1. **Build a histogram (1)**

life\_exp, the list containing data on the life expectancy for different countries in 2007, is available in your Python shell.

To see how life expectancy in different countries is distributed, let's create a histogram of life\_exp.

matplotlib.pyplot is already available as plt.

* Use **[plt.hist()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.hist" \t "_blank)** to create a histogram of the values in life\_exp. Do not specify the number of bins; Python will set the number of bins to 10 by default for you.
* Add **[plt.show()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.show" \t "_blank)** to actually display the histogram. Can you tell which bin contains the most observations?

# Build a histogram (2): bins

In the previous exercise, you didn't specify the number of bins. By default, Python sets the number of bins to 10 in that case. The number of bins is pretty important. Too few bins will oversimplify reality and won't show you the details. Too many bins will overcomplicate reality and won't show the bigger picture.

To control the number of bins to divide your data in, you can set the binsargument.

That's exactly what you'll do in this exercise. You'll be making two plots here. The code in the script already includes **[plt.show()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.show" \t "_blank)** and **[plt.clf()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.clf" \t "_blank)** calls; **[plt.show()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.show" \t "_blank)** displays a plot; **[plt.clf()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.clf" \t "_blank)** cleans it up again so you can start afresh.

As before, life\_exp is available and matplotlib.pyplot is imported as plt.

* Build a histogram of life\_exp, with 5 bins. Can you tell which bin contains the most observations?
* Build another histogram of life\_exp, this time with 20 bins. Is this better?

# Build a histogram (3): compare

In the video, you saw population pyramids for the present day and for the future. Because we were using a histogram, it was very easy to make a comparison.

Let's do a similar comparison. life\_exp contains life expectancy data for different countries in 2007. You also have access to a second list now, life\_exp1950, containing similar data for 1950. Can you make a histogram for both datasets?

You'll again be making two plots. The **[plt.show()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.show" \t "_blank)** and **[plt.clf()](http://matplotlib.org/api/pyplot_api.html" \l "matplotlib.pyplot.clf" \t "_blank)**commands to render everything nicely are already included. Also matplotlib.pyplot is imported for you, as plt.

* Build a histogram of life\_exp with 15 bins.
* Build a histogram of life\_exp1950, also with 15 bins. Is there a big difference with the histogram for the 2007 data?