NEURONETIX

EXPLORE THE FUTURE

ABDELGHAFOR'S HACKATHON

DATA ANALYSIS

Global Health Insights Analysis

NEURONETIX
EXPLORE THE FUTURE

Introduction

This Global Health Data Analysis Project aims to uncover global mortality trends and identify regional patterns over time. By analyzing and visualizing data from various sources, the project seeks to provide insights that can inform public health decisions. Tools such as Python, Excel, and Power BI will be used to evaluate the dataset's structure, handle missing information, and generate meaningful insights. This foundational analysis will reveal mortality trends and enhance our understanding of global health statistics.

Purpose of the Analysis

- To understand trends and patterns in causes of death over time.
- To compare statistics between different countries.
- To provide helpful insights and recommendation in making strategies regarding the public health.

NEURONETIX
EXPLORE THE FUTURE

CONTENTS

- Python Analysis
- Excel Workbook
- Power BI Dashboard
- Final Recommendations

NEURONETIX
EXPLORE THE FUTURE

PYTHON ANALYSIS

NEURONETIX
EXPLORE THE FUTURE

Data Overview

- **Dataset Description**
  - Source: cause_of_deaths.csv
  - Key columns: Year, Country/Territory, Various Causes of Death
- **Initial Observations**
  - Shape of the dataset
  - Data types

2. Data Loading

```
[10]: df= pd.read_csv('cause_of_deaths.csv')
```

3. Data Cleaning and Preparation

```
[12]: df.shape
```

```
[12]: (6120, 34)
```

```
[14]: df.head()
```

[14]:

	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	Protein-Energy Malnutrition
0	Afghanistan	AFG	1990	2159	1116	371	2087	93	1370	1538	...	2108	3709	338	2054
1	Afghanistan	AFG	1991	2218	1136	374	2153	189	1391	2001	...	2120	3724	351	2119
2	Afghanistan	AFG	1992	2475	1162	378	2441	239	1514	2299	...	2153	3776	386	2404
3	Afghanistan	AFG	1993	2812	1187	384	2837	108	1687	2589	...	2195	3862	425	2797
4	Afghanistan	AFG	1994	3027	1211	391	3081	211	1809	2849	...	2231	3932	451	3038

5 rows × 34 columns

```
[16]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
```

NEURONETIX
EXPLORE THE FUTURE

Data Cleaning

- **Steps Taken:**
  - Converted 'Year' to datetime
  - Checked for null values and duplicates and none where found

```
[18]: df['Year'] = pd.to_datetime(df['Year'], format='%Y')

[35]: df.isnull().sum().sum()

[35]: 0

[22]: df.duplicated().sum()

[22]: 0
```

NEURONETIX
EXPLORE THE FUTURE

Descriptive Statistics of Causes of Death

[13]:
```
#Statistical Analysis for only the disease column with highlighting the extreme values
disease_columns=["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"]
disease_df=df[disease_columns]

disease_df.describe().T.style.bar(subset=["mean","max"], color='#205ff2') \
                        .background_gradient(subset=['std'], cmap='Reds') \
                        .background_gradient(subset=['50%'], cmap='coolwarm')
```

[13]:

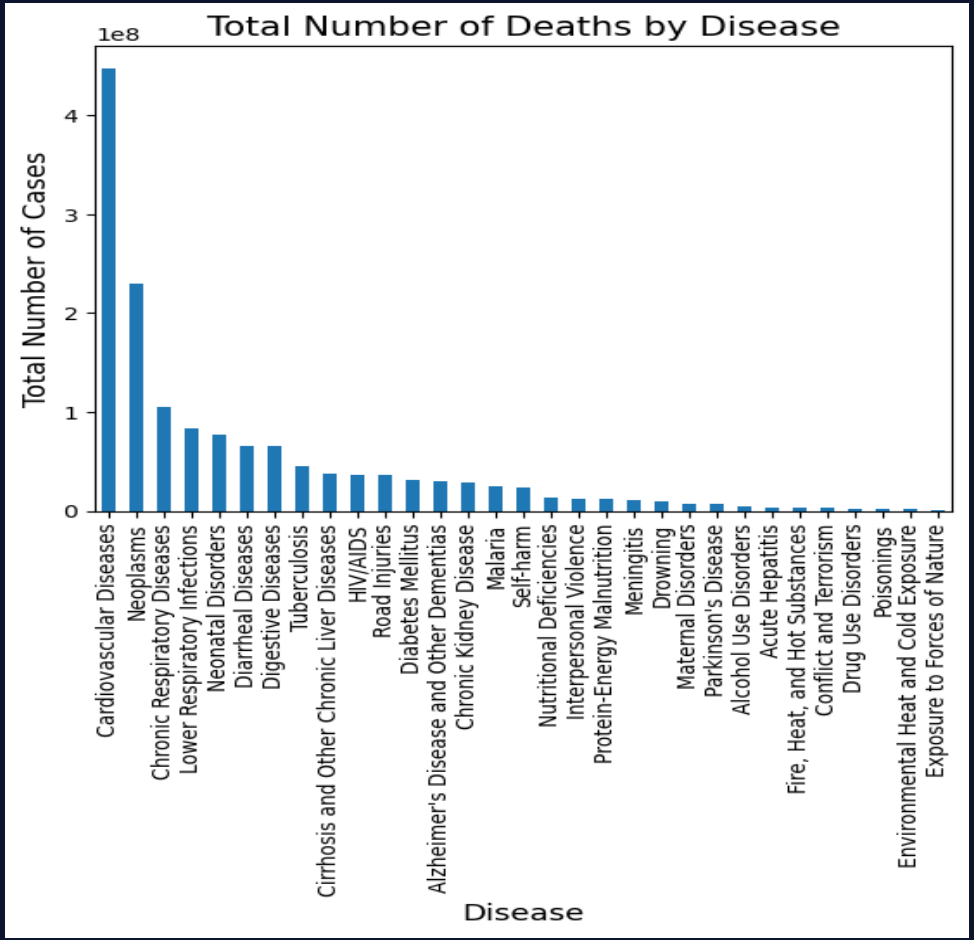
	count	mean	std	min	25%	50%	75%	max
Meningitis	6120.000000	1719.701307	6672.006930	0.000000	15.000000	109.000000	847.250000	98358.000000
Alzheimer's Disease and Other Dementias	6120.000000	4864.189379	18220.659072	0.000000	90.000000	666.500000	2456.250000	320715.000000
Parkinson's Disease	6120.000000	1173.169118	4616.156238	0.000000	27.000000	164.000000	609.250000	76990.000000
Nutritional Deficiencies	6120.000000	2253.600000	10483.633601	0.000000	9.000000	119.000000	1167.250000	268223.000000
Malaria	6120.000000	4140.960131	18427.753137	0.000000	0.000000	0.000000	393.000000	280604.000000
Drowning	6120.000000	1683.333170	8877.018366	0.000000	34.000000	177.000000	698.000000	153773.000000
Interpersonal Violence	6120.000000	2083.797222	6917.006075	0.000000	40.000000	265.000000	877.000000	69640.000000
Maternal Disorders	6120.000000	1262.589216	6057.973183	0.000000	5.000000	54.000000	734.000000	107929.000000
HIV/AIDS	6120.000000	5941.898529	21011.962487	0.000000	11.000000	136.000000	1879.000000	305491.000000
Drug Use Disorders	6120.000000	434.006699	2898.761628	0.000000	3.000000	20.000000	129.000000	65717.000000
Tuberculosis	6120.000000	7491.928595	39549.977578	0.000000	35.000000	417.000000	2924.250000	657515.000000
Cardiovascular Diseases	6120.000000	73160.454575	291577.537794	4.000000	2028.000000	11742.000000	42546.500000	4584273.000000
Lower Respiratory Infections	6120.000000	13687.914706	48031.720009	0.000000	345.000000	2126.500000	10161.250000	690913.000000

NEURONETIX
EXPLORE THE FUTURE

Visual Representations

- Bar chart showing total causes of death by each disease.

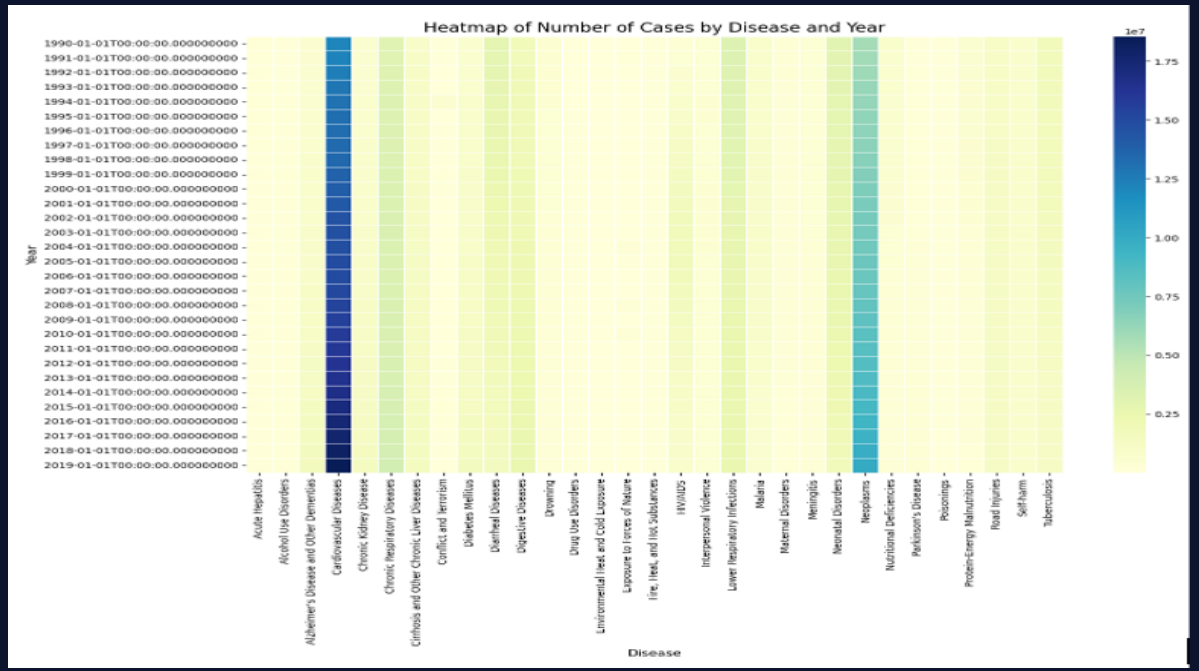
- Both the descriptive statics and bar chart show that the most prevalent cause of death is **Cardiovascular Diseases** followed by **Neoplasms** then **Chronic Respiratory Diseases**.



NEURONETIX
EXPLORE THE FUTURE

Visual Representations

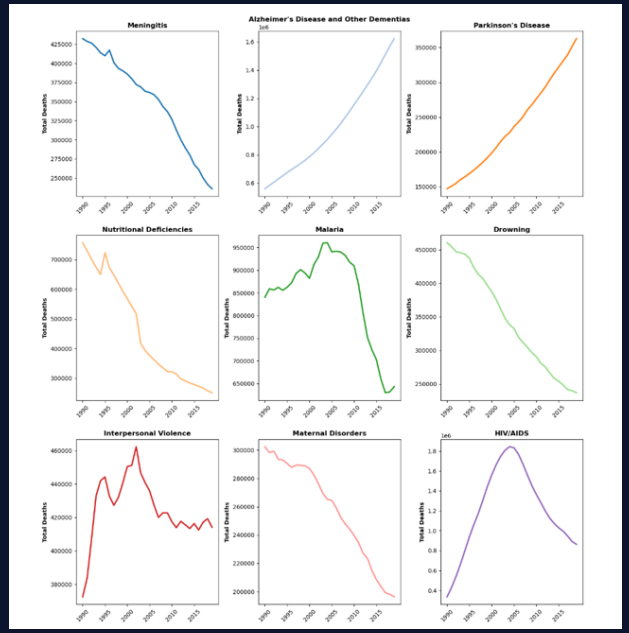
- Heatmap summarizing patterns, correlations and trends over time in the causes of death data.

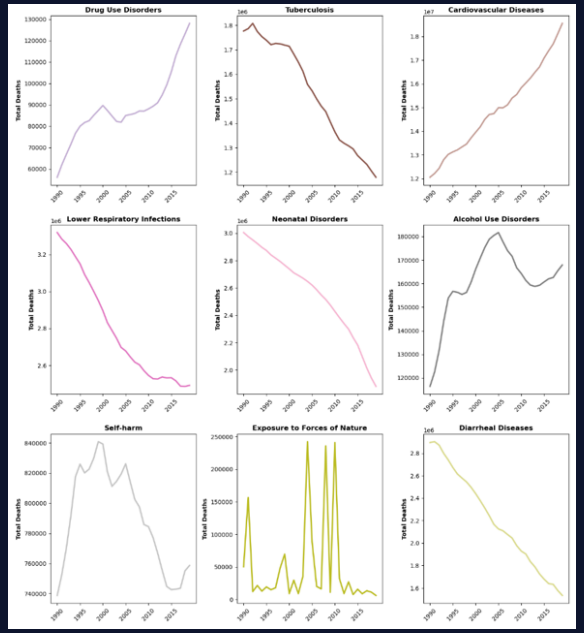


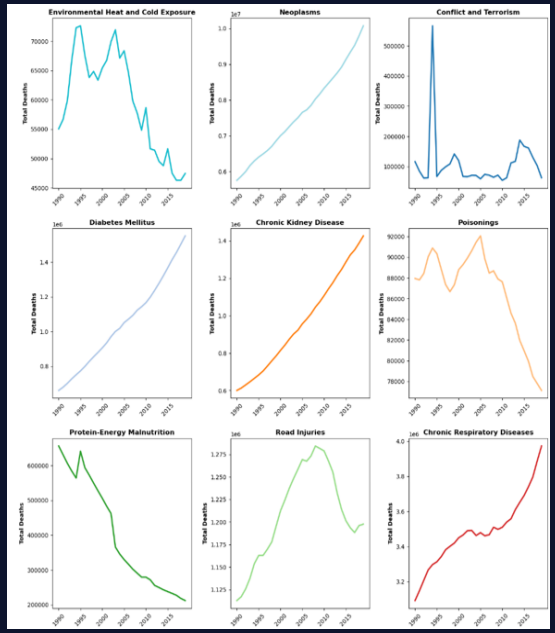
NEURONETIX
EXPLORE THE FUTURE

Trends Over Time

Subplots showing progression of disease deaths overtime. Some disease show constant increase like **Cardiovascular Diseases** and **Diabetes** while others decline like **Meningitis**, and causes like **Exposure to Forces of Nature** show relatively low count of deaths but with some spikes of large portions of death at once.



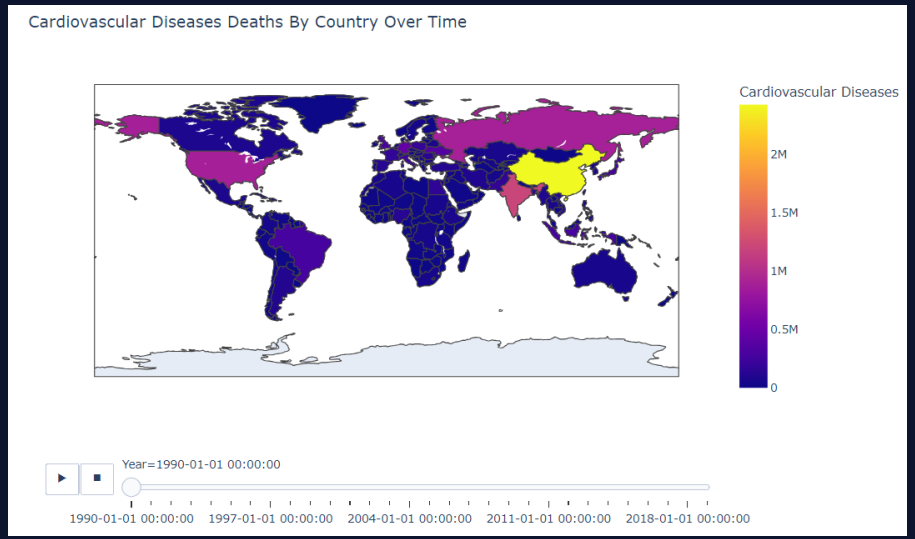


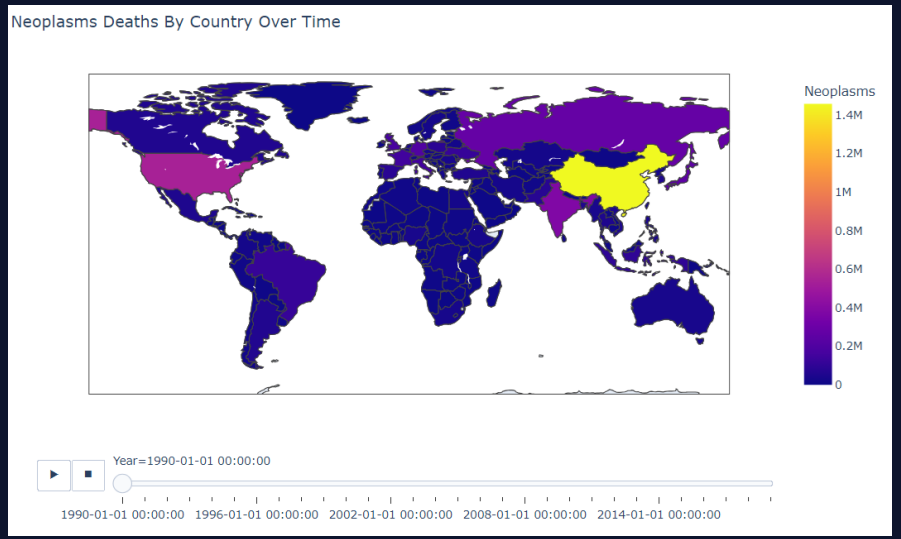


NEURONETIX
EXPLORE THE FUTURE

Geographic Distribution of Most Common Causes of Deaths

- **Choropleth Maps:**
  - **Cardiovascular Diseases, Neoplasms, Chronic Respiratory Diseases** as they're most common causes of death.
- **Animation Over Time:**
  - Show how deaths are distributed globally across the years with China showing the most number of deaths for all disease followed by India.

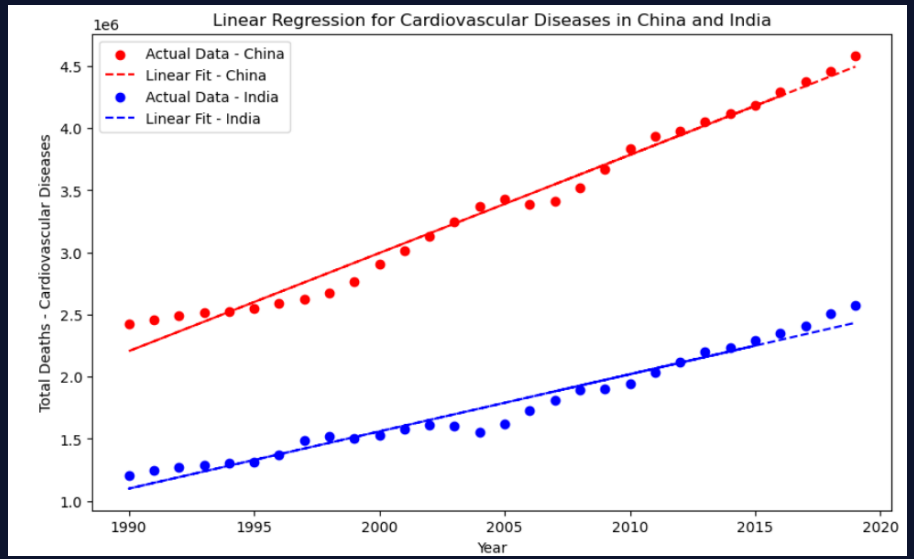


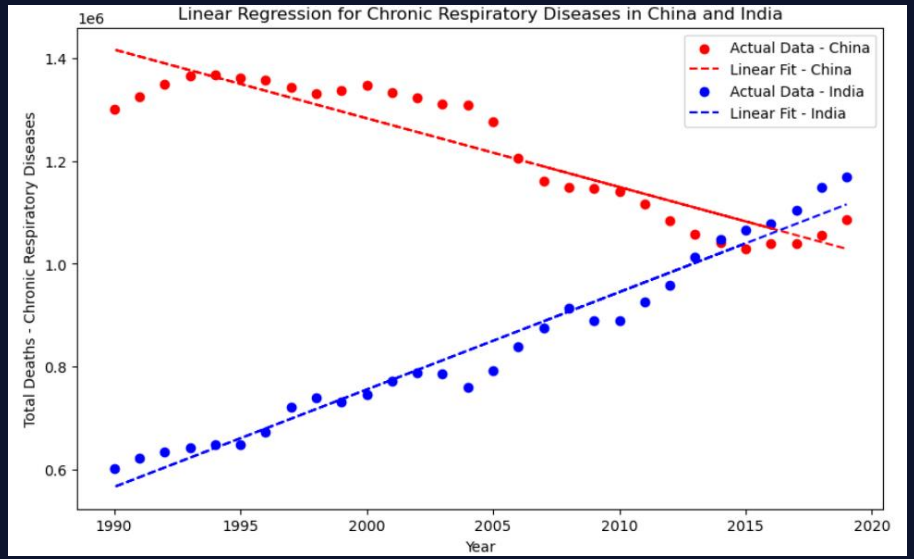


NEURONETIX
EXPLORE THE FUTURE

Predictive Analysis of Countries with Most Deaths

- **Linear Regression Models**
- **Selected Diseases:**
  - Cardiovascular Diseases, Neoplasms, Chronic Respiratory Diseases
- **Selected Countries:**
  - China, India

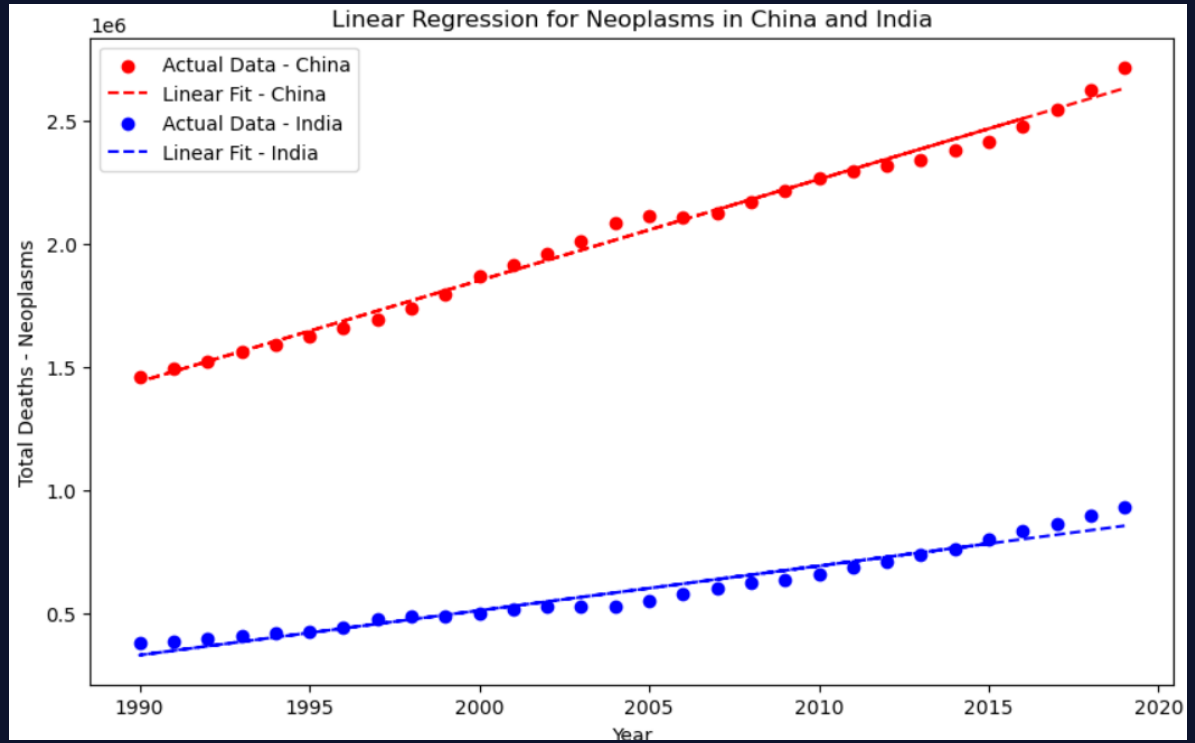




NEURONETIX
EXPLORE THE FUTURE

Predictive Analysis of Countries with Most Deaths

Shows that both **Cardiovascular Diseases** and **Neoplasms** deaths are more likely to increase over time in both China and India while Chronic Respiratory Diseases will increase in China and decline in India.



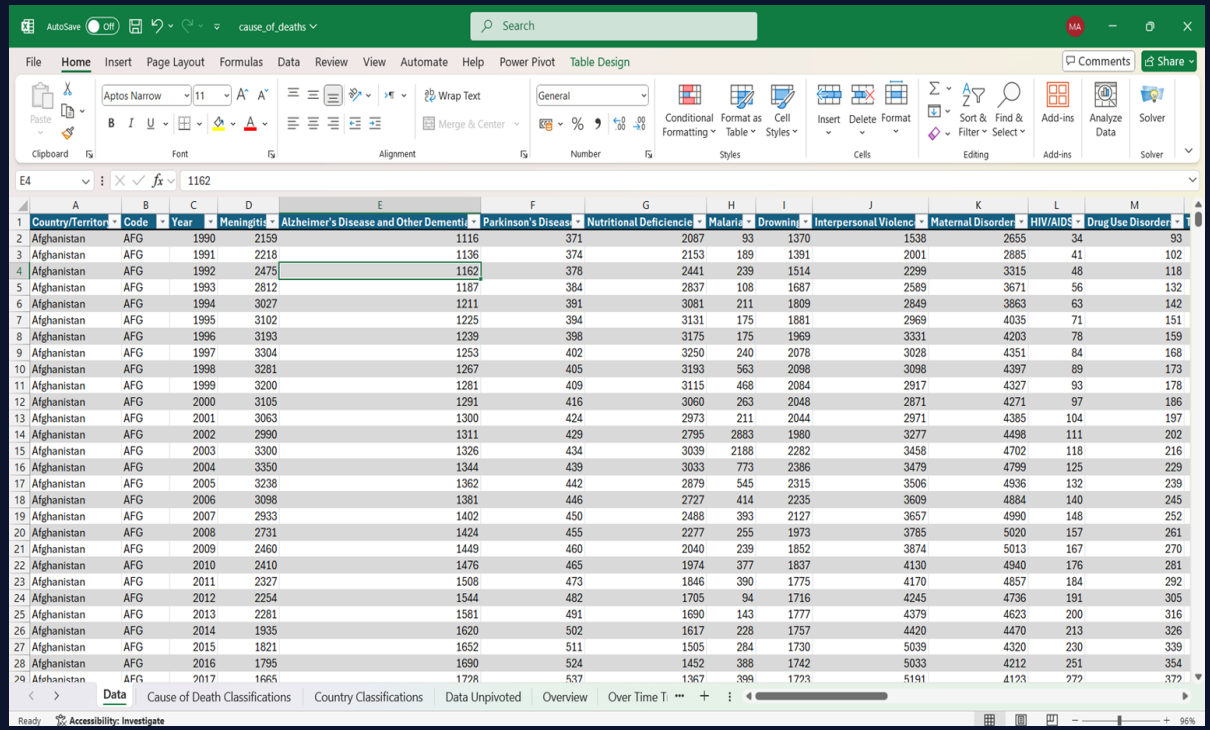
NEURONETIX
EXPLORE THE FUTURE

EXCEL Workbook

NEURONETIX
EXPLORE THE FUTURE

DATA OUTLINE

- 6121 rows
- 34 columns
  - Country
  - Country Code
  - Year
  - 31 different causes of death & diseases
- No duplicates or missing values found



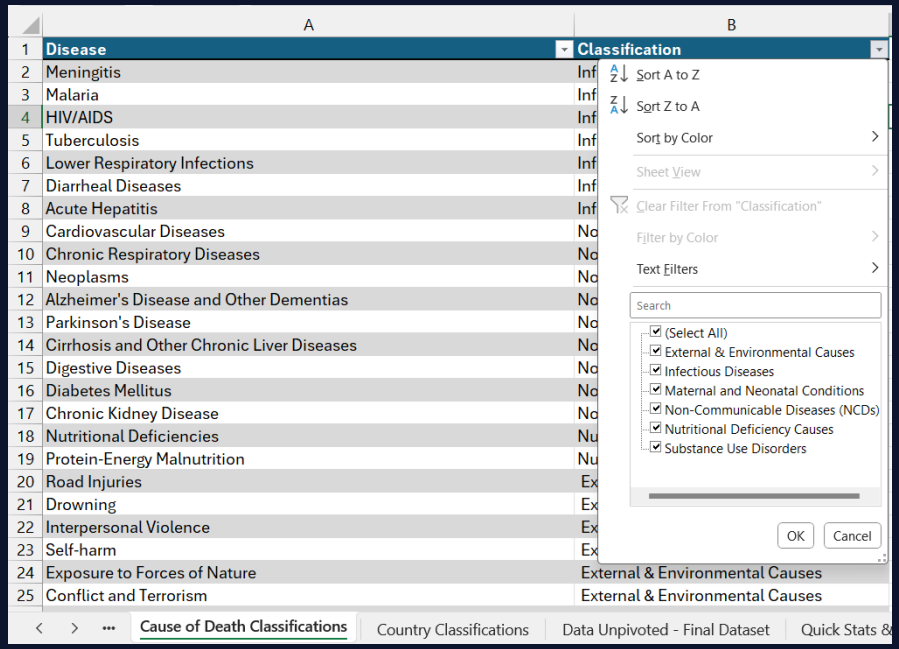
cause_of_deaths

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Country/Territor	Code	Year	Meningitis	Alzheimer's Disease and Other Dementia	Parkinson's Disease	Nutritional Deficiencie	Malaria	Drowning	Interpersonal Violenc	Maternal Disorder	HIV/AIDS	Drug Use Disorder
2	Afghanistan	AFG	1990	2159	1116	371	2087	93	1370	1538	2655	34	93
3	Afghanistan	AFG	1991	2218	1136	374	2153	189	1391	2001	2885	41	102
4	Afghanistan	AFG	1992	2475	1162	378	2441	239	1514	2299	3315	48	118
5	Afghanistan	AFG	1993	2812	1187	384	2837	108	1687	2589	3671	56	132
6	Afghanistan	AFG	1994	3027	1211	391	3081	211	1809	2849	3863	63	142
7	Afghanistan	AFG	1995	3102	1225	394	3131	175	1881	2969	4035	71	151
8	Afghanistan	AFG	1996	3193	1239	398	3175	175	1969	3331	4203	78	159
9	Afghanistan	AFG	1997	3304	1253	402	3250	240	2078	3028	4351	84	168
10	Afghanistan	AFG	1998	3281	1267	405	3193	563	2098	3098	4397	89	173
11	Afghanistan	AFG	1999	3200	1281	409	3115	468	2084	2917	4327	93	178
12	Afghanistan	AFG	2000	3105	1291	416	3060	263	2048	2871	4271	97	186
13	Afghanistan	AFG	2001	3063	1300	424	2973	211	2044	2971	4385	104	197
14	Afghanistan	AFG	2002	2990	1311	429	2795	2883	1980	3277	4498	111	202
15	Afghanistan	AFG	2003	3300	1326	434	3039	2188	2282	3458	4702	118	216
16	Afghanistan	AFG	2004	3350	1344	439	3033	773	2386	3479	4799	125	229
17	Afghanistan	AFG	2005	3238	1362	442	2879	545	2315	3506	4936	132	239
18	Afghanistan	AFG	2006	3098	1381	446	2727	414	2235	3609	4884	140	245
19	Afghanistan	AFG	2007	2933	1402	450	2488	393	2127	3657	4990	148	252
20	Afghanistan	AFG	2008	2731	1424	455	2277	255	1973	3785	5020	157	261
21	Afghanistan	AFG	2009	2460	1449	460	2040	239	1852	3874	5013	167	270
22	Afghanistan	AFG	2010	2410	1476	465	1974	377	1837	4130	4940	176	281
23	Afghanistan	AFG	2011	2327	1508	473	1846	390	1775	4170	4857	184	292
24	Afghanistan	AFG	2012	2254	1544	482	1705	94	1716	4245	4736	191	305
25	Afghanistan	AFG	2013	2281	1581	491	1690	143	1777	4379	4623	200	316
26	Afghanistan	AFG	2014	1935	1620	502	1617	228	1757	4420	4470	213	326
27	Afghanistan	AFG	2015	1821	1652	511	1505	284	1730	5039	4320	230	339
28	Afghanistan	AFG	2016	1795	1690	524	1452	388	1742	5033	4212	251	354
29	Afghanistan	AFG	2017	1665	1728	537	1367	399	1723	5191	4123	272	372

Data | Cause of Death Classifications | Country Classifications | Data Unpivoted | Overview | Over Time T

NEURONETIX
EXPLORE THE FUTURE

ADDED CLASSIFICATIONS

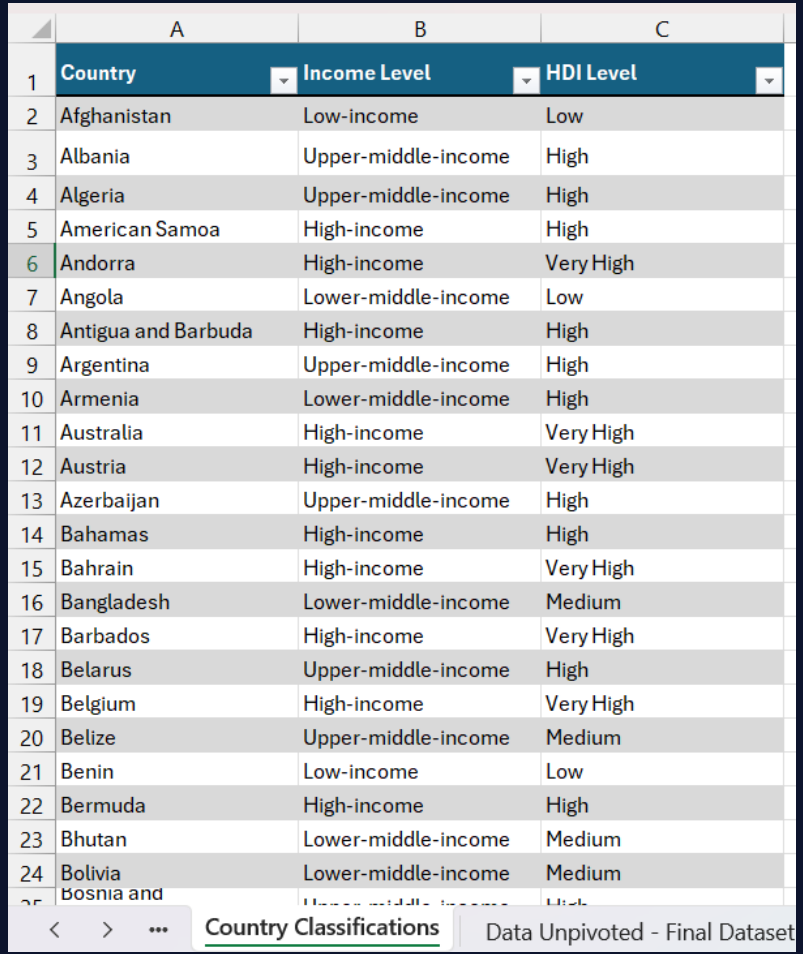


In order to make the analysis process more meaningful and insightful, official disease and country classifications were added to the dataset.

- WHO disease classification helps categorize diseases based on their causes and impacts, guiding public health strategies and interventions:
  - **Infectious Diseases**: Caused by pathogens, spread through infection.
  - **Non-Communicable Diseases (NCDs)**: Chronic diseases not caused by infections, often linked to lifestyle factors.
  - **Nutritional Deficiency Causes**: Result from inadequate intake of essential nutrients.
  - **External & Environmental Causes**: Related to injuries or conditions caused by environmental or external factors.
  - **Substance Use Disorders**: Disorders due to misuse or dependency on substances.
  - **Maternal and Neonatal Conditions**: Health issues affecting mothers during pregnancy and newborns.

NEURONETIX
EXPLORE THE FUTURE

- **World Bank Income Level Classification:** Classifies countries into categories like Low-income, Lower-middle-income, Upper-middle-income, and High-income based on their Gross National Income (GNI).
- **UNDP HDI Level Classification**: Ranks countries based on the Human Development Index, which assesses overall human development and highlights the importance of improved healthcare systems to enhance life expectancy and quality of life. Levels include Low, Medium, High, and Very High.

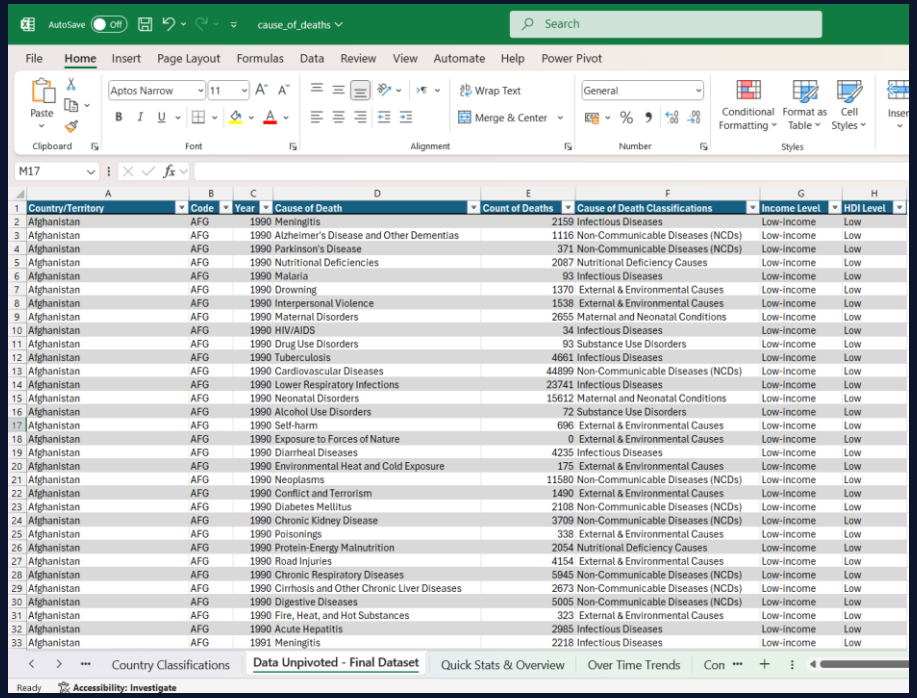


	A	B	C
1	Country	Income Level	HDI Level
2	Afghanistan	Low-income	Low
3	Albania	Upper-middle-income	High
4	Algeria	Upper-middle-income	High
5	American Samoa	High-income	High
6	Andorra	High-income	Very High
7	Angola	Lower-middle-income	Low
8	Antigua and Barbuda	High-income	High
9	Argentina	Upper-middle-income	High
10	Armenia	Lower-middle-income	High
11	Australia	High-income	Very High
12	Austria	High-income	Very High
13	Azerbaijan	Upper-middle-income	High
14	Bahamas	High-income	High
15	Bahrain	High-income	Very High
16	Bangladesh	Lower-middle-income	Medium
17	Barbados	High-income	Very High
18	Belarus	Upper-middle-income	High
19	Belgium	High-income	Very High
20	Belize	Upper-middle-income	Medium
21	Benin	Low-income	Low
22	Bermuda	High-income	High
23	Bhutan	Lower-middle-income	Medium
24	Bolivia	Lower-middle-income	Medium
25	Bosnia and	Upper-middle-income	High

Country Classifications | Data Unpivoted - Final Dataset

NEURONETIX
EXPLORE THE FUTURE

FINAL DATASET



Country/Territory	Code	Year	Cause of Death	Count of Deaths	Cause of Death Classifications	Income Level	HDI Level
Afghanistan	AFG	1990	Meningitis	2159	Infectious Diseases	Low-income	Low
Afghanistan	AFG	1990	Alzheimer's Disease and Other Dementias	1116	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Parkinson's Disease	371	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Nutritional Deficiencies	2087	Nutritional Deficiency Causes	Low-income	Low
Afghanistan	AFG	1990	Malaria	93	Infectious Diseases	Low-income	Low
Afghanistan	AFG	1990	Drowning	1370	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Interpersonal Violence	1538	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Maternal Disorders	2655	Maternal and Neonatal Conditions	Low-income	Low
Afghanistan	AFG	1990	HIV/AIDS	34	Infectious Diseases	Low-income	Low
Afghanistan	AFG	1990	Drug Use Disorders	93	Substance Use Disorders	Low-income	Low
Afghanistan	AFG	1990	Tuberculosis	4661	Infectious Diseases	Low-income	Low
Afghanistan	AFG	1990	Cardiovascular Diseases	44899	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Lower Respiratory Infections	23741	Infectious Diseases	Low-income	Low
Afghanistan	AFG	1990	Neonatal Disorders	15612	Maternal and Neonatal Conditions	Low-income	Low
Afghanistan	AFG	1990	Alcohol Use Disorders	72	Substance Use Disorders	Low-income	Low
Afghanistan	AFG	1990	Self-harm	696	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Exposure to Forces of Nature	0	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Diarrheal Diseases	4235	Infectious Diseases	Low-income	Low
Afghanistan	AFG	1990	Environmental Heat and Cold Exposure	175	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Neoplasms	11580	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Conflict and Terrorism	1490	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Diabetes Mellitus	2108	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Chronic Kidney Disease	3709	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Poisonings	338	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Protein-Energy Malnutrition	2054	Nutritional Deficiency Causes	Low-income	Low
Afghanistan	AFG	1990	Road Injuries	4154	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Chronic Respiratory Diseases	5945	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Cirrhosis and Other Chronic Liver Diseases	2673	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Digestive Diseases	5005	Non-Communicable Diseases (NCDs)	Low-income	Low
Afghanistan	AFG	1990	Fire, Heat, and Hot Substances	323	External & Environmental Causes	Low-income	Low
Afghanistan	AFG	1990	Acute Hepatitis	2985	Infectious Diseases	Low-income	Low
Afghanistan	AFG	1991	Meningitis	2218	Infectious Diseases	Low-income	Low

After unpivoting the disease columns using Power Query and using Xlookup function to add the classifications to each corresponding row, the resulting dataset is in a tidy, consistent format and is ready for analysis and visualizations using pivot tables.

