Continuous Distribution

In [1]:

```
import matplotlib.pyplot as plt
from IPython.display import Math, Latex
from IPython.core.display import Image
import numpy as np
import seaborn as sns
```

In [2]:

```
sns.set(color_codes = True)
#setting for seaborn plot sizes
sns.set(rc={'figure.figsize':(5,5)})
```

Uniform Distribution

In [3]:

```
# import uniform distribution
from scipy.stats import uniform
```

In [4]:

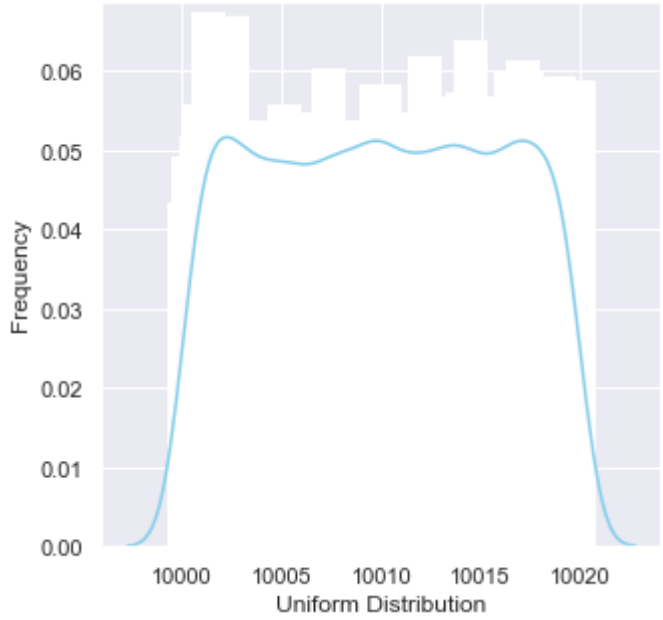
```
n = 10000
start = 10000
width = 20
data_uniform = uniform.rvs(size=n,loc= start, scale = width)

ax = sns.distplot(data_uniform, bins = 100, kde = True, color = "skyblue", hist_kws={"linew
ax.set(xlabel = "Uniform Distribution", ylabel = 'Frequency')
```

```
C:\Users\MSCIT\anaconda3\lib\site-packages\seaborn\distributions.py:2619: Fu
tureWarning: `distplot` is a deprecated function and will be removed in a fu
ture version. Please adapt your code to use either `displot` (a figure-level
function with similar flexibility) or `histplot` (an axes-level function for
histograms).
  warnings.warn(msg, FutureWarning)
```

Out[4]:

```
[Text(0.5, 0, 'Uniform Distribution'), Text(0, 0.5, 'Frequency')]
```



In [5]:

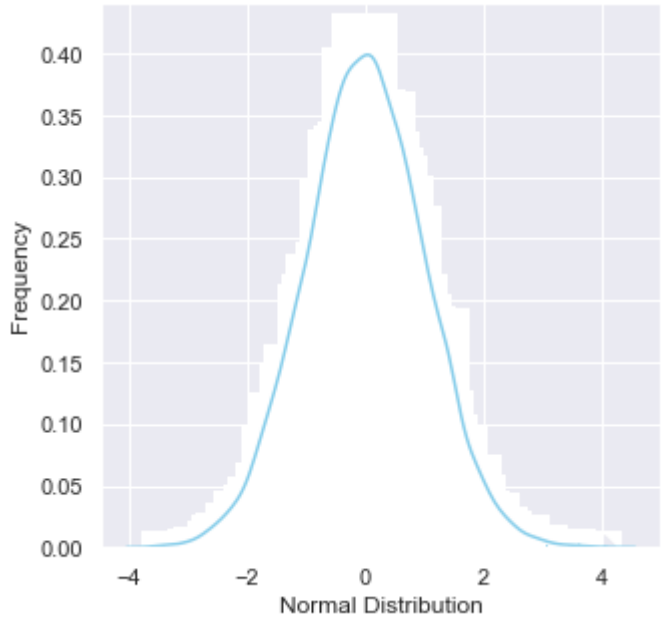
```
# Normal Distributiion

from scipy.stats import norm

data_normal = norm.rvs(size=10000,loc=0,scale=1)

ax = sns.distplot(data_normal,bins = 100, kde=True,color = "skyblue", hist_kws={"linewidth"
ax.set(xlabel ="Normal Distribution", ylabel = 'Frequency')
```

```
C:\Users\MSCIT\anaconda3\lib\site-packages\seaborn\distributions.py:2619: Fu
tureWarning: `distplot` is a deprecated function and will be removed in a fu
ture version. Please adapt your code to use either `displot` (a figure-level
function with similar flexibility) or `histplot` (an axes-level function for
histograms).
  warnings.warn(msg, FutureWarning)
```



Exponential Distribution

In [ ]:

```
from scipy.stats import expon
data_expon = expon.rvs(scale=1, loc=0,size=1000)
```

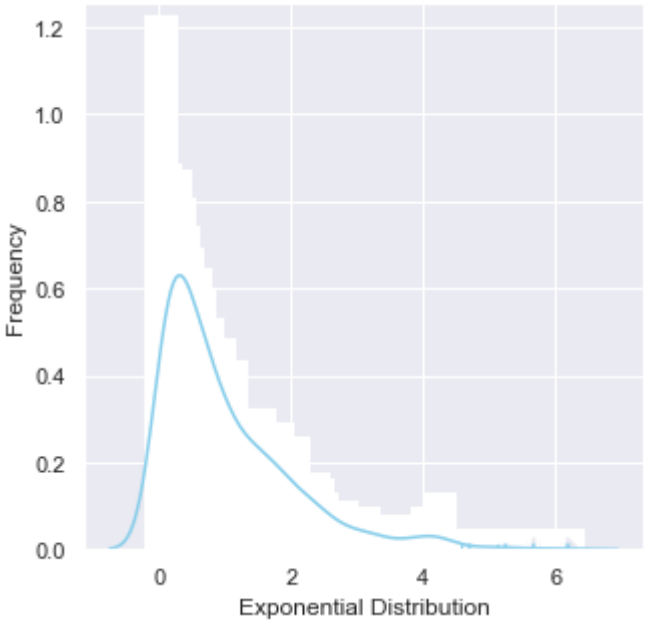
In [6]:

```
ax = sns.distplot(data_expon,bins = 100, kde=True,color = "skyblue", hist_kws={"linewidth":
ax.set(xlabel ="Exponential Distribution", ylabel = 'Frequency')
```

```
C:\Users\MSCIT\anaconda3\lib\site-packages\seaborn\distributions.py:2619: Fu
tureWarning: `distplot` is a deprecated function and will be removed in a fu
ture version. Please adapt your code to use either `displot` (a figure-level
function with similar flexibility) or `histplot` (an axes-level function for
histograms).
  warnings.warn(msg, FutureWarning)
```

Out[6]:

```
[Text(0.5, 0, 'Exponential Distribution'), Text(0, 0.5, 'Frequency')]
```



Chi-square Distribution

In [7]:

```
from numpy import random

x=random.chisquare(df=2, size=(2,3))

print(x)
```

```
[[3.25028393 0.49835923 0.37972386]
 [0.67919651 0.27196984 2.95966913]]
```

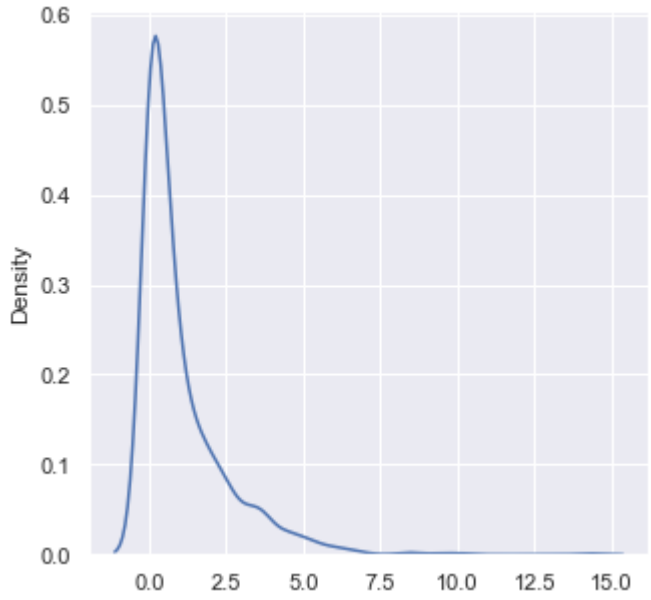
In [9]:

```
from numpy import random
import matplotlib.pyplot as plt
import seaborn as sns

sns.distplot(random.chisquare(df=1,size=1000),hist=False)

plt.show()
```

```
C:\Users\MSCIT\anaconda3\lib\site-packages\seaborn\distributions.py:2619: Fu
tureWarning: `distplot` is a deprecated function and will be removed in a fu
ture version. Please adapt your code to use either `displot` (a figure-level
function with similar flexibility) or `kdeplot` (an axes-level function for
kernel density plots).
  warnings.warn(msg, FutureWarning)
```



Weibull Distribution

In [10]:

```
a = 5.   # shape
s = np.random.weibull(a,1000)
```

In [11]:

```
# Display the histogram of samples, along with pdf:
import matplotlib.pyplot as plt

x= np.arange(1,100.)/50.

def weib(x,n,a):

    return(a/n)*(x/n)**(a-1)*np.exp(-(x/n)**a)
```

In [12]:

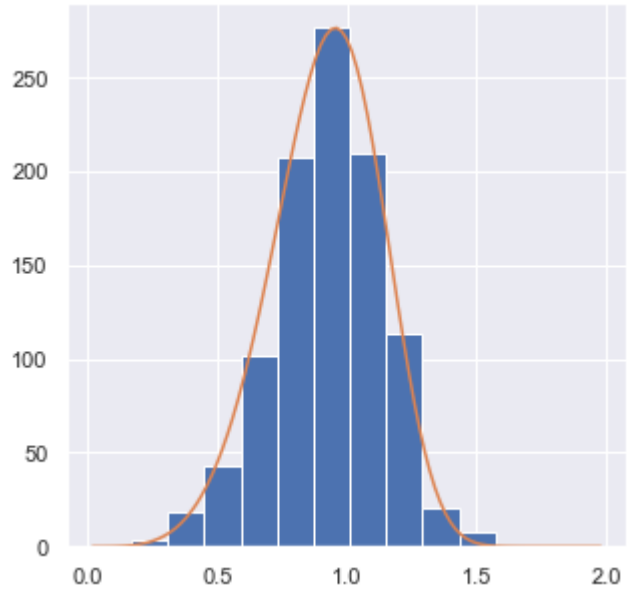
```
count, bins, ignored= plt.hist(np.random.weibull(5.,1000))

x=np.arange(1,100.)/50.

scale=count.max()/weib(x,1.,5.).max()

plt.plot(x, weib(x,1.,5.)*scale)

plt.show()
```



In [ ]: