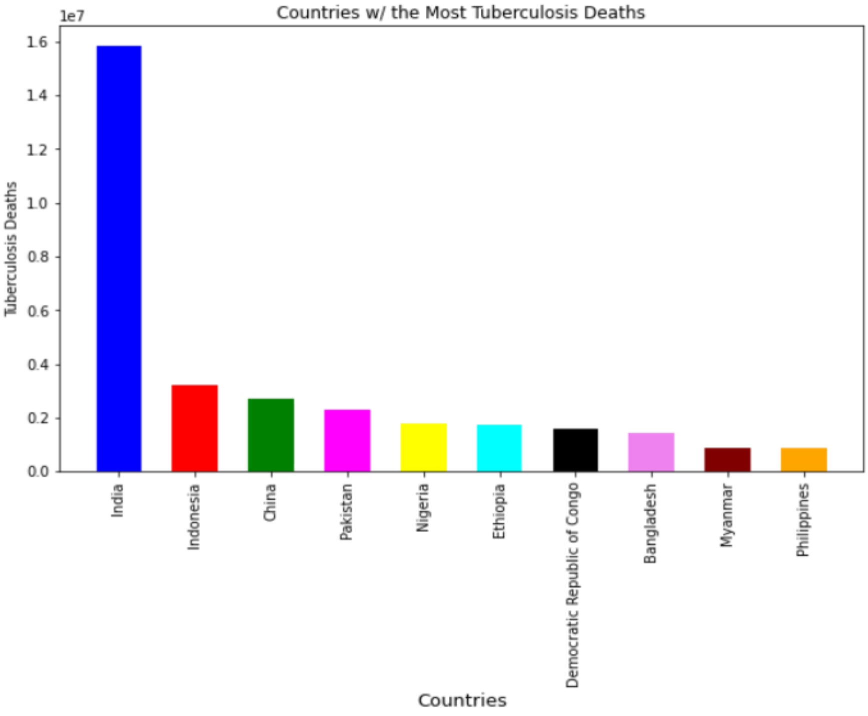
- **Observation-** The maximum deaths because of **Alzheimer's Disease and Other Dementias** has occurred in China, United States, Japan, India, Germany, Russia, Italy, Brazil, France, United Kingdom



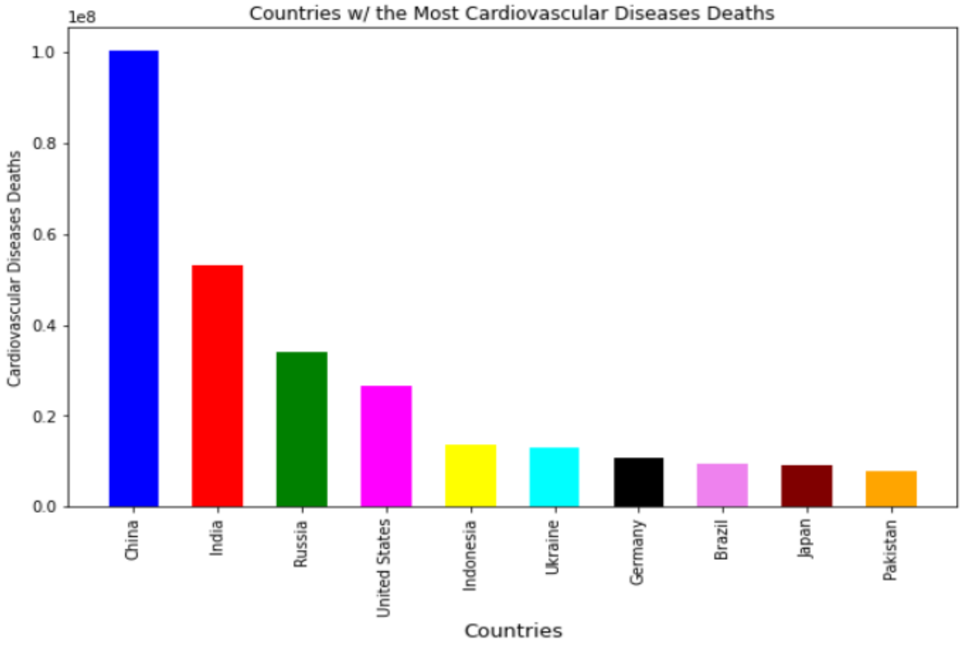
- **Observation**- The maximum deaths because of **Malaria** has occurred in Nigera, Democratic Republic of Congo, India, Uganda, Burkina faso, Cote d’lvoire, Mozambique, Tanzania, Ghana, Mali



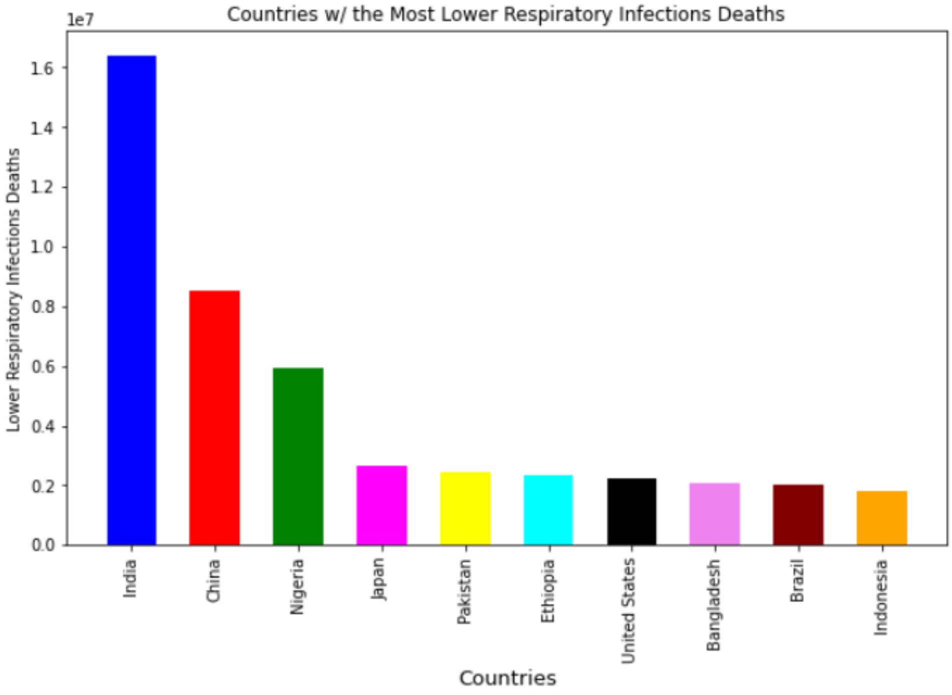
- **Observation-** The maximum deaths because of **HIV/AIDS** has occurred in Soth Africa, Kenya, Tanzania, India, Nigeria, Uganda, Zimbabwe, Ethiopia, Mozambique, Malawi



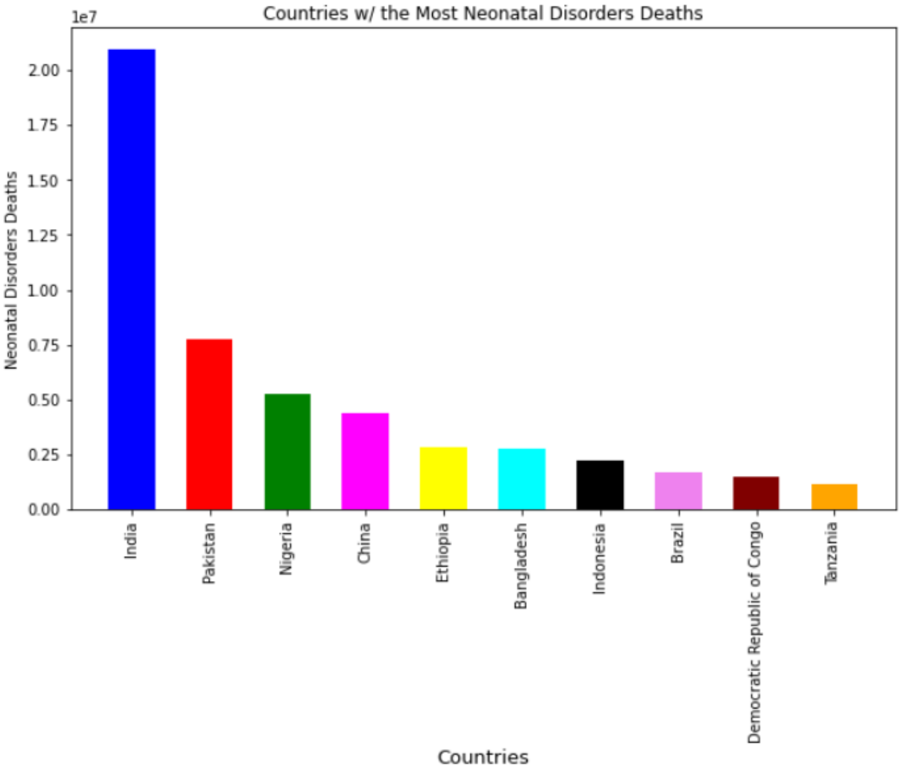
- **Observation-** The maximum deaths because of **Tuberculosis** has occurred in India(With a very high count), Indonesia, China, Pakistan, Nigeria, Ethopia, Democratic Republic of Congo, Bangladesh, Myanmar, Philippines



