NAME OF THE PROJECT:

A Project Report on:

"Cause of Death"

Submitted by:

A KISHORE KUMAR

Batch No.:

Internship_33

Under the guidance of:

Mr. Shwetank Mishra

(FlipRobo SME)

ACKNOWLEDGMENT

I wish to express my sincere thanks and deep sense of gratitude to “Flip Robo” team, who has given me this opportunity to deal with an informative dataset and it has helped me to improve my problem analyzation skills and Machine Learning modelling.

Also, I want to express my huge gratitude to Mr. Shwetank Mishra (SME Flip Robo) for his tremendous support, to get me out of all the difficulties I faced while going through this project and for the successful completion of this work. He has been a great source of inspiration to work with and I shall always cherish my association with him with immense pleasure.

Finally, A huge thanks to “Data trained” who gave me the opportunity to get the Internship at Flip-Robo.

References use in this project:

1. SCIKIT Learn Library Documentation

2. Blogs from towardsdatasciences, Analytics Vidya, Medium.

3. Andrew Ng Notes on Machine Learning (GitHub).

4. Data Science Projects with Python Second Edition by Packt.

5. Hands on Machine learning with scikit learn by Aurelien Geron.

6. Data:

- https://www.kaggle.com/datasets/iamsouravbanerjee/cause-of-deaths-around-the-world
- https://ourworldindata.org/causes-of-death
- https://data.worldbank.org/indicator/NY.GDP.PCAP.CD
- https://github.com/dbouquin/IS_608/blob/master/NanosatDB_munging/Countries-Continents.csv

7. Other information:

- https://www.a4id.org/policy/understanding-the-developeddeveloping-country-taxonomy/
- https://opened.cuny.edu/courseware/lesson/585/student/#:~:text=GDP%20per%20capita%20also%20allows,per%20year%20per%20capita%20income.

In [ ]:

Chapter 1:
Introduction

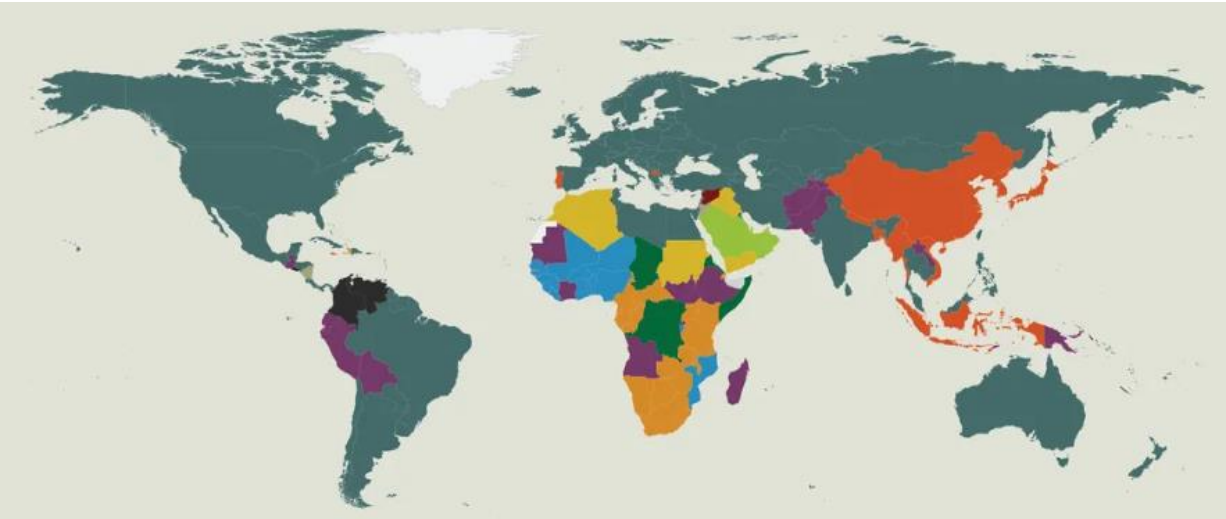
Someone wise once said: "Death is what gives life meaning". While we certainly will not be going into the philosophical interpretations of death and the meaning of life, we will be looking at global cause-of-death data. Death is a natural part of life but dying prematurely, especially due to unfortunate and unnecessary causes, is something we as individuals and as a society should seek to avoid. An important first-step in decreasing death tolls is examining the causes of death that affect humans on a global scale. The dataset I chose to use for this project aims to assist in the effort of analysing causes of death on a global scale.

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.

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.

This dataset is interesting because while it contains a lot of important information, there is not one clearly defined dependent, or target, variable. Hence, full discretion is given to the user(s) of this dataset while exploring the limitations of the given data and performing analysis.



Chapter: 2

Analytical Problem Framing

1. **Hardware & Software Used:**

- **Hardware Used -**

1. Processor: AMD Ryzen 5.
2. RAM: 8 GB.
3. GPU: AMD Radeon(TM) Vega 8.

- **Software Used -**

1. Anaconda: Jupyter Notebook
2. Libraries Used: Panads, Numpy, Seaborn, Matplotlib
3. Different libraries are used while building ML model and Visualisation of data.

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib as mpl
import matplotlib.pyplot as plt
%matplotlib inline

import warnings
warnings.filterwarnings('ignore')
```

2. **Data Sources and their size:**

The data is collected and provided only for academic purpose by Flip-Robo Technologies. 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.

	Country/Territory	Code	Year	Meningitis	Alzheimer's Disease and Other Dementias	Parkinson's Disease	Nutritional Deficiencies	Malaria	Drowning	Interpersonal Violence	...	Diabe Melli
0	Afghanistan	AFG	1990	2159	1116	371	2087	93	1370	1538	...	2
1	Afghanistan	AFG	1991	2218	1136	374	2153	189	1391	2001	...	2
2	Afghanistan	AFG	1992	2475	1162	378	2441	239	1514	2299	...	2
3	Afghanistan	AFG	1993	2812	1187	384	2837	108	1687	2589	...	2
4	Afghanistan	AFG	1994	3027	1211	391	3081	211	1809	2849	...	2

5 rows × 34 columns

