FINANCIAL DATA VISUALIZATION

Outline

1. Introduction to matplotlib
2. Plot prices and volumes
3. Plot candlesticks

1 Introduction to matplotlib

Matplotlib has two interfaces.

- **Object-oriented (OO) interface：**

  utilize an instance of *axes.Axes* in order to render visualizations on an instance of *figure.Figure.*

  ```python
  fig = plt.figure()
  ax = fig.add_subplot(1,1,1)
  ax.plot(x, y)
  ```

1. **Introduction to matplotlib**

Matplotlib has two interfaces.

- **pyplot interface** ：

  ✓ based on MATLAB and uses ~~ction~~ based interface. ~~plotlib~~

  ✓ encapsulated in the pyplot m~~o~~

  ✓ Everything is done with plt.**

```python
x = np.linspace(0, 2, 100)

plt.plot(x, x, label='linear')
plt.plot(x, x**2, label='quadratic')
plt.plot(x, x**3, label='cubic')

plt.xlabel('x label')
plt.ylabel('y label')

plt.title("Simple Plot")

plt.legend()

plt.show()
```
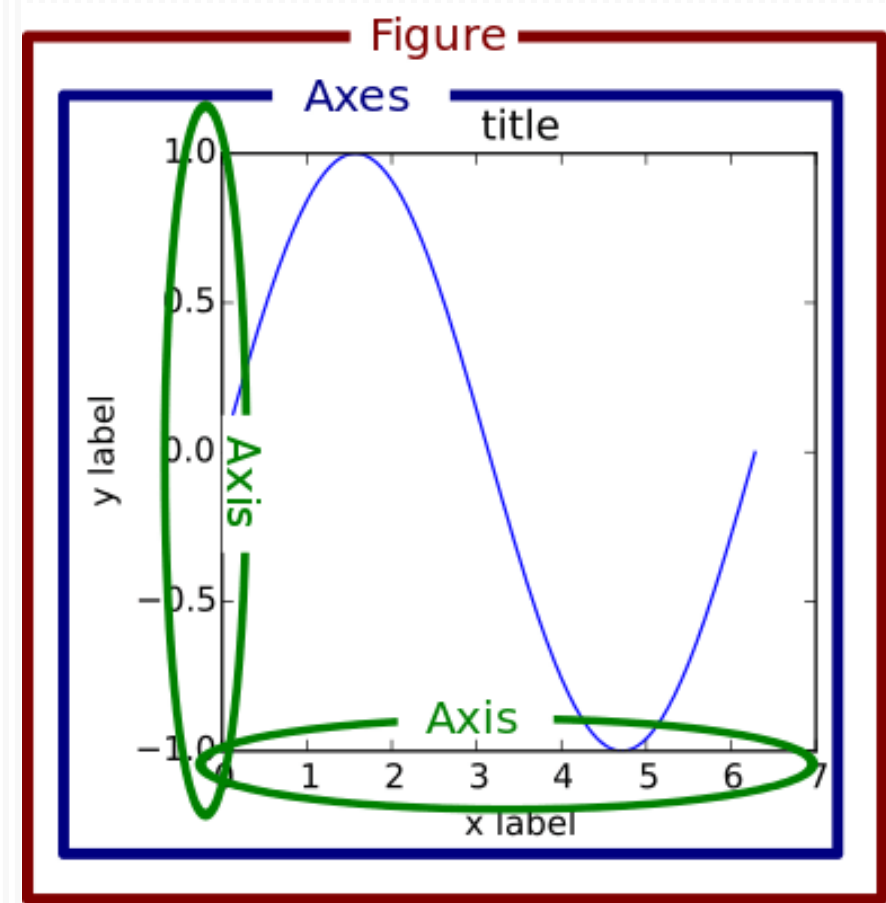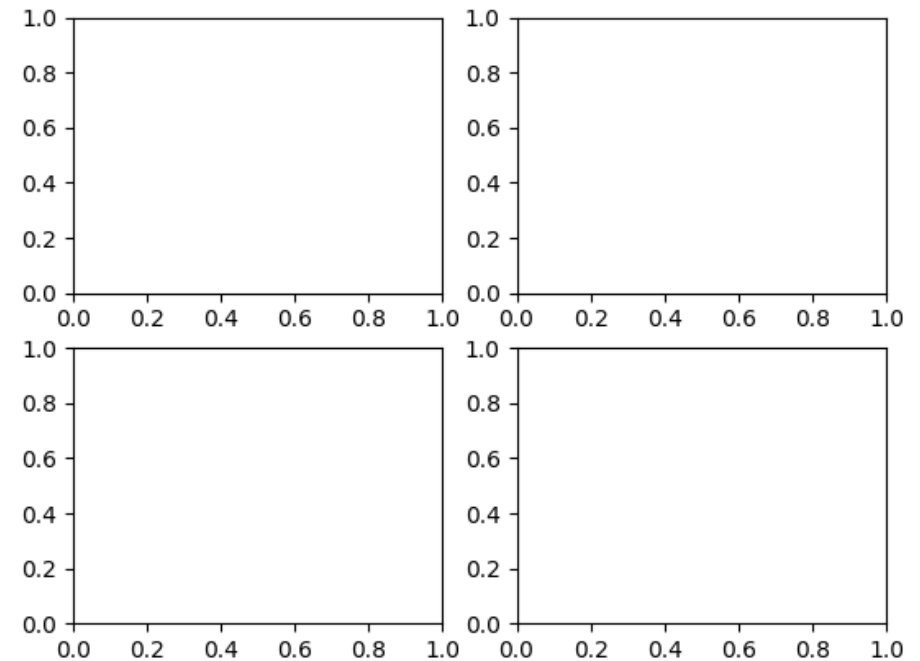
The hierarchy in matplotlib

• **The Figure** is the final image that may contain 1 or more Axes.

•**The Axes** represent an individual plot (don't confuse this with the word "axis", which refers to the x/y axis of a plot).
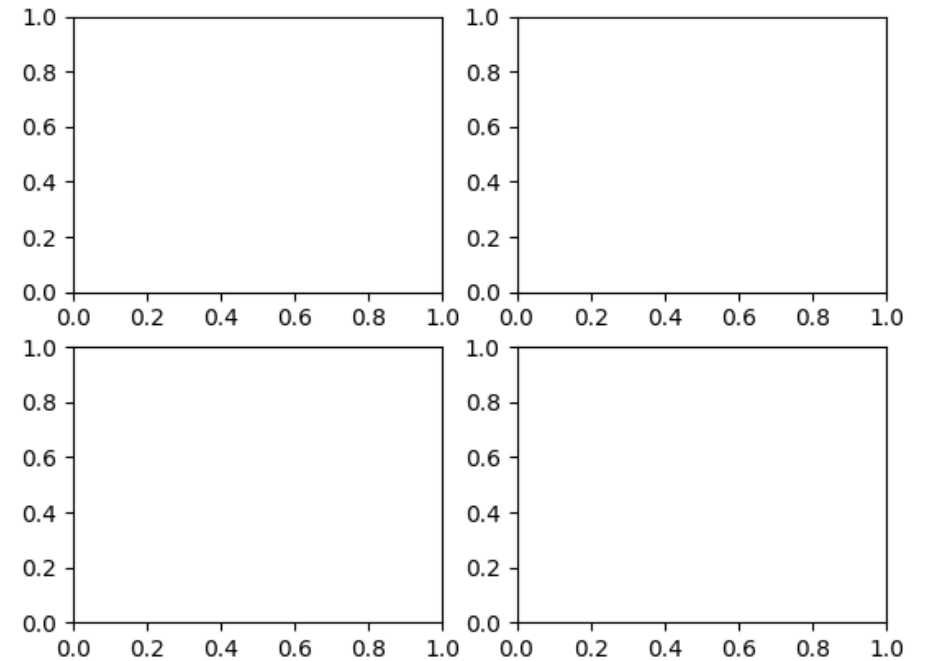
The hierarchy in matplotlib

•**The Figure:** The whole figure.

   ✓ Creates one or more Axes or Sub instances

   ✓ keeps track of all the child Axes.
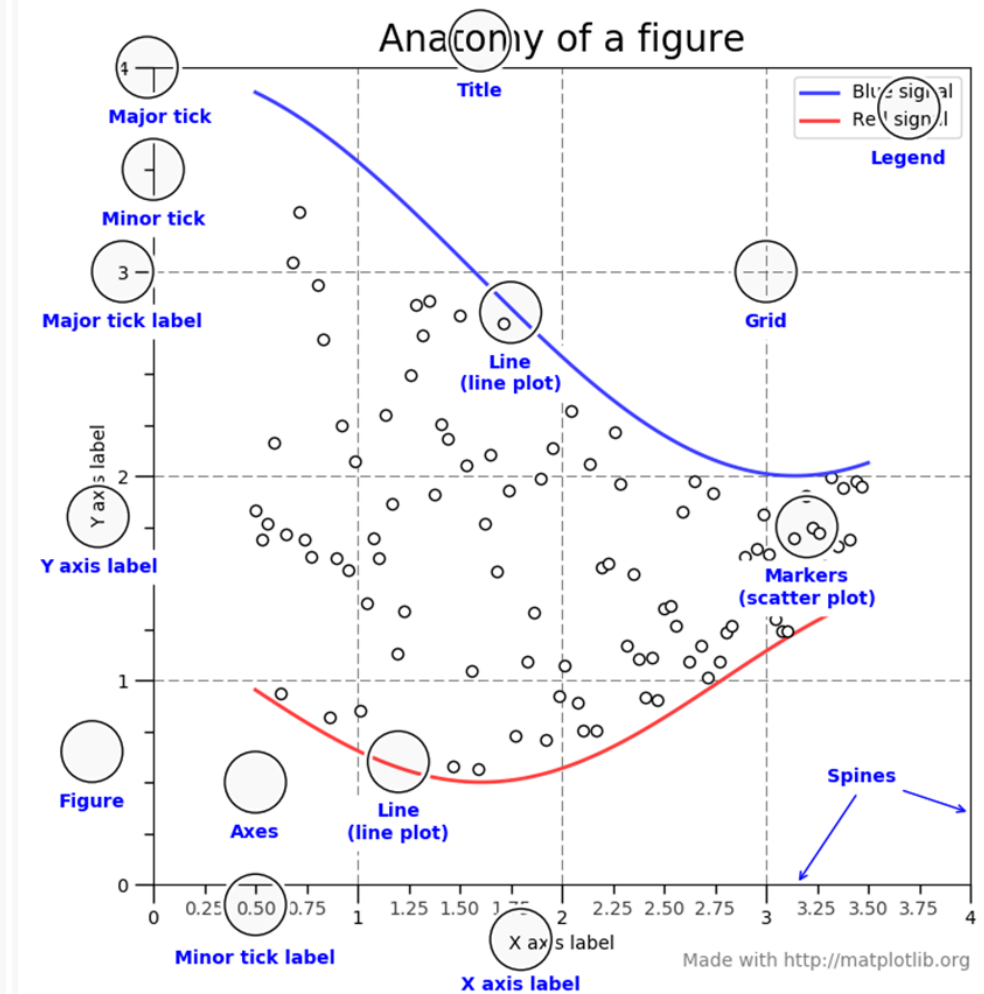
The hierarchy in matplotlib

• **The Axes:**

  • It is the region of the image with the data space.

The hierarchy in matplotlib

•**The Axis**

- They take care of setting the graph limits
- generating the **ticks** (the marks on the axis)
- and **tick labels** (strings labeling the ticks).

Everything in your plot is an Artist

- Every single component in a figure is an Artist object

- There are two types of Artists: primitives and containers.

✓ **The primitives** represent the standard graphical objects we want to paint onto our canvas: Line2D, Rectangle, Text, AxesImage, etc.,

✓ **The containers** are places to put them (Axis, Axes and Figure).

1. **Introduction to matplotlib**

Tick.

Everything in your plot is