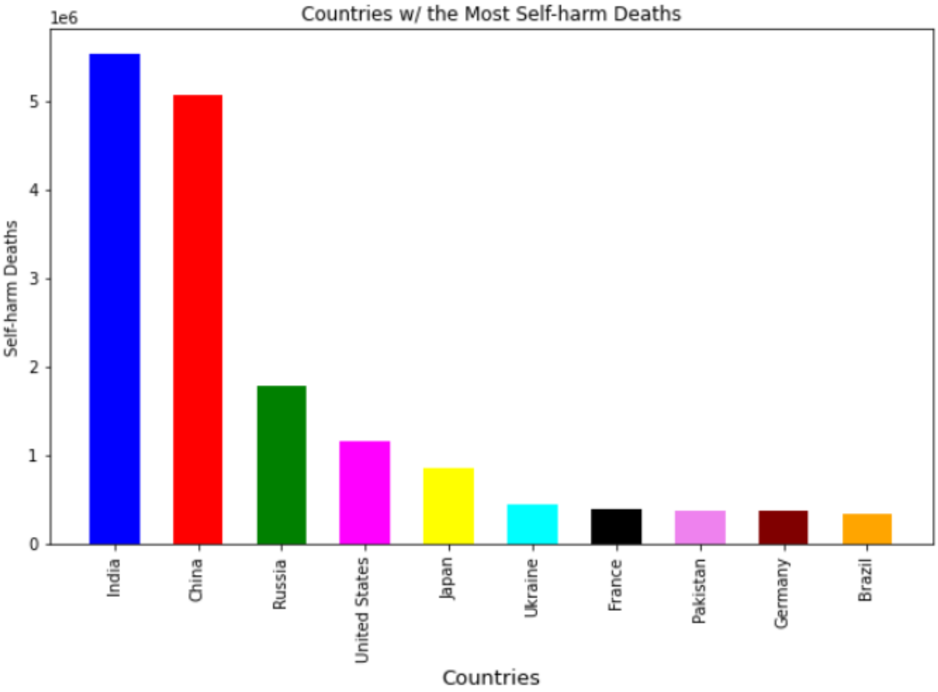
- **Observation-** The maximum deaths because of **Cardiovascular Diseases** has occurred in China, India, Russia, United States, Indonesia, Ukraine, Germany, Brazil, Japan, Pakistan



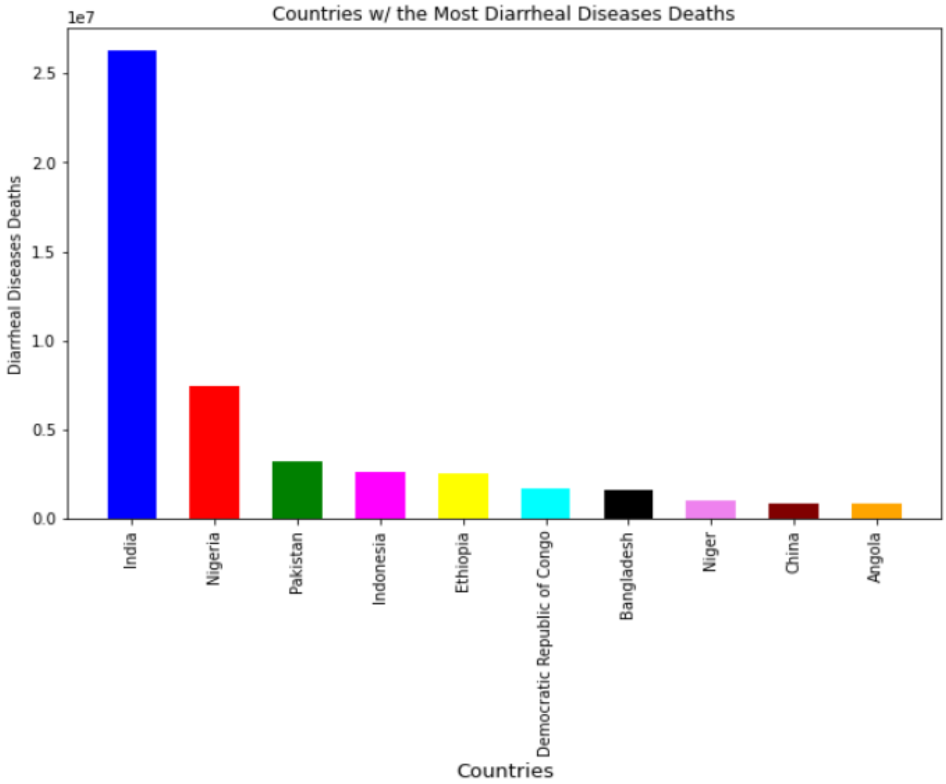
- **Observation-** The maximum deaths because of **Lower Respiratory Infections** has occurred in India, China, Nigeria, Japan, Pakistan, Ethopia, United States, Bangladesh, Brazil, Indonesia



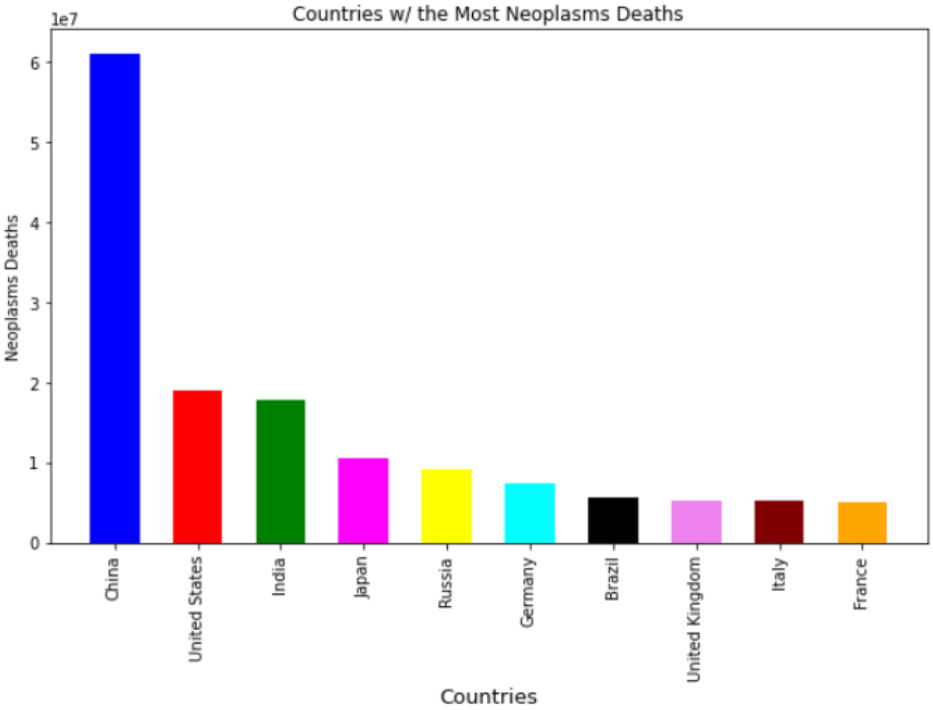
- **Observation-** The maximum deaths because of **Neonatal Disorders** has occurred in India(Again withn a very high count), Pakistan, Nigeria , China, Ethiopia, Bangladesh,, Indonesia Brazil, Democratic Republic of Congo, Tanzania



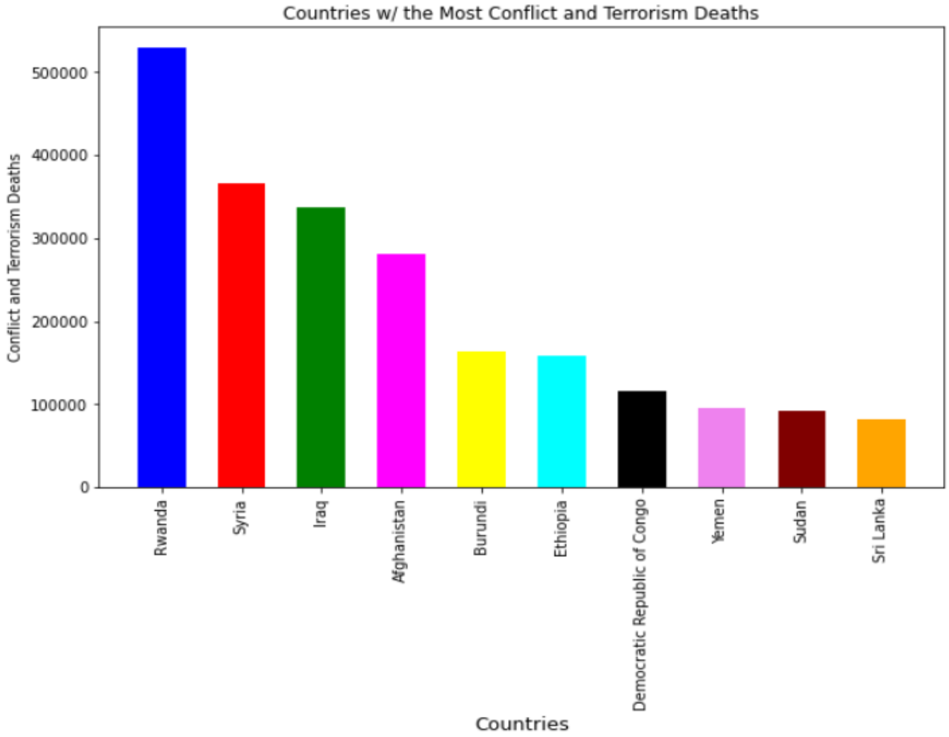
- **Observation-** The maximum deaths because of **Self-harm** has occurred in India, China, Russia, United States, Japan, Ukraine, France, Pakistan, Germany, Brazil



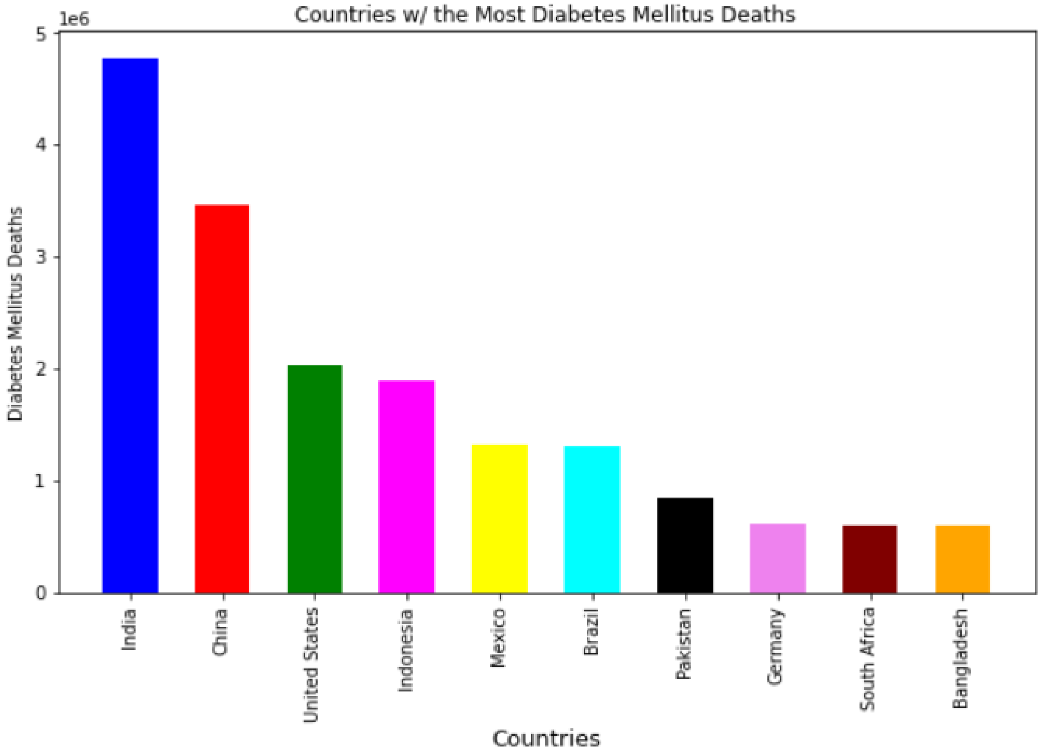
- **Observation-** The maximum deaths because of **Diarrheal Diseases** has occurred in India, Nigeria, Pakistan, Indonesia, Ethiopia, Democratic Republic of Congo, Bangladesh, Niger, China, Angola



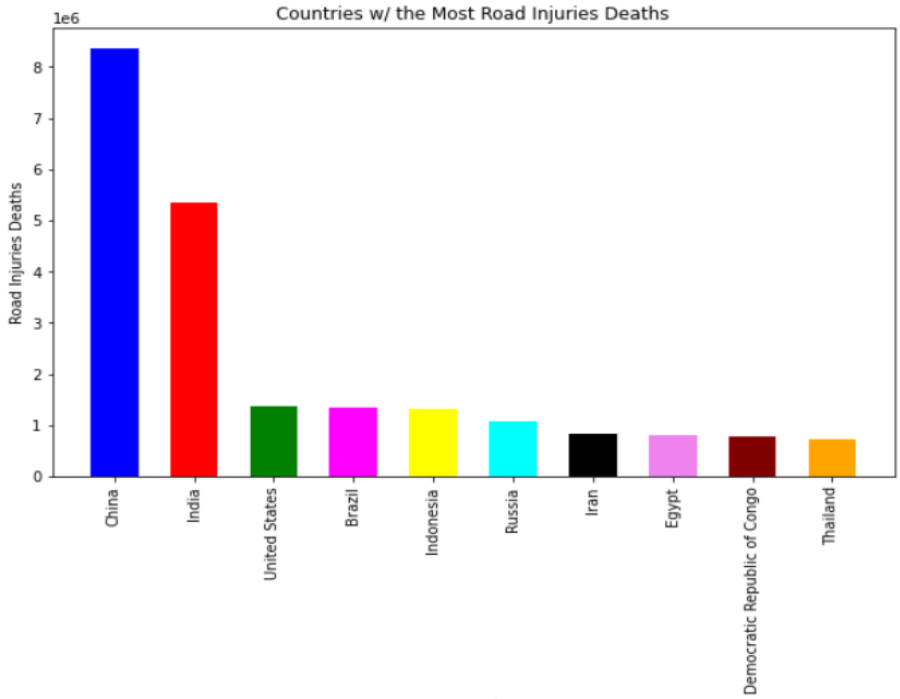
- **Observation-** The maximum deaths because of **Neoplasms** has occurred in China, United States, India, Japan, Russia, Germany, Brazil, United Kingdom, Italy, France



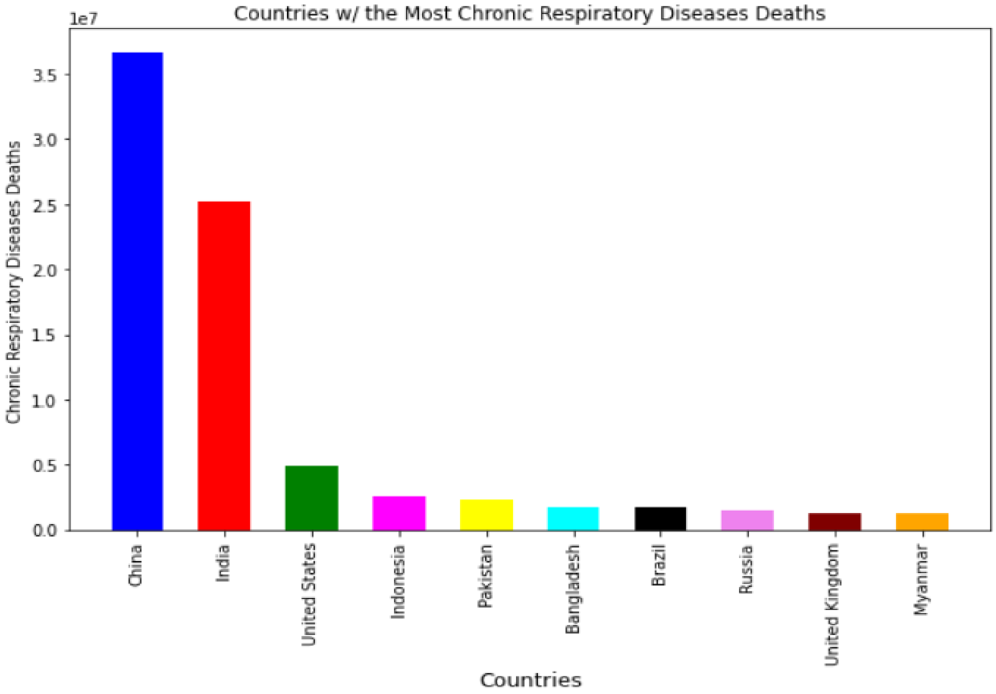
- **Observation-** The maximum deaths because of **Conflict and Terrorism** has occurred in Rwanda, Syria, Iraq, Afganisthan, Burundi, Ethopia, Democratic Republic of Congo, Yemen, Sudan, Sri Lanka.



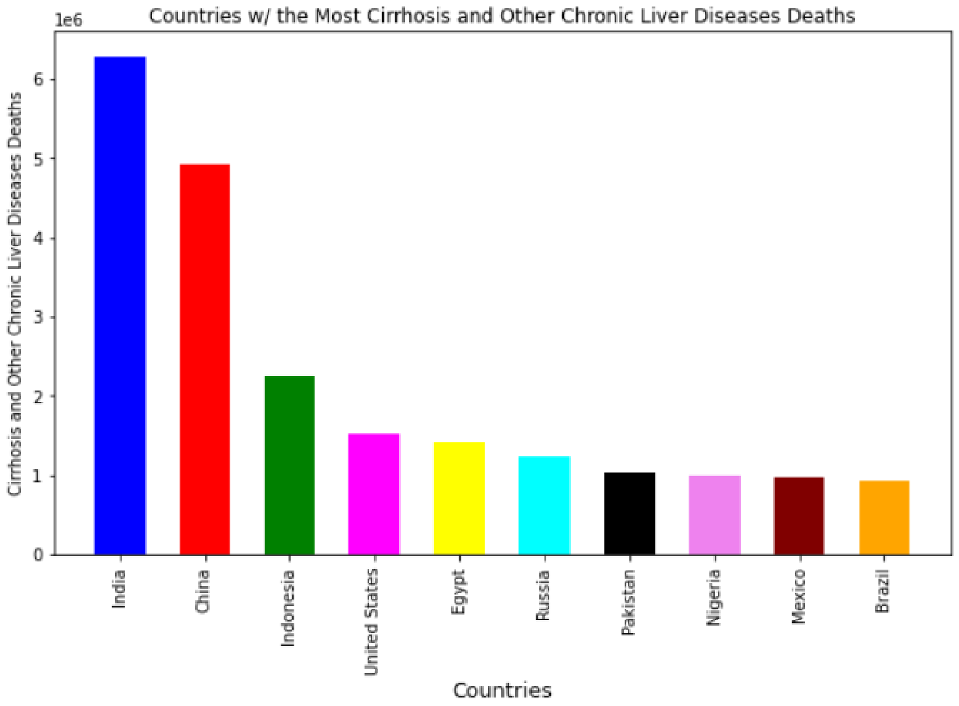
- **Observation-** The maximum deaths because of Diabetes Mellitus has occurred in India, China, United States, Indonesia, Mexico, Brazil, Pakistan, Germany, South Africa, Bangladesh



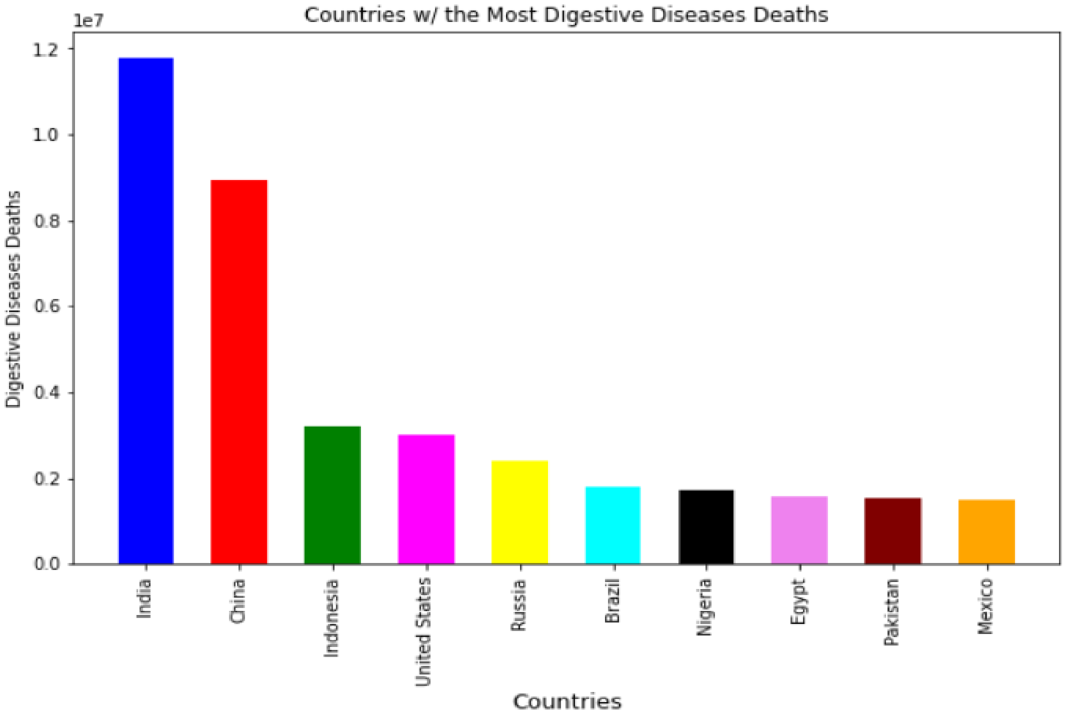
- **Observation-** The maximum deaths because of **Road Injuries** has occurred in China(With a very high count), India, United States, Brazil, Indonesia, Russia, Iran, Egypt, Democratic Republic of Congo, Thailand



- **Observation-** The maximum deaths because of Chronic Respiratory Diseases has occurred in China, India, United States, Indonesia, Pakistan, Bangladesh, Brazil, Russia, United Kingdom, Myanmar



- **Observation-** The maximum deaths because of **Cirrhosis and Other Chronic Liver Diseases** has occurred in India, China, Indonesia, United States, Egypt, Russia, Pakistan, Nigeria, Mexico, Brazil



- **Observation-** The maximum deaths because of **Digestive Diseases** has occurred in India, China, Indonesia, United States, Russia, Brazil, Nigeria, Egypt, Pakistan, Mexico

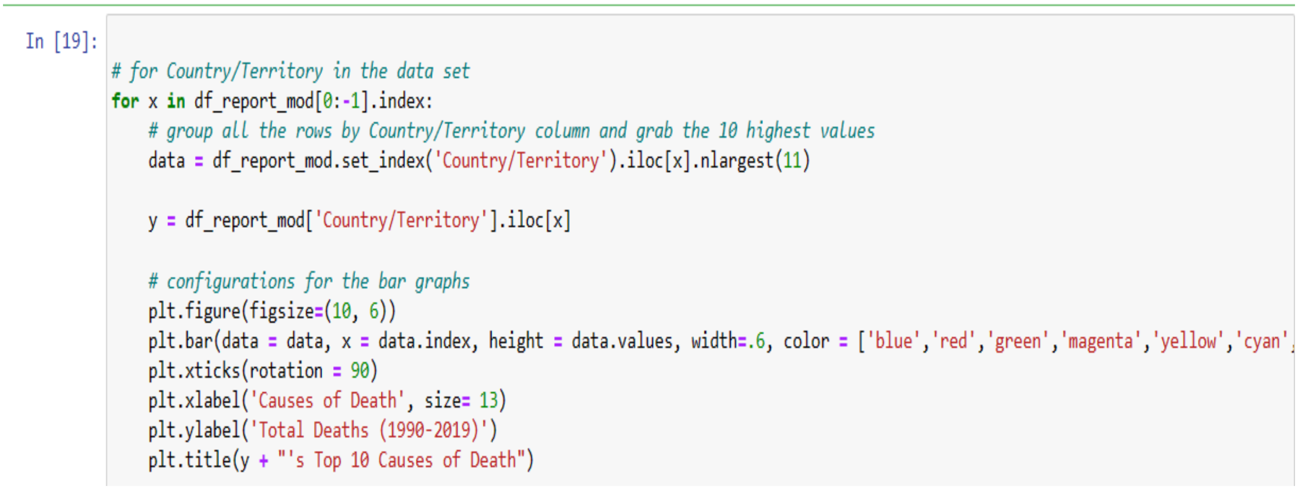
Other Key Observations:

- The other important observation noticed was India is leading in death-rates and that too with so high ratio in most causes-of-death, which shows there is lot of scope of improvement in medical facilities in India.

- The other countries following India in most death rates in most causes-of-death is China, Indonesia, United States, Ethiopia(Even though population is less, death rates comparatively are very high)

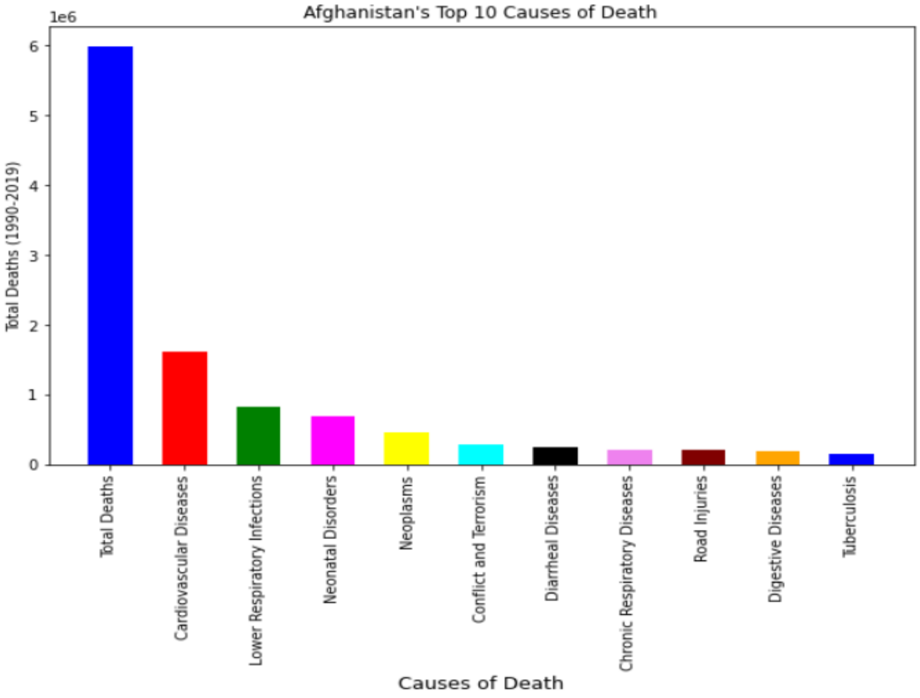
5. Displaying each Country's total and top 10 causes of death

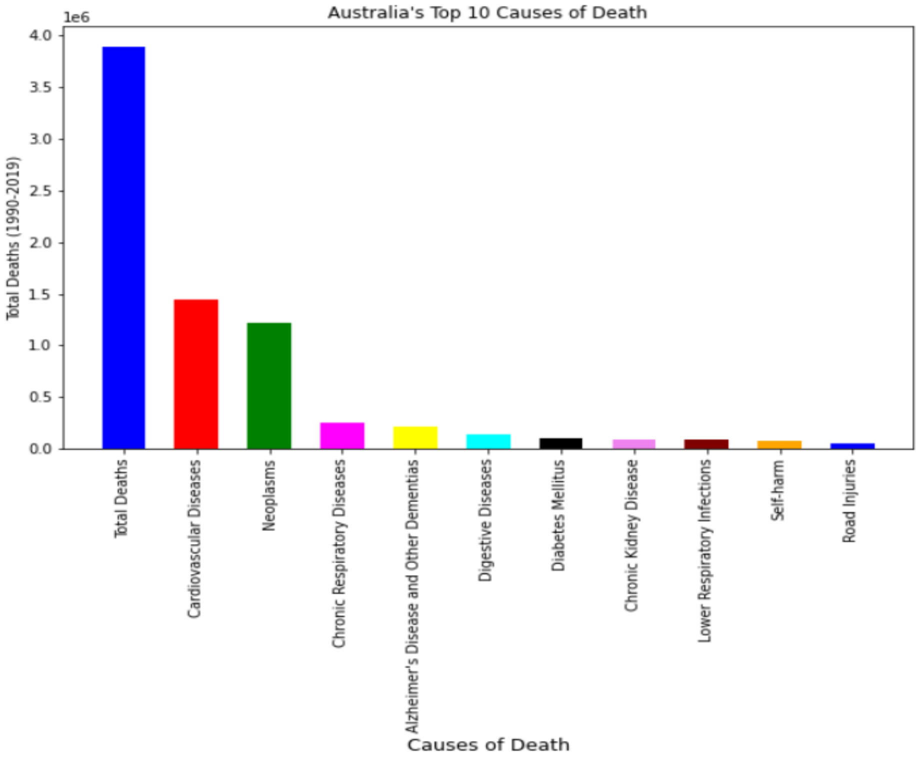
- For displaying top 10 causes and total count's death, we have selected first 11 largest count entries of each country and displayed in the form of bar graph**.**

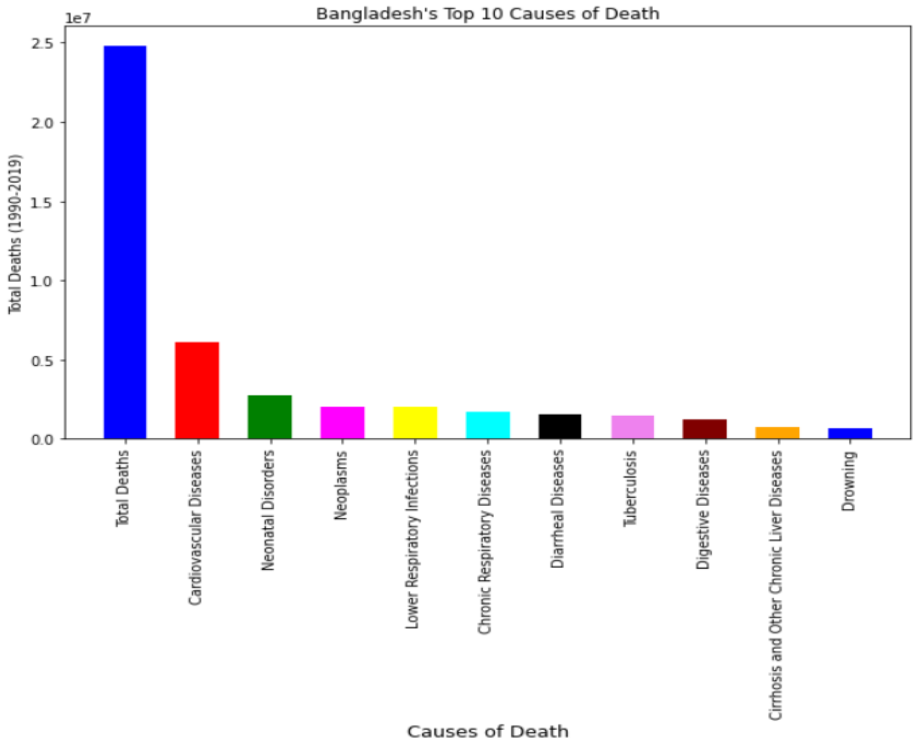


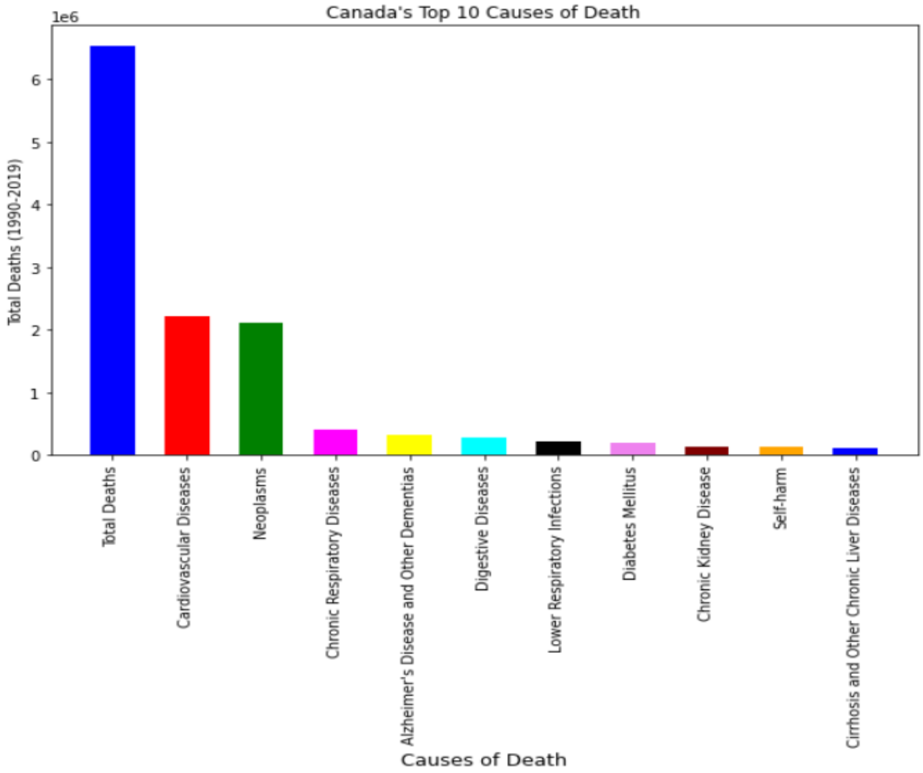
```
In [19]:
# for Country/Territory in the data set
for x in df_report_mod[0:-1].index:
    # group all the rows by Country/Territory column and grab the 10 highest values
    data = df_report_mod.set_index('Country/Territory').iloc[x].nlargest(11)

    y = df_report_mod['Country/Territory'].iloc[x]

    # configurations for the bar graphs
    plt.figure(figsize=(10, 6))
    plt.bar(data = data, x = data.index, height = data.values, width=.6, color = ['blue','red','green','magenta','yellow','cyan',
    plt.xticks(rotation = 90)
    plt.xlabel('Causes of Death', size= 13)
    plt.ylabel('Total Deaths (1990-2019)')
    plt.title(y + "'s Top 10 Causes of Death")
```

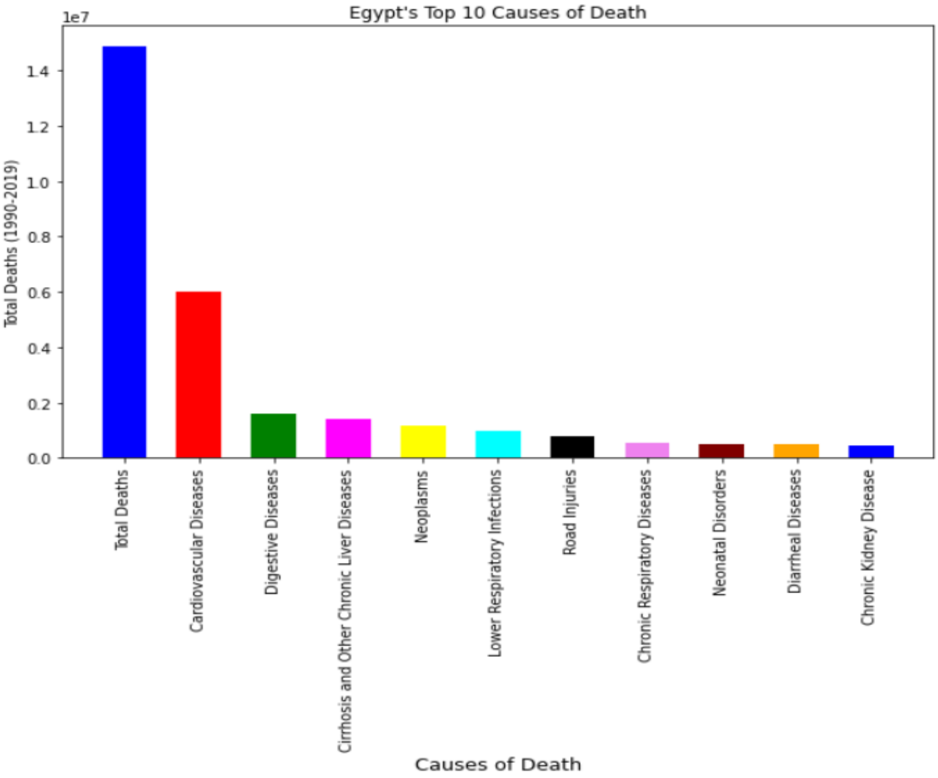
Attaching snapshots of few Countries with their top causes of death below:

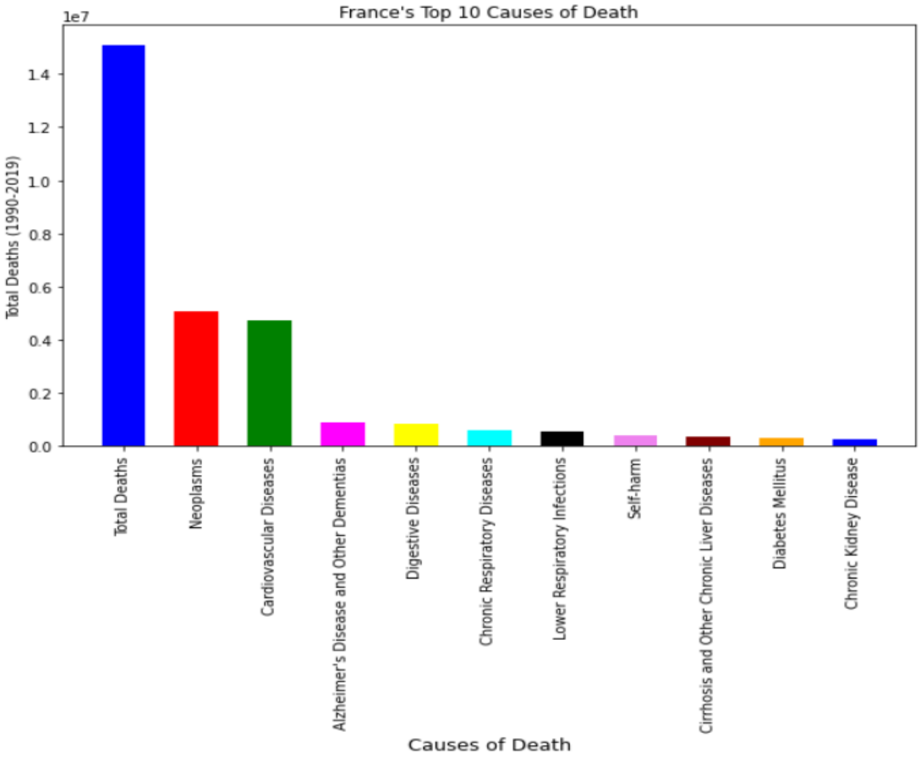

Afghanistan's Top 10 Causes of Death
1e6
6
5
4
3
2
1
0
Total Deaths (1990-2019)
Total Deaths
Cardiovascular Diseases
Lower Respiratory Infections
Neonatal Disorders
Neoplasms
Conflict and Terrorism
Diarrheal Diseases
Chronic Respiratory Diseases
Road Injuries
Digestive Diseases
Tuberculosis
Causes of Death

