

How can I plot a Gamma distribution in Python? Can you provide some examples?

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The process of plotting a Gamma distribution in Python involves using the appropriate functions and libraries, such as the `scipy.stats` module, to generate the necessary data points and create a visual representation of the distribution. This can be done by specifying the parameters of the Gamma distribution, such as the shape and scale, and using them to generate a random sample of data points. These data points can then be plotted using a variety of methods, such as a histogram or a probability density function plot, to visualize the distribution. Some examples of this process can be found online, with step-by-step instructions and code snippets available for reference.

Plot a Gamma Distribution in Python (With Examples)

In statistics, the Gamma distribution is often used to model probabilities related to waiting times.

The following examples show how to use the function to plot one or more Gamma distributions in Python.

Example 1: Plot One Gamma Distribution

The following code shows how to plot a Gamma distribution with a shape parameter of 5 and a scale parameter of 3 in Python:

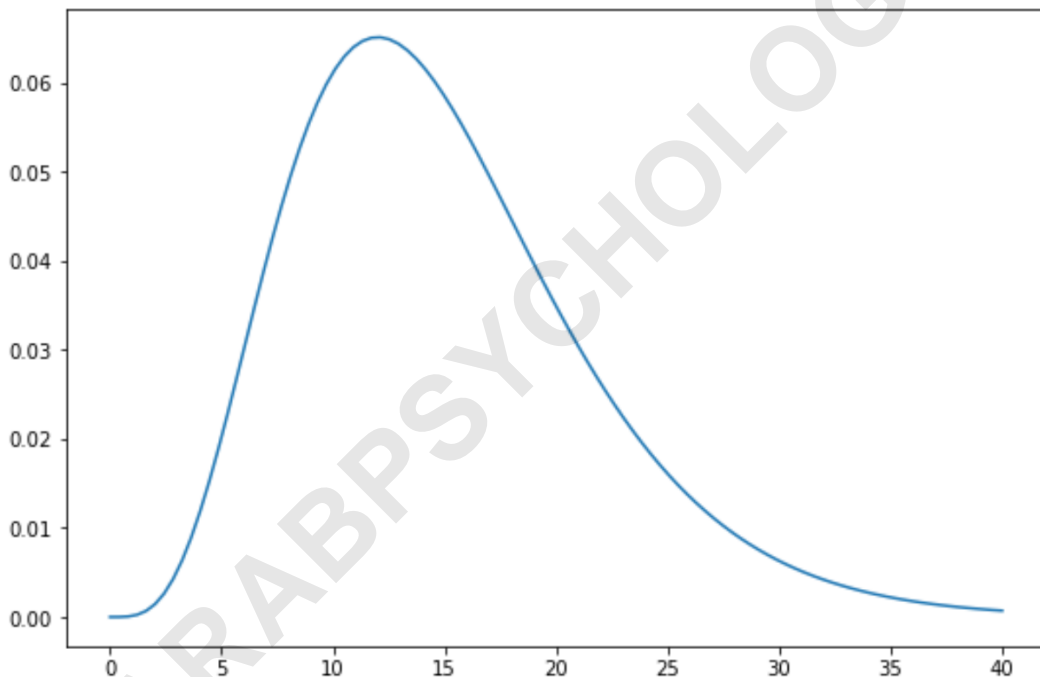
```
import numpy as np
import scipy.stats as stats
import matplotlib.pyplot as plt

#define x-axis values
x = np.linspace (0, 40, 100)
```

```
#calculate pdf of Gamma distribution for each x-value  
y = stats.gamma.pdf(x, a=5, scale=3)
```

```
#create plot of Gamma distribution  
plt.plot(x, y)
```

```
#display plot  
plt.show()
```



The x-axis displays the potential values that a Gamma distributed random variable can take on and the y-axis shows the corresponding PDF values of the Gamma distribution with a shape parameter of 5 and scale parameter of 3.

Example 2: Plot Multiple Gamma Distributions

The following code shows how to plot multiple Gamma distributions with various shape and scale parameters:

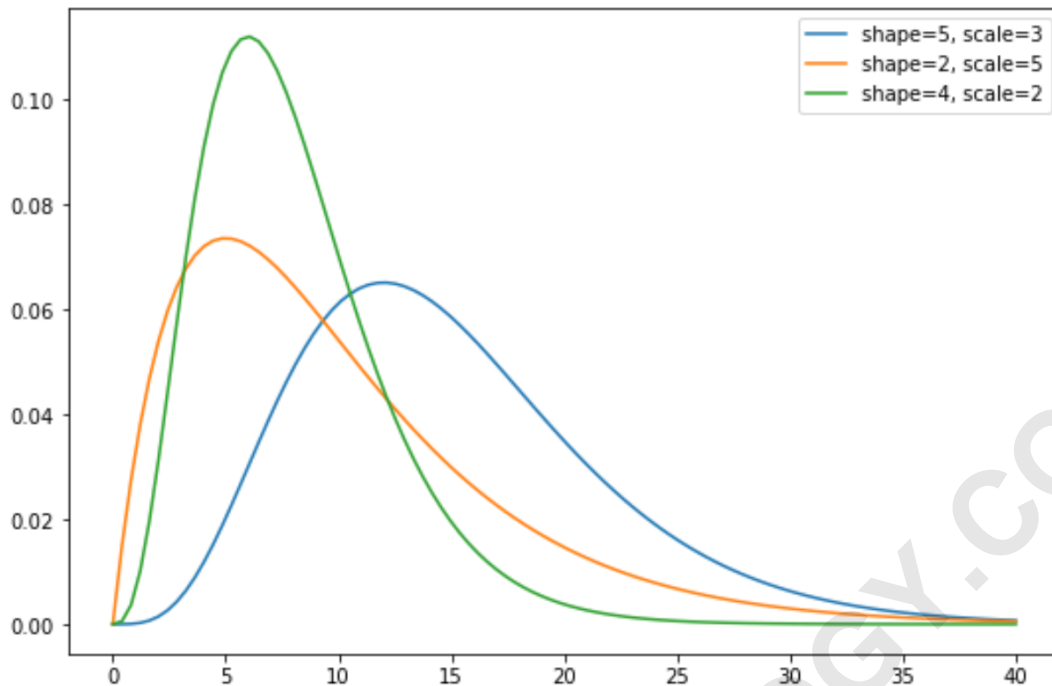
```
import numpy as np
import scipy.stats as stats
import matplotlib.pyplot as plt

#define three Gamma distributions
x = np.linspace(0, 40, 100)
y1 = stats.gamma.pdf(x, a=5, scale=3)
y2 = stats.gamma.pdf(x, a=2, scale=5)
y3 = stats.gamma.pdf(x, a=4, scale=2)

#add lines for each distribution
plt.plot(x, y1, label='shape=5, scale=3')
plt.plot(x, y2, label='shape=2, scale=5')
plt.plot(x, y3, label='shape=4, scale=2')

#add legend
plt.legend()

#display plot
plt.show()
```



Notice that the shape of the Gamma distribution can vary quite a bit depending on the shape and scale parameters.

Related:

Additional Resources

The following tutorials explain how to plot other common distributions in Python: