```
7
                           http://www.nasa.gov/mission_pages/nustar/main/...
8
                           http://www.nasa.gov/mission_pages/nustar/main/...
9
                                     http://apod.nasa.gov/apod/ap120312.html
10
                           https://www.nysdot.gov/rexdesign/design/commun...
      America/Los_Angeles
11
         America/New_York
                           http://oversight.house.gov/wp-content/uploads/...
12
         America/New_York
                           https://www.nysdot.gov/rexdesign/design/commun...
13
                      NaN
         America/New_York
                                         http://toxtown.nlm.nih.gov/index.php
14
15
           Asia/Hong_Kong
                           http://www.ssd.noaa.gov/PS/TROP/TCFP/data/curr...
16
           Asia/Hong_Kong
                           http://www.usno.navy.mil/NOOC/nmfc-ph/RSS/jtwc...
17
         America/New_York
                           http://www.usda.gov/wps/portal/usda/usdahome?c...
18
           America/Denver
                                 http://www.monroecounty.gov/etc/911/rss.php
19
              Europe/Rome
                           http://www.nasa.gov/mission_pages/nustar/main/...
20
             Africa/Ceuta
                           http://voyager.jpl.nasa.gov/imagesvideo/uranus...
21
         America/New_York
                           http://www.nasa.gov/mission_pages/nustar/main/...
22
         America/New_York
                           http://portal.hud.gov/hudportal/documents/hudd...
23
         America/New_York
                           http://www.tricare.mil/mybenefit/ProfileFilter...
24
            Europe/Madrid
                           http://www.nasa.gov/mission_pages/nustar/main/...
25
        Asia/Kuala_Lumpur
                           http://www.nasa.gov/mission_pages/nustar/main/...
26
             Asia/Nicosia
                           http://www.nasa.gov/mission_pages/nustar/main/...
27
        America/Sao_Paulo
                                      http://apod.nasa.gov/apod/ap120312.html
28
                           https://www.nysdot.gov/rexdesign/design/commun...
29
                           http://www.ed.gov/news/media-advisories/us-dep...
      America/Los_Angeles
                           http://www.nasa.gov/multimedia/imagegallery/im...
3530
3531
                           http://www.nasa.gov/mission_pages/nustar/main/...
3532
         America/New_York
                           http://portal.hud.gov/hudportal/HUD?src=/press...
3533
         America/New_York
                                                   http://apod.nasa.gov/apod/
3534
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3535
          America/Chicago
                           http://ntl.bts.gov/lib/44000/44300/44374/FHWA-...
3536
                           http://www.nasa.gov/mission_pages/hurricanes/a...
3537
      America/Tegucigalpa
                                      http://apod.nasa.gov/apod/ap120312.html
3538
      America/Los_Angeles
                           http://healthypeople.gov/2020/connect/webinars...
3539
      America/Los_Angeles
                           http://www.federalreserve.gov/newsevents/press...
                           http://www.nasa.gov/mission_pages/nustar/main/...
3540
           America/Denver
3541
      America/Los_Angeles
                           http://www.federalreserve.gov/newsevents/press...
3542
      America/Los_Angeles
                           http://www.sba.gov/community/blogs/community-b...
3543
                      NaN
3544
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3545
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3546
      America/Los_Angeles
                           http://healthypeople.gov/2020/connect/webinars...
3547
         America/New_York
                           http://www.epa.gov/otaq/regs/fuels/additive/e1...
3548
          America/Chicago
                             http://www.fda.gov/Safety/Recalls/ucm296326.htm
3549
         Europe/Stockholm
                           http://www.nasa.gov/mission_pages/WISE/main/in...
         America/New_York
                           http://www.nlm.nih.gov/medlineplus/news/fullst...
3550
3551
                           http://www.nasa.gov/mission_pages/nustar/main/...
3552
          America/Chicago
                           http://travel.state.gov/passport/passport_5535...
3553
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
3554
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
3555
         America/New_York
                           http://www.fda.gov/AdvisoryCommittees/Committe...
3556
          America/Chicago
                           http://www.okc.gov/PublicNotificationSystem/Fo...
3557
           America/Denver
                                 http://www.monroecounty.gov/etc/911/rss.php
3558
      America/Los_Angeles
                                         http://www.ahrq.gov/qual/qitoolkit/
                           http://herndon-va.gov/Content/public_safety/Pu...
         America/New_York
3559
[3560 rows x 18 columns]
In [55]: clear
In [56]: frame
Out[56]:
       _heartbeat_
                                                                        \
                                                                     а
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
0
               NaN
1
               NaN
                                                GoogleMaps/RochesterNY
2
               NaN
                    Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
3
               NaN
```

Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...

4

```
Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
5
               NaN
6
               NaN
                    Mozilla/5.0 (Windows NT 5.1) AppleWebKit/535.1...
7
               NaN
                    Mozilla/5.0 (Windows NT 6.1; rv:2.0.1) Gecko/2...
                    Opera/9.80 (X11; Linux zbov; U; en) Presto/2.1...
8
               NaN
9
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
               NaN
10
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
11
               NaN
                    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.4...
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
12
               NaN
13
      1.331923e+09
14
               NaN
                    Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US...
15
               NaN
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
16
               NaN
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10.5; r...
17
               NaN
               NaN
18
                                                GoogleMaps/RochesterNY
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
19
               NaN
20
                    Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...
               NaN
21
               NaN
                    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.6...
                    Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
22
23
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_3)...
24
               NaN
                    Mozilla/5.0 (Windows; U; Windows NT 5.1; es-ES...
25
               NaN
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
26
               NaN
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
27
               NaN
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
                    Mozilla/5.0 (iPad; CPU OS 5_0_1 like Mac OS X)...
28
               NaN
29
               NaN
                    Mozilla/5.0 (iPad; U; CPU OS 3_2 like Mac OS X...
. . .
               . . .
3530
               NaN
                    Mozilla/5.0 (Windows NT 6.0) AppleWebKit/535.1...
                    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_6...
3531
               NaN
3532
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
3533
               NaN
                    Mozilla/5.0 (iPad; CPU OS 5_1 like Mac OS X) A...
3534
               NaN
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
                    Mozilla/5.0 (Windows NT 5.1; rv:10.0.2) Gecko/...
3535
               NaN
                    Mozilla/5.0 (BlackBerry; U; BlackBerry 9800; e...
3536
               NaN
3537
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
3538
               NaN
                    Mozilla/5.0 (iPhone; CPU iPhone OS 5_1 like Ma...
3539
               NaN
                      Mozilla/5.0 (compatible; Fedora Core 3) FC3 KDE
3540
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
3541
               NaN
                    Mozilla/5.0 (X11; U; OpenVMS AlphaServer_ES40;...
3542
               NaN
                    Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...
3543
      1.331927e+09
                                                                    NaN
3544
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:5.0.1) ...
3545
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
3546
               NaN
                    Mozilla/5.0 (iPhone; CPU iPhone OS 5_1 like Ma...
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
3547
               NaN
               NaN
                    Mozilla/5.0 (iPhone; CPU iPhone OS 5_1 like Ma...
3548
3549
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
3550
               NaN
                    Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
3551
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
3552
               NaN
                    Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US...
3553
               NaN
                    Mozilla/4.0 (compatible; MSIE 7.0; Windows NT ...
3554
               NaN
                    Mozilla/4.0 (compatible; MSIE 7.0; Windows NT ...
                    Mozilla/4.0 (compatible; MSIE 9.0; Windows NT ...
3555
               NaN
3556
                    Mozilla/5.0 (Windows NT 5.1) AppleWebKit/535.1...
               NaN
3557
               NaN
                                                GoogleMaps/RochesterNY
3558
               NaN
                                                        GoogleProducer
                    Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
3559
               NaN
                                                  C
                                                                    CV
0
                               en-US, en; q=0.8
                                                 US
                                                               Danvers
                                                                        A6q0VH
1
                                          NaN
                                                 US
                                                                 Provo
                                                                        mwszkS
2
                                        en-US
                                                 US
                                                            Washington
                                                                        xxr3Qb
3
                                                 BR
                                                                  Braz
                                        pt-br
                                                                        zCaLwp
4
                              en-US,en;q=0.8
                                                 US
                                                            Shrewsbury
                                                                        9b6kNl
5
                              en-US,en;q=0.8
                                                 US
                                                            Shrewsbury
                                                                        axNK8c
         pl-PL,pl;q=0.8,en-US;q=0.6,en;q=0.4
6
                                                 PL
                                                                 Luban
                                                                        wcndER
7
                     bg, en-us; q=0.7, en; q=0.3
                                               None
                                                                   NaN
                                                                        wcndER
8
                                    en-US, en
                                               None
                                                                   NaN
                                                                        wcndER
         pt-BR,pt;q=0.8,en-US;q=0.6,en;q=0.4
                                               None
                                                                   NaN
                                                                       zCaLwp
```

```
10
                                en-us, en; q=0.5
                                                    US
                                                                  Seattle vNJS4H
                                                    US
11
                                en-us, en; q=0.5
                                                               Washington wG70IH
12
                                en-us, en; q=0.5
                                                    US
                                                               Alexandria
                                                                            vNJS4H
13
                                                   NaN
                                                                       NaN
                                                                               NaN
                                            NaN
                                                                            2r0UYc
14
                                                    US
                                                                 Marietta
                                en-us, en; q=0.5
                                                                           nQvgJp
15
         zh-TW, zh; q=0.8, en-US; q=0.6, en; q=0.4
                                                    HK
                                                        Central District
16
         zh-TW, zh; q=0.8, en-US; q=0.6, en; q=0.4
                                                    HK
                                                        Central District
                                                                             XdUNr
17
                                                    US
                                                                Buckfield
                                en-us, en; q=0.5
18
                                                    US
                                                                     Provo
                                                                            mwszkS
19
         it-IT, it; q=0.8, en-US; q=0.6, en; q=0.4
                                                    IT
                                                                    Venice
                                                                            wcndER
20
                                          es-ES
                                                    ES
                                                                     Alcal
                                                                            zQ95Hi
21
                                en-us, en; q=0.5
                                                    US
                                                            Davidsonville
                                                                            wcndER
22
                                          en-us
                                                    US
                                                                Hockessin
                                                                            y3ZImz
                                                                            wWiOiD
23
                                          en-us
                                                    US
                                                                   Lititz
24
         es-es, es; q=0.8, en-us; q=0.5, en; q=0.3
                                                    ES
                                                                   Bilbao
                                                                           wcndER
25
      en-GB, en; q=0.8, en-US; q=0.6, en-AU; q=0.4
                                                    MY
                                                             Kuala Lumpur
                                                                            wcndER
26
         ro-R0, ro; q=0.8, en-US; q=0.6, en; q=0.4
                                                    CY
                                                                  Nicosia
                                                                            wcndER
27
                                                    BR
                                en-US, en; q=0.8
                                                                    SPaulo
                                                                            zCaLwp
28
                                          en-us
                                                  None
                                                                       NaN
                                                                            vNJS4H
29
                                          en-us
                                                  None
                                                                       NaN
                                                                            FPX0IM
3530
                                en-US, en; q=0.8
                                                    US
                                                            San Francisco
                                                                            xVZg4P
3531
                                          en-US
                                                  None
                                                                       NaN
                                                                            wcndER
                                                    US
3532
                                en-us, en; q=0.5
                                                               Washington
                                                                            Au3aUS
                                                    US
                                                             Jacksonville
                                                                            b2UtUJ
3533
                                          en-us
3534
                                          en-us
                                                    US
                                                                   Frisco
                                                                            vNJS4H
3535
                                          en-us
                                                    US
                                                                  Houston
                                                                            zIqLx8
                                en-US,en;q=0.5
3536
                                                  None
                                                                       NaN
                                                                            xIcyim
3537
         es-es, es; q=0.8, en-us; q=0.5, en; q=0.3
                                                              Tegucigalpa
                                                                            zCaLwp
3538
                                                    US
                                                              Los Angeles
                                                                            qMac9k
3539
                                            NaN
                                                    US
                                                                 Bellevue
                                                                            zu2M5o
3540
                                en-US,en;q=0.8
                                                    US
                                                                   Payson
                                                                            wcndER
3541
                                                    US
                                            NaN
                                                                 Bellevue
                                                                            zu2M5o
3542
                                          en-us
                                                    US
                                                                Pittsburg
                                                                            y3reI1
3543
                                            NaN
                                                   NaN
                                                                       NaN
                                                                               NaN
3544
                                en-us, en; q=0.5
                                                    US
                                                               Wentzville
                                                                            vNJS4H
3545
                                en-us, en; q=0.5
                                                    US
                                                            Saint Charles
                                                                            vNJS4H
3546
                                          en-us
                                                    US
                                                              Los Angeles
                                                                            qMac9k
3547
                                          en-us
                                                    US
                                                            Silver Spring
                                                                            y0jYkg
                                                    US
                                                                            y5rMac
3548
                                                                  Mcgehee
         sv-SE, sv; q=0.8, en-US; q=0.6, en; q=0.4
3549
                                                    SE
                                                                 Sollefte
                                                                             eH8wu
                                                    US
3550
                                          en-us
                                                             Conshohocken A00b72
3551
                                en-US,en;q=0.8
                                                  None
                                                                       NaN
                                                                            wcndER
3552
                                            NaN
                                                    US
                                                                  Decatur
                                                                            rqgJuE
                                                    US
                                                                            9b6kNl
3553
                                          en-us
                                                               Shrewsbury
3554
                                          en-us
                                                    US
                                                               Shrewsbury
                                                                            axNK8c
3555
                                              en
                                                    US
                                                                  Paramus
                                                                            e5SvKE
3556
                                en-US,en;q=0.8
                                                    US
                                                            Oklahoma City
                                                                            jQLtP4
3557
                                            NaN
                                                    US
                                                                     Provo
                                                                            mwszkS
3558
                                            NaN
                                                    US
                                                            Mountain View
                                                                            zjtI4X
3559
                                          en-US
                                                    US
                                                                  Mc Lean
                                                                           qxKrTK
                               hc
                                             hh
                                                                     1
       gr
                 h
                                                   kw
0
       MA
           wfLQtf
                    1.331823e+09
                                      1.usa.gov
                                                  NaN
                                                              orofrog
                    1.308262e+09
                                                                bitly
1
           mwszkS
                                                  NaN
                                           j.mp
2
           xxr3Qb
                    1.331920e+09
                                      1.usa.gov
                                                  NaN
                                                                bitly
3
       27
            zUtu0u
                    1.331923e+09
                                      1.usa.gov
                                                  NaN
                                                             alelex88
4
       MA
           9b6kNl
                    1.273672e+09
                                         bit.ly
                                                  NaN
                                                                bitly
5
       MA
           axNK8c
                    1.273673e+09
                                         bit.ly
                                                  NaN
                                                                bitly
6
       77
            zkpJBR
                    1.331923e+09
                                      1.usa.gov
                                                  NaN
                                                             bnjacobs
7
      NaN
           zkpJBR
                    1.331923e+09
                                      1.usa.gov
                                                  NaN
                                                             bnjacobs
8
      NaN
           zkpJBR
                    1.331923e+09
                                                  NaN
                                      1.usa.gov
                                                             bnjacobs
9
      NaN
           zUtu0u
                    1.331923e+09
                                                  NaN
                                                             alelex88
                                      1.usa.gov
10
       WA
                    1.319564e+09
           u0uD9q
                                      1.usa.gov
                                                  NaN
                                                         o_4us71ccioa
                    1.331816e+09
11
       DC
            A0nRz4
                                      1.usa.gov
                                                  NaN
                                                         darrellissa
12
       V۸
            u0uD9q
                    1.319564e+09
                                      1.usa.gov
                                                  NaN
                                                         o_4us71ccioa
13
      NaN
               NaN
                                            NaN
                                                  NaN
                                                                  NaN
14
       GΑ
           2r0UYc 1.255770e+09
                                      1.usa.gov
                                                  NaN
                                                                bitly
```

```
00 rtrrth 1.317318e+09
15
                                        j.mp NaN
                                                       walkeryuen
       00 qWkgbq 1.317318e+09
16
                                       j.mp
                                              NaN
                                                       walkeryuen
17
       ME x3j0Iv 1.331840e+09
