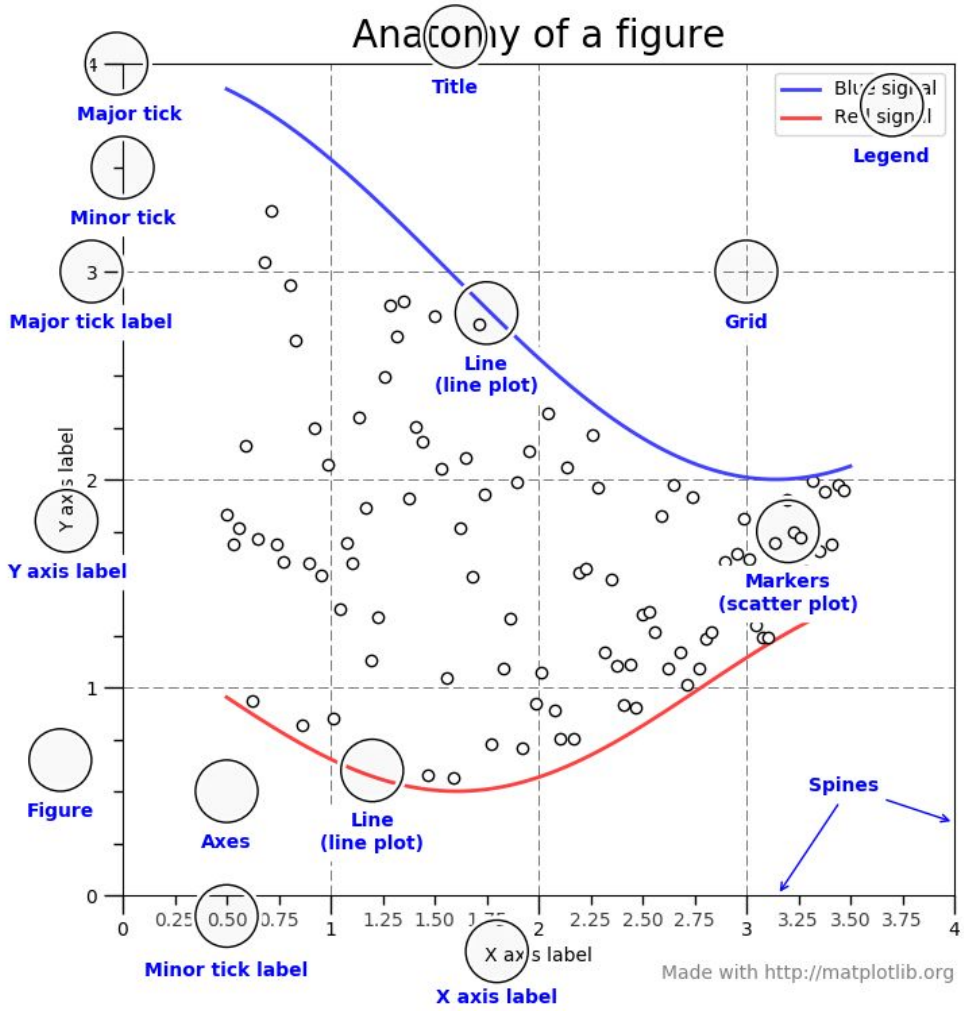
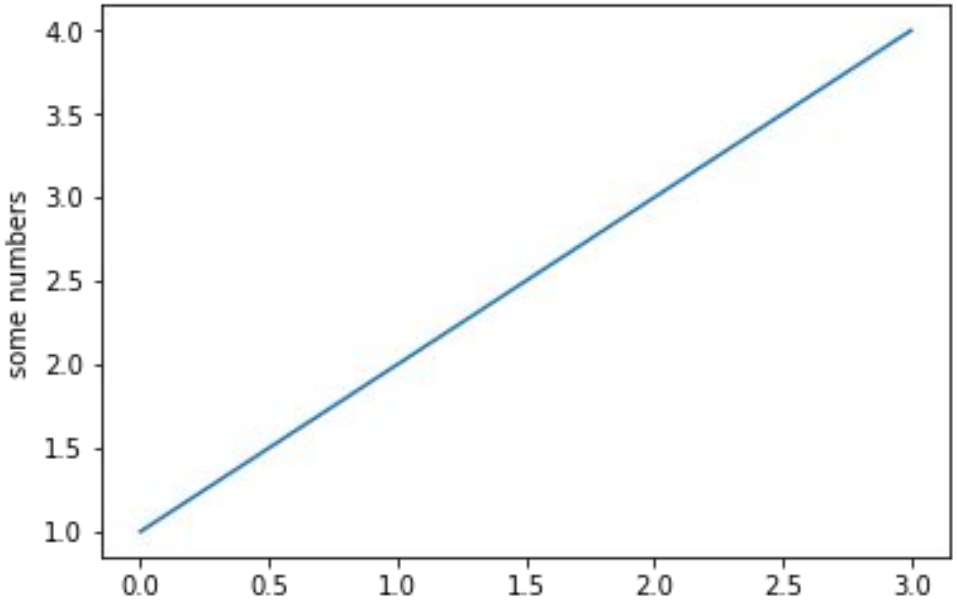
Data visualization with Matplotlib

