Binomial Distribution

‹ Previous Next ›

Binomial Distribution

Binomial Distribution is a *Discrete Distribution*.

It describes the outcome of binary scenarios, e.g. toss of a coin, it will either be head or tails.

It has three parameters:

`n` - number of trials.

`p` - probability of occurence of each trial (e.g. for toss of a coin 0.5 each).

`size` - The shape of the returned array.

Discrete Distribution: The distribution is defined at separate set of events, e.g. a coin toss's result is discrete as it can be only head or tails whereas height of people is continuous as it can be 170, 170.1, 170.11 and so on.

Example

Given 10 trials for coin toss generate 10 data points:

```
from numpy import random

x = random.binomial(n=10, p=0.5, size=10)

print(x)
```

Try it Yourself »

Visualization of Binomial Distribution

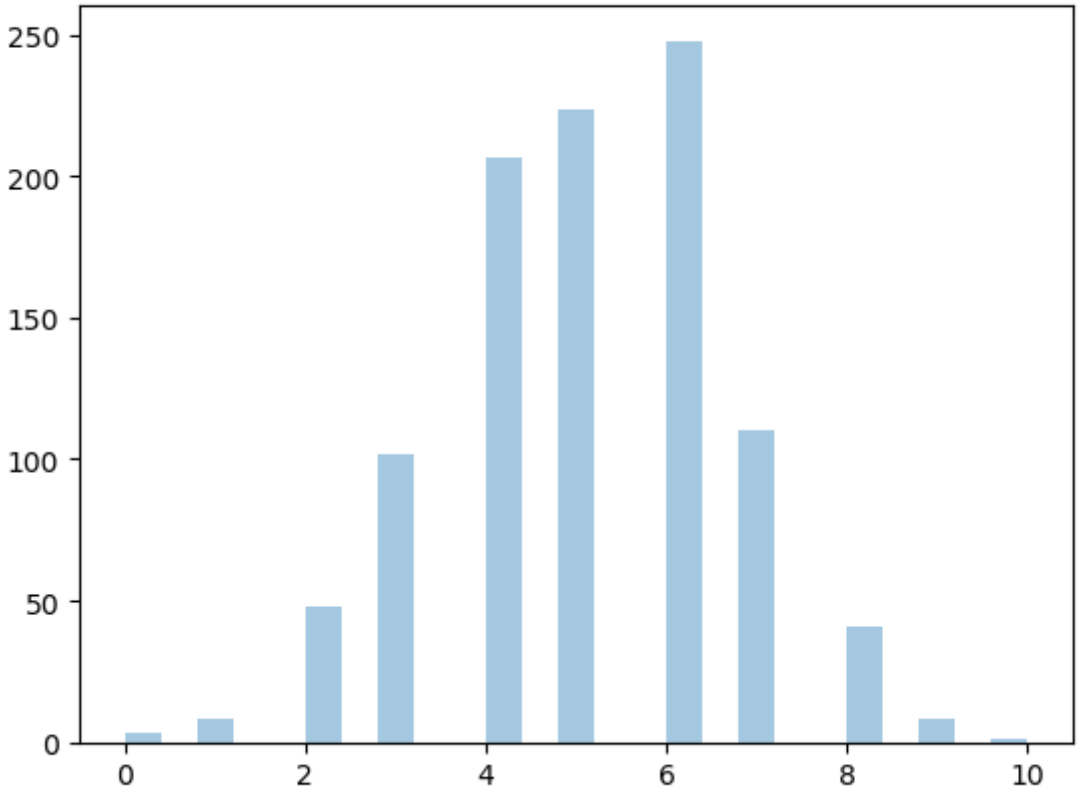
Example

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

sns.distplot(random.binomial(n=10, p=0.5, size=1000), hist=True, kde=False)

plt.show()
```

Result



Try it Yourself »

Difference Between Normal and Binomial Distribution

The main difference is that normal distribution is continous whereas binomial is discrete, but if there are enough data points it will be quite similar to normal distribution with certain loc and scale.

Example

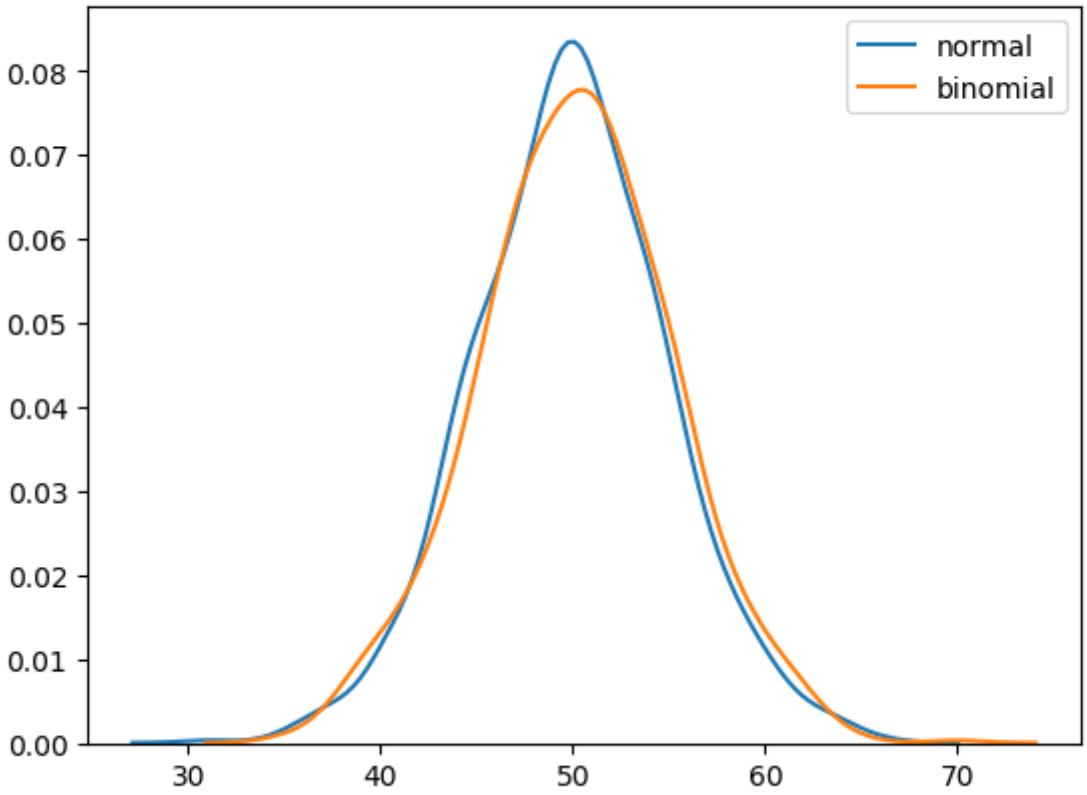
```
from numpy import random
import matplotlib.pyplot as plt
import seaborn as sns

sns.distplot(random.normal(loc=50, scale=5, size=1000), hist=False,
label='normal')
sns.distplot(random.binomial(n=100, p=0.5, size=1000), hist=False,
```

```
label='binomial')

plt.show()
```

Result



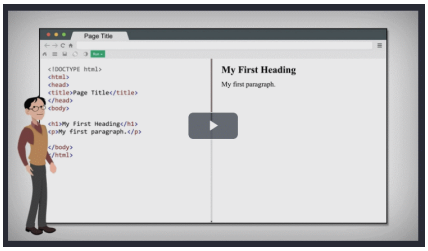
Try it Yourself »

‹ Previous

Next ›

NEW

We just launched
W3Schools videos



Explore now

COLOR PICKER

Top Tutorials

HTML Tutorial
CSS Tutorial
JavaScript Tutorial
How To Tutorial
SQL Tutorial
Python Tutorial
W3.CSS Tutorial
Bootstrap Tutorial
PHP Tutorial
Java Tutorial
C++ Tutorial
jQuery Tutorial

Top References

HTML Reference
CSS Reference
JavaScript Reference
SQL Reference
Python Reference
W3.CSS Reference
Bootstrap Reference
PHP Reference
HTML Colors
Java Reference
Angular Reference
jQuery Reference

Top Examples

HTML Examples
CSS Examples
JavaScript Examples
How To Examples
SQL Examples
Python Examples
W3.CSS Examples
Bootstrap Examples
PHP Examples
Java Examples
XML Examples
jQuery Examples

Get Certified

HTML Certificate
CSS Certificate
JavaScript Certificate
Front End Certificate
SQL Certificate
Python Certificate
PHP Certificate
jQuery Certificate
Java Certificate
C++ Certificate
C# Certificate
XML Certificate