                                              NaN
                                                    andyzieminski
                                 1.usa.gov
18
       UT
          mwszkS 1.308262e+09
                                 1.usa.gov
                                              NaN
                                                          bitly
19
       20 zkpJBR 1.331923e+09
                                 usa.gov
                                              NaN
                                                        bnjacobs
      51 ytZYWR 1.331671e+09
MD zkpJBR 1.331923e+09
DE y3ZImz 1.331064e+09
PA wWi0iD 1.330218e+09
                                                         jplnews
20
                                  bitly.com
                                              NaN
21
                                   1.usa.gov
                                              NaN
                                                         bnjacobs
                                                         bitly
bitly
22
                                   1.usa.gov
                                              NaN
23
                                   usa.gov
                                              NaN
         zkpJBR 1.331923e+09
zkpJBR 1.331923e+09
24
       59
                                   1.usa.gov
                                              NaN
                                                        bnjacobs
25
       14
                                   1.usa.gov
                                              NaN
                                                         bnjacobs
          zkpJBR 1.331923e+09
26
      04
                                   1.usa.gov
                                              NaN
                                                        bnjacobs
          zUtu0u 1.331923e+09
27
      27
                                   1.usa.gov
                                              NaN
                                                        alelex88
      NaN u0uD9q 1.319564e+09
                                   1.usa.gov
28
                                              NaN
                                                   o_4us71ccioa
      NaN FPX0IL 1.331923e+09
                                                   twittershare
29
                                   usa.gov
                                              NaN
                                    . . .
                                               . . .
      CA wqUkTo 1.331908e+09
                                                     nasatwitter
3530
                                 go.nasa.gov
                                              NaN
3531
      NaN zkpJBR 1.331923e+09
                                 usa.gov
                                              NaN
                                                     bnjacobs
3532
      DC A9ct6C 1.331926e+09
                                   usa.gov
                                              NaN
                                                          ncsha
3533
       FL ieCdgH 1.301393e+09
                                 go.nasa.gov
                                              NaN
                                                   nasatwitter
       TX u0uD9q 1.319564e+09
                                              NaN
3534
                                 1.usa.gov
                                                   o_4us71ccioa
                                   aash.to NaN
3535
      TX yrPaLt 1.331903e+09
                                                       aashto
                                                     nasatwitter
3536
      NaN yG1TTf 1.331728e+09
                                 go.nasa.gov
                                              NaN
      08 w63FZW 1.331547e+09
                                              NaN
3537
                                 1.usa.gov
                                                     bufferapp
3538
       CA qds1Ge 1.310474e+09
                                   usa.gov
                                              NaN healthypeople
                                                      glimtwin
          zDhdro 1.331586e+09
zkpJBR 1.331923e+09
3539
                                   bit.ly
                                              NaN
       UT
3540
                                   1.usa.gov
                                              NaN
                                                        bnjacobs
       WA zDhdro 1.331586e+09
CA y3reI1 1.331926e+09
3541
                                   1.usa.gov
                                              NaN
                                                        glimtwin
3542
      \mathsf{CA}
                                   1.usa.gov
                                              NaN
                                                           bitly
3543
      NaN
           NaN
                   NaN
                                        NaN
                                              NaN
                                                              NaN
      MO u0uD9q 1.319564e+09
3544

    usa.gov

                                              NaN
                                                    o_4us71ccioa
      IL u0uD9q 1.319564e+09
                                                   o_4us71ccioa
3545
                                   usa.gov
                                              NaN
       CA qds1Ge 1.310474e+09
3546
                                   usa.gov
                                              NaN
                                                    healthypeople
3547
      MD y0jYkg 1.331852e+09
                                   usa.gov
                                              NaN
                                                           bitly
       AR xANY60 1.331916e+09
3548
                                  usa.gov
                                              NaN
                                                    twitterfeed
3549
       24 7dtjei 1.260316e+09
                                  1.usa.gov
                                              NaN
                                                   tweetdeckapi
      PA yGSwzn 1.331918e+09
3550
                                  1.usa.gov
                                              NaN
                                                        addthis
3551
      NaN zkpJBR 1.331923e+09
                                   usa.gov
                                              NaN
                                                       bnjacobs
      AL xcz8vt 1.331227e+09
3552
                                   usa.gov
                                              NaN
                                                       bootsnall
3553
      MA 9b6kNl 1.273672e+09
                                   bit.ly
                                              NaN
                                                         bitly
      MA axNK8c 1.273673e+09
3554
                                     bit.ly
                                              NaN
                                                           bitly
      NJ fqPSr9 1.301298e+09
3555
                                              NaN
                                   usa.gov
                                                    tweetdeckapi
       OK jQLtP4 1.307530e+09
                                                      bitly
3556
                                   1.usa.gov
                                              NaN
3557
      UT
          mwszkS 1.308262e+09
                                   j.mp
                                              NaN
                                                           bitly
      CA zjtI4X 1.327529e+09
VA qxKrTK 1.312898e+09
3558

    usa.gov

                                              NaN
                                                           bitly
3559
                                   1.usa.gov NaN
                                                           bitly
                                 nk
      [42.576698, -70.954903]
0
                                1.0
1
      [40.218102, -111.613297]
                                0.0
        [38.9007, -77.043098]
                                1.0
2
      [-23.549999, -46.616699]
3
                                0.0
4
      [42.286499, -71.714699]
                                0.0
5
       [42.286499, -71.714699]
                                0.0
6
          [51.116699, 15.2833]
                                0.0
7
                           NaN
                                0.0
8
                                0.0
9
10
       [47.5951, -122.332603]
11
       [38.937599, -77.092796]
                                0.0
12
       [38.790901, -77.094704]
                                1.0
                                NaN
13
                           NaN
14
         [33.953201, -84.5177]
                                1.0
         [22.2833, 114.150002]
15
                                1.0
16
        [22.2833, 114.150002]
                                1.0
17
      [44.299702, -70.369797]
                                0.0
      [40.218102, -111.613297]
18
          [45.438599, 12.3267]
19
```

```
20
          [37.516701, -5.9833]
21
       [38.939201, -76.635002]
          [39.785, -75.682297]
22
                                 0.0
         [40.174999, -76.3078]
23
                                 0.0
24
               [43.25, -2.9667]
                                 0.0
          [3.1667, 101.699997]
25
                                 0.0
        [35.166698, 33.366699]
26
                                 0.0
27
        [-23.5333, -46.616699]
                                  0.0
28
                                 0.0
29
                            NaN
                                 1.0
        [37.7645, -122.429398]
3530
                                  0.0
3531
                            NaN
                                 0.0
       [38.904202, -77.031998]
3532
                                  1.0
       [30.279301, -81.585098]
3533
                                  1.0
       [33.149899, -96.8554997
3534
       [29.775499, -95.415199]
3535
                                  1.0
3536
                                 0.0
3537
            [14.1, -87.216698]
                                  0.0
3538
      [34.041599, -118.298798]
                                  0.0
3539
      [47.615398, -122.210297]
                                  0.0
3540
      [40.014198, -111.738899]
                                 0.0
3541
      [47.615398, -122.210297]
                                 0.0
3542
        [38.0051, -121.838699]
                                 0.0
3543
                                 NaN
3544
       [38.790001, -90.854897]
                                 1.0
3545
         [41.9352, -88.290901]
                                  1.0
      [34.041599, -118.298798]
[39.052101, -77.014999]
3546
                                  1.0
3547
3548
       [33.628399, -91.356903]
        [63.166698, 17.266701]
3549
                                  1.0
3550
           [40.0798, -75.2855]
                                  0.0
                                 0.0
3551
3552
       [34.572701, -86.940598]
                                  0.0
3553
       [42.286499, -71.714699]
                                  0.0
       [42.286499, -71.714699]
3554
             [40.9445, -74.07]
3555
                                  1.0
3556
         [35.4715, -97.518997]
3557
      [40.218102, -111.613297]
3558
      [37.419201, -122.057404]
3559
       [38.935799, -77.162102]
                                                                        t
      http://www.facebook.com/l/7AQEFzjSi/1.usa.gov/...
0
                                                           1.331923e+09
1
                                http://www.AwareMap.com/
                                                           1.331923e+09
2
                                     http://t.co/03elZC4Q 1.331923e+09
3
                                                   direct 1.331923e+09
4
                     http://www.shrewsbury-ma.gov/selco/
                                                            1.331923e+09
5
                     http://www.shrewsbury-ma.gov/selco/
                                                            1.331923e+09
6
      http://plus.url.google.com/url?sa=z&n=13319232...
                                                            1.331923e+09
7
                                http://www.facebook.com/
                                                            1.331923e+09
8
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                            1.331923e+09
9
                                     http://t.co/o1Pd0WeV
                                                            1.331923e+09
10
                                                    direct
                                                           1.331923e+09
11
                                     http://t.co/ND7SoPyo
                                                            1.331923e+09
12
                                                    direct
                                                            1.331923e+09
13
14
                                                   direct
                                                            1.331923e+09
15
      http://forum2.hkgolden.com/view.aspx?type=BW&m...
                                                            1.331923e+09
16
      http://forum2.hkgolden.com/view.aspx?type=BW&m...
                                                           1.331923e+09
17
                                     http://t.co/6Cx4R0Ls 1.331923e+09
18
                                http://www.AwareMap.com/ 1.331923e+09
19
                                http://www.facebook.com/ 1.331923e+09
20
                                http://www.facebook.com/
                                                           1.331923e+09
21
                                http://www.facebook.com/
                                                           1.331923e+09
22
                                                    direct
                                                           1.331923e+09
23
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                            1.331923e+09
24
                                 http://www.facebook.com/
                                                            1.331923e+09
```

```
25
                               http://www.facebook.com/ 1.331923e+09
26
                   http://www.facebook.com/?ref=tn_tnmn 1.331923e+09
                                                  direct 1.331923e+09
27
                                                  direct 1.331923e+09
28
29
                                   http://t.co/5xlp0B34 1.331923e+09
      http://www.facebook.com/l.php?u=http%3A%2F%2Fq...
3530
                                                          1.331927e+09
3531
                                                  direct
                                                          1.331927e+09
3532
                                  http://www.ncsha.org/
                                                          1.331927e+09
3533
                                                  direct
                                                         1.331927e+09
3534
                                                  direct
                                                          1.331927e+09
3535
                                                  direct 1.331927e+09
3536
                                   http://t.co/g1VKE8zS
                                                         1.331927e+09
3537
                                   http://t.co/A8TJyibE
                                                         1.331927e+09
3538
                                                  direct
                                                         1.331927e+09
3539
                                                  direct 1.331927e+09
3540
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                          1.331927e+09
3541
                                                  direct
                                                         1.331927e+09
3542
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                          1.331927e+09
3543
                                                     NaN
                                                                   NaN
3544
                                                  direct 1.331927e+09
3545
                                                  direct 1.331927e+09
3546
                                                  direct 1.331927e+09
3547
                                                  direct 1.331927e+09
      https://twitter.com/fdarecalls/status/18069759... 1.331927e+09
3548
3549
                                                  direct
                                                         1.331927e+09
       http://www.linkedin.com/home?trk=hb_tab_home_top 1.331927e+09
3550
      http://plus.url.google.com/url?sa=z&n=13319268...
3551
                                                          1.331927e+09
3552
                                                  direct
                                                          1.331927e+09
3553
                    http://www.shrewsbury-ma.gov/selco/
                                                          1.331927e+09
                    http://www.shrewsbury-ma.gov/selco/
3554
                                                         1.331927e+09
3555
                                                  direct 1.331927e+09
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
3556
                                                          1.331927e+09
3557
                               http://www.AwareMap.com/
                                                          1.331927e+09
3558
                                                  direct
                                                          1.331927e+09
3559
                                   http://t.co/0EEEvwjU 1.331927e+09
                       tz
0
         America/New_York
                                 http://www.ncbi.nlm.nih.gov/pubmed/22415991
1
           America/Denver
                                 http://www.monroecounty.gov/etc/911/rss.php
2
         America/New_York
                           http://boxer.senate.gov/en/press/releases/0316...
3
        America/Sao_Paulo
                                     http://apod.nasa.gov/apod/ap120312.html
4
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
5
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
6
            Europe/Warsaw
                           http://www.nasa.gov/mission_pages/nustar/main/...
7
                           http://www.nasa.gov/mission_pages/nustar/main/...
8
                           http://www.nasa.gov/mission_pages/nustar/main/...
9
                                     http://apod.nasa.gov/apod/ap120312.html
10
      America/Los_Angeles
                           https://www.nysdot.gov/rexdesign/design/commun...
11
         America/New_York
                           http://oversight.house.gov/wp-content/uploads/...
12
         America/New_York
                           https://www.nysdot.gov/rexdesign/design/commun...
13
                      NaN
14
         America/New_York
                                        http://toxtown.nlm.nih.gov/index.php
15
           Asia/Hong_Kong
                           http://www.ssd.noaa.gov/PS/TROP/TCFP/data/curr...
                           http://www.usno.navy.mil/NOOC/nmfc-ph/RSS/jtwc...
16
           Asia/Hong_Kong
17
         America/New_York
                           http://www.usda.gov/wps/portal/usda/usdahome?c...
18
           America/Denver
                                 http://www.monroecounty.gov/etc/911/rss.php
19
              Europe/Rome
                           http://www.nasa.gov/mission_pages/nustar/main/...
20
             Africa/Ceuta
                           http://voyager.jpl.nasa.gov/imagesvideo/uranus...
21
         America/New_York
                           http://www.nasa.gov/mission_pages/nustar/main/...
22
         America/New_York
                           http://portal.hud.gov/hudportal/documents/hudd...
23
         America/New_York
                           http://www.tricare.mil/mybenefit/ProfileFilter...
24
            Europe/Madrid
                           http://www.nasa.gov/mission_pages/nustar/main/...
25
        Asia/Kuala_Lumpur
                           http://www.nasa.gov/mission_pages/nustar/main/...
26
             Asia/Nicosia
                           http://www.nasa.gov/mission_pages/nustar/main/...
27
        America/Sao_Paulo
                                     http://apod.nasa.gov/apod/ap120312.html
28
                           https://www.nysdot.gov/rexdesign/design/commun...
29
                           http://www.ed.gov/news/media-advisories/us-dep...
```

```
3530
      America/Los_Angeles
                           http://www.nasa.gov/multimedia/imagegallery/im...
3531
                           http://www.nasa.gov/mission_pages/nustar/main/...
                           http://portal.hud.gov/hudportal/HUD?src=/press...
3532
         America/New_York
3533
         America/New_York
                                                   http://apod.nasa.gov/apod/
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3534
3535
          America/Chicago
                           http://ntl.bts.gov/lib/44000/44300/44374/FHWA-...
3536
                           http://www.nasa.gov/mission_pages/hurricanes/a...
3537
      America/Tegucigalpa
                                     http://apod.nasa.gov/apod/ap120312.html
3538
      America/Los_Angeles
                           http://healthypeople.gov/2020/connect/webinars...
3539
      America/Los_Angeles
                           http://www.federalreserve.gov/newsevents/press...
3540
           America/Denver
                           http://www.nasa.gov/mission_pages/nustar/main/...
3541
      America/Los_Angeles
                           http://www.federalreserve.gov/newsevents/press...
                           http://www.sba.gov/community/blogs/community-b...
3542
      America/Los_Angeles
3543
                      NaN
3544
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3545
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3546
      America/Los_Angeles
                           http://healthypeople.gov/2020/connect/webinars...
3547
         America/New_York
                           http://www.epa.gov/otaq/regs/fuels/additive/e1...
3548
          America/Chicago
                             http://www.fda.gov/Safety/Recalls/ucm296326.htm
3549
         Europe/Stockholm
                           http://www.nasa.gov/mission_pages/WISE/main/in...
3550
         America/New_York
                           http://www.nlm.nih.gov/medlineplus/news/fullst...
3551
                           http://www.nasa.gov/mission_pages/nustar/main/...
3552
          America/Chicago
                           http://travel.state.gov/passport/passport_5535...
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
3553
         America/New_York
3554
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
3555
         America/New_York
                           http://www.fda.gov/AdvisoryCommittees/Committe...
3556
          America/Chicago
                           http://www.okc.gov/PublicNotificationSystem/Fo...
3557
           America/Denver
                                 http://www.monroecounty.gov/etc/911/rss.php
3558
      America/Los_Angeles
                                         http://www.ahrq.gov/qual/qitoolkit/
3559
         America/New_York
                           http://herndon-va.gov/Content/public_safety/Pu...
```

[3560 rows x 18 columns]

```
In [57]: print frame
       _heartbeat_
                                                                      а
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
0
               NaN
1
               NaN
                                                GoogleMaps/RochesterNY
2
               NaN
                    Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
3
               NaN
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
4
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
5
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
6
               NaN
                    Mozilla/5.0 (Windows NT 5.1) AppleWebKit/535.1...
7
               NaN
                    Mozilla/5.0 (Windows NT 6.1; rv:2.0.1) Gecko/2...
8
                    Opera/9.80 (X11; Linux zbov; U; en) Presto/2.1...
               NaN
9
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
10
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
11
               NaN
                    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.4...
12
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
13
      1.331923e+09
                    Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US...
14
               NaN
15
               NaN
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
16
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
               NaN
17
               NaN
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10.5; r...
                                                GoogleMaps/RochesterNY
18
               NaN
                    Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
19
               NaN
20
               NaN
                    Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...
21
               NaN
                    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.6...
22
               NaN
                    Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
23
               NaN
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_3)...
24
               NaN
                    Mozilla/5.0 (Windows; U; Windows NT 5.1; es-ES...
25
               NaN
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
26
               NaN
                    Mozilla/5.0 (Windows NT 6.1) AppleWebKit/535.1...
27
               NaN
                    Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
28
               NaN
                    Mozilla/5.0 (iPad; CPU OS 5_0_1 like Mac OS X)...
29
               NaN
                    Mozilla/5.0 (iPad; U; CPU OS 3_2 like Mac OS X...
               . . .
3530
                    Mozilla/5.0 (Windows NT 6.0) AppleWebKit/535.1...
```

```
Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_6...
3531
               NaN
3532
               NaN
                     Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
                     Mozilla/5.0 (iPad; CPU OS 5_1 like Mac OS X) A...
               NaN
3533
               NaN
                     Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
3534
                     Mozilla/5.0 (Windows NT 5.1; rv:10.0.2) Gecko/...
3535
               NaN
               NaN
                     Mozilla/5.0 (BlackBerry; U; BlackBerry 9800; e...
3536
                     Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
3537
               NaN
                     Mozilla/5.0 (iPhone; CPU iPhone OS 5_1 like Ma...
3538
               NaN
3539
               NaN
                       Mozilla/5.0 (compatible; Fedora Core 3) FC3 KDE
3540
               NaN
                     Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
                     Mozilla/5.0 (X11; U; OpenVMS AlphaServer_ES40;...
3541
               NaN
3542
               NaN
                     Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...
3543
      1.331927e+09
                     Mozilla/5.0 (Windows NT 6.1; WOW64; rv:5.0.1) ...
3544
               NaN
                     Mozilla/5.0 (Windows NT 6.1; WOW64; rv:10.0.2)...
3545
               NaN
3546
               NaN
                     Mozilla/5.0 (iPhone; CPU iPhone OS 5_1 like Ma...
3547
               NaN
                     Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8)...
3548
                     Mozilla/5.0 (iPhone; CPU iPhone OS 5_1 like Ma...
               NaN
3549
               NaN
                     Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
3550
               NaN
                     Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
                     Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKi...
3551
               NaN
3552
               NaN
                     Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US...
                     Mozilla/4.0 (compatible; MSIE 7.0; Windows NT \dots
3553
               NaN
                     Mozilla/4.0 (compatible; MSIE 7.0; Windows NT \dots
3554
               NaN
               NaN
                     Mozilla/4.0 (compatible; MSIE 9.0; Windows NT ...
3555
3556
               NaN
                     Mozilla/5.0 (Windows NT 5.1) AppleWebKit/535.1...
3557
               NaN
                                                  GoogleMaps/RochesterNY
               NaN
                                                          GoogleProducer
3558
3559
               NaN
                     Mozilla/4.0 (compatible; MSIE 8.0; Windows NT ...
                                                                      су
                               en-US,en;q=0.8
0
                                                  US
                                                                Danvers
                                                                          A6q0VH
1
                                           NaN
                                                  US
                                                                   Provo
                                                                          mwszkS
2
                                         en-US
                                                  US
                                                             Washington
                                                                         xxr30b
3
                                         pt-br
                                                   BR
                                                                    Braz
                                                                         zCaLwp
4
5
                               en-US, en; q=0.8
                                                  US
                                                             Shrewsbury
                                                                          9b6kNl
                                                  US
                               en-US, en; q=0.8
                                                             Shrewsbury axNK8c
6
         pl-PL,pl;q=0.8,en-US;q=0.6,en;q=0.4
                                                  PL
                                                                   Luban wcndER
7
                      bg, en-us; q=0.7, en; q=0.3
                                                None
                                                                     NaN wcndER
8
                                     en-US, en
                                                None
                                                                     NaN wcndER
9
                                                                     NaN zCaLwp
         pt-BR,pt;q=0.8,en-US;q=0.6,en;q=0.4
                                                None
10
                               en-us, en; q=0.5
                                                  US
                                                                Seattle
                                                                         vNJS4H
                               en-us, en; q=0.5
                                                                          wG70IH
11
                                                  US
                                                             Washington
                               en-us, en; q=0.5
12
                                                  US
                                                             Alexandria
                                                                          vNJS4H
13
                                           NaN
                                                 NaN
                                                                    NaN
                                                                             NaN
14
                               en-us, en; q=0.5
                                                  US
                                                               Marietta
                                                                          2r0UYc
15
         zh-TW, zh; q=0.8, en-US; q=0.6, en; q=0.4
                                                  HK
                                                      Central District
                                                                         nQvqJp
16
         zh-TW, zh; q=0.8, en-US; q=0.6, en; q=0.4
                                                  HK
                                                       Central District
17
                                en-us, en; q=0.5
                                                  US
                                                              Buckfield
                                                                         zH1BFf
18
                                                  US
                                                                   Provo
                                                                          mwszkS
19
         it-IT, it; q=0.8, en-US; q=0.6, en; q=0.4
                                                  ΙT
                                                                  Venice
                                                                         wcndER
20
                                         es-ES
                                                   ES
                                                                   Alcal
                                                                         z095Hi
21
                               en-us, en; q=0.5
                                                  US
                                                          Davidsonville
                                                                         wcndER
22
                                         en-us
                                                  US
                                                              Hockessin
                                                                          y3ZImz
23
                                         en-us
                                                  US
                                                                 Lititz
                                                                          wWiOiD
24
         es-es, es; q=0.8, en-us; q=0.5, en; q=0.3
                                                   ES
                                                                 Bilbao
                                                                         wcndER
25
      en-GB, en; q=0.8, en-US; q=0.6, en-AU; q=0.4
                                                           Kuala Lumpur
                                                                          wcndER
26
         ro-R0, ro; q=0.8, en-US; q=0.6, en; q=0.4
                                                   CY
                                                                Nicosia
                                                                          wcndER
27
                               en-US, en; q=0.8
                                                   BR
                                                                 SPaulo
                                                                          zCaLwp
28
                                         en-us
                                                None
                                                                     NaN
                                                                          vNJS4H
29
                                         en-us
                                                None
                                                                     NaN
                                                                         FPX0IM
                               en-US,en;q=0.8
                                                  US
                                                          San Francisco
                                                                          xVZg4P
3530
3531
                                         en-US
                                                None
                                                                     NaN
                                                                         wcndER
3532
                               en-us, en; q=0.5
                                                  US
                                                             Washington
                                                                         Au3aUS
3533
                                         en-us
                                                  US
                                                           Jacksonville
                                                                          b2UtUJ
3534
                                         en-us
                                                   US
                                                                  Frisco
                                                                          vNJS4H
3535
                                         en-us
                                                  US
                                                                Houston zIgLx8
```

```
3536
                               en-US,en;q=0.5
                                                None
                                                                    NaN xIcyim
3537
         es-es, es; q=0.8, en-us; q=0.5, en; q=0.3
                                                  HN
                                                           Tegucigalpa zCaLwp
                                                  US
3538
                                         en-us
                                                           Los Angeles qMac9k
3539
                                           NaN
                                                  US
                                                               Bellevue zu2M5o
                               en-US,en;q=0.8
                                                  US
                                                                 Payson wcndER
3540
3541
                                                  US
                                                               Bellevue zu2M5o
                                           NaN
                                                                         y3reI1
3542
                                         en-us
                                                  US
                                                              Pittsburg
3543
                                           NaN
                                                 NaN
                                                                    NaN
                                                                            NaN
3544
                               en-us, en; q=0.5
                                                  US
                                                             Wentzville
                                                                         ∨NJS4H
3545
                               en-us, en; q=0.5
                                                  US
                                                         Saint Charles
                                                                         vNJS4H
3546
                                         en-us
                                                  US
                                                           Los Angeles
                                                                         qMac9k
                                                          Silver Spring
3547
                                         en-us
                                                  US
                                                                         y0jYkg
3548
                                         en-us
                                                  US
                                                               Mcgehee
                                                                         y5rMac
3549
         sv-SE, sv; q=0.8, en-US; q=0.6, en; q=0.4
                                                  SE
                                                               Sollefte
                                                                          eH8wu
3550
                                                  US
                                                          Conshohocken
                                                                        A00b72
                                         en-us
3551
                               en-US,en;q=0.8
                                                                    NaN
                                                                         wcndER
                                                None
3552
                                           NaN
                                                  US
                                                                Decatur
                                                                         rqgJuE
3553
                                                  US
                                                             Shrewsbury
                                         en-us
                                                                         9b6kNl
3554
                                         en-us
                                                  US
                                                             Shrewsbury
                                                                         axNK8c
3555
                                            en
                                                  US
                                                                Paramus
                                                                         e5SvKE
3556
                               en-US,en;q=0.8
                                                  US
                                                         Oklahoma City
                                                                         jQLtP4
3557
                                           NaN
                                                  US
                                                                  Provo
                                                                         mwszkS
3558
                                           NaN
                                                  US
                                                         Mountain View
                                                                         zjtI4X
                                         en-US
                                                  US
3559
                                                                Mc Lean qxKrTK
                              hc
                                            hh
                                                 kw
                                                                  1 \
       gr
                h
0
       MA
           wfLQtf
                   1.331823e+09
                                    1.usa.gov
                                                NaN
                                                            orofrog
1
           mwszkS 1.308262e+09
                                          j.mp
                                                NaN
                                                             bitly
2
       DC
           xxr3Qb 1.331920e+09
                                     1.usa.gov
                                                NaN
                                                             bitly
3
       27
           zUtu0u 1.331923e+09
                                     1.usa.gov
                                                NaN
                                                           alelex88
           9b6kNl 1.273672e+09
4
       MA
                                       bit.ly
                                                NaN
                                                             bitly
5
           axNK8c 1.273673e+09
      MΑ
                                       bit.ly
                                                NaN
                                                             bitly
                  1.331923e+09
6
      77
           zkpJBR
                                     1.usa.gov
                                                NaN
                                                           bnjacobs
7
      NaN
           zkpJBR
                   1.331923e+09
                                    1.usa.gov
                                                NaN
                                                          bnjacobs
8
      NaN
           zkpJBR
                  1.331923e+09
                                    1.usa.gov
                                                NaN
                                                          bnjacobs
9
      NaN
           zUtu0u 1.331923e+09
                                    1.usa.gov
                                                NaN
                                                          alelex88
10
      WA
           u0uD9q 1.319564e+09
                                    1.usa.gov
                                                NaN
                                                      o_4us71ccioa
11
           A0nRz4 1.331816e+09
                                    1.usa.gov
                                                NaN
                                                      darrellissa
12
       V۸
           u0uD9q 1.319564e+09
                                    1.usa.gov
                                                NaN
                                                      o_4us71ccioa
13
      NaN
              NaN
                             NaN
                                           NaN
                                                NaN
                                                                NaN
14
      GΑ
           2r0UYc 1.255770e+09
                                    1.usa.gov
                                                NaN
                                                             bitly
15
           rtrrth 1.317318e+09
                                          j.mp
                                                NaN
                                                        walkeryuen
16
           qWkgbq 1.317318e+09
                                                NaN
                                                        walkeryuen
                                         j.mp
17
       ME
           x3j0Iv 1.331840e+09
                                    1.usa.gov
                                                NaN
                                                     andyzieminski
18
       UT
           mwszkS 1.308262e+09
                                                             bitly
                                    1.usa.gov
                                                NaN
19
       20
           zkpJBR 1.331923e+09
                                    1.usa.gov
                                                NaN
                                                          bnjacobs
20
       51
           ytZYWR 1.331671e+09
                                    bitly.com
                                                NaN
                                                           jplnews
21
           zkpJBR 1.331923e+09
                                    1.usa.gov
                                                NaN
                                                           bnjacobs
22
       DE
           y3ZImz
                   1.331064e+09
                                    1.usa.gov
                                                NaN
                                                             bitly
23
       PΑ
           wWiOiD
                   1.330218e+09
                                     1.usa.gov
                                                NaN
                                                             bitly
                  1.331923e+09
24
       59
           zkpJBR
                                    1.usa.gov
                                                NaN
                                                           bnjacobs
25
                   1.331923e+09
       14
           zkpJBR
                                    1.usa.gov
                                                NaN
                                                           bnjacobs
26
           zkpJBR
                                                NaN
                                                           bnjacobs
                   1.331923e+09
                                    1.usa.gov
27
      27
           zUtu0u
                   1.331923e+09
                                    1.usa.gov
                                                NaN
                                                          alelex88
           u0uD9q 1.319564e+09
                                    1.usa.gov
28
      NaN
                                                NaN
                                                      o 4us71ccioa
29
      NaN
           FPX0IL
                   1.331923e+09
                                    1.usa.gov
                                                NaN
                                                      twittershare
3530
           wqUkTo
                   1.331908e+09
                                  go.nasa.gov
                                                NaN
                                                       nasatwitter
3531
      NaN
           zkpJBR
                   1.331923e+09
                                    1.usa.gov
                                                NaN
                                                           bnjacobs
3532
       DC
           A9ct6C
                   1.331926e+09
                                    1.usa.gov
                                                NaN
                                                             ncsha
3533
       FL
           ieCdgH
                  1.301393e+09
                                  go.nasa.gov
                                                NaN
                                                       nasatwitter
3534
       TX
          u0uD9q
                  1.319564e+09
                                                NaN
                                                      o_4us71ccioa
                                    1.usa.gov
3535
       TX
           yrPaLt
                   1.331903e+09
                                      aash.to
                                                NaN
                                                             aashto
3536
      NaN
           yG1TTf
                   1.331728e+09
                                  go.nasa.gov
                                                NaN
                                                       nasatwitter
           w63FZW
3537
       08
                   1.331547e+09
                                    1.usa.gov
                                                NaN
                                                         bufferapp
                                    1.usa.gov
3538
       \mathsf{CA}
           ads1Ge
                   1.310474e+09
                                                NaN
                                                     healthypeople
                                       bit.ly
3539
           zDhdro
                   1.331586e+09
                                                NaN
                                                           glimtwin
3540
       UT
          zkpJBR 1.331923e+09
                                     1.usa.gov
                                                NaN
                                                           bnjacobs
```

```
3541
       WA zDhdro 1.331586e+09
                                     1.usa.gov
                                                NaN
                                                           glimtwin
3542
           y3reI1 1.331926e+09
                                     1.usa.gov
                                                NaN
                                                              bitly
                                                NaN
3543
      NaN
                             NaN
              NaN
                                           NaN
                                                                 NaN
                                                NaN
       MO
          u0uD9q 1.319564e+09
3544
                                     1.usa.gov
                                                       o_4us71ccioa
       IL u0uD9q 1.319564e+09
3545
                                     1.usa.gov
                                                NaN
                                                       o_4us71ccioa
3546
          qds1Ge 1.310474e+09
                                     1.usa.gov
                                                      healthypeople
       \mathsf{CA}
                                                NaN
3547
       MD
           y0jYkg 1.331852e+09
                                     1.usa.gov
                                                NaN
                                                              bitly
           xANY60 1.331916e+09
7dtjei 1.260316e+09
yGSwzn 1.331918e+09
3548
                                                        twitterfeed
       AR
                                     1.usa.gov
                                                NaN
3549
                                     1.usa.gov
                                                NaN
                                                       tweetdeckapi
3550
                                     1.usa.gov
                                                NaN
                                                            addthis
           zkpJBR 1.331923e+09
3551
      NaN
                                     1.usa.gov
                                                 NaN
                                                           bnjacobs
          xcz8vt 1.331227e+09
3552
       ΑL
                                     1.usa.gov
                                                NaN
                                                          bootsnall
3553
       MA 9b6kNl 1.273672e+09
                                        bit.ly
                                                 NaN
                                                              bitly
3554
       MA axNK8c 1.273673e+09
                                                NaN
                                        bit.ly
                                                              bitly
3555
                                                 NaN
       NJ
          fqPSr9 1.301298e+09
                                     1.usa.gov
                                                       tweetdeckapi
          jQLtP4 1.307530e+09
3556
                                                              bitly
       0K
                                     1.usa.gov
                                                 NaN
3557
          mwszkS 1.308262e+09
                                          j.mp
                                                 NaN
                                                              bitly
3558
       CA zjtI4X 1.327529e+09
                                     1.usa.gov
                                                NaN
                                                              bitly
3559
          qxKrTK 1.312898e+09
                                     1.usa.gov
                                                NaN
                                                              bitly
                                   nk \
0
       [42.576698, -70.954903]
                                  1.0
1
      [40.218102, -111.613297]
                                  0.0
2
         [38.9007, -77.043098]
                                  1.0
3
      [-23.549999, -46.616699]
                                  0.0
4
       [42.286499, -71.714699]
                                  0.0
5
       [42.286499, -71.714699]
                                  0.0
6
          [51.116699, 15.2833]
                                  0.0
7
                                  0.0
8
                            NaN
                                  0.0
9
                            NaN
                                  0.0
10
        [47.5951, -122.332603]
                                  1.0
       [38.937599, -77.092796]
11
                                  0.0
       [38.790901, -77.094704]
12
                                  1.0
13
                                  NaN
         [33.953201, -84.5177]
14
15
         [22.2833, 114.150002]
16
         [22.2833, 114.150002]
17
       [44.299702, -70.369797]
18
      [40.218102, -111.613297]
19
          [45.438599, 12.3267]
20
          [37.516701, -5.9833]
21
       [38.939201, -76.635002]
                                  0.0
          [39.785, -75.682297]
22
                                  0.0
23
         [40.174999, -76.3078]
                                  0.0
24
               [43.25, -2.9667]
                                  0.0
25
          [3.1667, 101.699997]
                                  0.0
26
        [35.166698, 33.366699]
                                  0.0
27
        [-23.5333, -46.616699]
28
                            NaN
                                  0.0
29
                            NaN
                                  1.0
3530
        [37.7645, -122.429398]
                                  0.0
3531
                            NaN
                                  0.0
3532
       [38.904202, -77.031998]
                                  1.0
3533
       [30.279301, -81.585098]
       [33.149899, -96.855499]
3534
3535
       [29.775499, -95.415199]
                                  1.0
3536
                            NaN
                                  0.0
3537
            [14.1, -87.216698]
                                  0.0
      [34.041599, -118.298798]
3538
                                  0.0
3539
      [47.615398, -122.210297]
                                  0.0
                                  0.0
3540
      [40.014198, -111.738899]
3541
      [47.615398, -122.210297]
                                  0.0
        [38.0051, -121.838699]
3542
                                  0.0
3543
                            NaN
                                  NaN
3544
       [38.790001, -90.854897]
                                  1.0
3545
         [41.9352, -88.290901]
```

```
[39.052101, -77.014999]
3547
                                1.0
       [33.628399, -91.356903]
3548
                                1.0
3549
        [63.166698, 17.266701]
                                 1.0
           [40.0798, -75.2855]
                                0.0
3550
3551
                                0.0
                           NaN
       [34.572701, -86.940598]
3552
                                 0.0
       [42.286499, -71.714699]
3553
                                 0.0
3554
       [42.286499, -71.714699]
3555
             [40.9445, -74.07]
         [35.4715, -97.518997]
3556
                                 0.0
3557
      [40.218102, -111.613297]
                                 0.0
      [37.419201, -122.057404]
3558
                                 0.0
       [38.935799, -77.162102]
3559
                                0.0
                                                                      t
      http://www.facebook.com/l/7AQEFzjSi/1.usa.gov/...
0
                                                          1.331923e+09
1
                               http://www.AwareMap.com/
                                                          1.331923e+09
2
                                    http://t.co/03elZC4Q
                                                         1.331923e+09
3
                                                  direct
                                                          1.331923e+09
4
                    http://www.shrewsbury-ma.gov/selco/
                                                          1.331923e+09
5
                    http://www.shrewsbury-ma.gov/selco/ 1.331923e+09
6
      http://plus.url.google.com/url?sa=z&n=13319232... 1.331923e+09
7
                               http://www.facebook.com/
                                                          1.331923e+09
8
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                          1.331923e+09
9
                                    http://t.co/o1Pd0WeV
                                                          1.331923e+09
10
                                                  direct
                                                          1.331923e+09
                                    http://t.co/ND7SoPyo
11
                                                          1.331923e+09
12
                                                  direct
                                                          1.331923e+09
13
                                                     NaN
                                                                    NaN
14
                                                  direct
                                                          1.331923e+09
                                                          1.331923e+09
15
      http://forum2.hkgolden.com/view.aspx?type=BW&m...
16
      http://forum2.hkgolden.com/view.aspx?type=BW&m...
                                                          1.331923e+09
17
                                    http://t.co/6Cx4R0Ls 1.331923e+09
18
                               http://www.AwareMap.com/
                                                          1.331923e+09
19
                               http://www.facebook.com/
                                                          1.331923e+09
20
                               http://www.facebook.com/
                                                          1.331923e+09
21
                               http://www.facebook.com/ 1.331923e+09
22
                                                  direct 1.331923e+09
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
23
                                                          1.331923e+09
24
                               http://www.facebook.com/
                                                          1.331923e+09
25
                               http://www.facebook.com/ 1.331923e+09
                   http://www.facebook.com/?ref=tn_tnmn 1.331923e+09
26
27
                                                  direct
                                                          1.331923e+09
28
                                                  direct
                                                          1.331923e+09
29
                                    http://t.co/5xlp0B34
                                                          1.331923e+09
. . .
3530
      http://www.facebook.com/l.php?u=http%3A%2F%2Fg...
                                                          1.331927e+09
3531
                                                  direct
                                                          1.331927e+09
3532
                                  http://www.ncsha.org/
                                                          1.331927e+09
3533
                                                  direct
                                                          1.331927e+09
3534
                                                  direct
                                                          1.331927e+09
3535
                                                  direct
                                                          1.331927e+09
3536
                                    http://t.co/g1VKE8zS
                                                          1.331927e+09
                                    http://t.co/A8TJyibE
3537
                                                          1.331927e+09
3538
                                                  direct
                                                          1.331927e+09
3539
                                                  direct
                                                         1.331927e+09
3540
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                          1.331927e+09
3541
                                                  direct 1.331927e+09
3542
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                          1.331927e+09
3543
                                                     NaN
                                                                   NaN
3544
                                                  direct 1.331927e+09
3545
                                                  direct 1.331927e+09
3546
                                                  direct 1.331927e+09
3547
                                                  direct 1.331927e+09
      https://twitter.com/fdarecalls/status/18069759...
3548
                                                          1.331927e+09
3549
                                                  direct
                                                          1.331927e+09
3550
      http://www.linkedin.com/home?trk=hb_tab_home_top 1.331927e+09
```

3546

[34.041599, -118.298798]

1.0

```
3551
     http://plus.url.google.com/url?sa=z&n=13319268... 1.331927e+09
3552
                                                  direct 1.331927e+09
                    http://www.shrewsbury-ma.gov/selco/ 1.331927e+09
3553
                    http://www.shrewsbury-ma.gov/selco/ 1.331927e+09
3554
3555
                                                  direct 1.331927e+09
      http://www.facebook.com/l.php?u=http%3A%2F%2F1...
                                                         1.331927e+09
3556
3557
                               http://www.AwareMap.com/
                                                          1.331927e+09
3558
                                                  direct
                                                          1.331927e+09
3559
                                   http://t.co/0EEEvwjU 1.331927e+09
0
         America/New_York
                                 http://www.ncbi.nlm.nih.gov/pubmed/22415991
1
           America/Denver
                                 http://www.monroecounty.gov/etc/911/rss.php
2
         America/New_York
                           http://boxer.senate.gov/en/press/releases/0316...
                                     http://apod.nasa.gov/apod/ap120312.html
3
        America/Sao_Paulo
4
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
5
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
6
            Europe/Warsaw
                           http://www.nasa.gov/mission_pages/nustar/main/...
7
                           http://www.nasa.gov/mission_pages/nustar/main/...
8
                           http://www.nasa.gov/mission_pages/nustar/main/...
9
                                     http://apod.nasa.gov/apod/ap120312.html
10
      America/Los_Angeles
                           https://www.nysdot.gov/rexdesign/design/commun...
11
         America/New_York
                           http://oversight.house.gov/wp-content/uploads/...
                           https://www.nysdot.gov/rexdesign/design/commun...
12
         America/New_York
13
                      NaN
14
         America/New_York
                                        http://toxtown.nlm.nih.gov/index.php
15
           Asia/Hong_Kong
                           http://www.ssd.noaa.gov/PS/TROP/TCFP/data/curr...
           Asia/Hong_Kong
                           http://www.usno.navy.mil/NOOC/nmfc-ph/RSS/jtwc...
16
17
         America/New_York
                           http://www.usda.gov/wps/portal/usda/usdahome?c...
18
           America/Denver
                                 http://www.monroecounty.gov/etc/911/rss.php
19
              Europe/Rome
                           http://www.nasa.gov/mission_pages/nustar/main/...
20
             Africa/Ceuta
                           http://voyager.jpl.nasa.gov/imagesvideo/uranus...
21
         America/New_York
                           http://www.nasa.gov/mission_pages/nustar/main/...
22
         America/New_York
                           http://portal.hud.gov/hudportal/documents/hudd...
23
         America/New_York
                           http://www.tricare.mil/mybenefit/ProfileFilter...
24
            Europe/Madrid
                           http://www.nasa.gov/mission_pages/nustar/main/...
25
        Asia/Kuala_Lumpur
                           http://www.nasa.gov/mission_pages/nustar/main/...
26
             Asia/Nicosia
                           http://www.nasa.gov/mission_pages/nustar/main/...
27
        America/Sao_Paulo
                                     http://apod.nasa.gov/apod/ap120312.html
28
                           https://www.nysdot.gov/rexdesign/design/commun...
29
                           http://www.ed.gov/news/media-advisories/us-dep...
3530
      America/Los_Angeles
                           http://www.nasa.gov/multimedia/imagegallery/im...
3531
                           http://www.nasa.gov/mission_pages/nustar/main/...
3532
         America/New_York
                           http://portal.hud.gov/hudportal/HUD?src=/press...
3533
         America/New_York
                                                   http://apod.nasa.gov/apod/
3534
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3535
          America/Chicago
                           http://ntl.bts.gov/lib/44000/44300/44374/FHWA-...
3536
                           http://www.nasa.gov/mission_pages/hurricanes/a...
3537
      America/Tegucigalpa
                                     http://apod.nasa.gov/apod/ap120312.html
3538
      America/Los_Angeles
                           http://healthypeople.gov/2020/connect/webinars...
      America/Los_Angeles
3539
                           http://www.federalreserve.gov/newsevents/press...
3540
           America/Denver
                           http://www.nasa.gov/mission_pages/nustar/main/...
3541
      America/Los_Angeles
                           http://www.federalreserve.gov/newsevents/press...
3542
      America/Los_Angeles
                           http://www.sba.gov/community/blogs/community-b...
3543
                      NaN
3544
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3545
          America/Chicago
                           https://www.nysdot.gov/rexdesign/design/commun...
3546
      America/Los_Angeles
                           http://healthypeople.gov/2020/connect/webinars...
3547
         America/New_York
                           http://www.epa.gov/otaq/regs/fuels/additive/e1...
3548
         America/Chicago
                             http://www.fda.gov/Safety/Recalls/ucm296326.htm
         Europe/Stockholm
3549
                           http://www.nasa.gov/mission_pages/WISE/main/in...
3550
         America/New_York
                           http://www.nlm.nih.gov/medlineplus/news/fullst...
3551
                           http://www.nasa.gov/mission_pages/nustar/main/...
          America/Chicago
3552
                           http://travel.state.gov/passport/passport_5535...
3553
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
3554
         America/New_York
                           http://www.shrewsbury-ma.gov/egov/gallery/1341...
3555
         America/New_York
                           http://www.fda.gov/AdvisoryCommittees/Committe...
```

```
America/Chicago http://www.okc.gov/PublicNotificationSystem/Fo...
3556
3557
           America/Denver
                                  http://www.monroecounty.gov/etc/911/rss.php
3558 America/Los_Angeles
                                          http://www.ahrq.gov/qual/qitoolkit/
         America/New_York http://herndon-va.gov/Content/public_safety/Pu...
3559
[3560 rows x 18 columns]
In [58]: frame['tz'][:10]
Out[58]:
0
      America/New_York
1
        America/Denver
     America/New_York
2
     America/Sao_Paulo
3
4
     America/New_York
5
      America/New_York
6
         Europe/Warsaw
7
8
Name: tz, dtype: object
In [59]: tz_counts = frame['tz']
Display all 405 possibilities? (y or n)
%%!
                                             __import__
%%HTML
                                             __name__
%%SVG
                                              __package__
                                             _dh
%%bash
%%capture
                                              _exit_code
%%debug
                                              _i
%%file
                                              _i1
%%html
                                              _i10
%%javascript
                                              _i11
%%latex
                                              _i12
%%perl
                                             _i13
%%prun
                                             _i14
%%руру
                                             _i15
                                             _i16
%%python
                                             _i17
%%python2
%%python3
                                             _i18
%%ruby
                                             _i19
%%script
                                             _i2
                                             _i20
%%sh
%%svg
                                             _i21
                                             _i22
%%sx
                                             _i23
%%system
                                             _i24
%%time
                                             _i25
%%timeit
                                             _i26
%%writefile
%alias
                                              _i27
%alias_magic
                                              _i28
                                             _i29
%autocall
%autoindent
                                              _i3
%automagic
                                             _i30
%bookmark
                                             _i31
%cat
                                             _i32
                                             _i33
%cd
%clear
                                             _i34
%colors
                                             _i35
%config
                                             _i36
%ср
                                             _i37
                                             _i38
%cpaste
%debug
                                             _i39
                                             _i4
%dhist
                                             _i40
%dirs
                                             _i41
%doctest_mode
                                             _i42
%ed
                                             _i43
%edit
%env
                                              _i44
```

%gui	_i45
%hist	_i46
%history	_i47
%install_default_config	_i48
%install_ext	_i49
%install_profiles	_i5
%killbgscripts	_i50
%ldir	_i51
%less	_i52
%lf	_i53
%1.k	_i54
7	
%11	_i55
%load	_i56
%load_ext	_i57
%loadpy	_i58
%logoff	_i6
%logon	_i7
%logstart	_i8
%logstate	_i9
%logstop	_ih
%ls	_ii
%lsmagic	_iii
%1x	_oh
	_
%macro	_sh
%magic	abs
%man	all
%matplotlib	and
%mkdir	any
%more	apply
%m∨	as
%notebook	assert
%page	basestring
%paste	bin
%pastebin	bool
	break
%pdb	
%pdef	buffer
%pdoc	bytearray
%pfile	bytes
%pinfo	callable
%pinfo2	chr
%popd	class
%pprint	classmethod
%precision	стр
%profile	coerce
%prun	compile
%psearch	complex
	continue
%psource	
%pushd	copyright
%pwd	counts
%pycat	credits
%pylab	def
%quickref	defaultdict
%recall	del
%rehashx	delattr
%reload_ext	dict
%rep	dir
%rerun	divmod
%reset	dreload
%reset_selective	elif
%rm	else
%rmdir	enumerate
%run	eval
%save	except
%sc	exec
%set_env	execfile
%store	
	exit
%sx	exit file
%sx %system	

%tb finally float %time %timeit for format %unalias %unload_ext frame %who from %who_ls frozenset %whos get_counts %xdel get_counts2 %xmode get_ipython ArithmeticError getattr AssertionError global

globals AttributeError ${\tt BaseException}$ hasattr BufferError hash BytesWarning help Counter hex DataFrame id DeprecationWarning if **EOFError** import Ellipsis in EnvironmentError input Exception int False intern FloatingPointError is

FutureWarning isinstance GeneratorExit issubclass **IOError** iter ImportError json **ImportWarning** lambda In len $Indentation {\tt Error}$ license IndexError line KeyError list locals KeyboardInterrupt LookupError long MemoryError map NameError max

None memoryview NotImplemented min MotImplementedError movielens

names

next

NotImplementedError
OSError
Out
OverflowError

not PendingDeprecationWarning object ReferenceError oct RuntimeError open RuntimeWarning or Series ord StandardError pass StopIteration path SyntaxError pd SyntaxWarning pow SystemError print property SystemExit TabError quit True raise TypeError range UnboundLocalError raw_input UnicodeDecodeError rec

 ${\tt UnicodeEncodeError}$ records UnicodeError reduce UnicodeTranslateError reload UnicodeWarning repr UserWarning return ValueError reversed Warning round ZeroDivisionError set

```
setattr
_23
                                             slice
_26
                                             sorted
_27
                                             staticmethod
_33
                                             str
_39
                                             sum
_40
                                             super
_41
                                             time_zones
_43
                                             top10_counts
_47
                                             try
_48
                                             tuple
_53
                                             type
_54
                                             unichr
_56
                                             unicode
_58
                                             usagov_bitly_data2012-03-16-1331923249.txt
__IPYTHON__
                                             while
__IPYTHON__active
                                             with
                                             xrange
__builtin__
                                             yield
__debug__
                                             zip
__doc__
In [59]: tz_counts = frame['tz'].value_counts()
In [60]: tz_counts[:10]
Out[60]:
America/New_York
                        1251
                        521
America/Chicago
                        400
America/Los_Angeles
                        382
America/Denver
                        191
Europe/London
                         74
Asia/Tokyo
                         37
Pacific/Honolulu
                         36
Europe/Madrid
                         35
                         33
America/Sao_Paulo
Name: tz, dtype: int64
In [61]: clean_tz = frame['tz'].fillna('Missing')
In [62]: tz_counts = clean_tz.value_counts()
In [63]: tz_counts[:10]
Out[63]:
America/New_York
                       1251
                        521
America/Chicago
                        400
America/Los_Angeles
                        382
America/Denver
                        191
Missing
                        120
Europe/London
                         74
Asia/Tokyo
                         37
                         36
Pacific/Honolulu
Europe/Madrid
                         35
Name: tz, dtype: int64
In [64]: clean_tz[clean_tz == ' '] = 'Unknown'
In [65]: tz_counts = clean_tz.value_counts()
In [66]: tz_counts
Out[66]:
America/New_York
                                   1251
                                    521
                                    400
America/Chicago
America/Los_Angeles
                                    382
America/Denver
                                    191
```

Missing Europe/London Asia/Tokyo Pacific/Honolulu Europe/Madrid America/Sao_Paulo Europe/Berlin Europe/Rome America/Rainy_River Europe/Amsterdam America/Phoenix America/Indianapolis Europe/Warsaw America/Mexico_City Europe/Paris Europe/Stockholm America/Vancouver Pacific/Auckland Europe/Prague Europe/Prague Europe/Helsinki Asia/Hong_Kong America/Puerto_Rico Europe/Oslo Europe/Moscow Asia/Calcutta		120 74 37 36 35 33 28 27 25 22 20 20 16 15 14 14 12 11 10 10 10 10 9
Europe/Belgrade Asia/Pontianak America/Mazatlan Europe/Skopje America/Argentina/Cord Europe/Sofia America/Argentina/Mend America/St_Kitts America/Santo_Domingo America/Monterrey Asia/Novosibirsk America/Caracas Australia/Queensland Europe/Volgograd America/Caracas Australia/Queensland Europe/Ljubljana Asia/Riyadh Asia/Manila Africa/Casablanca Africa/Johannesburg Asia/Yekaterinburg America/Lima Asia/Kuching Africa/Lusaka America/Tegucigalpa America/Tegucigalpa America/Costa_Rica America/Montevideo Name: tz, dtype: int64 In [67]: tz_counts[:100 Out[67]: America/Chicago America/Los_Angeles America/Los_Angeles America/Los_Angeles America/Denver Missing Europe/London	doza nos_Aires	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

```
Name: tz, dtype: int64
In [68]: clean_tz = frame['tz'].fillna('Missing')
In [69]: clean_tz[clean_tz == ''] = 'Unknown'
In [70]: tz_counts = clean_tz.value_counts()
In [71]: tz_counts
Out[71]:
America/New_York
                                   1251
                                    521
Unknown
America/Chicago
                                    400
America/Los_Angeles
                                    382
America/Denver
                                    191
Missing
                                    120
Europe/London
                                     74
Asia/Tokyo
                                     37
Pacific/Honolulu
                                     36
Europe/Madrid
                                     35
America/Sao_Paulo
                                     33
Europe/Berlin
                                     28
Europe/Rome
                                     27
                                     25
America/Rainy_River
                                     22
Europe/Amsterdam
America/Indianapolis
                                     20
America/Phoenix
                                     20
Europe/Warsaw
                                     16
America/Mexico_City
                                     15
Europe/Stockholm
                                     14
Europe/Paris
                                     14
America/Vancouver
                                     12
Pacific/Auckland
                                     11
Asia/Hong_Kong
                                     10
Europe/Prague
                                     10
Europe/Helsinki
                                     10
America/Puerto_Rico
                                     10
Europe/Oslo
                                     10
Europe/Moscow
                                     10
Asia/Calcutta
                                      9
Europe/Belgrade
                                      2
Asia/Pontianak
                                      1
America/Mazatlan
                                      1
Europe/Skopje
                                      1
America/Argentina/Cordoba
                                      1
Europe/Sofia
                                      1
America/Argentina/Mendoza
                                      1
America/St_Kitts
                                      1
America/Santo_Domingo
                                      1
America/Monterrey
                                      1
Asia/Novosibirsk
                                      1
America/Argentina/Buenos_Aires
                                      1
Europe/Volgograd
                                      1
America/Caracas
                                      1
Australia/Queensland
                                      1
Europe/Ljubljana
                                      1
Asia/Riyadh
                                      1
Asia/Manila
                                      1
Africa/Casablanca
                                      1
Africa/Johannesburg
                                      1
                                      1
Asia/Yekaterinburg
America/Lima
                                      1
                                      1
Asia/Kuching
Africa/Lusaka
                                      1
America/Tegucigalpa
                                      1
```

36

35

Pacific/Honolulu

Europe/Madrid

```
America/La_Paz
                                      1
Asia/Nicosia
                                      1
Europe/Uzhgorod
                                      1
America/Costa_Rica
                                      1
America/Montevideo
                                      1
Name: tz, dtype: int64
In [72]: tz_counts[]
  File "<ipython-input-72-063b92788e03>", line 1
    tz_counts[]
SyntaxError: invalid syntax
In [73]: tz_counts[:010]
Out[73]:
America/New_York
Unknown
                         521
                         400
America/Chicago
America/Los_Angeles
                         382
America/Denver
                         191
Missing
                         120
Europe/London
                         74
                          37
Asia/Tokyo
Name: tz, dtype: int64
In [74]: tz_counts[
Display all 428 possibilities? (y or n)
%%!
                                              _i
%%HTML
                                              _i1
%%SVG
                                              _i10
                                              _i11
%%bash
%%capture
                                              _i12
                                              _i13
%%debug
%%file
                                              _i14
                                              _i15
%%html
                                              _i16
%%javascript
                                              _i17
%%latex
                                              _i18
%%perl
%%prun
                                              _i19
                                              _i2
%%руру
                                              _i20
%%python
%%python2
                                              _i21
                                              _i22
%%python3
                                              _i23
%%ruby
                                              _i24
%%script
                                              _i25
%%sh
                                              _i26
%%svg
%%sx
                                              _i27
%%system
                                              _i28
%%time
                                              _i29
%%timeit
                                              _i3
%%writefile
                                              _i30
%alias
                                              _i31
%alias_magic
                                              _i32
                                              _i33
%autocall
%autoindent
                                              _i34
%automagic
                                              _i35
%bookmark
                                              _i36
%cat
                                              _i37
%cd
                                              _i38
                                              _i39
%clear
                                              _i4
%colors
                                              _i40
%config
                                              _i41
%ср
                                              _i42
%cpaste
                                              _i43
%debug
%dhist
                                              _i44
```

%dirs	_i45
%doctest_mode	_i46
%ed	_i47
%edit	_i48
%env	_i49
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
%gui	_i5
%hist	_i50
%history	_i51
%install_default_config	_i52
%install_ext	_i53
%install_profiles	_i54
%killbgscripts	_i55
%ldir	_i56
%less	_i57
%lf	_i58
%lk	_i59
%11	_i6
%load	_i60
%load_ext	_i61
%loadpy	_i62
%logoff	_i63
%logon	_i64
-	_i65
%logstart	
%logstate	_i66
%logstop	_i67
%ls	_i68
%lsmagic	_i69
%1x	_i7
%macro	_i70
%magic	_i71
%man	_i72
%matplotlib	_i73
%mkdir	_i8
%more	_i9
%m∨	_ih
%notebook	_ii
%page	_iii
%paste	_oh
%pastebin	_sh
%pdb	abs
%pdef	all
%pdoc	and
%pfile	any
%pinfo	apply
%pinfo2	as
	assert
%popd	
%pprint	basestring
%precision	bin
%profile	bool
%prun	break
%psearch	buffer
%psource	bytearray
%pushd	bytes
%pwd	callable
%pycat	chr
%pylab	class
%quickref	classmethod
%recall	clean_tz
%rehashx	стр
%reload_ext	coerce
%rep	compile
%rerun	complex
%reset	continue
%reset_selective	copyright
%rm	counts
%rmdir	credits
%run	def
%save	defaultdict
NOUVE	ueruurtuitt

del %sc delattr %set_env dict %store dir %sx divmod %system %tb dreload %time elif %timeit else %unalias enumerate %unload_ext eval %who except %who_ls exec %whos execfile %xdel exit %xmode file ArithmeticError filter AssertionError finally AttributeError float BaseException for BufferError format frame BytesWarning Counter from DataFrame frozenset DeprecationWarning get_counts **EOFError** get_counts2 Ellipsis get_ipython EnvironmentError getattr Exception global False globals FloatingPointError hasattr FutureWarning hash GeneratorExit help I0Error hex ImportError id if **ImportWarning** import IndentationError in IndexError input KeyError int KeyboardInterrupt intern LookupError is MemoryError isinstance NameError issubclass None iter json NotImplemented NotImplementedError lambda **OSError** len 0ut license

OverflowError line PendingDeprecationWarning list ReferenceError locals RuntimeError long RuntimeWarning map Series max StandardError memoryview StopIteration min SyntaxError movielens SyntaxWarning names

SystemError next SystemExit not TabError object True oct TypeError open UnboundLocalError or UnicodeDecodeError ord UnicodeEncodeError pass UnicodeError path UnicodeTranslateError pd

```
UnicodeWarning
                                       pow
UserWarning
                                       print
ValueError
                                       property
Warning
                                       quit
ZeroDivisionError
                                       raise
                                       range
_23
                                       raw_input
_26
                                       rec
_27
                                       records
_33
                                       reduce
_39
                                       reload
_40
                                      repr
_41
                                       return
_43
                                      reversed
_47
                                      round
_48
                                      set
_53
                                      setattr
_54
                                      slice
_56
                                      sorted
_58
                                       staticmethod
_60
                                      str
_63
                                      sum
_66
                                      super
                                      \verb|time_zones|
_67
_71
                                       top10_counts
_73
                                      try
                                      tuple
__IPYTHON__
                                       type
__IPYTHON__active
                                       tz_counts
                                      unichr
__builtin__
                                      unicode
__debug__
                                      usagov_bitly_data2012-03-16-1331923249.txt
__doc__
                                      vars
__import__
                                      while
__name__
                                      with
__package__
                                      xrange
_dh
                                      yield
_exit_code
                                      zip
In [74]: tz_counts[:10].plot(kind='barh', rot = 0)
Out[74]: <matplotlib.axes._subplots.AxesSubplot at 0x119217050>
In [75]: tz_counts[:10].plot(kind='barh', rot = 0).show()
______
                              Traceback (most recent call last)
AttributeError
<ipython-input-75-a6dfbef0da75> in <module>()
---> 1 tz_counts[:10].plot(kind='barh', rot = 0).show()
AttributeError: 'AxesSubplot' object has no attribute 'show'
In [76]: tz_counts[:10].plot(kind='barh', rot = 0)
Out[76]: <matplotlib.axes._subplots.AxesSubplot at 0x119217050>
In [77]: plt.show()
______
                            Traceback (most recent call last)
NameError
<ipython-input-77-c4e69632d98a> in <module>()
---> 1 plt.show()
NameError: name 'plt' is not defined
In [78]: plot.show()
______
                             Traceback (most recent call last)
NameError
<ipython-input-78-104bfcfa303e> in <module>()
---> 1 plot.show()
NameError: name 'plot' is not defined
```

```
In [79]: show
NameError
                                          Traceback (most recent call last)
<ipython-input-79-70fa03b6c3ec> in <module>()
---> 1 show
NameError: name 'show' is not defined
In [80]: %matplotlib inline
UsageError: Invalid GUI request u'inline', valid ones are: pyglet, osx, qt5, qt, glut, gtk, gtk3, tk,
In [81]: import ma
macerrors
            macpath
                          mactypes
                                       mailbox
                                                     markupbase
                                                                  marshal
                                                                               matplotlib
macostools macresource macurl2path mailcap
                                                     markupsafe
                                                                  math
In [81]: import matplotlib
In [82]: %matplotlib inline
UsageError: Invalid GUI request u'inline', valid ones are: pyglet, osx, qt5, qt, glut, gtk, gtk3, tk,
In [83]: %matplotlib
Using matplotlib backend: MacOSX
In [84]: tz_counts[:10].plot(kind='barh', rot = 0)
Out[84]: <matplotlib.axes._subplots.AxesSubplot at 0x11a91f750>
In [85]: import seaborn
In [86]: tz_counts[:10].plot(kind='barh', rot = 0)
Out[86]: <matplotlib.axes._subplots.AxesSubplot at 0x11a91f750>
In [87]: results = S
               {\tt StandardError} \quad {\tt SyntaxError}
%%SVG
                                              SystemError
Series
               StopIteration SyntaxWarning SystemExit
In [87]: results = Series([x.split()[0] for x in frame.a.dropna()])
In [88]: results[:5]
Out[88]:
0
                Mozilla/5.0
1
     GoogleMaps/RochesterNY
2
                Mozilla/4.0
3
                Mozilla/5.0
4
                Mozilla/5.0
dtype: object
In [89]: results.value_counts()[:8]
Out[89]:
Mozilla/5.0
                            2594
Mozilla/4.0
                             601
GoogleMaps/RochesterNY
                             121
                              34
Opera/9.80
TEST_INTERNET_AGENT
                              24
GoogleProducer
                              21
Mozilla/6.0
BlackBerry8520/5.0.0.681
dtype: int64
In [90]: cframe = frame[frame.a.notnull()]
In [91]: import numpy as np
In [92]: operating_system = np.where(cframe['a'].str.contains('Windows'), 'Windows', 'Not Windows')
In [93]: operating_system[:5]
Out[93]:
array(['Windows', 'Not Windows', 'Windows', 'Not Windows', 'Windows'],
```

```
dtype='|S11')
In [94]: by_tz_os = cframe.groupby(['tz', operating_system])
In [95]: agg_counts = by
by_tz_os bytearray bytes
In [95]: agg_counts = by_tz_os.size().unstack().fillna(0)
In [96]: indexer = agg_counts.sum(1).argsort()
In [97]: count_subset =
Display all 465 possibilities? (y or n)
                                                         _i9
%%HTML
                            OverflowError
                                                         _i90
%%SVG
                            PendingDeprecationWarning
                                                        _i91
                                                        _i92
%%bash
                            ReferenceError
%%capture
                            RuntimeError
                                                        _i93
%%debug
                            RuntimeWarning
                                                        _i94
%%file
                            Series
                                                        _i95
                                                        _i96
%%html
                            StandardError
%%javascript
                            StopIteration
                                                        _ih
%%latex
                            SyntaxError
                                                        _ii
                                                        _iii
%%perl
                            SyntaxWarning
                                                        _oh
%%prun
                            SystemError
                                                        _sh
%%руру
                            SystemExit
                            TabError
%%python
                                                         abs
%%python2
                            True
                                                         agg_counts
%%python3
                            TypeError
                                                        all
                            UnboundLocalError
%%ruby
                                                         and
%%script
                            UnicodeDecodeError
                                                         any
                            UnicodeEncodeError
%%sh
                                                         apply
%%svg
                            UnicodeError
                                                         as
%%sx
                            UnicodeTranslateError
                                                        assert
%%system
                            UnicodeWarnina
                                                         basestring
%%time
                            UserWarning
                                                         bin
%%timeit
                            ValueError
                                                         bool
%%writefile
                            Warning
                                                        break
%alias
                            ZeroDivisionError
                                                        buffer
%alias_magic
                                                         by_tz_os
                            _23
%autocall
                                                         bytearray
                            _26
                                                         bytes
%autoindent
%automagic
                            _27
                                                         callable
                            _33
%bookmark
                                                         cframe
%cat
                            _39
                                                         chr
%cd
                            _40
                                                         class
%clear
                            _41
                                                         classmethod
%colors
                            _43
                                                         clean_tz
%config
                            _47
                                                         cmp
%ср
                            _48
                                                         coerce
                            _53
%cpaste
                                                         compile
                            _54
%debug
                                                         complex
                            _56
%dhist
                                                         continue
                            _58
%dirs
                                                         copyright
%doctest_mode
                            _60
                                                         counts
                            _63
                                                         credits
%ed
%edit
                            _66
                                                         def
%env
                            _67
                                                         defaultdict
%gui
                            _71
                                                         del
%hist
                            _73
                                                         delattr
                                                         dict
%history
                            _74
                            _76
%install_default_config
                                                         dir
                                                         divmod
%install_ext
                            _84
%install_profiles
                            _86
                                                         dreload
%killbgscripts
                            _88
                                                         elif
%ldir
                            _89
                                                         else
%less
                            _93
                                                         enumerate
%lf
                                                         eval
                            __
```

%1 k	IPYTHON	except
%11	IPYTHONactive	exec
%load		execfile
%load_ext	builtin	exit
%loadpy	debug	file
%logoff	doc	filter
%logon	import	finally
%logstart	name	float
%logstate	package	for
%logstop	_dh	format
%ls	_exit_code	frame
%lsmagic	_i	from
%1x	_i1	frozenset
%macro	_i10	get_counts
%magic	_i11	get_counts2
%man	_i12	get_ipython
%matplotlib	_i13	getattr
%mkdir	_i14 _i15	global
%more %mv	_i16	globals hasattr
%notebook	_i17	hash
%page	_i18	help
%paste	_i19	hex
%pastebin	_i2	id
%pdb	_i20	if
%pdef	_i21	import
%pdoc	_i22	in
%pfile	_i23	indexer
%pinfo	_i24	input
%pinfo2	_ _i25	int
%popd	_i26	intern
%pprint	_i27	is
%precision	_i28	isinstance
%profile	_i29	issubclass
%prun	_i3	iter
%psearch	_i30	json
%psource	_i31	lambda
%pushd	_i32	len
%pwd	_i33	license
%pycat	_i34	line
%pylab	_i35	list
%quickref	_i36	locals
%recall	_i37	long
%rehashx	_i38	map
%reload_ext	_i39	matplotlib
%rep %rerun	_i4 _i40	max
%reset	_i41	memoryview min
%reset_selective	_i42	next
%rm	_i43	not
%rmdir	_i44	np
%run	_i45	object
%save	_i46	oct
%sc	_i47	open
%set_env	_ _i48	operating_system
%store	_i49	or
%sx	_i5	ord
%system	_i50	pass
%tb	_i51	path
%time	_i52	pd
%timeit	_i53	pow
%unalias	_i54	print
%unload_ext	_i55	property
%who	_i56	quit
%who_ls	_i57	raise
%whos	_i58	range
%xdel	_i59	raw_input
%xmode	_i6	rec

```
AssertionError
                           _i61
                                                      reduce
AttributeError
                           _i62
                                                      reload
                           _i63
BaseException
                                                      repr
                           _i64
BufferError
                                                      results
BytesWarning
                           _i65
                                                      return
                           _i66
Counter
                                                      reversed
DataFrame
                           _i67
                                                      round
DeprecationWarning
                           _i68
                                                      seaborn
EOFError
                           _i69
                                                      set
Ellipsis
                           _i7
                                                      setattr
EnvironmentError
                           _i70
                                                      slice
Exception
                           _i71
                                                      sorted
False
                           _i72
                                                      staticmethod
FloatingPointError
                           _i73
                                                      str
                           _i74
FutureWarning
                                                      sum
                           _i75
GeneratorExit
                                                      super
                           _i76
IOError
                                                      time_zones
ImportError
                           _i77
                                                      top10_counts
ImportWarning
                           _i78
                                                      try
                           _i79
Ιn
                                                      tuple
IndentationError
                           _i8
                                                      type
                           _i80
IndexError
                                                      tz_counts
                           _i81
KeyError
                                                      unichr
                           _i82
KeyboardInterrupt
                                                      unicode
                           _i83
LookupError
                                                      vars
                           _i84
MemoryError
                                                      while
                           _i85
NameError
                                                      with
None
                           _i86
                                                      Χ
NotImplemented
                           _i87
                                                      xrange
NotImplementedError
                           _i88
                                                      yield
OSError
                           _i89
                                                      zip
In [97]: count_subset = a
%alias
                            %automagic
            %autocall
                                          agg_counts
                                                        and
                                                                       apply
                                                                                     assert
%alias_magic %autoindent
                            abs
                                          all
                                                        any
                                                                       as
In [97]: count_subset = agg_counts.take(indexer)[-10:]
In [98]: count_subset
Out[98]:
                    Not Windows Windows
tz
America/Sao_Paulo
                           13.0
                                     20.0
Europe/Madrid
                            16.0
                                     19.0
Pacific/Honolulu
                             0.0
                                     36.0
Asia/Tokyo
                            2.0
                                     35.0
Europe/London
                           43.0
                                     31.0
America/Denver
                           132.0
                                     59.0
America/Los_Angeles
                           130.0
                                    252.0
America/Chicago
                           115.0
                                    285.0
                                    276.0
                           245.0
America/New_York
                           339.0
                                    912.0
In [99]: normed_subset = count_subset.div(count_subset.sum(1), axis = 0)
In [100]: normed_subset.plot(kind = 'barh', stacked=True)
Out[100]: <matplotlib.axes._subplots.AxesSubplot at 0x11b38a990>
In [101]: count.subset.plot(kind = 'barh', stacked = True)
NameError
                                          Traceback (most recent call last)
<ipython-input-101-9b632dd896a3> in <module>()
----> 1 count.subset.plot(kind = 'barh', stacked = True)
NameError: name 'count' is not defined
In [102]: count_subset.plot(kind = 'barh', stacked = True)
```

records

ArithmeticError

_i60