

Matplotlib Histogram



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[Matplotlib](#) can be used to create histograms. A histogram shows the frequency on the vertical axis and the horizontal axis is another dimension. Usually it has bins, where every bin has a minimum and maximum value. Each bin also has a frequency between x and infinite.

Related course

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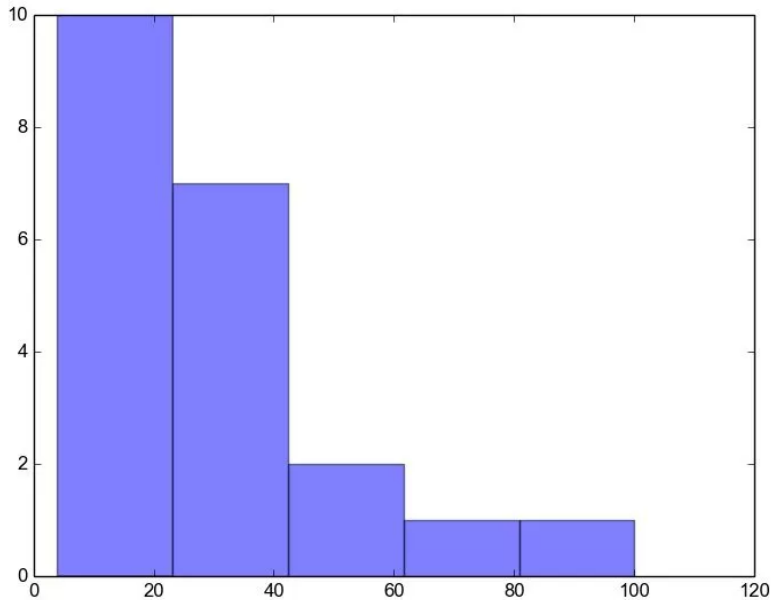
Matplotlib histogram example

Below we show the most minimal [Matplotlib](#) histogram:

```
import numpy as np
import matplotlib.mlab as mlab
import matplotlib.pyplot as plt

x = [21,22,23,4,5,6,77,8,9,10,31,32,33,34,35,36,37,18,49,5
num_bins = 5
n, bins, patches = plt.hist(x, num_bins, facecolor='blue',
plt.show()
```

Output:



Python histogram

A complete matplotlib python histogram

Many things can be added to a histogram such as a fit line, labels and so on. The code below creates a more advanced histogram.

```
#!/usr/bin/env python

import numpy as np
import matplotlib.mlab as mlab
import matplotlib.pyplot as plt

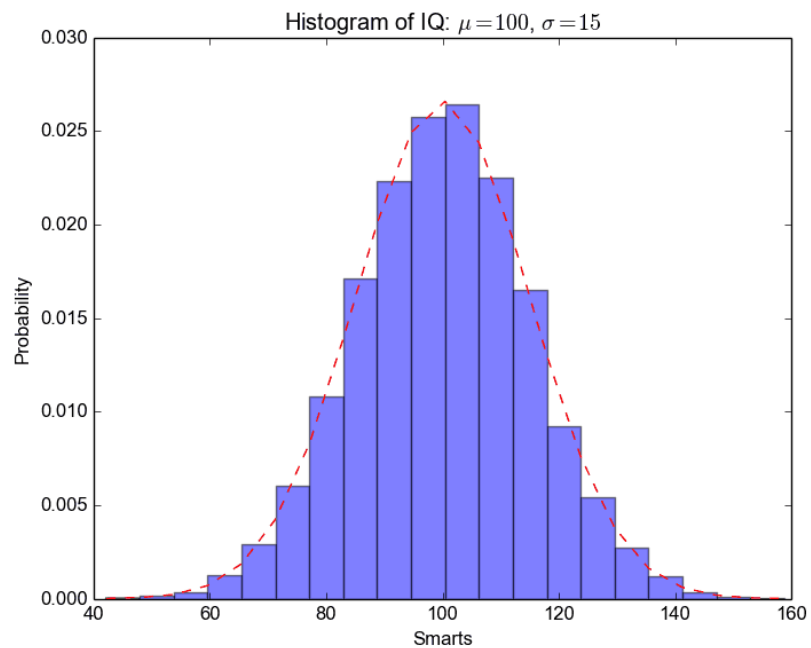
# example data
mu = 100 # mean of distribution
sigma = 15 # standard deviation of distribution
x = mu + sigma * np.random.randn(10000)

num_bins = 20
# the histogram of the data
n, bins, patches = plt.hist(x, num_bins, normed=1, facecol

# add a 'best fit' line
y = mlab.normpdf(bins, mu, sigma)
plt.plot(bins, y, 'r--')
plt.xlabel('Smarts')
plt.ylabel('Probability')
plt.title(r'Histogram of IQ:  $\mu=100$ ,  $\sigma=15$ ')

# Tweak spacing to prevent clipping of ylabel
plt.subplots_adjust(left=0.15)
plt.show()
```

Output:



python_histogram

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