

# 1. Local and global thought patterns

While we might not be Twitter fans, we have to admit that it has a huge influence on the world (who doesn't know about Trump's tweets). Twitter data is not only gold in terms of insights, but **Twitter-storms are available for analysis in near real-time**. This means we can learn about the big waves of thoughts and moods around the world as they arise.

As any place filled with riches, Twitter has *security guards* blocking us from laying our hands on the data right away ☐ Some authentication steps (really straightforward) are needed to call their APIs for data collection. Since our goal today is learning to extract insights from data, we have already gotten a green-pass from security ✔ Our data is ready for usage in the datasets folder — we can concentrate on the fun part! ☐♀☐



Twitter provides both global and local trends. Let's load and inspect data for topics that were hot worldwide (WW) and in the United States (US) at the moment of query — snapshot of JSON response from the call to Twitter's *GET trends/place* API.

**Note:** [Here](#) is the documentation for this call, and [here](#) a full overview on Twitter's APIs.

In [13]:

```
# Loading json module
import json

# Loading WW_trends and US_trends data
WW_trends = json.loads(open('datasets/WWTrends.json').read())
US_trends = json.loads(open('datasets/USTrends.json').read())

# Inspecting data by printing out WW_trends and US_trends variables
print(WW_trends)
print(US_trends)
```

```
[{'trends': [{'name': '#BeratKandili', 'url': 'http://twitter.com/search?q=%23BeratKandili', 'promoted_content': None, 'query': '%23BeratKandili', 'tweet_volume': 46373}, {'name': '#GoodFriday', 'url': 'http://twitter.com/search?q=%23GoodFriday', 'promoted_content': None, 'query': '%23GoodFriday', 'tweet_volume': 81891}, {'name': '#WeLoveTheEarth', 'url': 'http://twitter.com/search?q=%23WeLoveTheEarth', 'promoted_content': None, 'query': '%23WeLoveTheEarth', 'tweet_volume': 159698}, {'name': '#195TLdenTTVerilir', 'url': 'http://twitter.com/search?q=%23195TLdenTTVerilir', 'promoted_content': None, 'query': '%23195TLdenTTVerilir', 'tweet_volume': None}, {'name': '#AFLNorthDons', 'url': 'http://twitter.com/search?q=%23AFLNorthDons', 'promoted_content': None, 'query': '%23AFLNorthDons', 'tweet_volume': None}, {'name': 'Shiv Sena', 'url': 'http://twitter.com/search?q=%22Shiv+Sena%22', 'promoted_content': None, 'query': '%22Shiv+Sena%22', 'tweet_volume': None}, {'name': 'Lyra McKee', 'url': 'http://twitter.com/search?q=%22Lyra+McKee%22', 'promoted_content': None, 'query': '%22Lyra+McKee%22', 'tweet_volume': 17606}, {'name': 'Priyanka Chaturvedi', 'url': 'http://twitter.com/search?q=%22Priyanka+Chaturvedi%22', 'promoted_content': None, 'query': '%22Priyanka+Chaturvedi%22', 'tweet_volume': 22342}, {'name': 'Derry', 'url': 'http://twitter.com/search?q=Derry', 'promoted_content': None, 'query': 'Derry', 'tweet_volume': 28234}, {'name': '池袋の事故', 'url': 'http://twitter.com/search?q=%E6%B1%A0%E8%A2%8B%E3%81%AE%E4%BA%8B%E6%95%85', 'promoted_content': None, 'query': '%E6%B1%A0%E8%A2%8B%E3%81%AE%E4%BA%8B%E6%95%85', 'tweet_volume': 34381}, {'name': 'プリウス', 'url': 'http://twitter.com/search?q=%E3%83%97%E3%83%AA%E3%82%A6%E3%82%B9', 'promoted_content': None, 'query': '%E3%83%97%E3%83%AA%E3%82%A6%E3%82%B9', 'tweet_volume': 22944}, {'name': 'Hemant Karkare', 'url': 'http://twitter.com/search?q=%22Hemant+Karkare%22', 'promoted_content': None, 'query': '%22Hemant+Karkare%22', 'tweet_volume': 24067}, {'name': '高齢者', 'url': 'http://twitter.com/search?q=%E9%AB%98%E9%BD%A2%E8%80%85', 'promoted_content': None, 'query': '%E9%AB%98%E9%BD%A2%E8%80%85', 'tweet_volume': 28382}, {'name': '브이알', 'url': 'http://twitter.com/search?q=%EB%B8%8C%EC%9D%B4%EC%95%8C', 'promoted_content': None, 'query': '%EB%B8%8C%EC%9D%B4%EC%95%8C', 'tweet_volume': 15490}, {'name': '刀ステ', 'url': 'http://twitter.com/search?q=%E5%88%80%E3%82%B9%E3%83%86', 'promoted_content': None, 'query': '%E5%88%80%E3%82%B9%E3%83%86', 'tweet_volume': None}, {'name': '免許返納', 'url': 'http://twitter.com/search?q=%E5%85%8D%E8%A8%B1%E8%BF%94%E7%B4%8D', 'promoted_content': None, 'query': '%E5%85%8D%E8%A8%B1%E8%BF%94%E7%B4%8D', 'tweet_volume': None}, {'name': 'Berat Kandilimiz', 'url': 'http://twitter.com/search?q=%22Berat+Kandilimiz%22', 'promoted_content': None, 'query': '%22Berat+Kandilimiz%22', 'tweet_volume': None}]}]
```

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'http://twitter.com/search?q=%22Kevin+Durant%22', 'promoted\_content': None, 'query': '%22Kevin+Durant%22', 'tweet\_volume': 21870}, {'name': '#StarTrekDiscovery', 'url': 'http://twitter.com/search?q=%23StarTrekDiscovery', 'promoted\_content': None, 'query': '%23StarTrekDiscovery', 'tweet\_volume': None}, {'name': '#GSWvsLAC', 'url': 'http://twitter.com/search?q=%23GSWvsLAC', 'promoted\_content': None, 'query': '%23GSWvsLAC', 'tweet\_volume': None}, {'name': 'Oshie', 'url': 'http://twitter.com/search?q=Oshie', 'promoted\_content': None, 'query': 'Oshie', 'tweet\_volume': None}, {'name': 'Seth Abramson', 'url': 'http://twitter.com/search?q=%22Seth+Abramson%22', 'promoted\_content': None, 'query': '%22Seth+Abramson%22', 'tweet\_volume': None}, {'name': 'Lyra McKee', 'url': 'http://twitter.com/search?q=%22Lyra+McKee%22', 'promoted\_content': None, 'query': '%22Lyra+McKee%22', 'tweet\_volume': 17606}, {'name': 'Silky', 'url': 'http://twitter.com/search?q=Silky', 'promoted\_content': None, 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'promoted\_content': None, 'query': '%22WE+LOVE+THE+EARTH%22', 'tweet\_volume': None}, {'name': 'Earth', 'url': 'http://twitter.com/search?q=%22Earth%22', 'promoted\_content': None, 'query': '%22Earth%22', 'tweet\_volume': 338417}, {'name': '#DinahJanel', 'url': 'http://twitter.com/search?q=%23DinahJanel', 'promoted\_content': None, 'query': '%23DinahJanel', 'tweet\_volume': 23757}, {'name': '#WhatStopsYouFromGoingHome', 'url': 'http://twitter.com/search?q=%23WhatStopsYouFromGoingHome', 'promoted\_content': None, 'query': '%23WhatStopsYouFromGoingHome', 'tweet\_volume': None}, {'name': '#MakeAMovieSensual', 'url': 'http://twitter.com/search?q=%23MakeAMovieSensual', 'promoted\_content': None, 'query': '%23MakeAMovieSensual', 'tweet\_volume': None}, {'name': '#DontChangeOutNow', 'url': 'http://twitter.com/search?q=%23DontChangeOutNow', 'promoted\_content': None, 'query': '%23DontChangeOutNow', 'tweet\_volume': None}, {'name': '#BLACKPINKxCorden', 'url': 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'http://twitter.com/search?q=%23HustleAndSoul', 'promoted\_content': None, 'query': '%23HustleAndSoul', 'tweet\_volume': None}

```
'http://twitter.com/search?q=%23HustleAndSoul', 'promoted_content': None, 'query':
'%23HustleAndSoul', 'tweet_volume': None}, {'name': '#fridaymotivation', 'url':
'http://twitter.com/search?q=%23fridaymotivation', 'promoted_content': None, 'query':
'%23fridaymotivation', 'tweet_volume': None}], 'as_of': '2019-04-19T08:43:43Z', 'created_at':
'2019-04-19T08:39:15Z', 'locations': [{'name': 'United States', 'woeid': 23424977}]}}
```

In [14]:

```
%%nose

# One or more tests of the student's code
# The @solution should pass the tests
# The purpose of the tests is to try to catch common errors and
# to give the student a hint on how to resolve these errors

def test_pandas_loaded():
    assert 'json' in globals(), \
        'Did you import the json module?'

def test_WW_trends_correctly_loaded():
    correct_ww_trends = json.loads(open('datasets/WWTrends.json').read())
    assert correct_ww_trends == WW_trends, "The variable WW_trends should contain the data in WWTr
ends.json."

def test_US_trends_correctly_loaded():
    correct_us_trends = json.loads(open('datasets/USTrends.json').read())
    assert correct_us_trends == US_trends, "The variable WW_trends should contain the data in USTr
ends.json."
```

Out[14]:

3/3 tests passed

## 2. Prettifying the output

Our data was hard to read! Luckily, we can resort to the `json.dumps()` method to have it formatted as a pretty JSON string.

In [15]:

```
# Pretty-printing the results. First WW and then US trends.

print("WW trends:")
print (json.dumps(WW_trends, indent=1))

print("\n", "US trends:")
print (json.dumps(US_trends, indent=1))
```

WW trends:

```
[
  {
    "trends": [
      {
        "name": "#BeratKandili",
        "url": "http://twitter.com/search?q=%23BeratKandili",
        "promoted_content": null,
        "query": "%23BeratKandili",
        "tweet_volume": 46373
      },
      {
        "name": "#GoodFriday",
        "url": "http://twitter.com/search?q=%23GoodFriday",
        "promoted_content": null,
        "query": "%23GoodFriday",
        "tweet_volume": 81891
      },
      {
        "name": "#WeLoveTheEarth",
        "url": "http://twitter.com/search?q=%23WeLoveTheEarth",
        "promoted_content": null,
        "query": "%23WeLoveTheEarth",
        "tweet_volume": 159698
      },
    ],
  },
]
```

```
{
  "name": "#195TLdenTTVerilir",
  "url": "http://twitter.com/search?q=%23195TLdenTTVerilir",
  "promoted_content": null,
  "query": "%23195TLdenTTVerilir",
  "tweet_volume": null
},
{
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  "tweet_volume": null
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  "tweet_volume": null
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  "query": "%22Lyra+McKee%22",
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  "promoted_content": null,
  "query": "Derry",
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{
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  "tweet_volume": 24067
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{
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  "url": "http://twitter.com/search?q=%22Lil+Dicky%22",
  "promoted_content": null,
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  "tweet_volume": 42461
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  "query": "%E6%AD%A9%E8%A1%8C%E8%80%85",
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  "url": "http://twitter.com/search?q=%22Derrick+White%22",
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  "tweet_volume": 27104
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{
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{
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"query": "%23HardikPatel",
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{
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{
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{
"name": "#19aprile",
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  {
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    "woeid": 1
  }
]
}
]

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US trends:

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  {
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        "promoted_content": null,
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        "tweet_volume": null
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        "name": "Kevin Durant",

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  "tweet_volume": null
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{
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  "tweet_volume": 17606
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},
{
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{
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  "tweet_volume": null
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  "tweet_volume": null
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{
  "name": "#MyInnerDemonSaid",
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{
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{
  "name": "#CriticalRoleSpoilers",
  "url": "http://twitter.com/search?q=%23CriticalRoleSpoilers",
  "promoted_content": null,
  "query": "%23CriticalRoleSpoilers",
  "tweet_volume": null
},
{
  "name": "#GossipShouldBe",
  "url": "http://twitter.com/search?q=%23GossipShouldBe",
  "promoted_content": null,
  "query": "%23GossipShouldBe",
  "tweet_volume": null
},
{
  "name": "#LilDicky",
  "url": "http://twitter.com/search?q=%23LilDicky",
  "promoted_content": null,
  "query": "%23LilDicky",
  "tweet_volume": null
},
{
  "name": "#RPDR",
  "url": "http://twitter.com/search?q=%23RPDR",
  "promoted_content": null,
  "query": "%23RPDR",
  "tweet_volume": null
},
{
  "name": "#WeirdDateStories",
  "url": "http://twitter.com/search?q=%23WeirdDateStories",
  "promoted_content": null,
  "query": "%23WeirdDateStories",
  "tweet_volume": null
},
{
  "name": "#HustleAndSoul",
  "url": "http://twitter.com/search?q=%23HustleAndSoul",
  "promoted_content": null,
  "query": "%23HustleAndSoul",
  "tweet_volume": null
},
{
  "name": "#fridaymotivation",
```

```

        "url": "http://twitter.com/search?q=%23fridaymotivation",
        "promoted_content": null,
        "query": "%23fridaymotivation",
        "tweet_volume": null
    }
],
"as_of": "2019-04-19T08:43:43Z",
"created_at": "2019-04-19T08:39:15Z",
"locations": [
    {
        "name": "United States",
        "woeid": 23424977
    }
]
}
]

```

In [16]:

```

%%nose
# %%nose needs to be included at the beginning of every @tests cell

# Not sure what to check here

# One or more tests of the students code.
# The @solution should pass the tests.
# The purpose of the tests is to try to catch common errors and to
# give the student a hint on how to resolve these errors.

def strip_comment_lines(cell_input):
    """Returns cell input string with comment lines removed."""
    return '\n'.join(line for line in cell_input.splitlines() if not line.startswith('#'))

last_input = strip_comment_lines(In[-2])

def test_info_command():
    assert 'json.dumps(WW_trends' in last_input, \
        "We expected the json.dumps method with the correct input object."
    assert 'json.dumps(US_trends' in last_input, \
        "We expected the json.dumps method with the correct input object."

```

Out[16]:

1/1 tests passed

### 3. Finding common trends

□♀ From the pretty-printed results (output of the previous task), we can observe that:

- We have an array of trend objects having: the name of the trending topic, the query parameter that can be used to search for the topic on Twitter-Search, the search URL and the volume of tweets for the last 24 hours, if available. (The trends get updated every 5 mins.)
- At query time **#BeratKandili**, **#GoodFriday** and **#WeLoveTheEarth** were trending WW.
- `"tweet_volume"` tell us that **#WeLoveTheEarth** was the most popular among the three.
- Results are not sorted by `"tweet_volume"`.
- There are some trends which are unique to the US.

It's easy to skim through the two sets of trends and spot common trends, but let's not do "manual" work. We can use Python's **set** data structure to find common trends — we can iterate through the two trends objects, cast the lists of names to sets, and call the intersection method to get the common names between the two sets.

In [17]:

```

# Extracting all the WW trend names from WW_trends
world_trends = set([trend['name']
                    for trend in WW_trends[0]['trends']])

# Extracting all the US trend names from US_trends
us_trends = set([trend['name']
                 for trend in US_trends[0]['trends']])

```

```
# Let's get the intersection of the two sets of trends
common_trends = world_trends.intersection(us_trends)

# Inspecting the data
print(world_trends, "\n")
print(us_trends, "\n")
print (len(common_trends), "common trends:", common_trends)
```

```
{'#KpuJanganCurang', '#BeratKandili', '#TheJudasInMyLife', '#CHivLIO', '重体の女性と女兒', '池袋の事故', '高齢者', '#ProtestoEdiyorum', 'Derrick White', '#WeLoveTheEarth', '#Karfreitag', '#ShivSena', '#HayırlıCumalar', 'Shiv Sena', '#HardikPatel', '刀ステ', '東京・池袋衝突事故', '#IndonesianElectionHeroes', 'グレア', 'Derry', 'プリウス', '#195TLdenTTVerilir', '免許返納', '#DuyguAsena', '#BLACKPINKxCorden', '#DinahJanel', '#اغلاق_BBM', 'Priyanka Chaturvedi', '#DragRace', 'Berat Kandilimiz', '#ViernesSanto', '#NRLBulldogsSouths', '十二国記', 'örgütdeğil arkadaşgrubu', 'Lil Dicky', 'Hemant Karkare', '#ConCalmaRemix', '歩行者', '#HanumanJayanti', '#NikahUmurBerapa', '#GoodFriday', '#HayırlıKandiller', '#19aprile', 'Lyra McKee', '#يوم_الجمعه', '#Ontas', '#JunquerasACN', '#AFLNorthDons', '#Jersey', '브이알'}
```

```
{'#MakeAMovieSensual', 'Servais', '#WeirdDateStories', 'Derrick White', '#WeLoveTheEarth', 'Kevin Durant', '#fridaymotivation', 'Oshie', '#LilDicky', 'Silky', 'Gallant', 'Game 6', '#DontChangeOutNow', '#StarTrekDiscovery', 'Yvie', 'Earth', '#WorldofWarcraftMains', '#WGAMIX', '#TimeToImpeach', '#MyInnerDemonSaid', 'Derry', '#WhatStopsYouFromGoingHome', '#CriticalRoleSpoilers', 'WE LOVE THE EARTH', 'Seth Abramson', 'Mike Anderson', '#GossipShouldBe', '#HustleAndSoul', '#BLACKPINKxCorden', '#DragRace', 'Lone Wolf and Cub', '#CUZILoveYOU', 'Shy Glizzy', '#NRLBulldogsSouths', 'Tomas Hertl', 'David Fletcher', '#Earth', 'Lil Dicky', 'Kazuo Koike', '#ConCalmaRemix', '#RPDR', 'George Conway', '#FridayFeeling', '#rupaulsdragrace', 'Lyra McKee', '#MyDrunkUncleSays', '#GSWvsLAC', '#AFLNorthDons', '#TheLegendOfVoxMachina', '#DinahJanel'}
```

```
11 common trends: {'#ConCalmaRemix', '#BLACKPINKxCorden', '#DinahJanel', '#DragRace', 'Lyra McKee', 'Derrick White', 'Derry', '#WeLoveTheEarth', '#NRLBulldogsSouths', '#AFLNorthDons', 'Lil Dicky'}
```

In [18]:

```
%%nose

# One or more tests of the students code.
# The @solution should pass the tests.
# The purpose of the tests is to try to catch common errors and to
# give the student a hint on how to resolve these errors.

def test_ww_trends():
    correct_world_trends = set([trend['name'] for trend in WW_trends[0]['trends']])
    assert world_trends == correct_world_trends, \
        'The variable world_trends does not have the expected trend names.'

def test_us_trends():
    correct_us_trends = set([trend['name'] for trend in US_trends[0]['trends']])
    assert us_trends == correct_us_trends, \
        'The variable us_trends does not have the expected trend names.'

def test_common_trends():
    correct_common_trends = world_trends.intersection(us_trends)
    assert common_trends == correct_common_trends, \
        'The variable common_trends does not have the expected common trend names.'
```

Out [18]:

3/3 tests passed

## 4. Exploring the hot trend

♀ From the intersection (last output) we can see that, out of the two sets of trends (each of size 50), we have 11 overlapping topics. In particular, there is one common trend that sounds very interesting: **#WeLoveTheEarth** — so good to see that *Twitteratis* are unanimously talking about loving Mother Earth! ☐

**Note:** We could have had no overlap or a much higher overlap; when we did the query for getting the trends, people in the US could have been on fire about topics only relevant to them.





Image Source: Official Music Video Cover: <https://welovetheearth.org/video/>

We have found a hot-trend, #WeLoveTheEarth. Now let's see what story it is screaming to tell us!

If we query Twitter's search API with this hashtag as query parameter, we get back actual tweets related to it. We have the response from the search API stored in the datasets folder as 'WeLoveTheEarth.json'. So let's load this dataset and do a deep dive in this trend.

In [19]:

```
# Loading the data
tweets = json.loads(open('datasets/WeLoveTheEarth.json').read())

# Inspecting some tweets
tweets[0:2]
```

Out[19]:

```
[{'created_at': 'Fri Apr 19 08:46:48 +0000 2019',
  'id': 1119160405270523904,
  'id_str': '1119160405270523904',
  'text': 'RT @lildickytweets: ☐ out now #WeLoveTheEarth https://t.co/L22XsoT5P1',
  'truncated': False,
  'entities': {'hashtags': [{'text': 'WeLoveTheEarth', 'indices': [30, 45]}],
    'symbols': [],
    'user_mentions': [{'screen_name': 'lildickytweets',
      'name': 'LD',
      'id': 1209516660,
      'id_str': '1209516660',
      'indices': [3, 18]}]},
  'urls': [{'url': 'https://t.co/L22XsoT5P1',
    'expanded_url': 'https://youtu.be/pvuN_WvFlto',
    'display_url': 'youtu.be/pvuN_WvFlto',
    'indices': [46, 69]}]},
  'metadata': {'iso_language_code': 'en', 'result_type': 'recent'},
  'source': '<a href="http://twitter.com/download/android" rel="nofollow">Twitter for
Android</a>',
  'in_reply_to_status_id': None,
  'in_reply_to_status_id_str': None,
  'in_reply_to_user_id': None,
  'in_reply_to_user_id_str': None,
  'in_reply_to_screen_name': None,
  'user': {'id': 212375312,
    'id_str': '212375312',
    'name': 'fake smile',
    'screen_name': 'Pati95Poland',
    'location': 'SWAGLAND ',
    'description': "'you just got knocked the fuck out'",
    'url': 'https://t.co/nxz1SyYZSK',
    'entities': {'url': {'urls': [{'url': 'https://t.co/nxz1SyYZSK',
      'expanded_url': 'http://loveeeujdb.tumblr.com/',
      'display_url': 'loveeeujdb.tumblr.com',
      'indices': [0, 23]}]}},
    'description': {'urls': []}},
  'protected': False,
  'followers_count': 2306,
  'friends_count': 697,
  'listed_count': 28,
  'created_at': 'Fri Nov 05 22:25:29 +0000 2010',
  'favourites_count': 5552,
  'utc_offset': None
```



```
    'utc_offset': None,
    'time_zone': None,
    'geo_enabled': True,
    'verified': False,
    'statuses_count': 185750,
    'lang': 'pl',
    'contributors_enabled': False,
    'is_translator': False,
    'is_translation_enabled': False,
    'profile_background_color': 'FFFFFF',
    'profile_background_image_url': 'http://abs.twimg.com/images/themes/theme18/bg.gif',
    'profile_background_image_url_https': 'https://abs.twimg.com/images/themes/theme18/bg.gif',
    'profile_background_tile': False,
    'profile_image_url':
'http://pbs.twimg.com/profile_images/1093929135183937537/hQuxtwKq_normal.jpg',
    'profile_image_url_https':
'https://pbs.twimg.com/profile_images/1093929135183937537/hQuxtwKq_normal.jpg',
    'profile_banner_url': 'https://pbs.twimg.com/profile_banners/212375312/1522705183',
    'profile_link_color': 'ABB8C2',
    'profile_sidebar_border_color': 'FFFFFF',
    'profile_sidebar_fill_color': 'F6F6F6',
    'profile_text_color': '333333',
    'profile_use_background_image': True,
    'has_extended_profile': True,
    'default_profile': False,
    'default_profile_image': False,
    'following': False,
    'follow_request_sent': False,
    'notifications': False,
    'translator_type': 'regular'},
    'geo': None,
    'coordinates': None,
    'place': None,
    'contributors': None,
    'retweeted_status': {'created_at': 'Fri Apr 19 04:22:29 +0000 2019',
    'id': 1119093888524754946,
    'id_str': '1119093888524754946',
    'text': '☐ out now #WeLoveTheEarth https://t.co/L22XsoT5P1',
    'truncated': False,
    'entities': {'hashtags': [{'text': 'WeLoveTheEarth', 'indices': [10, 25]}],
    'symbols': [],
    'user_mentions': [],
    'urls': [{'url': 'https://t.co/L22XsoT5P1',
    'expanded_url': 'https://youtu.be/pvuN_WvFlto',
    'display_url': 'youtu.be/pvuN_WvFlto',
    'indices': [26, 49]}]},
    'metadata': {'iso_language_code': 'en', 'result_type': 'recent'},
    'source': '<a href="http://twitter.com" rel="nofollow">Twitter Web Client</a>',
    'in_reply_to_status_id': None,
    'in_reply_to_status_id_str': None,
    'in_reply_to_user_id': None,
    'in_reply_to_user_id_str': None,
    'in_reply_to_screen_name': None,
    'user': {'id': 1209516660,
    'id_str': '1209516660',
    'name': 'LD',
    'screen_name': 'lildickytweets',
    'location': 'Earth',
    'description': 'Rapper/Actor/Comedian/Model #WeLoveTheEarth',
    'url': 'https://t.co/aFrPkkJKqs',
    'entities': {'url': {'urls': [{'url': 'https://t.co/aFrPkkJKqs',
    'expanded_url': 'https://LilDicky.lnk.to/Earth',
    'display_url': 'LilDicky.lnk.to/Earth',
    'indices': [0, 23]}]}},
    'description': {'urls': []}},
    'protected': False,
    'followers_count': 503111,
    'friends_count': 945,
    'listed_count': 657,
    'created_at': 'Fri Feb 22 19:06:15 +0000 2013',
    'favourites_count': 7696,
    'utc_offset': None,
    'time_zone': None,
    'geo_enabled': False,
    'verified': True,
    'statuses_count': 14430,
    'lang': 'en',
    'contributors_enabled': False
```

```

    'contributors_enabled': False,
    'is_translator': False,
    'is_translation_enabled': False,
    'profile_background_color': '000000',
    'profile_background_image_url': 'http://abs.twimg.com/images/themes/theme14/bg.gif',
    'profile_background_image_url_https': 'https://abs.twimg.com/images/themes/theme14/bg.gif',
    'profile_background_tile': False,
    'profile_image_url':
'http://pbs.twimg.com/profile_images/1119087366679846912/XSa4fpQA_normal.png',
    'profile_image_url_https':
'https://pbs.twimg.com/profile_images/1119087366679846912/XSa4fpQA_normal.png',
    'profile_banner_url': 'https://pbs.twimg.com/profile_banners/1209516660/1555646206',
    'profile_link_color': '858585',
    'profile_sidebar_border_color': 'FFFFFF',
    'profile_sidebar_fill_color': 'DDEEF6',
    'profile_text_color': '333333',
    'profile_use_background_image': True,
    'has_extended_profile': False,
    'default_profile': False,
    'default_profile_image': False,
    'following': False,
    'follow_request_sent': False,
    'notifications': False,
    'translator_type': 'none'},
    'geo': None,
    'coordinates': None,
    'place': None,
    'contributors': None,
    'is_quote_status': False,
    'retweet_count': 7482,
    'favorite_count': 13317,
    'favorited': False,
    'retweeted': False,
    'possibly_sensitive': False,
    'lang': 'en'},
    'is_quote_status': False,
    'retweet_count': 7482,
    'favorite_count': 0,
    'favorited': False,
    'retweeted': False,
    'possibly_sensitive': False,
    'lang': 'en'},
    {'created_at': 'Fri Apr 19 08:46:48 +0000 2019',
    'id': 1119160404876206080,
    'id_str': '1119160404876206080',
    'text': '🌍 #WeLoveTheEarth 🌍',
    'truncated': False,
    'entities': {'hashtags': [{'text': 'WeLoveTheEarth', 'indices': [5, 20]}],
    'symbols': [],
    'user_mentions': [],
    'urls': []},
    'metadata': {'iso_language_code': 'und', 'result_type': 'recent'},
    'source': '<a href="http://twitter.com/download/iphone" rel="nofollow">Twitter for iPhone</a>',
    'in_reply_to_status_id': None,
    'in_reply_to_status_id_str': None,
    'in_reply_to_user_id': None,
    'in_reply_to_user_id_str': None,
    'in_reply_to_screen_name': None,
    'user': {'id': 72150460,
    'id_str': '72150460',
    'name': 'Alfonsina del Mar (Dianishka Prietishka)',
    'screen_name': 'Diana___X',
    'location': 'México',
    'description': '🌸 🌱 🌍\u200d👉 🌟🌟🌟🌟 🌟',
    'url': None,
    'entities': {'description': {'urls': []}},
    'protected': False,
    'followers_count': 223,
    'friends_count': 513,
    'listed_count': 0,
    'created_at': 'Sun Sep 06 23:26:24 +0000 2009',
    'favourites_count': 750,
    'utc_offset': None,
    'time_zone': None,
    'geo_enabled': True,
    'verified': False,
    'statuses_count': 1668,
    'lang': 'es'

```

```

    'lang': 'es',
    'contributors_enabled': False,
    'is_translator': False,
    'is_translation_enabled': False,
    'profile_background_color': '642D8B',
    'profile_background_image_url': 'http://abs.twimg.com/images/themes/theme10/bg.gif',
    'profile_background_image_url_https': 'https://abs.twimg.com/images/themes/theme10/bg.gif',
    'profile_background_tile': True,
    'profile_image_url':
'http://pbs.twimg.com/profile_images/1072296818531278848/tgn0e2h4_normal.jpg',
    'profile_image_url_https':
'https://pbs.twimg.com/profile_images/1072296818531278848/tgn0e2h4_normal.jpg',
    'profile_banner_url': 'https://pbs.twimg.com/profile_banners/72150460/1545198367',
    'profile_link_color': '8400FF',
    'profile_sidebar_border_color': '65B0DA',
    'profile_sidebar_fill_color': '7AC3EE',
    'profile_text_color': '3D1957',
    'profile_use_background_image': True,
    'has_extended_profile': True,
    'default_profile': False,
    'default_profile_image': False,
    'following': False,
    'follow_request_sent': False,
    'notifications': False,
    'translator_type': 'none'},
    'geo': None,
    'coordinates': None,
    'place': None,
    'contributors': None,
    'is_quote_status': False,
    'retweet_count': 0,
    'favorite_count': 0,
    'favorited': False,
    'retweeted': False,
    'lang': 'und'}}]

```

In [20]:

```

%%nose
# %%nose needs to be included at the beginning of every @tests cell

# One or more tests of the student's code
# The @solution should pass the tests
# The purpose of the tests is to try to catch common errors and
# to give the student a hint on how to resolve these errors

def test_tweets_loaded_correctly():
    correct_tweets_data = json.loads(open('datasets/WeLoveTheEarth.json').read())
    assert correct_tweets_data == tweets, "The variable tweets should contain the data in WeLoveTheEarth.json."

```

Out[20]:

1/1 tests passed

## 5. Digging deeper

☐♀ Printing the first two tweet items makes us realize that there's a lot more to a tweet than what we normally think of as a tweet — there is a lot more than just a short text!

But hey, let's not get overwhelmed by all the information in a tweet object! Let's focus on a few interesting fields and see if we can find any hidden insights there.

In [21]:

```

# Extracting the text of all the tweets from the tweet object
texts = [tweet['text']
          for tweet in tweets ]

# Extracting screen names of users tweeting about #WeLoveTheEarth
names = [user mention['screen name']]

```

```

        for tweet in tweets
            for user_mention in tweet['entities']['user_mentions']]

# Extracting all the hashtags being used when talking about this topic
hashtags = [hashtag['text']]
        for tweet in tweets
            for hashtag in tweet['entities']['hashtags']]

# Inspecting the first 10 results
print (json.dumps(texts[0:10], indent=1), "\n")
print (json.dumps(names[0:10], indent=1), "\n")
print (json.dumps(hashtags[0:10], indent=1), "\n")

[
    "RT @lildickytweets: \ud83c\udf0e out now #WeLoveTheEarth https://t.co/L22XsoT5P1",
    "\ud83d\udc9a\ud83c\udf0e\ud83d\udc9a #WeLoveTheEarth \ud83d\udc47\ud83c\udfffc",
    "RT @cabeyoomoon: Ta piosenka to bop, wpada w ucho i dochody z niej id\u0105 na dobry cel,
    warty s\u0142ucha\u0107 w k\u00f3\u0142ko i w k\u00f3\u0142ko gdziekolwiek si\u0119 ty\u0206",
    "#WeLoveTheEarth \nCzemu ja si\u0119 pop\u0142aka\u0142am",
    "RT @Spotify: This is epic. @lildickytweets got @justinbieber, @arianagrande, @halsey,
    @sanbenito, @edsheeran, @SnoopDogg, @ShawnMendes, @Kr\u0206",
    "RT @biebercentineo: Justin : are we gonna die? \nLil dicky: you know bieber we might die \n\nBTC
    H IM CRYING #EARTH #WeLoveTheEarth #WELOVEEART\u0206",
    "RT @dreamsiinflate: #WeLoveTheEarth \u0107ci am a fat fucking pig\u0206 okay brendon urie
    https://t.co/FdJmq3lxZc",
    "Literally no one:\n\nMe in the past 4 hours:\n\nI'm a koala and I sleep all the time, so what, i
    t's cute \ud83c\udfb6\n\n#WeLoveTheEarth #EdSheeranTheKoala",
    "RT @Yuuupthatsme: Mia\u0142e\u0152 by\u0107 \u017cyraf\u0105 #WeLoveTheEarth
    https://t.co/0kNCpU8o6q",
    "RT @jaguareffects: eu prestando aten\u00e7\u00e3o no \u00e9ludio pra identificar cada
    artista\n\n#WeLoveTheEarth https://t.co/0cDtIV2t1E"
]

[
    "lildickytweets",
    "cabeyoomoon",
    "Spotify",
    "lildickytweets",
    "justinbieber",
    "ArianaGrande",
    "halsey",
    "sanbenito",
    "edsheeran",
    "SnoopDogg"
]

[
    "WeLoveTheEarth",
    "WeLoveTheEarth",
    "WeLoveTheEarth",
    "EARTH",
    "WeLoveTheEarth",
    "WeLoveTheEarth",
    "WeLoveTheEarth",
    "WeLoveTheEarth",
    "EdSheeranTheKoala",
    "WeLoveTheEarth",
    "WeLoveTheEarth"
]

```

In [22]:

```

%%nose
# %%nose needs to be included at the beginning of every @tests cell

# One or more tests of the student's code
# The @solution should pass the tests
# The purpose of the tests is to try to catch common errors and
# to give the student a hint on how to resolve these errors

def test_extracted_texts():
    correct_text = [tweet['text'] for tweet in tweets ]
    assert texts == correct_text, \
        'The variable texts does not have the expected text data.'

```

```
def test_extracted_names():
    correct_names = [user_mention['screen_name']
                      for tweet in tweets
                      for user_mention in tweet['entities']['user_mentions']]
    assert correct_names == names, \
        'The variable names does not have the expected user names.'

def test_extracted_hashtags():
    correct_hashtags = [hashtag['text']
                        for tweet in tweets
                        for hashtag in tweet['entities']['hashtags']]
    assert correct_hashtags == hashtags, \
        'The variable hashtags does not have the expected hashtag data.'
```

Out[22]:

3/3 tests passed

## 6. Frequency analysis

☐♀ Just from the first few results of the last extraction, we can deduce that:

- We are talking about a song about loving the Earth.
- A lot of big artists are the forces behind this Twitter wave, especially Lil Dicky.
- Ed Sheeran was some cute koala in the song — "EdSheeranTheKoala" hashtag! ☐

Observing the first 10 items of the interesting fields gave us a sense of the data. We can now take a closer look by doing a simple, but very useful, exercise — computing frequency distributions. Starting simple with frequencies is generally a good approach; it helps in getting ideas about how to proceed further.

In [23]:

```
# Importing modules
from collections import Counter

# Counting occurrences/ getting frequency dist of all names and hashtags
for item in [names, hashtags]:
    c = Counter(item)
    # Inspecting the 10 most common items in c
    print (c.most_common(10), "\n")
```

```
[('lildickytweets', 102), ('LeoDiCaprio', 44), ('ShawnMendes', 33), ('halsey', 31),
('ArianaGrande', 30), ('justinbieber', 29), ('Spotify', 26), ('edsheeran', 26), ('sanbenito', 25),
('SnoopDogg', 25)]
```

```
[('WeLoveTheEarth', 313), ('4future', 12), ('19aprile', 12), ('EARTH', 11), ('fridaysforfuture', 1
0), ('EarthMusicVideo', 3), ('ConCalmaRemix', 3), ('Earth', 3), ('aliens', 2), ('AvengersEndgame',
2)]
```

In [24]:

```
%%nose
# %%nose needs to be included at the beginning of every @tests cell

# One or more tests of the student's code
# The @solution should pass the tests
# The purpose of the tests is to try to catch common errors and
# to give the student a hint on how to resolve these errors

def test_counter():
    for item in [names, hashtags]: correct_counter = Counter(item)
    assert c == correct_counter, \
        "The variable c does not have the expected values."
```

Out[24]:

1/1 tests passed

## 7. Activity around the trend

□♀ Based on the last frequency distributions we can further build-up on our deductions:

- We can more safely say that this was a music video about Earth (hashtag 'EarthMusicVideo') by Lil Dicky.
- DiCaprio is not a music artist, but he was involved as well (*Leo is an environmentalist so not a surprise to see his name pop up here*).
- We can also say that the video was released on a Friday; very likely on April 19th.

*We have been able to extract so many insights. Quite powerful, isn't it?!*

Let's further analyze the data to find patterns in the activity around the tweets — **did all retweets occur around a particular tweet?**

If a tweet has been retweeted, the `'retweeted_status'` field gives many interesting details about the original tweet itself and its author.

We can measure a tweet's popularity by analyzing the **`retweetcount`** and **`favoritecount`** fields. But let's also extract the number of followers of the tweeter — we have a lot of celebs in the picture, so **can we tell if their advocating for #WeLoveTheEarth influenced a significant proportion of their followers?**

**Note:** The `retweet_count` gives us the total number of times the original tweet was retweeted. It should be the same in both the original tweet and all the next retweets. Tinkering around with some sample tweets and the official documentaiton are the way to get your head around the mnay fields.

In [25]:

```
# Extracting useful information from retweets
retweets = [
    (tweet['retweet_count'],
     tweet['retweeted_status']['favorite_count'],
     tweet['retweeted_status']['user']['followers_count'],
     tweet['retweeted_status']['user']['screen_name'],
     tweet['text'])

    for tweet in tweets
    if 'retweeted_status' in tweet
]
```

In [26]:

```
%%nose
# %%nose needs to be included at the beginning of every @tests cell

# One or more tests of the student's code
# The @solution should pass the tests
# The purpose of the tests is to try to catch common errors and
# to give the student a hint on how to resolve these errors

def test_retweets():
    correct_retweets = [
        (tweet['retweet_count'],
         tweet['retweeted_status']['favorite_count'],
         tweet['retweeted_status']['user']['followers_count'],
         tweet['retweeted_status']['user']['screen_name'],
         tweet['text'])

        for tweet in tweets
        if 'retweeted_status' in tweet
    ]

    assert correct_retweets == retweets, \
        "The retweets variable does not have the expected values. Check the names of the extracted fie
ld and their order."
```

Out[26]:

1/1 tests passed

## 8. A table that speaks a 1000 words

Let's manipulate the data further and visualize it in a better and richer way — "looks matter!"

In [27]:

```
# Importing modules
import matplotlib.pyplot as plt
import pandas as pd

# Visualizing the data in a pretty and insightful format
df = pd.DataFrame(
    retweets,
    columns=['Retweets', 'Favorites', 'Followers', 'ScreenName', 'Text']).groupby(
    ['ScreenName', 'Text', 'Followers']).sum().sort_values(by=['Followers'], ascending=False)

df.style.background_gradient()
```

Out[27]:

ScreenName		Text	Followers	Retweets	Favorites
katyperry	RT @katyperry: Sure, the Mueller report is out, but @lildickytweets' "Earth" but will be too tonight. Don't say I never tried to save the w...	107195569	2338	10557	
		107195568	2338	10556	
TheEllenShow	RT @TheEllenShow: .@lildickytweets, @justinbieber, @MileyCyrus, @katyperry, @ArianaGrande and more, all in one music video. My head might e...	77474826	2432	10086	
LeoDiCaprio	RT @LeoDiCaprio: The @dicapriofdn partners that will benefit from this collaboration include @SharkRayFund, @SolutionsProj, @GreengrantsFun...	18988898	28505	78137	
	RT @LeoDiCaprio: Thank you to @lildickytweets and all the artists that came together to make this happen. Net profits from the song, video,...	18988898	149992	416018	
halsey	RT @halsey: ☐☐ meeeeeeeow ☐ #WeLoveTheEarth https://t.co/JJr6vmKG7U	10564842	7742	69684	
		10564841	7742	69682	
scooterbraun	RT @scooterbraun: Watch #EARTH NOW! #WeLoveTheEarth — https://t.co/OtRflgcSZL	3885179	5925	14635	
Spotify	RT @Spotify: This is epic. @lildickytweets got @justinbieber, @arianagrande, @halsey, @sanbenito, @edsheeran, @SnoopDogg, @ShawnMendes, @Kr...	2973277	107222	237259	
TomHall	RT @TomHall: ☐ Look Out! ☐ #Cheetah @LeoDiCaprio #FridayFeeling #WeLoveTheEarth https://t.co/w1O1NyTbwX	590841	82	252	
lildickytweets	RT @lildickytweets: Earth. 4/18 at 9PM PST. #WeLoveTheEarth pre-save link in my bio https://t.co/7HD2xlSFYQ	503112	25098	90974	
	RT @lildickytweets: ☐ out now #WeLoveTheEarth https://t.co/L22XsoT5P1	503112	112230	199773	
		503111	119712	213072	
greenpeacefr	RT @greenpeacefr: Happening NOW in France : today, to show how much #WeLoveTheEarth, more than 2000 citizens are blocking the headquarters...	420789	128	192	
rlthingy	RT @rlthingy: /r/t/ YO GUYS LISTEN TO THIS SONGGGGG #WeLoveTheEarth https://t.co/trUgRG7QBH	225977	11	23	
SB_Projects	RT @SB_Projects: #WeLoveTheEarth out now with @lildickytweets, @justinbieber, @ArianaGrande, @zacbrownband, and 25+ of your other faves htt...	98418	271	730	
biebernovidade	RT @biebernovidade: Rio de Janeiro: PRESENTE! #WeLoveTheEarth https://t.co/LjrypKqzSf	83281	651	1499	
MendesCrewInfo	RT @MendesCrewInfo: .@ShawnMendes represents rhinos in the 'Earth' music video and feature. His line, "We're just some rhinos, horny as hec...	61015	2815	9599	
shawnxniallx	RT @shawnxniallx: La gente piensa que el calentamiento global no es real, ya abran los ojos y actuemos de una manera real, dime ¿qué te cue...	53713	812	1254	
	RT @shawnxniallx: La humanidad es un asco y nunca me cansaré de decirlos ¿no creen que es momento de cambiar? Salvemos nuestro planeta, sal...	53713	604	1034	
	RT @shawnxniallx: Vengo a recomendarles a todos esta miniserie que realizó Netflix, en la cual nos muestra cada parte de las especies, lo q...	53713	138	299	
	RT @shawnxniallx: Espero que con este video se pueda crear un poco más de conciencia propia, simeplemnte estamos acabando con nuestro plane...	53713	300	494	
	RT @SMendesQandA: #WeLoveTheEarth https://t.co/KDIKYVHFUW	53282	56	339	
SMendesQandA	RT @SMendesQandA: Let's help save the Earth. We're the ones with the power of change. ☐ #WeLoveTheEarth	53282	122	343	
	RT @SMendesQandA: So you can basically say you have a song with many of the artists we have asked you to collaborate with...smart move mend...	53282	116	717	
	RT @SMendesQandA: "We're just some rhinos, horny as heck" — Shawn's part on #WeLoveTheEarth	53282	244	1420	

