COVID-19 ANALYSIS USING COGNOS

Data Preprocessing

Importing Libraries

In [57]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

Reading Dataset

In [5]:
```
df = pd.read_csv("Covid_19_cases4.csv")
df.head()
```

Out[5]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
0	31-05-2021	31	5	2021	366	5	Austria
1	30-05-2021	30	5	2021	570	6	Austria
2	29-05-2021	29	5	2021	538	11	Austria
3	28-05-2021	28	5	2021	639	4	Austria
4	27-05-2021	27	5	2021	405	19	Austria

Display information about the dataset

In [6]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2730 entries, 0 to 2729
Data columns (total 7 columns):
 #   Column                  Non-Null Count  Dtype 
---  ------                  --------------  ----- 
 0   dateRep                 2730 non-null   object
 1   day                     2730 non-null   int64 
 2   month                   2730 non-null   int64 
 3   year                    2730 non-null   int64 
 4   cases                   2730 non-null   int64 
 5   deaths                  2730 non-null   int64 
 6   countriesAndTerritories  2730 non-null   object
dtypes: int64(5), object(2)
memory usage: 149.4+ KB
```

Display Columns

In [7]:
```
print(df.columns)
```

```
Index(['dateRep', 'day', 'month', 'year', 'cases', 'deaths',
       'countriesAndTerritories'],
      dtype='object')
```

Checking Null Values

In [8]:
```
df.isnull().sum()
```

Out[8]:
```
dateRep                   0
day                       0
month                     0
year                      0
cases                     0
deaths                    0
countriesAndTerritories   0
dtype: int64
```

Display Last Five rows of the dataset

In [9]:
```
df.tail()
```

Out[9]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
2725	06-03-2021	6	3	2021	3455	17	Sweden
2726	05-03-2021	5	3	2021	4069	12	Sweden
2727	04-03-2021	4	3	2021	4884	14	Sweden
2728	03-03-2021	3	3	2021	4876	19	Sweden
2729	02-03-2021	2	3	2021	6191	19	Sweden

Display random Four Rows in the dataset

In [10]:
```
df.sample(4)
```

Out[10]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
540	07-03-2021	7	3	2021	9167	159	Czechia
168	15-03-2021	15	3	2021	5281	25	Belgium
752	07-05-2021	7	5	2021	280	1	Finland
2440	18-03-2021	18	3	2021	3590	69	Slovakia

In [11]:
```
df[3:19]
```

Out[11]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
3	28-05-2021	28	5	2021	639	4	Austria
4	27-05-2021	27	5	2021	405	19	Austria
5	26-05-2021	26	5	2021	287	8	Austria
6	25-05-2021	25	5	2021	342	3	Austria
7	24-05-2021	24	5	2021	520	3	Austria
8	23-05-2021	23	5	2021	626	8	Austria
9	22-05-2021	22	5	2021	671	12	Austria
10	21-05-2021	21	5	2021	603	8	Austria
11	20-05-2021	20	5	2021	866	13	Austria
12	19-05-2021	19	5	2021	630	11	Austria
13	18-05-2021	18	5	2021	391	15	Austria
14	17-05-2021	17	5	2021	676	6	Austria
15	16-05-2021	16	5	2021	684	12	Austria
16	15-05-2021	15	5	2021	721	14	Austria
17	14-05-2021	14	5	2021	1100	11	Austria
18	13-05-2021	13	5	2021	1179	14	Austria

In [13]:
```
df.shape
```

Out[13]: (2730, 7)

In [14]:
```
df[["dateRep","deaths"]]
```

Out[14]:

	dateRep	deaths
0	31-05-2021	5
1	30-05-2021	6
2	29-05-2021	11
3	28-05-2021	4
4	27-05-2021	19
...	...	...
2725	06-03-2021	17
2726	05-03-2021	12
2727	04-03-2021	14
2728	03-03-2021	19
2729	02-03-2021	19

2730 rows × 2 columns

Displaying 15th row values

In [15]:
```
df.iloc[15]
```

Out[15]:
```
dateRep                    16-05-2021
day                                16
month                               5
year                             2021
cases                             684
deaths                             12
countriesAndTerritories       Austria
Name: 15, dtype: object
```

Displaying column whose cases value=0

In [16]:
```
df.loc[df["cases"]==0]
```

Out[16]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
764	25-04-2021	25	4	2021	0	0	Finland
771	18-04-2021	18	4	2021	0	0	Finland
1029	03-05-2021	3	5	2021	0	0	Greece
1183	31-05-2021	31	5	2021	0	0	Iceland
1184	30-05-2021	30	5	2021	0	0	Iceland
...	...	...	...	...	...	...	...
2621	19-03-2021	19	3	2021	0	0	Spain
2626	14-03-2021	14	3	2021	0	0	Spain
2627	13-03-2021	13	3	2021	0	0	Spain
2633	07-03-2021	7	3	2021	0	0	Spain
2634	06-03-2021	6	3	2021	0	0	Spain

109 rows × 7 columns

In [18]:
```
df["countriesAndTerritories"].value_counts()
```

Out[18]:
```
Austria          91
Belgium          91
Spain            91
Slovenia         91
Slovakia         91
Romania          91
Portugal         91
Poland           91
Norway           91
Netherlands      91
Malta            91
Luxembourg       91
Lithuania        91
Liechtenstein    91
Latvia           91
Italy            91
Ireland          91
Iceland          91
Hungary          91
Greece           91
Germany          91
France           91
Finland          91
Estonia          91
Denmark          91
Czechia          91
Cyprus           91
Croatia          91
Bulgaria         91
Sweden           91
Name: countriesAndTerritories, dtype: int64
```

Aggregate Values

In [19]:
```
a=df["cases"]
print(a.sum())
```

```
9994560
```

In [20]:
```
print(a.mean())
```

```
3661.010989010989
```

In [21]:
```
print(a.median())
```

```
926.5
```

In [22]:
```
print(a.mode())
```

```
0    0
Name: cases, dtype: int64
```

In [23]:
```
print(a.min())
```

```
-2001
```

In [24]:
```
print(a.max())
```

```
53843
```

In [25]:
```
print(a.describe())
```

```
count     2730.000000
mean      3661.010989
std       6490.510073
min      -2001.000000
25%        361.250000
50%        926.500000
75%       3916.250000
max      53843.000000
Name: cases, dtype: float64
```

In [26]:
```
a=df["deaths"]
print(a.sum())
```

```
178247
```

In [27]:
```
print(a.mean())
```

```
65.29194139194139
```

In [28]:
```
print(a.median())
```

```
14.5
```

In [29]:
```
print(a.mode())
```

```
0    0
Name: deaths, dtype: int64
```

In [30]:
```
print(a.max())
```

```
956
```

In [31]:
```
print(a.min())
```

```
-3
```

In [32]:
```
print(a.describe())
```

```
count    2730.000000
mean       65.291941
std       113.956634
min        -3.000000
25%         2.000000
50%        14.500000
75%        72.000000
max       956.000000
Name: deaths, dtype: float64
```

Checking Null Values

In [33]:
```
df.isnull()
```

Out[33]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
0	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...
2725	False	False	False	False	False	False	False
2726	False	False	False	False	False	False	False
2727	False	False	False	False	False	False	False
2728	False	False	False	False	False	False	False
2729	False	False	False	False	False	False	False

2730 rows × 7 columns

Checking NotNull Values

In [34]:
```
df.notnull()
```

Out[34]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
0	True	True	True	True	True	True	True
1	True	True	True	True	True	True	True
2	True	True	True	True	True	True	True
3	True	True	True	True	True	True	True
4	True	True	True	True	True	True	True
...	...	...	...	...	...	...	...
2725	True	True	True	True	True	True	True
2726	True	True	True	True	True	True	True
2727	True	True	True	True	True	True	True
2728	True	True	True	True	True	True	True
2729	True	True	True	True	True	True	True

2730 rows × 7 columns

In [35]:
```
df.style
```

Out[35]:

	dateRep	day	month	year	cases	deaths	countriesAndTerritories
0	31-05-2021	31	5	2021	366	5	Austria
1	30-05-2021	30	5	2021	570	6	Austria
2	29-05-2021	29	5	2021	538	11	Austria
3	28-05-2021	28	5	2021	639	4	Austria
4	27-05-2021	27	5	2021	405	19	Austria
5	26-05-2021	26	5	2021	287	8	Austria
6	25-05-2021	25	5	2021	342	3	Austria
7	24-05-2021	24	5	2021	520	3	Austria
8	23-05-2021	23	5	2021	626	8	Austria
9	22-05-2021	22	5	2021	671	12	Austria
10	21-05-2021	21	5	2021	603	8	Austria

Display the dataset based on conditions

In [38]:
```
g=df[df["deaths"]>570]
print(g)
```

```
         dateRep  day  month  year  cases  deaths countriesAndTerritor
ies
884   27-03-2021   27      3  2021  39932     897                   Fra
nce
1416  10-04-2021   10      4  2021  18924     718                    It
aly
1418  08-04-2021    8      4  2021  13686     627                    It
aly
2125  29-04-2021   29      4  2021   8893     636                   Pol
and
2131  23-04-2021   23      4  2021  12763     695                   Pol
and
2132  22-04-2021   22      4  2021  13922     739                   Pol
and
2133  21-04-2021   21      4  2021   9244     601                   Pol
and
2136  18-04-2021   18      4  2021  15786     617                   Pol
and
2137  17-04-2021   17      4  2021  17846     596                   Pol
and
2138  16-04-2021   16      4  2021  21126     682                   Pol
and
2139  15-04-2021   15      4  2021  21266     804                   Pol
and
2140  14-04-2021   14      4  2021  13203     645                   Pol
and
2143  11-04-2021   11      4  2021  24892     749                   Pol
and
2144  10-04-2021   10      4  2021  28499     768                   Pol
and
2145  09-04-2021    9      4  2021  27890     956                   Pol
and
2146  08-04-2021    8      4  2021  14908     638                   Pol
and
2150  04-04-2021    4      4  2021  28073     572                   Pol
and
2152  02-04-2021    2      4  2021  35253     620                   Pol
and
2153  01-04-2021    1      4  2021  32891     653                   Pol
and
2160  25-03-2021   25      3  2021  30802     579                   Pol
and
2614  26-03-2021   26      3  2021   7586     590                    Sp
ain
2618  22-03-2021   22      3  2021  16471     633                    Sp
ain
2635  05-03-2021    5      3  2021   6654     637                    Sp
ain
```

In [39]:
```
g=df[df["cases"]<600]
print(g)
```

```
         dateRep  day  month  year  cases  deaths countriesAndTerritor
ies
0     31-05-2021   31      5  2021    366       5                  Aust
ria
1     30-05-2021   30      5  2021    570       6                  Aust
ria
2     29-05-2021   29      5  2021    538      11                  Aust
ria
4     27-05-2021   27      5  2021    405      19                  Aust
ria
5     26-05-2021   26      5  2021    287       8                  Aust
ria
...          ...  ...    ...   ...    ...     ...
...
2633  07-03-2021    7      3  2021      0       0                    Sp
ain
2634  06-03-2021    6      3  2021      0       0                    Sp
ain
2641  29-05-2021   29      5  2021    285       8                   Swe
den
2642  28-05-2021   28      5  2021    297       2                   Swe
den
2643  27-05-2021   27      5  2021     90       8                   Swe
den

[1055 rows x 7 columns]
```

In [40]:
```
g=df[df["deaths"]>600]
print(g)
```

```
         dateRep  day  month  year  cases  deaths countriesAndTerritor
ies
884   27-03-2021   27      3  2021  39932     897                   Fra
nce
1416  10-04-2021   10      4  2021  18924     718                    It
aly
1418  08-04-2021    8      4  2021  13686     627                    It
aly
2125  29-04-2021   29      4  2021   8893     636                   Pol
and
2131  23-04-2021   23      4  2021  12763     695                   Pol
and
2132  22-04-2021   22      4  2021  13922     739                   Pol
and
2133  21-04-2021   21      4  2021   9244     601                   Pol
and
2136  18-04-2021   18      4  2021  15786     617                   Pol
and
2138  16-04-2021   16      4  2021  21126     682                   Pol
and
2139  15-04-2021   15      4  2021  21266     804                   Pol
and
2140  14-04-2021   14      4  2021  13203     645                   Pol
and
2143  11-04-2021   11      4  2021  24892     749                   Pol
and
2144  10-04-2021   10      4  2021  28499     768                   Pol
and
2145  09-04-2021    9      4  2021  27890     956                   Pol
and
2146  08-04-2021    8      4  2021  14908     638                   Pol
and
2152  02-04-2021    2      4  2021  35253     620                   Pol
and
2153  01-04-2021    1      4  2021  32891     653                   Pol
and
2618  22-03-2021   22      3  2021  16471     633                    Sp
ain
2635  05-03-2021    5      3  2021   6654     637                    Sp
ain
```

In [42]:
```
s=df.skew()
print(s)
```

```
day       0.000000
month    -0.020255
year      0.000000
cases     3.142047
deaths    2.772070
dtype: float64

C:\Users\susia\AppData\Local\Temp\ipykernel_29408\2883028102.py:1: Fut
ureWarning: Dropping of nuisance columns in DataFrame reductions (with
'numeric_only=None') is deprecated; in a future version this will rais
e TypeError.  Select only valid columns before calling the reduction.
  s=df.skew()
```

Display unique value in the dataset

In [43]:
```
df.nunique
```

Out[43]:
```
<bound method DataFrame.nunique of          dateRep  day  month  year
cases  deaths countriesAndTerritories
0     31-05-2021   31      5  2021    366       5                 Aust
ria
1     30-05-2021   30      5  2021    570       6                 Aust
ria
2     29-05-2021   29      5  2021    538      11                 Aust
ria
3     28-05-2021   28      5  2021    639       4                 Aust
ria
4     27-05-2021   27      5  2021    405      19                 Aust
ria
...          ...  ...    ...   ...    ...     ...
...
2725  06-03-2021    6      3  2021   3455      17                  Swe
den
2726  05-03-2021    5      3  2021   4069      12                  Swe
den
2727  04-03-2021    4      3  2021   4884      14                  Swe
den
2728  03-03-2021    3      3  2021   4876      19                  Swe
den
2729  02-03-2021    2      3  2021   6191      19                  Swe
den

[2730 rows x 7 columns]>
```

In [46]:
```
s=df["cases"].value_counts()*100/len(df)
print(s)
```

```
0        3.992674
2        0.952381
1        0.842491
4        0.732601
5        0.586081
           ...
43554    0.036630
39629    0.036630
39506    0.036630
38693    0.036630
6191     0.036630
Name: cases, Length: 1902, dtype: float64
```

In [48]:
```
x=df.groupby("countriesAndTerritories").agg({"deaths":"mean"})
print(x)
```

```
                            deaths
countriesAndTerritories
Austria                  21.153846
Belgium                  29.626374
Bulgaria                 82.098901
Croatia                  27.340659
Cyprus                    1.417582
Czechia                 105.923077
Denmark                   1.703297
Estonia                   7.186813
Finland                   1.945055
France                  252.494505
Germany                 201.505495
Greece                   60.989011
Hungary                 161.263736
Iceland                   0.010989
Ireland                   6.835165
Italy                   311.505495
Latvia                    8.263736
Liechtenstein             0.043956
Lithuania                11.230769
Luxembourg                1.934066
Malta                     1.142857
Netherlands              22.582418
Norway                    1.769231
Poland                  329.329670
Portugal                  7.758242
Romania                 109.076923
Slovakia                 56.593407
Slovenia                  6.395604
Spain                   113.670330
Sweden                   15.967033
```

In [50]:
```
x=df.groupby("countriesAndTerritories").agg({"cases":"max"})
print(x)
```

countriesAndTerritories	cases
Austria	4051
Belgium	6285
Bulgaria	5176
Croatia	3217
Cyprus	941
Czechia	16816
Denmark	2007
Estonia	1956
Finland	863
France	53843
Germany	29518
Greece	4322
Hungary	11265
Iceland	43
Ireland	768
Italy	26790
Latvia	1036
Liechtenstein	18
Lithuania	2055
Luxembourg	461
Malta	501
Netherlands	9587
Norway	2400
Poland	35253
Portugal	1007
Romania	6651
Slovakia	6107
Slovenia	1802
Spain	22744
Sweden	8872

In [51]:
```
x=df.groupby("countriesAndTerritories").agg({"deaths":"min"})
print(x)
```

```
                            deaths
countriesAndTerritories
Austria                          3
Belgium                          6
Bulgaria                         5
Croatia                          4
Cyprus                           0
Czechia                          3
Denmark                          0
Estonia                          0
Finland                          0
France                          44
Germany                         33
Greece                           0
Hungary                          5
Iceland                          0
Ireland                         -3
Italy                           44
Latvia                           0
Liechtenstein                    0
Lithuania                        4
Luxembourg                       0
Malta                            0
Netherlands                      3
Norway                           0
Poland                          11
Portugal                         0
Romania                         29
Slovakia                         0
Slovenia                         0
Spain                            0
Sweden                           1
```

Display the sum of duplicated values in the dataset

In [52]:
```
df.duplicated().sum
```

Out[52]:
```
<bound method NDFrame._add_numeric_operations.<locals>.sum of 0
False
1       False
2       False
3       False
4       False
        ...
2725    False
2726    False
2727    False
2728    False
2729    False
Length: 2730, dtype: bool>
```

In [53]:
```
df.isna().sum
```

Out[53]:
```
<bound method NDFrame._add_numeric_operations.<locals>.sum of       da
teRep    day  month   year  cases  deaths  countriesAndTerritories
0       False  False  False  False  False   False                    F
alse
1       False  False  False  False  False   False                    F
alse
2       False  False  False  False  False   False                    F
alse
3       False  False  False  False  False   False                    F
alse
4       False  False  False  False  False   False                    F
alse
...       ...    ...    ...    ...    ...     ...
...
2725    False  False  False  False  False   False                    F
alse
2726    False  False  False  False  False   False                    F
alse
2727    False  False  False  False  False   False                    F
alse
2728    False  False  False  False  False   False                    F
alse
2729    False  False  False  False  False   False                    F
alse

