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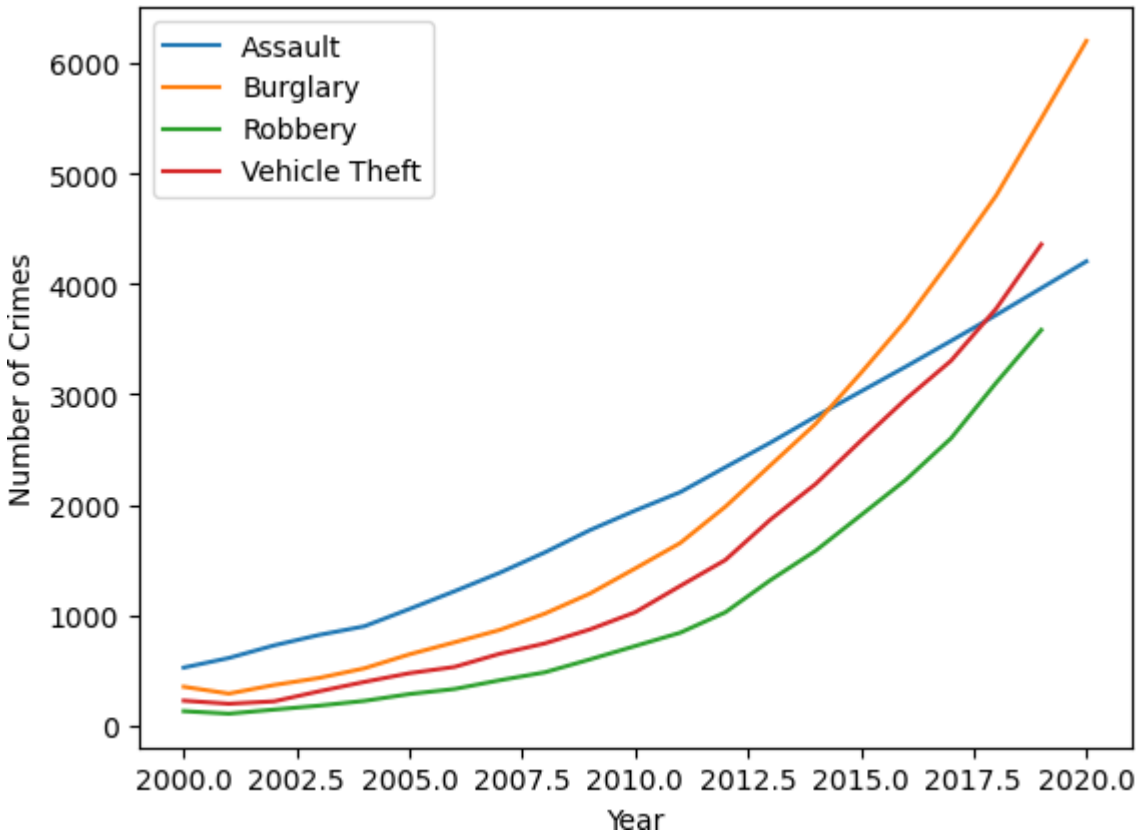
Link to my data source: https://www.kaggle.com/datasets/sujithmandala/crimestatistics

In [2]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

# Load data from CSV file into a DataFrame
cs = pd.read_csv("Crime_Statistics.csv")
print(cs)
print()
```

```
    Year  Type of Crime  Number of Crimes
0   2000        Assault               523
1   2000       Burglary               349
2   2000        Robbery               128
3   2000  Vehicle Theft               223
4   2001        Assault               610
..   ...            ...               ...
77  2019       Burglary              5498
78  2019        Robbery              3583
79  2019  Vehicle Theft              4359
80  2020        Assault              4205
81  2020       Burglary              6203

[82 rows x 3 columns]
```

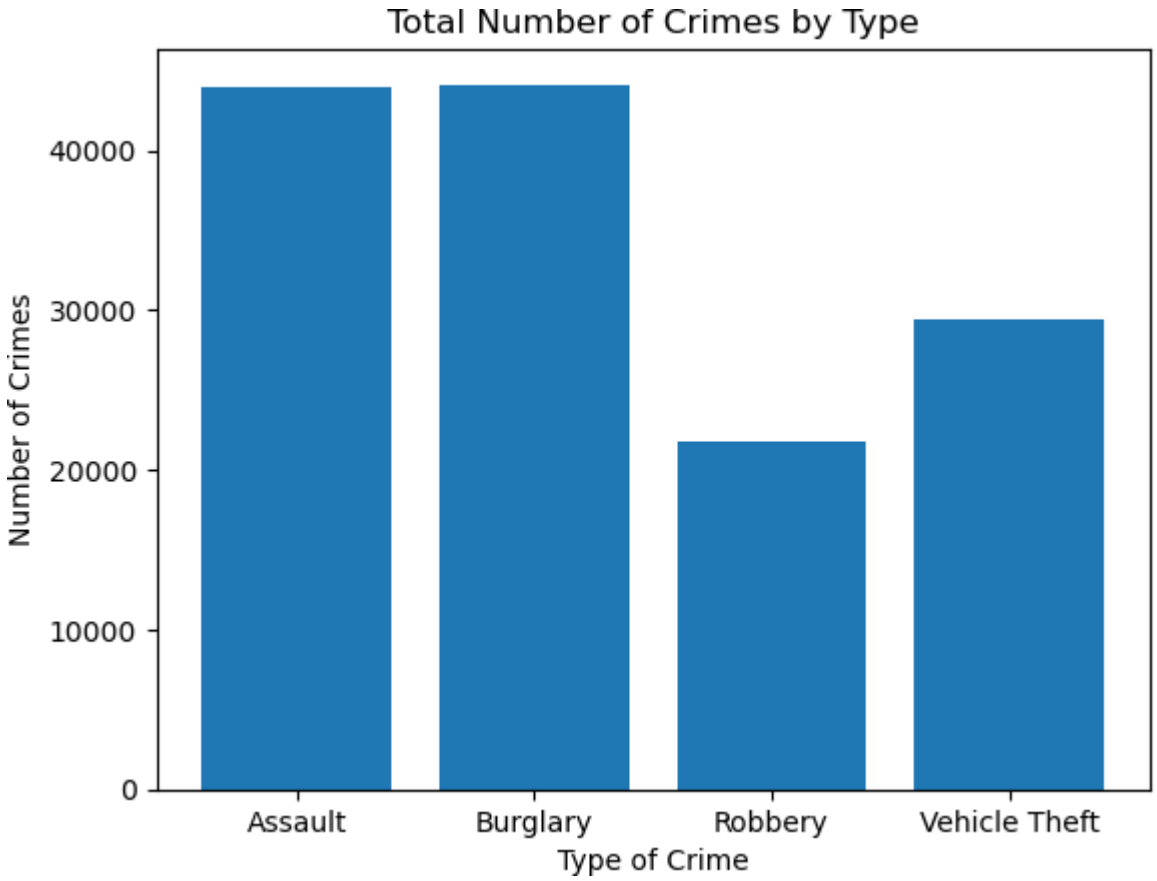
In [3]:
```
# Create a pivot table to get separate columns for each type of crime
crime_pivot = cs.pivot(index='Year', columns='Type of Crime',
                       values='Number of Crimes')

# Create a line chart
plt.plot(crime_pivot.index, crime_pivot['Assault'], label='Assault')
plt.plot(crime_pivot.index, crime_pivot['Burglary'], label='Burglary')
plt.plot(crime_pivot.index, crime_pivot['Robbery'], label='Robbery')
plt.plot(crime_pivot.index, crime_pivot['Vehicle Theft'],
         label='Vehicle Theft')
plt.xlabel('Year')
plt.ylabel('Number of Crimes')
plt.legend()
plt.show()
```



In [ ]:
```
Conclusion: Line plot is used to show or depict changes in trends over a
    period of time and also make predictions of how frequent an event or
    incident will occur in the nearest future. From the data set we have
    here which is the different type of crimes over a 21-year period in a
    city from 2000 to 2020, we can see the speed of trajectory of
    Burglary crime over the rest and Robbery as the least crime. This
    will help the law enforcement agencies accurately predict Burglary as
    the highest prevailing crime, closely followed by Assault, then
    Vehicle Theft and Robbery as the least.
```

In [ ]:

In [4]:
```
import pandas as pd
import matplotlib.pyplot as plt

# Load data from CSV file into a DataFrame
cs = pd.read_csv("Crime_Statistics.csv")

# Group the data by type of crime and sum the number of crimes per crime
crime_counts = cs.groupby('Type of Crime')['Number of Crimes'].sum()

# Create a bar chart
plt.bar(crime_counts.index, crime_counts)
plt.xlabel('Type of Crime')
plt.ylabel('Number of Crimes')
plt.title('Total Number of Crimes by Type')
plt.show()
```



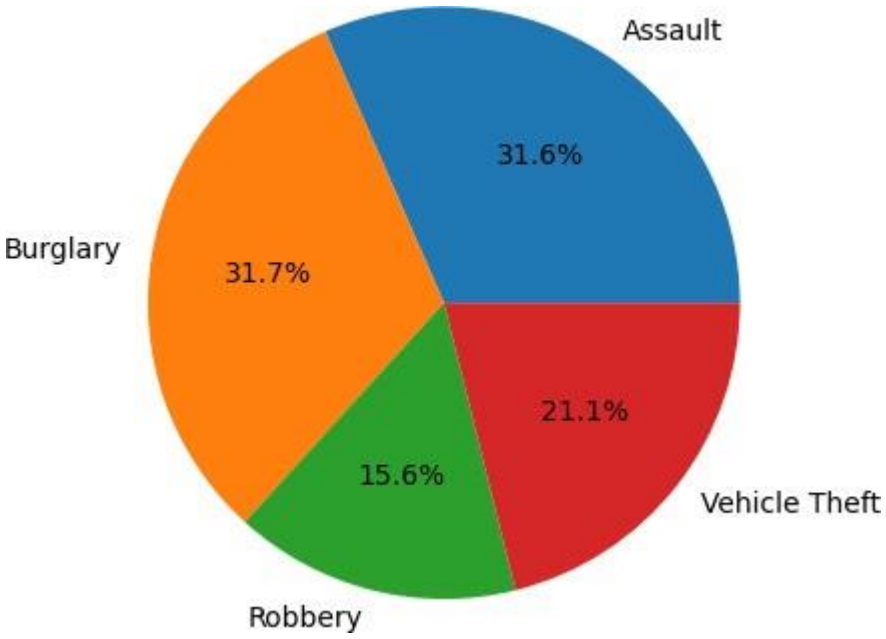
In [ ]:
```
Conclusions: Bar plot is an effective method used to compare different sets
    of items between different groups with the length of the bar showing
    the number of times or frequency of the event. It also depicts the
    comparison of various groups against each other like in this case,
    the crimes that occurred most frequently and the crimes that occurred
    less at a glance.
```

In [ ]:

In [5]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

# Load data from CSV file into a DataFrame
cs = pd.read_csv("Crime_Statistics.csv")


# Create a dataframe with the crime data
crime_df = pd.read_csv('Crime_Statistics.csv')

# Group DataFrame by Type of Crime and sum the Number of Crimes per crime
crime_sum = cs.groupby('Type of Crime')['Number of Crimes'].sum()

# Print the crime sums for each type
print(crime_sum)

crime = ["Assault", "Burglary", "Robbery", "Vehicle Theft"]
# summary of total crime
cap = np.array([43964, 44139, 21766, 29407])
# pie chart for the four crimes
plt.figure()
plt.pie(cap, labels=crime, autopct='%1.1f%%')
plt.show()
```

```
Type of Crime
Assault          43964
Burglary         44139
Robbery          21766
Vehicle Theft    29407
Name: Number of Crimes, dtype: int64
```



In [ ]:
```
Conclusions: Pie Chart visually shows data as a percentage or fraction of
    the entire period, and in this case 21 years, that it represents. As
    we can see from the pie chart from 2000 to 2020, Burglary crime was
    the highest crime with a total of 31.7%, followed closely by Assault
    with 31.6% and then Vehicle Theft and Robbery with 21.1% and 15.6%
    respectively.
```

In [ ]:
```

```