ScreenName	RT @SMendesQandA: “We’re just some rhinos horny as heck” — Shawn Mendes #WeLoveTheEarth https://t.co/URnHb0DT6XN	53282 Followers	Retweets 768	Favorites 3309
ShawnUpdatesSA	RT @ShawnUpdatesSA: Shawn Mendes: rinocerontes. #WeLoveTheEarth 'La población de rinocerontes negros está casi extinta, y las otras cuatro...	52424	850	1807
gtbriel	RT @gtbriel: vimos o cu do justin bieber logo em seguida a ariana sair do cu do justin e logo em seguuda a ariana sendo morta pela halse...	49215	581	970
MileySmilerNews	RT @MileySmilerNews: Miley’s cameo in the Earth song is so cute #WeLoveTheEarth https://t.co/Byk9rkhMpG	47840	15	116
ArianatorFallen	RT @ArianatorFallen: Ariana vocals had saved the earth . This song is so important #WeLoveTheEarth https://t.co/Lg9jsPRD5z	44426	84	258
MendesNotified	RT @MendesNotified: Rhinos - Shawn Mendes “The black rhino population is nearly extinct, and the four other species of rhinos found in Af...	39726	258	858
	RT @MendesNotified: shawn reading his line for the song #WeLoveTheEarth: https://t.co/dcWJFDIVMd	39726	2465	10475
badweputation	RT @badweputation: n adianta vcs comentarem sobre a importância da preservação hj e amanhã já esquecerem e tbm lembrando q o atual presiden...	38787	119	183
isbreakls	RT @isbreakls: Queria dizer que na música do Lil Dicky tem 28 artistas incríveis mais quem eu amo mesmo é um babuíno chamado Justin Bieber...	37473	95	215
	RT @isbreakls: A música e o clipe tá incrível vamos espalhar o verdadeiro motivo da música que é fazer com que as pessoas pensem nos seus a...	37473	684	1068
NoticiasSmilers	RT @NoticiasSmilers: Soy un elefante, tengo basura en mi trompa. -Pequeño cameo de Miley en la canción Earth de Lil Dicky- #WeLoveTheEarth...	32649	7	4
ThrowbacksBTS	RT @ThrowbacksBTS: Friendly reminder to use less plastic, recycle and contribute in some way to benefit humanity. The world is dying we nee...	32498	370	816
btsargento	RT @btsargento: • estas son varias cosas que podemos hacer para construir un planeta mejor, sin contaminación y un lugar donde todos aporte...	31453	67	143
biebersmaniabrs	RT @biebersmaniabrs: SAIU! Ouçam e assistam “Earth”, música de Lil Dicky com Justin Bieber e mais 29 artistas. Video: https://t.co/oHRR...	26097	341	463
landsrauhl	RT @landsrauhl: I loved what lil dicky did. There’s so many popular artists on the track which hopefully means more of a variety of people...	25071	128	306
biebsrell	RT @biebsrell: J: ¿Vamos a morir? L: ¿Sabes qué, Bieber? Podríamos morir. No voy a mentirte. Quiero decir, hay mucha gente ahí afuera que n...	23301	730	1344
ShawnNewsPoland	RT @ShawnNewsPoland: “We’re just some rhinos, horny as heck” — Shawna tekst w piosence #WeLoveTheEarth https://t.co/NsOmYfoe7u	22067	97	523
	RT @ShawnNewsPoland: Wyjaśnienie tekstu Shawna #WeLoveTheEarth https://t.co/NiShcC8WGW	22067	105	440
	RT @ShawnNewsPoland: Słuchajcie wszędzie gdzie się da! #WeLoveTheEarth dochód z piosenki zostanie przekazany fundacji założonej przez DiCap...	22067	4410	8720
NLiddle16	RT @NLiddle16: #Earth isn’t supposed to break records or chart. This song is to bring awareness. We have to change now. We have to love mor...	21180	27	134
ArianaRenewsFR	RT @ArianaRenewsFR: #WeLoveTheEarth est maintenant disponible sur toutes les plateformes ! YouTube : https://t.co/zSpCdE74IV iTunes : ht...	20794	5	20
iBeliebersMx	RT @iBeliebersMx: Justin: ¿Vamos a morir? Lil Dicky: “Sabes Bieber... podemos morir. No te voy a mentir a ti, hay muchas personas que pien...	19745	2236	3872
JBCrewdotcom	RT @JBCrewdotcom: #WeLoveTheEarth Merchandise available to purchase with proceeds going to The Leonardo DiCaprio Foundation dedicated to th...	17812	89	186
dimplecabello	RT @dimplecabello: “¿Que vamos a defender? El amor. Y nosotros amamos la tierra.” Este video es precioso, últimamente estamos dañando tanto...	17590	286	445
TeamAGPoland	RT @TeamAGPoland: Utwór "Earth" jest już dostępny! Ariana wcieliła się w postać zebry, a cały dochód ze sprzedaży utworu zostanie przekazan...	17157	44	142
bieberpakiss	RT @bieberpakiss: HI IM A BABOON IM LIKE A MAN JUST LESS ADVANCED AND MY ANUS IS HUGE #WeLoveTheEarth https://t.co/tqhfvv7PKf	16288	148	286
yourbiebernews	RT @yourbiebernews: Justin Bieber: Baboon #WeLoveTheEarth https://t.co/dlv1M28Mg	14121	198	404
bizzleslovej	RT @bizzleslovej: Parliamo di Leo DiCaprio che entra in scena sulla nave del Titanic stile Jack #WeLoveTheEarth https://t.co/VxZscAiOhZ	13151	5	8
holdtightlive	RT @holdtightlive: THIS SONG IS SO BEAUTIFUL THE VIDEO IS ABSOLUTELY AMAZING AND IT’S FOR A GOOD CAUSE SO LETS GOOO STREAM IT BUY IT WATCH...	10331	35	83
needyellie	RT @needyellie: please keep steaming this song, all proceeds go to an extremely important cause. save planet earth!! #WeLoveTheEarth https:...	10319	1240	2884
gladwithmyidols	RT @gladwithmyidols: So... Halsey killed Ariana #WeLoveTheEarth https://t.co/Qquu4YfgzE	9987	23	91
TJOfficial_	RT @TJOfficial_: We love the earth it is our planet ☐ #WeLoveTheEarth It's so beautiful.	9693	6	12



MCyru\$ee\$for\$the\$world	RT @MCyru\$ee\$for\$the\$world: Cały dochód z tej piosenki trafi do fundacji Leonardo DiCaprio, poświęconej ochronie i dobrobytowi wszystkich mieszkań...	9680	Retweets	Favorites
	RT @MCyru\$ee\$for\$the\$world: Ten teledysk jest świetny, a piosenka ma naprawdę bardzo ważne przesłanie ☐☐ #WeLoveTheEarth	9680	1	5
justinxrespect	RT @justinxrespect: "are we gonna die" ay loco. #WeLoveTheEarth https://t.co/zwof29P4Uw	9257	9	21
cyruseyes_	RT @cyruseyes_: Qui non stiamo parlando abbastanza di Leonardo DiCaprio e di questa scena #WeLoveTheEarth https://t.co/zUfOWBy7ct	9148	22	148
	RT @cyruseyes_: Questo video deve diventare un film. Il messaggio arriverebbe veramente a tutti. @ Disney sai cosa fare #WeLoveTheEarth ht...	9148	10	52
ChartBTS	RT @ChartBTS: "We love the earth it is our planet We love the earth it is our home" ARMYs, support this important cause, it is our home...	8527	705	1731
MileyDimension	RT @MileyDimension: I think everyone should see this! It is about time to do something. #WeLoveTheEarth https://t.co/WmMDhsBq19	7745	645	969
cabeyoomoon	RT @cabeyoomoon: Ta piosenka to bop, wpada w ucho i dochody z niej idą na dobry cel, warto słuchać w kółko i w kółko gdziekolwiek się ty...	7732	9	23
stonyproud	RT @stonyproud: agora que percebi que o clipe todo foi no cu do Justin pqp que cu arrombado #WeLoveTheEarth https://t.co/l2edu6J9be	7728	49	115
hoe4exhoe	RT @hoe4exhoe: Lil Dicky - Earth (Official Music Video) https://t.co/XT4xdm9XoN KRIS WU's PART IS ON 5:43. It is short but I'm so glad...	6870	10	8
KCUnidosBR	RT @KCUnidosBR: Quem diria em KatyCats? 2 músicas no mesmo dia #ConCalmaRemix #WeLoveTheEarth https://t.co/FF7Be15lhz	6458	59	96
Ari_grandeJP	RT @Ari_grandeJP: . @lildickytweets の 新曲 #EARTH が公開されました☐☐ アリアナ はシマウマとして参加してます！☐☐☐ #WeLoveTheEarth https://t.co/5g1clvAZoO	6141	44	306
becauseihadyou	RT @becauseihadyou: Don't know why people are being nasty about 'Earth'. It's not a song meant to chart or break records, it's to raise awa...	5647	2484	6444
biebersmybro	RT @biebersmybro: beliebers are promoting the song the hardest lol wbk we are the best fandom ever #WeLoveTheEarth	5314	14	49
	RT @biebersmybro: WE FINALLY HEARD JUSTIN AND ARIANA IN ONE SONG #WeLoveTheEarth https://t.co/RqHTRButmx	5314	350	996
imagiwation	RT @imagiwation: entre tanta coisa ruim e tóxica que tá tendo ultimamente a gente tem a chance de se unir por uma causa boa, então não vamo...	5208	88	129
triedsadlonel	RT @triedsadlonel: piosenka mega mi sie podoba,taka fajna wesola(pod katem melodii) natomiast calosc mnie hitnela mocno,bo to serio jest pr...	4941	10	34
	RT @triedsadlonel: kiedy kazdy byl przekonany ze Shawn bedzie zyrafa a tu jeb nosorożcem #WeLoveTheEarth	4941	1	10
neznayuchtotut	RT @neznayuchtotut: вay, так много артистов объединились, чтобы поднять насущную проблему нашей планеты о том, что ее нужно защищать и люби...	4621	8	150
demisfakesmile	RT @demisfakesmile: stream. stream. stream this song. its for a good cause, let's save the earth ☐☐☐ #WeLoveTheEarth https://t.co/vgABUfce...	4421	504	984
SoundOfSeries	RT @SoundOfSeries: #INFOSOS : 'WeLoveTheEarth' est disponible sur YouTube. Le but de cette chanson n'est pas de devenir le tube de l'été,...	4393	80	72
carawcciollo	RT @carawcciollo: Halsey zjada Ariane na śniadanie (koloryzowane) ☺ #WeLoveTheEarth https://t.co/FV4MZSOXlu	4246	63	194
gclnddays	RT @gclnddays: Be careful who you call ugly in middle school ☺ #WeLoveTheEarth https://t.co/4jvr8Xn397	4122	394	1698
	RT @gclnddays: No one: Not even a soul: Me: #WeLoveTheEarth https://t.co/i4BxsXBwny	4122	408	1189
biebercentineo	RT @biebercentineo: Justin : are we gonna die? Lil dicky: you know beiber we might die BTCH IM CRYING #EARTH #WeLoveTheEarth #WELOVEEART...	4038	1551	3555
	RT @biebercentineo: THIS SONG IS SO GOOD ☺ #EARTH #WeLoveTheEarth https://t.co/3hM7ZU2eYh	4038	79	215
Bizzbiebsz	RT @Bizzbiebsz: So after so many years we finally got Justin x Arina collab and they even gave us zebra and baboon Stream #WeloveTheEarth...	3889	297	879
jvkejams	RT @jvkejams: I feel like the song will showcase the animals in a very comedic way (bc its how most lil dicky's songs are) to raise awarene...	3861	20	104
larryxcolours	RT @larryxcolours: ¿Cómo pueden ayudar a la organización? -Compren la mercancía, las ganancias irán directamente para ayudar a la tierra....	3766	330	612
sitevolts	RT @sitevolts: CROSSOVER MAIOR QUE VINGADORES ☺ Justin Bieber, Ariana Grande, Katy Perry, Halsey, Sia, Ed Sheeran, Meghan Trainor e Miley C...	3707	130	366
JDBieberPol	RT @JDBieberPol: Gwiazdy jako zwierzęta w teledysku #Earth #WeLoveTheEarth https://t.co/3aA4mE56Y3	3475	34	99
nervous_taste	RT @nervous_taste: Have u thought that we will have: SHAWN MENDES FT ARIANA GRANDE SHAWN MENDES FT JUSTIN BIEBER SHAWN MENDES FT HALSEY...	3283	2	9
	RT @nervous_taste: Shawn isn't the giraffe #WeLoveTheEarth https://t.co/0PJdZnkP87	3283	2	0

nopromisesv ScreenName	RT @nopromisesv: A ogólnie sam teledysk jest świetny, nie spodziewałam się tego #WeLoveTheEarth	3283 Followers	Retweets 7	Favorites 77
INLOVEWITHDS	RT @INLOVEWITHDS: Questo video è semplicemente spettacolare e il messaggio che vuole trasmettere è bellissimo wow non ho parole Tutti gli a...	3153	14	49
agbkissy	RT @agbkissy: all of yall saying earth is a bad song are immature... its not supposed to be the next big hit, it was made to spread awarene...	3098	584	1356
dreamsiinflate	RT @dreamsiinflate: #WeLoveTheEarth "i am a fat fucking pig" okay brendon urie https://t.co/FdJmq31xZc	3045	1107	3426
	RT @dreamsiinflate: #WeLoveTheEarth they are all these informative cards on the website which are pretty cool https://t.co/qq0GWJ0q0G	3045	208	840
SMendesMedia	RT @SMendesMedia: . @ShawnMendes' part on l "Earth" □ #WeLoveTheEarth (@lildicktweets) • https://t.co/XrpJbZ6zY7 https://t.co/o2dO7V5cz4	2815	238	1120
kyzztin	RT @kyzztin: The whole concept of this is super dope. lil dicky really got so many huge artists to be part of this amazing project and give...	2641	21	79
	RT @kyzztin: same energy #WeLoveTheEarth https://t.co/YfTTS6BRiC	2641	10	27
xKittyMendes	RT @xKittyMendes: SHAWN JEST NOSOROŻCEM Jego od razu poznałam, bo z innymi miałam problem XD #WeLoveTheEarth https://t.co/21ICMTDdmn	2597	48	426
	RT @xKittyMendes: Nie sądziłam, że potrzebuję usłyszeć z ust Shawna słowa horny XDD #WeLoveTheEarth https://t.co/TkMA07iNj5	2597	326	1074
kajagafelgaja	RT @kajagafelgaja: macie tu moją przemowę #WeLoveTheEarth https://t.co/1KKrPIRIIX	2526	1	0
	RT @kajagafelgaja: czy to Was nie dociera że ta piosenka nie ma być dobra, tylko prosta, trafiająca do wszystkich i wpadająca w ucho? i moż...	2526	30	32
luvmyburito	RT @luvmyburito: głosy ariany i justina tak do siebie pasują ze i'm in shook #WeLoveTheEarth https://t.co/MLmyex9t1t	2520	90	405
lordefurler	RT @lordefurler: Sia did that! #WeLoveTheEarth https://t.co/aETvluquXM	2488	4	26
sinsnvices	RT @sinsnvices: utożsamiam się z brendonem #WeLoveTheEarth https://t.co/bSLoyWD4hd	2478	1646	3466
kingofthecloud	RT @kingofthecloud: STOP SCROLLING AND WATCH THIS VIDEO!! please take some time out of your day to watch this video & possibly share it. it...	2124	178	242
izrnrdn	RT @izrnrdn: Justin Drew Bieber as a baboon #WeLoveTheEarth https://t.co/Wz8YK6r21q	2034	223	615
marquezdudo	RT @marquezdudo: jakby ktoś się zastanawiał jak wygląda moje życie #WeLoveTheEarth https://t.co/SLvLE6eY0V	1906	582	1389
5SecOfMendess	RT @5SecOfMendess: Ejji ale mi się ta piosenka serio podoba i ma genialne przesłanie! □ #WeLoveTheEarth	1870	8	35
JBwakeup	RT @JBwakeup: Ogólnie to serio glos Justina i Ariany pasuja do siebie.. chce ich colab #WeLoveTheEarth	1842	14	58
MNotifiedMedia	RT @MNotifiedMedia: Shawn Mendes the Rhino □ #WeLoveTheEarth https://t.co/Y2pIDHsIsL	1805	93	416
	RT @MNotifiedMedia: "we're just some rhinos horny as heck" THE RHINOS ARE SO CUTE □ #WeLoveTheEarth https://t.co/vvkaO2U7qj	1805	175	647
DOLANVY	RT @DOLANVY: Rozjechał mnie snoop dog jako marihuana, rola idealna dla niego #WeLoveTheEarth	1803	44	140
justinsbicep	RT @justinsbicep: I signed the petition. And you should too. Stream, donate and spread the message. Let's save the earth. #WeLoveTheEarth h...	1772	58	101
purpxs3bizzle	RT @purpxs3bizzle: "O homem destrói a natureza com desculpa de sobreviver, a natureza luta para sobreviver para garantir a sobrevivência do...	1716	144	224
kba_yankee21	RT @kba_yankee21: Never thought I would tear up because of a Lil Dicky song. But here I am crying in a cool way. Feel free to visit https://...	1674	4	6
beth_powell1	RT @beth_powell1: LETS SAVE THE PLANET #WeLoveTheEarth	1629	1	0
piggzyneedy	RT @piggzyneedy: i see so many people tweeting about saving the planet but i bet my whole life the majority of those people are only tweeti...	1577	1	2
particularangel	RT @particularangel: i mean we should all listen to this part specifically #WeLoveTheEarth https://t.co/tgGZKRgXV2	1511	1147	2259
avisbelieberboy	RT @avisbelieberboy: De lo mejor que va del año #WeLoveTheEarth https://t.co/vN7wPOGork	1367	3	4
biebrforro	RT @biebrforro: justin y ariana cantando juntos es lo mejor que puede existir #WeLoveTheEarth https://t.co/DiIro999ds	1352	292	626
shawnnsbaby	RT @shawnnsbaby: Il rinoceronte con la voce più bella del mondo □ #WeLoveTheEarth https://t.co/aSQgvumgKI	1314	2	6
br_atd	RT @br_atd: O melhor porco gordo do universo !!! #WeLoveTheEarth https://t.co/IJfZkgnkWI	1249	1	1
moariustln	RT @moarjustln: can't believe we listened to justin's voice after months and I still in	1216	58	158

			Retweets	Favorites
AGPOfficial	RT @AGPOfficial: Nawet gdy jest zebra, Ariana zawsze serwuje wokall! ☐ #WeLoveTheEarth Posłuchaj utworu "Earth" z Ariana Grande i plejada... <a href="https://t.co/JhFRENhOH3">https://t.co/JhFRENhOH3</a>	1129	52	166
xmendesly	RT @xmendesly: stream earth by lil dicky #WeLoveTheEarth	1129	1	0
sourdieselzain	RT @sourdieselzain: "I'm a fat fucking pig" no ja się tu popłacze zaraz #WeLoveTheEarth #EarthMusicVideo <a href="https://t.co/tpBQZeRQEh">https://t.co/tpBQZeRQEh</a>	1048	34	99
MrtummyV	RT @MrtummyV: This is so cute!! aslskfjdkssksskak #WeLoveTheEarth <a href="https://t.co/ZKKKNFQ1Wf">https://t.co/ZKKKNFQ1Wf</a>	1005	10	45
ringsofmendes	RT @ringsofmendes: glos ari tutaj >>>>>>> #WeLoveTheEarth <a href="https://t.co/QDBVWZ0aom">https://t.co/QDBVWZ0aom</a>	1005	22	119
chimmybby	RT @chimmybby: We Also Love The Sun ☐ #WeLoveTheEarth <a href="https://t.co/mh9gfO6Z30">https://t.co/mh9gfO6Z30</a>	1004	34	129
PManice	RT @PManice: "I'm a koala and I sleep all the time. So what? It's cute." ☺ #WeLoveTheEarth <a href="https://t.co/vyOvLY4bSE">https://t.co/vyOvLY4bSE</a>	979	33	107
awanasghena	RT @awanasghena: KATY IN TENDENZA IN ITALIA. PIANGO☹️♥️ #ConCalmaRemix #WeLoveTheEarth <a href="https://t.co/CGnsmSd1gM">https://t.co/CGnsmSd1gM</a>	895	7	14
opssmymendes	RT @opssmymendes: bardzo mi się podoba to, że można kupić merch i pieniądze z tego idą na ratowanie naszej planety #WeLoveTheEarth	849	1	2
	RT @opssmymendes: warto sobie wejść na stronę <a href="https://t.co/JyL7e4jrbv">https://t.co/JyL7e4jrbv</a> i poczytać o co chodzi z każdym zwierzęciem #WeLoveTheEarth	849	84	112
_Sunflower_	RT @_Sunflower_: TA PIOSENKA TO ZŁOTO I DIAMENTY Oby jej przekaz nie skończył się tylko tylko na tym, że ludzie będą ją kojarzyli, bo spok...	784	164	480
jaguareffects	RT @jaguareffects: eu prestando atenção no áudio pra identificar cada artista #WeLoveTheEarth <a href="https://t.co/0cDtIV2t1E">https://t.co/0cDtIV2t1E</a>	771	253	380
cerberusgrande	RT @cerberusgrande: wszyscy mówią jak bardzo chcieliby usłyszeć biebera i ariane (same), ale ja bym chciała usłyszeć ariana x halsey, którą...	759	3	7
suplisamanobal	RT @suplisamanobal: Not blackpink related but Lil dicky x justin bieber, ft ariana grande, and shawn mendes, also charlie puth, and sia and...	740	2	6
Yuuupthatsme	RT @Yuuupthatsme: Jestem pod wrażeniem, że lil dicky był w stanie pokazać tak poważny problem w taki przyjemny sposób #WeLoveTheEarth	669	464	1256
	RT @Yuuupthatsme: TEGO SIĘ NIE SPODZIEWAŁAM XD #WeLoveTheEarth <a href="https://t.co/VuhRNdhcV7">https://t.co/VuhRNdhcV7</a>	669	70	316
	RT @Yuuupthatsme: Miałeś być żyrafą #WeLoveTheEarth <a href="https://t.co/0kNCpU8o6q">https://t.co/0kNCpU8o6q</a>	669	8	56
thremptyworlds	RT @thremptyworlds: piosenka jest cudowna, tylko brakuje mi takiego momentu w którym wszyscy razem zaśpiewaliby refren... #WeLoveTheEarth	629	55	215
typicalbizzle	RT @typicalbizzle: This song and music video had such a powerful and great message it. It's a wake up call for the whole woltd to get the...	601	694	1116
liveforshawn02	RT @liveforshawn02: This is one of the most beautiful concepts for a video ever! I'm so proud and thankful of @shawnmendes♥️ @lildickytweet...	578	1	3
aurelialmao	RT @aurelialmao: Uważam, że tą piosenkę powinni znać wszyscy, bo może wtedy kogoś ruszy stan naszej planety #EarthMusicVideo #WeLoveTheEarth	572	1	2
jaileystation	RT @jaileystation: PERO USTEDES ESCUCHARON A ED SHEERAN SIENDO EL KOALA MAS TIERNO QUE EXISTE #WeLoveTheEarth <a href="https://t.co/UvmXmy5E1C">https://t.co/UvmXmy5E1C</a>	546	332	852
athenajasvier	RT @athenajasvier: lil dicky is amazing #WeLoveTheEarth	546	2	0
llostinmyouth	RT @llostinmyouth: Ed versione koala è il mio stile di vita dal lunedì alla domenica #WeLoveTheEarth <a href="https://t.co/MbhaMaVaRD">https://t.co/MbhaMaVaRD</a>	520	11	34
MercurySimons	RT @MercurySimons: everybody should be listening to this masterpiece, the planet really needs our help and it shouldn't take a song with a...	516	275	489
realestbeach	RT @realestbeach: if y'all love the earth, start acting like it. pollution is real and y'all need to start taking it seriously!! #WeLoveTh...	504	354	681
Piatt_Futuro	RT @Piatt_Futuro: Edilizia motore di rigenerazione urbana. #4future #19aprile #fridaysforfuture * #WeLoveTheEarth <a href="https://t.co/TdVCrj86L8">https://t.co/TdVCrj86L8</a>	427	4	5
	RT @Piatt_Futuro: Il nostro "ius soli": terra, suolo e prodotti agricoli ☐☐ nel mondo. #4future #19aprile #fridaysforfuture * #WeLoveTheE...	427	2	4
	RT @Piatt_Futuro: L'ambiente è la leva dello sviluppo economico. #4future #19aprile #fridaysforfuture #WeLoveTheEarth <a href="https://t.co/TdVCrj86L8">https://t.co/TdVCrj86L8</a>	427	5	5
	RT @Piatt_Futuro: La persona al centro, l'ambiente intorno. #4future #19aprile * #fridaysforfuture #WeLoveTheEarth <a href="https://t.co/TdVCrj86L8">https://t.co/TdVCrj86L8</a>	427	4	6
	RT @Piatt_Futuro: Meno gomma, più ferro: trasporti veloci sicuri e non inquinanti. #4future #19aprile #fridaysforfuture * #WeLoveTheEarth...	427	5	6
	RT @Piatt_Futuro: Riscaldamento globale: soluzioni, non fake news! #4future #19aprile #fridaysforfuture * #WeLoveTheEarth <a href="https://t.co/TdV...">https://t.co/TdV...</a>	427	12	12
	RT @Piatt_Futuro: Più mercato e concorrenza per l'accesso di tutti all'acqua, meno sprechi e inefficienze. #4future #19aprile #fridaysforf...	427	1	1

	RT @Piatt_Futuro: Un grande sconto nasce per l'ambiente! #4future #19aprie #fridaysforfuture * #WeLoveTheEarth https://t.co/TdVCrj86L8	427	4	6
ScreenName	RT @Piatt_Futuro: Riciclo riuso e termocombustori: Italia pulita, meno mala...	Followers	Retweets	Favorites
	#4future #19aprie #fridaysforfuture * #WeLoveTheEarth ht...	427	4	8
vanessaibanez_	RT @vanessaibanez_: artists using their platform to spread awareness, kudos!! stream the song #WeLoveTheEarth https://t.co/nID21ksupN	416	1	1
Adryelli_Godoi	RT @Adryelli_Godoi: Justin/ Babuino: Nós vamos morrer?! Lil Dicky: Sabe, Bieber nós podemos morrer. Eu não vou mentir pra você. Há muitas p...	387	629	1095
fayessflatline	RT @fayessflatline: This is some true shit #WeLoveTheEarth https://t.co/MLYY7v3JAL	381	8220	16514
brian_prism	RT @brian_prism: #ConCalmaRemix & #WeLoveTheEarth Tonight https://t.co/EjQbaYZYmu	348	16	22
Clausbelieberj	RT @Clausbelieberj: progetto meraviglioso, vederlo mi ha emozionata. coinvolgere così tanti artisti per un buona causa è una cosa bellissim...	337	14	68
ver0017	RT @ver0017: oni doskonale wiedzą, że handwritten przyczyniło się do uratowania naszej planety #WeLoveTheEarth https://t.co/XF0JvxrerA	288	9	42
	RT @ver0017: ciekawi mnie na jakiej podstawie dobierali zwierzęta do artystów ☹️ #WeLoveTheEarth	288	1	2
dsakrv	RT @dsakrv: Lil Dicky - Earth (Official Music Video) https://t.co/M5TtrumWYQ via @YouTube #WeLoveTheEarth	239	1	1
CelebrityArticl	RT @CelebrityArticl: #ArianaGrande Opens Up About the Darkish Facet of Performing Her New #music "It Is Hell" #Singer #CelebrityNews #WeLov...	217	3	2
Ws_Vinicius	RT @Ws_Vinicius: O Brasil não foi esquecido no churrasco, Rio representando manooo, com os vocais da Ariana de fundo. QUE HINOOOOOOOO EU AM...	215	224	516
sevenyearsbiebs	RT @sevenyearsbiebs: oby wiadomość zawarta w piosence trafiła do dużej ilości osób, może dzięki temu świat zacznie się zmieniać na lepsze...	214	546	1083
ShawnDailyJP	RT @ShawnDailyJP: Lil Dickyの新曲・チャリティーソング「Earth」 アリアナ・ジャスティン・カニエら名だたるアーティスト達と共にショーンも参加しています。是非聴いてみて下さい。 #WeLoveTheEarth https://t.co/CKUq0...	199	1	6
Joprojekt	RT @Joprojekt: #WeLoveTheEarth Dire que #LinkinPark a écrit deux albums magnifiques sur l'environnement (pas seulement) #AThousandSuns et #...	182	1	3
justinsmilxs	RT @justinsmilxs: "Ya sé que no todos somos iguales, pero vivimos en la misma tierra" "¿Vamos a morir?" "Sabes Bieber? No te voy a menti...	171	530	762
jujustinbieeber	RT @jujustinbieeber: Que la canción y el video no se quede solo un momento y creamos conciencia del daño que hacemos a los animales, al pla...	167	115	178
sgxjbstylesoft	RT @sgxjbstylesoft: la voz de todos esos artistas tan talentosos ha quedado perfecta, amo que se hayan juntando para dejar ese mensaje tan...	156	2	1
jestemzajeta	RT @jestemzajeta: uzbierane pieniądze trafiają na fundację Leonardo DiCaprio, która ratuje naszą planetę #WeLoveTheEarth	143	504	1218
	RT @jestemzajeta: Shawn jest nosorożcem Halsey lwiatkiem Charlie Puth żyrafą Ed Sheeran koalą Sia kangurem miley słoniem Ariana zebłą K...	143	126	408
itszGabbs	RT @itszGabbs: OUÇAM EARTH! O clipe é o incrível, a música mais ainda e todo dinheiro arrecadado com a música será doado para a instituição...	105	72	105
Clem_rocher	RT @Clem_rocher: Justin Bieber, Ariana Grande, Wiz Khalifa, Shawn Mendes, Ed Sheeran, Rita Ora... de nombreux artistes se mobilisent autour...	99	30	54
OursPooh	RT @OursPooh: we love the earth, it is our planet we love the earth, it is our home #WeLoveTheEarth https://t.co/NXUhU758uQ	98	85	263
soulsfiend	RT @soulsfiend: mais les gens qui sont là à se plaindre « gngngn j'aime pas la chanson » vous pouvez connecter vos 2 neurones 2 secondes ?...	82	24	35
introandrew	RT @introandrew: #WeLoveTheEarth é un progetto molto importante,oltre ad essere una canzone,vuole lanciare un messaggio,il SALVARE LA TERRA...	81	53	119
twentysevenmoon	RT @twentysevenmoon: i recommend you guys go watch Our Planet on netflix. it made me cry and i hope it motivates you to take action on savi...	75	106	274
camillazambett2	RT @camillazambett2: Spero che con questa collaborazione arrivi a tutti il messaggio di salvare la Terra!🐼❤️ #WeLoveTheEarth https://t.co/...	74	3	0
bemybizzle_	RT @bemybizzle_: Justin and Ariana they both sounds so damn good it's just wow !!!! #WeLoveTheEarth https://t.co/9aRwrD6i9J	67	762	1911
xjbtalentedx	RT @xjbtalentedx: Yo podría ver y ver este video nunca me aburriría...❤️ #WeLoveTheEarth https://t.co/HdLb55CNcA	58	63	171
__alfredo30__	RT @__alfredo30__: Questa canzone è bellissima. Speriamo riesca a sensibilizzare più persone possibili su questo enorme pericolo 🐼 #WeLoveT...	55	4	7
protectmayne	RT @protectmayne: Earth se tornou minha música preferida junto com o clipe isso simplesmente por passar uma mensagem forte pra gente, eu e...	40	294	562
fabiannn__29	RT @fabiannn__29: Me encantaría tanto que esta canción fuera #1 no solo en USA o UK si no en muchos países del mundo. Ojalá que le den el...	37	5	8
4miraizat	RT @4miraizat: ed sheeran(and koala) is my spirit animal #WeLoveTheEarth https://t.co/VYTPuAajM6	28	68	181

