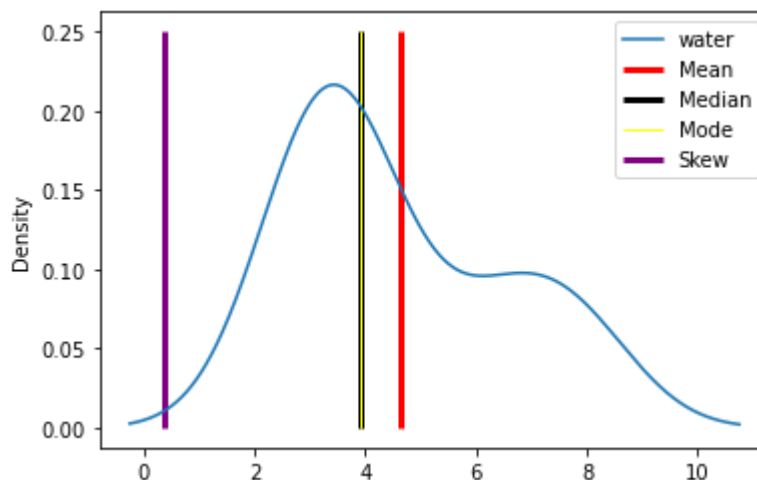


Question 3 - For a sample space of 15 people, a statistician wanted to know the consumption of water and other beverages. He collected their average consumption of water and beverages for 30 days (in litres). Help him to visualize the data using density plot, rug plot and identify the mean, median, mode and skewness of the data from the plot. WATER 3.2, 3.5, 3.6, 2.5, 2.8, 5.9, 2.9, 3.9, 3.9, 6.9, 7.9, 8.0, 3.3, 6.6, 2.9, 3.9, 4.9, 6.9, 7.9, 8.0, 3.3, 6.6, 4.4 BEVERAGES 2.2, 2.5, 2.6, 1.5, 3.8, 1.9, 0.9, 3.9, 4.9, 6.9, 0.1, 8.0, 0.3, 0.3, 2.6, 1.4

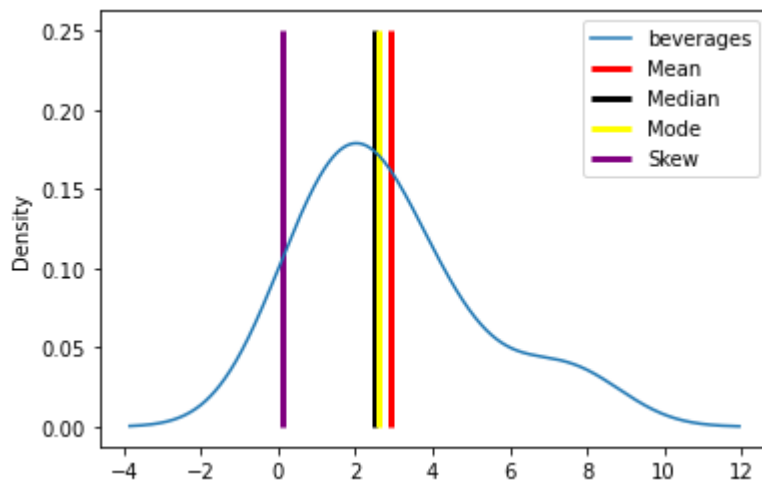
```
In [ ]: import pandas as pd
import numpy as np
import seaborn as sns
from matplotlib import pyplot as plt
```

```
In [ ]: water = [3.2, 3.5, 3.6, 2.5, 2.8, 5.9, 2.9, 3.9, 3.9, 6.9, 7.9, 8.0, 3.3, 6.6, 2.9, 3.9, 4.9, 6.9, 7.9, 8.0, 3.3, 6.6, 4.4]
beverages = [2.2, 2.5, 2.6, 1.5, 3.8, 1.9, 0.9, 3.9, 4.9, 6.9, 0.1, 8.0, 0.3, 0.3, 2.6, 1.4]
```