NEURONETIX
EXPLORE THE FUTURE

QUICK STATS & OVERVIEW

Cause of Death	Total Number of Deaths	Average Number of Deaths	Maximum Number of Deaths
Acute Hepatitis	3,784,791	618	64,305
Alcohol Use Disorders	4,819,018	787	55,200
Alzheimer's Disease and Other Dementias	29,768,839	4,864	320,715
Cardiovascular Diseases	447,741,982	73,160	4,584,273
Chronic Kidney Disease	28,911,692	4,724	222,922
Chronic Respiratory Diseases	104,605,334	17,092	1,366,039
Cirrhosis and Other Chronic Liver Diseases	37,479,321	6,124	270,037
Conflict and Terrorism	3,294,053	538	503,532
Diabetes Mellitus	31,448,872	5,139	273,089
Diarrheal Diseases	66,235,508	10,823	1,119,477
Digestive Diseases	65,638,635	10,725	464,914
Drowning	10,301,999	1,683	153,773
Drug Use Disorders	2,656,121	434	65,717
Environmental Heat and Cold Exposure	1,788,851	292	29,048
Exposure to Forces of Nature	1,490,132	243	222,641
Fire, Heat, and Hot Substances	3,602,914	589	25,876
HIV/AIDS	36,364,419	5,942	305,491
Interpersonal Violence	12,752,839	2,084	69,640
Lower Respiratory Infections	83,770,038	13,688	690,913
Malaria	25,342,676	4,141	280,604
Maternal Disorders	7,727,046	1,263	107,929
Meningitis	10,524,572	1,720	98,358
Neonatal Disorders	76,860,729	12,559	852,761
Neoplasms	229,758,538	37,542	2,716,551
Nutritional Deficiencies	13,792,032	2,254	268,223
Parkinson's Disease	7,179,795	1,173	76,990
Poisonings	2,601,082	425	30,883
Protein-Energy Malnutrition	12,031,885	1,966	202,241
Road Injuries	36,296,469	5,931	329,237
Self-harm	23,713,931	3,875	220,357
Tuberculosis	45,850,603	7,492	657,515

Using Excel pivot table and conditional formatting, the following insights can be derived:

- Leading Causes of Death:

- **Cardiovascular Diseases** have the highest total number of deaths (447.7 million), followed by **Neoplasms (cancers)** (229.8 million) and **Chronic Respiratory Diseases** (104.6 million). These are significant global health concerns.
- Other high-mortality causes include **Lower Respiratory Infections** (83.8 million) and **Diarrheal Diseases** (66.2 million).

- High-Impact Events:

- Causes like **Conflict and Terrorism** and **Exposure to Forces of Nature** show relatively low total deaths (3.2 million and 1.5 million respectively), but their maximum death figures (503,532 and 222,641 respectively) indicate that extreme events or disasters account for a large portion of deaths at once.

NEURONETIX
EXPLORE THE FUTURE

QUICK STATS & OVERVIEW

Cause of Death	Total Number of Deaths	Average Number of Deaths	Maximum Number of Deaths
Acute Hepatitis	3,784,791	618	64,305
Alcohol Use Disorders	4,819,018	787	55,200
Alzheimer's Disease and Other Dementias	29,768,839	4,864	320,715
Cardiovascular Diseases	447,741,982	73,160	4,584,273
Chronic Kidney Disease	28,911,692	4,724	222,922
Chronic Respiratory Diseases	104,605,334	17,092	1,366,039
Cirrhosis and Other Chronic Liver Diseases	37,479,321	6,124	270,037
Conflict and Terrorism	3,294,053	538	503,532
Diabetes Mellitus	31,448,872	5,139	273,089
Diarrheal Diseases	66,235,508	10,823	1,119,477
Digestive Diseases	65,638,635	10,725	464,914
Drowning	10,301,999	1,683	153,773
Drug Use Disorders	2,656,121	434	65,717
Environmental Heat and Cold Exposure	1,788,851	292	29,048
Exposure to Forces of Nature	1,490,132	243	222,641
Fire, Heat, and Hot Substances	3,602,914	589	25,876
HIV/AIDS	36,364,419	5,942	305,491
Interpersonal Violence	12,752,839	2,084	69,640
Lower Respiratory Infections	83,770,038	13,688	690,913
Malaria	25,342,676	4,141	280,604
Maternal Disorders	7,727,046	1,263	107,929
Meningitis	10,524,572	1,720	98,358
Neonatal Disorders	76,860,729	12,559	852,761
Neoplasms	229,758,538	37,542	2,716,551
Nutritional Deficiencies	13,792,032	2,254	268,223
Parkinson's Disease	7,179,795	1,173	76,990
Poisonings	2,601,082	425	30,883
Protein-Energy Malnutrition	12,031,885	1,966	202,241
Road Injuries	36,296,469	5,931	329,237
Self-harm	23,713,931	3,875	220,357
Tuberculosis	45,850,603	7,492	657,515

- Low-Impact Events

- **Poisonings**, **Drug Use Disorders**, and **Environmental Heat and Cold Exposure** show relatively smaller maximum deaths, which suggests that their impact is more spread out over time rather than being tied to singular, catastrophic events

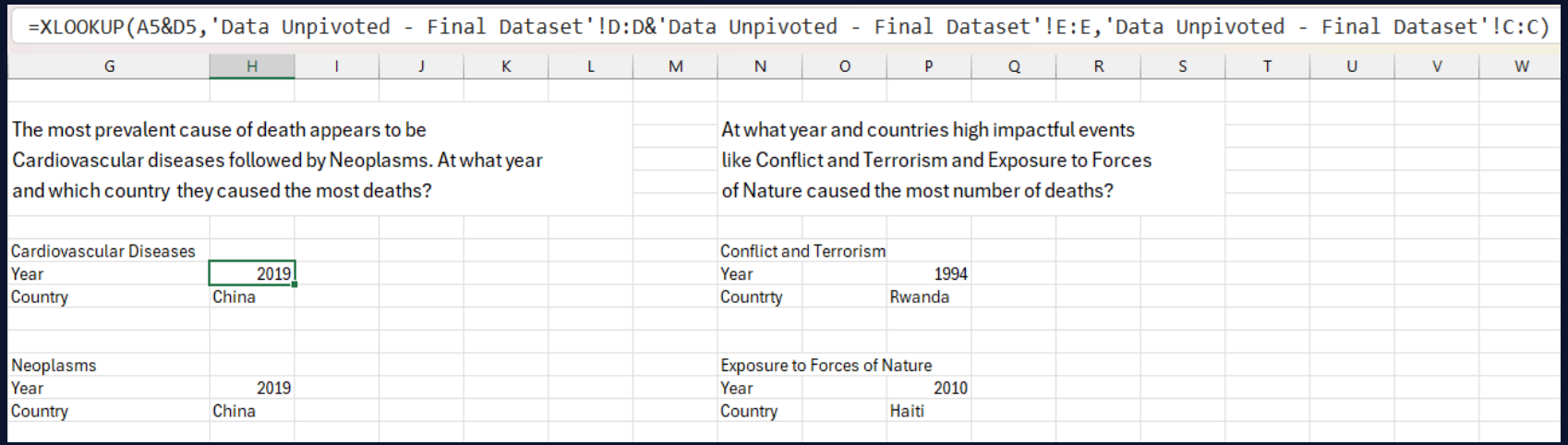
- Consistent Killers:

- **Non-communicable diseases (Cardiovascular Diseases** and **Neoplasms)** have very high average deaths per event (73,160 and 37,542 respectively), showing that they are widespread and consistently deadly. This reflects the global shift towards lifestyle-related conditions as the primary health burden.

NEURONETIX
EXPLORE THE FUTURE

QUICK STATS & OVERVIEW

Using XLookup and Concatenation to highlight the years and countries at which the leading causes of death and impactful events caused the most number of deaths.

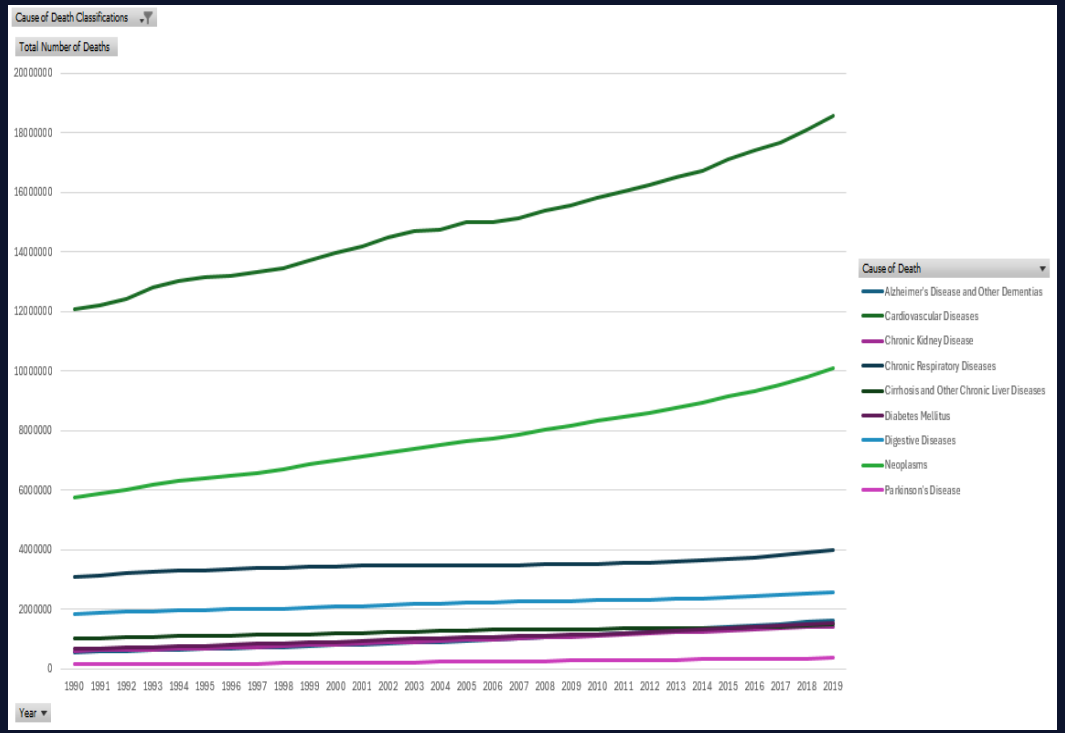


```
=XLOOKUP(A5&D5,'Data Unpivoted - Final Dataset'!D:D&'Data Unpivoted - Final Dataset'!E:E,'Data Unpivoted - Final Dataset'!C:C)
```

