SOCIAL MEDIA ANALYTICS DURING CRISIS — SESSION I

DATA ACQUISITION AND SIMPLE ANALYSIS

AGENDA

SESSION I
DATA ACQUISITION
1:15PM-3:00PM

1. Jupyter Notebooks
2. Social media data sources
3. Parsing Twitter data
4. Frequency analysis

COFFEE BREAK
3:00PM-3:20PM

SESSION II
ADVANCED ANALYSIS
3:20PM-4:30PM

5. Location analysis
6. Sentiment analysis
7. Other content analysis
8. Network analysis

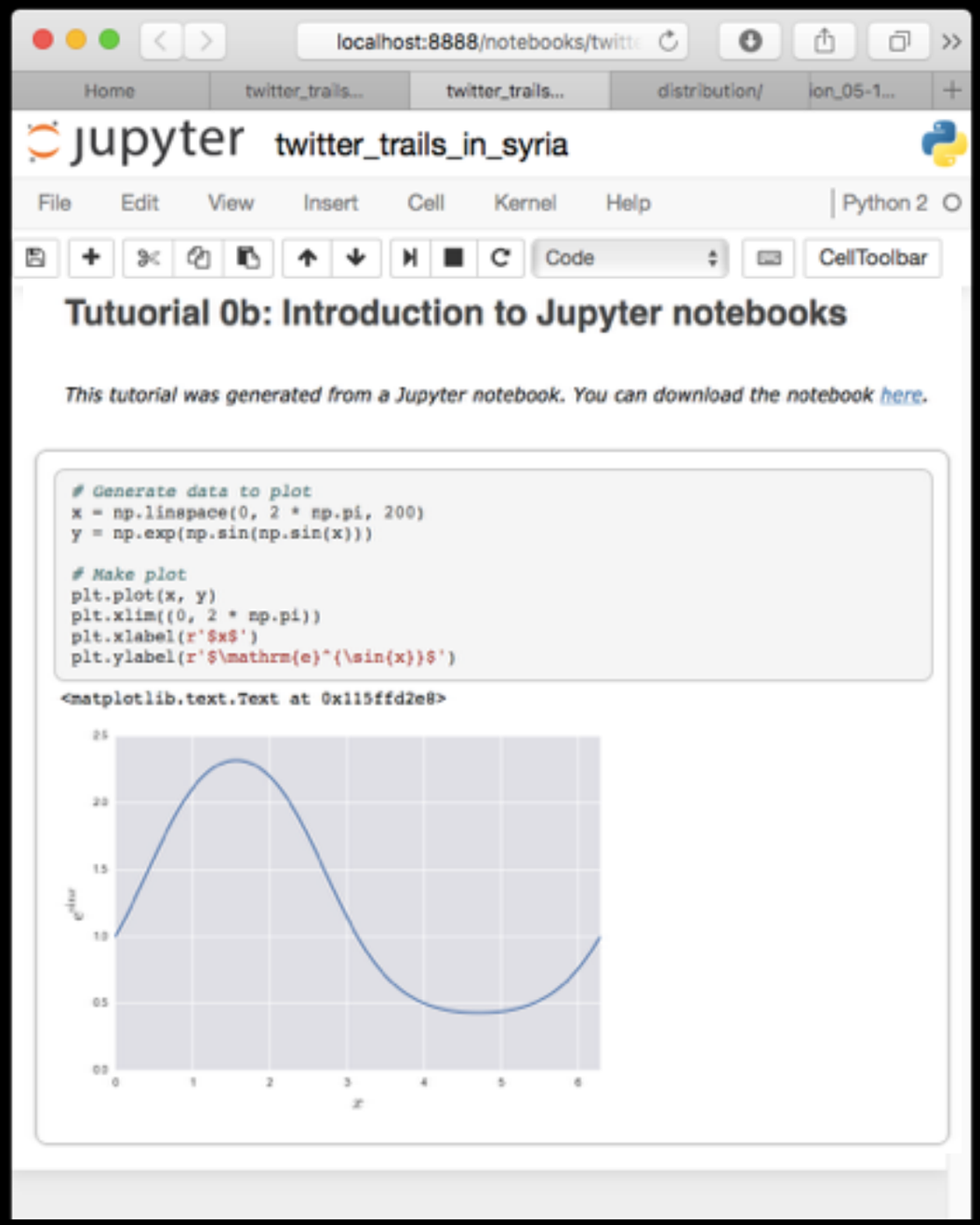
JUPYTER NOTEBOOKS

JUPYTER NOTEBOOKS

WHAT IS THE JUPYTER NOTEBOOK?

An interactive , browser-based development environment for scientific computer and data science.

Meant to be language-agnostic and support reproducible research.



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JUPYTER NOTEBOOKS

CODE

jupyter twitter_trails_in_syria (autosaved)

File Edit View Insert Cell Kernel Help Python 2

Code CellToolbar

```
for (user, locs) in userMap.items():
    if user not in plottableUsers:
        continue

    lats = map(lambda x: x[1], locs)
    lons = map(lambda x: x[0], locs)

    (x, y) = bmap(lons, lats)

    userCount += 1

    style = "%ss-" % (colorList[userCount % len(colorList)])
    bmap.plot(x, y, style, linewidth=2.0, markersize=20)

plt.show()
```

RESULTS

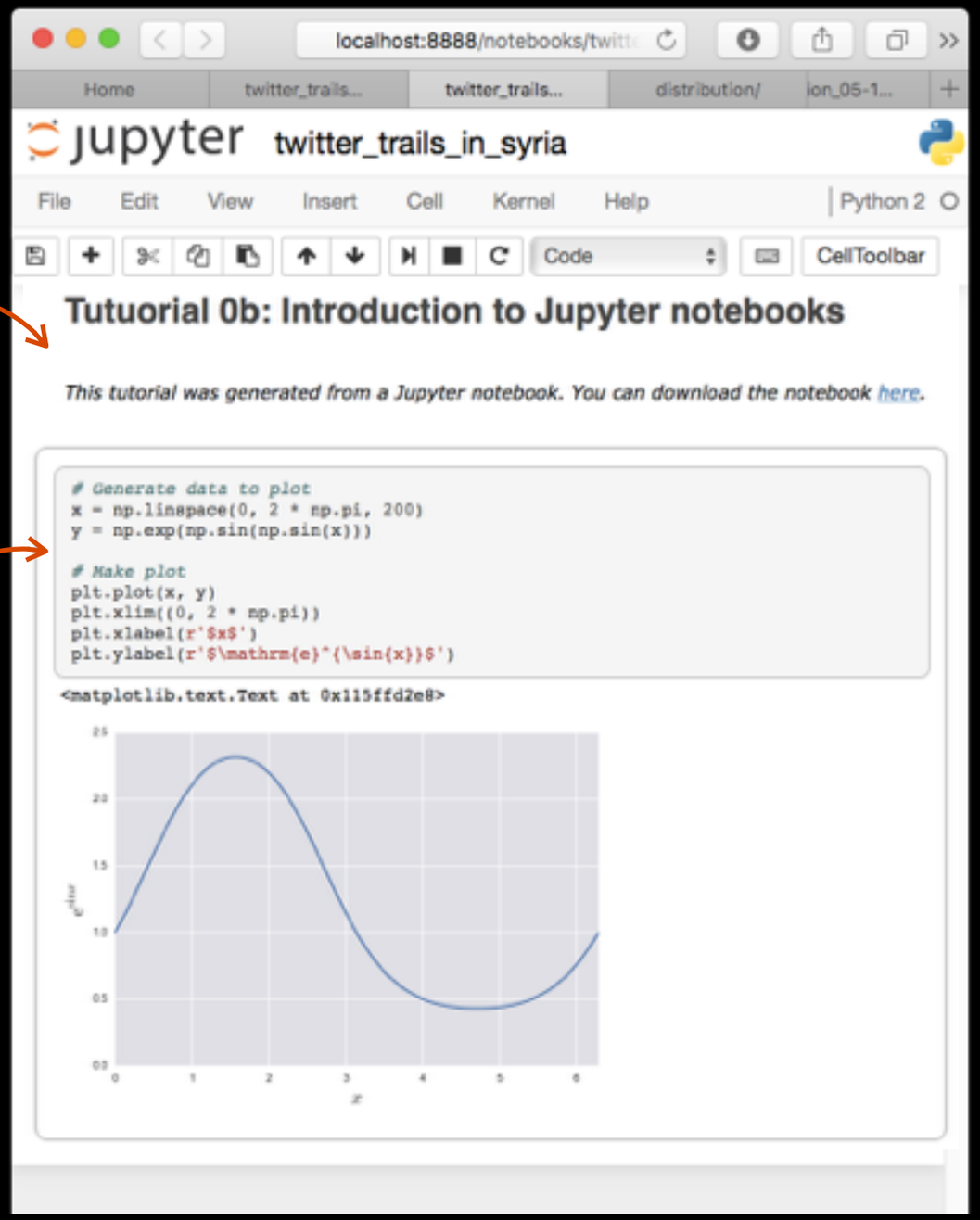
JUPYTER NOTEBOOKS

WHAT IS THE JUPYTER NOTEBOOK?

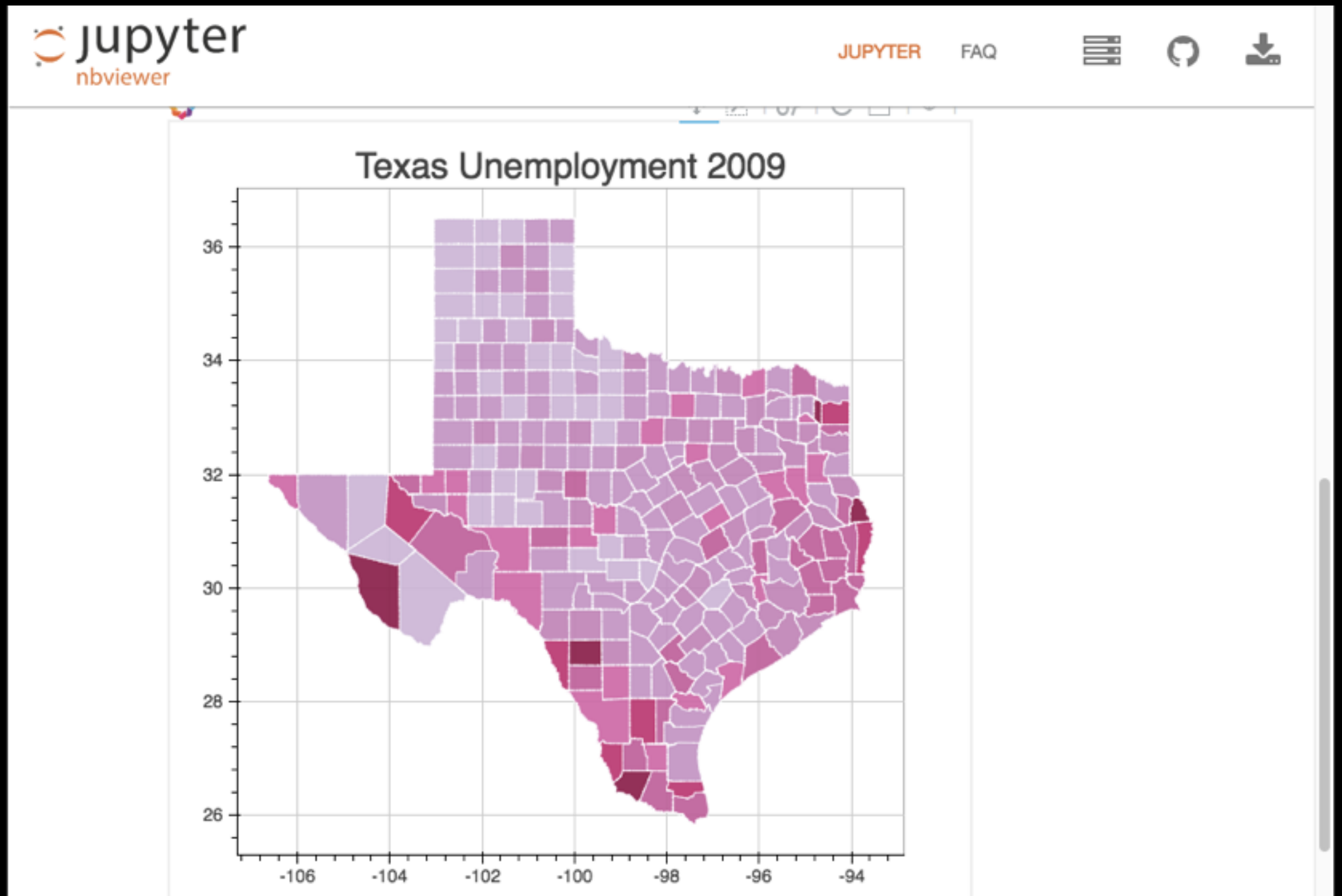
Notebooks are divided into cells:

Markup cells

Code cells



JUPYTER NOTEBOOKS



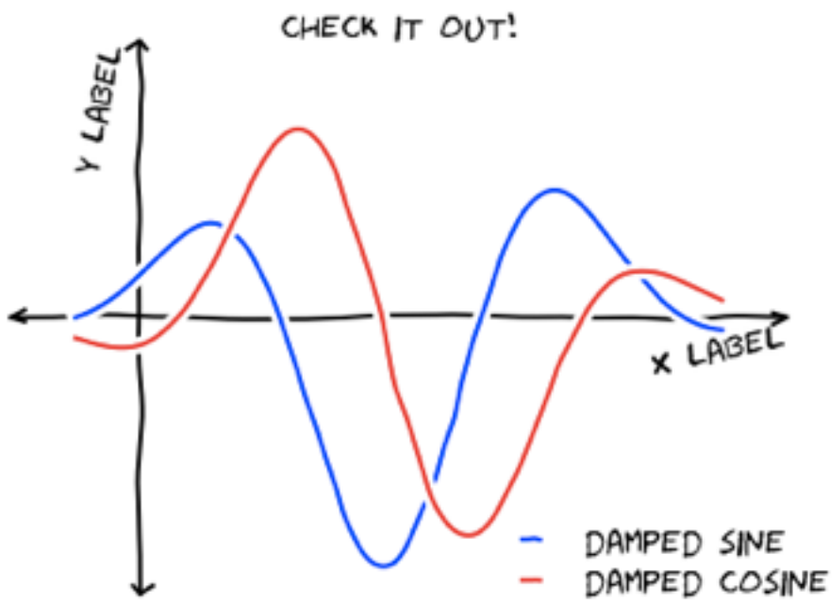
JUPYTER NOTEBOOKS

jupyter nbviewer

JUPYTER FAQ

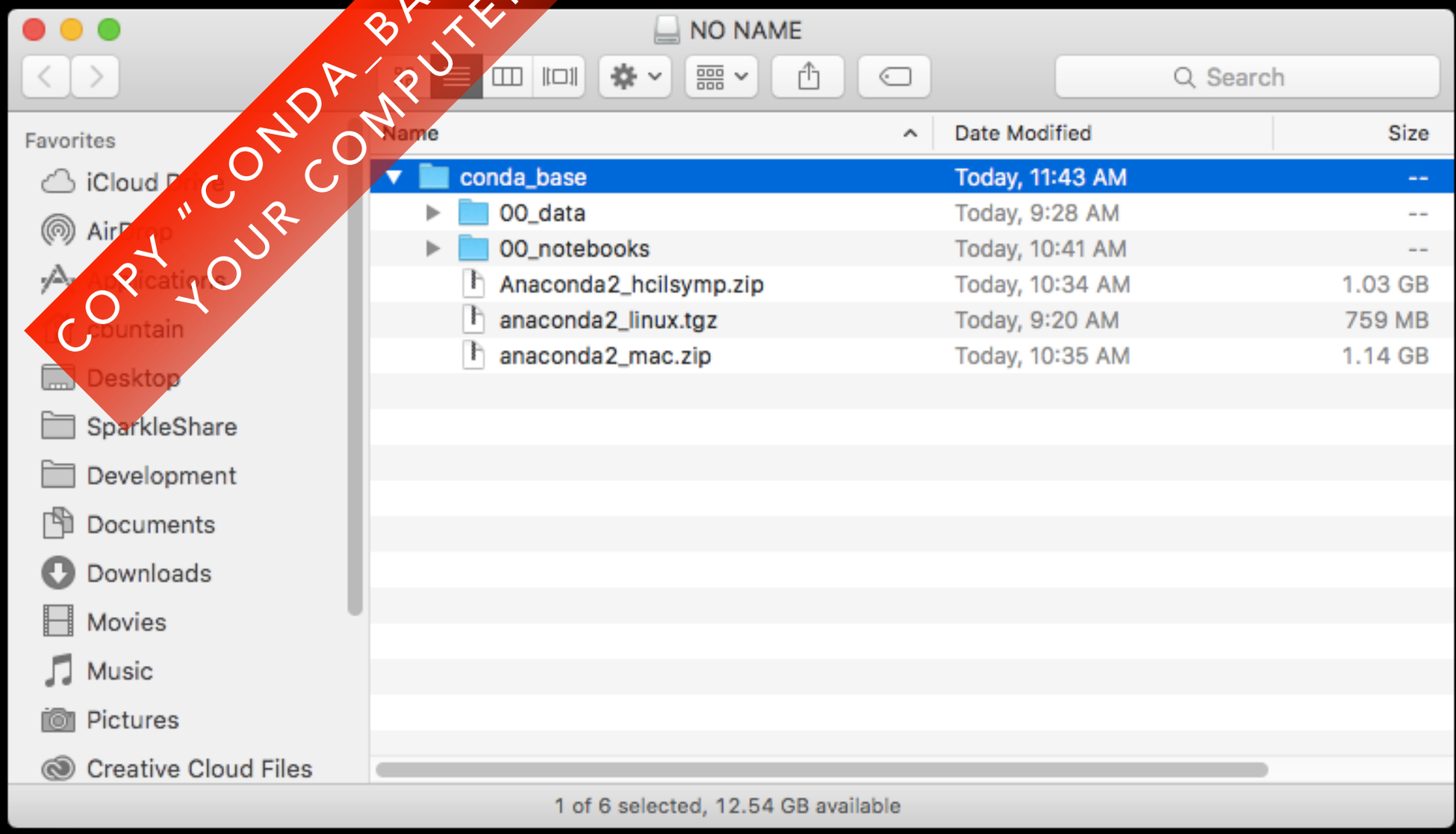
```
ax.plot(x, -np.cos(x) * np.exp(-0.1 * (x - 5) ** 2), 'r', lw=1, label='damped cosine')

ax.set_title('check it out!')
ax.set_xlabel('x label')
ax.set_ylabel('y label')

ax.legend(loc='lower right')

ax.set_xlim(0, 10)
ax.set_ylim(-1.0, 1.0)

#XKCDify the axes -- this operates in-place
XKCDify(ax, xaxis_loc=0.0, yaxis_loc=1.0,
        xaxis_arrow='+-', yaxis_arrow='+-',
        expand_axes=True)
```

Out[5]: <matplotlib.axes.AxesSubplot at 0x2fecbd0>



JUPYTER NOTEBOOKS

TUTORIAL FILES



JUPYTER NOTEBOOKS

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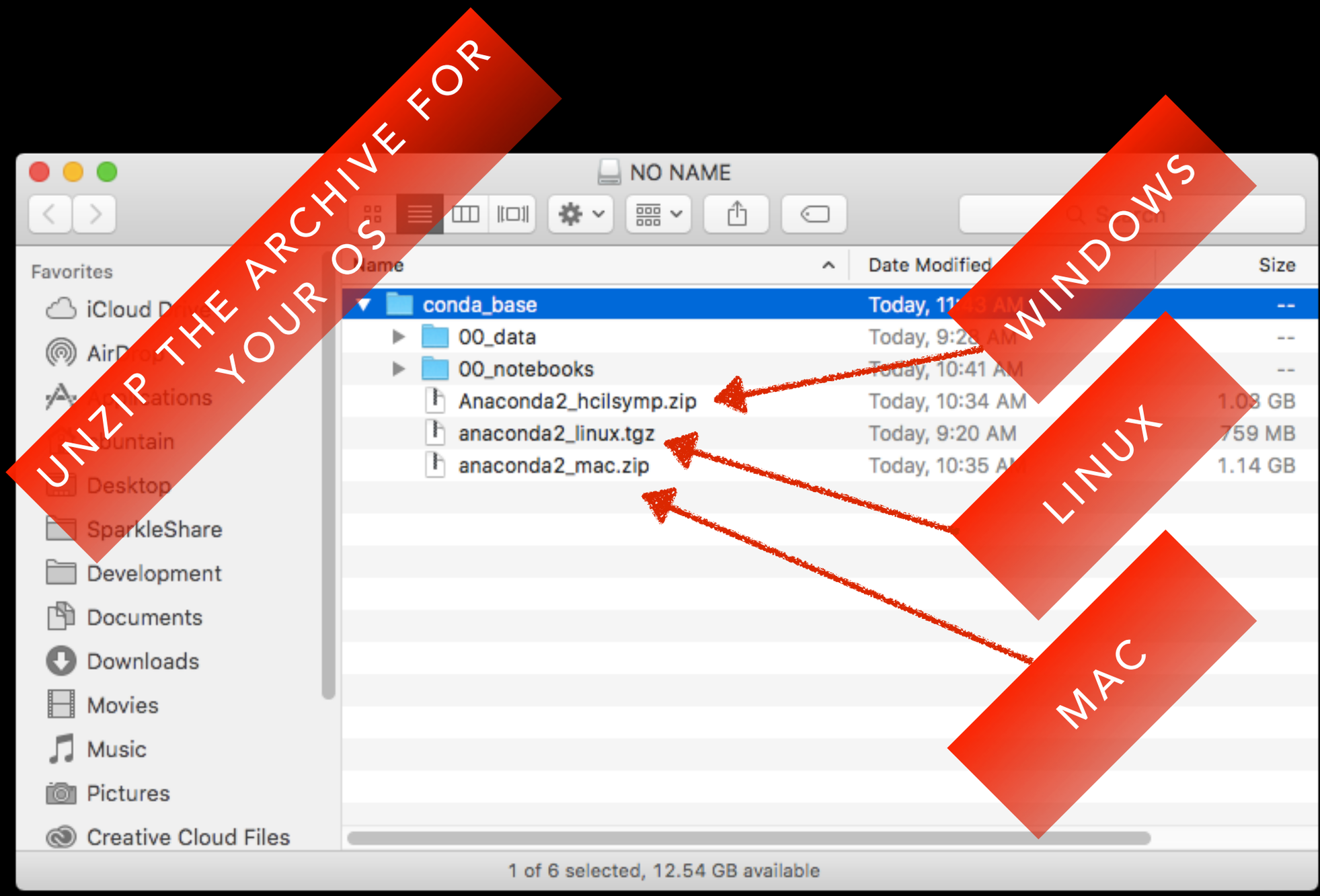

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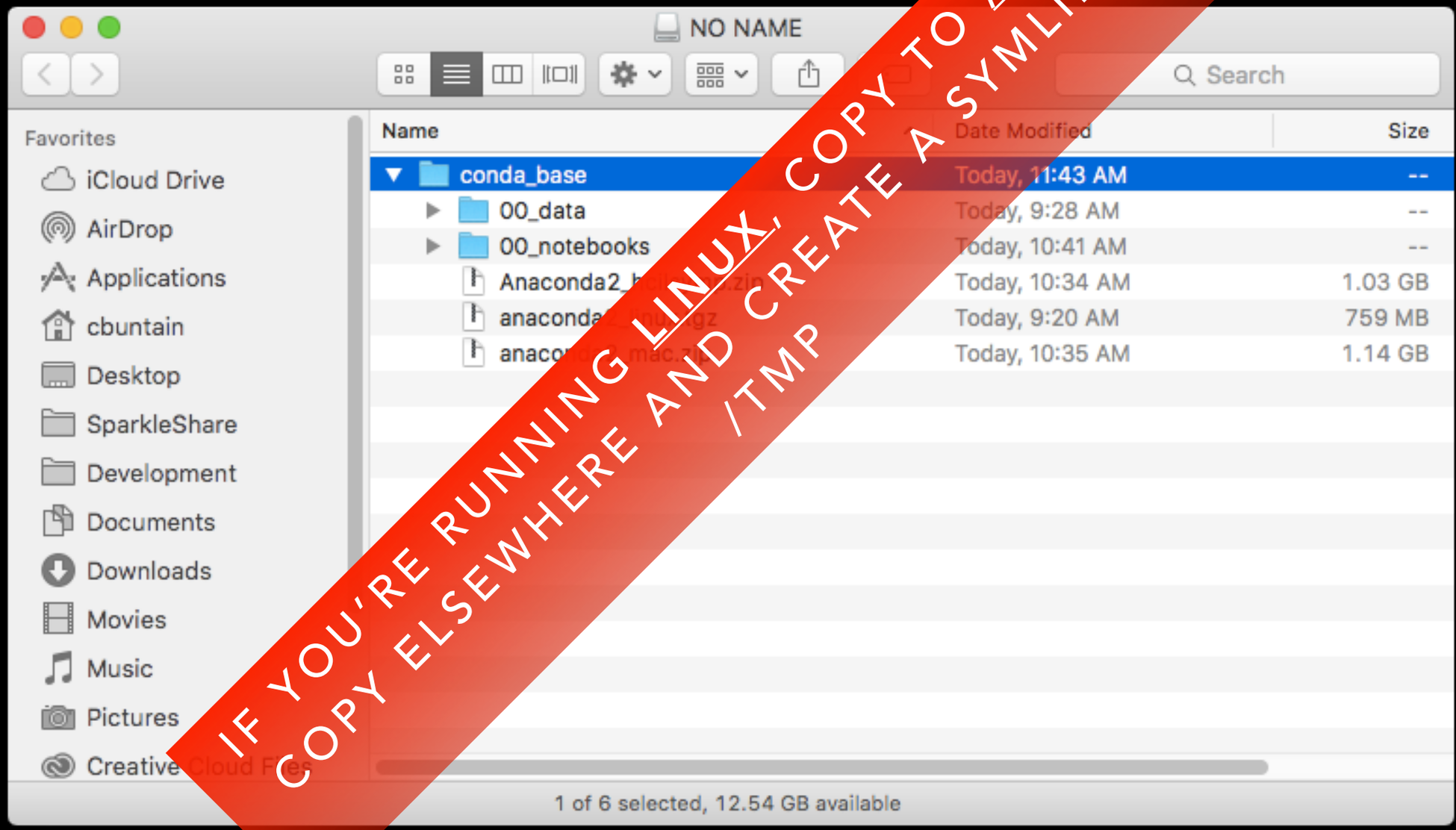
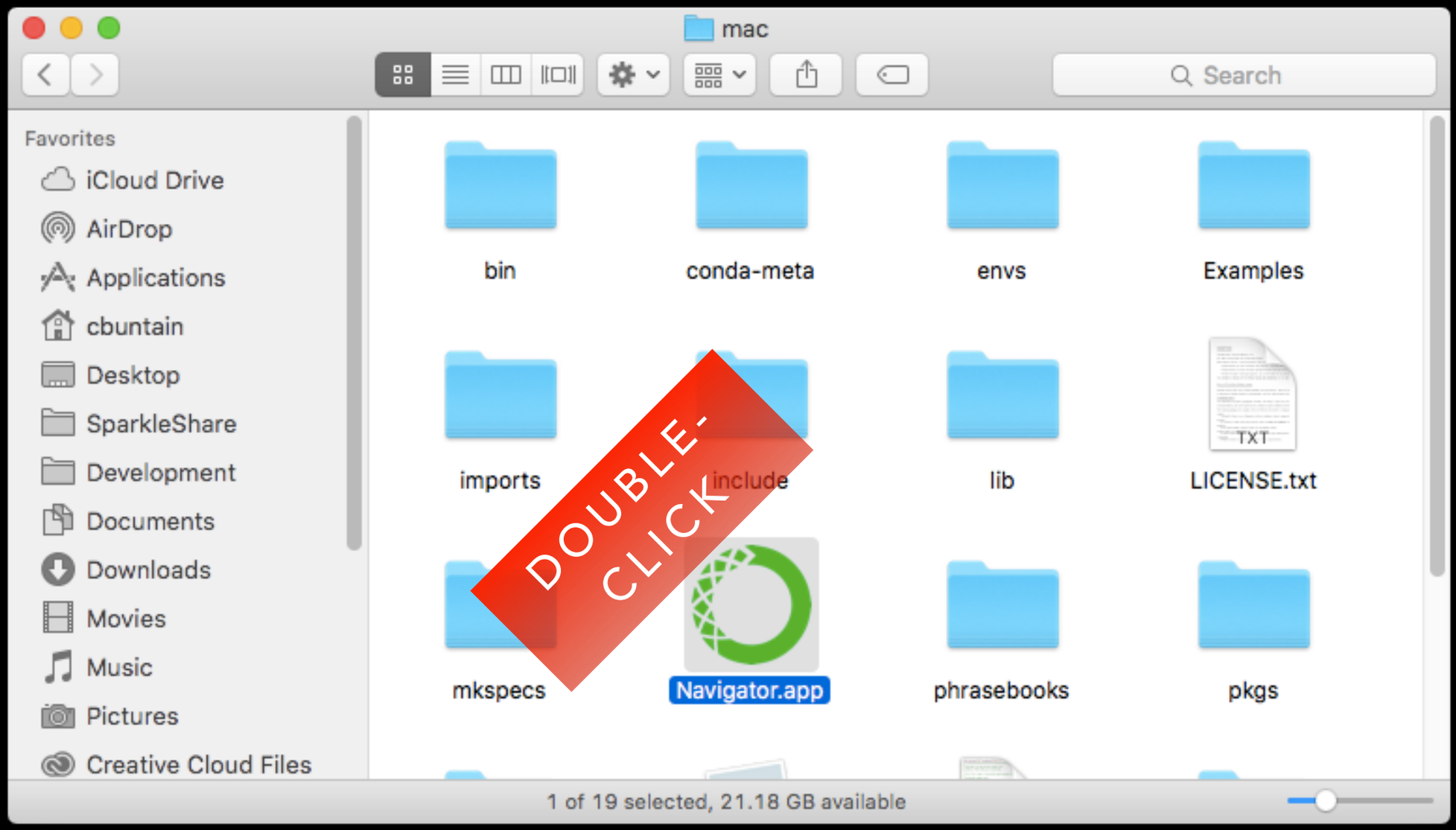


JUPYTER NOTEBOOKS

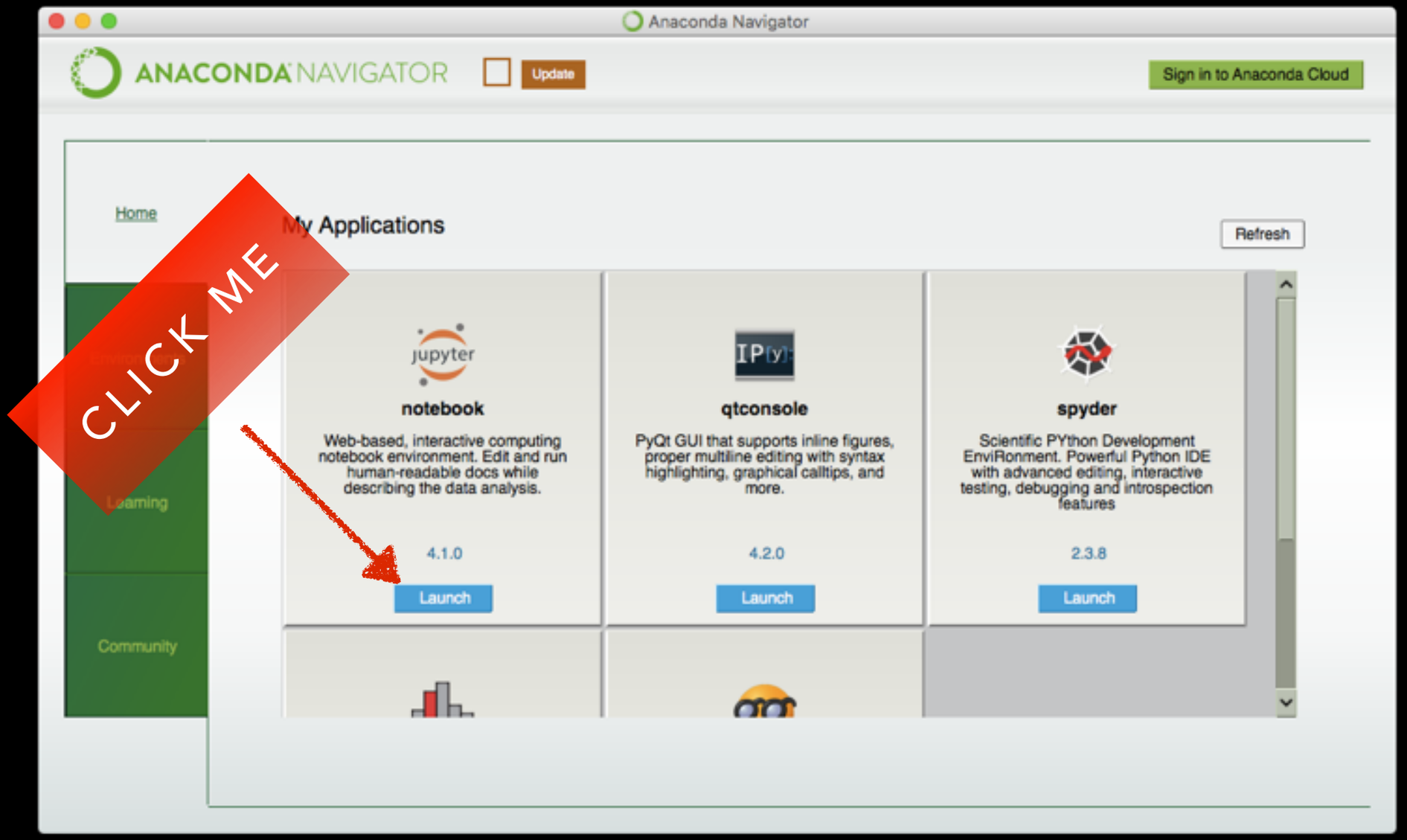
STARTING THE NOTEBOOK



Mac OSX

JUPYTER NOTEBOOKS

STARTING THE NOTEBOOK



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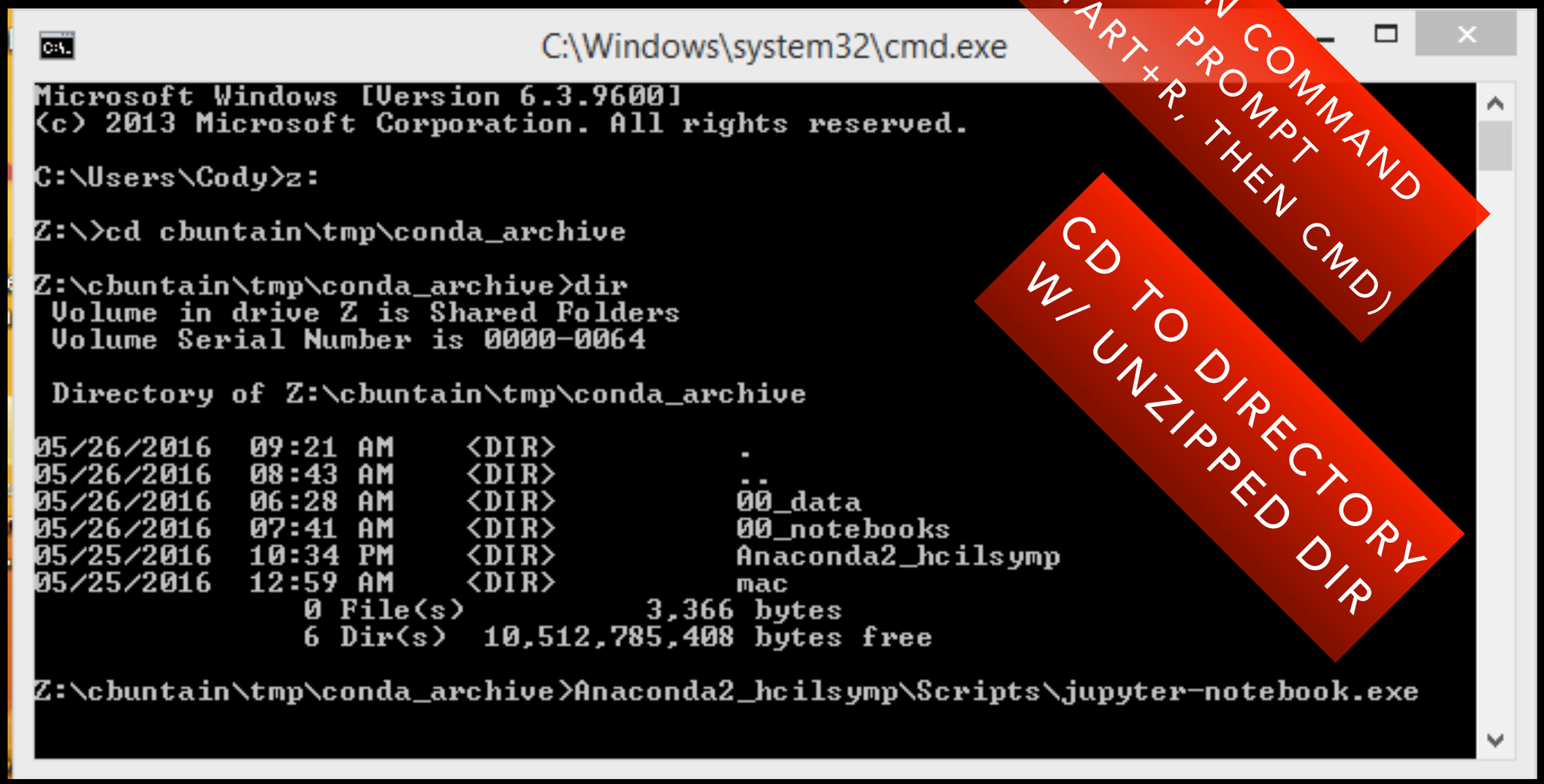
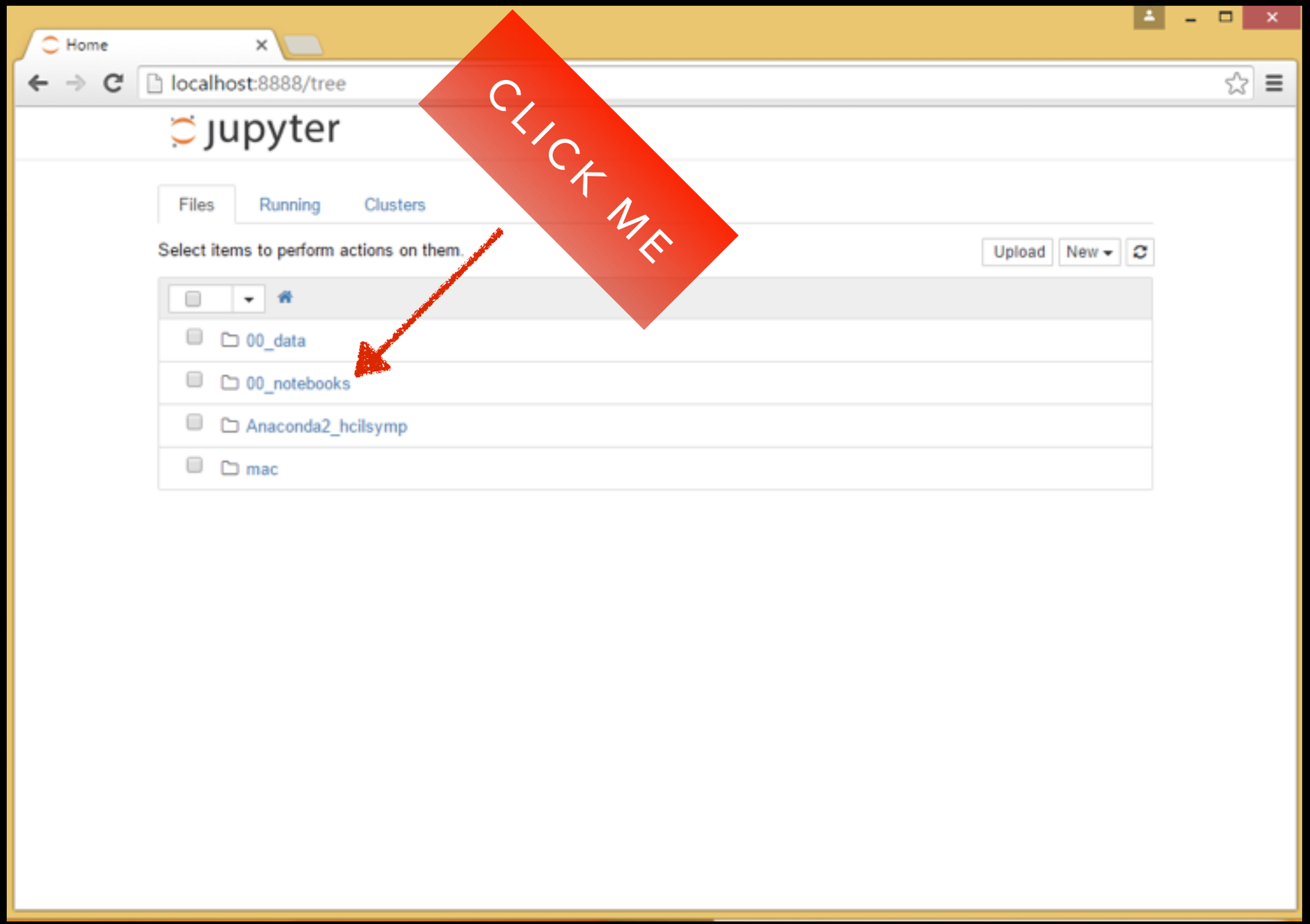


Windows

JUPYTER NOTEBOOKS

STARTING THE NOTEBOOK



Windows

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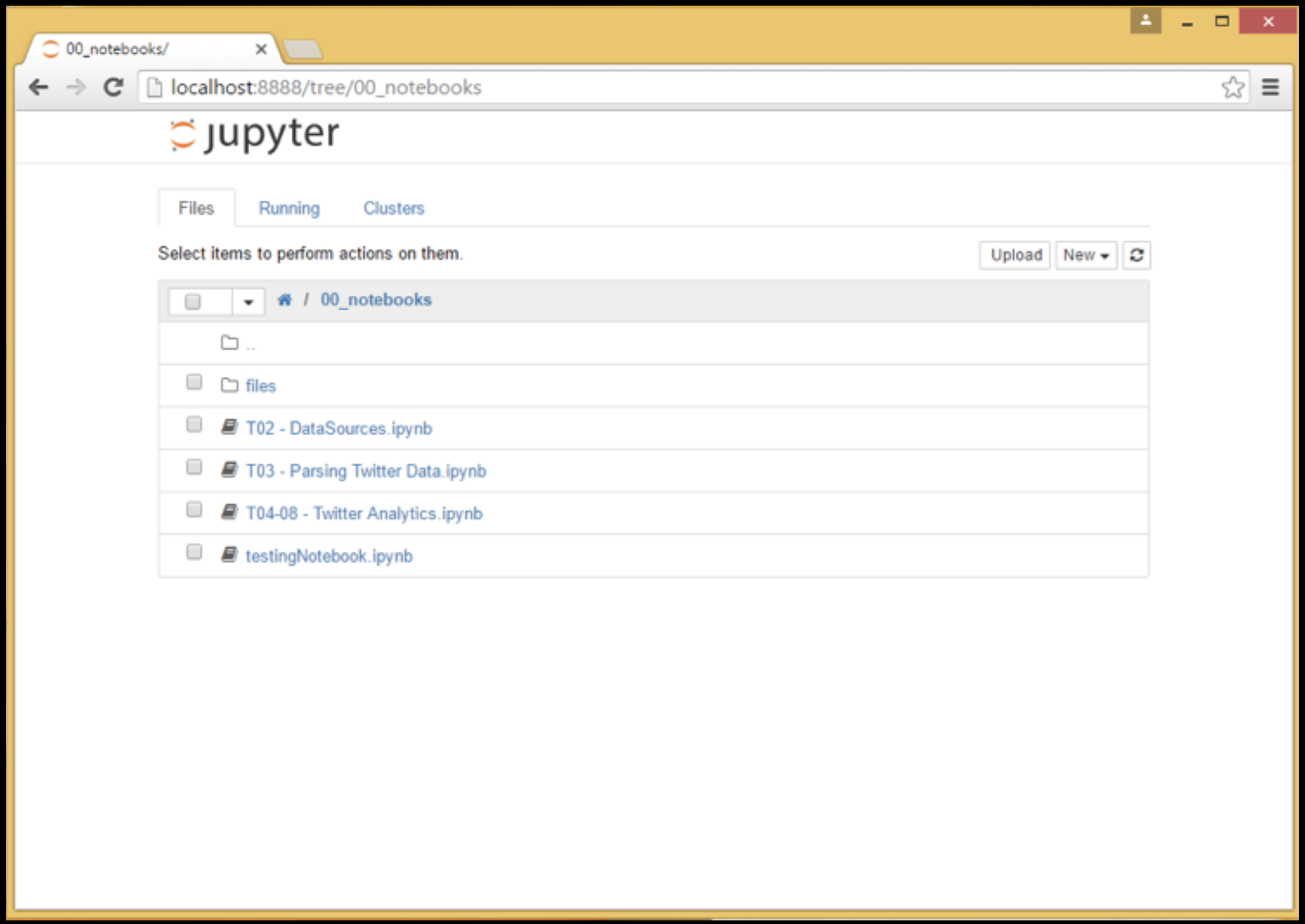
STARTING THE NOTEBOOK



Windows

JUPYTER NOTEBOOKS

STARTING THE NOTEBOOK

.-(/tmp/conda_base)——————————————————————————(user@system)-
`--> **/tmp/conda_base/anaconda2_linux/bin/jupyter-notebook**

—OR—

bash$ **cd /tmp/conda_base/**
bash$ **/tmp/conda_base/anaconda2_linux/bin/jupyter-notebook**

Linux

DATA SOURCES

DATA ARCHIVES

https://archive.org/details/twitterstream

Goes back to 2011

~40 gigabytes per month of tweets

DATA ARCHIVES

https://archive.org/details/

2015_reddit_comments_corpus

Jason Baumgartner's reddit archive

October 2007 to May 2015

Contains ~1.65 billion comments

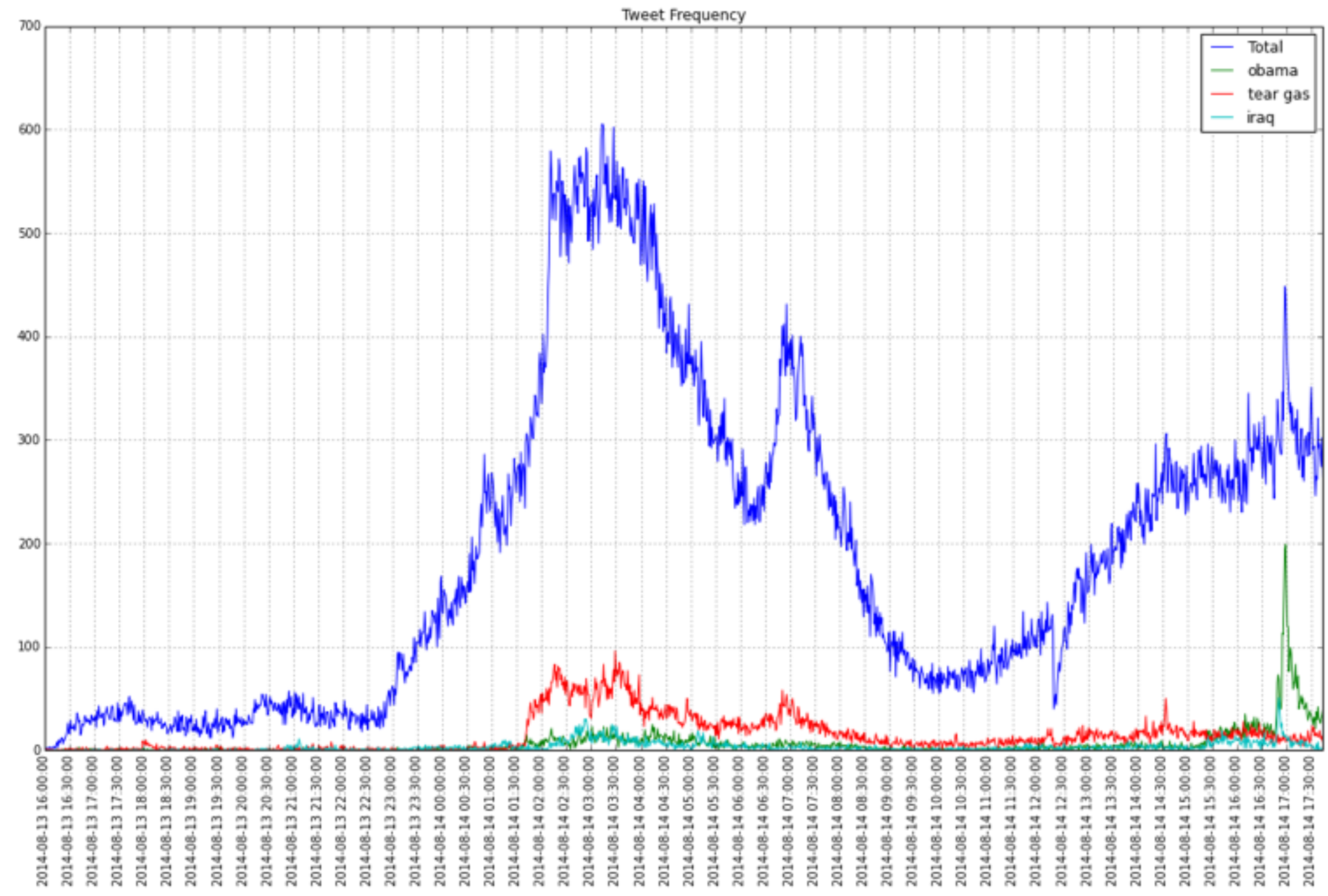
DATA ARCHIVES

Few Facebook data archives
that are publicly available

PARSING TWITTER DATA


```
{
  "contributors": null,
  "truncated": false,
  "text": "@megturney After seeing your tweets about #Ferguson I decided to look it up. The situation is horrible!",
  "in_reply_to_status_id": null,
  "id": 499922742045868000,
  "favorite_count": 0,
  "source": "<a href=\"http://twitter.com/download/iphone\" rel=\"nofollow\">Twitter for iPhone</a>",
  "retweeted": false,
  "coordinates": {
    "type": "Point",
    "coordinates": [
      -79.11194229,
      43.07537783
    ]
  },
  "entities": {
    "symbols": [],
    "user_mentions": [
      {
        "indices": [
          0,
          10
        ],
        "screen_name": "megturney",
        "id": 23711472,
        "name": "Meg Turney",
        "id_str": "23711472"
      }
    ],
    "hashtags": [
      {
        "indices": [
          42,
          51
```

FREQUENCY ANALYSIS




```
Top Twenty Hashtags:
        #ferguson 209701
        #mikebrown 17824
        #mediablackout 5322
        #gaza 4497
        #michaelbrown 2541
        #dontshoot 1968
        #anonymous 1836
        #stl 1607
        #palestine 1542
        #prayforferguson 1525
        #justiceformikebrown 1322
        #opferguson 1160
        #myawhite 995
        #usa 956
        #policestate 906
        #fergusonshooting 875
        #tcot 805
        #inners 773
        #iraq 736
        #fergusonriot 656
```

```
en 282138
es 3759
und 1882
de 1133
tr 795
fr 623
et 476
sk 463
tl 330
in 306
ar 282
it 241
```