[2730 rows x 7 columns]>
```

In [54]:
```
(df[df.columns]==0).sum()
```

Out[54]:
```
dateRep                     0
day                         0
month                       0
year                        0
cases                     109
deaths                    465
countriesAndTerritories     0
dtype: int64
```

Display the correlations between columns

In [55]:
```
df.corr()
```

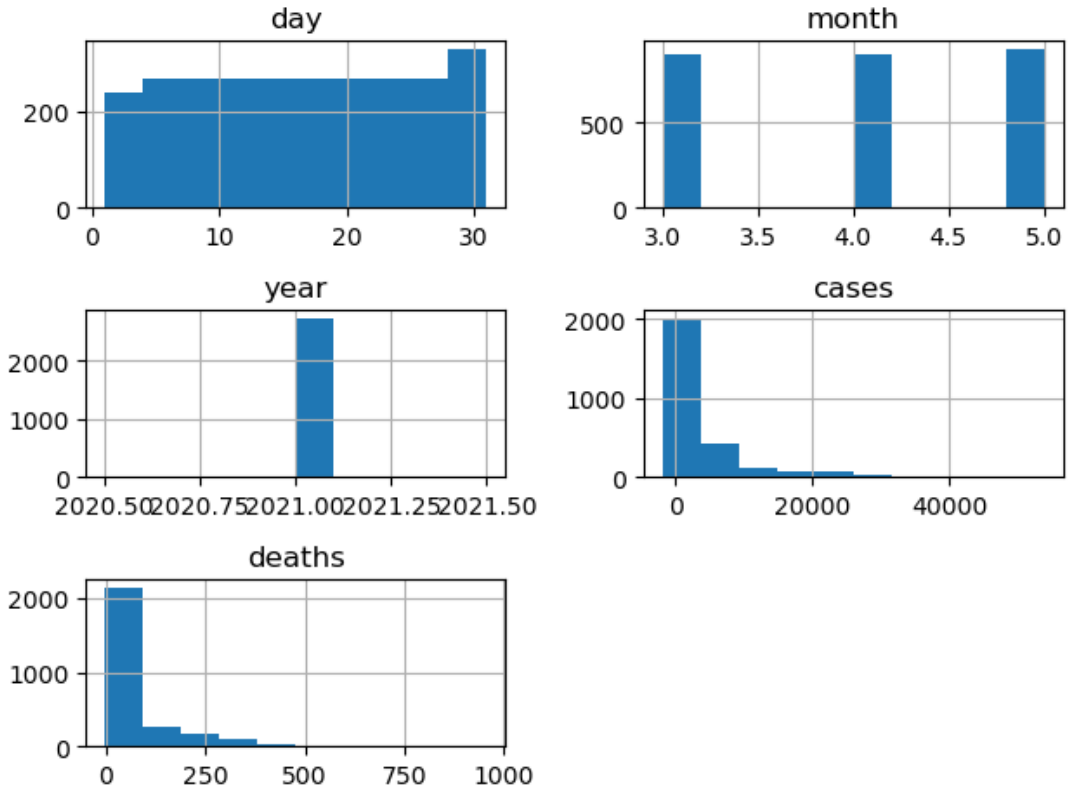
Out[55]:

	day	month	year	cases	deaths
day	1.000000	-0.022973	NaN	-0.026988	-0.038128
month	-0.022973	1.000000	NaN	-0.172412	-0.126515
year	NaN	NaN	NaN	NaN	NaN
cases	-0.026988	-0.172412	NaN	1.000000	0.766309
deaths	-0.038128	-0.126515	NaN	0.766309	1.000000

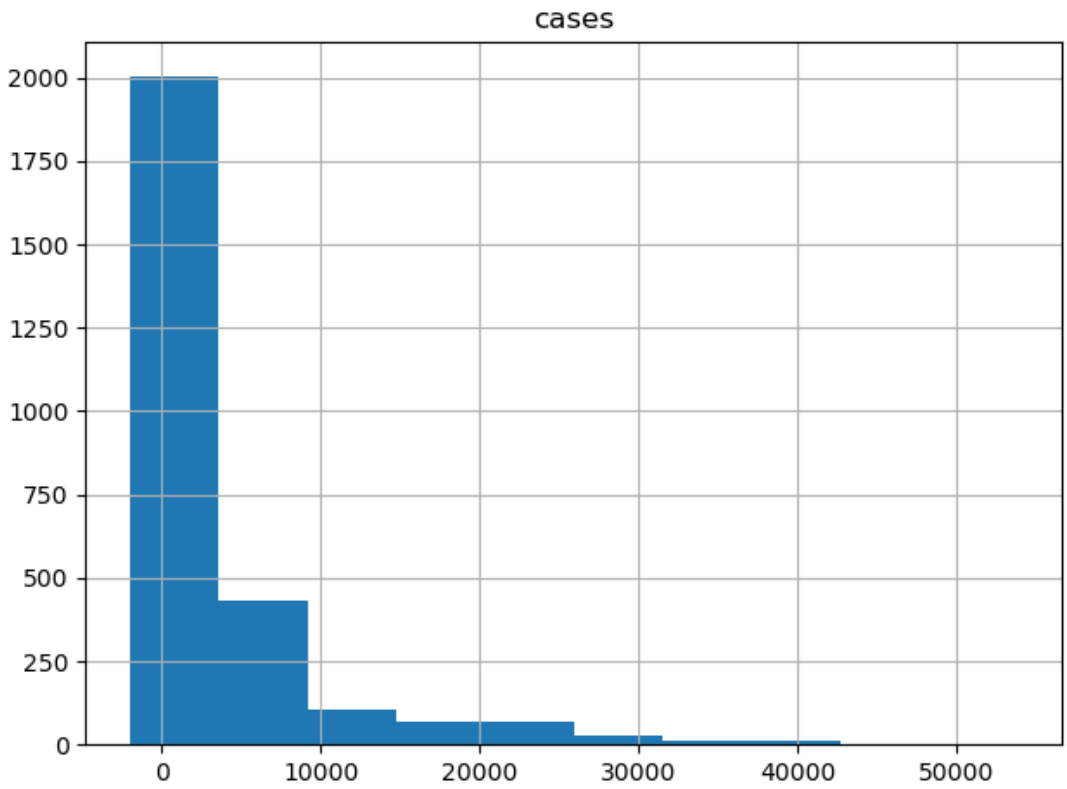
Data Visualization

Hist

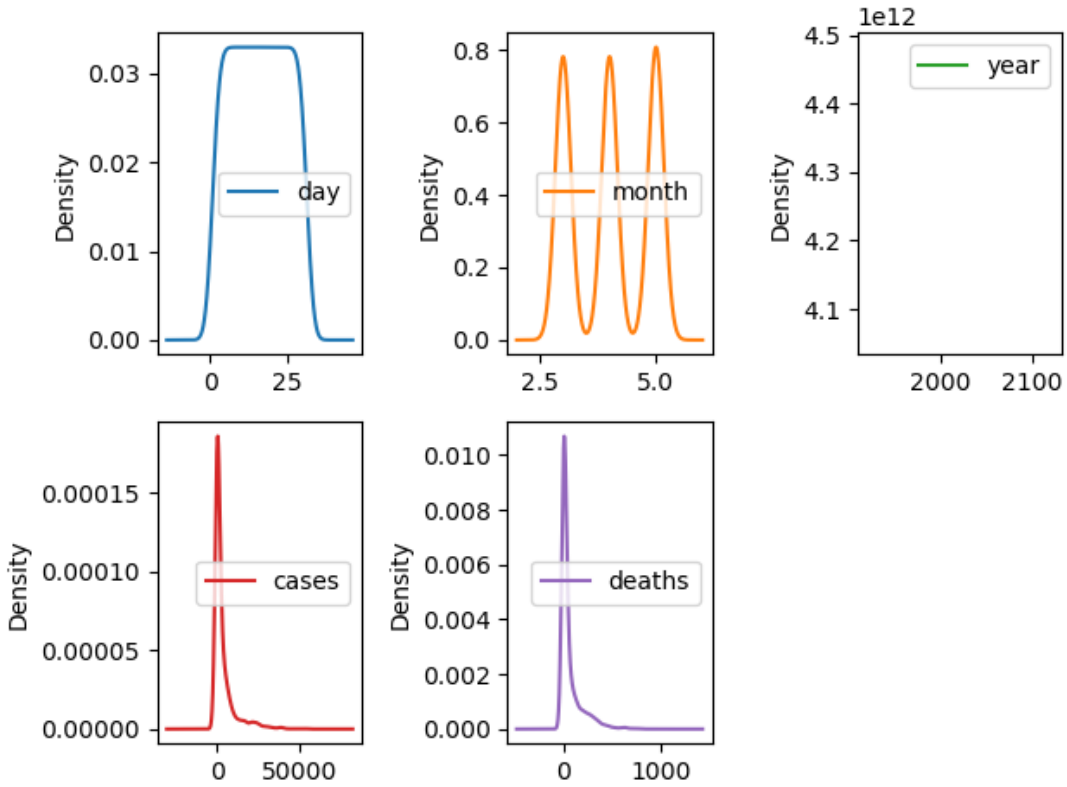
In [59]:
```
df.hist()
plt.tight_layout()
plt.show()
```



In [60]:
```
df.hist("cases")
plt.tight_layout()
plt.show()
```



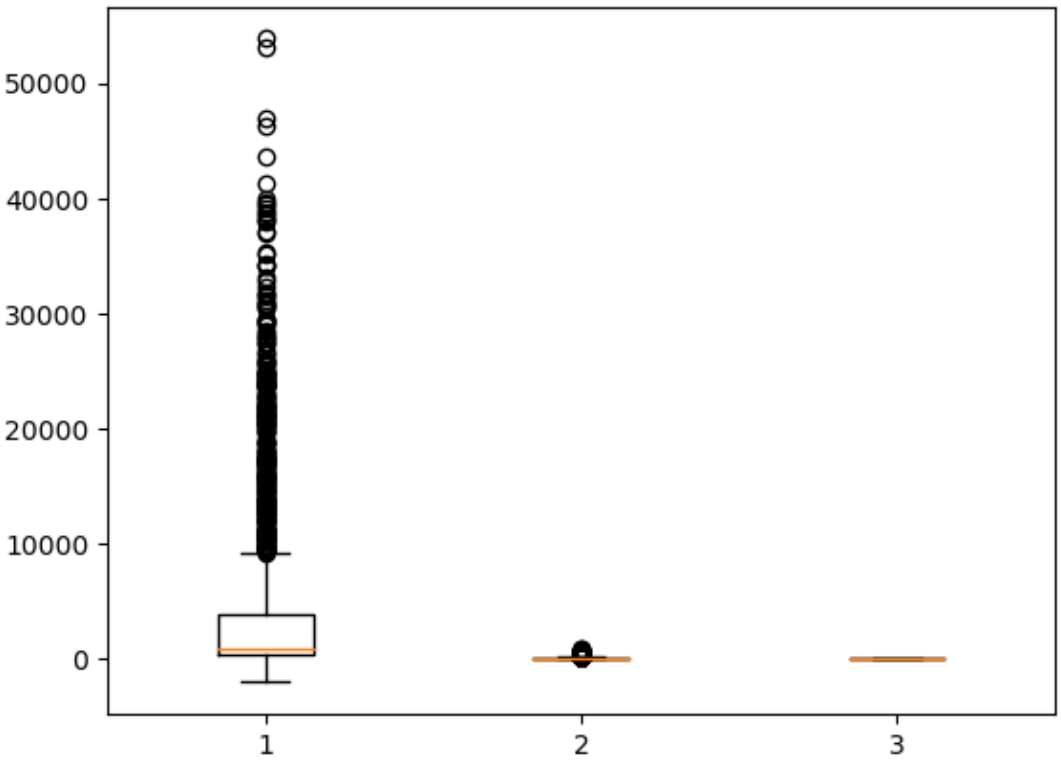
In [61]:
```
df.plot(kind="density",subplots=True,layout=(2,3),sharex=False)
plt.tight_layout()
plt.show()
```



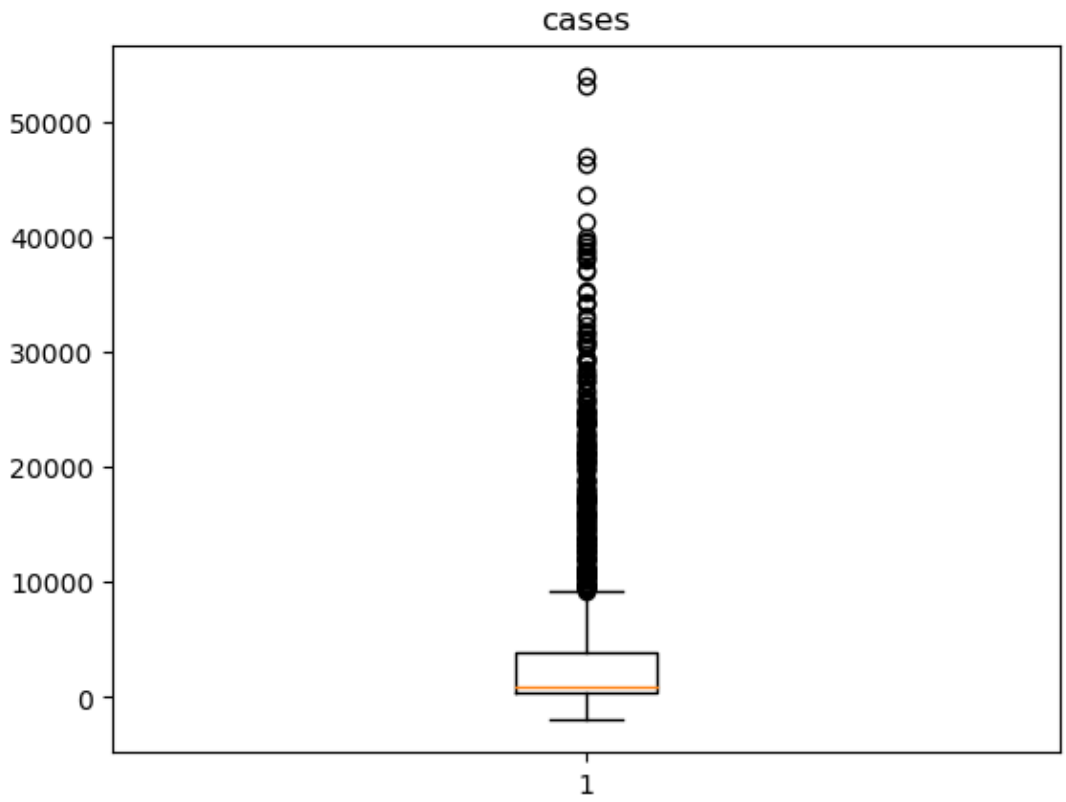
Box Plot

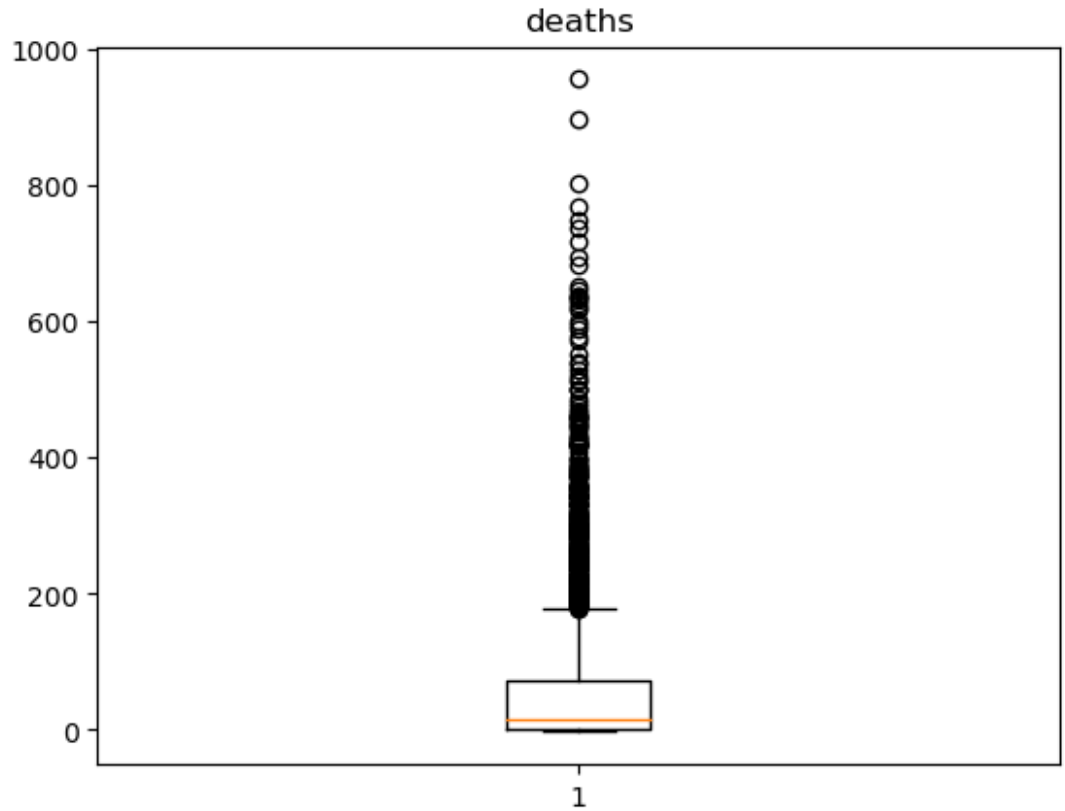
In [74]:
```
x=df[["cases","deaths","day"]]
plt.boxplot(x)
```

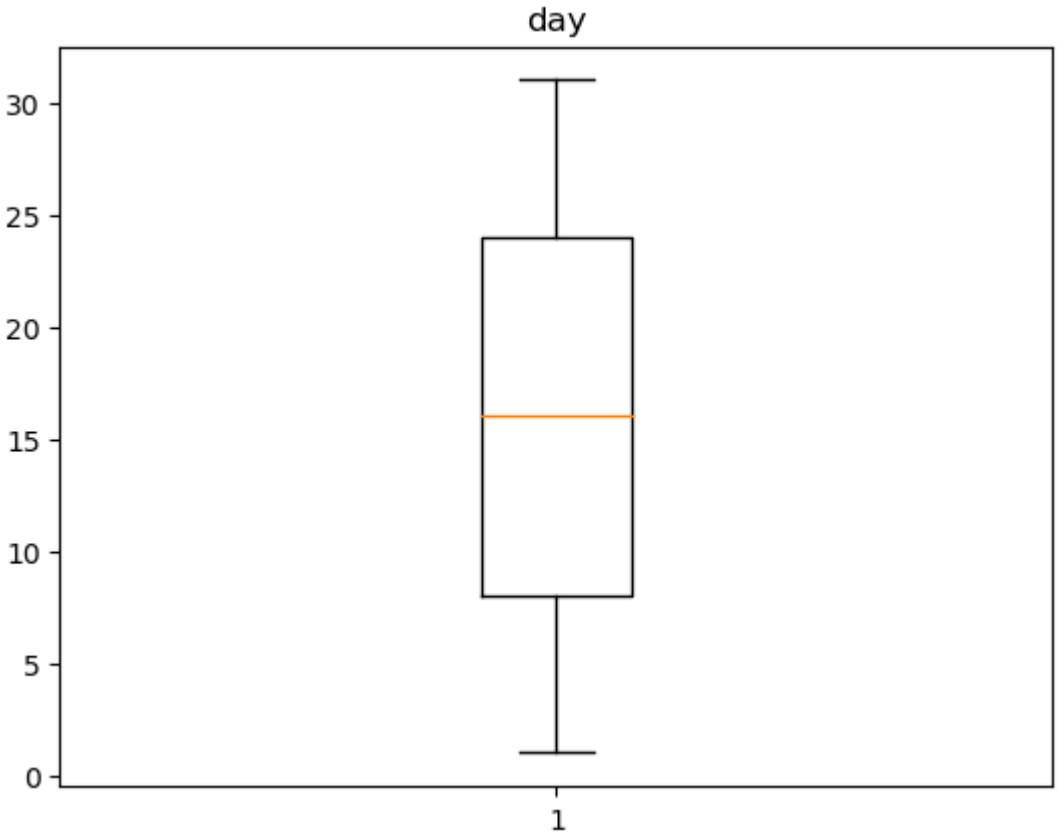
Out[74]:
```
{'whiskers': [<matplotlib.lines.Line2D at 0x1acbc27d1f0>,
  <matplotlib.lines.Line2D at 0x1acbc27d4c0>,
  <matplotlib.lines.Line2D at 0x1acbc2875e0>,
  <matplotlib.lines.Line2D at 0x1acbc2878b0>,
  <matplotlib.lines.Line2D at 0x1acbc2959d0>,
  <matplotlib.lines.Line2D at 0x1acbc295ca0>],
 'caps': [<matplotlib.lines.Line2D at 0x1acbc27d790>,
  <matplotlib.lines.Line2D at 0x1acbc27da60>,
  <matplotlib.lines.Line2D at 0x1acbc287b80>,
  <matplotlib.lines.Line2D at 0x1acbc287e50>,
  <matplotlib.lines.Line2D at 0x1acbc295f70>,
  <matplotlib.lines.Line2D at 0x1acbc2a1280>],
 'boxes': [<matplotlib.lines.Line2D at 0x1acbc26bee0>,
  <matplotlib.lines.Line2D at 0x1acbc287310>,
  <matplotlib.lines.Line2D at 0x1acbc295700>],
 'medians': [<matplotlib.lines.Line2D at 0x1acbc27dd30>,
  <matplotlib.lines.Line2D at 0x1acbc295160>,
  <matplotlib.lines.Line2D at 0x1acbc2a1550>],
 'fliers': [<matplotlib.lines.Line2D at 0x1acbc287040>,
  <matplotlib.lines.Line2D at 0x1acbc295430>,
  <matplotlib.lines.Line2D at 0x1acbc2a1820>],
 'means': []}
```



In [75]:
```
import matplotlib.pyplot as plt
for i in x.columns:
    plt.boxplot(x[i])
    plt.title(i)
    plt.show()
```



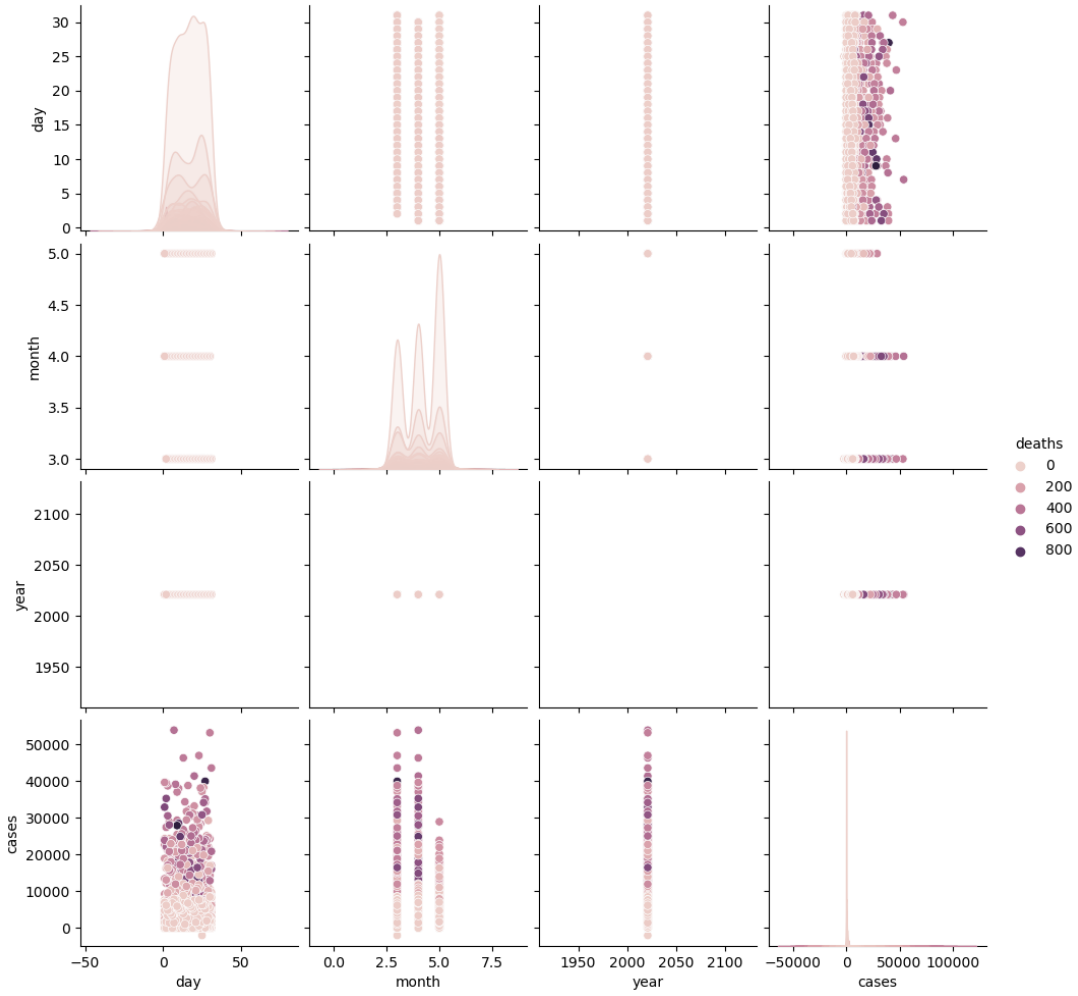



day
30
25
20
15
10
5
0
1

Pair Plot

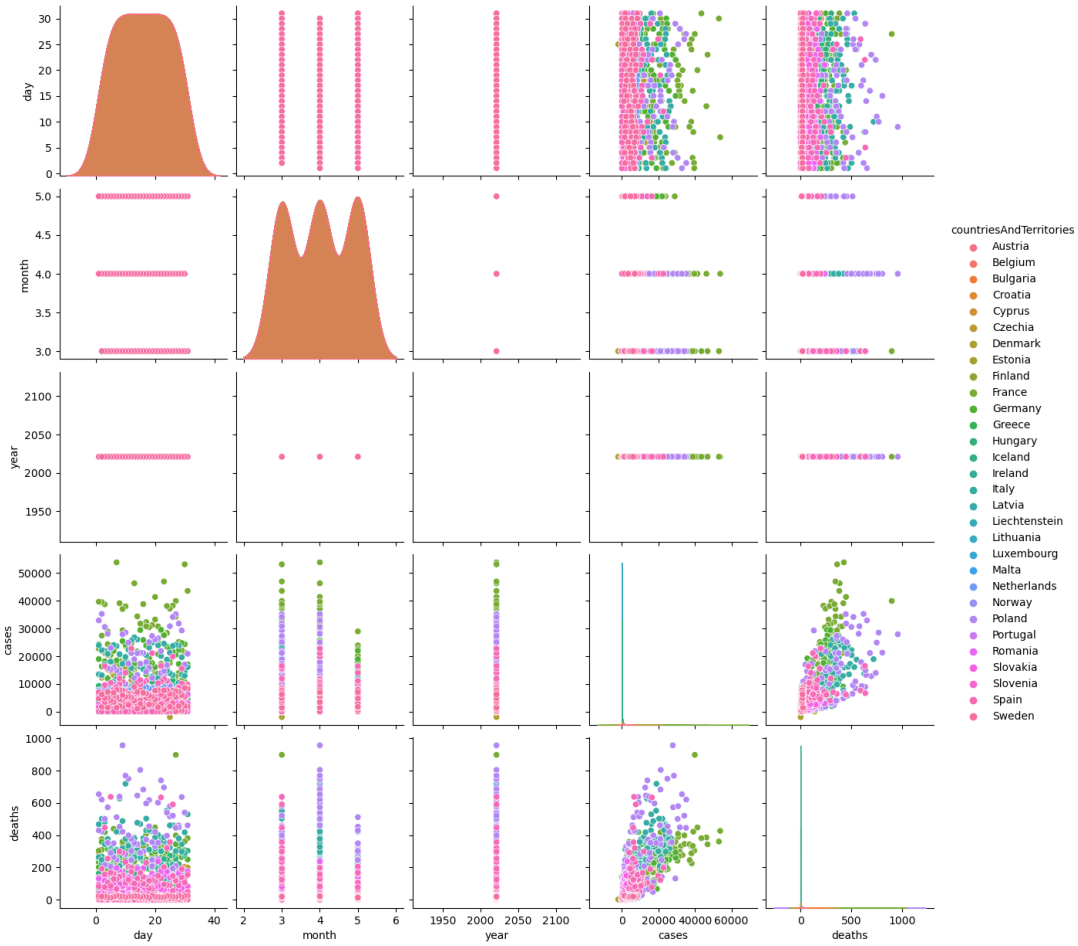
In [64]:
```
s=sns.pairplot(df,hue="deaths")
print(s)
```

```
<seaborn.axisgrid.PairGrid object at 0x000001ACB4DA10A0>
```



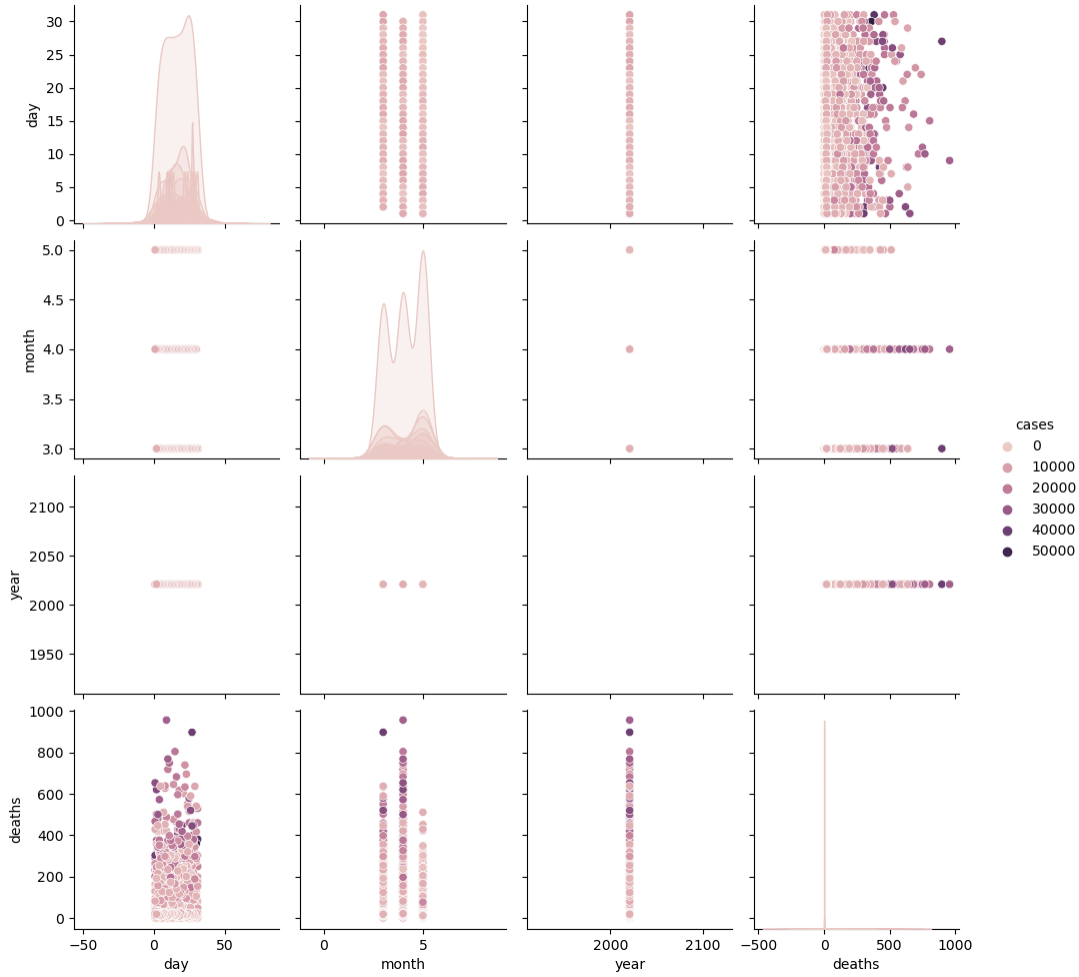
In [65]:
```
s=sns.pairplot(df,hue="countriesAndTerritories")
print(s)
```