G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
The most prevalent cause of death appears to be Cardiovascular diseases followed by Neoplasms. At what year and which country they caused the most deaths?							At what year and countries high impactful events like Conflict and Terrorism and Exposure to Forces of Nature caused the most number of deaths?									
Cardiovascular Diseases							Conflict and Terrorism									
Year	2019						Year		1994							
Country	China						Countrty		Rwanda							
Neoplasms							Exposure to Forces of Nature									
Year	2019						Year		2010							
Country	China						Country		Haiti							

NEURONETIX
EXPLORE THE FUTURE

TRENDS OVER TIME

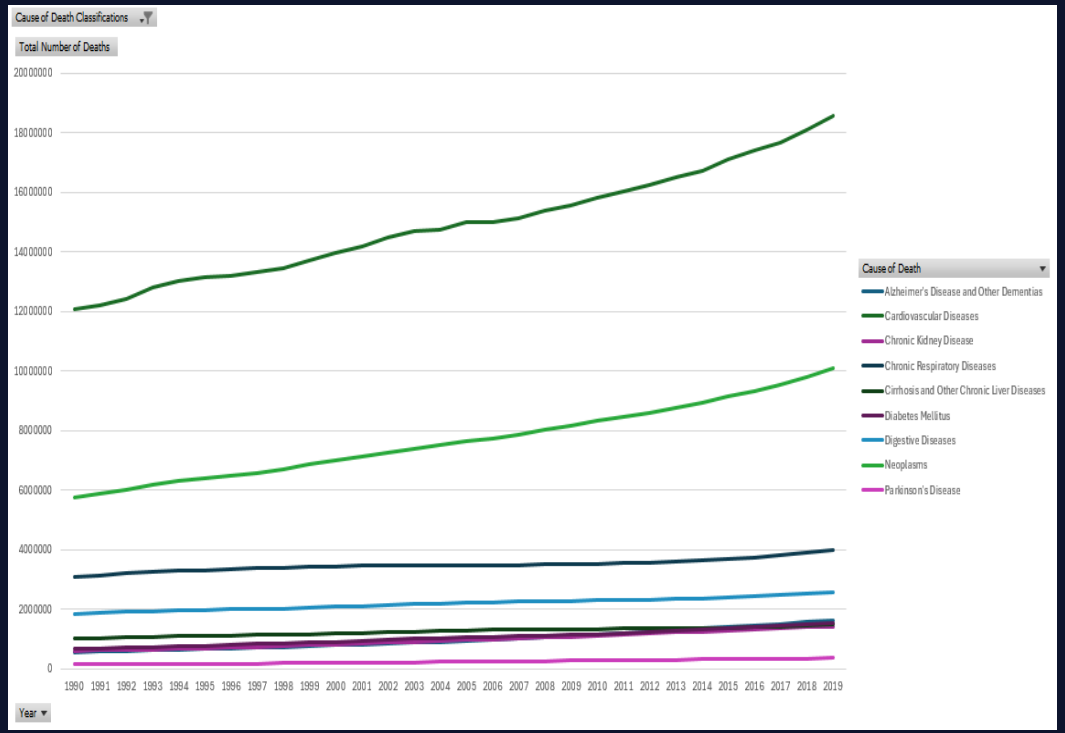


Overtime trend analysis focused on **NCDS** shows that:

- The global burden of **NCDs** has substantially increased over the past three decades, with **Cardiovascular Diseases** remaining the leading cause of death and consistently accounting for the highest number of deaths throughout the period, more than all other **NCDs** combined.
- **Neoplasms** were the second-leading cause of death after **Cardiovascular Diseases**, with deaths rising from 5.75 million in 1990 to 10.07 million in 2019.

NEURONETIX
EXPLORE THE FUTURE

TRENDS OVER TIME



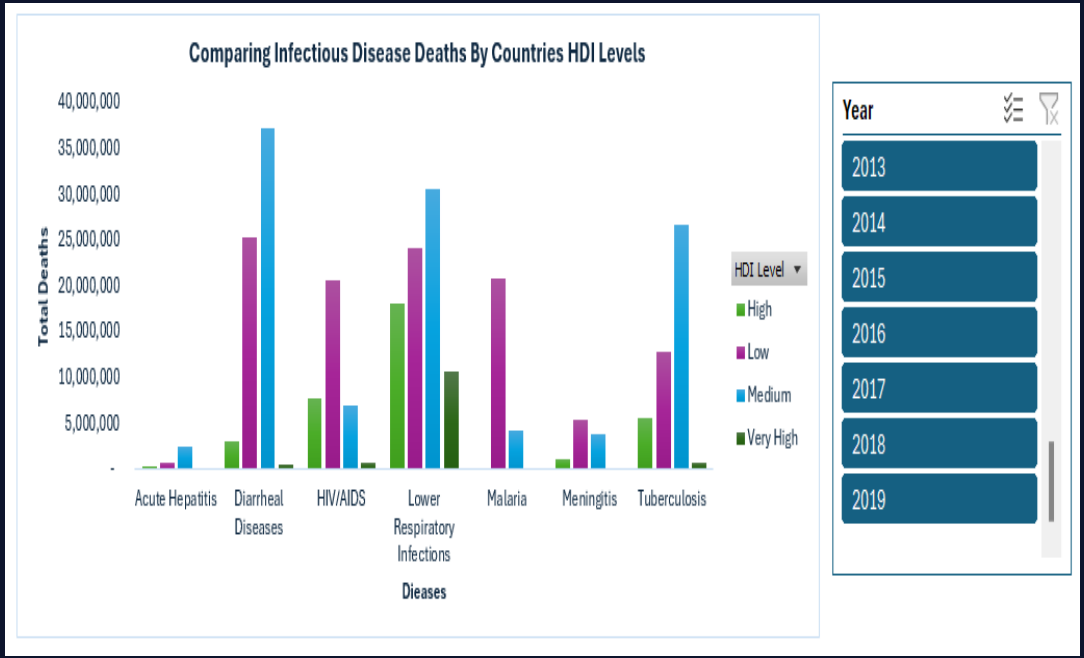
The rise in **Alzheimer's and related dementias** deaths suggests growing public health challenges related to aging populations and lifestyle changes.

Diabetes-related deaths rose from 661,085 in 1990 to 1,549,593 in 2019, showing a steady but moderate increase, likely reflecting global lifestyle changes.

Deaths from cirrhosis and other **chronic liver diseases** also increased, but at a relatively slower pace compared to other diseases.

NEURONETIX
EXPLORE THE FUTURE

COMPARATIVE ANALYSIS



Comparing death counts of **Infectious Diseases** by HDI levels over time shows that:

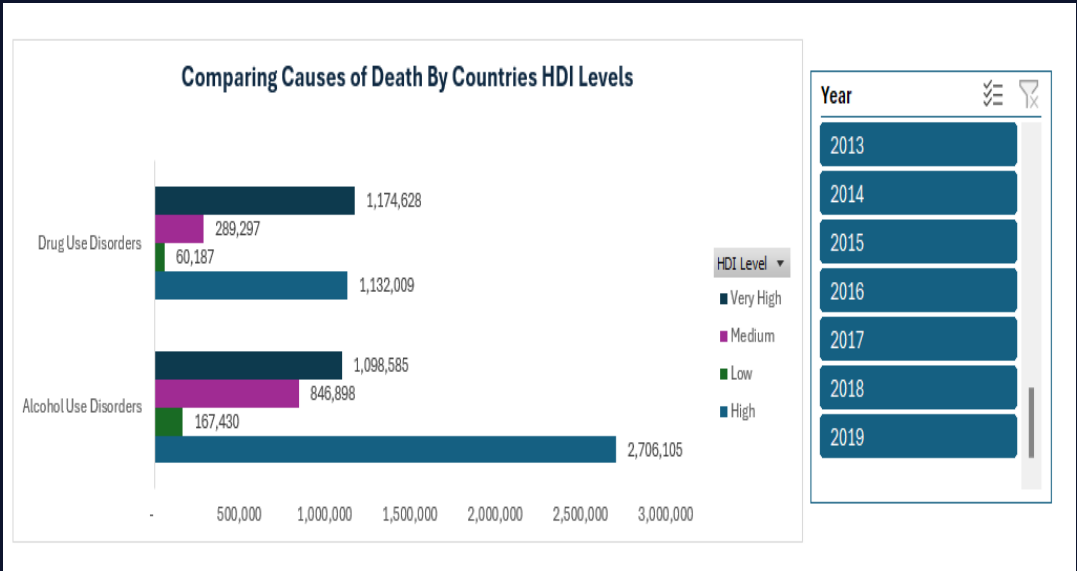
- Diseases like HIV/AIDS, Diarrheal Diseases, and Malaria have significantly higher death counts in low and medium HDI regions.
- Lower Respiratory Infections affect both low and high HDI countries, though the burden is higher in less developed regions.
- Tuberculosis and Meningitis have a higher mortality rate in less developed countries.
- Malaria is nearly eradicated in very high HDI regions but remains a major cause of death in low HDI countries.

Which all indicate the weaker healthcare infrastructure in countries with lower HDI levels.

NEURONETIX
EXPLORE THE FUTURE

COMPARATIVE ANALYSIS

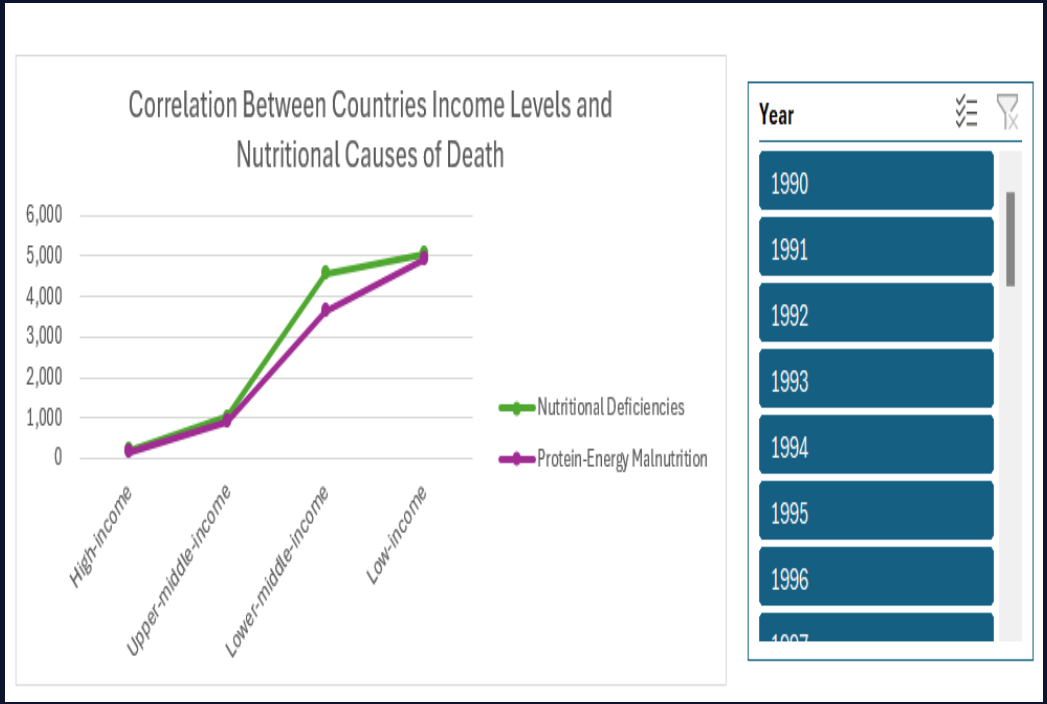
Comparing deaths by **Alcohol** and **Drug Use Disorders** by countries' HDI levels overtime shows that they result in more deaths in high and very high HDI countries, reflecting lifestyle-related health issues.



The comparative analysis highlights the differing health challenges across development levels, with infectious diseases dominating in lower HDI countries and lifestyle-related issues prevalent in higher HDI countries.

NEURONETIX
EXPLORE THE FUTURE

Correlation



Is there a correlation between countries income levels and the prevalence of nutritional deficiency causes of death?

Low and lower-middle income countries consistently had higher deaths due to nutritional deficiencies across each and all years.

NEURONETIX
EXPLORE THE FUTURE

POWER BI

NEURONETIX
EXPLORE THE FUTURE

Power BI Dashboard

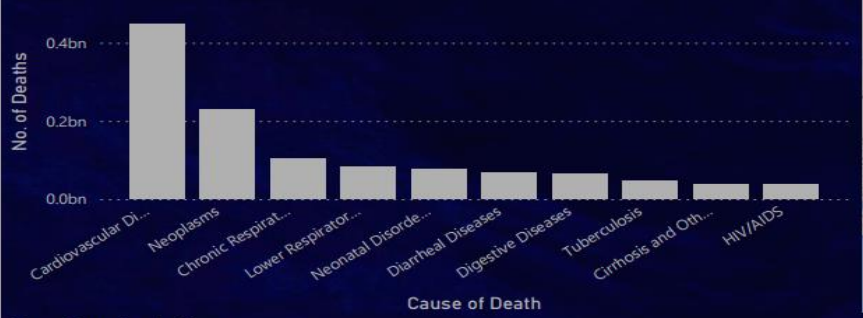
Causes of Death Dashboard

Total No. of Deaths
1bn

Average No. of Deaths
8K

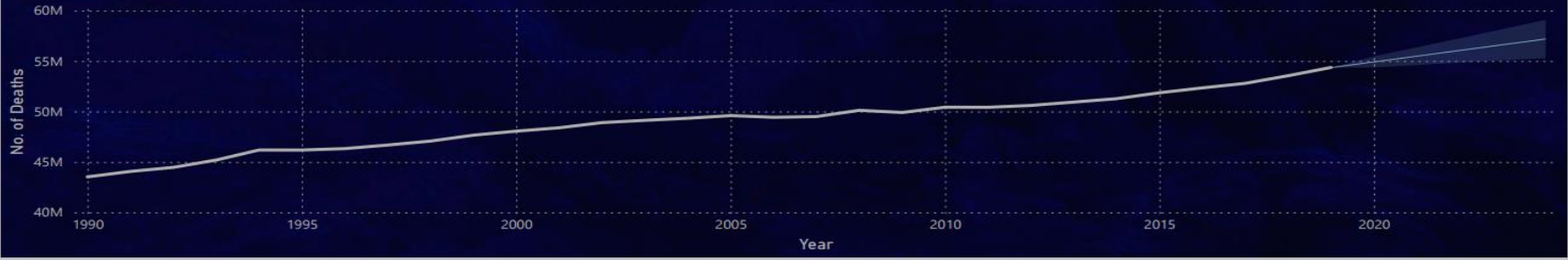
Country/Territory: All
Year: All
Cause of Death: All

Top 10 Causes of Death



Top 5 countries by No. of Deaths

No. of Deaths by Year



NEURONETIX
EXPLORE THE FUTURE

Power BI Dashboard

- The visuals included in the dashboard are filtered by the country, year, and cause of death using slicers.
- A bar chart was created to visualise the top 10 causes of death.
- The map chart demonstrates the top 5 countries based on the number of deaths.
- The line chart shows the number of deaths through time and prediction for the following 5 years.

NEURONETIX
EXPLORE THE FUTURE

Final Recommendations

- Governments should prioritize addressing the top 10 causes of death, with health ministries developing programs to raise public awareness about early disease detection and promoting safety measures to reduce mortality from these causes.

- Governmental authorities must inform citizens if a pandemic exists or is suspected, or if there are any spreading diseases or fatal risks in the countries they are visiting or residing in. This can help limit the spread of disease and protect individuals from harm.

NEURONETIX
EXPLORE THE FUTURE

Final Recommendations

- Continuous analysis of health data and causes of death can provide valuable, data-driven insights into mortality trends. This information can be used to predict the number of deaths and their causes, enabling authorities to take preventive actions, improve healthcare services, and respond more rapidly to save lives.

- Establishing a global network to track common causes of death and share best practices could lead to better strategies for saving lives worldwide.

NEURONETIX
EXPLORE THE FUTURE

Thank You !