```
print('No. of Rows :',df.shape[0])
print('No. of Columns :',df.shape[1])
```

```
No. of Rows : 6120
No. of Columns : 34
```

```
df.columns.to_series().groupby(df.dtypes).groups
```

```
{int64: ['Year', 'Meningitis', 'Alzheimer's Disease and Other Dementias', 'Parkinson's Disease', 'Nut
ritional Deficiencies', 'Malaria', 'Drowning', 'Interpersonal Violence', 'Maternal Disorders', 'HIV/A
IDS', 'Drug Use Disorders', 'Tuberculosis', 'Cardiovascular Diseases', 'Lower Respiratory Infection
s', 'Neonatal Disorders', 'Alcohol Use Disorders', 'Self-harm', 'Exposure to Forces of Nature', 'Diar
rheal Diseases', 'Environmental Heat and Cold Exposure', 'Neoplasms', 'Conflict and Terrorism', 'Diab
etes Mellitus', 'Chronic Kidney Disease', 'Poisonings', 'Protein-Energy Malnutrition', 'Road Injurie
s', 'Chronic Respiratory Diseases', 'Cirrhosis and Other Chronic Liver Diseases', 'Digestive Disease
s', 'Fire, Heat, and Hot Substances', 'Acute Hepatitis'], object: ['Country/Territory', 'Code']}
```

Observations:

- We have 6120 Rows and 34 Columns in this Dataset.
- We have 32 Numerical dtype Columns and 02 Object dtype columns.
- So, far we don't have any null values in any of the columns of the dataset.
- We may drop either 'Country/Territory' or 'Code' Column, as they boths gives the same info.
- Object data type columns need to be converted to numerical data.

3. Dataset Glossary (Column-wise):

- 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

4. Data Intigrity Check

- Before pre-processing data, integrity of data is to be checked.
- Dataset may contain whitespaces, missing value etc. let's investigate the integrity of data before proceeding for further analysis.

```
# Checking for the presense of whitespaces, '-', 'null', 'NA':

df.isin(['None','-999','0',' ','?','-',' ?','null','NA','N/A','nan','Nan','NAN','NaN']).sum().any()
```

```
False
```

```
df.isnull().sum().any()
```

```
False
```

```
df.duplicated().sum() # Checking for duplicacy.
```

```
0
```

Observations:

- Dataset do not contain whitespaces, missing value, 'None','-999','0',' ','?','-',' ?','null' ,'NA', 'N/A'.
- Dataset don't have any duplicate values in it.

5. Statistical Analysis of Dataset:

- Statistical analysis is a data analysis tool that helps draw meaningful conclusions from raw and unstructured data.
- Conducting descriptive statistics (i.e., mean, standard deviation, frequency and percent, as appropriate)

```
df[Cat_data].describe()
```

	Country/Territory	Code
count	6120	6120
unique	204	204
top	Afghanistan	AFG
freq	30	30

```
df.describe().T
```

	count	mean	std	min	25%	50%	75%	max
Year	6120.0	2004.500000	8.656149	1990.0	1997.00	2004.5	2012.00	2019.0
Meningitis	6120.0	1719.701307	6872.006930	0.0	15.00	109.0	847.25	98358.0
Alzheimer's Disease and Other Dementias	6120.0	4864.189379	16220.659072	0.0	90.00	686.5	2456.25	320715.0
Parkinson's Disease	6120.0	1173.169118	4616.156238	0.0	27.00	164.0	609.25	76990.0
Nutritional Deficiencies	6120.0	2253.600000	10483.633601	0.0	9.00	119.0	1167.25	268223.0
Malaria	6120.0	4140.960131	18427.753137	0.0	0.00	0.0	393.00	280604.0
Drowning	6120.0	1683.333170	6877.018366	0.0	34.00	177.0	698.00	153773.0
Interpersonal Violence	6120.0	2083.797222	6917.006075	0.0	40.00	285.0	877.00	69640.0
Maternal Disorders	6120.0	1262.589216	6057.973183	0.0	5.00	54.0	734.00	107929.0
HIV/AIDS	6120.0	5941.898529	21011.962487	0.0	11.00	136.0	1879.00	305491.0
Drug Use Disorders	6120.0	434.006699	2898.761628	0.0	3.00	20.0	129.00	65717.0
Tuberculosis	6120.0	7491.928595	39549.977578	0.0	35.00	417.0	2924.25	657515.0
Cardiovascular Diseases	6120.0	73160.454575	291577.537794	4.0	2028.00	11742.0	42546.50	4584273.0
Lower Respiratory Infections	6120.0	13687.914706	48031.720009	0.0	345.00	2126.5	10161.25	690913.0
Neonatal Disorders	6120.0	12558.942647	56058.366412	0.0	131.00	916.0	7419.75	852761.0
Alcohol Use Disorders	6120.0	787.421242	3545.823616	0.0	9.00	80.0	316.00	55200.0
Self-harm	6120.0	3874.825327	18425.616418	0.0	94.00	533.0	1882.25	220357.0
Exposure to Forces of Nature	6120.0	243.485621	4717.104377	0.0	0.00	0.0	12.00	222641.0
Diarrheal Diseases	6120.0	10822.795425	65416.174485	0.0	20.00	296.5	3946.75	1119477.0
Environmental Heat and Cold Exposure	6120.0	292.295915	1704.466356	0.0	2.00	21.0	109.00	29048.0
Neoplasms	6120.0	37542.244771	161558.365445	1.0	809.75	5629.5	20147.75	2716551.0
Conflict and Terrorism	6120.0	536.243954	7033.308187	0.0	0.00	0.0	23.00	503532.0
Diabetes Mellitus	6120.0	5136.704575	16773.081040	1.0	236.00	1087.0	2954.00	273089.0
Chronic Kidney Disease	6120.0	4724.132680	16470.429969	0.0	145.75	822.0	2922.50	222922.0
Poisonings	6120.0	425.013399	2022.640521	0.0	6.00	52.5	254.00	30683.0
Protein-Energy Malnutrition	6120.0	1965.994281	8255.999063	0.0	5.00	92.0	1042.50	202241.0
Road Injuries	6120.0	5930.795588	24097.784291	0.0	174.75	966.5	3435.25	329237.0
Chronic Respiratory Diseases	6120.0	17092.374837	105157.179839	1.0	289.00	1689.0	5249.75	1366039.0
Cirrhosis and Other Chronic Liver Diseases	6120.0	6124.072059	20688.118580	0.0	154.00	1210.0	3547.25	270037.0
Digestive Diseases	6120.0	10725.267157	37228.051096	0.0	284.00	2185.0	6080.00	464914.0
Fire, Heat, and Hot Substances	6120.0	588.711438	2128.595120	0.0	17.00	126.0	450.00	25876.0
Acute Hepatitis	6120.0	618.429902	4186.023497	0.0	2.00	15.0	160.00	64305.0

6. Feature Engineering:

```
death_dcs = ['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']
```

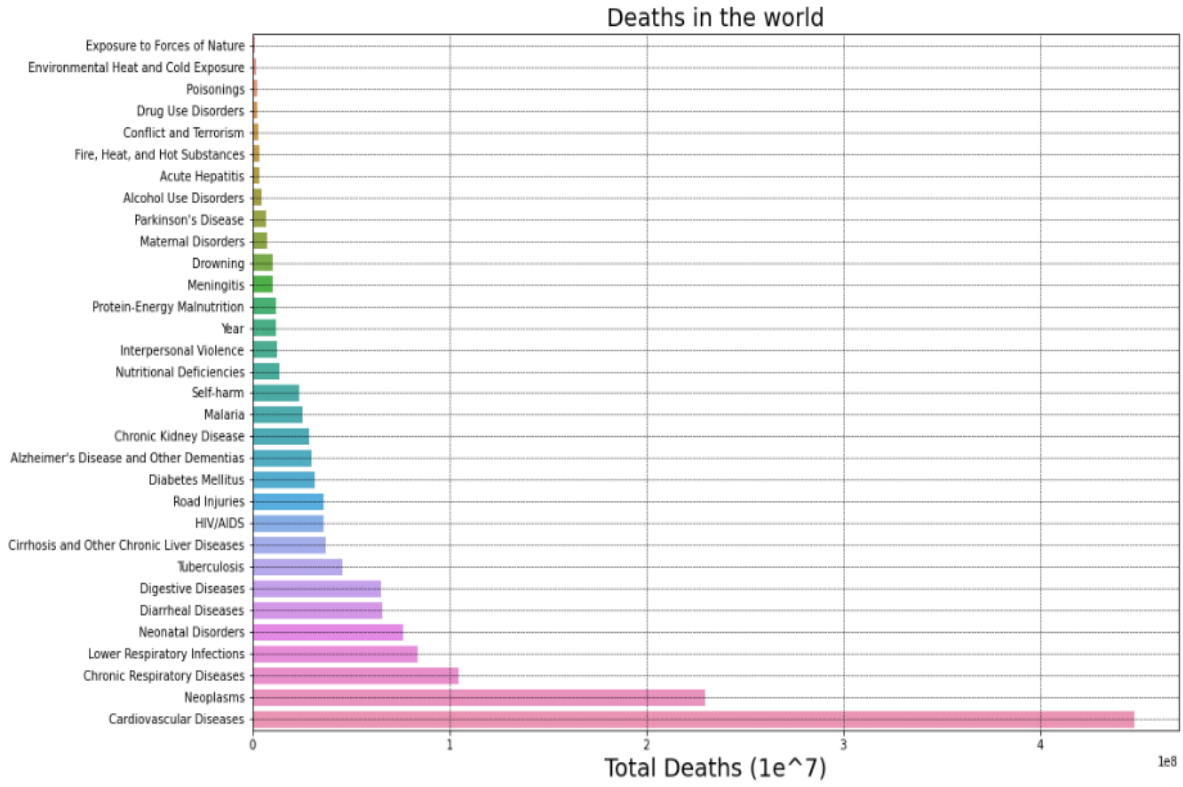
```
# dropping 'Code' column, as 'Country/Territory' & 'Code' Column both gives the same info.
df = df.drop("Code", axis='columns')
```

```
# Creating a new column for 'Total_Deaths' for individual Country and Year
df['Total_Deaths'] = df[death_dcs].sum(axis=1)
```

This dataset is interesting as it contains a lot of important information, but there is not one clearly defined dependent, or target, variable. Hence, full discretion is given to the user of this dataset while exploring the limitations of the given data and performing analysis.

7. Exploratory Data Analysis (E.D.A):

This dataset is interesting as it contains a lot of important information, but there is not one clearly defined dependent, or target, variable. Hence, full discretion is given to the user of this dataset while exploring the limitations of the given data and performing analysis.




```
# Top Countries in Deaths across 20 years:

Countries_Total_no_of_Deaths_20year_data = df.groupby('Country/Territory').sum()
Countries_Total_no_of_Deaths_20year_data.drop('Year',axis=1,inplace=True)
Countries_Total_no_of_Deaths_20year_data.sort_values(by='Total_Deaths',ascending =False)[:5]
```

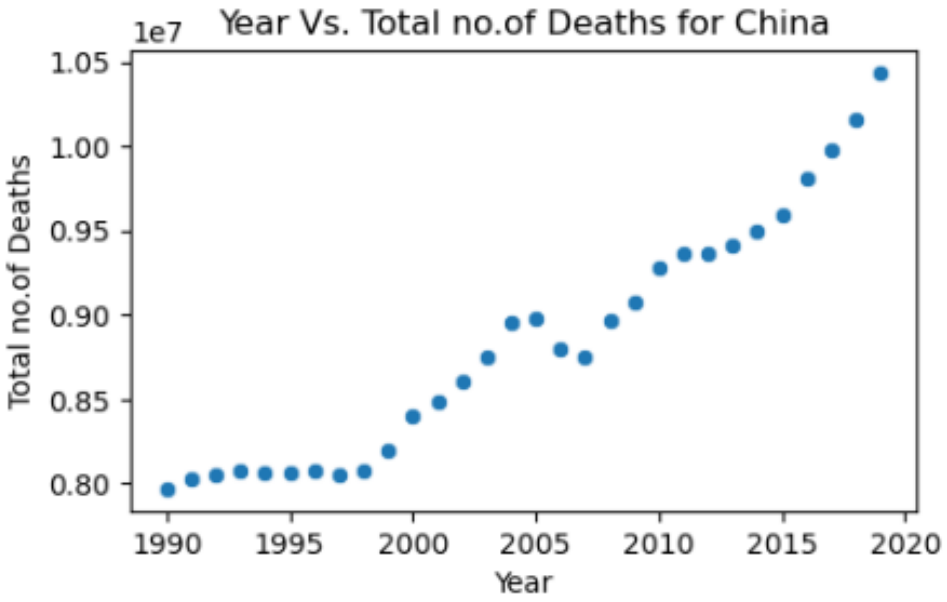
Country/Territory	Meningitis	Alzheimer's Disease and Other Dementias	Parkinson's Disease	Nutritional Deficiencies	Malaria	Drowning	Interpersonal Violence	Maternal Disorders	HIV/AIDS	Drug Use Disorders	...	Chronic Kidney Disease	Poisonings
China	480899	5381846	1533092	584236	13418	2873619	776275	243257	433709	626914	...	4195276	770140
India	2008944	1707561	756832	3290569	2439244	2110438	1237163	2292449	2454374	168928	...	4556172	170119
United States	40032	3302609	661288	133044	0	114752	596818	25206	528417	800798	...	2018497	40259
Russia	60519	972305	236367	15906	0	423044	1215179	15028	350679	259452	...	325433	298954
Indonesia	337724	487566	145752	604467	74664	237902	81342	376966	74981	12980	...	964478	27837

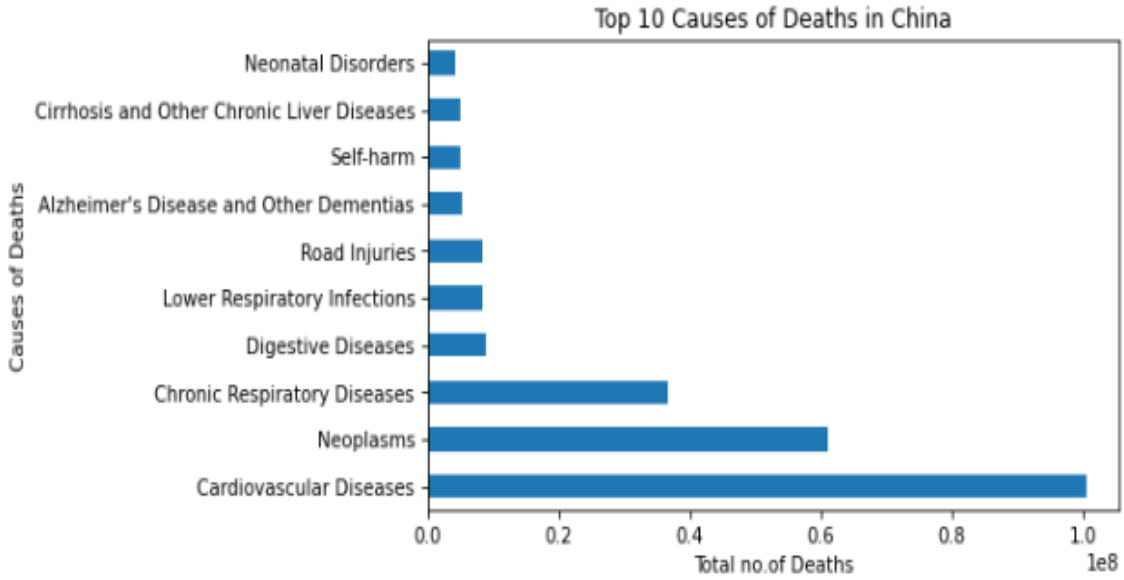
5 rows × 32 columns

Observation:

- It is obvious that cardiovascular disease dominates death toll all over the world.
- From the above table, we can see a mixture of developed and developing countries with a sizeable population. So, by doing ample EDA & Statistical analysis of these top 5 countries we can get the affect of each disease with respect to the rest of countries.

1. For China:



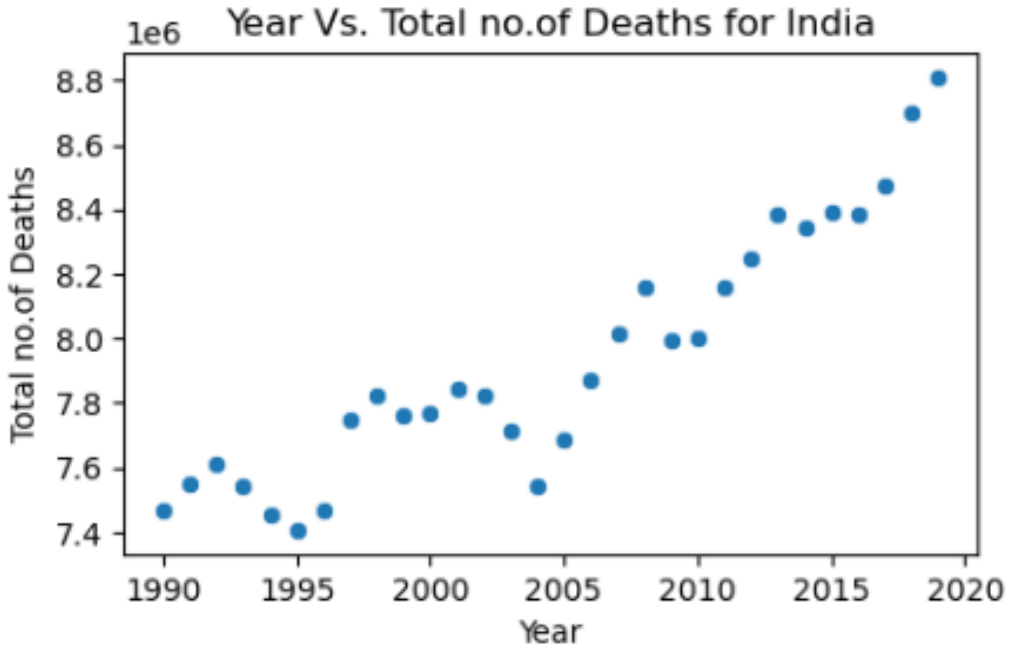


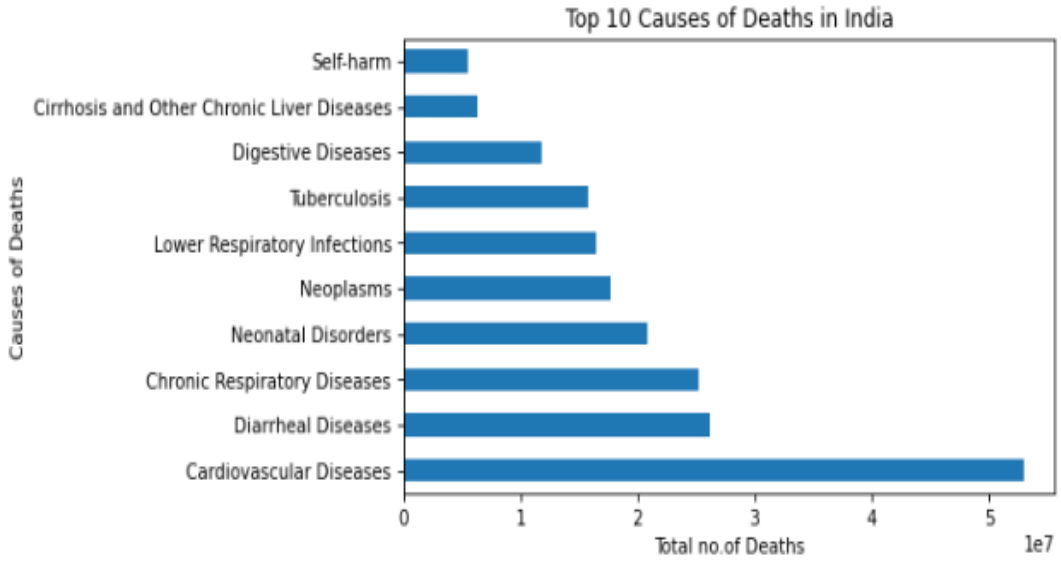
Observation:

- There is a clear raise in Total No.of Deaths recorded with each incrementing year for China.
- Major Causes of Deaths for China are:
    1. Cardiovascular Diseases
    2. Neoplasms
    3. Chronic Respiratory Diseases
    4. Digestive Diseases
    5. Lower Respiratory Infections
    6. Road Injuries
- Deaths in China due to Alzheimer's Disease and Other Dementias is becoming more dominant among all Deaths Caused by Brain related Diseases with every incrementing year.
- Deaths in China due to Digestive Diseases is almost constant & Dominant among all Deaths Caused by Gastrointestinal related Diseases with every incrementing year.
- Deaths in China due to Chronic Respiratory Diseases is almost constant(between 10.3lakh/year & 13.5lakh/year) & Dominant among all Deaths Caused by Respiratory related Diseases with every incrementing year.
- Deaths in China due to Cardiovascular Diseases is most Dominant among all Deaths Caused with every incrementing year.
- Deaths in China due to Pregnancy related issues is on decline with every incrementing year.
- Deaths in China due to all kidney related Diseases is Dominant with every incrementing year.