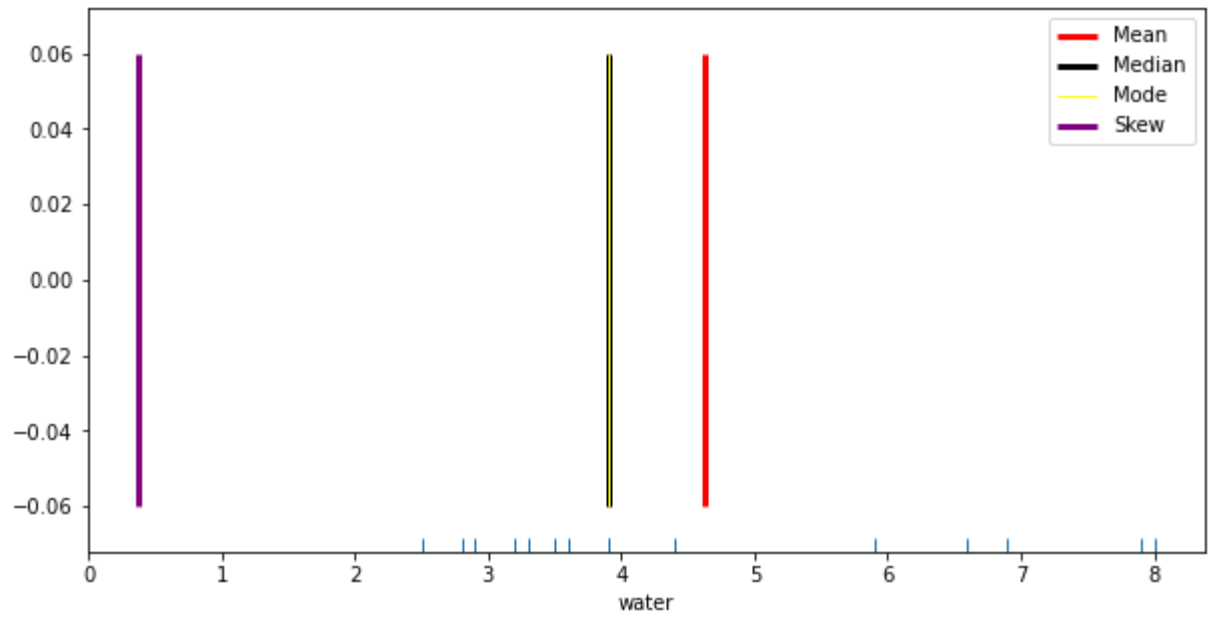
```
In [ ]: df = pd.DataFrame(water, columns = ['water'])
df.plot(kind = 'density')
Mean = np.mean(water)
Median = np.median(water)
Mode = df['water'].mode()[0]
Stddev = df['water'].std()
Skew = (Mean - Mode)/Stddev
plt.vlines(Mean, 0, 0.25, color = 'red', linestyle='solid', label = 'Mean', lw=2)
plt.vlines(Median, 0, 0.25, color = 'black', linestyle='solid', label = 'Median', lw=2)
plt.vlines(Mode, 0, 0.25, color = 'yellow', linestyle='solid', label = 'Mode', lw=2)
plt.vlines(Skew, 0, 0.25, color = 'purple', linestyle='solid', label = 'Skew', lw=2)
plt.legend()
plt.show()
```



```
In [ ]: df1 = pd.DataFrame(beverages, columns = ['beverages'])
df1.plot(kind = 'density')
Mean = np.mean(beverages)
Median = np.median(beverages)
Mode = df1['beverages'].mode()[0]
Stddev = df1['beverages'].std()
Skew = (Mean - Mode)/Stddev
plt.vlines(Mean, 0, 0.25, color = 'red', linestyle='solid', label = 'Mean', 1:
plt.vlines(Median, 0, 0.25, color = 'black', linestyle='solid', label = 'Medi
plt.vlines(Mode, 0, 0.25, color = 'yellow', linestyle='solid', label = 'Mode',
plt.vlines(Skew, 0, 0.25, color = 'purple', linestyle='solid', label = 'Skew',
plt.legend()
plt.show()
```



```
In [ ]: plt.figure(figsize=(10,5))
sns.rugplot(data=df, x ="water")
Mean = np.mean(water)
Median = np.median(water)
Mode = df['water'].mode()[0]
Stddev = df['water'].std()
Skew = (Mean - Mode)/Stddev
plt.vlines(Mean, -0.06, 0.06, color = 'red', linestyle='solid', label = 'Mean
plt.vlines(Median, -0.06, 0.06, color = 'black', linestyle='solid', label = 'I
plt.vlines(Mode, -0.06, 0.06, color = 'yellow', linestyle='solid', label = 'Mc
plt.vlines(Skew, -0.06, 0.06, color = 'purple', linestyle='solid', label = 'Sl
plt.legend()
plt.show()
```



In [ ]:

```
plt.figure(figsize=(10,5))
sns.rugplot(data=df1, x ="beverages")
Mean = np.mean(beverages)
Median = np.median(beverages)
Mode = df1['beverages'].mode()[0]
Stddev = df1['beverages'].std()
Skew = (Mean - Mode)/Stddev
plt.vlines(Mean, -0.06, 0.06, color = 'red', linestyle='solid', label = 'Mean')
plt.vlines(Median, -0.06, 0.06, color = 'black', linestyle='solid', label = 'Median')
plt.vlines(Mode, -0.06, 0.06, color = 'yellow', linestyle='solid', label = 'Mode')
plt.vlines(Skew, -0.06, 0.06, color = 'purple', linestyle='solid', label = 'Skew')
plt.legend()
plt.show()
```