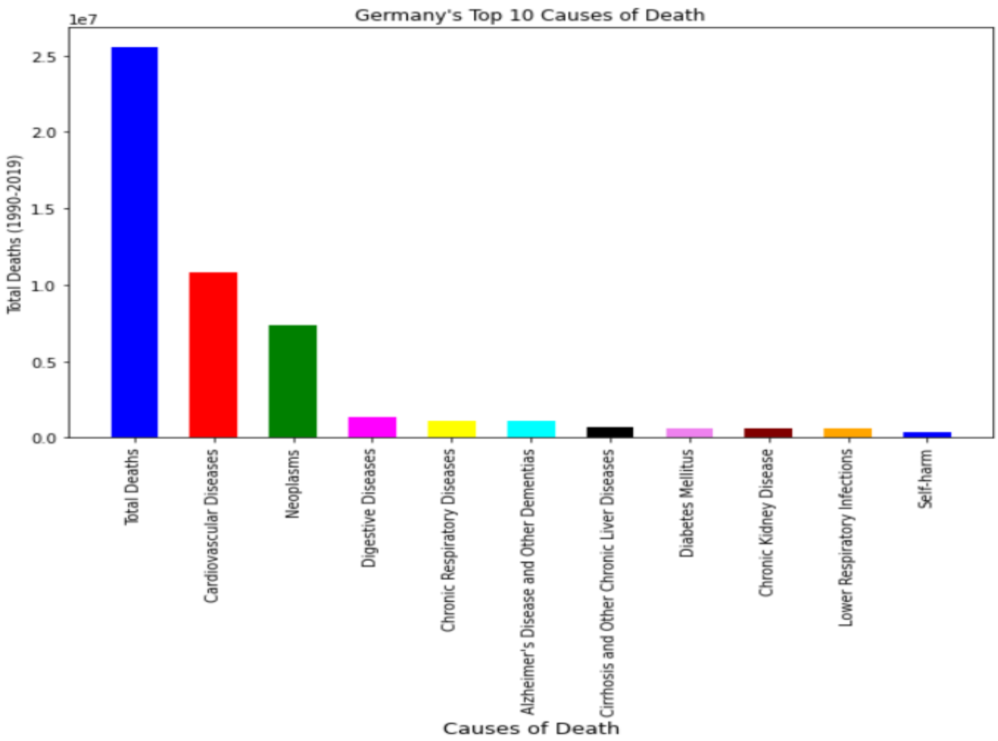

Australia's Top 10 Causes of Death
1e6
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Total Deaths (1990-2019)
Total Deaths
Cardiovascular Diseases
Neoplasms
Chronic Respiratory Diseases
Alzheimer's Disease and Other Dementias
Digestive Diseases
Diabetes Mellitus
Chronic Kidney Disease
Lower Respiratory Infections
Self-harm
Road Injuries
Causes of Death

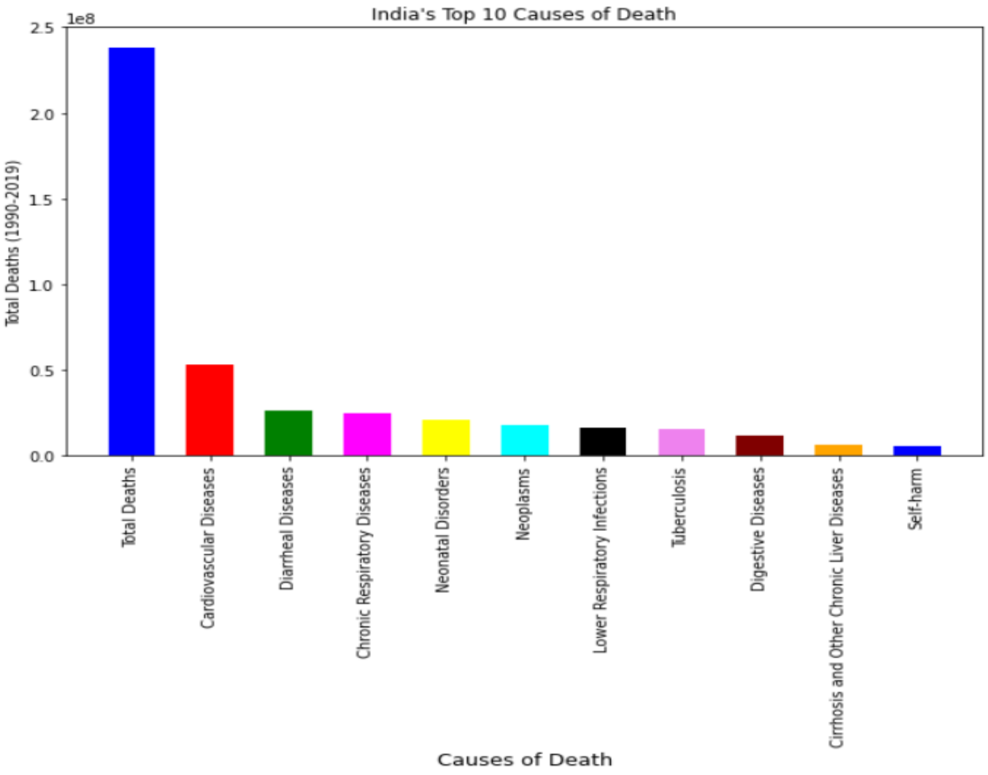

Bangladesh's Top 10 Causes of Death
1e7
Total Deaths (1990-2019)
0.0
0.5
1.0
1.5
2.0
2.5
Total Deaths
Cardiovascular Diseases
Neonatal Disorders
Neoplasms
Lower Respiratory Infections
Chronic Respiratory Diseases
Diarrheal Diseases
Tuberculosis
Digestive Diseases
Cirrhosis and Other Chronic Liver Diseases
Drowning
Causes of Death

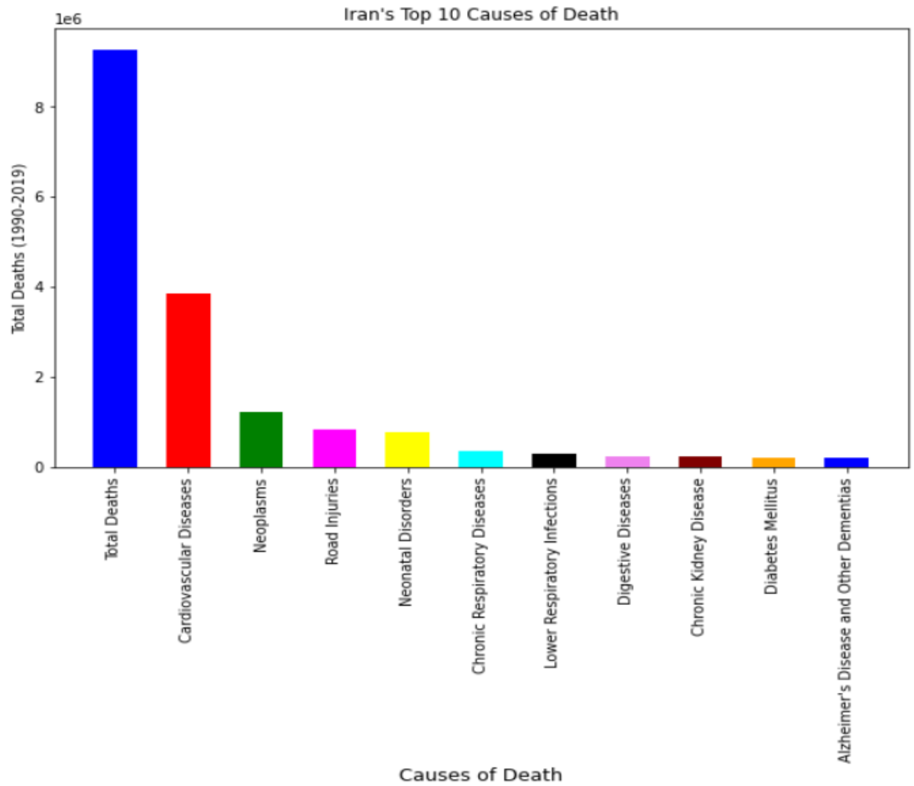

Canada's Top 10 Causes of Death
1e6
Total Deaths (1990-2019)
0
1
2
3
4
5
6
Total Deaths
Cardiovascular Diseases
Neoplasms
Chronic Respiratory Diseases
Alzheimer's Disease and Other Dementias
Digestive Diseases
Lower Respiratory Infections
Diabetes Mellitus
Chronic Kidney Disease
Self-harm
Cirrhosis and Other Chronic Liver Diseases
Causes of Death

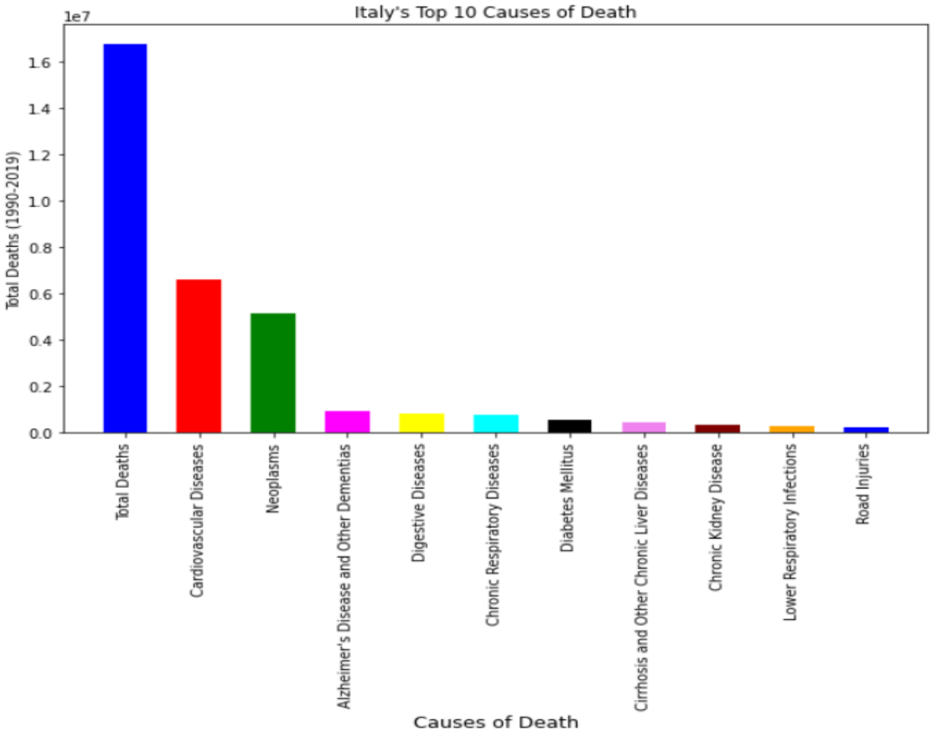

Egypt's Top 10 Causes of Death
1e7
Total Deaths (1990-2019)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Total Deaths
Cardiovascular Diseases
Digestive Diseases
Cirrhosis and Other Chronic Liver Diseases
Neoplasms
Lower Respiratory Infections
Road Injuries
Chronic Respiratory Diseases
Neonatal Disorders
Diarrheal Diseases
Chronic Kidney Disease
Causes of Death

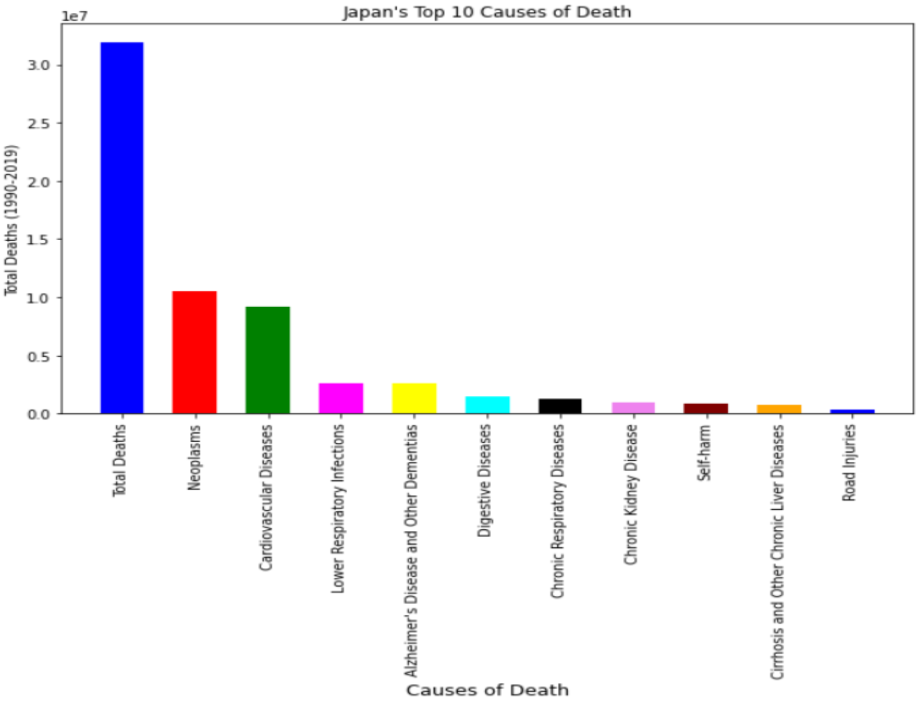

France's Top 10 Causes of Death
1e7
Total Deaths (1990-2019)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Total Deaths
Neoplasms
Cardiovascular Diseases
Alzheimer's Disease and Other Dementias
Digestive Diseases
Chronic Respiratory Diseases
Lower Respiratory Infections
Self-harm
Cirrhosis and Other Chronic Liver Diseases
Diabetes Mellitus
Chronic Kidney Disease
Causes of Death

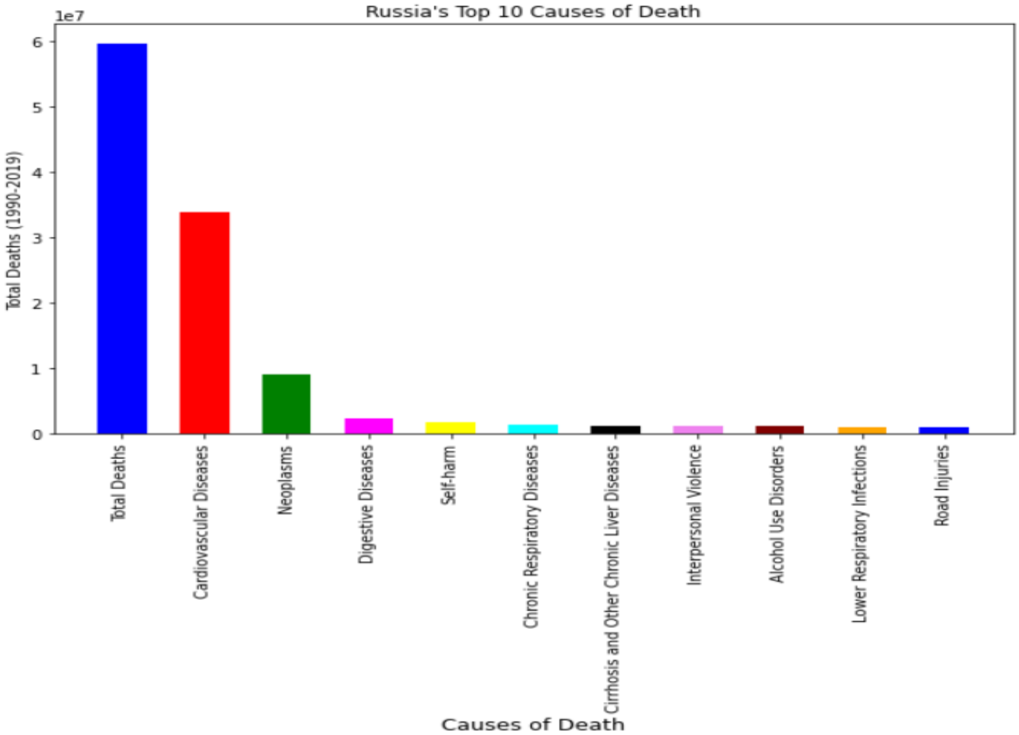

Germany's Top 10 Causes of Death
1e7
2.5
2.0
1.5
1.0
0.5
0.0
Total Deaths (1990-2019)
Total Deaths
Cardiovascular Diseases
Neoplasms
Digestive Diseases
Chronic Respiratory Diseases
Alzheimer's Disease and Other Dementias
Cirrhosis and Other Chronic Liver Diseases
Diabetes Mellitus
Chronic Kidney Disease
Lower Respiratory Infections
Self-harm
Causes of Death

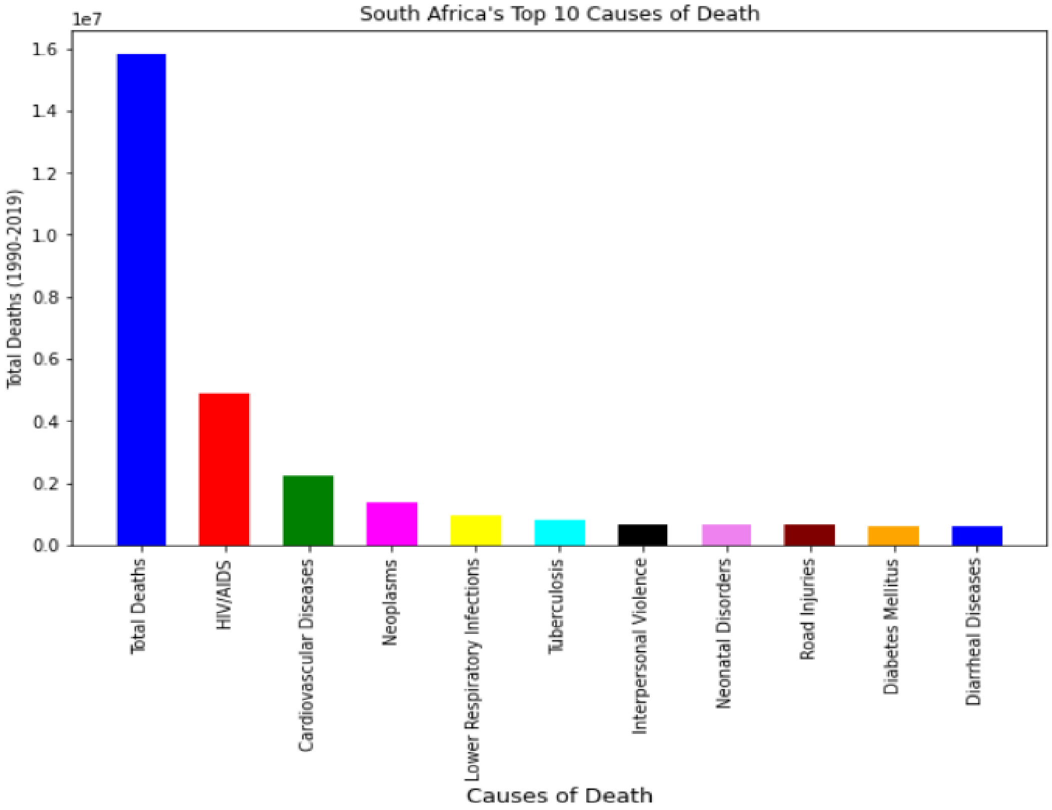

India's Top 10 Causes of Death
1e8
2.5
2.0
1.5
1.0
0.5
0.0
Total Deaths (1990-2019)
Total Deaths
Cardiovascular Diseases
Diarrheal Diseases
Chronic Respiratory Diseases
Neonatal Disorders
Neoplasms
Lower Respiratory Infections
Tuberculosis
Digestive Diseases
Cirrhosis and Other Chronic Liver Diseases
Self-harm
Causes of Death

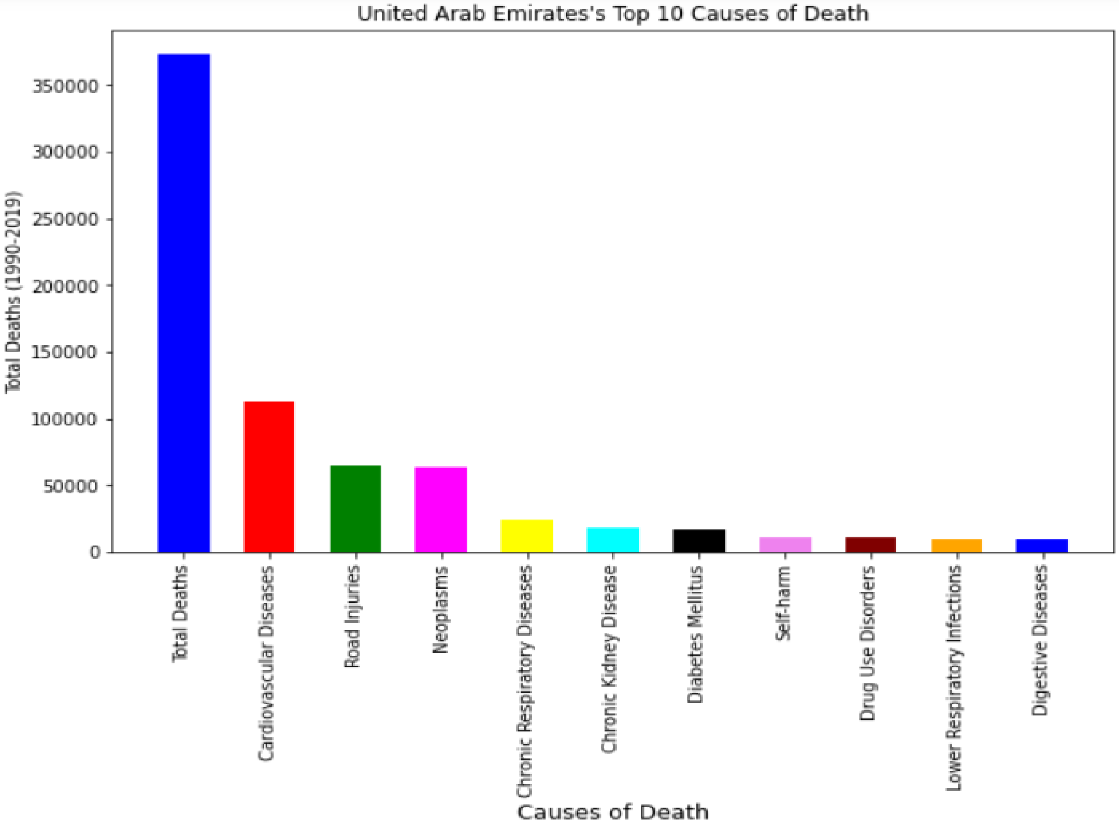

Iran's Top 10 Causes of Death
1e6
Total Deaths (1990-2019)
0
2
4
6
8
Total Deaths
Cardiovascular Diseases
Neoplasms
Road Injuries
Neonatal Disorders
Chronic Respiratory Diseases
Lower Respiratory Infections
Digestive Diseases
Chronic Kidney Disease
Diabetes Mellitus
Alzheimer's Disease and Other Dementias
Causes of Death

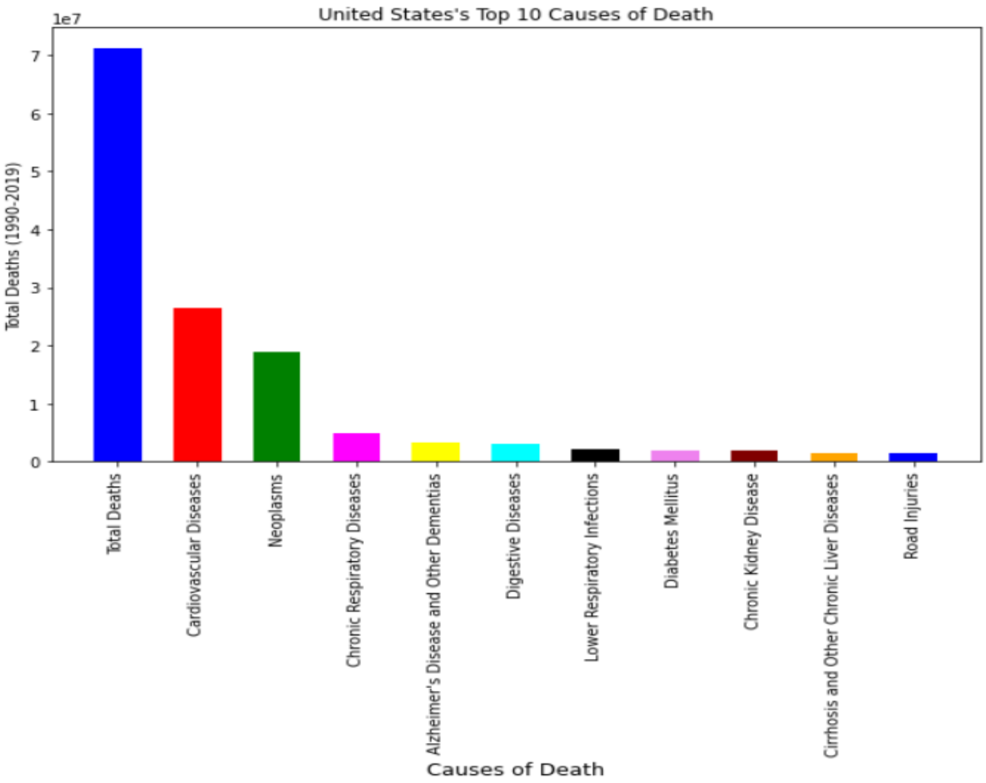

Italy's Top 10 Causes of Death
1e7
Total Deaths (1990-2019)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Total Deaths
Cardiovascular Diseases
Neoplasms
Alzheimer's Disease and Other Dementias
Digestive Diseases
Chronic Respiratory Diseases
Diabetes Mellitus
Cirrhosis and Other Chronic Liver Diseases
Chronic Kidney Disease
Lower Respiratory Infections
Road Injuries
Causes of Death


Japan's Top 10 Causes of Death
1e7
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Total Deaths (1990-2019)
Total Deaths
Neoplasms
Cardiovascular Diseases
Lower Respiratory Infections
Alzheimer's Disease and Other Dementias
Digestive Diseases
Chronic Respiratory Diseases
Chronic Kidney Disease
Self-harm
Cirrhosis and Other Chronic Liver Diseases
Road Injuries
Causes of Death


Russia's Top 10 Causes of Death
1e7
6
5
4
3
2
1
0
Total Deaths (1990-2019)
Total Deaths
Cardiovascular Diseases
Neoplasms
Digestive Diseases
Self-harm
Chronic Respiratory Diseases
Cirrhosis and Other Chronic Liver Diseases
Interpersonal Violence
Alcohol Use Disorders
Lower Respiratory Infections
Road Injuries
Causes of Death


South Africa's Top 10 Causes of Death
1e7
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Total Deaths (1990-2019)
Total Deaths
HIV/AIDS
Cardiovascular Diseases
Neoplasms
Lower Respiratory Infections
Tuberculosis
Interpersonal Violence
Neonatal Disorders
Road Injuries
Diabetes Mellitus
Diarrheal Diseases
Causes of Death


United Arab Emirates's Top 10 Causes of Death
350000
300000
250000
200000
150000
100000
50000
0
Total Deaths (1990-2019)
Total Deaths
Cardiovascular Diseases
Road Injuries
Neoplasms
Chronic Respiratory Diseases
Chronic Kidney Disease
Diabetes Mellitus
Self-harm
Drug Use Disorders
Lower Respiratory Infections
Digestive Diseases
Causes of Death



Key Observations:

- The main cause of death in most of the countries is "Cardiovascular Diseases".

- The second most cause of death in most countries is "Neoplasms".

- The other leading causes of deaths are "Chronic Respiratory Diseases", "Lower Respiratory Infections", "Digestive Diseases", "Neonatal Disorders", "Diabetes Mellitus

- "Neonatal Disorders" being one of the leading cause of deaths is a deep concern since babies/children dying because of certain problems from birth can be overcome if proper facilities are developed to check for the diseases before birth

Result & Conclusion

The overall analysis helped in exploring Cause-of- Death of all countries as well as gave Country profile related to the diseases.

Poor healthcare and nutrition are the main reason of deaths in many countries and thus measures for improvement shall be practiced to increase life not just of patients but their family members too. Neonatal disorders too being one of the top cause of death is a serious concern and shows insufficient facilities for baby or toddlers.

Limitations of this work and Scope for Future Work

There are many factors that can help us in getting much more detailed insights of mortality rate to improve the models' predictions.

The `biggest limitation of the provided dataset was that there wasn't any population related data, and thus we could not judge the mortality rate in terms of population percentage. Also, specifications related to gender, sex, age-group of population would have helped in extracting more meaningful data.