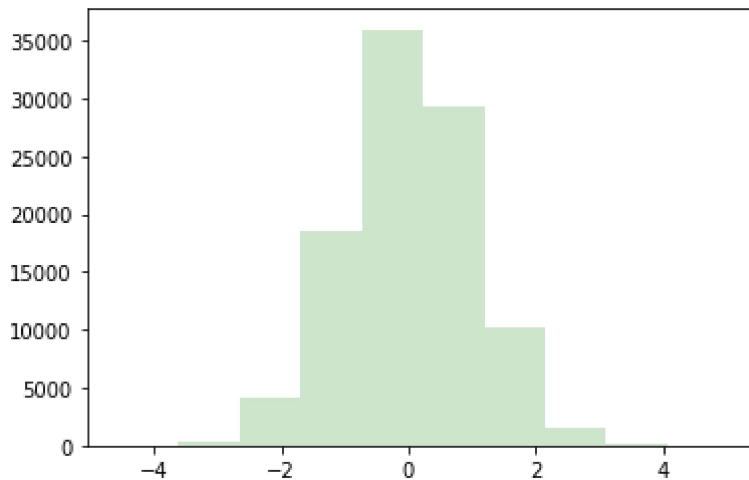


# Central Limit Theorem

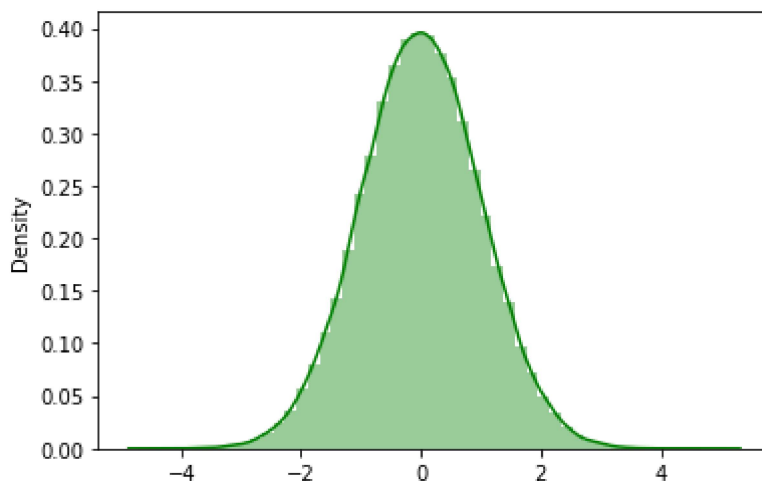
```
In [1]: import numpy as np
import matplotlib.pyplot as plt
import seaborn as sbn
```

```
In [2]: sample_data = np.random.normal(size=100000)
plt.hist(sample_data,color='g',alpha=.2)
plt.show()
sbn.distplot(sample_data,color='g')
```



c:\users\arjun vankani\appdata\local\programs\python\python37\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future 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[2]: <AxesSubplot:ylabel='Density'>
```



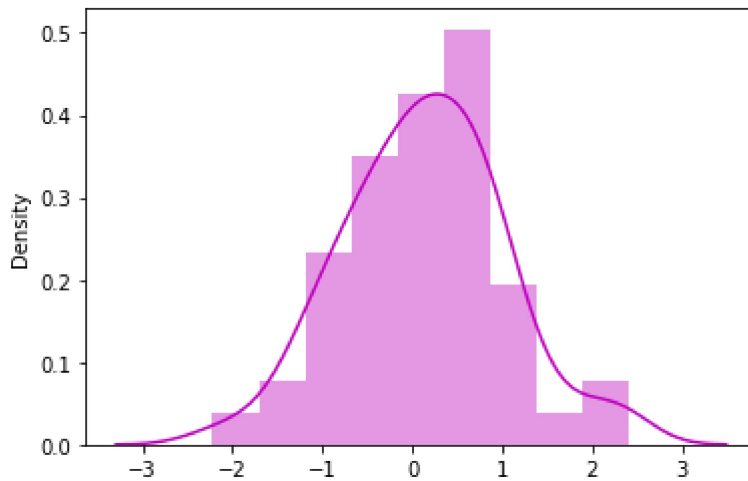
```
In [3]: def apply_CLT(sample_data,sample_size,total_samples):
sample_mean = []
for a in range(total_samples):
sample = np.random.choice(sample_data, size = sample_size)
mean = np.mean(sample)
sample_mean.append(mean)
```

```
return sample_mean
```

```
In [4]: sample_data = np.random.normal(size=100)
sbn.distplot(sample_data,color='m')
```

c:\users\arjun vankani\appdata\local\programs\python\python37\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future 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)

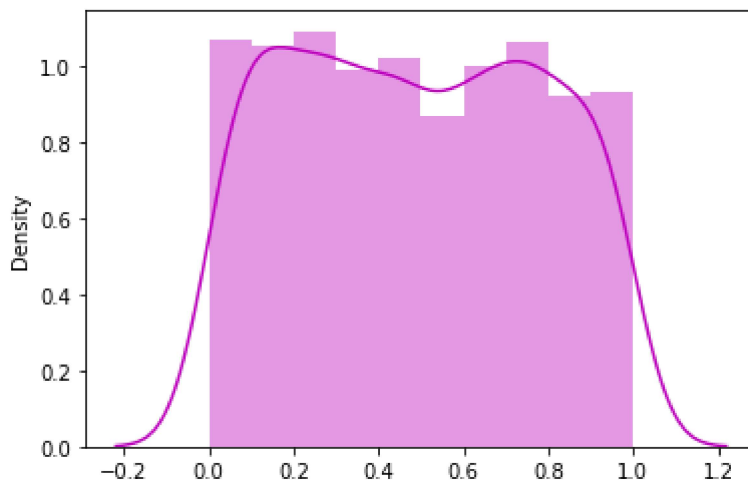
Out[4]: <AxesSubplot:ylabel='Density'>



```
In [5]: sample_data = np.random.uniform(size=1000)
sbn.distplot(sample_data,color='m')
```

c:\users\arjun vankani\appdata\local\programs\python\python37\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future 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[5]: <AxesSubplot:ylabel='Density'>

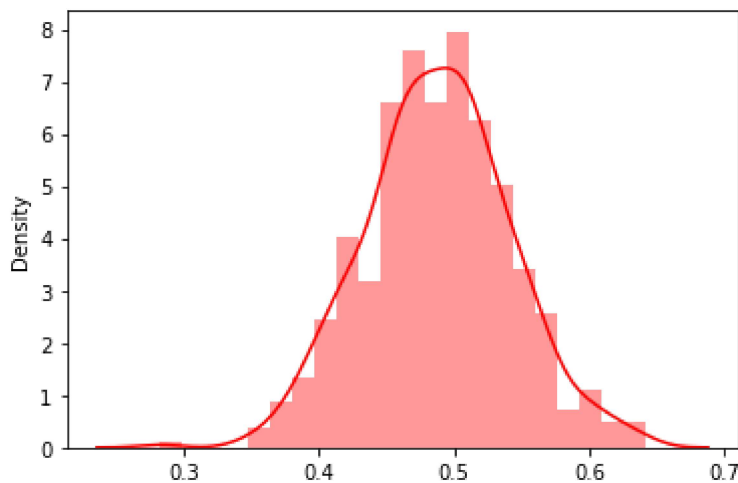


```
In [6]: sbn.distplot(apply_CLT(sample_data,30,500),color='r')
```

c:\users\arjun vankani\appdata\local\programs\python\python37\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future 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)

FutureWarning: `distplot` is a deprecated function and will be removed in a future 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)

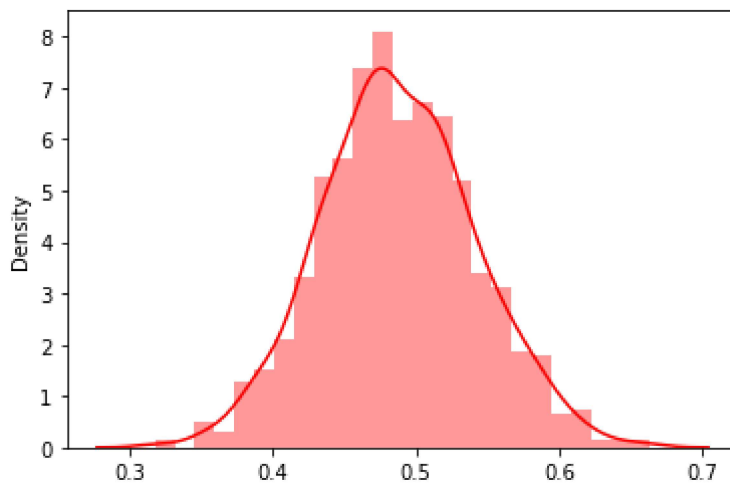
Out[6]: <AxesSubplot:ylabel='Density'>



```
In [7]: sbn.distplot(apply_CLT(sample_data,30,1000),color='r')
```

c:\users\arjun vankani\appdata\local\programs\python\python37\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future 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)

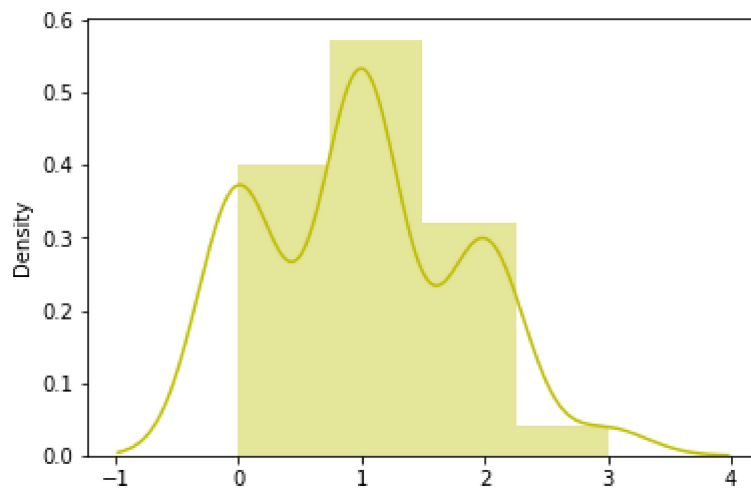
Out[7]: <AxesSubplot:ylabel='Density'>



```
In [8]: k=100
mul_data = np.random.multinomial(100,[1/k]*k)
sbn.distplot(mul_data,color='y')
```

c:\users\arjun vankani\appdata\local\programs\python\python37\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future 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)

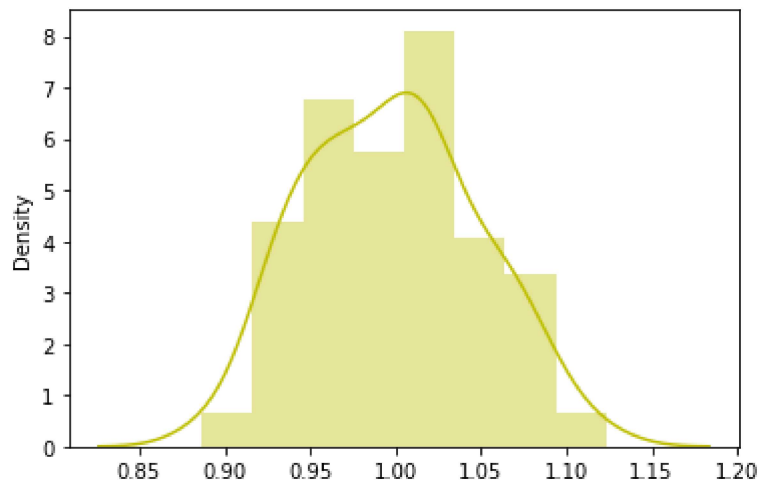
Out[8]: <AxesSubplot:ylabel='Density'>



```
In [9]: sbn.distplot( apply_CLT(mul_data,300,100),color='y' )
```

c:\users\arjun vankani\appdata\local\programs\python\python37\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future 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[9]: <AxesSubplot:ylabel='Density'>
```



```
In []:
```