01_Getting_Data

November 29, 2017

Imports

```
In [1]: import requests
        import json
        import pandas
        from datetime import datetime

        import matplotlib
        from matplotlib import pyplot

        import numpy
```

Settings

```
In [2]: %matplotlib inline
```

Constants

```
In [3]: bitcoin_title = 'bitcoin price in USD'
        search_volume_title = 'search volume'
```

0.0.1 1. Getting Bitcoin Price Data

```
In [4]: #get data
        response = requests.get('https://api.coindesk.com/v1/bpi/historical/close.json?start=201
        response_as_json = json.loads(response.content)

        #transform data
        bpi = pandas.DataFrame.from_dict(response_as_json)
        bpi.drop(['disclaimer', 'time'], axis=1, inplace=True)
        bpi.drop(['updated', 'updatedISO'], inplace=True)
        bpi = bpi.rename(columns={'bpi': 'bitcoin_price'})
        bpi.index.names = ['date']
        bpi.index = pandas.to_datetime(bpi.index, format="%Y-%m-%d")

        #output data
        bpi.head()
```

Out[4]:
```
            bitcoin_price
date
2011-05-01         3.0331
2011-05-02         3.2000
2011-05-03         3.4100
2011-05-04         3.4061
2011-05-05         3.3330
```

In [5]:
```
ax = bpi.plot(color='b')
ax.grid()
ax.set_ylabel(bitcoin_title)
ax.legend((bitcoin_title,), loc=2) #loc 2: upper left
```

Out[5]: <matplotlib.legend.Legend at 0x1139ed630>

0.0.2 2. Getting Google Trends Data

In [6]:
```
#get data
google = pandas.read_csv("data/google_trends.csv", ";")

#transform data
google['date'] = pandas.to_datetime(google['date'], format="%d.%m.%y")
google['search_volume'] = google['search_volume'].str.replace(',','.')
google['search_volume'] = google['search_volume'].apply(pandas.to_numeric)
google.set_index('date', inplace=True)
```

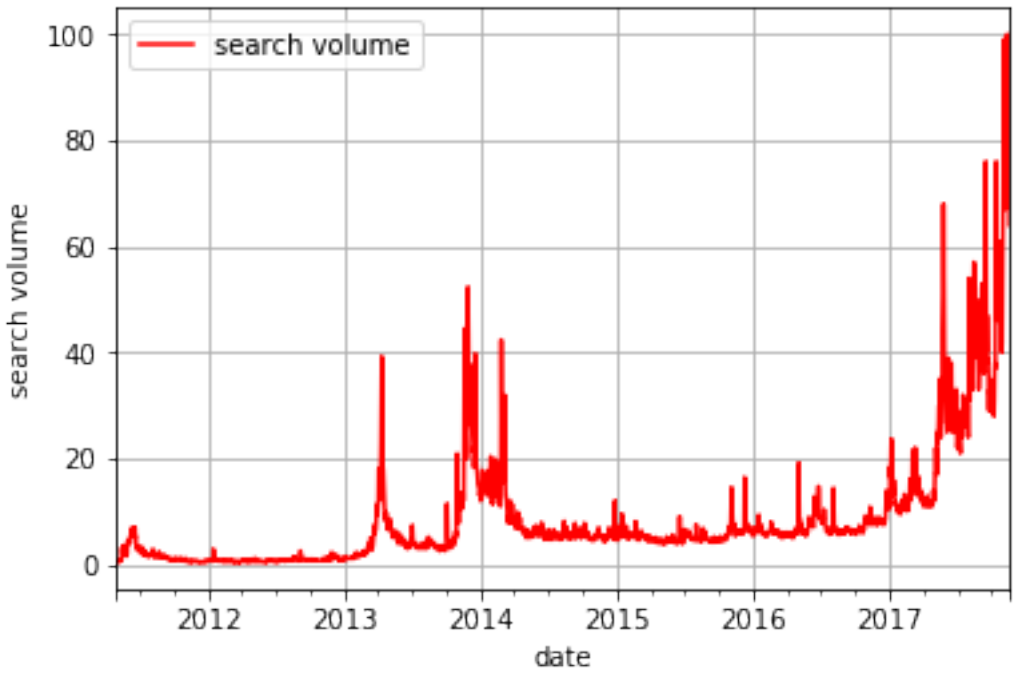
```
#output data
google.head()
```

Out[6]:

date	search_volume
2011-05-01	0.704634
2011-05-02	0.493244
2011-05-03	0.493244
2011-05-04	0.422781
2011-05-05	0.493244