Python 2D plotting library which produces publication quality figures


Anatomy of a figure
Title
Major tick
Minor tick
Major tick label
Legend
Grid
Line
(line plot)
Y axis label
Markers
(scatter plot)
Figure
Axes
Line
(line plot)
Spines
Minor tick label
X axis label
Made with http://matplotlib.org

First Plot

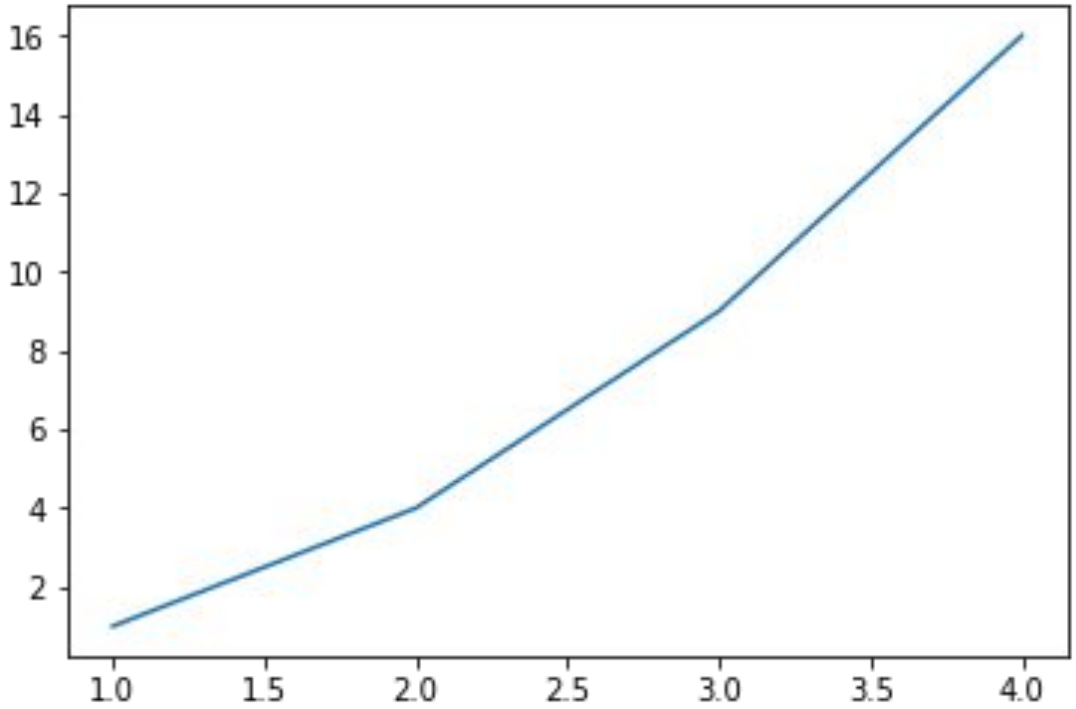
```
import matplotlib.pyplot as plt

plt.plot([1, 2, 3, 4])

plt.ylabel('some numbers')

plt.show()

#Why x-axis ranges from 1-4 and y-axis from 0-3
```



Another line plot

Providing x and y coordinates

plt.plot([1, 2, 3, 4], [1, 4, 9, 16])

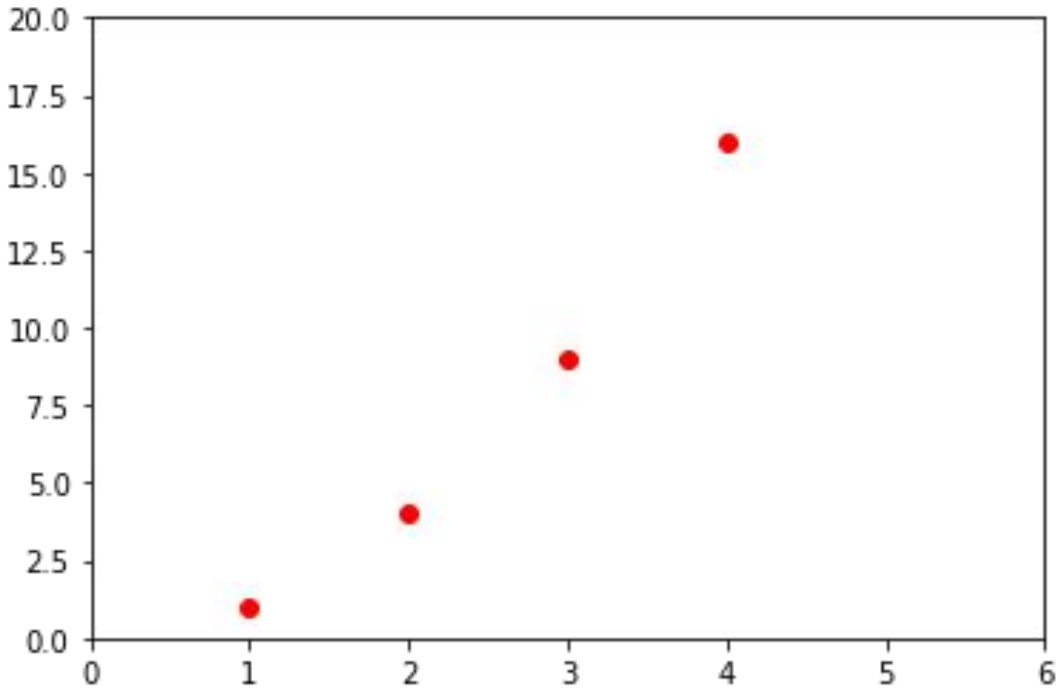


Changing defaults

```
plt.plot([1, 2, 3, 4], [1, 4, 9, 16], 'ro')

plt.axis([0, 6, 0, 20])

plt.show()
```

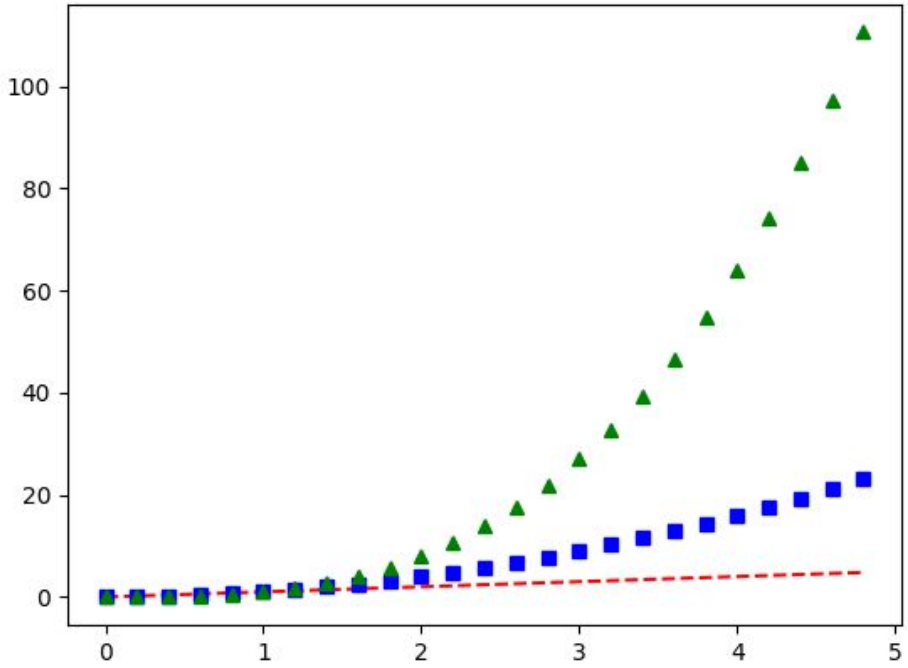
#the third argument format string: color and

line type (MATLAB format string)



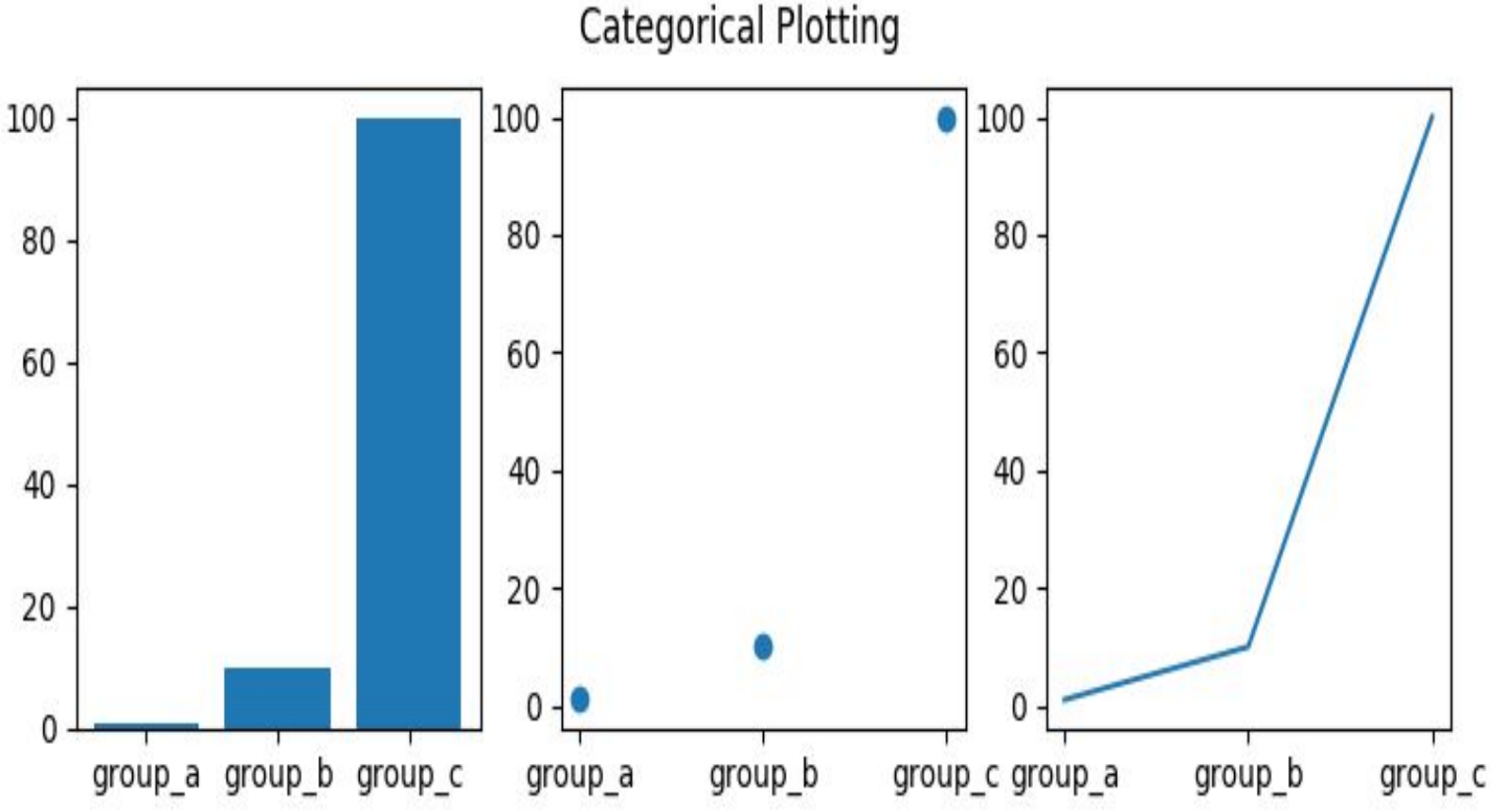
Working with numpy

```
import numpy as np

# evenly sampled time at 200ms intervals
t = np.arange(0., 5., 0.2)

# red dashes, blue squares and green triang
plt.plot(t, t, 'r--', t, t**2, 'bs', t, t**3, 'g^')
plt.show()
```



Plotting with categorical variables

```
names = ['group_a', 'group_b', 'group_c']
values = [1, 10, 100]
plt.figure(1, figsize=(9, 3))
plt.subplot(131)
plt.bar(names, values)
plt.subplot(132)
plt.scatter(names, values)
plt.subplot(133)
plt.plot(names, values)
plt.suptitle('Categorical Plotting')
plt.show()
```


Categorical Plotting
100
80
60
40
20
0
group_a
group_b
group_c