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

In [3]:
```
df = pd.read_csv('UseOfForce_Type_OpenData_HOSTED.csv')
```

In [4]:
```
#Deleted columns we don't need
df_col = df.drop(['OBJECTID', 'Incident_Type','Date_Occurred','Date_Receive
```

In [5]:
```
#removing rows with missing values
df_col.dropna(inplace=True)
```

In [6]:
```
#Removing rows we dont need
df_col = df_col.drop(index = df_col[df_col['Sex']=='No Sex Listed'].index)
df_col = df_col.drop(index = df_col[df_col['Race']=='No Race Listed'].index
df_col = df_col.drop(index = df_col[df_col['Sex']=='No sex'].index)
df_col = df_col.drop(index = df_col[df_col['Race']=='No Race'].index)
df_col = df_col.drop(index = df_col[df_col['Force_Used']=='Other'].index)
df_col = df_col.drop(index = df_col[df_col['UseOfForce_Reason']=='Other'].i
```

In [7]:
```
df_col
```

Out[7]:

	UseOfForce_Reason	Citizen_Injured	Officer_Injured	Sex	Race	Citizen_Age	Year	Force_
0	Combative	Yes	No	Female	White	26-35	2018	Ph
1	Combative	Yes	No	Female	White	26-35	2018	Ph
2	Combative	No	No	Male	White	26-35	2018	Ph
3	Combative	No	No	Male	White	26-35	2018	Ph
4	Combative	Yes	Yes	Male	Black	36-45	2018	Ph
...	...	...	...	...	...	...	...	
1419	Fleeing	Yes	No	Male	Black	26-35	2022	
1421	Fleeing	Yes	Yes	Male	Black	26-35	2022	Ph
1422	Combative	No	No	Male	Black	36-45	2022	Ph
1423	Combative	No	No	Male	Black	36-45	2022	Ph
1424	Fleeing	Yes	No	Male	White	Other	2022	

1245 rows × 8 columns

Use of force by gender

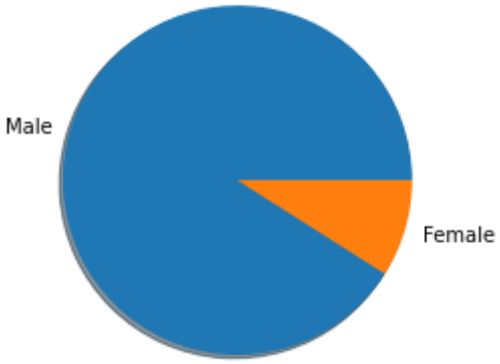
In [8]:
```
# Get totals by sex category
females = df_col[df_col['Sex']=='Female'].Sex.count()
```

In [9]:
```
males = df_col[df_col['Sex']=='Male'].Sex.count()
```

In [10]:
```
no_sex = df_col[df_col['Sex']=='No Sex Listed'].Sex.count()
```

In [11]:
```
sizes = [males, females  ]
lab = ["Male","Female"]
plt.pie(sizes,shadow = True, labels= lab);
print("Use of force was higher in males than any other sex categories")
```

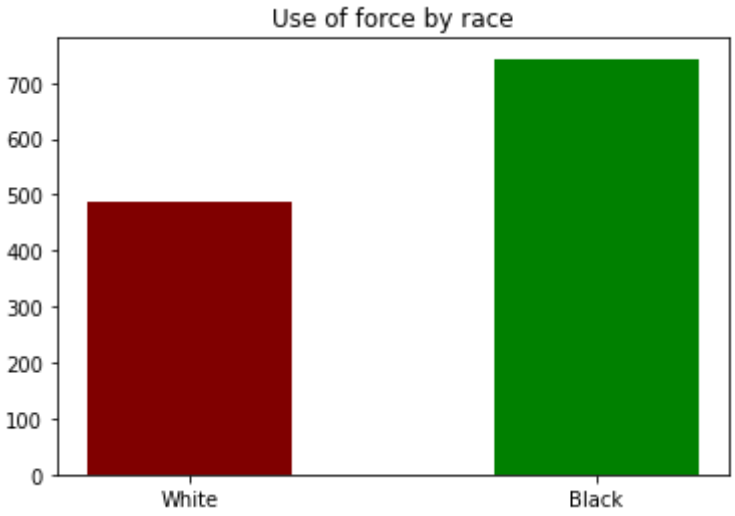
```
Use of force was higher in males than any other sex categories
```



Use of force by race

In [12]:
```
#get race data segments
white = df_col[df_col['Race']=='White'].Race
black =  df_col[df_col['Race']=='Black'].Race
```

In [13]:
```
plt.bar(white, white.count(),color ='maroon',
        width = 0.5)
plt.bar(black,black.count(), color ='green',
        width = 0.5)
plt.title("Use of force by race")
plt.show()
```