In [7]:
```
ax = google.plot(color='r')
ax.grid()
ax.set_ylabel(search_volume_title)
ax.legend((search_volume_title,), loc=2) #loc 2: upper left
```

Out[7]: <matplotlib.legend.Legend at 0x1139ed320>



0.0.3 3. Merging data

In [8]:
```
#merge data
data = pandas.concat([bpi, google], axis=1)

#output data
data.head()
```

Out[8]:

date	bitcoin_price	search_volume
2011-05-01	3.0331	0.704634
2011-05-02	3.2000	0.493244
2011-05-03	3.4100	0.493244
2011-05-04	3.4061	0.422781
2011-05-05	3.3330	0.493244

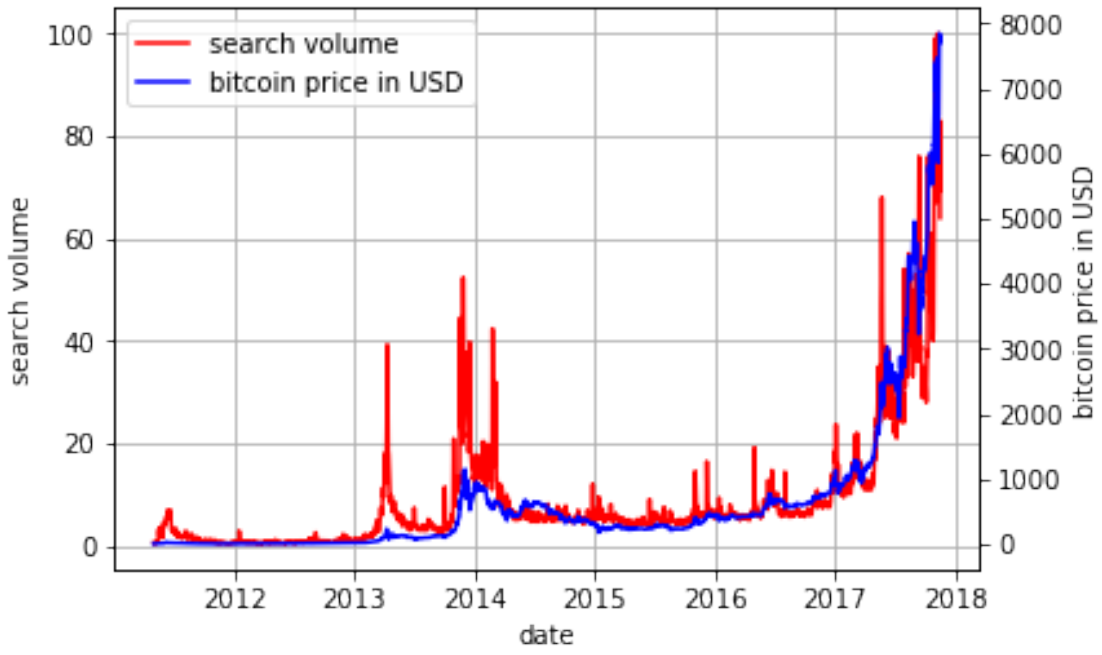
In [9]:
```
#plot data
fig = matplotlib.pyplot.figure()
ax = fig.add_subplot(111)
ax.grid()
lns1 = ax.plot(data.index, data.search_volume, label = search_volume_title, color ='r')
ax2 = ax.twinx()
lns2 = ax2.plot(data.index, data.bitcoin_price, label = bitcoin_title, color = 'b')

lns = lns1+lns2
labs = [l.get_label() for l in lns]
ax.legend(lns, labs, loc=2)

ax.set_xlabel("date")

ax.set_ylabel(search_volume_title)
ax2.set_ylabel(bitcoin_title)
```

Out[9]: <matplotlib.text.Text at 0x1179c2d68>



In [ ]: