



# Exponential Distribution

[< Previous](#)[Next >](#)

## Exponential Distribution

Exponential distribution is used for describing time till next event e.g. failure/success etc.

It has two parameters:

**scale** - inverse of rate ( see lam in poisson distribution ) defaults to 1.0.

**size** - The shape of the returned array.

## Example

Draw out a sample for exponential distribution with 2.0 scale with 2x3 size:

```
from numpy import random  
  
x = random.exponential(scale=2, size=(2, 3))  
  
print(x)
```

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## Visualization of Exponential Distribution

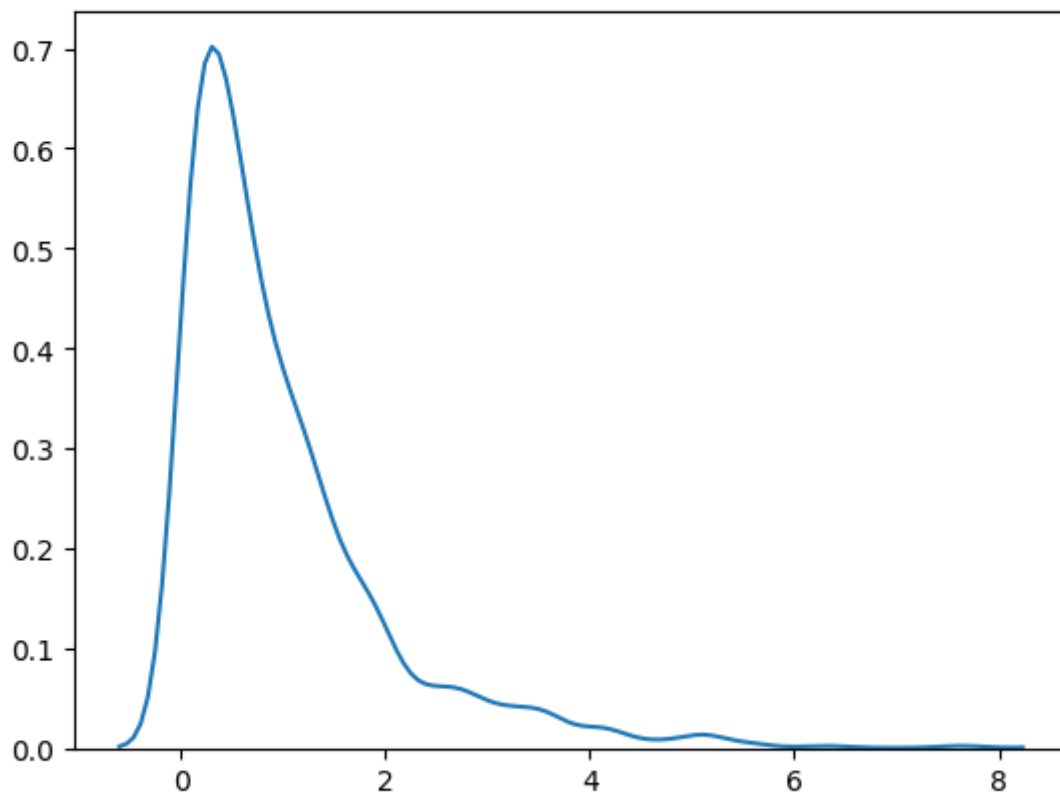
## Example

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

sns.distplot(random.exponential(size=1000), hist=False)

plt.show()
```

## Result



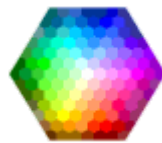
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## Relation Between Poisson and Exponential Distribution

Poisson distribution deals with number of occurrences of an event in a time period whereas exponential distribution deals with the time between these events.

[< Previous](#)[Next >](#)

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