Probability that a black male will combat the police during arrest

In [26]:
```
population =(df_col['UseOfForce_Reason']== 'Combative').count()
```

In [27]:
```
prob_black = df_col[df_col['Race']=='Black'].Race.count()/population
```

In [28]:
```
prob_white = df_col[df_col['Race']=='White'].Race.count()/population
```

In [29]:
```
print("The probability that a black male will combat police during arrest i
print("The probability that a black male will combat police during arrest i
```

```
The probability that a black male will combat police during arrest is:
0.4
The probability that a black male will combat police during arrest is:
0.5
```

Probability that taser will be used on a white male during arrest

In [18]:
```
prob_white = df_col[df_col['Race']=='White'].Race.count()/population
```

In [19]:
```
prob_arm = df_col[df_col['Force_Used']=='Taser'].Race.count()/population
```

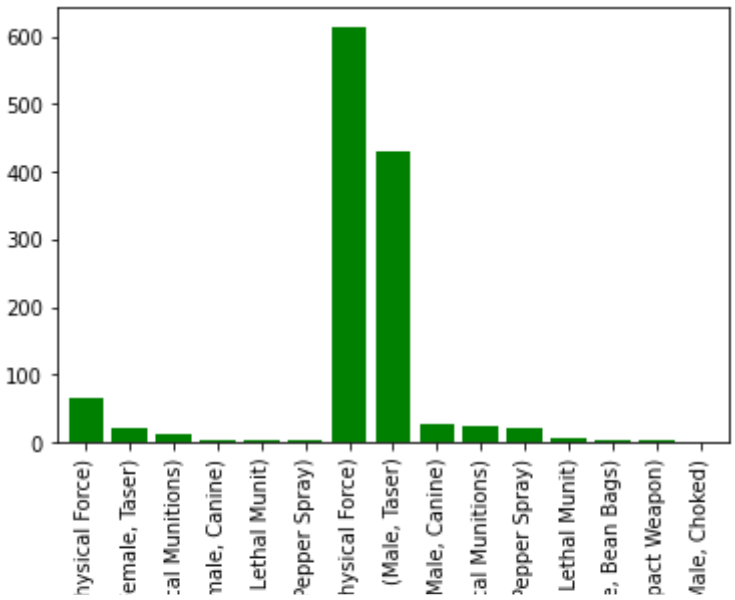
In [20]:
```
print("The probability that police will need a fire arm while arresting a w
```

```
The probability that police will need a fire arm while arresting a white
male is:  0.3
```

Force Used by gender

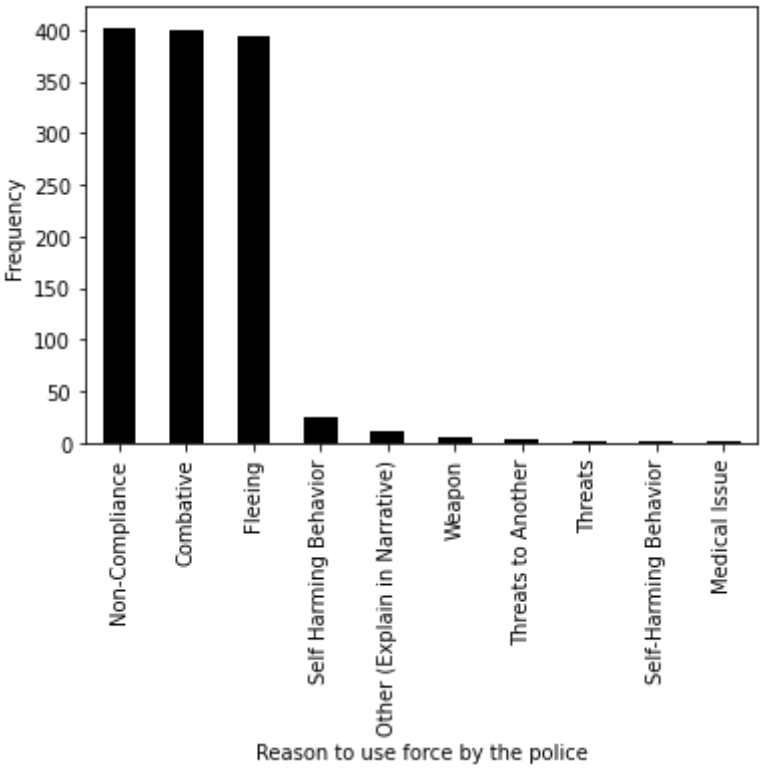
In [21]:
```
df_col.groupby('Sex')['Force_Used'].value_counts().plot(kind ='bar',color =
```