- Deaths in China due to Cirrhosis and Other Chronic Liver Diseases is Dominant among all Deaths Caused by liver related Diseases with every incrementing year.
- Deaths in China due to Natural or Man-made Deaths are summarised below:
    - ✓ Deaths due to 'Interpersonal Violence' is declining with every incrementing year.

- ✓ Deaths due to 'Drug Use Disorders' is declining with every incrementing year.
- ✓ Deaths due to 'Self-harm' is declining with every incrementing year.
- ✓ Deaths due to 'Exposure to Forces of Nature' is highest in 2008 due to the cold spell mortality in subtropical China. The 2008 cold spell increased mortality by 43.8% compared to non-cold spell days with the highest effects in southern and central China.
- ✓ Deaths due to "Fire, Heat, and Hot Substances" is declining with every incrementing year.
- ✓ Deaths due to 'Poisonings',is increasing with every incrementing year.
- ✓ Deaths due to 'Conflict and Terrorism' is negligible when compared to other causes of deaths.
- ✓ Deaths due to 'Environmental Heat and Cold Exposure' is declining with every incrementing year.
- ✓ Deaths due to 'Road Injuries' was increased between 1990-2010 & declining thereafter.
- ✓ Deaths due to 'Drowning' is declining with every incrementing year.

2. For India:



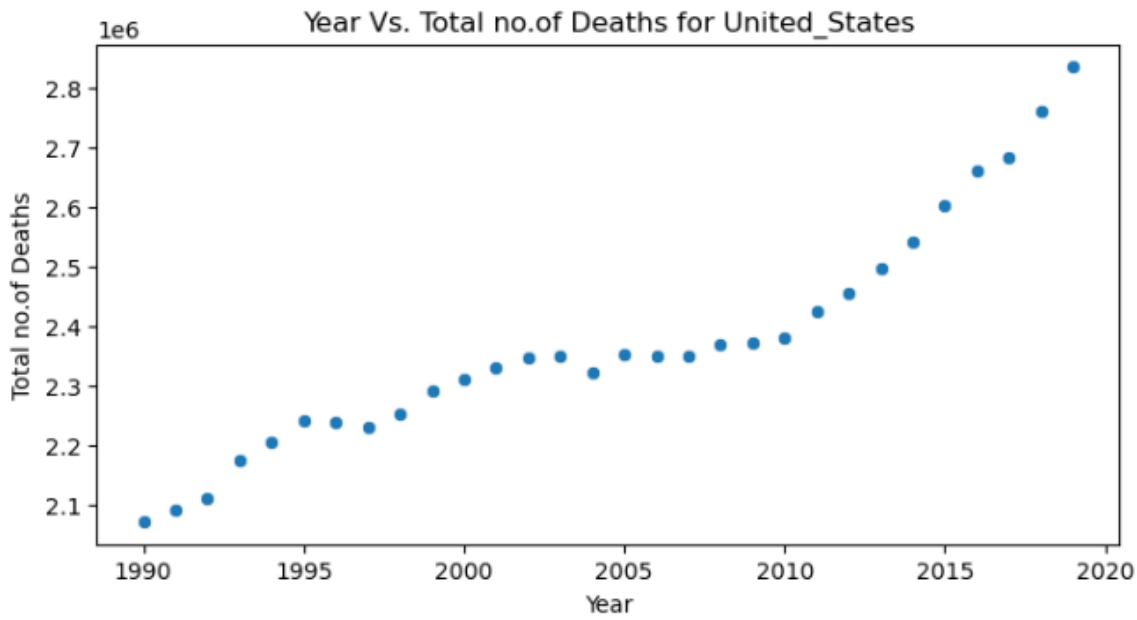


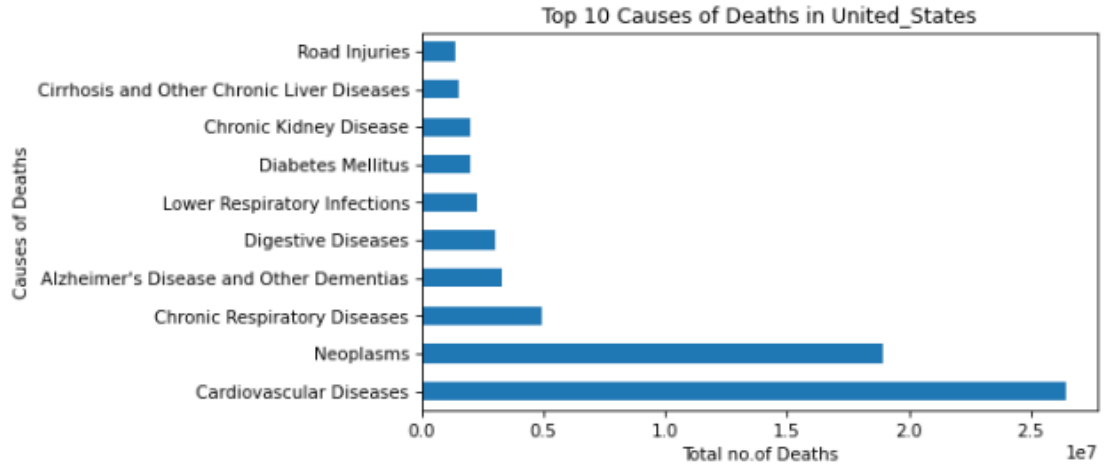
Observation:

- We can see slight dips in the total death counts, in India.
- Major Causes of Deaths for India are:
  1. Cardiovascular Diseases
  2. Diarrheal Diseases
  3. Chronic Respiratory Diseases
  4. Neonatal Disorders
  5. Neoplasms
  6. Lower Respiratory Infections
  7. Tuberculosis
- Deaths in India due to **Alzheimer's Disease and Other Dementias** is becoming more dominant among all Deaths Caused by Brain related Diseases with every incrementing year.
- Deaths in India due to **Diarrheal Diseases** is dominant among all Deaths Caused by Gastrointestinal related Diseases with every incrementing year.
- Deaths in India due to **Chronic Respiratory Diseases** is dominant among all Deaths Caused by Respiratory related Diseases with every incrementing year.
- Deaths in India due to **cardiovascular diseases** is most Dominant among all Deaths Caused with every incrementing year.

- Deaths in India due to **Pregnancy** related issues is on decline with every incrementing year.
- Deaths in India due to **all kidney related Diseases** is Dominant with every incrementing year.
- Deaths in India due to **Cirrhosis and Other Chronic Liver Diseases** is Dominant among all Deaths Caused by liver related Diseases with every incrementing year.
- Deaths in India due to **Natural or Man-made Deaths** are summarised below:
    - ✓ Deaths due to 'Interpersonal Violence' is constant with every incrementing year.
