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import pandas as pd
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import numpy as np
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df = pd.read_csv("01 annual-number-of-deaths-by-cause.csv")  
df.head()
```

	Entity	Code	Year	Number of executions (Amnesty International)
0	Afghanistan	AFG	2007	15
1	Afghanistan	AFG	2008	17
2	Afghanistan	AFG	2009	0
3	Afghanistan	AFG	2011	2
4	Afghanistan	AFG	2012	14

	Deaths - Meningitis - Sex: Both - Age: All Ages (Number)
0	2933.0
1	2731.0
2	2460.0
3	2327.0
4	2254.0

	Deaths - Alzheimer's disease and other dementias - Sex: Both - Age: All Ages (Number)
0	1402.0
1	1424.0
2	1449.0
3	1508.0
4	1544.0

	Deaths - Parkinson's disease - Sex: Both - Age: All Ages (Number)
0	450.0
1	455.0
2	460.0
3	473.0
4	482.0

Deaths - Nutritional deficiencies - Sex: Both - Age: All Ages
(Number) \

0	2488.0
1	2277.0
2	2040.0
3	1846.0
4	1705.0

Deaths - Malaria - Sex: Both - Age: All Ages (Number) \

0	393.0
1	255.0
2	239.0
3	390.0
4	94.0

Deaths - Drowning - Sex: Both - Age: All Ages (Number) ... \

0	2127.0	...
1	1973.0	...
2	1852.0	...
3	1775.0	...
4	1716.0	...

Deaths - Chronic kidney disease - Sex: Both - Age: All Ages
(Number) \

0	4490.0
1	4534.0
2	4597.0
3	4785.0
4	4846.0

Deaths - Poisonings - Sex: Both - Age: All Ages (Number) \

0	512.0
1	495.0
2	483.0
3	483.0
4	482.0

Deaths - Protein-energy malnutrition - Sex: Both - Age: All Ages
(Number) \

0	2439.0
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1	2231.0
2	1998.0
3	1805.0
4	1667.0

	Terrorism (deaths) \
0	1199.0
1	1092.0
2	1065.0
3	1525.0
4	3521.0

	Deaths - Road injuries - Sex: Both - Age: All Ages (Number) \
0	7425.0
1	7355.0
2	7290.0
3	7432.0
4	7494.0

	Deaths - Chronic respiratory diseases - Sex: Both - Age: All Ages (Number) \
0	7222.0
1	7143.0
2	7045.0
3	6916.0
4	6878.0

	Deaths - Cirrhosis and other chronic liver diseases - Sex: Both - Age: All Ages (Number) \
0	3346.0
1	3316.0
2	3291.0
3	3318.0
4	3353.0

Deaths - Digestive diseases - Sex: Both - Age: All Ages (Number) \

0	6458.0
1	6408.0
2	6358.0
3	6370.0
4	6398.0

Deaths - Fire, heat, and hot substances - Sex: Both - Age: All Ages (Number) \

0	481.0
1	462.0
2	448.0
3	448.0
4	445.0

Deaths - Acute hepatitis - Sex: Both - Age: All Ages (Number)

0	3437.0
1	3005.0
2	2663.0
3	2365.0
4	2264.0

[5 rows x 36 columns]

df.isnull().sum()

Entity

0

Code

704

Year

0

Number of executions (Amnesty International)

6626

Deaths - Meningitis - Sex: Both - Age: All Ages (Number)

53

Deaths - Alzheimer's disease and other dementias - Sex: Both - Age: All Ages (Number)

Deaths - Parkinson's disease - Sex: Both - Age: All Ages (Number)

53

Deaths - Nutritional deficiencies - Sex: Both - Age: All Ages (Number)

53

Deaths - Malaria - Sex: Both - Age: All Ages (Number)

53

Deaths - Drowning - Sex: Both - Age: All Ages (Number)

53

Deaths - Interpersonal violence - Sex: Both - Age: All Ages (Number)
53

Deaths - Maternal disorders - Sex: Both - Age: All Ages (Number)
53

Deaths - HIV/AIDS - Sex: Both - Age: All Ages (Number)
53

Deaths - Drug use disorders - Sex: Both - Age: All Ages (Number)
53

Deaths - Tuberculosis - Sex: Both - Age: All Ages (Number)
53

Deaths - Cardiovascular diseases - Sex: Both - Age: All Ages (Number)
53

Deaths - Lower respiratory infections - Sex: Both - Age: All Ages
(Number) 53

Deaths - Neonatal disorders - Sex: Both - Age: All Ages (Number)
53

Deaths - Alcohol use disorders - Sex: Both - Age: All Ages (Number)
53

Deaths - Self-harm - Sex: Both - Age: All Ages (Number)
53

Deaths - Exposure to forces of nature - Sex: Both - Age: All Ages
(Number) 53

Deaths - Diarrheal diseases - Sex: Both - Age: All Ages (Number)
53

Deaths - Environmental heat and cold exposure - Sex: Both - Age: All
Ages (Number) 53

Deaths - Neoplasms - Sex: Both - Age: All Ages (Number)
53

Deaths - Conflict and terrorism - Sex: Both - Age: All Ages (Number)
53

Deaths - Diabetes mellitus - Sex: Both - Age: All Ages (Number)
53

Deaths - Chronic kidney disease - Sex: Both - Age: All Ages (Number)
53

Deaths - Poisonings - Sex: Both - Age: All Ages (Number)
53

Deaths - Protein-energy malnutrition - Sex: Both - Age: All Ages
(Number) 53

Terrorism (deaths)
4361

Deaths - Road injuries - Sex: Both - Age: All Ages (Number)
53

Deaths - Chronic respiratory diseases - Sex: Both - Age: All Ages
(Number) 53

Deaths - Cirrhosis and other chronic liver diseases - Sex: Both - Age:
All Ages (Number) 53

Deaths - Digestive diseases - Sex: Both - Age: All Ages (Number)
53

Deaths - Fire, heat, and hot substances - Sex: Both - Age: All Ages

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(Number)                                53
Deaths - Acute hepatitis - Sex: Both - Age: All Ages (Number)
53
dtype: int64

missing_percentage = df.isnull().mean() * 100
threshold = 30
columns_to_drop = missing_percentage[missing_percentage
>threshold].index
df = df.drop(columns=columns_to_drop)
print(f"Columns dropped: {list(columns_to_drop)}")
print(f"Remaining columns: {df.columns}")

Columns dropped: ['Number of executions (Amnesty International)',
'Terrorism (deaths)']
Remaining columns: Index(['Entity', 'Code', 'Year',
'Deaths - Meningitis - Sex: Both - Age: All Ages (Number)',
'Deaths - Alzheimer's disease and other dementias - Sex: Both -
Age: All Ages (Number)',
'Deaths - Parkinson's disease - Sex: Both - Age: All Ages
(Number)',
'Deaths - Nutritional deficiencies - Sex: Both - Age: All Ages
(Number)',
'Deaths - Malaria - Sex: Both - Age: All Ages (Number)',
'Deaths - Drowning - Sex: Both - Age: All Ages (Number)',
'Deaths - Interpersonal violence - Sex: Both - Age: All Ages
(Number)',
'Deaths - Maternal disorders - Sex: Both - Age: All Ages
(Number)',
'Deaths - HIV/AIDS - Sex: Both - Age: All Ages (Number)',
'Deaths - Drug use disorders - Sex: Both - Age: All Ages
(Number)',
'Deaths - Tuberculosis - Sex: Both - Age: All Ages (Number)',
'Deaths - Cardiovascular diseases - Sex: Both - Age: All Ages
(Number)',
'Deaths - Lower respiratory infections - Sex: Both - Age: All
Ages (Number)',
'Deaths - Neonatal disorders - Sex: Both - Age: All Ages
(Number)',
'Deaths - Alcohol use disorders - Sex: Both - Age: All Ages
(Number)',
'Deaths - Self-harm - Sex: Both - Age: All Ages (Number)',
'Deaths - Exposure to forces of nature - Sex: Both - Age: All
Ages (Number)',
'Deaths - Diarrheal diseases - Sex: Both - Age: All Ages
(Number)',
'Deaths - Environmental heat and cold exposure - Sex: Both -
Age: All Ages (Number)',
'Deaths - Neoplasms - Sex: Both - Age: All Ages (Number)',
'Deaths - Conflict and terrorism - Sex: Both - Age: All Ages

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(Number)',
    'Deaths - Diabetes mellitus - Sex: Both - Age: All Ages
(Number)',
    'Deaths - Chronic kidney disease - Sex: Both - Age: All Ages
(Number)',
    'Deaths - Poisonings - Sex: Both - Age: All Ages (Number)',
    'Deaths - Protein-energy malnutrition - Sex: Both - Age: All
Ages (Number)',
    'Deaths - Road injuries - Sex: Both - Age: All Ages (Number)',
    'Deaths - Chronic respiratory diseases - Sex: Both - Age: All
Ages (Number)',
    'Deaths - Cirrhosis and other chronic liver diseases - Sex:
Both - Age: All Ages (Number)',
    'Deaths - Digestive diseases - Sex: Both - Age: All Ages
(Number)',
    'Deaths - Fire, heat, and hot substances - Sex: Both - Age: All
Ages (Number)',
    'Deaths - Acute hepatitis - Sex: Both - Age: All Ages
(Number)'],
    dtype='object')

numeric_df = df.select_dtypes(include=['number'])

plt.figure(figsize=(12, 12))
sns.heatmap(numeric_df.corr(), annot=True, cmap='coolwarm')
plt.title('Correlation Heatmap')
plt.show()

```