LILG96958980	RT @LILG96958980: Me on my way to save the earth after bobbing to the song for a straight hour #WeLoveTheEarth <a href="https://t.co/94g0N2SLBM">https://t.co/94g0N2SLBM</a>	24	Retweets 1224	Favorites 3448
ScreenName	Text	Followers		
KeyNarumi	RT @KeyNarumi: Ini keren sumpah. Pesannya tuh bener bikin lo mikir apa aja yg udah lo lakuin untuk Bumi Kita dengan visual yang menyenangkanka...	18	1	0
Yuberli_Rosario	RT @Yuberli_Rosario: "Todos estos tiroteos, la contaminación. Nos atacamos a nosotros mismos. Vamos a relajarnos, respeta lo que construimo..."	17	24	54
bieber_najaFC	RT @bieber_najaFC: Com o coração quentinho depois de ver que realmente tem pessoas que se importam com o nosso planeta. #WeLoveTheEarth <a href="https://t.co/94g0N2SLBM">htt...</a>	14	26	69
khaliquhaiqal_	RT @khaliquhaiqal_: Marvel : "Avengers Endgame is gonna be the most ambitious crossover event in history" Lil Dicky : *hold my beer* @lildi...	13	2151	5487
martyydg	RT @martyydg: Semplicemente MERA VIGLIOSO #WeLoveTheEarth <a href="https://t.co/m6l2J2soEe">https://t.co/m6l2J2soEe</a>	12	2	2
biebermylife946	RT @biebermylife946: Salviamo il posto in cui viviamo, acquistando la canzone daremo una speranza. #WeLoveTheEarth <a href="https://t.co/6OmM8oAvhG">https://t.co/6OmM8oAvhG</a>	12	2	2
Malikjvvd	RT @Malikjvvd: Uwuuu uwuuuuuu #WeLoveTheEarth <a href="https://t.co/WtVzUrVJW1">https://t.co/WtVzUrVJW1</a>	1	64	208

In [28]:

```
%%nose
# %%nose needs to be included at the beginning of every @tests cell

# One or more tests of the student's code
# The @solution should pass the tests
# The purpose of the tests is to try to catch common errors and
# to give the student a hint on how to resolve these errors

def strip_comment_lines(cell_input):
    """Returns cell input string with comment lines removed."""
    return '\n'.join(line for line in cell_input.splitlines() if not line.startswith('#'))

last_input = strip_comment_lines(In[-2])

def test_df_creation_command():
    assert 'retweets' in last_input, \
        "The input data for DataFrame creation is not as expected."
    assert 'columns=' in last_input, \
        "The columns parameter is missing."
    assert 'groupby' in last_input, \
        "The groupby method is missing."
    assert 'sum()' in last_input, \
        "The sum method is missing."
    assert 'sort_values' in last_input, \
        "The sort_values method is missing."
    assert 'ascending' in last_input, \
        "The ascending parameter is missing."

def test_dataframe():
    correct_dataframe = pd.DataFrame(retweets, columns=['Retweets', 'Favorites', 'Followers', 'ScreenName', 'Text']).groupby(
        ['ScreenName', 'Text', 'Followers']).sum().sort_values(by=['Followers'], ascending=False)
    assert correct_dataframe.equals(df), \
        "The created dataframe does not match the expected dataframe."
```

Out[28]:

2/2 tests passed

## 9. Analyzing used languages

Our table tells us that:

- Lil Dicky's followers reacted the most — 42.4% of his followers liked his first tweet.
- Even if celebrities like Katy Perry and Ellen have a huge Twitter following, their followers hardly reacted, e.g., only 0.0098% of Katy's followers liked her tweet.
- While Leo got the most likes and retweets in terms of counts, his first tweet was only liked by 2.19% of his followers.

The large differences in reactions could be explained by the fact that this was Lil Dicky's music video. Leo still got more traction than Katy or Ellen because he played some major role in this initiative.



Can we find some more interesting patterns in the data? From the text of the tweets, we could spot different languages, so let's create a frequency distribution for the languages.

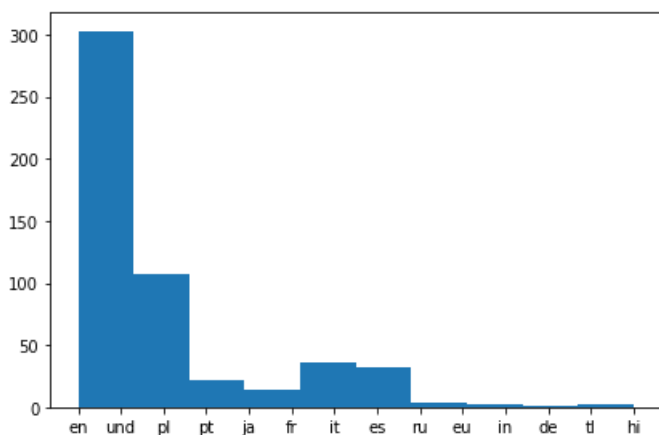
In [29]:

```
# Extracting language for each tweet and appending it to the list of languages
tweets_languages = []
for tweet in tweets:
    tweets_languages.append(tweet['lang'])

# Plotting the distribution of languages
%matplotlib inline
plt.hist(tweets_languages)
```

Out[29]:

```
(array([303., 107., 22., 14., 36., 32., 3., 2., 1., 2.]),
 array([ 0., 1.3, 2.6, 3.9, 5.2, 6.5, 7.8, 9.1, 10.4, 11.7, 13. ]),
 <a list of 10 Patch objects>)
```



In [30]:

```
%%nose
# %%nose needs to be included at the beginning of every @tests cell

# One or more tests of the student's code
# The @solution should pass the tests
# The purpose of the tests is to try to catch common errors and
# to give the student a hint on how to resolve these errors

def test_tweet_languages():
    correct_tweet_languages = []
    for tweet in tweets: correct_tweet_languages.append(tweet['lang'])
    assert correct_tweet_languages == tweets_languages, \
        "The tweets_languages variable does not have the expected values."

last_value = _

def test_plot_exists():
    assert type(last_value) == type(plt.hist(tweets_languages)), \
        'A plot was not the last output of the code cell.'

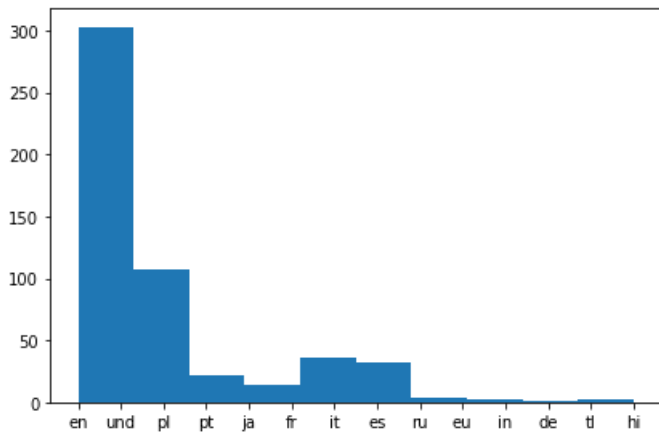
def strip_comment_lines(cell_input):
    """Returns cell input string with comment lines removed."""
    return '\n'.join(line for line in cell_input.splitlines() if not line.startswith('#'))

last_input = strip_comment_lines(In[-2])

def test_plot_command():
    assert 'plt.hist(tweets_languages)' in last_input, \
        "We expected the plt.hist() method in your input."
```

Out[30]:

3/3 tests passed

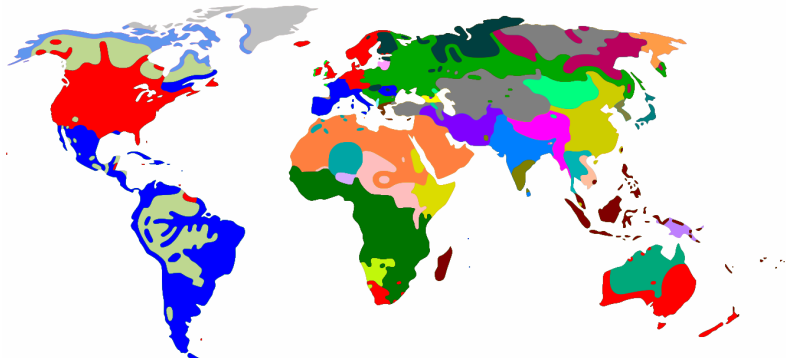


## 10. Final thoughts

☐♀ The last histogram tells us that:

- Most of the tweets were in English.
- Polish, Italian and Spanish were the next runner-ups.
- There were a lot of tweets with a language alien to Twitter (`lang = 'und'`).

Why is this sort of information useful? Because it can allow us to get an understanding of the "category" of people interested in this topic (clustering). We could also analyze the device type used by the Twitteratis, `tweet['source']`, to answer questions like, **"Does owning an Apple compared to Andorid influences people's propensity towards this trend?"**. I will leave that as a **further exercise** for you!



What an exciting journey it has been! We started almost clueless, and here we are.. rich in insights.

From location based comparisons to analyzing the activity around a tweet to finding patterns from languages and devices, we have covered a lot today — let's give ourselves **a well-deserved pat on the back!** 🍷

***Magic Formula = Data + Python + Creativity + Curiosity***





In [31]:

```
# Congratulations!  
print("High Five!!!")
```

High Five!!!

In [32]:

```
%%nose  
# %%nose needs to be included at the beginning of every @tests cell  
  
def test_nothing_task_10():  
    assert True, "Nothing to test."
```

Out[32]:

1/1 tests passed