Out[21]:
```
<AxesSubplot:xlabel='Sex,Force_Used'>
```



In [25]:
```
df_col['UseOfForce_Reason'].value_counts().plot(kind ='bar',color ='black',
```

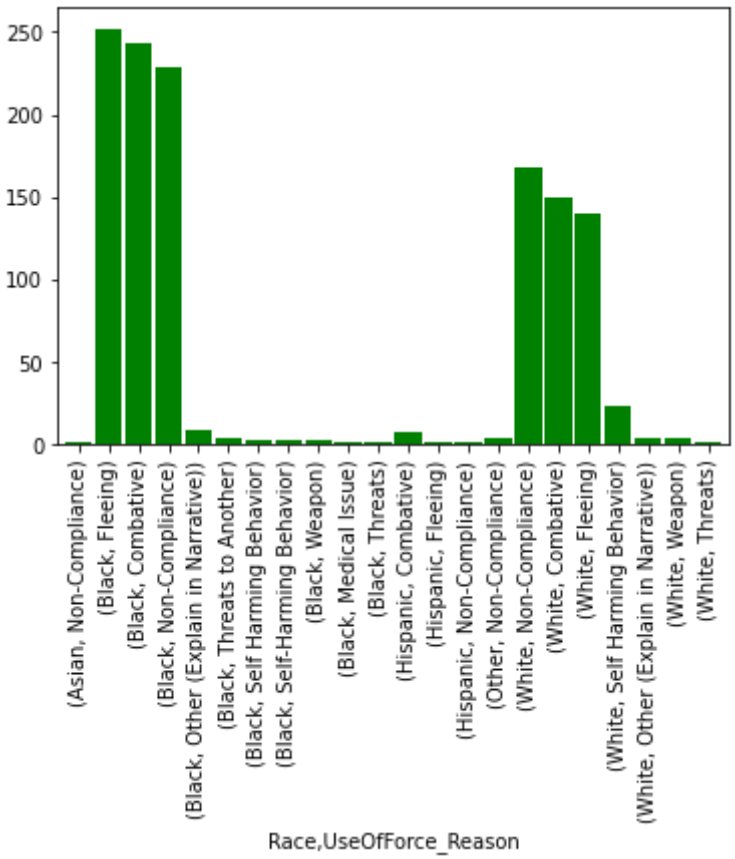
Out[25]:
```
<AxesSubplot:xlabel='Reason to use force by the police', ylabel='Frequenc
y'>
```



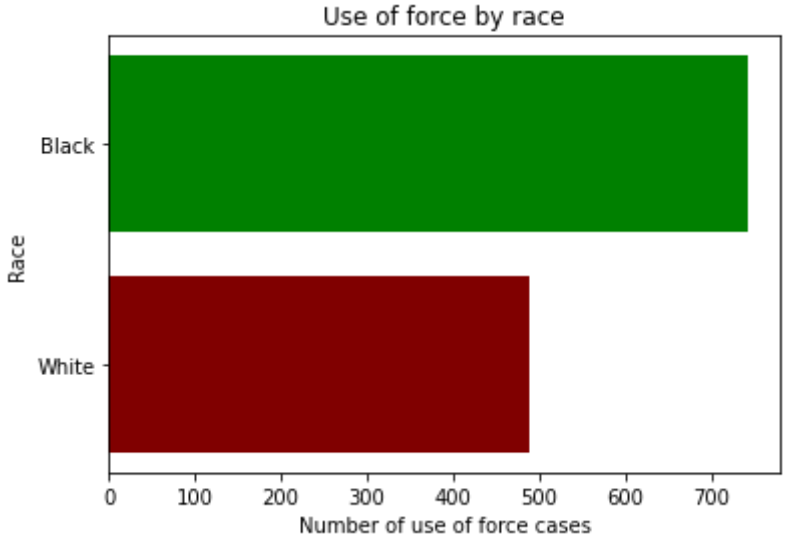
Reasons police used force by race

In [23]:
```
df_col.groupby('Race')['UseOfForce_Reason'].value_counts().plot(kind ='bar'
```

Out[23]: <AxesSubplot:xlabel='Race,UseOfForce_Reason'>



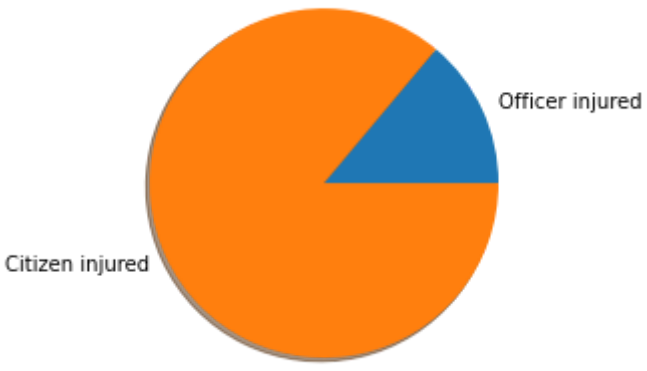
In [24]:
```
plt.barh(white, white.count(),color ='maroon'
        )
plt.xlabel('Number of use of force cases')
plt.ylabel('Race')
plt.barh(black,black.count(), color ='green',
         )
plt.title("Use of force by race")
plt.show()
```



