5-6188153657050009004

October 27, 2023

```python
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
print('Modules are imported.')
df=pd.read_csv("/Users/kisshore/Downloads/Covid_19_cases4.csv")
print(df.head())
print(df.shape)
df.drop(["dateRep","day","month","year"],axis=1,inplace=True)
print(df.head())
aggregating=df.groupby("countriesAndTerritories").sum()
print(aggregating.head())
print(aggregating.shape)
aggregating.loc["Austria"].plot()
aggregating.loc["Finland"].plot()
aggregating.loc["Cyprus"].plot()
plt.legend()
plt.show()
```

```
Modules are imported.
       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
(2730, 7)
   cases  deaths countriesAndTerritories
0    366       5                 Austria
1    570       6                 Austria
2    538      11                 Austria
3    639       4                 Austria
4    405      19                 Austria
                          cases  deaths
countriesAndTerritories
Austria                  184416    1925
Belgium                  288119    2696
Bulgaria                 171236    7471
```
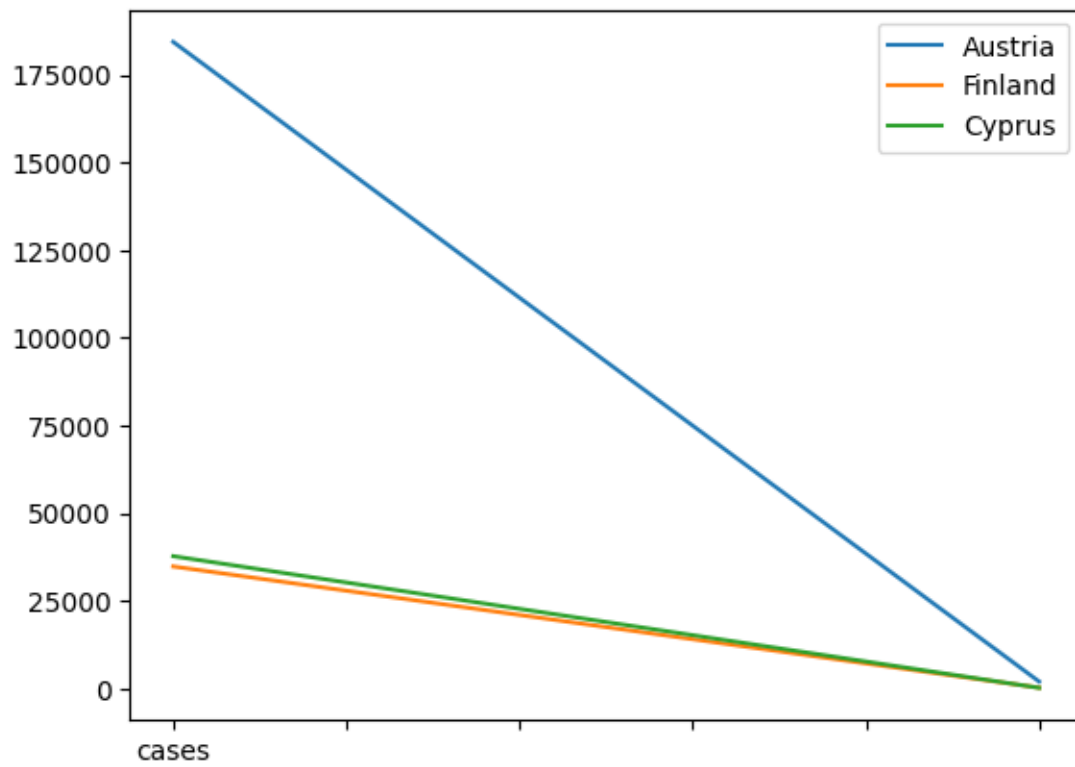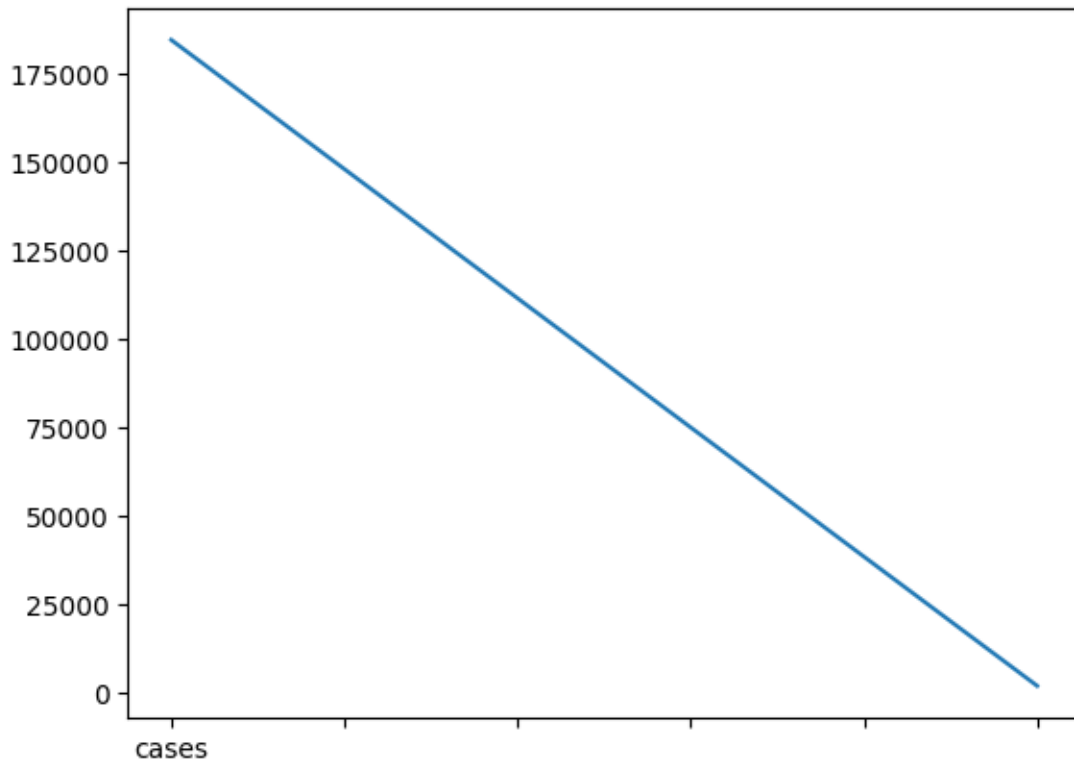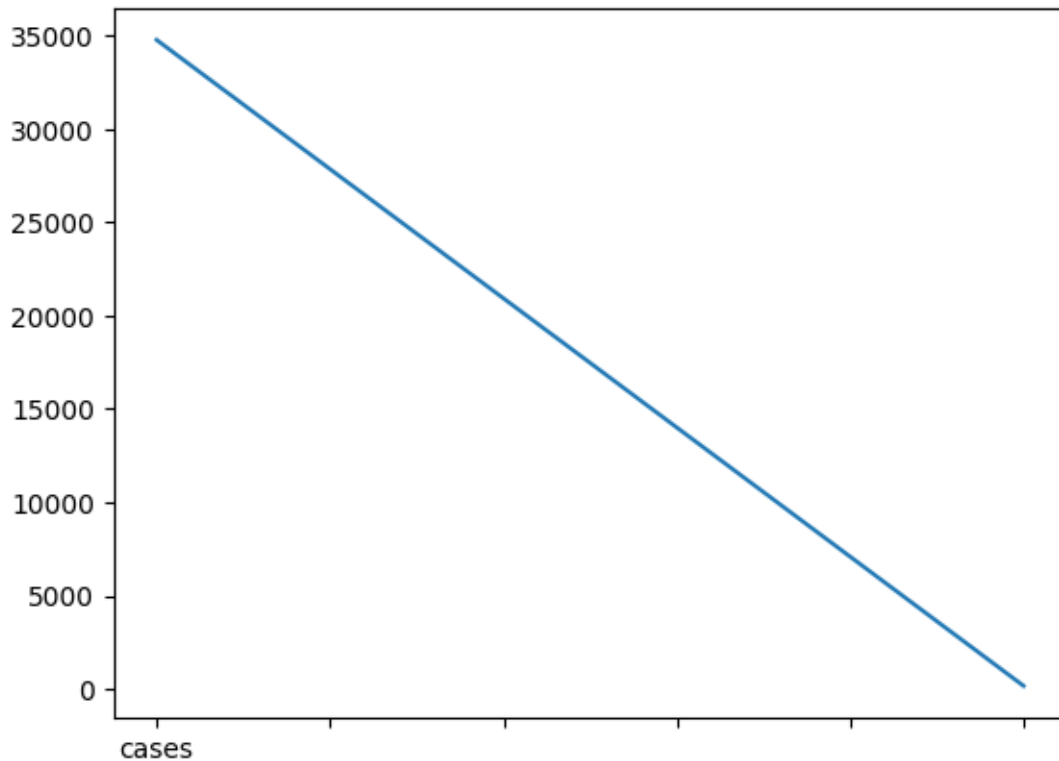
```
Croatia                      113168     2488
Cyprus                        37700      129
(30, 2)
```



```
[2]: aggregating.loc['Austria'].plot()
     plt.show()
```

```
[6]: aggregating.loc['Finland'][:3].plot()
     plt.show()
```

```
[4]: cases = np.array([366,570,538,639,405])
     deaths = np.array([5,6,11,4,19])
```
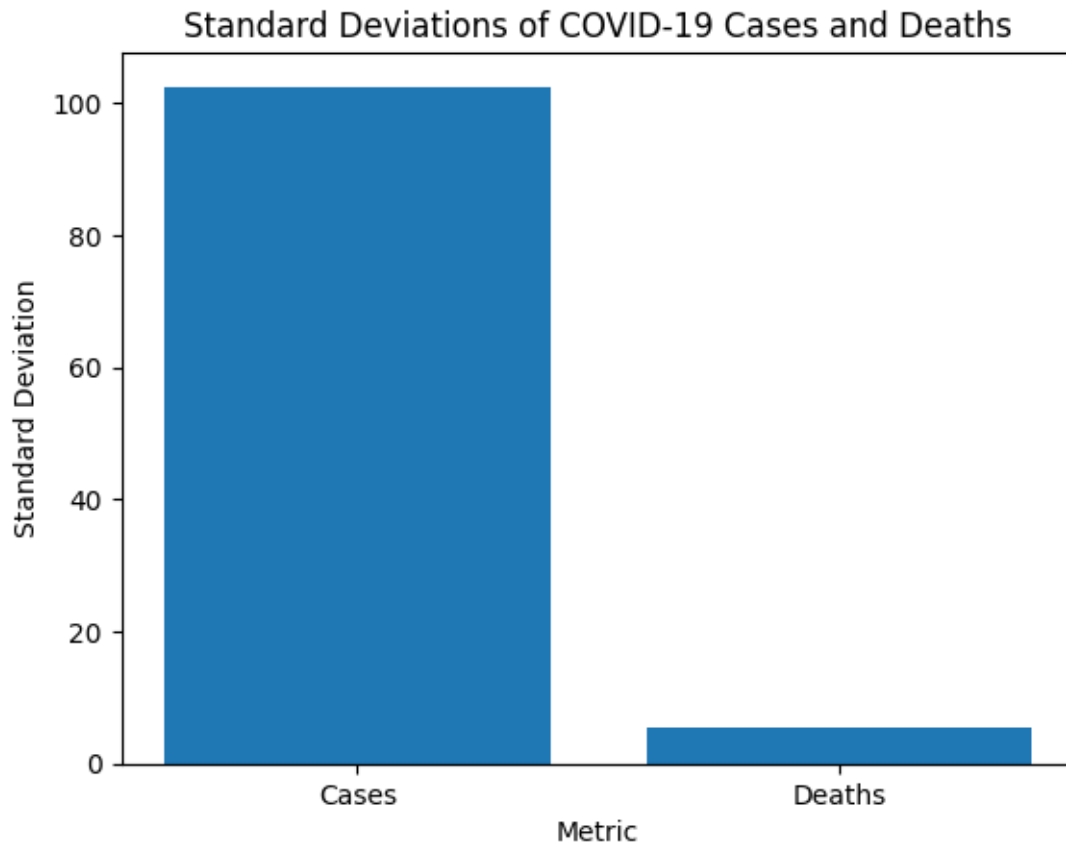
```
[5]: mean_cases = np.mean(cases)
     std_cases = np.std(cases)

     mean_deaths = np.mean(deaths)
     std_deaths = np.std(deaths)
```

```
[6]: labels = ['Cases', 'Deaths']
     mean_values = [mean_cases, mean_deaths]

     plt.bar(labels, mean_values)
     plt.xlabel('Metric')
     plt.ylabel('Mean Value')
     plt.title('Mean Values of COVID-19 Cases and Deaths')
     plt.show()
```
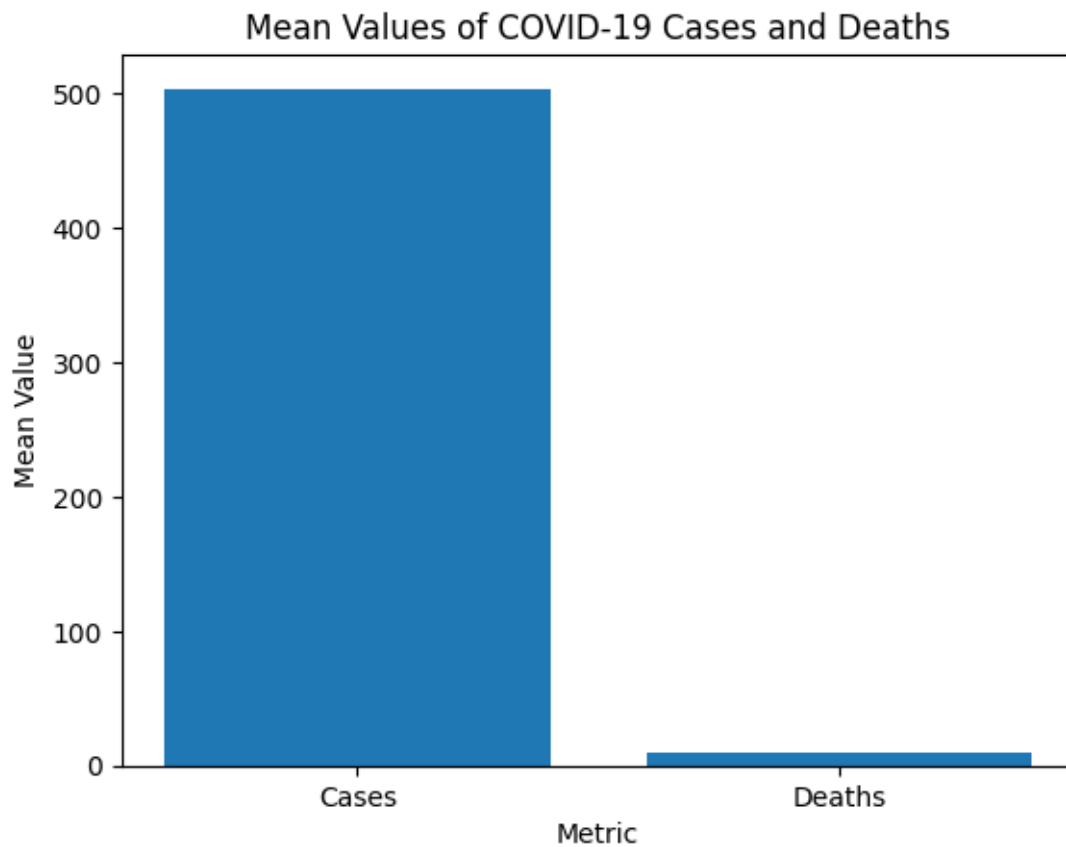
Mean Values of COVID-19 Cases and Deaths

[7]:
```
std_values = [std_cases, std_deaths]

plt.bar(labels, std_values)
plt.xlabel('Metric')
plt.ylabel('Standard Deviation')
plt.title('Standard Deviations of COVID-19 Cases and Deaths')
plt.show()
```

Standard Deviations of COVID-19 Cases and Deaths

[8]:
```
import numpy as np
import matplotlib.pyplot as plt


cases = np.array([455,484,618,707,681,392])
deaths = np.array([59,49,61,54,91,48])

# Calculate mean and standard deviation
mean_cases = np.mean(cases)
std_cases = np.std(cases)

mean_deaths = np.mean(deaths)
std_deaths = np.std(deaths)

# Create a bar chart to visualize mean values
labels = ['Cases', 'Deaths']
mean_values = [mean_cases, mean_deaths]

plt.bar(labels, mean_values)
plt.xlabel('Metric')
```

```python
plt.ylabel('Mean Value')
plt.title('Mean Values of COVID-19 Cases and Deaths')
plt.show()

# Create a bar chart to visualize standard deviations
std_values = [std_cases, std_deaths]

plt.bar(labels, std_values)
plt.xlabel('Metric')
plt.ylabel('Standard Deviation')
plt.title('Standard Deviations of COVID-19 Cases and Deaths')
plt.show()

# Analyze the data
correlation = np.corrcoef(cases, deaths)[0, 1]

print(f"Correlation between Cases and Deaths: {correlation:.2f}")

if correlation > 0:
    print("There is a positive correlation between cases and deaths.")
elif correlation < 0:
    print("There is a negative correlation between cases and deaths.")