```
<seaborn.axisgrid.PairGrid object at 0x000001ACB4DA1E80>
```



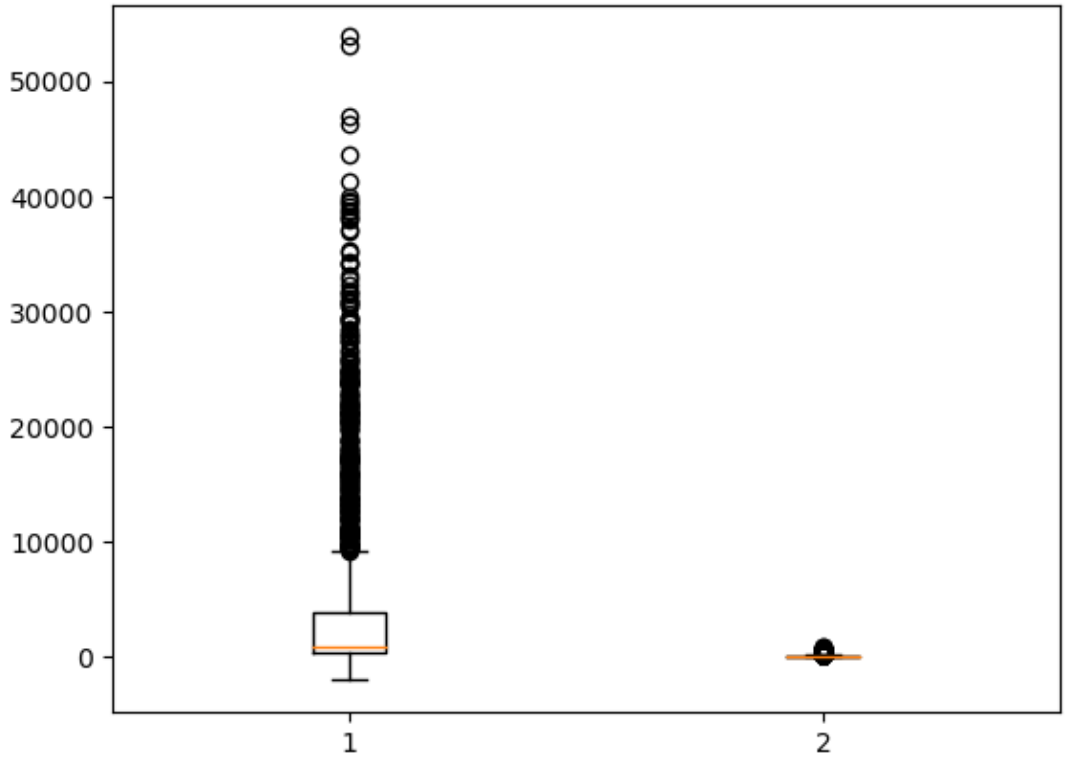
In [66]:
```
s=sns.pairplot(df,hue="cases")
print(s)
```

```
<seaborn.axisgrid.PairGrid object at 0x000001ACB9EEABE0>
```



In [70]:
```
x=df[["cases","deaths"]]
plt.boxplot(x)
```

Out[70]:
```
{'whiskers': [<matplotlib.lines.Line2D at 0x1acb78328e0>,
  <matplotlib.lines.Line2D at 0x1acb7832bb0>,
  <matplotlib.lines.Line2D at 0x1acb7841cd0>,
  <matplotlib.lines.Line2D at 0x1acb7841fa0>],
 'caps': [<matplotlib.lines.Line2D at 0x1acb7832e80>,
  <matplotlib.lines.Line2D at 0x1acb7841190>,
  <matplotlib.lines.Line2D at 0x1acb784c2b0>,
  <matplotlib.lines.Line2D at 0x1acb784c580>],
 'boxes': [<matplotlib.lines.Line2D at 0x1acb7825490>,
  <matplotlib.lines.Line2D at 0x1acb7841a00>],
 'medians': [<matplotlib.lines.Line2D at 0x1acb7841460>,
  <matplotlib.lines.Line2D at 0x1acb784c850>],
 'fliers': [<matplotlib.lines.Line2D at 0x1acb7841730>,
  <matplotlib.lines.Line2D at 0x1acb784cb20>],
 'means': []}
```

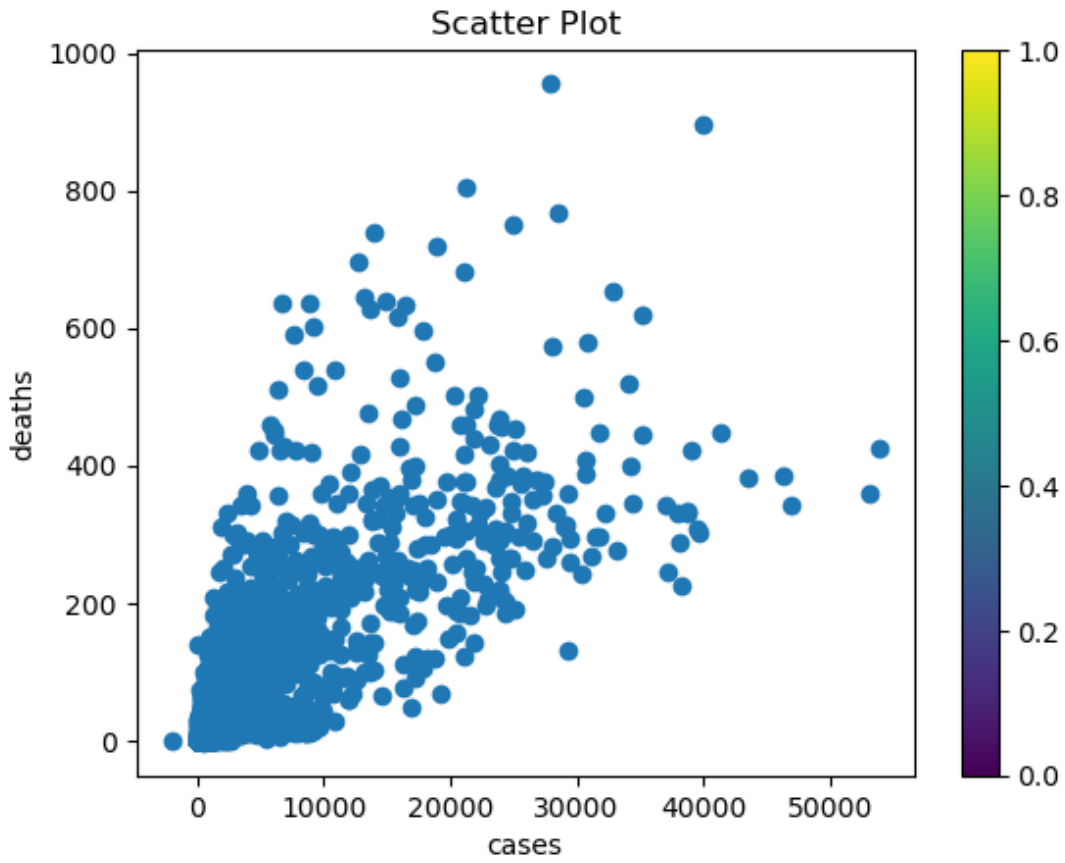


Scatter Plot

In [77]:
```
plt.scatter(df['cases'], df['deaths'])