Officers vs Citizen injured during use of force by the police

In [24]:
```
citizen = df_col[df_col['Citizen_Injured']=='Yes'].Citizen_Injured .value_c
citizen_no = df_col[df_col['Citizen_Injured']=='No'].Citizen_Injured .value
officer = df_col[df_col['Officer_Injured']=='Yes'].Citizen_Injured .value_c
```

In [25]:
```
sizes = [officer[0], citizen[0] ]
lab = ["Officer injured","Citizen injured"]
plt.pie(sizes,shadow = True, labels= lab);
```



In [31]:
```
df_col[df_col['Year']=='2022']
```

Out[31]:
```
Series([], Name: Race, dtype: object)
```

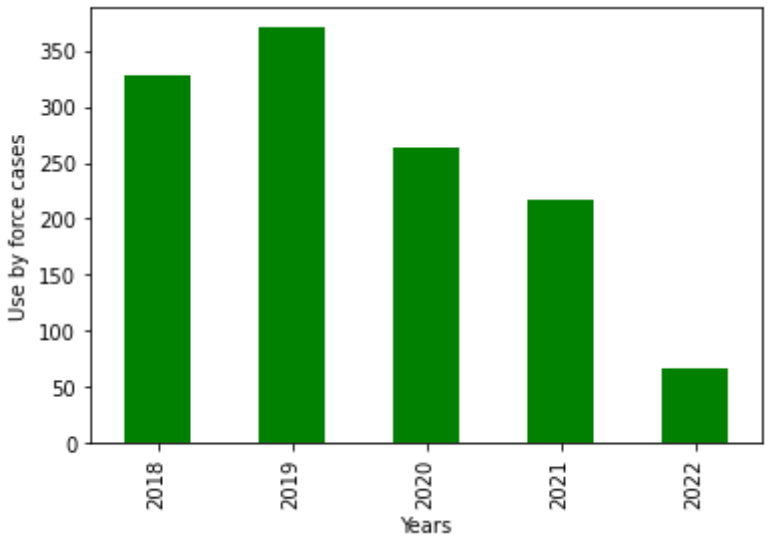
In [29]:
```
type(p)
```

Out[29]:
```
pandas.core.frame.DataFrame
```

In [30]:
```
df_col[df_col['Race']=='Black'].Race
```

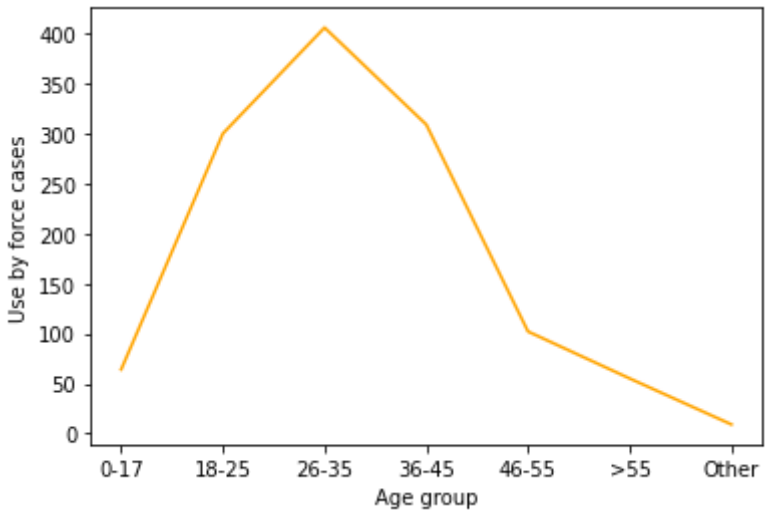
Out[30]:
```
4        Black
5        Black
6        Black
10       Black
11       Black
         ...
1414     Black
1419     Black
1421     Black
1422     Black
1423     Black
Name: Race, Length: 743, dtype: object
```

In [83]:
```
yr = df_col.groupby('Year')['Force_Used'].count().plot(kind ='bar',color ='
```



In [93]:
```
df_col.groupby('Citizen_Age')['Force_Used'].count().plot(kind ='line',color
```

Out[93]:
```
<AxesSubplot:xlabel='Age group', ylabel='Use by force cases'>
```



In [ ]:
```

```