The Matplotlib User's Guide

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Chapter 1

Introduction

```
dt = 0.01
t = arange(0,10,dt)
nse = randn(len(t))
r = exp(-t/0.05)

cnse = conv(nse, r) dt
cnse = cnse
```

```
dt = 0.01;
t = [0:dt:10];
nse = randn(size(t));
r = exp(-t/0.05);

cnse = conv(nse, r) dt;
```

IDE	GUI	Backends and Options
idle	Tkinter	Works best with TkAgg if idle is launched with -n
pycrust	WX	Works best with WX/WXAgg
Scintilla and SciTE	GTK	

```
/home/jdhunter/python/projects/matplotlib/examples
>>> run simple_plot.py
>>> title('a new title', color='r')
```

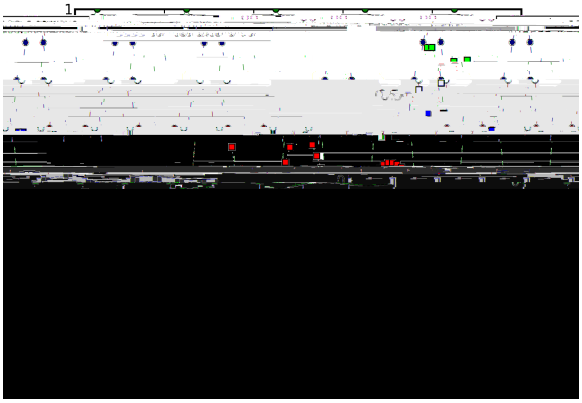

Figure 2.4:

```
>>> lines = plot(t, s1)
>>> set(lines, markersize=15, marker='d', \
...     markerfacecolor='g', markeredgecolor='r')
```

```
title(
```

2.4.2 Loading and saving binary data

ASCII is bloated and slow for working with large arrays, and so binary data should be used if performance

or use `set` for the same purpose

```
>>> set(fig, facecolor=$gt9(e80233.28Tf.e)-5e)-23(r)-3211.9(e5.000fme)-bpese
```

```
ylabel('Undamped')
```

Likewise, to create two columns and one row of axes, you would use `subplot(121)` to create the left and `subplot(122)` to create the right axes. If the total number of axes exceeds single digits, use co separated arguments to subplot. For example, the lower right panel of a 3 x 4 grid of axes is created `subplot(3,4,12)`. matplotlib uses matlab style indexing in creating figures and axes, so `subplot(3,` is the first subplot, not `subplot(3,4,0)`.

2.5.3 axes

```
# instance
```

- `mlab.window_none` - no windowing
- `mlab.window_hanning`

2.13.2 toolbar2

The toolbar2 buttons (see Figure 2.15 behave very di□erently from the classic the classic matplotlib toolbar (else why introduce a new one!) despite the visual similarity of the forward and back buttons.

The `Forward` and `Back` buttons are akin to the web browser ack

```
# Connect to the mouse move
```

```
family = ['serif', 'sans-serif', 'cursive', 'fantasy',
```

Chapter 4

Collections

Chapter 5

Tick locators and formatters

The `matplotlib.ticker`

```
# but we'll override the default with our custom locators and
# formatters
ax.xaxis.set_major_
```

Listing 6.1: Fill the area between two curves; see Figure 6.1

```
from pylab import
x1 = arange(0, 2, 0.01)
y1 = sin(2 pi x1)
y2 = sin(4 pi x1) + 2

# reverse x and y2 so the polygon fills
```

.

Figure 6.3: Estimating a best fit cubic for some random data; see Listing 6.3

```
x = arange(0.0, 2.0, 0.05)
```

```
im1 = imshow(Z1, cmap=cm.gray,
             interpolation='nearest', extent=extent)

# prevents the axes from clearing on next command
hold(True)

Z2 = func3(X, Y)
im2 =
```

6.4.4 Defining your own colormap

Per9y G9eenfield has provided a nice f9amework with `matplotlib.colors.LinearSegmentedColormap`

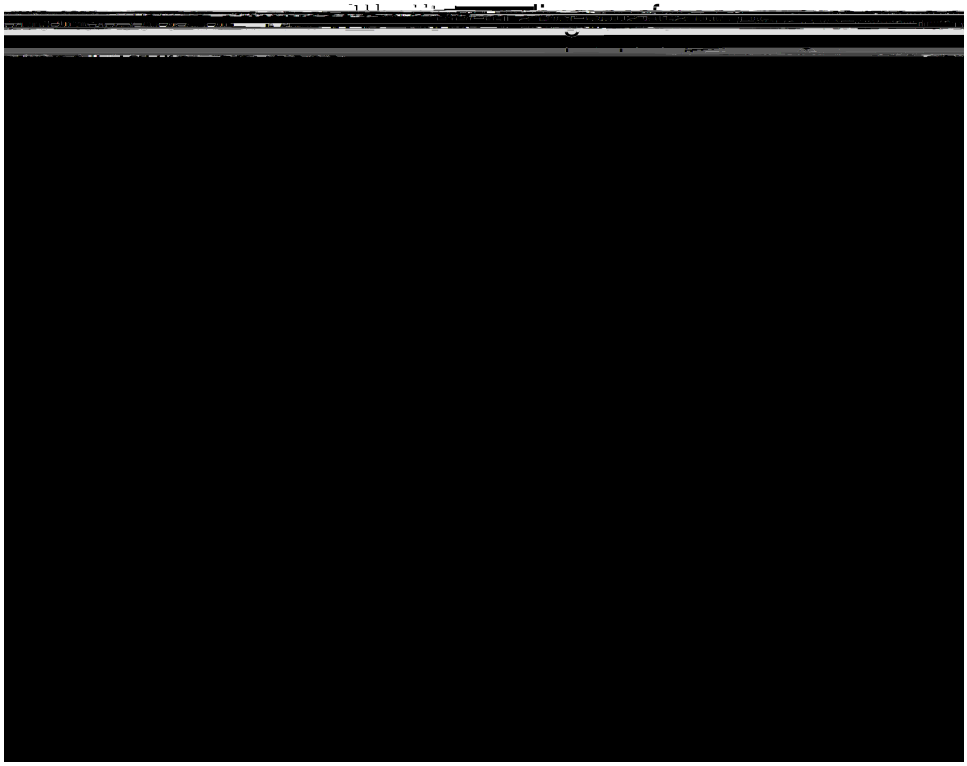

Figure 7.2: The inheritance diagram for The FigureCanvas hierarchy. The FigureCanvas is a backend

edei-11T89(a)-008GUIrwedSom(e)-008ofrtheave(c-27(k)28(ndi)1(s)-008we)-1inbpothrnvedra(n)1(d)400(a(n29(tigrain)1nd)]TJ

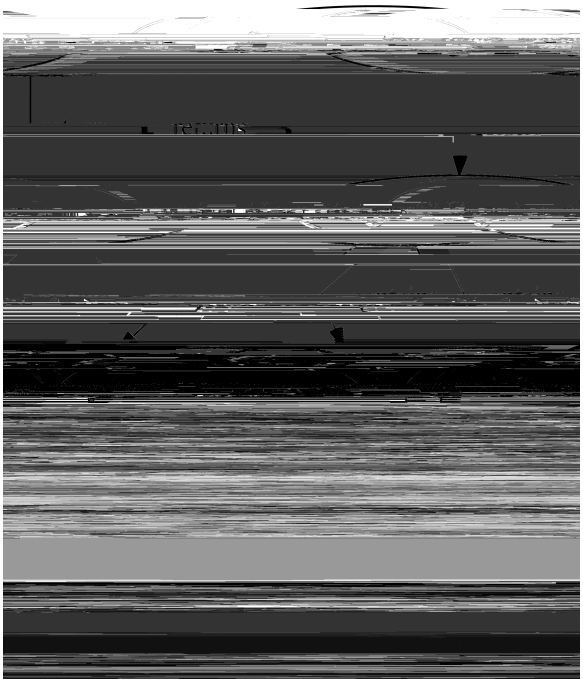

Figure 7.5: The pylab interface function new_

```
            manager.window.show()

        if gtk.main_level() == 0 and
```

Appendix A

A sample .matplotlibrc

```
####
```

```
lines.markeredgewidth   : 1.0
lines.markersize   : 6         # markersize,
```

```
font.stretch          : normal
font.size             : medium
font.serif            : New Century Schoolbook, Century Schoolbook L, Utopia, ITC
```

```
### SAVING FIGURES
# the
```

Appendix C

matplotlib source code license

All of the matplotlib src code is distributed under the Python Software Foundation (PSF) license, which permits commercial and noncommercial free use and redistribution as long as the conditions below are met. The VERSION string below is replaced by the current matplotlib version number with each release.

```
LICENSE AGREEMENT FOR MATPLOTLIB(of)-4nwith eacB(of)-4nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnneac23.91Td[(1
matplotlib in sourceeacB(of)-4documentation.eac23.91Td[(2.(of)-4Subject)-fs Agreement, JDHeacB(of)-4hereby
maJDtest-faceacB(of)-4Inrheru eacB(of)-4nnantionvefeacB(of)-4nncense Agreement,eacB(of)-4nn2002-2004fofe
```

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