    - ✓ Deaths due to 'Drug Use Disorders' is incrementing with every incrementing year.
    - ✓ Deaths due to 'Self-harm' is constant with every incrementing year.
    - ✓ Deaths due to 'Exposure to Forces of Nature' is highest in 1993, 2001, 2004 & 2013.
    - ✓ Deaths due to "Fire, Heat, and Hot Substances" is constant with every incrementing year.
    - ✓ Deaths due to 'Poisonings', is declining with every incrementing year.
    - ✓ Deaths due to 'Conflict and Terrorism' is declining with every incrementing year, but need to be taken care of.
    - ✓ Deaths due to 'Environmental Heat and Cold Exposure' is constant with every incrementing year.
    - ✓ Deaths due to 'Road Injuries' is incrementing with every incrementing year.
    - ✓ Deaths due to 'Drowning' is declining with every incrementing year.

3. For United States of America:





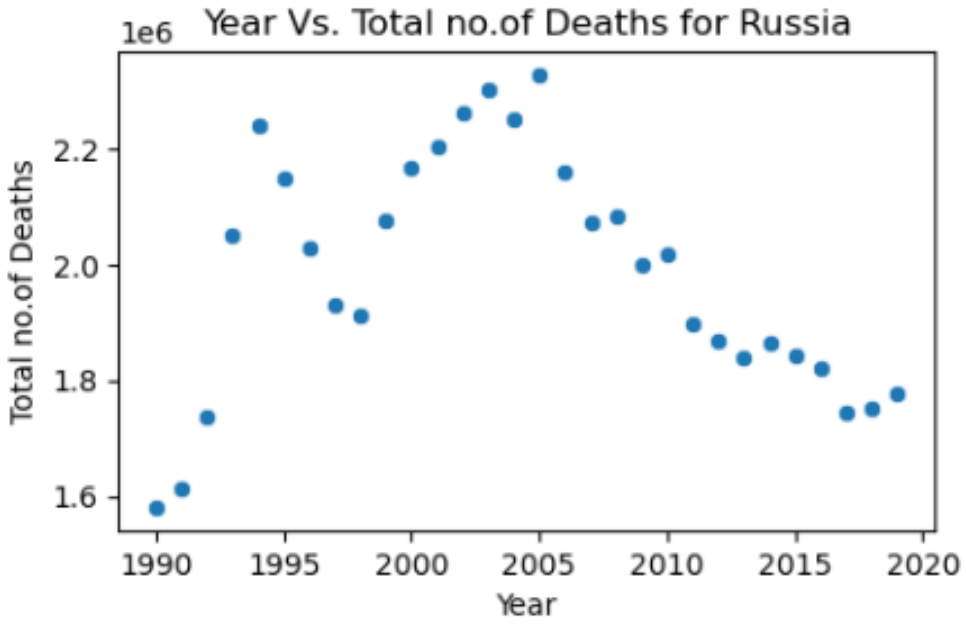
Observation:

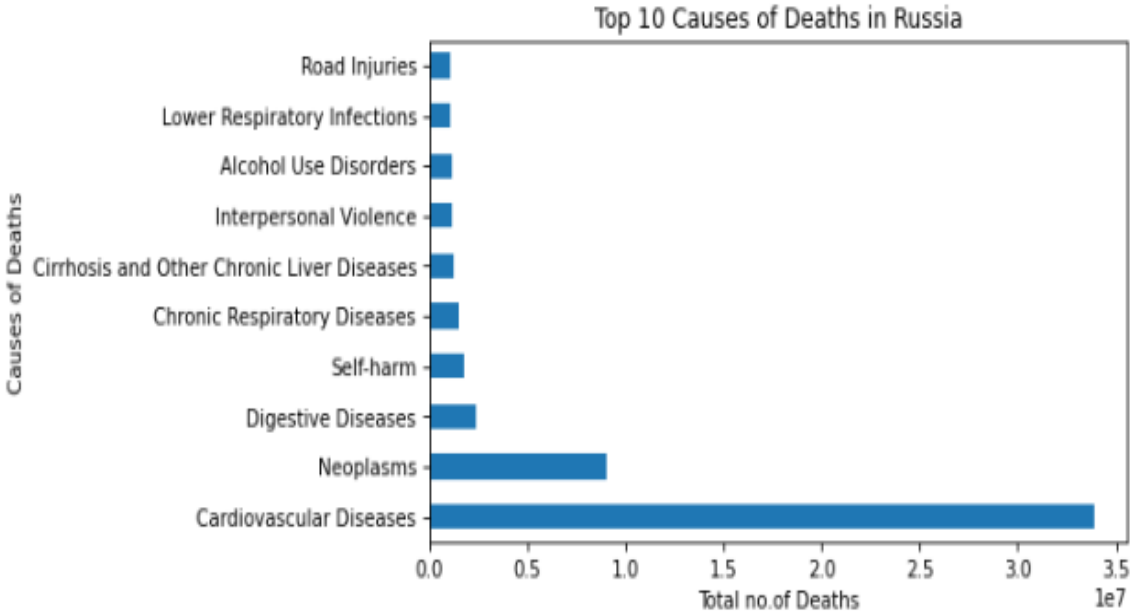
- There is a clear raise in Total No. of Deaths recorded with each incrementing year, in United States.
- Major Causes of Deaths for United States are:
    1. Cardiovascular Diseases
    2. Neoplasms
    3. Chronic Respiratory Diseases
    4. Alzheimer's Disease and Other Dementias
    5. Digestive Diseases

- Deaths in United States due to **Alzheimer's Disease and Other Dementias** is becoming more dominant among all Deaths Caused by Brain related Diseases with every incrementing year.
- Deaths in United States due to **Digestive Diseases** is increasing almost exponentially & is Dominant among all Deaths Caused by Gastrointestinal related Diseases with every incrementing year.
- Deaths in United States due to **Chronic Respiratory Diseases** is increasing & dominant among all Deaths Caused by Respiratory related Diseases with every incrementing year.
- Deaths in United States due to **cardiovascular diseases** is most Dominant among all Deaths Caused with every incrementing year. Also, deaths due to **Neoplasms(Cancer)** is increasing.
- Deaths in United States due to **Pregnancy** related issues is on decline with every incrementing year.
- Deaths in United States due to **all kidney related Diseases** is Dominant with every incrementing year.
- Deaths in United States due to **Cirrhosis and Other Chronic Liver Diseases** is Dominant among all Deaths Caused by liver related Diseases with every incrementing year.
- Deaths in United States due to **Natural or Man-made Deaths** are summarised below:
    - ✓ Deaths due to 'Interpersonal Violence' is decreasing with every incrementing year.
    - ✓ Deaths due to 'Drug Use Disorders' is incrementing with every incrementing year.
    - ✓ Deaths due to 'Self-harm' is almost constant with every incrementing year.
    - ✓ Deaths due to 'Exposure to Forces of Nature' is highest in 2005.
    - ✓ Deaths due to "Fire, Heat, and Hot Substances" is constant with every incrementing year.
    - ✓ Deaths due to 'Poisonings', is slightly increasing with every incrementing year.
    - ✓ Deaths due to 'Conflict and Terrorism' is declining with every incrementing year, except in 2001 due to WTC Attack.

- ✓ Deaths due to 'Environmental Heat and Cold Exposure' is constant with every incrementing year.
- ✓ Deaths due to 'Road Injuries' is slightly decreasing with every incrementing year.
- ✓ Deaths due to 'Drowning' is slightly declining with every incrementing year.

4. For Russia:





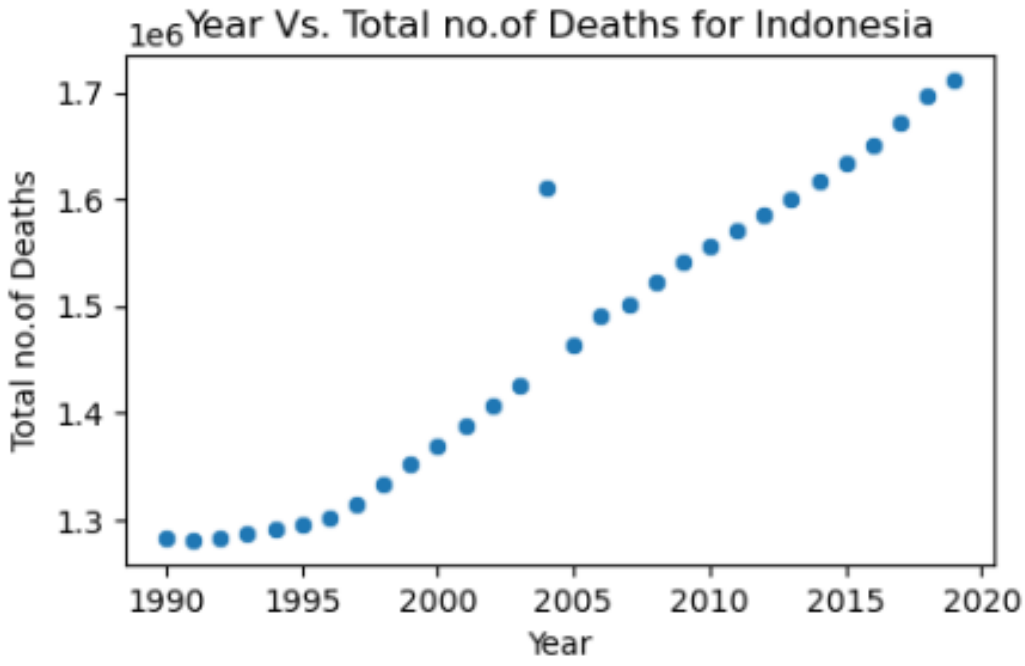
Observation:

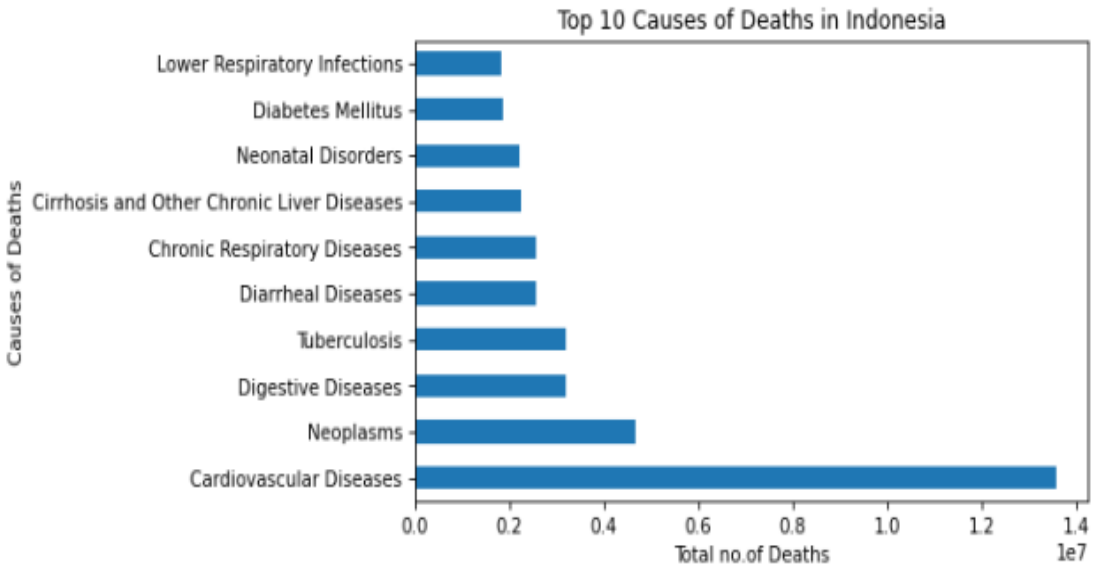
- There is a clear decrease in Total No. of Deaths after 2005 with each incrementing year in Russia.
- Major Causes of Deaths for Russia are:
    1. Cardiovascular Diseases
    2. Neoplasms
    3. Digestive Diseases
    4. Self-harm
    5. Chronic Respiratory Diseases

- Deaths in Russia due to **Alzheimer's Disease and Other Dementias** is becoming more dominant among all Deaths Caused by Brain related Diseases with every incrementing year.
- Deaths in Russia due to **Digestive Diseases** is increasing almost exponentially & is Dominant among all Deaths Caused by Gastrointestinal related Diseases with every incrementing year.
- Deaths in Russia due to **Chronic Respiratory Diseases** is decreasing but dominant among all Deaths Caused by Respiratory related Diseases with every incrementing year.
- Deaths in Russia due to **cardiovascular diseases** is most Dominant among all Deaths Caused with every incrementing year.
- Deaths in Russia due to **Pregnancy** related issues is on decline with every incrementing year.
- Deaths in Russia due to **all kidney related Diseases** is Dominant with every incrementing year.
- Deaths in Russia due to **Cirrhosis and Other Chronic Liver Diseases** is Dominant among all Deaths Caused by liver related Diseases with every incrementing year.
- Deaths in Russia due to **Natural or Man-made Deaths** are summarised below:
    - ✓ Deaths due to 'Interpersonal Violence' is decreasing with every incrementing year.
    - ✓ Deaths due to 'Drug Use Disorders' is decreasing with every incrementing year.

- ✓ In Russia, Deaths due to 'Self-harm' is decreasing with every incrementing year.
- ✓ Deaths due to 'Exposure to Forces of Nature' is highest in 2002.
- ✓ Deaths due to "Fire, Heat, and Hot Substances" is decreasing with every incrementing year.
- ✓ Deaths due to 'Poisonings', is decreasing with every incrementing year.
- ✓ Deaths due to 'Conflict and Terrorism' is declining with every incrementing year, except in between 1999 & 2002.