else:
    print("There is no significant correlation between cases and deaths.")

if std_cases > std_deaths:
    print("The standard deviation of cases is greater than the standard␣
 ↪deviation of deaths.")
else:
    print("The standard deviation of deaths is greater than the standard␣
 ↪deviation of cases.")
```
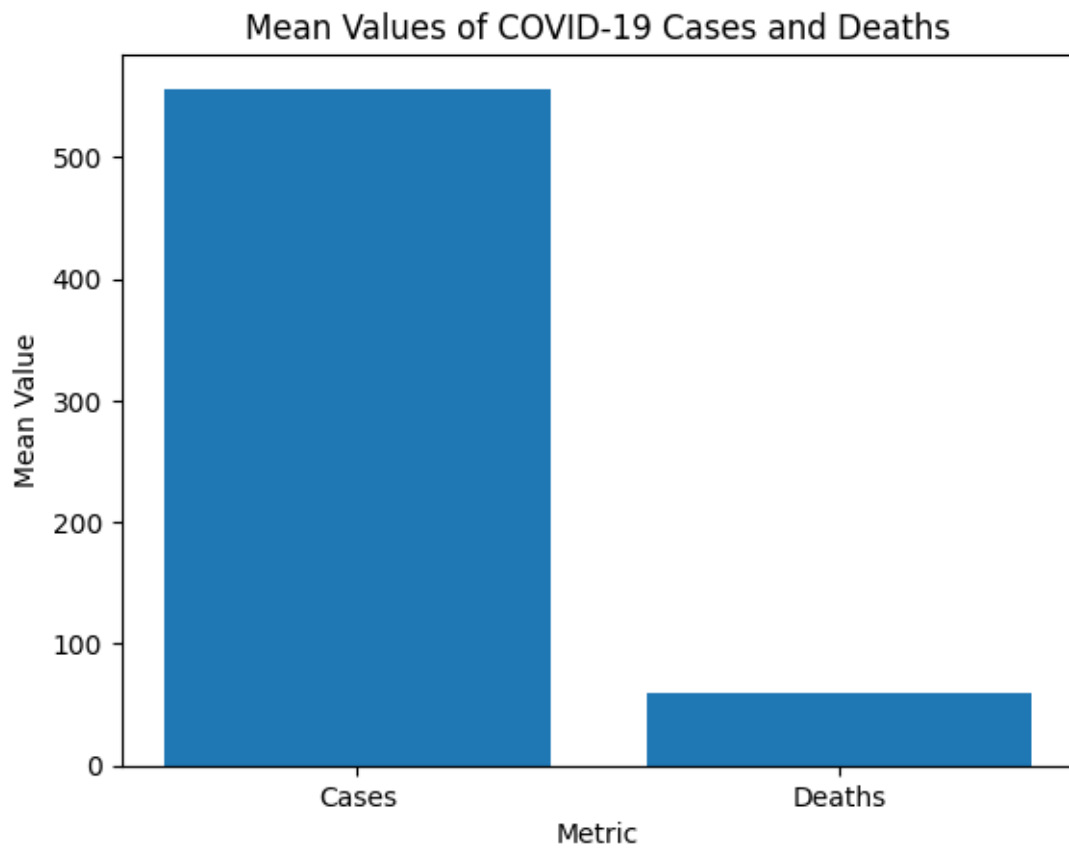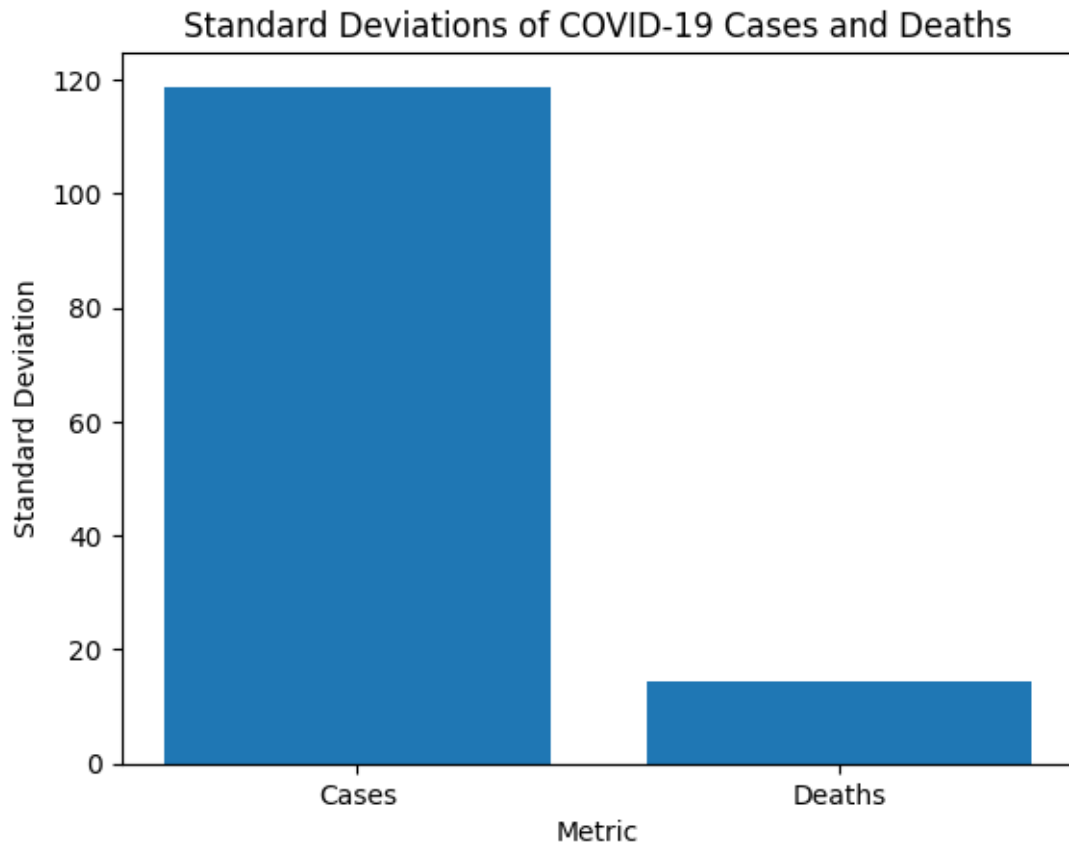
Mean Values of COVID-19 Cases and Deaths

Standard Deviations of COVID-19 Cases and Deaths

Correlation between Cases and Deaths: 0.57
There is a positive correlation between cases and deaths.
The standard deviation of cases is greater than the standard deviation of
deaths.