

# wrangle\_act

September 24, 2023

## 1 Project: Wrangling and Analyze Data

### 1.1 Data Gathering

In the cell below, gather **all** three pieces of data for this project and load them in the notebook. **Note:** the methods required to gather each data are different. 1. Directly download the WeRateDogs Twitter archive data (twitter\_archive\_enhanced.csv)

```
In [1]: import pandas as pd
```

```
archive_df = pd.read_csv('twitter-archive-enhanced.csv')
```

2. Use the Requests library to download the tweet image prediction (image\_predictions.tsv)

```
In [2]: import requests
```

```
url = 'https://d17h27t6h515a5.cloudfront.net/topher/2017/August/599fd2ad_image-predictions/image-predictions.tsv'
response = requests.get(url)
```

```
with open('image-predictions.tsv', mode='wb') as file:
    file.write(response.content)
```

```
#Read TSV file
```

```
image_df = pd.read_csv('image-predictions.tsv', sep='\t' )
```

3. Use the Tweepy library to query additional data via the Twitter API (tweet\_json.txt)

```
In [ ]: #Need pro level (paid subscription) to access the information needed so will opt to download tweet JSON
#for show DON'T RUN THIS
```

```
import tweepy
from tweepy import OAuthHandler
import json
from timeit import default_timer as timer
```

```
# Query Twitter API for each tweet in the Twitter archive and save JSON in a text file
# These are hidden to comply with Twitter's API terms and conditions
consumer_key = 'HIDDEN'
consumer_secret = 'HIDDEN'
```

```

access_token = 'HIDDEN'
access_secret = 'HIDDEN'

auth = OAuthHandler(consumer_key, consumer_secret)
auth.set_access_token(access_token, access_secret)

api = tweepy.API(auth, wait_on_rate_limit=True)

# NOTE TO REVIEWER: this student had mobile verification issues so the following
# Twitter API code was sent to this student from a Udacity instructor
# Tweet IDs for which to gather additional data via Twitter's API
tweet_ids = archive.tweet_id.values
len(tweet_ids)

# Query Twitter's API for JSON data for each tweet ID in the Twitter archive
count = 0
fails_dict = {}
start = timer()
# Save each tweet's returned JSON as a new line in a .txt file
with open('tweet_json.txt', 'w') as outfile:
    # This loop will likely take 20-30 minutes to run because of Twitter's rate limit
    for tweet_id in tweet_ids:
        count += 1
        print(str(count) + ": " + str(tweet_id))
        try:
            tweet = api.get_status(tweet_id, tweet_mode='extended')
            print("Success")
            json.dump(tweet._json, outfile)
            outfile.write('\n')
        except tweepy.TweepError as e:
            print("Fail")
            fails_dict[tweet_id] = e
            pass
end = timer()
print(end - start)
print(fails_dict)

```

In [3]: *#since I manually downloaded the txt file I will read it into a list and manually create*  
import json

```

tweet_list = []

json_file = open('tweet-json.txt', "r")

for ln in json_file:
    try:
        twt = json.loads(ln)
        tweet_list.append(twt)

```

```

        except:
            continue

    json_file.close()

    tweet_df = pd.DataFrame()

    tweet_df['tweet_id'] = list(map(lambda tweet: tweet['id'], tweet_list))
    tweet_df['retweet_count'] = list(map(lambda tweet: tweet['retweet_count'], tweet_list))
    tweet_df['favorite_count'] = list(map(lambda tweet: tweet['favorite_count'], tweet_list))
    tweet_df['created_at'] = list(map(lambda tweet: tweet['created_at'], tweet_list))
    tweet_df['full_text'] = list(map(lambda tweet: tweet['full_text'], tweet_list))

```

## 1.2 Assessing Data

In this section, detect and document at least **eight (8) quality issues** and **two (2) tidiness issue**. You must use **both** visual assessment programmatic assesement to assess the data.

**Note:** pay attention to the following key points when you access the data.

- You only want original ratings (no retweets) that have images. Though there are 5000+ tweets in the dataset, not all are dog ratings and some are retweets.
- Assessing and cleaning the entire dataset completely would require a lot of time, and is not necessary to practice and demonstrate your skills in data wrangling. Therefore, the requirements of this project are only to assess and clean at least 8 quality issues and at least 2 tidiness issues in this dataset.
- The fact that the rating numerators are greater than the denominators does not need to be cleaned. This [unique rating system](#) is a big part of the popularity of WeRateDogs.
- You do not need to gather the tweets beyond August 1st, 2017. You can, but note that you won't be able to gather the image predictions for these tweets since you don't have access to the algorithm used.

```

In [4]: #displaying first df
        #we can see already there are a lot of uneccsary columns for our purposes
        archive_df

```

```

Out[4]:
   tweet_id  in_reply_to_status_id  in_reply_to_user_id  \
0   892420643555336193           NaN                NaN
1   892177421306343426           NaN                NaN
2   891815181378084864           NaN                NaN
3   891689557279858688           NaN                NaN
4   891327558926688256           NaN                NaN
5   891087950875897856           NaN                NaN
6   890971913173991426           NaN                NaN
7   890729181411237888           NaN                NaN
8   890609185150312448           NaN                NaN
9   890240255349198849           NaN                NaN
10  890006608113172480           NaN                NaN
11  889880896479866881           NaN                NaN
12  889665388333682689           NaN                NaN

```

13	889638837579907072	NaN	NaN
14	889531135344209921	NaN	NaN
15	889278841981685760	NaN	NaN
16	888917238123831296	NaN	NaN
17	888804989199671297	NaN	NaN
18	888554962724278272	NaN	NaN
19	888202515573088257	NaN	NaN
20	888078434458587136	NaN	NaN
21	887705289381826560	NaN	NaN
22	887517139158093824	NaN	NaN
23	887473957103951883	NaN	NaN
24	887343217045368832	NaN	NaN
25	887101392804085760	NaN	NaN
26	886983233522544640	NaN	NaN
27	886736880519319552	NaN	NaN
28	886680336477933568	NaN	NaN
29	886366144734445568	NaN	NaN
...	...	...	...
2326	666411507551481857	NaN	NaN
2327	666407126856765440	NaN	NaN
2328	666396247373291520	NaN	NaN
2329	666373753744588802	NaN	NaN
2330	666362758909284353	NaN	NaN
2331	666353288456101888	NaN	NaN
2332	666345417576210432	NaN	NaN
2333	666337882303524864	NaN	NaN
2334	666293911632134144	NaN	NaN
2335	666287406224695296	NaN	NaN
2336	666273097616637952	NaN	NaN
2337	666268910803644416	NaN	NaN
2338	666104133288665088	NaN	NaN
2339	666102155909144576	NaN	NaN
2340	666099513787052032	NaN	NaN
2341	666094000022159362	NaN	NaN
2342	666082916733198337	NaN	NaN
2343	666073100786774016	NaN	NaN
2344	666071193221509120	NaN	NaN
2345	666063827256086533	NaN	NaN
2346	666058600524156928	NaN	NaN
2347	666057090499244032	NaN	NaN
2348	666055525042405380	NaN	NaN
2349	666051853826850816	NaN	NaN
2350	666050758794694657	NaN	NaN
2351	666049248165822465	NaN	NaN
2352	666044226329800704	NaN	NaN
2353	666033412701032449	NaN	NaN
2354	666029285002620928	NaN	NaN
2355	666020888022790149	NaN	NaN

	timestamp \
0	2017-08-01 16:23:56 +0000
1	2017-08-01 00:17:27 +0000
2	2017-07-31 00:18:03 +0000
3	2017-07-30 15:58:51 +0000
4	2017-07-29 16:00:24 +0000
5	2017-07-29 00:08:17 +0000
6	2017-07-28 16:27:12 +0000
7	2017-07-28 00:22:40 +0000
8	2017-07-27 16:25:51 +0000
9	2017-07-26 15:59:51 +0000
10	2017-07-26 00:31:25 +0000
11	2017-07-25 16:11:53 +0000
12	2017-07-25 01:55:32 +0000
13	2017-07-25 00:10:02 +0000
14	2017-07-24 17:02:04 +0000
15	2017-07-24 00:19:32 +0000
16	2017-07-23 00:22:39 +0000
17	2017-07-22 16:56:37 +0000
18	2017-07-22 00:23:06 +0000
19	2017-07-21 01:02:36 +0000
20	2017-07-20 16:49:33 +0000
21	2017-07-19 16:06:48 +0000
22	2017-07-19 03:39:09 +0000
23	2017-07-19 00:47:34 +0000
24	2017-07-18 16:08:03 +0000
25	2017-07-18 00:07:08 +0000
26	2017-07-17 16:17:36 +0000
27	2017-07-16 23:58:41 +0000
28	2017-07-16 20:14:00 +0000
29	2017-07-15 23:25:31 +0000
...	...
2326	2015-11-17 00:24:19 +0000
2327	2015-11-17 00:06:54 +0000
2328	2015-11-16 23:23:41 +0000
2329	2015-11-16 21:54:18 +0000
2330	2015-11-16 21:10:36 +0000
2331	2015-11-16 20:32:58 +0000
2332	2015-11-16 20:01:42 +0000
2333	2015-11-16 19:31:45 +0000
2334	2015-11-16 16:37:02 +0000
2335	2015-11-16 16:11:11 +0000
2336	2015-11-16 15:14:19 +0000
2337	2015-11-16 14:57:41 +0000
2338	2015-11-16 04:02:55 +0000
2339	2015-11-16 03:55:04 +0000
2340	2015-11-16 03:44:34 +0000

2341 2015-11-16 03:22:39 +0000  
 2342 2015-11-16 02:38:37 +0000  
 2343 2015-11-16 01:59:36 +0000  
 2344 2015-11-16 01:52:02 +0000  
 2345 2015-11-16 01:22:45 +0000  
 2346 2015-11-16 01:01:59 +0000  
 2347 2015-11-16 00:55:59 +0000  
 2348 2015-11-16 00:49:46 +0000  
 2349 2015-11-16 00:35:11 +0000  
 2350 2015-11-16 00:30:50 +0000  
 2351 2015-11-16 00:24:50 +0000  
 2352 2015-11-16 00:04:52 +0000  
 2353 2015-11-15 23:21:54 +0000  
 2354 2015-11-15 23:05:30 +0000  
 2355 2015-11-15 22:32:08 +0000

```

                                source \
0    <a href="http://twitter.com/download/iphone" r...
1    <a href="http://twitter.com/download/iphone" r...
2    <a href="http://twitter.com/download/iphone" r...
3    <a href="http://twitter.com/download/iphone" r...
4    <a href="http://twitter.com/download/iphone" r...
5    <a href="http://twitter.com/download/iphone" r...
6    <a href="http://twitter.com/download/iphone" r...
7    <a href="http://twitter.com/download/iphone" r...
8    <a href="http://twitter.com/download/iphone" r...
9    <a href="http://twitter.com/download/iphone" r...
10   <a href="http://twitter.com/download/iphone" r...
11   <a href="http://twitter.com/download/iphone" r...
12   <a href="http://twitter.com/download/iphone" r...
13   <a href="http://twitter.com/download/iphone" r...
14   <a href="http://twitter.com/download/iphone" r...
15   <a href="http://twitter.com/download/iphone" r...
16   <a href="http://twitter.com/download/iphone" r...
17   <a href="http://twitter.com/download/iphone" r...
18   <a href="http://twitter.com/download/iphone" r...
19   <a href="http://twitter.com/download/iphone" r...
20   <a href="http://twitter.com/download/iphone" r...
21   <a href="http://twitter.com/download/iphone" r...
22   <a href="http://twitter.com/download/iphone" r...
23   <a href="http://twitter.com/download/iphone" r...
24   <a href="http://twitter.com/download/iphone" r...
25   <a href="http://twitter.com/download/iphone" r...
26   <a href="http://twitter.com/download/iphone" r...
27   <a href="http://twitter.com/download/iphone" r...
28   <a href="http://twitter.com/download/iphone" r...
29   <a href="http://twitter.com/download/iphone" r...
...

```

2326 <a href="http://twitter.com/download/iphone" r...  
 2327 <a href="http://twitter.com/download/iphone" r...  
 2328 <a href="http://twitter.com/download/iphone" r...  
 2329 <a href="http://twitter.com/download/iphone" r...  
 2330 <a href="http://twitter.com/download/iphone" r...  
 2331 <a href="http://twitter.com/download/iphone" r...  
 2332 <a href="http://twitter.com/download/iphone" r...  
 2333 <a href="http://twitter.com/download/iphone" r...  
 2334 <a href="http://twitter.com/download/iphone" r...  
 2335 <a href="http://twitter.com/download/iphone" r...  
 2336 <a href="http://twitter.com/download/iphone" r...  
 2337 <a href="http://twitter.com/download/iphone" r...  
 2338 <a href="http://twitter.com/download/iphone" r...  
 2339 <a href="http://twitter.com/download/iphone" r...  
 2340 <a href="http://twitter.com/download/iphone" r...  
 2341 <a href="http://twitter.com/download/iphone" r...  
 2342 <a href="http://twitter.com/download/iphone" r...  
 2343 <a href="http://twitter.com/download/iphone" r...  
 2344 <a href="http://twitter.com/download/iphone" r...  
 2345 <a href="http://twitter.com/download/iphone" r...  
 2346 <a href="http://twitter.com/download/iphone" r...  
 2347 <a href="http://twitter.com/download/iphone" r...  
 2348 <a href="http://twitter.com/download/iphone" r...  
 2349 <a href="http://twitter.com/download/iphone" r...  
 2350 <a href="http://twitter.com/download/iphone" r...  
 2351 <a href="http://twitter.com/download/iphone" r...  
 2352 <a href="http://twitter.com/download/iphone" r...  
 2353 <a href="http://twitter.com/download/iphone" r...  
 2354 <a href="http://twitter.com/download/iphone" r...  
 2355 <a href="http://twitter.com/download/iphone" r...

	text	retweeted_status_id \
0	This is Phineas. He's a mystical boy. Only eve...	NaN
1	This is Tilly. She's just checking pup on you...	NaN
2	This is Archie. He is a rare Norwegian Pouncin...	NaN
3	This is Darla. She commenced a snooze mid meal...	NaN
4	This is Franklin. He would like you to stop ca...	NaN
5	Here we have a majestic great white breaching ...	NaN
6	Meet Jax. He enjoys ice cream so much he gets ...	NaN
7	When you watch your owner call another dog a g...	NaN
8	This is Zoey. She doesn't want to be one of th...	NaN
9	This is Cassie. She is a college pup. Studying...	NaN
10	This is Koda. He is a South Australian decksha...	NaN
11	This is Bruno. He is a service shark. Only get...	NaN
12	Here's a puppo that seems to be on the fence a...	NaN
13	This is Ted. He does his best. Sometimes that'...	NaN
14	This is Stuart. He's sporting his favorite fan...	NaN
15	This is Oliver. You're witnessing one of his m...	NaN

16	This is Jim. He found a fren. Taught him how t...	NaN
17	This is Zeke. He has a new stick. Very proud o...	NaN
18	This is Ralphus. He's powering up. Attempting ...	NaN
19	RT @dog_rates: This is Canela. She attempted s...	8.874740e+17
20	This is Gerald. He was just told he didn't get...	NaN
21	This is Jeffrey. He has a monopoly on the pool...	NaN
22	I've yet to rate a Venezuelan Hover Wiener. Th...	NaN
23	This is Canela. She attempted some fancy porch...	NaN
24	You may not have known you needed to see this ...	NaN
25	This... is a Jubilant Antarctic House Bear. We...	NaN
26	This is Maya. She's very shy. Rarely leaves he...	NaN
27	This is Mingus. He's a wonderful father to his...	NaN
28	This is Derek. He's late for a dog meeting. 13...	NaN
29	This is Roscoe. Another pupper fallen victim t...	NaN
...	...	...
2326	This is quite the dog. Gets really excited whe...	NaN
2327	This is a southern Vesuvius bumblegruff. Can d...	NaN
2328	Oh goodness. A super rare northeast Qdoba kang...	NaN
2329	Those are sunglasses and a jean jacket. 11/10 ...	NaN
2330	Unique dog here. Very small. Lives in containe...	NaN
2331	Here we have a mixed Asiago from the Galápagos...	NaN
2332	Look at this jokester thinking seat belt laws ...	NaN
2333	This is an extremely rare horned Parthenon. No...	NaN
2334	This is a funny dog. Weird toes. Won't come do...	NaN
2335	This is an Albanian 3 1/2 legged Episcopalian...	NaN
2336	Can take selfies 11/10 <a href="https://t.co/ws2AMaWpW">https://t.co/ws2AMaWpW</a>	NaN
2337	Very concerned about fellow dog trapped in com...	NaN
2338	Not familiar with this breed. No tail (weird)...	NaN
2339	Oh my. Here you are seeing an Adobe Setter giv...	NaN
2340	Can stand on stump for what seems like a while...	NaN
2341	This appears to be a Mongolian Presbyterian mi...	NaN
2342	Here we have a well-established sunblockerspan...	NaN
2343	Let's hope this flight isn't Malaysian (lol). ...	NaN
2344	Here we have a northern speckled Rhododendron...	NaN
2345	This is the happiest dog you will ever see. Ve...	NaN
2346	Here is the Rand Paul of retrievers folks! He'...	NaN
2347	My oh my. This is a rare blond Canadian terrie...	NaN
2348	Here is a Siberian heavily armored polar bear ...	NaN
2349	This is an odd dog. Hard on the outside but lo...	NaN
2350	This is a truly beautiful English Wilson Staff...	NaN
2351	Here we have a 1949 1st generation vulpix. Enj...	NaN
2352	This is a purebred Piers Morgan. Loves to Netf...	NaN
2353	Here is a very happy pup. Big fan of well-main...	NaN
2354	This is a western brown Mitsubishi terrier. Up...	NaN
2355	Here we have a Japanese Irish Setter. Lost eye...	NaN

	retweeted_status_user_id	retweeted_status_timestamp	\
0	NaN	NaN	



1	NaN	NaN
2	NaN	NaN
3	NaN	NaN
4	NaN	NaN
5	NaN	NaN
6	NaN	NaN
7	NaN	NaN
8	NaN	NaN
9	NaN	NaN
10	NaN	NaN
11	NaN	NaN
12	NaN	NaN
13	NaN	NaN
14	NaN	NaN
15	NaN	NaN
16	NaN	NaN
17	NaN	NaN
18	NaN	NaN
19	4.196984e+09	2017-07-19 00:47:34 +0000
20	NaN	NaN
21	NaN	NaN
22	NaN	NaN
23	NaN	NaN
24	NaN	NaN
25	NaN	NaN
26	NaN	NaN
27	NaN	NaN
28	NaN	NaN
29	NaN	NaN
...	...	...
2326	NaN	NaN
2327	NaN	NaN
2328	NaN	NaN
2329	NaN	NaN
2330	NaN	NaN
2331	NaN	NaN
2332	NaN	NaN
2333	NaN	NaN
2334	NaN	NaN
2335	NaN	NaN
2336	NaN	NaN
2337	NaN	NaN
2338	NaN	NaN
2339	NaN	NaN
2340	NaN	NaN
2341	NaN	NaN
2342	NaN	NaN
2343	NaN	NaN

2344	NaN	NaN
2345	NaN	NaN
2346	NaN	NaN
2347	NaN	NaN
2348	NaN	NaN
2349	NaN	NaN
2350	NaN	NaN
2351	NaN	NaN
2352	NaN	NaN
2353	NaN	NaN
2354	NaN	NaN
2355	NaN	NaN

	expanded_urls	rating_numerator	\
0	https://twitter.com/dog_rates/status/892420643...	13	
1	https://twitter.com/dog_rates/status/892177421...	13	
2	https://twitter.com/dog_rates/status/891815181...	12	
3	https://twitter.com/dog_rates/status/891689557...	13	
4	https://twitter.com/dog_rates/status/891327558...	12	
5	https://twitter.com/dog_rates/status/891087950...	13	
6	https://gofundme.com/ydvmve-surgery-for-jax,ht...	13	
7	https://twitter.com/dog_rates/status/890729181...	13	
8	https://twitter.com/dog_rates/status/890609185...	13	
9	https://twitter.com/dog_rates/status/890240255...	14	
10	https://twitter.com/dog_rates/status/890006608...	13	
11	https://twitter.com/dog_rates/status/889880896...	13	
12	https://twitter.com/dog_rates/status/889665388...	13	
13	https://twitter.com/dog_rates/status/889638837...	12	
14	https://twitter.com/dog_rates/status/889531135...	13	
15	https://twitter.com/dog_rates/status/889278841...	13	
16	https://twitter.com/dog_rates/status/888917238...	12	
17	https://twitter.com/dog_rates/status/888804989...	13	
18	https://twitter.com/dog_rates/status/888554962...	13	
19	https://twitter.com/dog_rates/status/887473957...	13	
20	https://twitter.com/dog_rates/status/888078434...	12	
21	https://twitter.com/dog_rates/status/887705289...	13	
22	https://twitter.com/dog_rates/status/887517139...	14	
23	https://twitter.com/dog_rates/status/887473957...	13	
24	https://twitter.com/dog_rates/status/887343217...	13	
25	https://twitter.com/dog_rates/status/887101392...	12	
26	https://twitter.com/dog_rates/status/886983233...	13	
27	https://www.gofundme.com/mingusneedsus,https:/...	13	
28	https://twitter.com/dog_rates/status/886680336...	13	
29	https://twitter.com/dog_rates/status/886366144...	12	
...	...	...	
2326	https://twitter.com/dog_rates/status/666411507...	2	
2327	https://twitter.com/dog_rates/status/666407126...	7	
2328	https://twitter.com/dog_rates/status/666396247...	9	

2329	<a href="https://twitter.com/dog_rates/status/666373753...">https://twitter.com/dog_rates/status/666373753...</a>	11
2330	<a href="https://twitter.com/dog_rates/status/666362758...">https://twitter.com/dog_rates/status/666362758...</a>	6
2331	<a href="https://twitter.com/dog_rates/status/666353288...">https://twitter.com/dog_rates/status/666353288...</a>	8
2332	<a href="https://twitter.com/dog_rates/status/666345417...">https://twitter.com/dog_rates/status/666345417...</a>	10
2333	<a href="https://twitter.com/dog_rates/status/666337882...">https://twitter.com/dog_rates/status/666337882...</a>	9
2334	<a href="https://twitter.com/dog_rates/status/666293911...">https://twitter.com/dog_rates/status/666293911...</a>	3
2335	<a href="https://twitter.com/dog_rates/status/666287406...">https://twitter.com/dog_rates/status/666287406...</a>	1
2336	<a href="https://twitter.com/dog_rates/status/666273097...">https://twitter.com/dog_rates/status/666273097...</a>	11
2337	<a href="https://twitter.com/dog_rates/status/666268910...">https://twitter.com/dog_rates/status/666268910...</a>	10
2338	<a href="https://twitter.com/dog_rates/status/666104133...">https://twitter.com/dog_rates/status/666104133...</a>	1
2339	<a href="https://twitter.com/dog_rates/status/666102155...">https://twitter.com/dog_rates/status/666102155...</a>	11
2340	<a href="https://twitter.com/dog_rates/status/666099513...">https://twitter.com/dog_rates/status/666099513...</a>	8
2341	<a href="https://twitter.com/dog_rates/status/666094000...">https://twitter.com/dog_rates/status/666094000...</a>	9
2342	<a href="https://twitter.com/dog_rates/status/666082916...">https://twitter.com/dog_rates/status/666082916...</a>	6
2343	<a href="https://twitter.com/dog_rates/status/666073100...">https://twitter.com/dog_rates/status/666073100...</a>	10
2344	<a href="https://twitter.com/dog_rates/status/666071193...">https://twitter.com/dog_rates/status/666071193...</a>	9
2345	<a href="https://twitter.com/dog_rates/status/666063827...">https://twitter.com/dog_rates/status/666063827...</a>	10
2346	<a href="https://twitter.com/dog_rates/status/666058600...">https://twitter.com/dog_rates/status/666058600...</a>	8
2347	<a href="https://twitter.com/dog_rates/status/666057090...">https://twitter.com/dog_rates/status/666057090...</a>	9
2348	<a href="https://twitter.com/dog_rates/status/666055525...">https://twitter.com/dog_rates/status/666055525...</a>	10
2349	<a href="https://twitter.com/dog_rates/status/666051853...">https://twitter.com/dog_rates/status/666051853...</a>	2
2350	<a href="https://twitter.com/dog_rates/status/666050758...">https://twitter.com/dog_rates/status/666050758...</a>	10
2351	<a href="https://twitter.com/dog_rates/status/666049248...">https://twitter.com/dog_rates/status/666049248...</a>	5
2352	<a href="https://twitter.com/dog_rates/status/666044226...">https://twitter.com/dog_rates/status/666044226...</a>	6
2353	<a href="https://twitter.com/dog_rates/status/666033412...">https://twitter.com/dog_rates/status/666033412...</a>	9
2354	<a href="https://twitter.com/dog_rates/status/666029285...">https://twitter.com/dog_rates/status/666029285...</a>	7
2355	<a href="https://twitter.com/dog_rates/status/666020888...">https://twitter.com/dog_rates/status/666020888...</a>	8

	rating_denominator	name	doggo	floofer	pupper	puppo
0	10	Phineas	None	None	None	None
1	10	Tilly	None	None	None	None
2	10	Archie	None	None	None	None
3	10	Darla	None	None	None	None
4	10	Franklin	None	None	None	None
5	10	None	None	None	None	None
6	10	Jax	None	None	None	None
7	10	None	None	None	None	None
8	10	Zoey	None	None	None	None
9	10	Cassie	doggo	None	None	None
10	10	Koda	None	None	None	None
11	10	Bruno	None	None	None	None
12	10	None	None	None	None	puppo
13	10	Ted	None	None	None	None
14	10	Stuart	None	None	None	puppo
15	10	Oliver	None	None	None	None
16	10	Jim	None	None	None	None
17	10	Zeke	None	None	None	None
18	10	Ralphus	None	None	None	None

19	10	Canela	None	None	None	None
20	10	Gerald	None	None	None	None
21	10	Jeffrey	None	None	None	None
22	10	such	None	None	None	None
23	10	Canela	None	None	None	None
24	10	None	None	None	None	None
25	10	None	None	None	None	None
26	10	Maya	None	None	None	None
27	10	Mingus	None	None	None	None
28	10	Derek	None	None	None	None
29	10	Roscoe	None	None	pupper	None
...	...	...	...	...	...	...
2326	10	quite	None	None	None	None
2327	10	a	None	None	None	None
2328	10	None	None	None	None	None
2329	10	None	None	None	None	None
2330	10	None	None	None	None	None
2331	10	None	None	None	None	None
2332	10	None	None	None	None	None
2333	10	an	None	None	None	None
2334	10	a	None	None	None	None
2335	2	an	None	None	None	None
2336	10	None	None	None	None	None
2337	10	None	None	None	None	None
2338	10	None	None	None	None	None
2339	10	None	None	None	None	None
2340	10	None	None	None	None	None
2341	10	None	None	None	None	None
2342	10	None	None	None	None	None
2343	10	None	None	None	None	None
2344	10	None	None	None	None	None
2345	10	the	None	None	None	None
2346	10	the	None	None	None	None
2347	10	a	None	None	None	None
2348	10	a	None	None	None	None
2349	10	an	None	None	None	None
2350	10	a	None	None	None	None
2351	10	None	None	None	None	None
2352	10	a	None	None	None	None
2353	10	a	None	None	None	None
2354	10	a	None	None	None	None
2355	10	None	None	None	None	None

[2356 rows x 17 columns]

```
In [5]: archive_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2356 entries, 0 to 2355
```

Data columns (total 17 columns):

tweet_id	2356 non-null int64
in_reply_to_status_id	78 non-null float64
in_reply_to_user_id	78 non-null float64
timestamp	2356 non-null object
source	2356 non-null object
text	2356 non-null object
retweeted_status_id	181 non-null float64
retweeted_status_user_id	181 non-null float64
retweeted_status_timestamp	181 non-null object
expanded_urls	2297 non-null object
rating_numerator	2356 non-null int64
rating_denominator	2356 non-null int64
name	2356 non-null object
doggo	2356 non-null object
floofer	2356 non-null object
pupper	2356 non-null object
puppo	2356 non-null object

dtypes: float64(4), int64(3), object(10)  
memory usage: 313.0+ KB

In [6]: archive\_df.rating\_denominator.value\_counts()

```
Out[6]: 10      2333
        11        3
        50        3
        80        2
        20        2
         2         1
        16        1
        40        1
        70        1
        15        1
        90        1
       110        1
       120        1
       130        1
       150        1
       170        1
         7         1
         0         1
        Name: rating_denominator, dtype: int64
```

In [7]: image\_df

```
Out[7]:
```

	tweet_id	jpg_url \
0	666020888022790149	<a href="https://pbs.twimg.com/media/CT4udn0WwAA0aMy.jpg">https://pbs.twimg.com/media/CT4udn0WwAA0aMy.jpg</a>
1	666029285002620928	<a href="https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg">https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg</a>

2	666033412701032449	<a href="https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg">https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg</a>
3	666044226329800704	<a href="https://pbs.twimg.com/media/CT5Dr8HUEAA-lEu.jpg">https://pbs.twimg.com/media/CT5Dr8HUEAA-lEu.jpg</a>
4	666049248165822465	<a href="https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg">https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg</a>
5	666050758794694657	<a href="https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg">https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg</a>
6	666051853826850816	<a href="https://pbs.twimg.com/media/CT5KoJ1WoAAJash.jpg">https://pbs.twimg.com/media/CT5KoJ1WoAAJash.jpg</a>
7	666055525042405380	<a href="https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg">https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg</a>
8	666057090499244032	<a href="https://pbs.twimg.com/media/CT5PY90WoAAQGLo.jpg">https://pbs.twimg.com/media/CT5PY90WoAAQGLo.jpg</a>
9	666058600524156928	<a href="https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg">https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg</a>
10	666063827256086533	<a href="https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg">https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg</a>
11	666071193221509120	<a href="https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg">https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg</a>
12	666073100786774016	<a href="https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg">https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg</a>
13	666082916733198337	<a href="https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg">https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg</a>
14	666094000022159362	<a href="https://pbs.twimg.com/media/CT5w9gUW4AAsBNN.jpg">https://pbs.twimg.com/media/CT5w9gUW4AAsBNN.jpg</a>
15	666099513787052032	<a href="https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg">https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg</a>
16	666102155909144576	<a href="https://pbs.twimg.com/media/CT54YGiwUAEZnOk.jpg">https://pbs.twimg.com/media/CT54YGiwUAEZnOk.jpg</a>
17	666104133288665088	<a href="https://pbs.twimg.com/media/CT56LSZWAAALJj2.jpg">https://pbs.twimg.com/media/CT56LSZWAAALJj2.jpg</a>
18	666268910803644416	<a href="https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg">https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg</a>
19	666273097616637952	<a href="https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg">https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg</a>
20	666287406224695296	<a href="https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg">https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg</a>
21	666293911632134144	<a href="https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg">https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg</a>
22	666337882303524864	<a href="https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg">https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg</a>
23	666345417576210432	<a href="https://pbs.twimg.com/media/CT9Vn7PWAA_ZCM.jpg">https://pbs.twimg.com/media/CT9Vn7PWAA_ZCM.jpg</a>
24	666353288456101888	<a href="https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg">https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg</a>
25	666362758909284353	<a href="https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg">https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg</a>
26	666373753744588802	<a href="https://pbs.twimg.com/media/CT9vZEYWUAA1Z05.jpg">https://pbs.twimg.com/media/CT9vZEYWUAA1Z05.jpg</a>
27	666396247373291520	<a href="https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg">https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg</a>
28	666407126856765440	<a href="https://pbs.twimg.com/media/CT-NvwmW4AAugGZ.jpg">https://pbs.twimg.com/media/CT-NvwmW4AAugGZ.jpg</a>
29	666411507551481857	<a href="https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg">https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg</a>
...	...	...
2045	886366144734445568	<a href="https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg">https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg</a>
2046	886680336477933568	<a href="https://pbs.twimg.com/media/DE4fEDzWAAAYHMM.jpg">https://pbs.twimg.com/media/DE4fEDzWAAAYHMM.jpg</a>
2047	886736880519319552	<a href="https://pbs.twimg.com/media/DE5Se8FXcAAJFfx4.jpg">https://pbs.twimg.com/media/DE5Se8FXcAAJFfx4.jpg</a>
2048	886983233522544640	<a href="https://pbs.twimg.com/media/DE8yicJW0AAAABJ.jpg">https://pbs.twimg.com/media/DE8yicJW0AAAABJ.jpg</a>
2049	887101392804085760	<a href="https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg">https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg</a>
2050	887343217045368832	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88734...">https://pbs.twimg.com/ext_tw_video_thumb/88734...</a>
2051	887473957103951883	<a href="https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg">https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg</a>
2052	887517139158093824	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88751...">https://pbs.twimg.com/ext_tw_video_thumb/88751...</a>
2053	887705289381826560	<a href="https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg">https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg</a>
2054	888078434458587136	<a href="https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg">https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg</a>
2055	888202515573088257	<a href="https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg">https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg</a>
2056	888554962724278272	<a href="https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg">https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg</a>
2057	888804989199671297	<a href="https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg">https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg</a>
2058	888917238123831296	<a href="https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg">https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg</a>
2059	889278841981685760	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88927...">https://pbs.twimg.com/ext_tw_video_thumb/88927...</a>
2060	889531135344209921	<a href="https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg">https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg</a>
2061	889638837579907072	<a href="https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg">https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg</a>
2062	889665388333682689	<a href="https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg">https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg</a>
2063	889880896479866881	<a href="https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg">https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg</a>

2064	890006608113172480	<a href="https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg">https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg</a>
2065	890240255349198849	<a href="https://pbs.twimg.com/media/DFrEyVuW0AAQ3t9.jpg">https://pbs.twimg.com/media/DFrEyVuW0AAQ3t9.jpg</a>
2066	890609185150312448	<a href="https://pbs.twimg.com/media/DFwUU_XcAEpyXI.jpg">https://pbs.twimg.com/media/DFwUU_XcAEpyXI.jpg</a>
2067	890729181411237888	<a href="https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg">https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg</a>
2068	890971913173991426	<a href="https://pbs.twimg.com/media/DF1eOmZXUAAALUcq.jpg">https://pbs.twimg.com/media/DF1eOmZXUAAALUcq.jpg</a>
2069	891087950875897856	<a href="https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg">https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg</a>
2070	891327558926688256	<a href="https://pbs.twimg.com/media/DF6hr6BUMAAzZgT.jpg">https://pbs.twimg.com/media/DF6hr6BUMAAzZgT.jpg</a>
2071	891689557279858688	<a href="https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg">https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg</a>
2072	891815181378084864	<a href="https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg">https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg</a>
2073	892177421306343426	<a href="https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg">https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg</a>
2074	892420643555336193	<a href="https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg">https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg</a>

	img_num		p1	p1_conf	p1_dog	\
0	1	Welsh_springer_spaniel	0.465074		True	
1	1	redbone	0.506826		True	
2	1	German_shepherd	0.596461		True	
3	1	Rhodesian_ridgeback	0.408143		True	
4	1	miniature_pinscher	0.560311		True	
5	1	Bernese_mountain_dog	0.651137		True	
6	1	box_turtle	0.933012		False	
7	1	chow	0.692517		True	
8	1	shopping_cart	0.962465		False	
9	1	miniature_poodle	0.201493		True	
10	1	golden_retriever	0.775930		True	
11	1	Gordon_setter	0.503672		True	
12	1	Walker_hound	0.260857		True	
13	1	pug	0.489814		True	
14	1	bloodhound	0.195217		True	
15	1	Lhasa	0.582330		True	
16	1	English_setter	0.298617		True	
17	1	hen	0.965932		False	
18	1	desktop_computer	0.086502		False	
19	1	Italian_greyhound	0.176053		True	
20	1	Maltese_dog	0.857531		True	
21	1	three-toed_sloth	0.914671		False	
22	1	ox	0.416669		False	
23	1	golden_retriever	0.858744		True	
24	1	malamute	0.336874		True	
25	1	guinea_pig	0.996496		False	
26	1	soft-coated_wheaten_terrier	0.326467		True	
27	1	Chihuahua	0.978108		True	
28	1	black-and-tan_coonhound	0.529139		True	
29	1	coho	0.404640		False	
...	...	...	...	...	...	
2045	1	French_bulldog	0.999201		True	
2046	1	convertible	0.738995		False	
2047	1	kuvasz	0.309706		True	
2048	2	Chihuahua	0.793469		True	

2049	1	Samoyed	0.733942	True
2050	1	Mexican_hairless	0.330741	True
2051	2	Pembroke	0.809197	True
2052	1	limousine	0.130432	False
2053	1	basset	0.821664	True
2054	1	French_bulldog	0.995026	True
2055	2	Pembroke	0.809197	True
2056	3	Siberian_husky	0.700377	True
2057	1	golden_retriever	0.469760	True
2058	1	golden_retriever	0.714719	True
2059	1	whippet	0.626152	True
2060	1	golden_retriever	0.953442	True
2061	1	French_bulldog	0.991650	True
2062	1	Pembroke	0.966327	True
2063	1	French_bulldog	0.377417	True
2064	1	Samoyed	0.957979	True
2065	1	Pembroke	0.511319	True
2066	1	Irish_terrier	0.487574	True
2067	2	Pomeranian	0.566142	True
2068	1	Appenzeller	0.341703	True
2069	1	Chesapeake_Bay_retriever	0.425595	True
2070	2	basset	0.555712	True
2071	1	paper_towel	0.170278	False
2072	1	Chihuahua	0.716012	True
2073	1	Chihuahua	0.323581	True
2074	1	orange	0.097049	False

	p2	p2_conf	p2_dog	p3 \
0	collie	0.156665	True	Shetland_sheepdog
1	miniature_pinscher	0.074192	True	Rhodesian_ridgeback
2	malinois	0.138584	True	bloodhound
3	redbone	0.360687	True	miniature_pinscher
4	Rottweiler	0.243682	True	Doberman
5	English_springer	0.263788	True	Greater_Swiss_Mountain_dog
6	mud_turtle	0.045885	False	terrapi
7	Tibetan_mastiff	0.058279	True	fur_coat
8	shopping_basket	0.014594	False	golden_retriever
9	komondor	0.192305	True	soft-coated_wheaten_terrier
10	Tibetan_mastiff	0.093718	True	Labrador_retriever
11	Yorkshire_terrier	0.174201	True	Pekinese
12	English_foxhound	0.175382	True	Ibiza_hound
13	bull_mastiff	0.404722	True	French_bulldog
14	German_shepherd	0.078260	True	malinois
15	Shih-Tzu	0.166192	True	Dandie_Dinmont
16	Newfoundland	0.149842	True	borzoi
17	cock	0.033919	False	partridge
18	desk	0.085547	False	bookcase
19	toy_terrier	0.111884	True	basenji



20	toy_poodle	0.063064	True	miniature_poodle
21	otter	0.015250	False	great_grey_owl
22	Newfoundland	0.278407	True	groenendael
23	Chesapeake_Bay_retriever	0.054787	True	Labrador_retriever
24	Siberian_husky	0.147655	True	Eskimo_dog
25	skunk	0.002402	False	hamster
26	Afghan_hound	0.259551	True	briard
27	toy_terrier	0.009397	True	papillon
28	bloodhound	0.244220	True	flat-coated_retriever
29	barracouta	0.271485	False	gar
...	...	...	...	...
2045	Chihuahua	0.000361	True	Boston_bull
2046	sports_car	0.139952	False	car_wheel
2047	Great_Pyrenees	0.186136	True	Dandie_Dinmont
2048	toy_terrier	0.143528	True	can_opener
2049	Eskimo_dog	0.035029	True	Staffordshire_bullterrier
2050	sea_lion	0.275645	False	Weimaraner
2051	Rhodesian_ridgeback	0.054950	True	beagle
2052	tow_truck	0.029175	False	shopping_cart
2053	redbone	0.087582	True	Weimaraner
2054	pug	0.000932	True	bull_mastiff
2055	Rhodesian_ridgeback	0.054950	True	beagle
2056	Eskimo_dog	0.166511	True	malamute
2057	Labrador_retriever	0.184172	True	English_setter
2058	Tibetan_mastiff	0.120184	True	Labrador_retriever
2059	borzoi	0.194742	True	Saluki
2060	Labrador_retriever	0.013834	True	redbone
2061	boxer	0.002129	True	Staffordshire_bullterrier
2062	Cardigan	0.027356	True	basenji
2063	Labrador_retriever	0.151317	True	muzzle
2064	Pomeranian	0.013884	True	chow
2065	Cardigan	0.451038	True	Chihuahua
2066	Irish_setter	0.193054	True	Chesapeake_Bay_retriever
2067	Eskimo_dog	0.178406	True	Pembroke
2068	Border_collie	0.199287	True	ice_lolly
2069	Irish_terrier	0.116317	True	Indian_elephant
2070	English_springer	0.225770	True	German_short-haired_pointer
2071	Labrador_retriever	0.168086	True	spatula
2072	malamute	0.078253	True	kelpie
2073	Pekinese	0.090647	True	papillon
2074	bagel	0.085851	False	banana

	p3_conf	p3_dog
0	0.061428	True
1	0.072010	True
2	0.116197	True
3	0.222752	True
4	0.154629	True

5	0.016199	True
6	0.017885	False
7	0.054449	False
8	0.007959	True
9	0.082086	True
10	0.072427	True
11	0.109454	True
12	0.097471	True
13	0.048960	True
14	0.075628	True
15	0.089688	True
16	0.133649	True
17	0.000052	False
18	0.079480	False
19	0.111152	True
20	0.025581	True
21	0.013207	False
22	0.102643	True
23	0.014241	True
24	0.093412	True
25	0.000461	False
26	0.206803	True
27	0.004577	True
28	0.173810	True
29	0.189945	False
...	...	...
2045	0.000076	True
2046	0.044173	False
2047	0.086346	True
2048	0.032253	False
2049	0.029705	True
2050	0.134203	True
2051	0.038915	True
2052	0.026321	False
2053	0.026236	True
2054	0.000903	True
2055	0.038915	True
2056	0.111411	True
2057	0.073482	True
2058	0.105506	True
2059	0.027351	True
2060	0.007958	True
2061	0.001498	True
2062	0.004633	True
2063	0.082981	False
2064	0.008167	True
2065	0.029248	True
2066	0.118184	True

2067	0.076507	True
2068	0.193548	False
2069	0.076902	False
2070	0.175219	True
2071	0.040836	False
2072	0.031379	True
2073	0.068957	True
2074	0.076110	False

[2075 rows x 12 columns]

In [8]: image\_df.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2075 entries, 0 to 2074
Data columns (total 12 columns):
tweet_id      2075 non-null int64
jpg_url       2075 non-null object
img_num       2075 non-null int64
p1            2075 non-null object
p1_conf       2075 non-null float64
p1_dog        2075 non-null bool
p2            2075 non-null object
p2_conf       2075 non-null float64
p2_dog        2075 non-null bool
p3            2075 non-null object
p3_conf       2075 non-null float64
p3_dog        2075 non-null bool
dtypes: bool(3), float64(3), int64(2), object(4)
memory usage: 152.1+ KB
```

In [9]: image\_df.p1.value\_counts()

```
Out[9]: golden_retriever      150
        Labrador_retriever    100
        Pembroke              89
        Chihuahua             83
        pug                   57
        chow                   44
        Samoyed                43
        toy_poodle             39
        Pomeranian             38
        malamute               30
        cocker_spaniel         30
        French_bulldog         26
        Chesapeake_Bay_retriever 23
        miniature_pinscher     23
        seat_belt              22
```

German_shepherd	20
Staffordshire_bullterrier	20
Siberian_husky	20
Cardigan	19
web_site	19
Maltese_dog	18
Shetland_sheepdog	18
beagle	18
teddy	18
Eskimo_dog	18
Shih-Tzu	17
Lakeland_terrier	17
Rottweiler	17
Italian_greyhound	16
kuvasz	16
...	
sunglasses	1
envelope	1
bald_eagle	1
hammer	1
tricycle	1
fountain	1
hand_blower	1
starfish	1
nail	1
dhole	1
traffic_light	1
military_uniform	1
four-poster	1
giant_panda	1
mailbox	1
guenon	1
book_jacket	1
grey_fox	1
coral_reef	1
African_grey	1
restaurant	1
sandbar	1
rotisserie	1
crane	1
three-toed_sloth	1
bookcase	1
bannister	1
agama	1
bonnet	1
school_bus	1

Name: p1, Length: 378, dtype: int64

```
In [10]: #checking to see how many values if each confidence % column are equal or greater than
```

```
p1 = (image_df['p1_conf'] >= 0.70).sum()
```

```
p2 = (image_df['p2_conf'] >= 0.70).sum()
```

```
p3 = (image_df['p3_conf'] >= 0.70).sum()
```

```
p1, p2, p3
```

```
#p1 seems to be the most reliable column for predicting breed since the other two don't
```

```
Out[10]: (833, 0, 0)
```

```
In [11]: sum(image_df.jpg_url.duplicated())
```

```
Out[11]: 66
```

```
In [12]: tweet_df
```

```
Out[12]:
```

	tweet_id	retweet_count	favorite_count	\
0	892420643555336193	8853	39467	
1	892177421306343426	6514	33819	
2	891815181378084864	4328	25461	
3	891689557279858688	8964	42908	
4	891327558926688256	9774	41048	
5	891087950875897856	3261	20562	
6	890971913173991426	2158	12041	
7	890729181411237888	16716	56848	
8	890609185150312448	4429	28226	
9	890240255349198849	7711	32467	
10	890006608113172480	7624	31166	
11	889880896479866881	5156	28268	
12	889665388333682689	8538	38818	
13	889638837579907072	4735	27672	
14	889531135344209921	2321	15359	
15	889278841981685760	5637	25652	
16	888917238123831296	4709	29611	
17	888804989199671297	4559	26080	
18	888554962724278272	3732	20290	
19	888078434458587136	3653	22201	
20	887705289381826560	5609	30779	
21	887517139158093824	12082	46959	
22	887473957103951883	18781	69871	
23	887343217045368832	10737	34222	
24	887101392804085760	6167	31061	
25	886983233522544640	8084	35859	
26	886736880519319552	3443	12306	
27	886680336477933568	4610	22798	

28	886366144734445568	3316	21524
29	886267009285017600	4	117
...	...	...	...
2324	666411507551481857	339	459
2325	666407126856765440	44	113
2326	666396247373291520	92	172
2327	666373753744588802	100	194
2328	666362758909284353	595	804
2329	666353288456101888	77	229
2330	666345417576210432	146	307
2331	666337882303524864	96	204
2332	666293911632134144	368	522
2333	666287406224695296	71	152
2334	666273097616637952	82	184
2335	666268910803644416	37	108
2336	666104133288665088	6871	14765
2337	666102155909144576	16	81
2338	666099513787052032	73	164
2339	666094000022159362	79	169
2340	666082916733198337	47	121
2341	666073100786774016	174	335
2342	666071193221509120	67	154
2343	666063827256086533	232	496
2344	666058600524156928	61	115
2345	666057090499244032	146	304
2346	666055525042405380	261	448
2347	666051853826850816	879	1253
2348	666050758794694657	60	136
2349	666049248165822465	41	111
2350	666044226329800704	147	311
2351	666033412701032449	47	128
2352	666029285002620928	48	132
2353	666020888022790149	532	2535

	created_at \
0	Tue Aug 01 16:23:56 +0000 2017
1	Tue Aug 01 00:17:27 +0000 2017
2	Mon Jul 31 00:18:03 +0000 2017
3	Sun Jul 30 15:58:51 +0000 2017
4	Sat Jul 29 16:00:24 +0000 2017
5	Sat Jul 29 00:08:17 +0000 2017
6	Fri Jul 28 16:27:12 +0000 2017
7	Fri Jul 28 00:22:40 +0000 2017
8	Thu Jul 27 16:25:51 +0000 2017
9	Wed Jul 26 15:59:51 +0000 2017
10	Wed Jul 26 00:31:25 +0000 2017
11	Tue Jul 25 16:11:53 +0000 2017
12	Tue Jul 25 01:55:32 +0000 2017

13	Tue	Jul	25	00:10:02	+0000	2017
14	Mon	Jul	24	17:02:04	+0000	2017
15	Mon	Jul	24	00:19:32	+0000	2017
16	Sun	Jul	23	00:22:39	+0000	2017
17	Sat	Jul	22	16:56:37	+0000	2017
18	Sat	Jul	22	00:23:06	+0000	2017
19	Thu	Jul	20	16:49:33	+0000	2017
20	Wed	Jul	19	16:06:48	+0000	2017
21	Wed	Jul	19	03:39:09	+0000	2017
22	Wed	Jul	19	00:47:34	+0000	2017
23	Tue	Jul	18	16:08:03	+0000	2017
24	Tue	Jul	18	00:07:08	+0000	2017
25	Mon	Jul	17	16:17:36	+0000	2017
26	Sun	Jul	16	23:58:41	+0000	2017
27	Sun	Jul	16	20:14:00	+0000	2017
28	Sat	Jul	15	23:25:31	+0000	2017
29	Sat	Jul	15	16:51:35	+0000	2017
...						...
2324	Tue	Nov	17	00:24:19	+0000	2015
2325	Tue	Nov	17	00:06:54	+0000	2015
2326	Mon	Nov	16	23:23:41	+0000	2015
2327	Mon	Nov	16	21:54:18	+0000	2015
2328	Mon	Nov	16	21:10:36	+0000	2015
2329	Mon	Nov	16	20:32:58	+0000	2015
2330	Mon	Nov	16	20:01:42	+0000	2015
2331	Mon	Nov	16	19:31:45	+0000	2015
2332	Mon	Nov	16	16:37:02	+0000	2015
2333	Mon	Nov	16	16:11:11	+0000	2015
2334	Mon	Nov	16	15:14:19	+0000	2015
2335	Mon	Nov	16	14:57:41	+0000	2015
2336	Mon	Nov	16	04:02:55	+0000	2015
2337	Mon	Nov	16	03:55:04	+0000	2015
2338	Mon	Nov	16	03:44:34	+0000	2015
2339	Mon	Nov	16	03:22:39	+0000	2015
2340	Mon	Nov	16	02:38:37	+0000	2015
2341	Mon	Nov	16	01:59:36	+0000	2015
2342	Mon	Nov	16	01:52:02	+0000	2015
2343	Mon	Nov	16	01:22:45	+0000	2015
2344	Mon	Nov	16	01:01:59	+0000	2015
2345	Mon	Nov	16	00:55:59	+0000	2015
2346	Mon	Nov	16	00:49:46	+0000	2015
2347	Mon	Nov	16	00:35:11	+0000	2015
2348	Mon	Nov	16	00:30:50	+0000	2015
2349	Mon	Nov	16	00:24:50	+0000	2015
2350	Mon	Nov	16	00:04:52	+0000	2015
2351	Sun	Nov	15	23:21:54	+0000	2015
2352	Sun	Nov	15	23:05:30	+0000	2015
2353	Sun	Nov	15	22:32:08	+0000	2015

full\_text

0 This is Phineas. He's a mystical boy. Only eve...

1 This is Tilly. She's just checking pup on you...

2 This is Archie. He is a rare Norwegian Pouncin...

3 This is Darla. She commenced a snooze mid meal...

4 This is Franklin. He would like you to stop ca...

5 Here we have a majestic great white breaching ...

6 Meet Jax. He enjoys ice cream so much he gets ...

7 When you watch your owner call another dog a g...

8 This is Zoey. She doesn't want to be one of th...

9 This is Cassie. She is a college pup. Studying...

10 This is Koda. He is a South Australian decksha...

11 This is Bruno. He is a service shark. Only get...

12 Here's a puppo that seems to be on the fence a...

13 This is Ted. He does his best. Sometimes that'...

14 This is Stuart. He's sporting his favorite fan...

15 This is Oliver. You're witnessing one of his m...

16 This is Jim. He found a fren. Taught him how t...

17 This is Zeke. He has a new stick. Very proud o...

18 This is Ralphus. He's powering up. Attempting ...

19 This is Gerald. He was just told he didn't get...

20 This is Jeffrey. He has a monopoly on the pool...

21 I've yet to rate a Venezuelan Hover Wiener. Th...

22 This is Canela. She attempted some fancy porch...

23 You may not have known you needed to see this ...

24 This... is a Jubilant Antarctic House Bear. We...

25 This is Maya. She's very shy. Rarely leaves he...

26 This is Mingus. He's a wonderful father to his...

27 This is Derek. He's late for a dog meeting. 13...

28 This is Roscoe. Another pupper fallen victim t...

29 @NonWhiteHat @MayhewMayhem omg hello tanner yo...

...

2324 This is quite the dog. Gets really excited whe...

2325 This is a southern Vesuvius bumblegruff. Can d...

2326 Oh goodness. A super rare northeast Qdoba kang...

2327 Those are sunglasses and a jean jacket. 11/10 ...

2328 Unique dog here. Very small. Lives in containe...

2329 Here we have a mixed Asiago from the Galápagos...

2330 Look at this jokester thinking seat belt laws ...

2331 This is an extremely rare horned Parthenon. No...

2332 This is a funny dog. Weird toes. Won't come do...

2333 This is an Albanian 3 1/2 legged Episcopalian...

2334 Can take selfies 11/10 <https://t.co/ws2AMaNwPW>

2335 Very concerned about fellow dog trapped in com...

2336 Not familiar with this breed. No tail (weird)...

2337 Oh my. Here you are seeing an Adobe Setter giv...

2338 Can stand on stump for what seems like a while...



```

2339 This appears to be a Mongolian Presbyterian mi...
2340 Here we have a well-established sunblockerspan...
2341 Let's hope this flight isn't Malaysian (lol). ...
2342 Here we have a northern speckled Rhododendron...
2343 This is the happiest dog you will ever see. Ve...
2344 Here is the Rand Paul of retrievers folks! He'...
2345 My oh my. This is a rare blond Canadian terrie...
2346 Here is a Siberian heavily armored polar bear ...
2347 This is an odd dog. Hard on the outside but lo...
2348 This is a truly beautiful English Wilson Staff...
2349 Here we have a 1949 1st generation vulpix. Enj...
2350 This is a purebred Piers Morgan. Loves to Netf...
2351 Here is a very happy pup. Big fan of well-main...
2352 This is a western brown Mitsubishi terrier. Up...
2353 Here we have a Japanese Irish Setter. Lost eye...

```

```
[2354 rows x 5 columns]
```

```
In [13]: tweet_df.info()
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2354 entries, 0 to 2353
Data columns (total 5 columns):
tweet_id      2354 non-null int64
retweet_count  2354 non-null int64
favorite_count 2354 non-null int64
created_at     2354 non-null object
full_text      2354 non-null object
dtypes: int64(3), object(2)
memory usage: 92.0+ KB

```

```

In [14]: #checks to see if there are any duplicated rows
         sum(archive_df.duplicated())

```

```
Out[14]: 0
```

```
In [15]: sum(image_df.duplicated())
```

```
Out[15]: 0
```

```
In [16]: sum(tweet_df.duplicated())
```

```
Out[16]: 0
```

```
In [17]: archive_df.name.value_counts()
```

```

Out[17]: None          745
         a             55

```

Charlie	12
Lucy	11
Oliver	11
Cooper	11
Penny	10
Tucker	10
Lola	10
Bo	9
Winston	9
Sadie	8
the	8
an	7
Daisy	7
Buddy	7
Toby	7
Bailey	7
Leo	6
Jax	6
Rusty	6
Dave	6
Milo	6
Stanley	6
Oscar	6
Koda	6
Bella	6
Jack	6
Scout	6
George	5
...	
Evy	1
JD	1
Sprout	1
Tanner	1
Simba	1
Ambrose	1
Jordy	1
Sid	1
Andy	1
Scruffers	1
Ito	1
Barclay	1
Gin	1
Tedrick	1
Grady	1
Stuart	1
Ricky	1
Lillie	1
Genevieve	1

Lipton	1
Binky	1
Marq	1
Darla	1
Ed	1
infuriating	1
Jazzy	1
Ronduh	1
Gustaf	1
Ashleigh	1
Tycho	1

Name: name, Length: 957, dtype: int64

### 1.2.1 Quality issues

1. Removing the rows that are rewtweets
2. Remove columns that aren't necessary for analysis. This includes: name, source, retweeted\_status\_id, retweeted\_status\_user\_id, retweeted\_status\_timestamp, in\_reply\_to\_status\_id, in\_reply\_to\_status\_id.
3. Change timestamp data type to timestamp
4. Change rating system names to be more clear
5. Drop the rows with duplicated images
6. Change id data type to object/string
7. Correct rows with denominators that aren't 10
8. Remove probability columns in imade\_df other than p1.

### 1.2.2 Tidiness issues

1. Combine all dfs
2. Remove duplicate id columns
3. Combine the dog stage columns into one

## 1.3 Cleaning Data

In this section, clean **all** of the issues you documented while assessing.

**Note:** Make a copy of the original data before cleaning. Cleaning includes merging individual pieces of data according to the rules of [tidy data](#). The result should be a high-quality and tidy master pandas DataFrame (or DataFrames, if appropriate).

```
In [18]: # Make copies of original pieces of data
         archive_clean = archive_df.copy()
         image_clean = image_df.copy()
         tweet_clean = tweet_df.copy()
```

### 1.3.1 Issue #1: Removing retweet rows

**Define:** I only want original tweet data so I will programmatically find and remove the rows that are retweets.

```
In [19]: #Creates new df without specific string value
         archive_clean = archive_clean[archive_clean['text'].str.contains('RT @')==False]
         archive_clean
```

```
Out[19]:
```

	tweet_id	in_reply_to_status_id	in_reply_to_user_id	\
0	892420643555336193	NaN	NaN	
1	892177421306343426	NaN	NaN	
2	891815181378084864	NaN	NaN	
3	891689557279858688	NaN	NaN	
4	891327558926688256	NaN	NaN	
5	891087950875897856	NaN	NaN	
6	890971913173991426	NaN	NaN	
7	890729181411237888	NaN	NaN	
8	890609185150312448	NaN	NaN	
9	890240255349198849	NaN	NaN	
10	890006608113172480	NaN	NaN	
11	889880896479866881	NaN	NaN	
12	889665388333682689	NaN	NaN	
13	889638837579907072	NaN	NaN	
14	889531135344209921	NaN	NaN	
15	889278841981685760	NaN	NaN	
16	888917238123831296	NaN	NaN	
17	888804989199671297	NaN	NaN	
18	888554962724278272	NaN	NaN	
20	888078434458587136	NaN	NaN	
21	887705289381826560	NaN	NaN	
22	887517139158093824	NaN	NaN	
23	887473957103951883	NaN	NaN	
24	887343217045368832	NaN	NaN	
25	887101392804085760	NaN	NaN	
26	886983233522544640	NaN	NaN	
27	886736880519319552	NaN	NaN	
28	886680336477933568	NaN	NaN	
29	886366144734445568	NaN	NaN	
30	886267009285017600	8.862664e+17	2.281182e+09	
...	...	...	...	
2326	666411507551481857	NaN	NaN	
2327	666407126856765440	NaN	NaN	
2328	666396247373291520	NaN	NaN	
2329	666373753744588802	NaN	NaN	
2330	666362758909284353	NaN	NaN	
2331	666353288456101888	NaN	NaN	
2332	666345417576210432	NaN	NaN	
2333	666337882303524864	NaN	NaN	

2334	666293911632134144	NaN	NaN
2335	666287406224695296	NaN	NaN
2336	666273097616637952	NaN	NaN
2337	666268910803644416	NaN	NaN
2338	666104133288665088	NaN	NaN
2339	666102155909144576	NaN	NaN
2340	666099513787052032	NaN	NaN
2341	666094000022159362	NaN	NaN
2342	666082916733198337	NaN	NaN
2343	666073100786774016	NaN	NaN
2344	666071193221509120	NaN	NaN
2345	666063827256086533	NaN	NaN
2346	666058600524156928	NaN	NaN
2347	666057090499244032	NaN	NaN
2348	666055525042405380	NaN	NaN
2349	666051853826850816	NaN	NaN
2350	666050758794694657	NaN	NaN
2351	666049248165822465	NaN	NaN
2352	666044226329800704	NaN	NaN
2353	666033412701032449	NaN	NaN
2354	666029285002620928	NaN	NaN
2355	666020888022790149	NaN	NaN

	timestamp \
0	2017-08-01 16:23:56 +0000
1	2017-08-01 00:17:27 +0000
2	2017-07-31 00:18:03 +0000
3	2017-07-30 15:58:51 +0000
4	2017-07-29 16:00:24 +0000
5	2017-07-29 00:08:17 +0000
6	2017-07-28 16:27:12 +0000
7	2017-07-28 00:22:40 +0000
8	2017-07-27 16:25:51 +0000
9	2017-07-26 15:59:51 +0000
10	2017-07-26 00:31:25 +0000
11	2017-07-25 16:11:53 +0000
12	2017-07-25 01:55:32 +0000
13	2017-07-25 00:10:02 +0000
14	2017-07-24 17:02:04 +0000
15	2017-07-24 00:19:32 +0000
16	2017-07-23 00:22:39 +0000
17	2017-07-22 16:56:37 +0000
18	2017-07-22 00:23:06 +0000
20	2017-07-20 16:49:33 +0000
21	2017-07-19 16:06:48 +0000
22	2017-07-19 03:39:09 +0000
23	2017-07-19 00:47:34 +0000
24	2017-07-18 16:08:03 +0000

```

25    2017-07-18 00:07:08 +0000
26    2017-07-17 16:17:36 +0000
27    2017-07-16 23:58:41 +0000
28    2017-07-16 20:14:00 +0000
29    2017-07-15 23:25:31 +0000
30    2017-07-15 16:51:35 +0000
...
2326  2015-11-17 00:24:19 +0000
2327  2015-11-17 00:06:54 +0000
2328  2015-11-16 23:23:41 +0000
2329  2015-11-16 21:54:18 +0000
2330  2015-11-16 21:10:36 +0000
2331  2015-11-16 20:32:58 +0000
2332  2015-11-16 20:01:42 +0000
2333  2015-11-16 19:31:45 +0000
2334  2015-11-16 16:37:02 +0000
2335  2015-11-16 16:11:11 +0000
2336  2015-11-16 15:14:19 +0000
2337  2015-11-16 14:57:41 +0000
2338  2015-11-16 04:02:55 +0000
2339  2015-11-16 03:55:04 +0000
2340  2015-11-16 03:44:34 +0000
2341  2015-11-16 03:22:39 +0000
2342  2015-11-16 02:38:37 +0000
2343  2015-11-16 01:59:36 +0000
2344  2015-11-16 01:52:02 +0000
2345  2015-11-16 01:22:45 +0000
2346  2015-11-16 01:01:59 +0000
2347  2015-11-16 00:55:59 +0000
2348  2015-11-16 00:49:46 +0000
2349  2015-11-16 00:35:11 +0000
2350  2015-11-16 00:30:50 +0000
2351  2015-11-16 00:24:50 +0000
2352  2015-11-16 00:04:52 +0000
2353  2015-11-15 23:21:54 +0000
2354  2015-11-15 23:05:30 +0000
2355  2015-11-15 22:32:08 +0000

```

```

                                source \
0    <a href="http://twitter.com/download/iphone" r...
1    <a href="http://twitter.com/download/iphone" r...
2    <a href="http://twitter.com/download/iphone" r...
3    <a href="http://twitter.com/download/iphone" r...
4    <a href="http://twitter.com/download/iphone" r...
5    <a href="http://twitter.com/download/iphone" r...
6    <a href="http://twitter.com/download/iphone" r...
7    <a href="http://twitter.com/download/iphone" r...
8    <a href="http://twitter.com/download/iphone" r...

```

[illegible]

2352 <a href="http://twitter.com/download/iphone" r...  
 2353 <a href="http://twitter.com/download/iphone" r...  
 2354 <a href="http://twitter.com/download/iphone" r...  
 2355 <a href="http://twitter.com/download/iphone" r...

	text	retweeted_status_id \
0	This is Phineas. He's a mystical boy. Only eve...	NaN
1	This is Tilly. She's just checking pup on you...	NaN
2	This is Archie. He is a rare Norwegian Pouncin...	NaN
3	This is Darla. She commenced a snooze mid meal...	NaN
4	This is Franklin. He would like you to stop ca...	NaN
5	Here we have a majestic great white breaching ...	NaN
6	Meet Jax. He enjoys ice cream so much he gets ...	NaN
7	When you watch your owner call another dog a g...	NaN
8	This is Zoey. She doesn't want to be one of th...	NaN
9	This is Cassie. She is a college pup. Studying...	NaN
10	This is Koda. He is a South Australian decksha...	NaN
11	This is Bruno. He is a service shark. Only get...	NaN
12	Here's a puppo that seems to be on the fence a...	NaN
13	This is Ted. He does his best. Sometimes that'...	NaN
14	This is Stuart. He's sporting his favorite fan...	NaN
15	This is Oliver. You're witnessing one of his m...	NaN
16	This is Jim. He found a fren. Taught him how t...	NaN
17	This is Zeke. He has a new stick. Very proud o...	NaN
18	This is Ralphus. He's powering up. Attempting ...	NaN
20	This is Gerald. He was just told he didn't get...	NaN
21	This is Jeffrey. He has a monopoly on the pool...	NaN
22	I've yet to rate a Venezuelan Hover Wiener. Th...	NaN
23	This is Canela. She attempted some fancy porch...	NaN
24	You may not have known you needed to see this ...	NaN
25	This... is a Jubilant Antarctic House Bear. We...	NaN
26	This is Maya. She's very shy. Rarely leaves he...	NaN
27	This is Mingus. He's a wonderful father to his...	NaN
28	This is Derek. He's late for a dog meeting. 13...	NaN
29	This is Roscoe. Another pupper fallen victim t...	NaN
30	@NonWhiteHat @MayhewMayhem omg hello tanner yo...	NaN
...	...	...
2326	This is quite the dog. Gets really excited whe...	NaN
2327	This is a southern Vesuvius bumblegruff. Can d...	NaN
2328	Oh goodness. A super rare northeast Qdoba kang...	NaN
2329	Those are sunglasses and a jean jacket. 11/10 ...	NaN
2330	Unique dog here. Very small. Lives in containe...	NaN
2331	Here we have a mixed Asiago from the Galápagos...	NaN
2332	Look at this jokester thinking seat belt laws ...	NaN
2333	This is an extremely rare horned Parthenon. No...	NaN
2334	This is a funny dog. Weird toes. Won't come do...	NaN
2335	This is an Albanian 3 1/2 legged Episcopalian...	NaN
2336	Can take selfies 11/10 https://t.co/ws2AMaNwPW	NaN



2337	Very concerned about fellow dog trapped in com...	NaN
2338	Not familiar with this breed. No tail (weird)...	NaN
2339	Oh my. Here you are seeing an Adobe Setter giv...	NaN
2340	Can stand on stump for what seems like a while...	NaN
2341	This appears to be a Mongolian Presbyterian mi...	NaN
2342	Here we have a well-established sunblockerspan...	NaN
2343	Let's hope this flight isn't Malaysian (lol). ...	NaN
2344	Here we have a northern speckled Rhododendron...	NaN
2345	This is the happiest dog you will ever see. Ve...	NaN
2346	Here is the Rand Paul of retrievers folks! He'...	NaN
2347	My oh my. This is a rare blond Canadian terrie...	NaN
2348	Here is a Siberian heavily armored polar bear ...	NaN
2349	This is an odd dog. Hard on the outside but lo...	NaN
2350	This is a truly beautiful English Wilson Staff...	NaN
2351	Here we have a 1949 1st generation vulpix. Enj...	NaN
2352	This is a purebred Piers Morgan. Loves to Netf...	NaN
2353	Here is a very happy pup. Big fan of well-main...	NaN
2354	This is a western brown Mitsubishi terrier. Up...	NaN
2355	Here we have a Japanese Irish Setter. Lost eye...	NaN

	retweeted_status_user_id	retweeted_status_timestamp \
0	NaN	NaN
1	NaN	NaN
2	NaN	NaN
3	NaN	NaN
4	NaN	NaN
5	NaN	NaN
6	NaN	NaN
7	NaN	NaN
8	NaN	NaN
9	NaN	NaN
10	NaN	NaN
11	NaN	NaN
12	NaN	NaN
13	NaN	NaN
14	NaN	NaN
15	NaN	NaN
16	NaN	NaN
17	NaN	NaN
18	NaN	NaN
20	NaN	NaN
21	NaN	NaN
22	NaN	NaN
23	NaN	NaN
24	NaN	NaN
25	NaN	NaN
26	NaN	NaN
27	NaN	NaN

28	NaN	NaN
29	NaN	NaN
30	NaN	NaN
...	...	...
2326	NaN	NaN
2327	NaN	NaN
2328	NaN	NaN
2329	NaN	NaN
2330	NaN	NaN
2331	NaN	NaN
2332	NaN	NaN
2333	NaN	NaN
2334	NaN	NaN
2335	NaN	NaN
2336	NaN	NaN
2337	NaN	NaN
2338	NaN	NaN
2339	NaN	NaN
2340	NaN	NaN
2341	NaN	NaN
2342	NaN	NaN
2343	NaN	NaN
2344	NaN	NaN
2345	NaN	NaN
2346	NaN	NaN
2347	NaN	NaN
2348	NaN	NaN
2349	NaN	NaN
2350	NaN	NaN
2351	NaN	NaN
2352	NaN	NaN
2353	NaN	NaN
2354	NaN	NaN
2355	NaN	NaN

	expanded_urls	rating_numerator \
0	https://twitter.com/dog_rates/status/892420643...	13
1	https://twitter.com/dog_rates/status/892177421...	13
2	https://twitter.com/dog_rates/status/891815181...	12
3	https://twitter.com/dog_rates/status/891689557...	13
4	https://twitter.com/dog_rates/status/891327558...	12
5	https://twitter.com/dog_rates/status/891087950...	13
6	https://gofundme.com/ydvmve-surgery-for-jax,ht...	13
7	https://twitter.com/dog_rates/status/890729181...	13
8	https://twitter.com/dog_rates/status/890609185...	13
9	https://twitter.com/dog_rates/status/890240255...	14
10	https://twitter.com/dog_rates/status/890006608...	13
11	https://twitter.com/dog_rates/status/889880896...	13

12	<a href="https://twitter.com/dog_rates/status/889665388...">https://twitter.com/dog_rates/status/889665388...</a>	13
13	<a href="https://twitter.com/dog_rates/status/889638837...">https://twitter.com/dog_rates/status/889638837...</a>	12
14	<a href="https://twitter.com/dog_rates/status/889531135...">https://twitter.com/dog_rates/status/889531135...</a>	13
15	<a href="https://twitter.com/dog_rates/status/889278841...">https://twitter.com/dog_rates/status/889278841...</a>	13
16	<a href="https://twitter.com/dog_rates/status/888917238...">https://twitter.com/dog_rates/status/888917238...</a>	12
17	<a href="https://twitter.com/dog_rates/status/888804989...">https://twitter.com/dog_rates/status/888804989...</a>	13
18	<a href="https://twitter.com/dog_rates/status/888554962...">https://twitter.com/dog_rates/status/888554962...</a>	13
20	<a href="https://twitter.com/dog_rates/status/888078434...">https://twitter.com/dog_rates/status/888078434...</a>	12
21	<a href="https://twitter.com/dog_rates/status/887705289...">https://twitter.com/dog_rates/status/887705289...</a>	13
22	<a href="https://twitter.com/dog_rates/status/887517139...">https://twitter.com/dog_rates/status/887517139...</a>	14
23	<a href="https://twitter.com/dog_rates/status/887473957...">https://twitter.com/dog_rates/status/887473957...</a>	13
24	<a href="https://twitter.com/dog_rates/status/887343217...">https://twitter.com/dog_rates/status/887343217...</a>	13
25	<a href="https://twitter.com/dog_rates/status/887101392...">https://twitter.com/dog_rates/status/887101392...</a>	12
26	<a href="https://twitter.com/dog_rates/status/886983233...">https://twitter.com/dog_rates/status/886983233...</a>	13
27	<a href="https://www.gofundme.com/mingusneedsus">https://www.gofundme.com/mingusneedsus</a> , <a href="https://...">https://...</a>	13
28	<a href="https://twitter.com/dog_rates/status/886680336...">https://twitter.com/dog_rates/status/886680336...</a>	13
29	<a href="https://twitter.com/dog_rates/status/886366144...">https://twitter.com/dog_rates/status/886366144...</a>	12
30	NaN	12
...	...	...
2326	<a href="https://twitter.com/dog_rates/status/666411507...">https://twitter.com/dog_rates/status/666411507...</a>	2
2327	<a href="https://twitter.com/dog_rates/status/666407126...">https://twitter.com/dog_rates/status/666407126...</a>	7
2328	<a href="https://twitter.com/dog_rates/status/666396247...">https://twitter.com/dog_rates/status/666396247...</a>	9
2329	<a href="https://twitter.com/dog_rates/status/666373753...">https://twitter.com/dog_rates/status/666373753...</a>	11
2330	<a href="https://twitter.com/dog_rates/status/666362758...">https://twitter.com/dog_rates/status/666362758...</a>	6
2331	<a href="https://twitter.com/dog_rates/status/666353288...">https://twitter.com/dog_rates/status/666353288...</a>	8
2332	<a href="https://twitter.com/dog_rates/status/666345417...">https://twitter.com/dog_rates/status/666345417...</a>	10
2333	<a href="https://twitter.com/dog_rates/status/666337882...">https://twitter.com/dog_rates/status/666337882...</a>	9
2334	<a href="https://twitter.com/dog_rates/status/666293911...">https://twitter.com/dog_rates/status/666293911...</a>	3
2335	<a href="https://twitter.com/dog_rates/status/666287406...">https://twitter.com/dog_rates/status/666287406...</a>	1
2336	<a href="https://twitter.com/dog_rates/status/666273097...">https://twitter.com/dog_rates/status/666273097...</a>	11
2337	<a href="https://twitter.com/dog_rates/status/666268910...">https://twitter.com/dog_rates/status/666268910...</a>	10
2338	<a href="https://twitter.com/dog_rates/status/666104133...">https://twitter.com/dog_rates/status/666104133...</a>	1
2339	<a href="https://twitter.com/dog_rates/status/666102155...">https://twitter.com/dog_rates/status/666102155...</a>	11
2340	<a href="https://twitter.com/dog_rates/status/666099513...">https://twitter.com/dog_rates/status/666099513...</a>	8
2341	<a href="https://twitter.com/dog_rates/status/666094000...">https://twitter.com/dog_rates/status/666094000...</a>	9
2342	<a href="https://twitter.com/dog_rates/status/666082916...">https://twitter.com/dog_rates/status/666082916...</a>	6
2343	<a href="https://twitter.com/dog_rates/status/666073100...">https://twitter.com/dog_rates/status/666073100...</a>	10
2344	<a href="https://twitter.com/dog_rates/status/666071193...">https://twitter.com/dog_rates/status/666071193...</a>	9
2345	<a href="https://twitter.com/dog_rates/status/666063827...">https://twitter.com/dog_rates/status/666063827...</a>	10
2346	<a href="https://twitter.com/dog_rates/status/666058600...">https://twitter.com/dog_rates/status/666058600...</a>	8
2347	<a href="https://twitter.com/dog_rates/status/666057090...">https://twitter.com/dog_rates/status/666057090...</a>	9
2348	<a href="https://twitter.com/dog_rates/status/666055525...">https://twitter.com/dog_rates/status/666055525...</a>	10
2349	<a href="https://twitter.com/dog_rates/status/666051853...">https://twitter.com/dog_rates/status/666051853...</a>	2
2350	<a href="https://twitter.com/dog_rates/status/666050758...">https://twitter.com/dog_rates/status/666050758...</a>	10
2351	<a href="https://twitter.com/dog_rates/status/666049248...">https://twitter.com/dog_rates/status/666049248...</a>	5
2352	<a href="https://twitter.com/dog_rates/status/666044226...">https://twitter.com/dog_rates/status/666044226...</a>	6
2353	<a href="https://twitter.com/dog_rates/status/666033412...">https://twitter.com/dog_rates/status/666033412...</a>	9
2354	<a href="https://twitter.com/dog_rates/status/666029285...">https://twitter.com/dog_rates/status/666029285...</a>	7

	rating_denominator	name	doggo	floofer	pupper	puppo
0	10	Phineas	None	None	None	None
1	10	Tilly	None	None	None	None
2	10	Archie	None	None	None	None
3	10	Darla	None	None	None	None
4	10	Franklin	None	None	None	None
5	10	None	None	None	None	None
6	10	Jax	None	None	None	None
7	10	None	None	None	None	None
8	10	Zoey	None	None	None	None
9	10	Cassie	doggo	None	None	None
10	10	Koda	None	None	None	None
11	10	Bruno	None	None	None	None
12	10	None	None	None	None	puppo
13	10	Ted	None	None	None	None
14	10	Stuart	None	None	None	puppo
15	10	Oliver	None	None	None	None
16	10	Jim	None	None	None	None
17	10	Zeke	None	None	None	None
18	10	Ralphus	None	None	None	None
20	10	Gerald	None	None	None	None
21	10	Jeffrey	None	None	None	None
22	10	such	None	None	None	None
23	10	Canela	None	None	None	None
24	10	None	None	None	None	None
25	10	None	None	None	None	None
26	10	Maya	None	None	None	None
27	10	Mingus	None	None	None	None
28	10	Derek	None	None	None	None
29	10	Roscoe	None	None	pupper	None
30	10	None	None	None	None	None
...	...	...	...	...	...	...
2326	10	quite	None	None	None	None
2327	10	a	None	None	None	None
2328	10	None	None	None	None	None
2329	10	None	None	None	None	None
2330	10	None	None	None	None	None
2331	10	None	None	None	None	None
2332	10	None	None	None	None	None
2333	10	an	None	None	None	None
2334	10	a	None	None	None	None
2335	2	an	None	None	None	None
2336	10	None	None	None	None	None
2337	10	None	None	None	None	None
2338	10	None	None	None	None	None
2339	10	None	None	None	None	None

2340	10	None	None	None	None	None
2341	10	None	None	None	None	None
2342	10	None	None	None	None	None
2343	10	None	None	None	None	None
2344	10	None	None	None	None	None
2345	10	the	None	None	None	None
2346	10	the	None	None	None	None
2347	10	a	None	None	None	None
2348	10	a	None	None	None	None
2349	10	an	None	None	None	None
2350	10	a	None	None	None	None
2351	10	None	None	None	None	None
2352	10	a	None	None	None	None
2353	10	a	None	None	None	None
2354	10	a	None	None	None	None
2355	10	None	None	None	None	None

[2175 rows x 17 columns]

## Test

```
In [20]: #selects the old retweet rows in the new df to see if we still have any RT left
testing = archive_clean[archive_clean['text'].str.contains('RT @')]
testing
```

```
Out[20]: Empty DataFrame
Columns: [tweet_id, in_reply_to_status_id, in_reply_to_user_id, timestamp, source, text]
Index: []
```

## 1.3.2 Issue #2: Remove columns

**Define:** Columns `name`, `source`, `retweeted_status_id`, `retweeted_status_user_id`, `retweeted_status_timestamp`, `in_reply_to_status_id`, and `in_reply_to_status_id` aren't necessary for analysis. Name is unreliable as we found earlier that some of the dogs don't have names, have invalid names, or similar names. We don't need the source information and all the other columns are pertinent if we were to use the retweets but we aren't.

## Code

```
In [21]: columns_to_drop = ['name', 'source', 'retweeted_status_id', 'retweeted_status_user_id',
archive_clean = archive_clean.drop(columns=columns_to_drop)
```

## Test

```
In [22]: #the rows have been dropped
archive_clean
```

```
Out[22]:
```

	tweet_id	in_reply_to_user_id	timestamp \
0	892420643555336193	NaN	2017-08-01 16:23:56 +0000

1	892177421306343426	NaN	2017-08-01	00:17:27	+0000
2	891815181378084864	NaN	2017-07-31	00:18:03	+0000
3	891689557279858688	NaN	2017-07-30	15:58:51	+0000
4	891327558926688256	NaN	2017-07-29	16:00:24	+0000
5	891087950875897856	NaN	2017-07-29	00:08:17	+0000
6	890971913173991426	NaN	2017-07-28	16:27:12	+0000
7	890729181411237888	NaN	2017-07-28	00:22:40	+0000
8	890609185150312448	NaN	2017-07-27	16:25:51	+0000
9	890240255349198849	NaN	2017-07-26	15:59:51	+0000
10	890006608113172480	NaN	2017-07-26	00:31:25	+0000
11	889880896479866881	NaN	2017-07-25	16:11:53	+0000
12	889665388333682689	NaN	2017-07-25	01:55:32	+0000
13	889638837579907072	NaN	2017-07-25	00:10:02	+0000
14	889531135344209921	NaN	2017-07-24	17:02:04	+0000
15	889278841981685760	NaN	2017-07-24	00:19:32	+0000
16	888917238123831296	NaN	2017-07-23	00:22:39	+0000
17	888804989199671297	NaN	2017-07-22	16:56:37	+0000
18	888554962724278272	NaN	2017-07-22	00:23:06	+0000
20	888078434458587136	NaN	2017-07-20	16:49:33	+0000
21	887705289381826560	NaN	2017-07-19	16:06:48	+0000
22	887517139158093824	NaN	2017-07-19	03:39:09	+0000
23	887473957103951883	NaN	2017-07-19	00:47:34	+0000
24	887343217045368832	NaN	2017-07-18	16:08:03	+0000
25	887101392804085760	NaN	2017-07-18	00:07:08	+0000
26	886983233522544640	NaN	2017-07-17	16:17:36	+0000
27	886736880519319552	NaN	2017-07-16	23:58:41	+0000
28	886680336477933568	NaN	2017-07-16	20:14:00	+0000
29	886366144734445568	NaN	2017-07-15	23:25:31	+0000
30	886267009285017600	2.281182e+09	2017-07-15	16:51:35	+0000
...	...	...	...	...	...
2326	666411507551481857	NaN	2015-11-17	00:24:19	+0000
2327	666407126856765440	NaN	2015-11-17	00:06:54	+0000
2328	666396247373291520	NaN	2015-11-16	23:23:41	+0000
2329	666373753744588802	NaN	2015-11-16	21:54:18	+0000
2330	666362758909284353	NaN	2015-11-16	21:10:36	+0000
2331	666353288456101888	NaN	2015-11-16	20:32:58	+0000
2332	666345417576210432	NaN	2015-11-16	20:01:42	+0000
2333	666337882303524864	NaN	2015-11-16	19:31:45	+0000
2334	666293911632134144	NaN	2015-11-16	16:37:02	+0000
2335	666287406224695296	NaN	2015-11-16	16:11:11	+0000
2336	666273097616637952	NaN	2015-11-16	15:14:19	+0000
2337	666268910803644416	NaN	2015-11-16	14:57:41	+0000
2338	666104133288665088	NaN	2015-11-16	04:02:55	+0000
2339	666102155909144576	NaN	2015-11-16	03:55:04	+0000
2340	666099513787052032	NaN	2015-11-16	03:44:34	+0000
2341	666094000022159362	NaN	2015-11-16	03:22:39	+0000
2342	666082916733198337	NaN	2015-11-16	02:38:37	+0000
2343	666073100786774016	NaN	2015-11-16	01:59:36	+0000

2344	666071193221509120	NaN	2015-11-16	01:52:02	+0000
2345	666063827256086533	NaN	2015-11-16	01:22:45	+0000
2346	666058600524156928	NaN	2015-11-16	01:01:59	+0000
2347	666057090499244032	NaN	2015-11-16	00:55:59	+0000
2348	666055525042405380	NaN	2015-11-16	00:49:46	+0000
2349	666051853826850816	NaN	2015-11-16	00:35:11	+0000
2350	666050758794694657	NaN	2015-11-16	00:30:50	+0000
2351	666049248165822465	NaN	2015-11-16	00:24:50	+0000
2352	666044226329800704	NaN	2015-11-16	00:04:52	+0000
2353	666033412701032449	NaN	2015-11-15	23:21:54	+0000
2354	666029285002620928	NaN	2015-11-15	23:05:30	+0000
2355	666020888022790149	NaN	2015-11-15	22:32:08	+0000

