

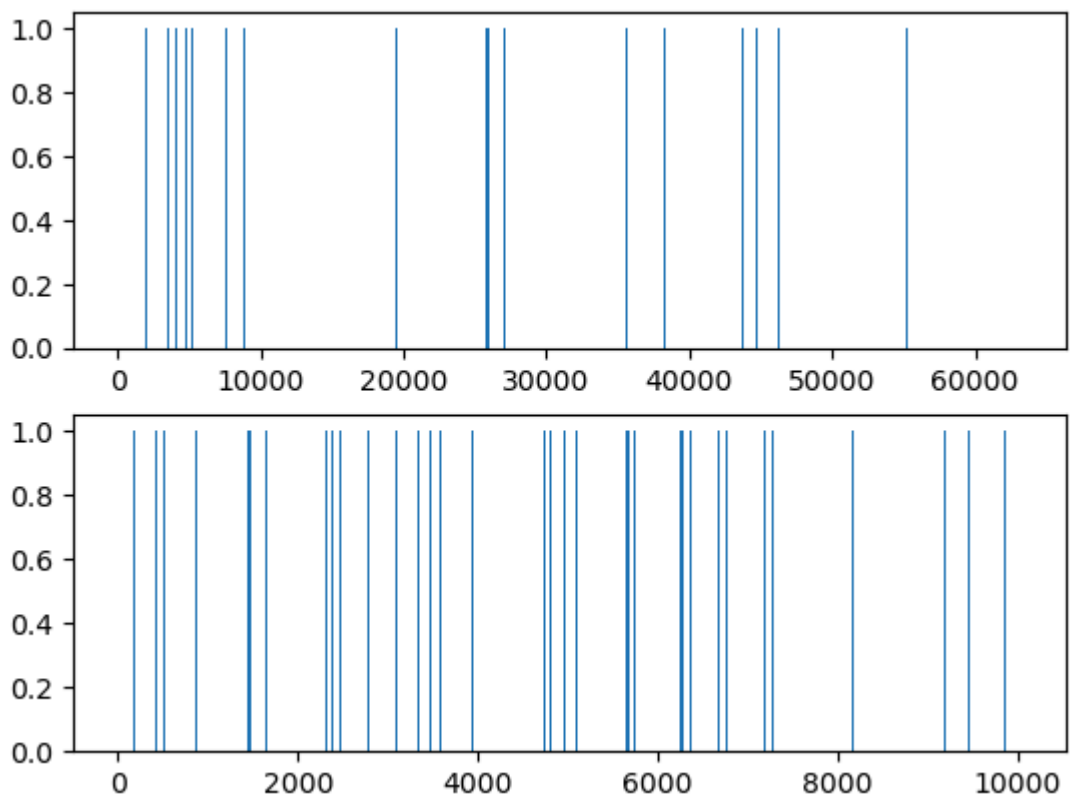
```
In [60]: from utils import readPoiSpikes,generatePoiSpikes,calcCV,calcFF,calcRate
import numpy as np
from scipy.io import loadmat
import matplotlib.pyplot as plt
```

```
In [61]: r = 94 #spikes per second
Fs = 1000 #Sampling frequency
totalTime = 30 #seconds
dt = 0.001 #seconds
binSize = 0.01 #secondsb
```

```
In [63]: spikeTrain1 = readPoiSpikes("rawSpikes1.mat", Fs)
spikeTrain2 = readPoiSpikes("rawSpikes2.mat", Fs)
```

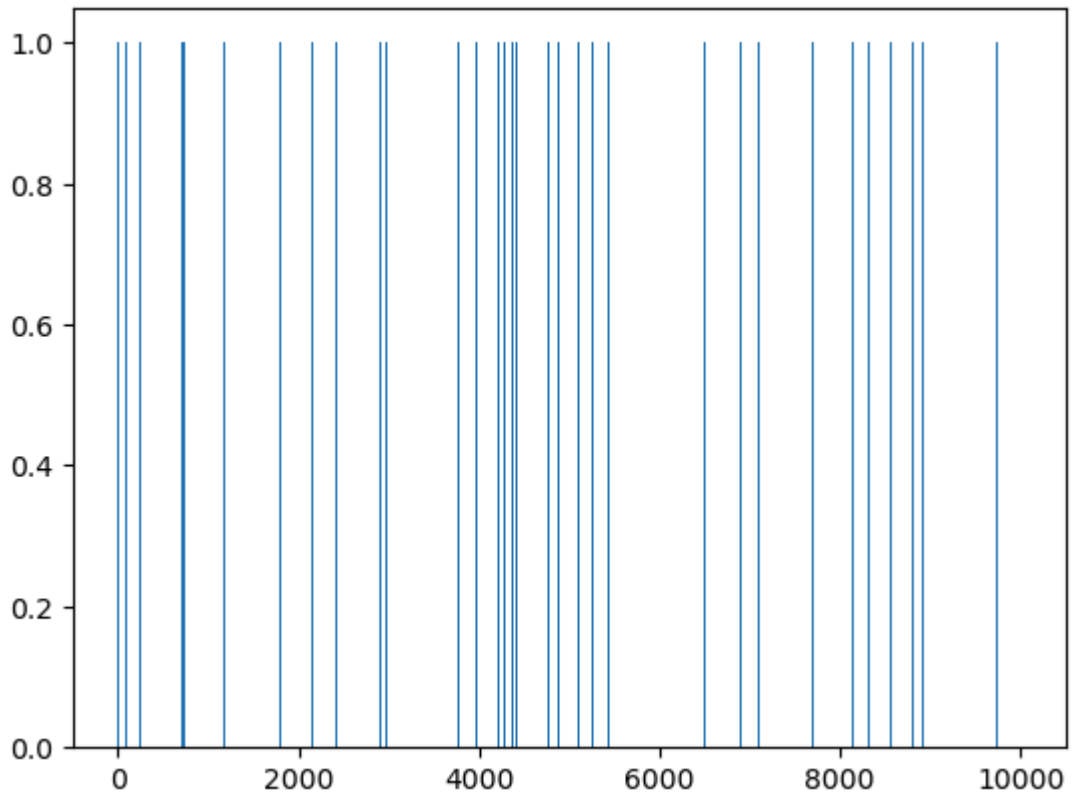
```
In [64]: plt.subplot(2,1,1)
plt.bar(np.arange(len(spikeTrain1)),spikeTrain1)
plt.subplot(2,1,2)
plt.bar(np.arange(len(spikeTrain2)),spikeTrain2)
```

Out[64]: <BarContainer object of 10037 artists>



```
In [65]: generate = generatePoiSpikes(r,dt,10000)
plt.bar(np.arange(len(generate)),generate)
```

Out[65]: <BarContainer object of 10000 artists>



```
In [69]: print(f"The CV for the first spike train is {calcCV(spikeTrain1)}, and the FF is {calcFF(spikeTrain1)}")
print(f"The CV for the second spike train is {calcCV(spikeTrain2)}, and the FF is {calcFF(spikeTrain2)}")
print(f"The CV for the generated spike train is {calcCV(generate)}, and the FF is {calcFF(generate)}")
```

The CV for the first spike train is 0.9848181533598664, and the FF is 0.9392980346235403

The CV for the second spike train is 0.11154440038685555, and the FF is 0.900468267410581

The CV for the generated spike train is 0.9507195776324955, and the FF is 0.9059999999999999

```
In [71]: plt.subplot(3,1,1)
plt.plot(calcRate(spikeTrain1,3,dt))
plt.subplot(3,1,2)
plt.plot(calcRate(spikeTrain2,1,dt))
plt.subplot(3,1,3)
plt.plot(calcRate(generate,1,dt))
```

Out[71]: [<matplotlib.lines.Line2D at 0x1c8d338a5d0>]