- ✓ Deaths due to 'Environmental Heat and Cold Exposure' is decreasing with every incrementing year.
- ✓ Deaths due to 'Road Injuries' is decreasing with every incrementing year.
- ✓ Deaths due to 'Drowning' is declining with every incrementing year.

6. ***For Indonesia:***





Observation:

- There is a clear raise in Total No. of Deaths recorded with each incrementing year, in Indonesia.
- Major Causes of Deaths for Indonesia are:
    1. Cardiovascular Diseases
    2. Neoplasms
    3. Digestive Diseases
    4. Tuberculosis
    5. Diarrheal Diseases
    6. Chronic Respiratory Diseases
- Deaths in Indonesia due to **Alzheimer's Disease and Other Dementias** is becoming more dominant among all Deaths Caused by Brain related Diseases with every incrementing year.
- Deaths in Indonesia due to **Digestive Diseases** is increasing almost linearly & is Dominant among all Deaths Caused by Gastrointestinal related Diseases with every incrementing year.
- Deaths in Indonesia due to **Chronic Respiratory Diseases** is increasing & dominant among all Deaths Caused by Respiratory related Diseases with every incrementing year.
- Deaths in Indonesia due to **Cardiovascular diseases** is most Dominant among all Deaths Caused with every incrementing year. Also, deaths due to **HIV/AIDS** is increasing almost exponentially.

- Deaths in Indonesia due to **Pregnancy** related issues is on decline with every incrementing year.
- Deaths in Indonesia due to **all kidney related Diseases** is Dominant with every incrementing year.
- Deaths in Indonesia due to **Cirrhosis and Other Chronic Liver Diseases** is Dominant among all Deaths Caused by liver related Diseases with every incrementing year.
- Deaths in Indonesia due to **Natural or Man-made Deaths** are summarised below:
    - ✓ Deaths due to 'Interpersonal Violence' is almost constant with every incrementing year.
    - ✓ Deaths due to 'Drug Use Disorders' is incrementing with every incrementing year.
    - ✓ Deaths due to 'Self-harm' is almost constant with every incrementing year.
    - ✓ Deaths due to 'Exposure to Forces of Nature' is highest in 2004.
    - ✓ Deaths due to "Fire, Heat, and Hot Substances" is constantly declining with every incrementing year.
    - ✓ Deaths due to 'Poisonings', is constant with every incrementing year.
    - ✓ Deaths due to 'Conflict and Terrorism' is negligible with every incrementing year, except between 1999 & 2005.
    - ✓ Deaths due to 'Environmental Heat and Cold Exposure' is constant with every incrementing year.
    - ✓ Deaths due to 'Road Injuries' is slightly decreasing with every incrementing year.
    - ✓ Deaths due to 'Drowning' is declining with every incrementing year.

----------***----------