# Adding Title to the Plot
plt.title("Scatter Plot")

# Setting the X and Y labels
plt.xlabel('cases')
plt.ylabel('deaths')
plt.colorbar()
plt.show()
```



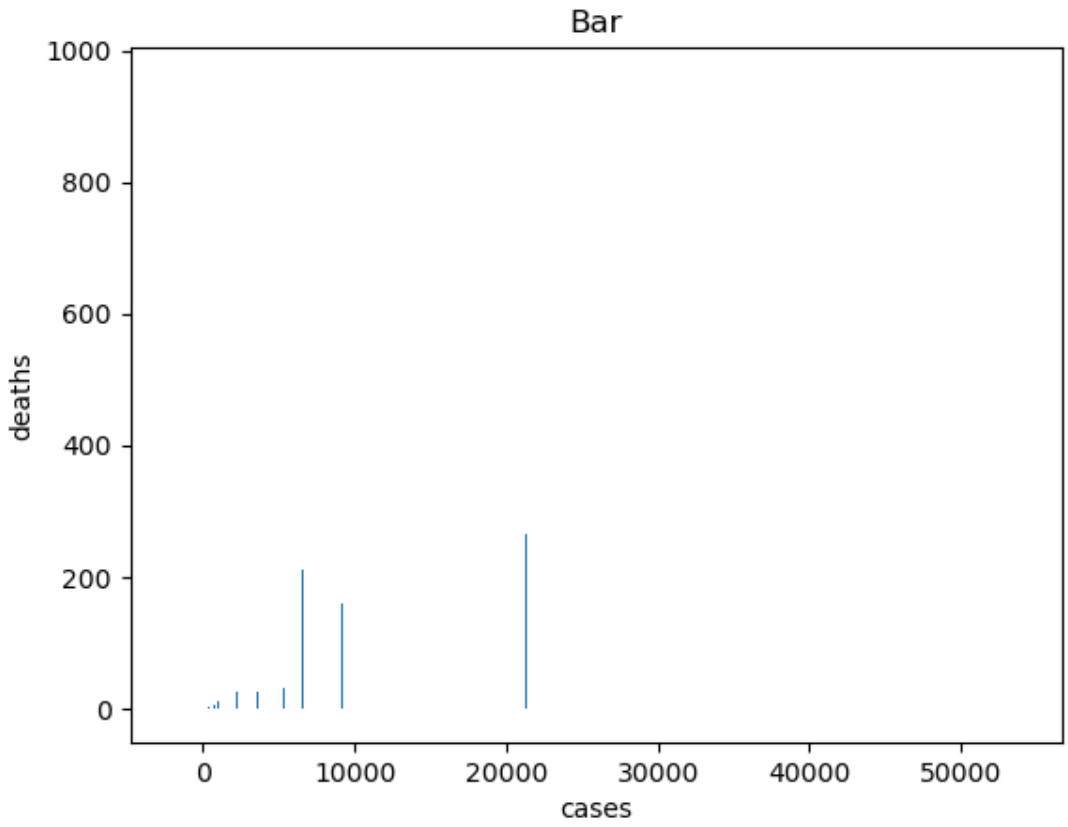
Bar Plot

In [86]:
```
plt.bar(df['cases'], df['deaths'])

# Adding Title to the Plot
plt.title("Bar")

# Setting the X and Y labels
plt.xlabel('cases')
plt.ylabel('deaths')

plt.show()
```

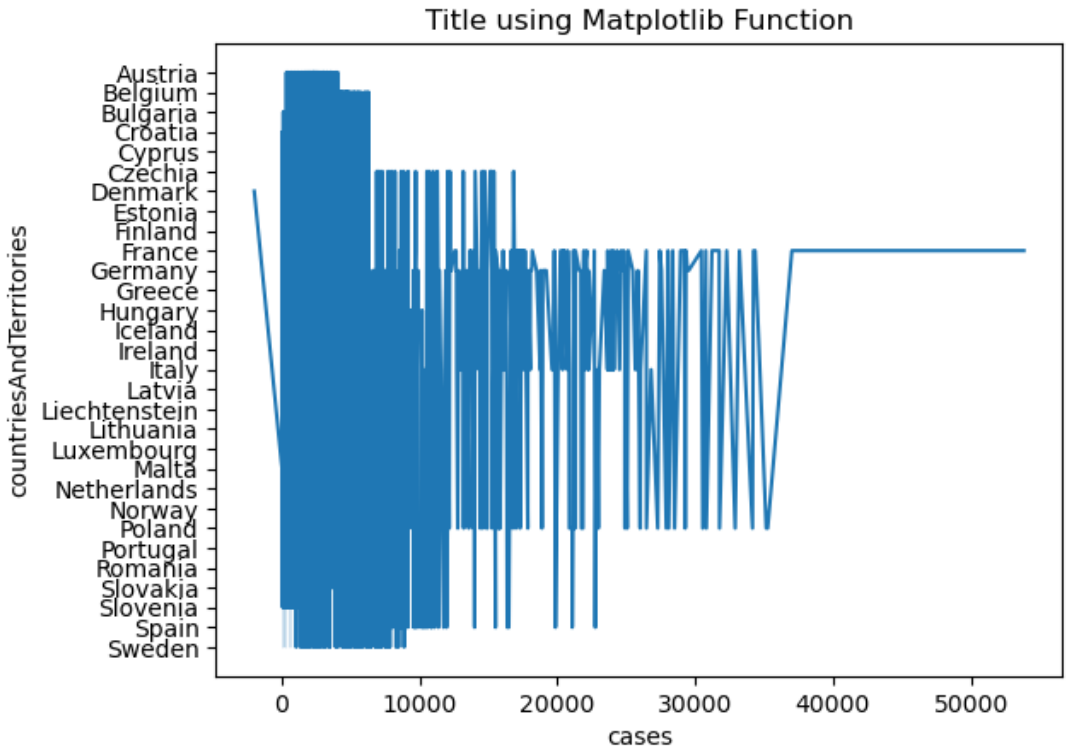


Line Plot

In [89]:
```
sns.lineplot(x="cases", y="countriesAndTerritories", data=df)

# setting the title using Matplotlib
plt.title('Title using Matplotlib Function')

plt.show()
```



Conclusion

Hence, the Covid-19 analysis using cognos has been preprocessed, exploratory data analysis has been performed successfully.
The missing values are handled and outliers are visualized.