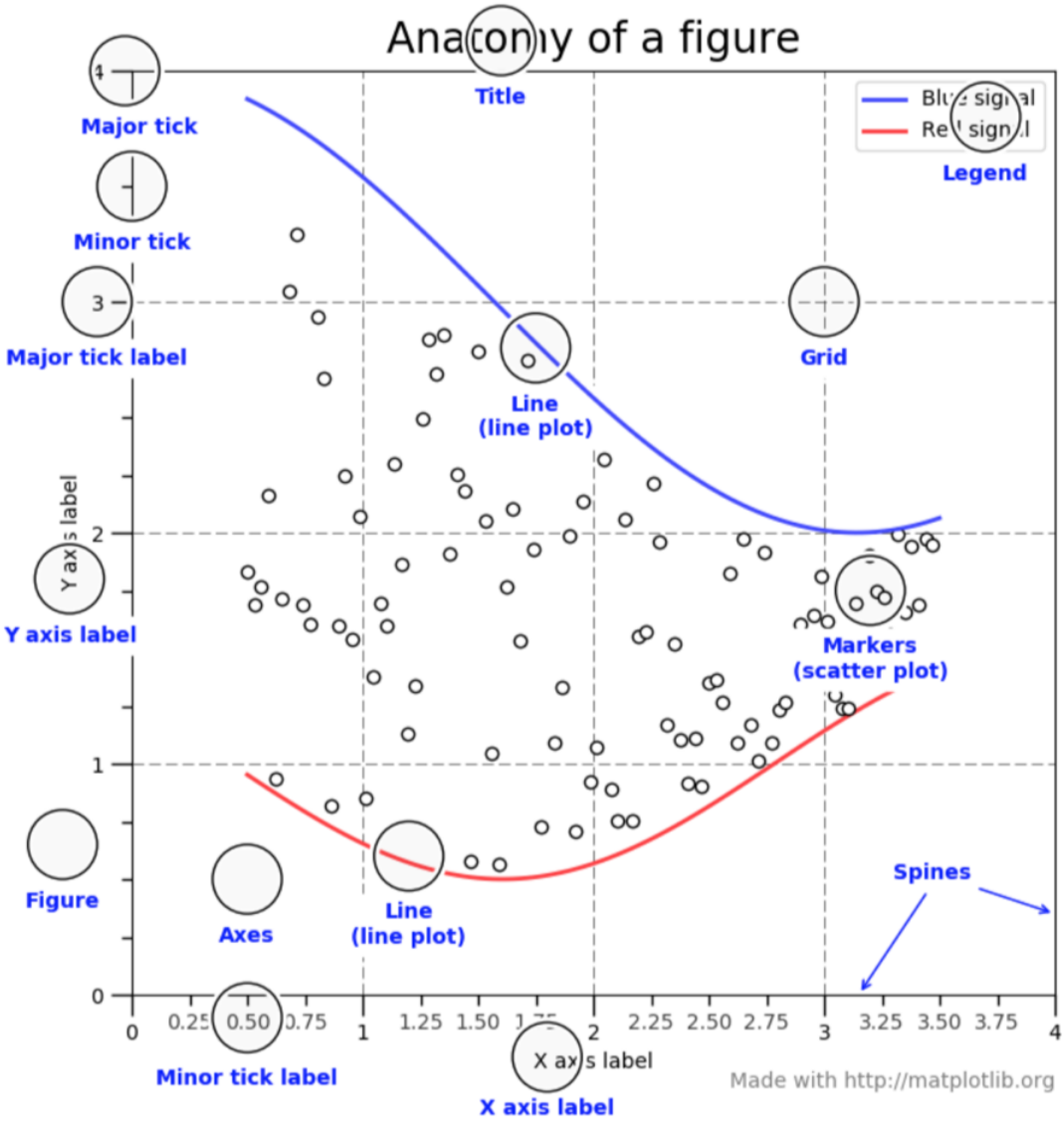
Matlplotlib

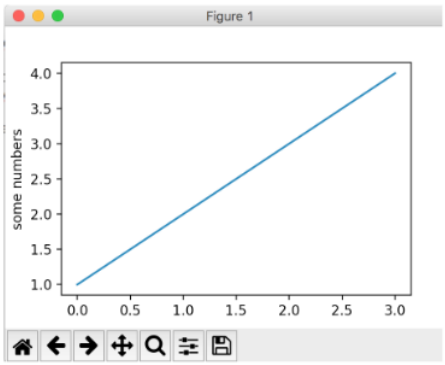
Matplotlib is a Python 2D plotting library which produces publication quality figures. Matplotlib can be used in Python scripts.

https://matplotlib.org/api/_as_gen/matplotlib.pyplot.html#module-matplotlib.pyplot



