We'll now show a few examples of setting these locators and formatters for various plots.

Hiding Ticks or Labels

Perhaps the most common tick/label formatting operation is the act of hiding ticks or labels. We can do this using `plt.NullLocator()` and `plt.NullFormatter()`, as shown here (Figure 4-74):

```
In[5]: ax = plt.axes()
       ax.plot(np.random.rand(50))

       ax.yaxis.set_major_locator(plt.NullLocator())
       ax.xaxis.set_major_formatter(plt.NullFormatter())
```

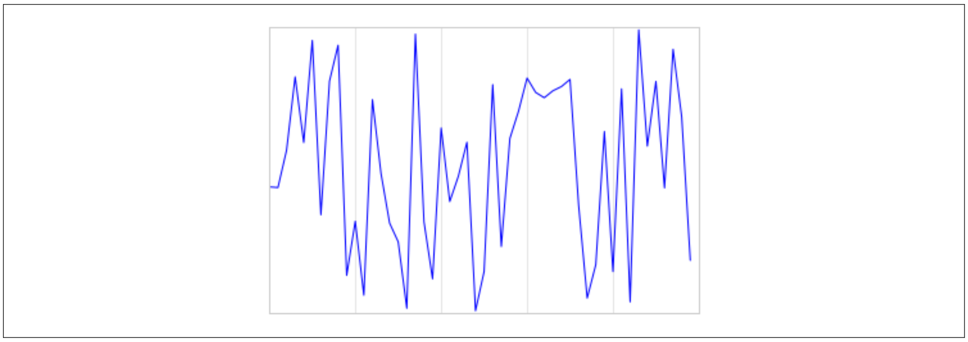

Figure 4-74. Plot with hidden tick labels (x-axis) and hidden ticks (y-axis)

Notice that we've removed the labels (but kept the ticks/gridlines) from the x axis, and removed the ticks (and thus the labels as well) from the y axis. Having no ticks at all can be useful in many situations—for example, when you want to show a grid of images. For instance, consider Figure 4-75, which includes images of different faces, an example often used in supervised machine learning problems (for more information, see "In-Depth: Support Vector Machines" on page 405):

```
In[6]: fig, ax = plt.subplots(5, 5, figsize=(5, 5))
       fig.subplots_adjust(hspace=0, wspace=0)

       # Get some face data from scikit-learn
       from sklearn.datasets import fetch_olivetti_faces
       faces = fetch_olivetti_faces().images

       for i in range(5):
           for j in range(5):
               ax[i, j].xaxis.set_major_locator(plt.NullLocator())
               ax[i, j].yaxis.set_major_locator(plt.NullLocator())
               ax[i, j].imshow(faces[10 * i + j], cmap="bone")
```

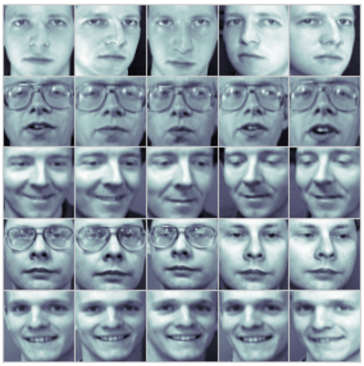

Figure 4-75. Hiding ticks within image plots

Notice that each image has its own axes, and we've set the locators to null because the tick values (pixel number in this case) do not convey relevant information for this particular visualization.

Reducing or Increasing the Number of Ticks

One common problem with the default settings is that smaller subplots can end up with crowded labels. We can see this in the plot grid shown in Figure 4-76:

```
In[7]: fig, ax = plt.subplots(4, 4, sharex=True, sharey=True)
```

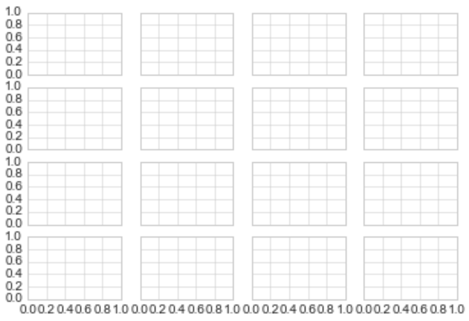

Figure 4-76. A default plot with crowded ticks

Particularly for the x ticks, the numbers nearly overlap, making them quite difficult to decipher. We can fix this with the `plt.MaxNLocator()`, which allows us to specify the maximum number of ticks that will be displayed. Given this maximum number, Matplotlib will use internal logic to choose the particular tick locations (Figure 4-77):