(root) Raymonds-MacBook-Pro:~ raymondyuan$ conda info
Current conda install:

```
             platform : osx-64
        conda version : 4.3.21
     conda is private : False
    conda-env version : 4.3.21
  conda-build version : not installed
       python version : 3.6.1.final.0
     requests version : 2.14.2
     root environment : /Users/raymondyuan/anaconda  (writable)
  default environment : /Users/raymondyuan/anaconda
     envs directories : /Users/raymondyuan/anaconda/envs
                        /Users/raymondyuan/.conda/envs
        package cache : /Users/raymondyuan/anaconda/pkgs
                        /Users/raymondyuan/.conda/pkgs
         channel URLs : https://repo.continuum.io/pkgs/free/osx-64
                        https://repo.continuum.io/pkgs/free/noarch
                        https://repo.continuum.io/pkgs/r/osx-64
                        https://repo.continuum.io/pkgs/r/noarch
                        https://repo.continuum.io/pkgs/pro/osx-64
                        https://repo.continuum.io/pkgs/pro/noarch
          config file : None
           netrc file : None
         offline mode : False
           user-agent : conda/4.3.21 requests/2.14.2 CPython/3.6.1 Darwin/16.7.0 OSX/10.12.6
              UID:GID : 502:20
```

VCS
https://github.com/raymond-yuan

PROJECT
https://github.com/raymond-yuan/comp576-0

In [37]:
```
from numpy import *
import scipy
```

In [38]:
```
a = random.random((3,3))
```

In [39]:
```
ndim(a)
```

Out[39]: 2

In [40]:
```
a.size
```

Out[40]: 9

In [41]:
```
a.shape
```

Out[41]: (3, 3)

In [42]:
```
a.shape[1]
```

Out[42]: 3

In [43]:
```
b = c = d = a
vstack([hstack([a,b]), hstack([c,d])])
```

Out[43]:
```
array([[ 0.9498354 ,  0.1183442 ,  0.32581393,  0.9498354 ,  0.1183442
 ,
         0.32581393],
       [ 0.65048001,  0.45333801,  0.40527509,  0.65048001,  0.4533380
1,
         0.40527509],
       [ 0.40342061,  0.8176975 ,  0.57476647,  0.40342061,  0.8176975
 ,
         0.57476647],
       [ 0.9498354 ,  0.1183442 ,  0.32581393,  0.9498354 ,  0.1183442
 ,
         0.32581393],
       [ 0.65048001,  0.45333801,  0.40527509,  0.65048001,  0.4533380
1,
         0.40527509],
       [ 0.40342061,  0.8176975 ,  0.57476647,  0.40342061,  0.8176975
 ,
         0.57476647]])
```

In [44]:
```
a[::2, :]
```

Out[44]:
```
array([[ 0.9498354 ,  0.1183442 ,  0.32581393],
       [ 0.40342061,  0.8176975 ,  0.57476647]])
```

In [45]:
```
a[r_[:len(a),0]]
```

Out[45]:
```
array([[ 0.9498354 ,  0.1183442 ,  0.32581393],
       [ 0.65048001,  0.45333801,  0.40527509],
       [ 0.40342061,  0.8176975 ,  0.57476647],
       [ 0.9498354 ,  0.1183442 ,  0.32581393]])
```

In [46]:
```
nonzero(a>0.5)
```

Out[46]:
```
(array([0, 1, 2, 2]), array([0, 0, 1, 2]))
```

In [47]:
```
v = a[:, 2]
a[:,nonzero(v < 1)[0]]
```

Out[47]:
```
array([[ 0.9498354 ,  0.1183442 ,  0.32581393],
       [ 0.65048001,  0.45333801,  0.40527509],
       [ 0.40342061,  0.8176975 ,  0.57476647]])
```

In [48]:
```
eye(3)
```

Out[48]:
```
array([[ 1.,  0.,  0.],
       [ 0.,  1.,  0.],
       [ 0.,  0.,  1.]])
```

In [49]:
```
concatenate((a,b)).shape
```

Out[49]:
```
(6, 3)
```

In [50]:
```
sqrt(dot(v,v))
```

Out[50]:
```
0.77508651761687297
```

In [51]:
```
linalg.inv(np.random.random((2,2)))
```

Out[51]:
```
array([[ 2.29974863, -0.79342175],
       [-1.90977228,  2.28588998]])
```

In [54]:
```
fft.rfft(a)
```

Out[54]:
```
array([[ 1.39399353+0.j        ,  0.72775633+0.17967406j],
       [ 1.50909311+0.j        ,  0.22117346-0.04162371j],
       [ 1.79588458+0.j        , -0.29281138-0.21038445j]])
```

In [55]:
```
fft.ifft(a)
```

Out[55]:
```
array([[ 0.46466451+0.j        ,  0.24258544-0.05989135j,
         0.24258544+0.05989135j],
       [ 0.50303104+0.j        ,  0.07372449+0.01387457j,
         0.07372449-0.01387457j],
       [ 0.59862819+0.j        , -0.09760379+0.07012815j,
        -0.09760379-0.07012815j]])
```

In [56]:
```
a.sort()
```

In [57]:
```
a
```

Out[57]:
```
array([[ 0.1183442 ,  0.32581393,  0.9498354 ],
       [ 0.40527509,  0.45333801,  0.65048001],
       [ 0.40342061,  0.57476647,  0.8176975 ]])
```

In [58]:
```
unique(a)
```

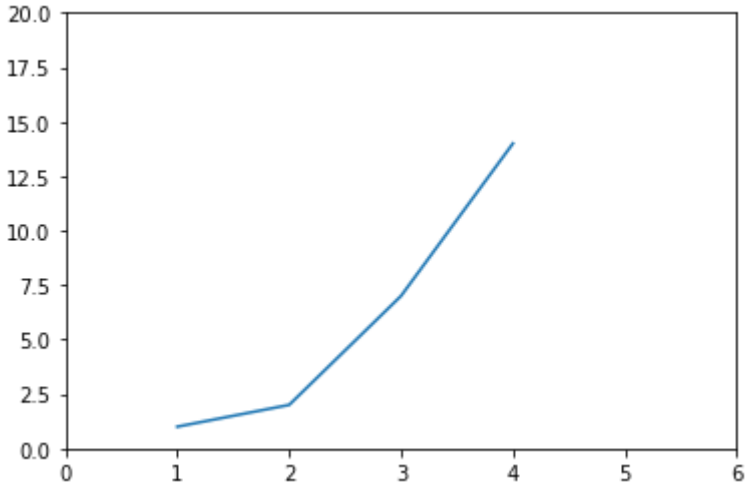
Out[58]:
```
array([ 0.1183442 ,  0.32581393,  0.40342061,  0.40527509,  0.45333801,
        0.57476647,  0.65048001,  0.8176975 ,  0.9498354 ])
```

In [59]:
```
a.squeeze()
```

Out[59]:
```
array([[ 0.1183442 ,  0.32581393,  0.9498354 ],
       [ 0.40527509,  0.45333801,  0.65048001],
       [ 0.40342061,  0.57476647,  0.8176975 ]])
```

Plotting

In [61]:
```
import matplotlib.pyplot as plt
plt.plot([1,2,3,4], [1,2,7,14])
plt.axis([0, 6, 0, 20])
plt.show()
```



In [ ]:
```
```