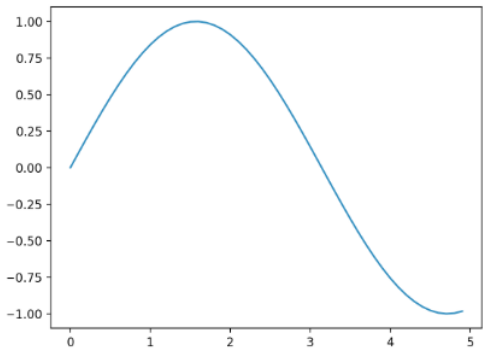
Example 1:

```
import matplotlib.pyplot

matplotlib.pyplot.plot([1,2,3,4])
matplotlib.pyplot.ylabel("some numbers")

matplotlib.pyplot.show()
```



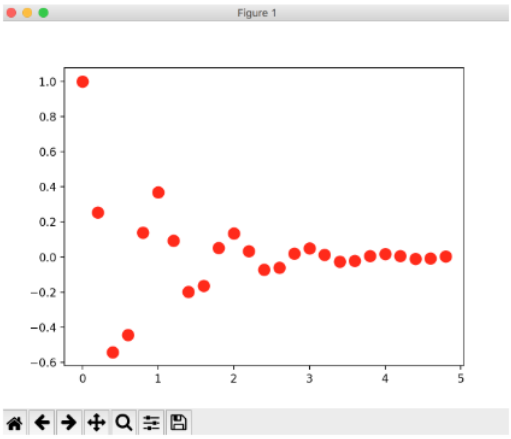
Example 2:

```
import numpy
import matplotlib.pyplot

x = numpy.arange(0, 5, 0.1)
y = numpy.sin(x)
matplotlib.pyplot.plot(x, y)
matplotlib.pyplot.show()
```



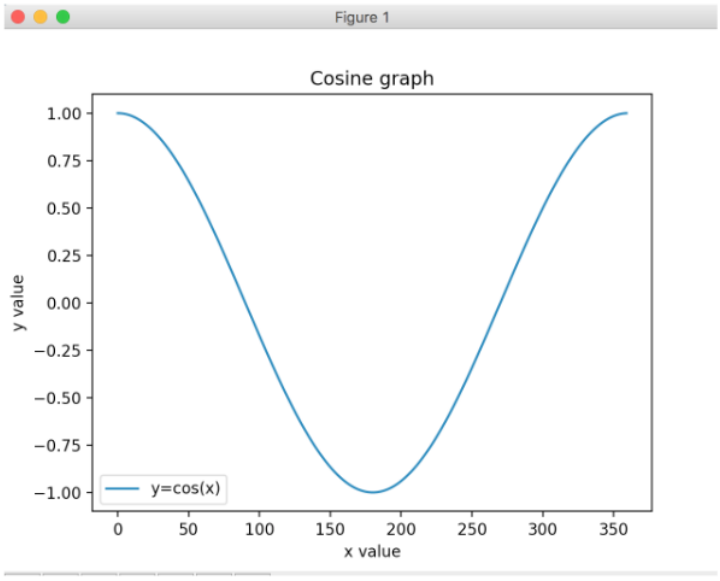
Example 3:

```
import matplotlib.pyplot
import numpy # similar to the math module


def f(t):
    'A damped exponential'
    s1 = numpy.cos(2 * numpy.pi * t)
    e1 = numpy.exp(-t)
    return s1 * e1


t1 = numpy.arange(0.0, 5.0, .2)

l = matplotlib.pyplot.plot(t1, f(t1), 'ro').      # plots time (t1) vs function of time
matplotlib.pyplot.setp(l, markersize=10)
matplotlib.pyplot.setp(l, markerfacecolor='red')

matplotlib.pyplot.show()
```



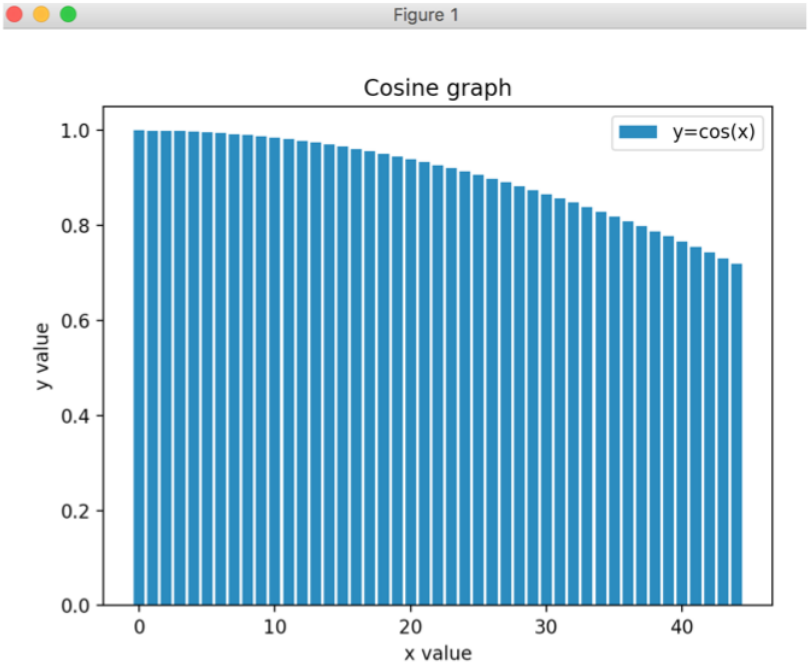
Example 4:

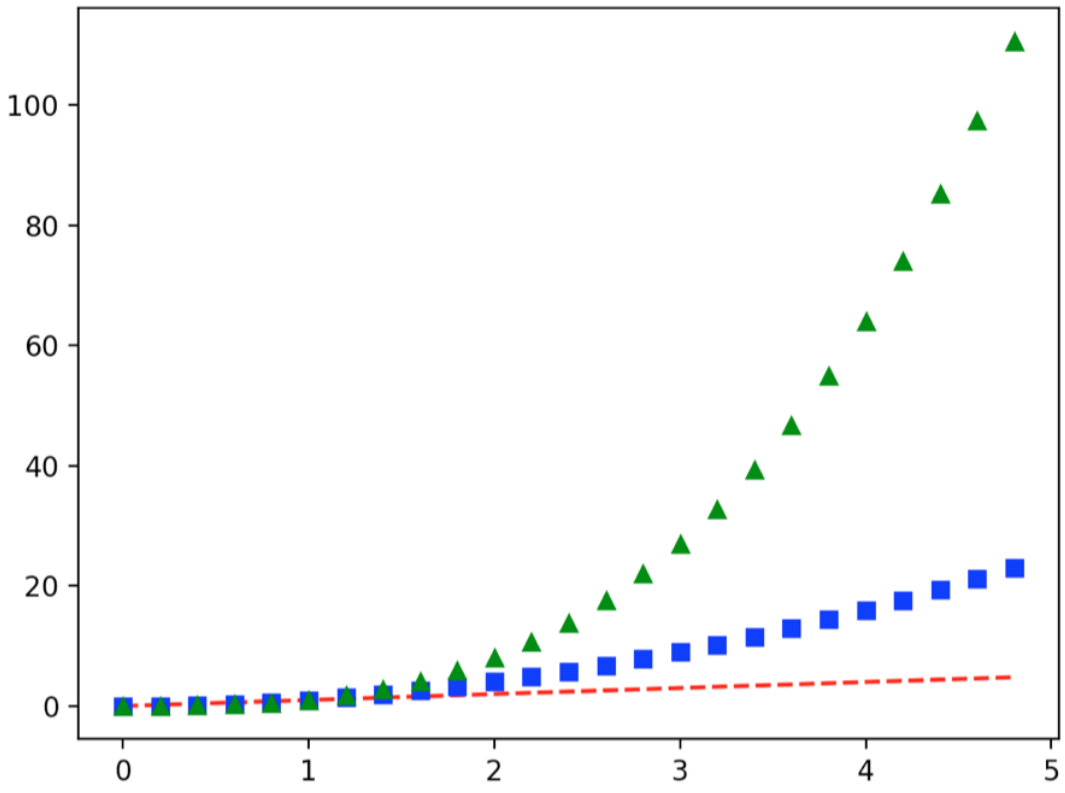
```
from matplotlib import pyplot, style
import math

x=[]
y=[]
for i in range(360):
    x.append(i)
for j in range(360):
    y.append(math.cos(j*3.1415/180))

pyplot.plot(x,y, label="y=cos(x)")
pyplot.title("Cosine graph")
pyplot.ylabel("y value")
pyplot.xlabel("x value")
pyplot.legend()

pyplot.show()
```



####### same example below, but with bar instead of plot and range to 45 degrees

```
from matplotlib import pyplot, style
import math

x=[]
y=[]
for i in range(45):
    x.append(i)
for j in range(45):
    y.append(math.cos(j*3.1415/180))

pyplot.bar(x,y, label="y=cos(x)")
pyplot.title("Cosine graph")
pyplot.ylabel("y value")
pyplot.xlabel("x value")
pyplot.legend()

pyplot.show()
```



Example 5:

```
import matplotlib.pyplot
import numpy

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

matplotlib.pyplot.plot(t, t, 'r--', t, t**2, 'bs', t, t**3, 'g^') # straight line red dash
                                                                  # quadratic blue square
                                                                  # cubic green triangles

matplotlib.pyplot.show()
```