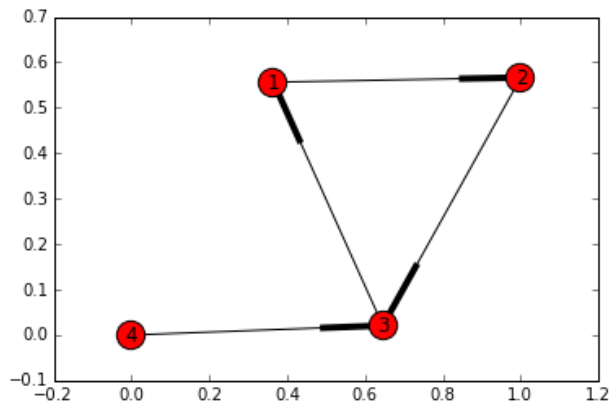


```
In [1]: import networkx as nx
import matplotlib.pyplot as plt
%matplotlib inline
```

```
In [2]: g = nx.DiGraph()
```

```
In [13]: g.add_edges_from([(1,2),(2,3),(3,1),(4,3)])
```

```
In [39]: nx.draw_networkx(g,arrows=True,with_labels=True)
```



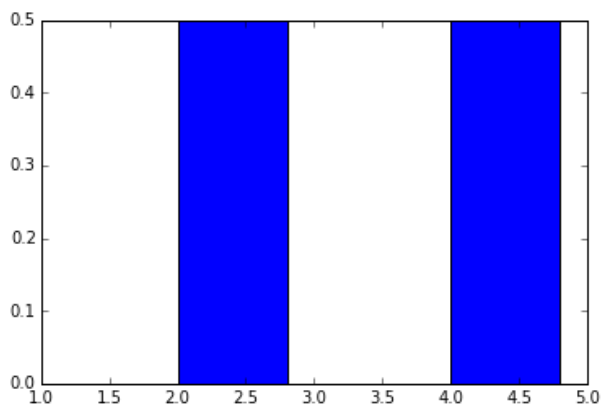
```
In [20]: (h,a)=nx.hits(g)
```

```
In [22]: h, a
```

```
Out[22]: ({1: 1.8626451422920631e-09,
2: 0.49999999813735485,
3: 1.8626451422920631e-09,
4: 0.49999999813735485},
{1: 3.7252902707063384e-09,
2: 3.7252902707063384e-09,
3: 0.9999999925494194,
4: 0.0})
```

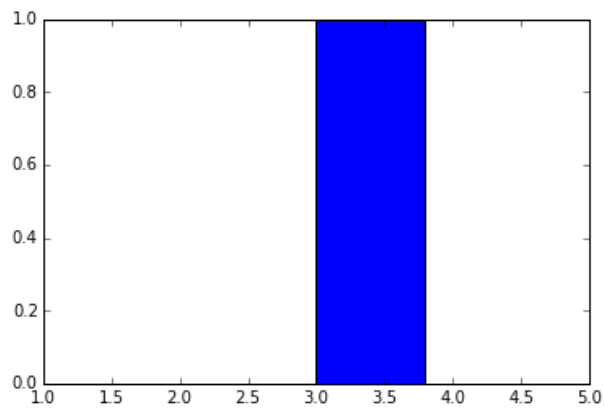
```
In [28]: plt.bar(h.keys(),h.values()) #hub scores
```

```
Out[28]: <Container object of 4 artists>
```



```
In [29]: plt.bar(a.keys(),a.values()) #Authority scores
```

```
Out[29]: <Container object of 4 artists>
```



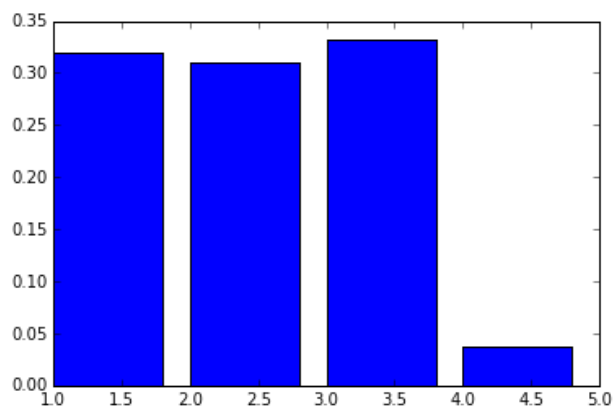
```
In [30]: p=nx.pagerank(g)
```

```
In [31]: p
```

```
Out[31]: {1: 0.32021321825822346,
 2: 0.3096812355194899,
 3: 0.33260554622228633,
 4: 0.037500000000000006}
```

```
In [32]: plt.bar(p.keys(),p.values())
```

```
Out[32]: <Container object of 4 artists>
```



```
In [36]: a = nx.adj_matrix(g)
```

```
In [37]: print a.todense() #what happens if you try to print a directly?
```

```
[[0 1 0 0]
 [0 0 1 0]
 [1 0 0 0]
 [0 0 1 0]]
```

```
In [ ]:
```

```
In [ ]:
```