Modulue 10 - Hackathon

Examining Drug-Accident Data in Connecticut

The rise of drug-related deaths has been an unfortunate trend in America. However, it seems unwise to give a complicated problem a simple solution. The idea of addiction is not simply the availibility of opioids - it can be due to a myraid of factors due to the complexity of mental health. It is the hope of this data analysis to see if there are any physiological factors that may be affecting the rise of overdose deaths in America such as gender or age.

In [82]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sbn

%matplotlib inline
```

In [83]:
```
drug_df = pd.read_csv('drug_death.csv')
drug_df.head()
```

Out[83]:

	CaseNumber	Date	Sex	Race	Age	Residence City	Residence State	Residence County	Dea
0	13-16336	11/09/2013	Female	White	53.0	GROTON	NaN	NEW LONDON	GI
1	12-18447	12/29/2012	Male	White	30.0	WOLCOTT	NaN	NEW HAVEN	WATE
2	14-2758	02/18/2014	Male	White	43.0	ENFIELD	NaN	NaN	EI
3	14-13497	09/07/2014	Female	White	24.0	WALLINGFORD	NaN	NaN	WALLIN
4	13-14421	10/04/2013	Female	White	26.0	WEST HAVEN	NaN	NEW HAVEN	WEST

5 rows × 32 columns

The data used to answer the above question is data concerning drug-related deaths in the Connecticut area. Opioid realted accidents were recorded and compiled into this data set from 2012 to 2017. It includes information about the victim including age, sex, and race. The data was collected by US coroners and medical professionals. However, the data was collected posthumously, so the accuracy of some of the data points can be questions, especially if age or race was estimated due to a lack of identification.

Data Analysis

In [84]:
```
# Age Data
sex_age = drug_df.loc[:,["Age","Sex"]]
```

In [85]:
```
# Plotting

bar_ax = sbn.countplot(x = "Sex", data=sex_age, order=["Male", "Female"
])
bar_ax.set(title="Sex of Drug Overdose Victims")
```

Out[85]:
```
[Text(0.5, 1.0, 'Sex of Drug Overdose Victims')]
```

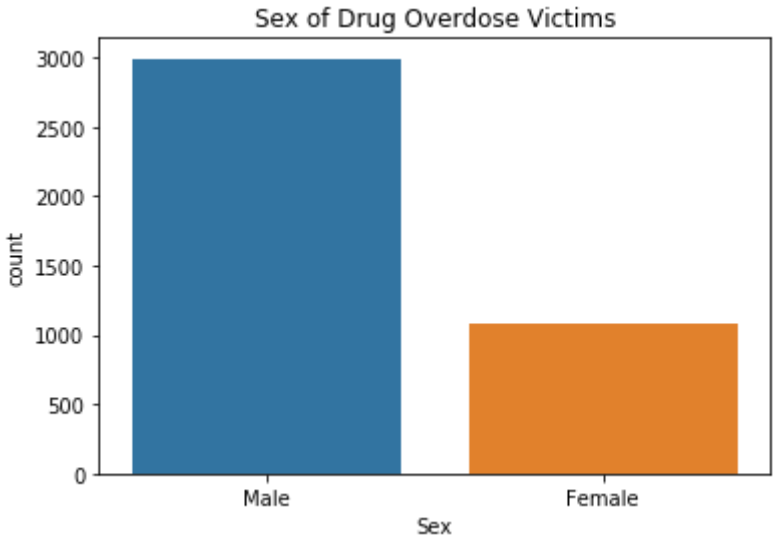

Figure 1

From the data, there seems to be a significant difference between genders of opiod deaths. Males disproportionally represent the majority of drug-related accidents as seen in the figure above. A reason for this is that men are less likely to see a medical professional during the initial reaction to a drug overdose.

In [86]:
```
# Plotting
fig, box_ax = plt.subplots(1,1)

box_ax = sbn.boxplot(x="Sex", y="Age", data=sex_age, order=["Male", "Female"])
box_ax.set(title="Ages of Drug Overdose Victims")
```

Out[86]:
```
[Text(0.5, 1.0, 'Ages of Drug Overdose Victims')]
```

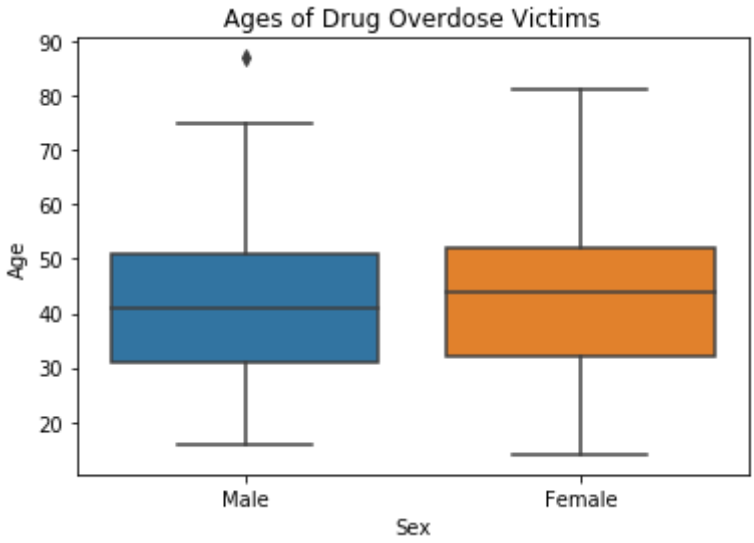

Figure 2

However, while more men are likely to die from overdoes, there does not seem to be a signficant difference in age. Women are slightly older, but the average seems relatively similiar. This reveals that a main factor in this crisis could be cultural in nature.

In [94]:
```
# Plotting
fig, hist_ax = plt.subplots(1,1)
hist_ax = sbn.distplot(sex_age.loc[:,"Age"].dropna())
hist_ax.set(title="Age Distribution of Overdose Victims")
```

Out[94]:
```
[Text(0.5, 1.0, 'Age Distribution of Overdose Victims')]
```

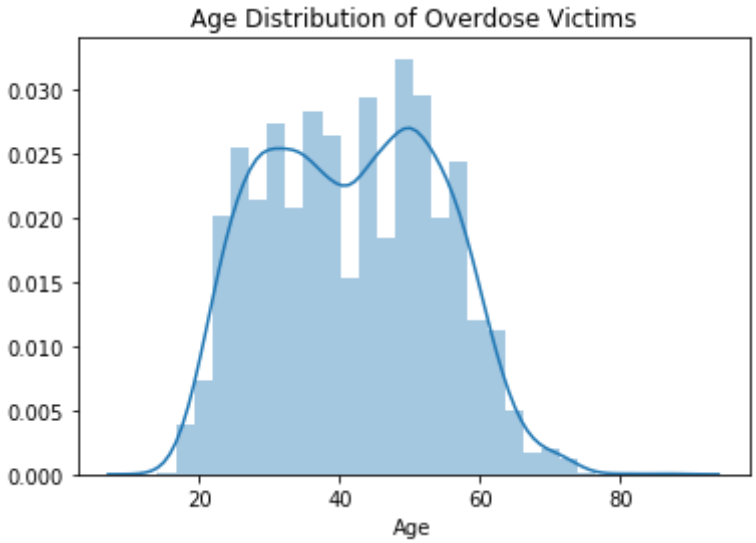

Figure 3

From the figure above, it can be seen that there are spikes in age at around 50 and around 30. This could suggest that a large population of overdose victims are people who overdose from perscribed painkillers as the older population are more likley to be perscribed them. This supports the idea that there is an over-perscribing problem for opioid-based drugs.