```

                                text \
0   This is Phineas. He's a mystical boy. Only eve...
1   This is Tilly. She's just checking pup on you...
2   This is Archie. He is a rare Norwegian Pouncin...
3   This is Darla. She commenced a snooze mid meal...
4   This is Franklin. He would like you to stop ca...
5   Here we have a majestic great white breaching ...
6   Meet Jax. He enjoys ice cream so much he gets ...
7   When you watch your owner call another dog a g...
8   This is Zoey. She doesn't want to be one of th...
9   This is Cassie. She is a college pup. Studying...
10  This is Koda. He is a South Australian decksha...
11  This is Bruno. He is a service shark. Only get...
12  Here's a puppo that seems to be on the fence a...
13  This is Ted. He does his best. Sometimes that'...
14  This is Stuart. He's sporting his favorite fan...
15  This is Oliver. You're witnessing one of his m...
16  This is Jim. He found a fren. Taught him how t...
17  This is Zeke. He has a new stick. Very proud o...
18  This is Ralphus. He's powering up. Attempting ...
20  This is Gerald. He was just told he didn't get...
21  This is Jeffrey. He has a monopoly on the pool...
22  I've yet to rate a Venezuelan Hover Wiener. Th...
23  This is Canela. She attempted some fancy porch...
24  You may not have known you needed to see this ...
25  This... is a Jubilant Antarctic House Bear. We...
26  This is Maya. She's very shy. Rarely leaves he...
27  This is Mingus. He's a wonderful father to his...
28  This is Derek. He's late for a dog meeting. 13...
29  This is Roscoe. Another pupper fallen victim t...
30  @NonWhiteHat @MayhewMayhem omg hello tanner yo...
...
2326 This is quite the dog. Gets really excited whe...
2327 This is a southern Vesuvius bumblegruff. Can d...
2328 Oh goodness. A super rare northeast Qdoba kang...

```

2329 Those are sunglasses and a jean jacket. 11/10 ...  
 2330 Unique dog here. Very small. Lives in containe...  
 2331 Here we have a mixed Asiago from the Galápagos...  
 2332 Look at this jokester thinking seat belt laws ...  
 2333 This is an extremely rare horned Parthenon. No...  
 2334 This is a funny dog. Weird toes. Won't come do...  
 2335 This is an Albanian 3 1/2 legged Episcopalian...  
 2336 Can take selfies 11/10 <https://t.co/ws2AMaWpPW>  
 2337 Very concerned about fellow dog trapped in com...  
 2338 Not familiar with this breed. No tail (weird)...  
 2339 Oh my. Here you are seeing an Adobe Setter giv...  
 2340 Can stand on stump for what seems like a while...  
 2341 This appears to be a Mongolian Presbyterian mi...  
 2342 Here we have a well-established sunblockerspan...  
 2343 Let's hope this flight isn't Malaysian (lol). ...  
 2344 Here we have a northern speckled Rhododendron...  
 2345 This is the happiest dog you will ever see. Ve...  
 2346 Here is the Rand Paul of retrievers folks! He'...  
 2347 My oh my. This is a rare blond Canadian terrie...  
 2348 Here is a Siberian heavily armored polar bear ...  
 2349 This is an odd dog. Hard on the outside but lo...  
 2350 This is a truly beautiful English Wilson Staff...  
 2351 Here we have a 1949 1st generation vulpix. Enj...  
 2352 This is a purebred Piers Morgan. Loves to Netf...  
 2353 Here is a very happy pup. Big fan of well-main...  
 2354 This is a western brown Mitsubishi terrier. Up...  
 2355 Here we have a Japanese Irish Setter. Lost eye...

	expanded_urls	rating_numerator \
0	<a href="https://twitter.com/dog_rates/status/892420643...">https://twitter.com/dog_rates/status/892420643...</a>	13
1	<a href="https://twitter.com/dog_rates/status/892177421...">https://twitter.com/dog_rates/status/892177421...</a>	13
2	<a href="https://twitter.com/dog_rates/status/891815181...">https://twitter.com/dog_rates/status/891815181...</a>	12
3	<a href="https://twitter.com/dog_rates/status/891689557...">https://twitter.com/dog_rates/status/891689557...</a>	13
4	<a href="https://twitter.com/dog_rates/status/891327558...">https://twitter.com/dog_rates/status/891327558...</a>	12
5	<a href="https://twitter.com/dog_rates/status/891087950...">https://twitter.com/dog_rates/status/891087950...</a>	13
6	<a href="https://gofundme.com/ydvmve-surgery-for-jax,ht...">https://gofundme.com/ydvmve-surgery-for-jax,ht...</a>	13
7	<a href="https://twitter.com/dog_rates/status/890729181...">https://twitter.com/dog_rates/status/890729181...</a>	13
8	<a href="https://twitter.com/dog_rates/status/890609185...">https://twitter.com/dog_rates/status/890609185...</a>	13
9	<a href="https://twitter.com/dog_rates/status/890240255...">https://twitter.com/dog_rates/status/890240255...</a>	14
10	<a href="https://twitter.com/dog_rates/status/890006608...">https://twitter.com/dog_rates/status/890006608...</a>	13
11	<a href="https://twitter.com/dog_rates/status/889880896...">https://twitter.com/dog_rates/status/889880896...</a>	13
12	<a href="https://twitter.com/dog_rates/status/889665388...">https://twitter.com/dog_rates/status/889665388...</a>	13
13	<a href="https://twitter.com/dog_rates/status/889638837...">https://twitter.com/dog_rates/status/889638837...</a>	12
14	<a href="https://twitter.com/dog_rates/status/889531135...">https://twitter.com/dog_rates/status/889531135...</a>	13
15	<a href="https://twitter.com/dog_rates/status/889278841...">https://twitter.com/dog_rates/status/889278841...</a>	13
16	<a href="https://twitter.com/dog_rates/status/888917238...">https://twitter.com/dog_rates/status/888917238...</a>	12
17	<a href="https://twitter.com/dog_rates/status/888804989...">https://twitter.com/dog_rates/status/888804989...</a>	13
18	<a href="https://twitter.com/dog_rates/status/888554962...">https://twitter.com/dog_rates/status/888554962...</a>	13



20	https://twitter.com/dog_rates/status/888078434...	12
21	https://twitter.com/dog_rates/status/887705289...	13
22	https://twitter.com/dog_rates/status/887517139...	14
23	https://twitter.com/dog_rates/status/887473957...	13
24	https://twitter.com/dog_rates/status/887343217...	13
25	https://twitter.com/dog_rates/status/887101392...	12
26	https://twitter.com/dog_rates/status/886983233...	13
27	https://www.gofundme.com/mingusneedsus,https:/...	13
28	https://twitter.com/dog_rates/status/886680336...	13
29	https://twitter.com/dog_rates/status/886366144...	12
30	NaN	12
...	...	...
2326	https://twitter.com/dog_rates/status/666411507...	2
2327	https://twitter.com/dog_rates/status/666407126...	7
2328	https://twitter.com/dog_rates/status/666396247...	9
2329	https://twitter.com/dog_rates/status/666373753...	11
2330	https://twitter.com/dog_rates/status/666362758...	6
2331	https://twitter.com/dog_rates/status/666353288...	8
2332	https://twitter.com/dog_rates/status/666345417...	10
2333	https://twitter.com/dog_rates/status/666337882...	9
2334	https://twitter.com/dog_rates/status/666293911...	3
2335	https://twitter.com/dog_rates/status/666287406...	1
2336	https://twitter.com/dog_rates/status/666273097...	11
2337	https://twitter.com/dog_rates/status/666268910...	10
2338	https://twitter.com/dog_rates/status/666104133...	1
2339	https://twitter.com/dog_rates/status/666102155...	11
2340	https://twitter.com/dog_rates/status/666099513...	8
2341	https://twitter.com/dog_rates/status/666094000...	9
2342	https://twitter.com/dog_rates/status/666082916...	6
2343	https://twitter.com/dog_rates/status/666073100...	10
2344	https://twitter.com/dog_rates/status/666071193...	9
2345	https://twitter.com/dog_rates/status/666063827...	10
2346	https://twitter.com/dog_rates/status/666058600...	8
2347	https://twitter.com/dog_rates/status/666057090...	9
2348	https://twitter.com/dog_rates/status/666055525...	10
2349	https://twitter.com/dog_rates/status/666051853...	2
2350	https://twitter.com/dog_rates/status/666050758...	10
2351	https://twitter.com/dog_rates/status/666049248...	5
2352	https://twitter.com/dog_rates/status/666044226...	6
2353	https://twitter.com/dog_rates/status/666033412...	9
2354	https://twitter.com/dog_rates/status/666029285...	7
2355	https://twitter.com/dog_rates/status/666020888...	8
	rating_denominator	doggo floofer pupper puppo
0	10	None None None None
1	10	None None None None
2	10	None None None None
3	10	None None None None

4	10	None	None	None	None
5	10	None	None	None	None
6	10	None	None	None	None
7	10	None	None	None	None
8	10	None	None	None	None
9	10	doggo	None	None	None
10	10	None	None	None	None
11	10	None	None	None	None
12	10	None	None	None	puppo
13	10	None	None	None	None
14	10	None	None	None	puppo
15	10	None	None	None	None
16	10	None	None	None	None
17	10	None	None	None	None
18	10	None	None	None	None
20	10	None	None	None	None
21	10	None	None	None	None
22	10	None	None	None	None
23	10	None	None	None	None
24	10	None	None	None	None
25	10	None	None	None	None
26	10	None	None	None	None
27	10	None	None	None	None
28	10	None	None	None	None
29	10	None	None	pupper	None
30	10	None	None	None	None
...	...	...	...	...	...
2326	10	None	None	None	None
2327	10	None	None	None	None
2328	10	None	None	None	None
2329	10	None	None	None	None
2330	10	None	None	None	None
2331	10	None	None	None	None
2332	10	None	None	None	None
2333	10	None	None	None	None
2334	10	None	None	None	None
2335	2	None	None	None	None
2336	10	None	None	None	None
2337	10	None	None	None	None
2338	10	None	None	None	None
2339	10	None	None	None	None
2340	10	None	None	None	None
2341	10	None	None	None	None
2342	10	None	None	None	None
2343	10	None	None	None	None
2344	10	None	None	None	None
2345	10	None	None	None	None
2346	10	None	None	None	None

2347	10	None	None	None	None
2348	10	None	None	None	None
2349	10	None	None	None	None
2350	10	None	None	None	None
2351	10	None	None	None	None
2352	10	None	None	None	None
2353	10	None	None	None	None
2354	10	None	None	None	None
2355	10	None	None	None	None

[2175 rows x 11 columns]

### 1.3.3 Issue #3: Change timestamp data type

**Define:** The current timestamp data type is object, but datetime is more accurate for data that has to deal with times and dates.

#### Code

```
In [23]: archive_clean['timestamp'] = pd.to_datetime(archive_clean['timestamp'])
```

#### Test

```
In [24]: archive_clean.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 2175 entries, 0 to 2355
Data columns (total 11 columns):
tweet_id          2175 non-null int64
in_reply_to_user_id  78 non-null float64
timestamp         2175 non-null datetime64[ns]
text             2175 non-null object
expanded_urls     2117 non-null object
rating_numerator  2175 non-null int64
rating_denominator 2175 non-null int64
doggo            2175 non-null object
floofer          2175 non-null object
pupper           2175 non-null object
puppo            2175 non-null object
dtypes: datetime64[ns](1), float64(1), int64(3), object(6)
memory usage: 203.9+ KB
```

### 1.3.4 Issue #4: Change rating system names

**Define:** The classification system of doggo, floofer, pupper, and puppo is unique and cute but does need more clear defining if it were to be used for analysis. I will change the names to something more clear based on the dictionary given earlier in the project.

## Code

```
In [25]: #changing the column names first
new_column_names = {
    'doggo': 'big',
    'floofer': 'fluffy',
    'pupper': 'small',
    'puppo': 'adolescent'
}

archive_clean = archive_clean.rename(columns=new_column_names)

#changing the values in the columns to reflect the new clearer names
value_mapping = {
    'big': {'doggo': 'big'},
    'fluffy': {'floofer': 'fluffy'},
    'small': {'pupper': 'small'},
    'adolescent': {'puppo': 'adolescent'}
}

for column, mapping in value_mapping.items():
    archive_clean[column] = archive_clean[column].replace(mapping)
```

## Test

```
In [26]: archive_clean
```

```
Out[26]:
```

	tweet_id	in_reply_to_user_id	timestamp	\
0	892420643555336193	NaN	2017-08-01 16:23:56	
1	892177421306343426	NaN	2017-08-01 00:17:27	
2	891815181378084864	NaN	2017-07-31 00:18:03	
3	891689557279858688	NaN	2017-07-30 15:58:51	
4	891327558926688256	NaN	2017-07-29 16:00:24	
5	891087950875897856	NaN	2017-07-29 00:08:17	
6	890971913173991426	NaN	2017-07-28 16:27:12	
7	890729181411237888	NaN	2017-07-28 00:22:40	
8	890609185150312448	NaN	2017-07-27 16:25:51	
9	890240255349198849	NaN	2017-07-26 15:59:51	
10	890006608113172480	NaN	2017-07-26 00:31:25	
11	889880896479866881	NaN	2017-07-25 16:11:53	
12	889665388333682689	NaN	2017-07-25 01:55:32	
13	889638837579907072	NaN	2017-07-25 00:10:02	
14	889531135344209921	NaN	2017-07-24 17:02:04	
15	889278841981685760	NaN	2017-07-24 00:19:32	
16	888917238123831296	NaN	2017-07-23 00:22:39	
17	888804989199671297	NaN	2017-07-22 16:56:37	
18	888554962724278272	NaN	2017-07-22 00:23:06	
20	888078434458587136	NaN	2017-07-20 16:49:33	
21	887705289381826560	NaN	2017-07-19 16:06:48	

22	887517139158093824	NaN	2017-07-19	03:39:09
23	887473957103951883	NaN	2017-07-19	00:47:34
24	887343217045368832	NaN	2017-07-18	16:08:03
25	887101392804085760	NaN	2017-07-18	00:07:08
26	886983233522544640	NaN	2017-07-17	16:17:36
27	886736880519319552	NaN	2017-07-16	23:58:41
28	886680336477933568	NaN	2017-07-16	20:14:00
29	886366144734445568	NaN	2017-07-15	23:25:31
30	886267009285017600	2.281182e+09	2017-07-15	16:51:35
...	...	...	...	...
2326	666411507551481857	NaN	2015-11-17	00:24:19
2327	666407126856765440	NaN	2015-11-17	00:06:54
2328	666396247373291520	NaN	2015-11-16	23:23:41
2329	666373753744588802	NaN	2015-11-16	21:54:18
2330	666362758909284353	NaN	2015-11-16	21:10:36
2331	666353288456101888	NaN	2015-11-16	20:32:58
2332	666345417576210432	NaN	2015-11-16	20:01:42
2333	666337882303524864	NaN	2015-11-16	19:31:45
2334	666293911632134144	NaN	2015-11-16	16:37:02
2335	666287406224695296	NaN	2015-11-16	16:11:11
2336	666273097616637952	NaN	2015-11-16	15:14:19
2337	666268910803644416	NaN	2015-11-16	14:57:41
2338	666104133288665088	NaN	2015-11-16	04:02:55
2339	666102155909144576	NaN	2015-11-16	03:55:04
2340	666099513787052032	NaN	2015-11-16	03:44:34
2341	666094000022159362	NaN	2015-11-16	03:22:39
2342	666082916733198337	NaN	2015-11-16	02:38:37
2343	666073100786774016	NaN	2015-11-16	01:59:36
2344	666071193221509120	NaN	2015-11-16	01:52:02
2345	666063827256086533	NaN	2015-11-16	01:22:45
2346	666058600524156928	NaN	2015-11-16	01:01:59
2347	666057090499244032	NaN	2015-11-16	00:55:59
2348	666055525042405380	NaN	2015-11-16	00:49:46
2349	666051853826850816	NaN	2015-11-16	00:35:11
2350	666050758794694657	NaN	2015-11-16	00:30:50
2351	666049248165822465	NaN	2015-11-16	00:24:50
2352	666044226329800704	NaN	2015-11-16	00:04:52
2353	666033412701032449	NaN	2015-11-15	23:21:54
2354	666029285002620928	NaN	2015-11-15	23:05:30
2355	666020888022790149	NaN	2015-11-15	22:32:08

	text \
0	This is Phineas. He's a mystical boy. Only eve...
1	This is Tilly. She's just checking pup on you...
2	This is Archie. He is a rare Norwegian Pouncin...
3	This is Darla. She commenced a snooze mid meal...
4	This is Franklin. He would like you to stop ca...
5	Here we have a majestic great white breaching ...

6 Meet Jax. He enjoys ice cream so much he gets ...  
 7 When you watch your owner call another dog a g...  
 8 This is Zoey. She doesn't want to be one of th...  
 9 This is Cassie. She is a college pup. Studying...  
 10 This is Koda. He is a South Australian decksha...  
 11 This is Bruno. He is a service shark. Only get...  
 12 Here's a puppo that seems to be on the fence a...  
 13 This is Ted. He does his best. Sometimes that'...  
 14 This is Stuart. He's sporting his favorite fan...  
 15 This is Oliver. You're witnessing one of his m...  
 16 This is Jim. He found a fren. Taught him how t...  
 17 This is Zeke. He has a new stick. Very proud o...  
 18 This is Ralphus. He's powering up. Attempting ...  
 20 This is Gerald. He was just told he didn't get...  
 21 This is Jeffrey. He has a monopoly on the pool...  
 22 I've yet to rate a Venezuelan Hover Wiener. Th...  
 23 This is Canela. She attempted some fancy porch...  
 24 You may not have known you needed to see this ...  
 25 This... is a Jubilant Antarctic House Bear. We...  
 26 This is Maya. She's very shy. Rarely leaves he...  
 27 This is Mingus. He's a wonderful father to his...  
 28 This is Derek. He's late for a dog meeting. 13...  
 29 This is Roscoe. Another pupper fallen victim t...  
 30 @NonWhiteHat @MayhewMayhem omg hello tanner yo...  
 ...  
 2326 This is quite the dog. Gets really excited whe...  
 2327 This is a southern Vesuvius bumblegruff. Can d...  
 2328 Oh goodness. A super rare northeast Qdoba kang...  
 2329 Those are sunglasses and a jean jacket. 11/10 ...  
 2330 Unique dog here. Very small. Lives in containe...  
 2331 Here we have a mixed Asiago from the Galápagos...  
 2332 Look at this jokester thinking seat belt laws ...  
 2333 This is an extremely rare horned Parthenon. No...  
 2334 This is a funny dog. Weird toes. Won't come do...  
 2335 This is an Albanian 3 1/2 legged Episcopalian...  
 2336 Can take selfies 11/10 <https://t.co/ws2AMaNwPW>  
 2337 Very concerned about fellow dog trapped in com...  
 2338 Not familiar with this breed. No tail (weird)...  
 2339 Oh my. Here you are seeing an Adobe Setter giv...  
 2340 Can stand on stump for what seems like a while...  
 2341 This appears to be a Mongolian Presbyterian mi...  
 2342 Here we have a well-established sunblockerspan...  
 2343 Let's hope this flight isn't Malaysian (lol). ...  
 2344 Here we have a northern speckled Rhododendron...  
 2345 This is the happiest dog you will ever see. Ve...  
 2346 Here is the Rand Paul of retrievers folks! He'...  
 2347 My oh my. This is a rare blond Canadian terrie...  
 2348 Here is a Siberian heavily armored polar bear ...

2349 This is an odd dog. Hard on the outside but lo...  
 2350 This is a truly beautiful English Wilson Staff...  
 2351 Here we have a 1949 1st generation vulpix. Enj...  
 2352 This is a purebred Piers Morgan. Loves to Netf...  
 2353 Here is a very happy pup. Big fan of well-main...  
 2354 This is a western brown Mitsubishi terrier. Up...  
 2355 Here we have a Japanese Irish Setter. Lost eye...

	expanded_urls	rating_numerator \
0	https://twitter.com/dog_rates/status/892420643...	13
1	https://twitter.com/dog_rates/status/892177421...	13
2	https://twitter.com/dog_rates/status/891815181...	12
3	https://twitter.com/dog_rates/status/891689557...	13
4	https://twitter.com/dog_rates/status/891327558...	12
5	https://twitter.com/dog_rates/status/891087950...	13
6	https://gofundme.com/ydvmve-surgery-for-jax,ht...	13
7	https://twitter.com/dog_rates/status/890729181...	13
8	https://twitter.com/dog_rates/status/890609185...	13
9	https://twitter.com/dog_rates/status/890240255...	14
10	https://twitter.com/dog_rates/status/890006608...	13
11	https://twitter.com/dog_rates/status/889880896...	13
12	https://twitter.com/dog_rates/status/889665388...	13
13	https://twitter.com/dog_rates/status/889638837...	12
14	https://twitter.com/dog_rates/status/889531135...	13
15	https://twitter.com/dog_rates/status/889278841...	13
16	https://twitter.com/dog_rates/status/888917238...	12
17	https://twitter.com/dog_rates/status/888804989...	13
18	https://twitter.com/dog_rates/status/888554962...	13
20	https://twitter.com/dog_rates/status/888078434...	12
21	https://twitter.com/dog_rates/status/887705289...	13
22	https://twitter.com/dog_rates/status/887517139...	14
23	https://twitter.com/dog_rates/status/887473957...	13
24	https://twitter.com/dog_rates/status/887343217...	13
25	https://twitter.com/dog_rates/status/887101392...	12
26	https://twitter.com/dog_rates/status/886983233...	13
27	https://www.gofundme.com/mingusneedsus,https:/...	13
28	https://twitter.com/dog_rates/status/886680336...	13
29	https://twitter.com/dog_rates/status/886366144...	12
30	NaN	12
...	...	...
2326	https://twitter.com/dog_rates/status/666411507...	2
2327	https://twitter.com/dog_rates/status/666407126...	7
2328	https://twitter.com/dog_rates/status/666396247...	9
2329	https://twitter.com/dog_rates/status/666373753...	11
2330	https://twitter.com/dog_rates/status/666362758...	6
2331	https://twitter.com/dog_rates/status/666353288...	8
2332	https://twitter.com/dog_rates/status/666345417...	10
2333	https://twitter.com/dog_rates/status/666337882...	9

2334	<a href="https://twitter.com/dog_rates/status/666293911...">https://twitter.com/dog_rates/status/666293911...</a>	3
2335	<a href="https://twitter.com/dog_rates/status/666287406...">https://twitter.com/dog_rates/status/666287406...</a>	1
2336	<a href="https://twitter.com/dog_rates/status/666273097...">https://twitter.com/dog_rates/status/666273097...</a>	11
2337	<a href="https://twitter.com/dog_rates/status/666268910...">https://twitter.com/dog_rates/status/666268910...</a>	10
2338	<a href="https://twitter.com/dog_rates/status/666104133...">https://twitter.com/dog_rates/status/666104133...</a>	1
2339	<a href="https://twitter.com/dog_rates/status/666102155...">https://twitter.com/dog_rates/status/666102155...</a>	11
2340	<a href="https://twitter.com/dog_rates/status/666099513...">https://twitter.com/dog_rates/status/666099513...</a>	8
2341	<a href="https://twitter.com/dog_rates/status/666094000...">https://twitter.com/dog_rates/status/666094000...</a>	9
2342	<a href="https://twitter.com/dog_rates/status/666082916...">https://twitter.com/dog_rates/status/666082916...</a>	6
2343	<a href="https://twitter.com/dog_rates/status/666073100...">https://twitter.com/dog_rates/status/666073100...</a>	10
2344	<a href="https://twitter.com/dog_rates/status/666071193...">https://twitter.com/dog_rates/status/666071193...</a>	9
2345	<a href="https://twitter.com/dog_rates/status/666063827...">https://twitter.com/dog_rates/status/666063827...</a>	10
2346	<a href="https://twitter.com/dog_rates/status/666058600...">https://twitter.com/dog_rates/status/666058600...</a>	8
2347	<a href="https://twitter.com/dog_rates/status/666057090...">https://twitter.com/dog_rates/status/666057090...</a>	9
2348	<a href="https://twitter.com/dog_rates/status/666055525...">https://twitter.com/dog_rates/status/666055525...</a>	10
2349	<a href="https://twitter.com/dog_rates/status/666051853...">https://twitter.com/dog_rates/status/666051853...</a>	2
2350	<a href="https://twitter.com/dog_rates/status/666050758...">https://twitter.com/dog_rates/status/666050758...</a>	10
2351	<a href="https://twitter.com/dog_rates/status/666049248...">https://twitter.com/dog_rates/status/666049248...</a>	5
2352	<a href="https://twitter.com/dog_rates/status/666044226...">https://twitter.com/dog_rates/status/666044226...</a>	6
2353	<a href="https://twitter.com/dog_rates/status/666033412...">https://twitter.com/dog_rates/status/666033412...</a>	9
2354	<a href="https://twitter.com/dog_rates/status/666029285...">https://twitter.com/dog_rates/status/666029285...</a>	7
2355	<a href="https://twitter.com/dog_rates/status/666020888...">https://twitter.com/dog_rates/status/666020888...</a>	8

	rating_denominator	big	fluffy	small	adolescent
0	10	None	None	None	None
1	10	None	None	None	None
2	10	None	None	None	None
3	10	None	None	None	None
4	10	None	None	None	None
5	10	None	None	None	None
6	10	None	None	None	None
7	10	None	None	None	None
8	10	None	None	None	None
9	10	big	None	None	None
10	10	None	None	None	None
11	10	None	None	None	None
12	10	None	None	None	adolescent
13	10	None	None	None	None
14	10	None	None	None	adolescent
15	10	None	None	None	None
16	10	None	None	None	None
17	10	None	None	None	None
18	10	None	None	None	None
20	10	None	None	None	None
21	10	None	None	None	None
22	10	None	None	None	None
23	10	None	None	None	None
24	10	None	None	None	None



25	10	None	None	None	None
26	10	None	None	None	None
27	10	None	None	None	None
28	10	None	None	None	None
29	10	None	None	small	None
30	10	None	None	None	None
...	...	...	...	...	...
2326	10	None	None	None	None
2327	10	None	None	None	None
2328	10	None	None	None	None
2329	10	None	None	None	None
2330	10	None	None	None	None
2331	10	None	None	None	None
2332	10	None	None	None	None
2333	10	None	None	None	None
2334	10	None	None	None	None
2335	2	None	None	None	None
2336	10	None	None	None	None
2337	10	None	None	None	None
2338	10	None	None	None	None
2339	10	None	None	None	None
2340	10	None	None	None	None
2341	10	None	None	None	None
2342	10	None	None	None	None
2343	10	None	None	None	None
2344	10	None	None	None	None
2345	10	None	None	None	None
2346	10	None	None	None	None
2347	10	None	None	None	None
2348	10	None	None	None	None
2349	10	None	None	None	None
2350	10	None	None	None	None
2351	10	None	None	None	None
2352	10	None	None	None	None
2353	10	None	None	None	None
2354	10	None	None	None	None
2355	10	None	None	None	None

[2175 rows x 11 columns]

### 1.3.5 Issue #5: Drop the rows with duplicated images

**Define:** Earlier while assesing it was found that 66 image urls were duplicated. Those will rows will be dropped.

#### Code

```
In [27]: image_clean = image_clean.drop_duplicates(subset='jpg_url', keep='first')
```

## Test

```
In [28]: sum(image_clean.jpg_url.duplicated())
```

```
Out[28]: 0
```

### 1.3.6 Issue #6: Change tweet\_id data type to object/string

**Define:** The ID datatype is originally in int form but since it is more of an address than a value it is best changed to string type data.

## Code

```
In [29]: archive_clean['tweet_id'] = archive_clean['tweet_id'].astype(str)
         image_clean['tweet_id'] = image_clean['tweet_id'].astype(str)
         tweet_clean['tweet_id'] = tweet_clean['tweet_id'].astype(str)
```

## Test

```
In [30]: archive_clean.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 2175 entries, 0 to 2355
Data columns (total 11 columns):
tweet_id                2175 non-null object
in_reply_to_user_id     78 non-null float64
timestamp               2175 non-null datetime64[ns]
text                   2175 non-null object
expanded_urls           2117 non-null object
rating_numerator        2175 non-null int64
rating_denominator      2175 non-null int64
big                    2175 non-null object
fluffy                 2175 non-null object
small                  2175 non-null object
adolescent              2175 non-null object
dtypes: datetime64[ns](1), float64(1), int64(2), object(7)
memory usage: 203.9+ KB
```

```
In [31]: image_clean.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 2009 entries, 0 to 2074
Data columns (total 12 columns):
tweet_id      2009 non-null object
jpg_url       2009 non-null object
img_num       2009 non-null int64
p1            2009 non-null object
p1_conf       2009 non-null float64
```

```

p1_dog      2009 non-null bool
p2          2009 non-null object
p2_conf     2009 non-null float64
p2_dog      2009 non-null bool
p3          2009 non-null object
p3_conf     2009 non-null float64
p3_dog      2009 non-null bool
dtypes: bool(3), float64(3), int64(1), object(5)
memory usage: 162.8+ KB

```

```

In [32]: tweet_clean.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2354 entries, 0 to 2353
Data columns (total 5 columns):
tweet_id      2354 non-null object
retweet_count  2354 non-null int64
favorite_count 2354 non-null int64
created_at    2354 non-null object
full_text     2354 non-null object
dtypes: int64(2), object(3)
memory usage: 92.0+ KB

```

### 1.3.7 Issue #7: Correct denominator column

**Define:** The values should be 10 but there are a few rows where that is not the case. This will be corrected for accuracy.

#### Code

```

In [33]: denominator = 10
         archive_clean['rating_denominator'] = denominator

```

#### Test

```

In [34]: archive_clean.rating_denominator.value_counts()

Out[34]: 10      2175
         Name: rating_denominator, dtype: int64

```

### 1.3.8 Issue #8: Remove all probability columns except those associated with p1

**Define:** Earlier while assessing the other probability columns were found to have no values greater than or equal to 70%, which makes them unreliable comparatively.

#### Code

```

In [35]: columns_to_drop1 = ['p2', 'p2_conf', 'p2_dog', 'p3', 'p3_conf', 'p3_dog']
         image_clean = image_clean.drop(columns=columns_to_drop1)

```

## Test

In [36]: image\_clean

```
Out[36]:
```

	tweet_id	jpg_url \
0	666020888022790149	<a href="https://pbs.twimg.com/media/CT4udn0WwAA0aMy.jpg">https://pbs.twimg.com/media/CT4udn0WwAA0aMy.jpg</a>
1	666029285002620928	<a href="https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg">https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg</a>
2	666033412701032449	<a href="https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg">https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg</a>
3	666044226329800704	<a href="https://pbs.twimg.com/media/CT5Dr8HUEAA-lEu.jpg">https://pbs.twimg.com/media/CT5Dr8HUEAA-lEu.jpg</a>
4	666049248165822465	<a href="https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg">https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg</a>
5	666050758794694657	<a href="https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg">https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg</a>
6	666051853826850816	<a href="https://pbs.twimg.com/media/CT5KoJ1WoAAJash.jpg">https://pbs.twimg.com/media/CT5KoJ1WoAAJash.jpg</a>
7	666055525042405380	<a href="https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg">https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg</a>
8	666057090499244032	<a href="https://pbs.twimg.com/media/CT5PY90WoAAQGLo.jpg">https://pbs.twimg.com/media/CT5PY90WoAAQGLo.jpg</a>
9	666058600524156928	<a href="https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg">https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg</a>
10	666063827256086533	<a href="https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg">https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg</a>
11	666071193221509120	<a href="https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg">https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg</a>
12	666073100786774016	<a href="https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg">https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg</a>
13	666082916733198337	<a href="https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg">https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg</a>
14	666094000022159362	<a href="https://pbs.twimg.com/media/CT5w9gUW4AAsBNN.jpg">https://pbs.twimg.com/media/CT5w9gUW4AAsBNN.jpg</a>
15	666099513787052032	<a href="https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg">https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg</a>
16	666102155909144576	<a href="https://pbs.twimg.com/media/CT54YGiWUAENZnoK.jpg">https://pbs.twimg.com/media/CT54YGiWUAENZnoK.jpg</a>
17	666104133288665088	<a href="https://pbs.twimg.com/media/CT56LSZWoAA1Jj2.jpg">https://pbs.twimg.com/media/CT56LSZWoAA1Jj2.jpg</a>
18	666268910803644416	<a href="https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg">https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg</a>
19	666273097616637952	<a href="https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg">https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg</a>
20	666287406224695296	<a href="https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg">https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg</a>
21	666293911632134144	<a href="https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg">https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg</a>
22	666337882303524864	<a href="https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg">https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg</a>
23	666345417576210432	<a href="https://pbs.twimg.com/media/CT9Vn7PW0AA_ZCM.jpg">https://pbs.twimg.com/media/CT9Vn7PW0AA_ZCM.jpg</a>
24	666353288456101888	<a href="https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg">https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg</a>
25	666362758909284353	<a href="https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg">https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg</a>
26	666373753744588802	<a href="https://pbs.twimg.com/media/CT9vZEYWUAA1Z05.jpg">https://pbs.twimg.com/media/CT9vZEYWUAA1Z05.jpg</a>
27	666396247373291520	<a href="https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg">https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg</a>
28	666407126856765440	<a href="https://pbs.twimg.com/media/CT-NvwmW4AAAugGZ.jpg">https://pbs.twimg.com/media/CT-NvwmW4AAAugGZ.jpg</a>
29	666411507551481857	<a href="https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg">https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg</a>
...	...	...
2044	886258384151887873	<a href="https://pbs.twimg.com/media/DEyftG4UMAE4aE9.jpg">https://pbs.twimg.com/media/DEyftG4UMAE4aE9.jpg</a>
2045	886366144734445568	<a href="https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg">https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg</a>
2046	886680336477933568	<a href="https://pbs.twimg.com/media/DE4fEDzWAAAYHMM.jpg">https://pbs.twimg.com/media/DE4fEDzWAAAYHMM.jpg</a>
2047	886736880519319552	<a href="https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg">https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg</a>
2048	886983233522544640	<a href="https://pbs.twimg.com/media/DE8yicJW0AAAABJ.jpg">https://pbs.twimg.com/media/DE8yicJW0AAAABJ.jpg</a>
2049	887101392804085760	<a href="https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg">https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg</a>
2050	887343217045368832	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88734...">https://pbs.twimg.com/ext_tw_video_thumb/88734...</a>
2051	887473957103951883	<a href="https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg">https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg</a>
2052	887517139158093824	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88751...">https://pbs.twimg.com/ext_tw_video_thumb/88751...</a>
2053	887705289381826560	<a href="https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg">https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg</a>
2054	888078434458587136	<a href="https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg">https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg</a>
2056	888554962724278272	<a href="https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg">https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg</a>
2057	888804989199671297	<a href="https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg">https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg</a>

2058	888917238123831296	<a href="https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg">https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg</a>
2059	889278841981685760	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88927...">https://pbs.twimg.com/ext_tw_video_thumb/88927...</a>
2060	889531135344209921	<a href="https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg">https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg</a>
2061	889638837579907072	<a href="https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg">https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg</a>
2062	889665388333682689	<a href="https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg">https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg</a>
2063	889880896479866881	<a href="https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg">https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg</a>
2064	890006608113172480	<a href="https://pbs.twimg.com/media/DFnwsY4WAAAMliS.jpg">https://pbs.twimg.com/media/DFnwsY4WAAAMliS.jpg</a>
2065	890240255349198849	<a href="https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg">https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg</a>
2066	890609185150312448	<a href="https://pbs.twimg.com/media/DFwUU__XcAEpyXI.jpg">https://pbs.twimg.com/media/DFwUU__XcAEpyXI.jpg</a>
2067	890729181411237888	<a href="https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg">https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg</a>
2068	890971913173991426	<a href="https://pbs.twimg.com/media/DF1eOmZXUAAALUcq.jpg">https://pbs.twimg.com/media/DF1eOmZXUAAALUcq.jpg</a>
2069	891087950875897856	<a href="https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg">https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg</a>
2070	891327558926688256	<a href="https://pbs.twimg.com/media/DF6hr6BUMAAzZgT.jpg">https://pbs.twimg.com/media/DF6hr6BUMAAzZgT.jpg</a>
2071	891689557279858688	<a href="https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg">https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg</a>
2072	891815181378084864	<a href="https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg">https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg</a>
2073	892177421306343426	<a href="https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg">https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg</a>
2074	892420643555336193	<a href="https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg">https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg</a>

	img_num		p1	p1_conf	p1_dog
0	1	Welsh_springer_spaniel	0.465074	True	
1	1	redbone	0.506826	True	
2	1	German_shepherd	0.596461	True	
3	1	Rhodesian_ridgeback	0.408143	True	
4	1	miniature_pinscher	0.560311	True	
5	1	Bernese_mountain_dog	0.651137	True	
6	1	box_turtle	0.933012	False	
7	1	chow	0.692517	True	
8	1	shopping_cart	0.962465	False	
9	1	miniature_poodle	0.201493	True	
10	1	golden_retriever	0.775930	True	
11	1	Gordon_setter	0.503672	True	
12	1	Walker_hound	0.260857	True	
13	1	pug	0.489814	True	
14	1	bloodhound	0.195217	True	
15	1	Lhasa	0.582330	True	
16	1	English_setter	0.298617	True	
17	1	hen	0.965932	False	
18	1	desktop_computer	0.086502	False	
19	1	Italian_greyhound	0.176053	True	
20	1	Maltese_dog	0.857531	True	
21	1	three-toed_sloth	0.914671	False	
22	1	ox	0.416669	False	
23	1	golden_retriever	0.858744	True	
24	1	malamute	0.336874	True	
25	1	guinea_pig	0.996496	False	
26	1	soft-coated_wheaten_terrier	0.326467	True	
27	1	Chihuahua	0.978108	True	
28	1	black-and-tan_coonhound	0.529139	True	

29	1	coho	0.404640	False
...	...	...	...	...
2044	1	pug	0.943575	True
2045	1	French_bulldog	0.999201	True
2046	1	convertible	0.738995	False
2047	1	kuvasz	0.309706	True
2048	2	Chihuahua	0.793469	True
2049	1	Samoyed	0.733942	True
2050	1	Mexican_hairless	0.330741	True
2051	2	Pembroke	0.809197	True
2052	1	limousine	0.130432	False
2053	1	basset	0.821664	True
2054	1	French_bulldog	0.995026	True
2056	3	Siberian_husky	0.700377	True
2057	1	golden_retriever	0.469760	True
2058	1	golden_retriever	0.714719	True
2059	1	whippet	0.626152	True
2060	1	golden_retriever	0.953442	True
2061	1	French_bulldog	0.991650	True
2062	1	Pembroke	0.966327	True
2063	1	French_bulldog	0.377417	True
2064	1	Samoyed	0.957979	True
2065	1	Pembroke	0.511319	True
2066	1	Irish_terrier	0.487574	True
2067	2	Pomeranian	0.566142	True
2068	1	Appenzeller	0.341703	True
2069	1	Chesapeake_Bay_retriever	0.425595	True
2070	2	basset	0.555712	True
2071	1	paper_towel	0.170278	False
2072	1	Chihuahua	0.716012	True
2073	1	Chihuahua	0.323581	True
2074	1	orange	0.097049	False

[2009 rows x 6 columns]

### 1.3.9 Issue #9: Combine all dfs into one

**Define:** Combining all the data frames into one will make analysis easier, smoother, and tidier.

#### Code

```
In [37]: merged_df = archive_clean.merge(image_clean, on='tweet_id').merge(tweet_clean, on='tweet_id')
```

#### Test

```
In [38]: merged_df
```

```
Out[38]:
```

	tweet_id	in_reply_to_user_id	timestamp	\
0	892420643555336193	NaN	2017-08-01 16:23:56	

1	892177421306343426	NaN	2017-08-01	00:17:27
2	891815181378084864	NaN	2017-07-31	00:18:03
3	891689557279858688	NaN	2017-07-30	15:58:51
4	891327558926688256	NaN	2017-07-29	16:00:24
5	891087950875897856	NaN	2017-07-29	00:08:17
6	890971913173991426	NaN	2017-07-28	16:27:12
7	890729181411237888	NaN	2017-07-28	00:22:40
8	890609185150312448	NaN	2017-07-27	16:25:51
9	890240255349198849	NaN	2017-07-26	15:59:51
10	890006608113172480	NaN	2017-07-26	00:31:25
11	889880896479866881	NaN	2017-07-25	16:11:53
12	889665388333682689	NaN	2017-07-25	01:55:32
13	889638837579907072	NaN	2017-07-25	00:10:02
14	889531135344209921	NaN	2017-07-24	17:02:04
15	889278841981685760	NaN	2017-07-24	00:19:32
16	888917238123831296	NaN	2017-07-23	00:22:39
17	888804989199671297	NaN	2017-07-22	16:56:37
18	888554962724278272	NaN	2017-07-22	00:23:06
19	888078434458587136	NaN	2017-07-20	16:49:33
20	887705289381826560	NaN	2017-07-19	16:06:48
21	887517139158093824	NaN	2017-07-19	03:39:09
22	887473957103951883	NaN	2017-07-19	00:47:34
23	887343217045368832	NaN	2017-07-18	16:08:03
24	887101392804085760	NaN	2017-07-18	00:07:08
25	886983233522544640	NaN	2017-07-17	16:17:36
26	886736880519319552	NaN	2017-07-16	23:58:41
27	886680336477933568	NaN	2017-07-16	20:14:00
28	886366144734445568	NaN	2017-07-15	23:25:31
29	886258384151887873	NaN	2017-07-15	16:17:19
...	...	...	...	...
1964	666411507551481857	NaN	2015-11-17	00:24:19
1965	666407126856765440	NaN	2015-11-17	00:06:54
1966	666396247373291520	NaN	2015-11-16	23:23:41
1967	666373753744588802	NaN	2015-11-16	21:54:18
1968	666362758909284353	NaN	2015-11-16	21:10:36
1969	666353288456101888	NaN	2015-11-16	20:32:58
1970	666345417576210432	NaN	2015-11-16	20:01:42
1971	666337882303524864	NaN	2015-11-16	19:31:45
1972	666293911632134144	NaN	2015-11-16	16:37:02
1973	666287406224695296	NaN	2015-11-16	16:11:11
1974	666273097616637952	NaN	2015-11-16	15:14:19
1975	666268910803644416	NaN	2015-11-16	14:57:41
1976	666104133288665088	NaN	2015-11-16	04:02:55
1977	666102155909144576	NaN	2015-11-16	03:55:04
1978	666099513787052032	NaN	2015-11-16	03:44:34
1979	666094000022159362	NaN	2015-11-16	03:22:39
1980	666082916733198337	NaN	2015-11-16	02:38:37
1981	666073100786774016	NaN	2015-11-16	01:59:36

1982	666071193221509120	NaN 2015-11-16 01:52:02
1983	666063827256086533	NaN 2015-11-16 01:22:45
1984	666058600524156928	NaN 2015-11-16 01:01:59
1985	666057090499244032	NaN 2015-11-16 00:55:59
1986	666055525042405380	NaN 2015-11-16 00:49:46
1987	666051853826850816	NaN 2015-11-16 00:35:11
1988	666050758794694657	NaN 2015-11-16 00:30:50
1989	666049248165822465	NaN 2015-11-16 00:24:50
1990	666044226329800704	NaN 2015-11-16 00:04:52
1991	666033412701032449	NaN 2015-11-15 23:21:54
1992	666029285002620928	NaN 2015-11-15 23:05:30
1993	666020888022790149	NaN 2015-11-15 22:32:08

		text \
0	This is Phineas. He's a mystical boy. Only eve...	
1	This is Tilly. She's just checking pup on you...	
2	This is Archie. He is a rare Norwegian Pouncin...	
3	This is Darla. She commenced a snooze mid meal...	
4	This is Franklin. He would like you to stop ca...	
5	Here we have a majestic great white breaching ...	
6	Meet Jax. He enjoys ice cream so much he gets ...	
7	When you watch your owner call another dog a g...	
8	This is Zoey. She doesn't want to be one of th...	
9	This is Cassie. She is a college pup. Studying...	
10	This is Koda. He is a South Australian decksha...	
11	This is Bruno. He is a service shark. Only get...	
12	Here's a puppo that seems to be on the fence a...	
13	This is Ted. He does his best. Sometimes that'...	
14	This is Stuart. He's sporting his favorite fan...	
15	This is Oliver. You're witnessing one of his m...	
16	This is Jim. He found a fren. Taught him how t...	
17	This is Zeke. He has a new stick. Very proud o...	
18	This is Ralphus. He's powering up. Attempting ...	
19	This is Gerald. He was just told he didn't get...	
20	This is Jeffrey. He has a monopoly on the pool...	
21	I've yet to rate a Venezuelan Hover Wiener. Th...	
22	This is Canela. She attempted some fancy porch...	
23	You may not have known you needed to see this ...	
24	This... is a Jubilant Antarctic House Bear. We...	
25	This is Maya. She's very shy. Rarely leaves he...	
26	This is Mingus. He's a wonderful father to his...	
27	This is Derek. He's late for a dog meeting. 13...	
28	This is Roscoe. Another pupper fallen victim t...	
29	This is Waffles. His doggles are pupside down...	
...	...	
1964	This is quite the dog. Gets really excited whe...	
1965	This is a southern Vesuvius bumblegruff. Can d...	
1966	Oh goodness. A super rare northeast Qdoba kang...	



1967 Those are sunglasses and a jean jacket. 11/10 ...  
 1968 Unique dog here. Very small. Lives in containe...  
 1969 Here we have a mixed Asiago from the Galápagos...  
 1970 Look at this jokester thinking seat belt laws ...  
 1971 This is an extremely rare horned Parthenon. No...  
 1972 This is a funny dog. Weird toes. Won't come do...  
 1973 This is an Albanian 3 1/2 legged Episcopalian...  
 1974 Can take selfies 11/10 <https://t.co/ws2AMaWpPW>  
 1975 Very concerned about fellow dog trapped in com...  
 1976 Not familiar with this breed. No tail (weird)...  
 1977 Oh my. Here you are seeing an Adobe Setter giv...  
 1978 Can stand on stump for what seems like a while...  
 1979 This appears to be a Mongolian Presbyterian mi...  
 1980 Here we have a well-established sunblockerspan...  
 1981 Let's hope this flight isn't Malaysian (lol). ...  
 1982 Here we have a northern speckled Rhododendron...  
 1983 This is the happiest dog you will ever see. Ve...  
 1984 Here is the Rand Paul of retrievers folks! He'...  
 1985 My oh my. This is a rare blond Canadian terrie...  
 1986 Here is a Siberian heavily armored polar bear ...  
 1987 This is an odd dog. Hard on the outside but lo...  
 1988 This is a truly beautiful English Wilson Staff...  
 1989 Here we have a 1949 1st generation vulpix. Enj...  
 1990 This is a purebred Piers Morgan. Loves to Netf...  
 1991 Here is a very happy pup. Big fan of well-main...  
 1992 This is a western brown Mitsubishi terrier. Up...  
 1993 Here we have a Japanese Irish Setter. Lost eye...

	expanded_urls	rating_numerator \
0	<a href="https://twitter.com/dog_rates/status/892420643...">https://twitter.com/dog_rates/status/892420643...</a>	13
1	<a href="https://twitter.com/dog_rates/status/892177421...">https://twitter.com/dog_rates/status/892177421...</a>	13
2	<a href="https://twitter.com/dog_rates/status/891815181...">https://twitter.com/dog_rates/status/891815181...</a>	12
3	<a href="https://twitter.com/dog_rates/status/891689557...">https://twitter.com/dog_rates/status/891689557...</a>	13
4	<a href="https://twitter.com/dog_rates/status/891327558...">https://twitter.com/dog_rates/status/891327558...</a>	12
5	<a href="https://twitter.com/dog_rates/status/891087950...">https://twitter.com/dog_rates/status/891087950...</a>	13
6	<a href="https://gofundme.com/ydvmve-surgery-for-jax,ht...">https://gofundme.com/ydvmve-surgery-for-jax,ht...</a>	13
7	<a href="https://twitter.com/dog_rates/status/890729181...">https://twitter.com/dog_rates/status/890729181...</a>	13
8	<a href="https://twitter.com/dog_rates/status/890609185...">https://twitter.com/dog_rates/status/890609185...</a>	13
9	<a href="https://twitter.com/dog_rates/status/890240255...">https://twitter.com/dog_rates/status/890240255...</a>	14
10	<a href="https://twitter.com/dog_rates/status/890006608...">https://twitter.com/dog_rates/status/890006608...</a>	13
11	<a href="https://twitter.com/dog_rates/status/889880896...">https://twitter.com/dog_rates/status/889880896...</a>	13
12	<a href="https://twitter.com/dog_rates/status/889665388...">https://twitter.com/dog_rates/status/889665388...</a>	13
13	<a href="https://twitter.com/dog_rates/status/889638837...">https://twitter.com/dog_rates/status/889638837...</a>	12
14	<a href="https://twitter.com/dog_rates/status/889531135...">https://twitter.com/dog_rates/status/889531135...</a>	13
15	<a href="https://twitter.com/dog_rates/status/889278841...">https://twitter.com/dog_rates/status/889278841...</a>	13
16	<a href="https://twitter.com/dog_rates/status/888917238...">https://twitter.com/dog_rates/status/888917238...</a>	12
17	<a href="https://twitter.com/dog_rates/status/888804989...">https://twitter.com/dog_rates/status/888804989...</a>	13
18	<a href="https://twitter.com/dog_rates/status/888554962...">https://twitter.com/dog_rates/status/888554962...</a>	13

19	<a href="https://twitter.com/dog_rates/status/888078434...">https://twitter.com/dog_rates/status/888078434...</a>	12
20	<a href="https://twitter.com/dog_rates/status/887705289...">https://twitter.com/dog_rates/status/887705289...</a>	13
21	<a href="https://twitter.com/dog_rates/status/887517139...">https://twitter.com/dog_rates/status/887517139...</a>	14
22	<a href="https://twitter.com/dog_rates/status/887473957...">https://twitter.com/dog_rates/status/887473957...</a>	13
23	<a href="https://twitter.com/dog_rates/status/887343217...">https://twitter.com/dog_rates/status/887343217...</a>	13
24	<a href="https://twitter.com/dog_rates/status/887101392...">https://twitter.com/dog_rates/status/887101392...</a>	12
25	<a href="https://twitter.com/dog_rates/status/886983233...">https://twitter.com/dog_rates/status/886983233...</a>	13
26	<a href="https://www.gofundme.com/mingusneedsus">https://www.gofundme.com/mingusneedsus</a> , <a href="https://...">https://...</a>	13
27	<a href="https://twitter.com/dog_rates/status/886680336...">https://twitter.com/dog_rates/status/886680336...</a>	13
28	<a href="https://twitter.com/dog_rates/status/886366144...">https://twitter.com/dog_rates/status/886366144...</a>	12
29	<a href="https://twitter.com/dog_rates/status/886258384...">https://twitter.com/dog_rates/status/886258384...</a>	13
...	...	...
1964	<a href="https://twitter.com/dog_rates/status/666411507...">https://twitter.com/dog_rates/status/666411507...</a>	2
1965	<a href="https://twitter.com/dog_rates/status/666407126...">https://twitter.com/dog_rates/status/666407126...</a>	7
1966	<a href="https://twitter.com/dog_rates/status/666396247...">https://twitter.com/dog_rates/status/666396247...</a>	9
1967	<a href="https://twitter.com/dog_rates/status/666373753...">https://twitter.com/dog_rates/status/666373753...</a>	11
1968	<a href="https://twitter.com/dog_rates/status/666362758...">https://twitter.com/dog_rates/status/666362758...</a>	6
1969	<a href="https://twitter.com/dog_rates/status/666353288...">https://twitter.com/dog_rates/status/666353288...</a>	8
1970	<a href="https://twitter.com/dog_rates/status/666345417...">https://twitter.com/dog_rates/status/666345417...</a>	10
1971	<a href="https://twitter.com/dog_rates/status/666337882...">https://twitter.com/dog_rates/status/666337882...</a>	9
1972	<a href="https://twitter.com/dog_rates/status/666293911...">https://twitter.com/dog_rates/status/666293911...</a>	3
1973	<a href="https://twitter.com/dog_rates/status/666287406...">https://twitter.com/dog_rates/status/666287406...</a>	1
1974	<a href="https://twitter.com/dog_rates/status/666273097...">https://twitter.com/dog_rates/status/666273097...</a>	11
1975	<a href="https://twitter.com/dog_rates/status/666268910...">https://twitter.com/dog_rates/status/666268910...</a>	10
1976	<a href="https://twitter.com/dog_rates/status/666104133...">https://twitter.com/dog_rates/status/666104133...</a>	1
1977	<a href="https://twitter.com/dog_rates/status/666102155...">https://twitter.com/dog_rates/status/666102155...</a>	11
1978	<a href="https://twitter.com/dog_rates/status/666099513...">https://twitter.com/dog_rates/status/666099513...</a>	8
1979	<a href="https://twitter.com/dog_rates/status/666094000...">https://twitter.com/dog_rates/status/666094000...</a>	9
1980	<a href="https://twitter.com/dog_rates/status/666082916...">https://twitter.com/dog_rates/status/666082916...</a>	6
1981	<a href="https://twitter.com/dog_rates/status/666073100...">https://twitter.com/dog_rates/status/666073100...</a>	10
1982	<a href="https://twitter.com/dog_rates/status/666071193...">https://twitter.com/dog_rates/status/666071193...</a>	9
1983	<a href="https://twitter.com/dog_rates/status/666063827...">https://twitter.com/dog_rates/status/666063827...</a>	10
1984	<a href="https://twitter.com/dog_rates/status/666058600...">https://twitter.com/dog_rates/status/666058600...</a>	8
1985	<a href="https://twitter.com/dog_rates/status/666057090...">https://twitter.com/dog_rates/status/666057090...</a>	9
1986	<a href="https://twitter.com/dog_rates/status/666055525...">https://twitter.com/dog_rates/status/666055525...</a>	10
1987	<a href="https://twitter.com/dog_rates/status/666051853...">https://twitter.com/dog_rates/status/666051853...</a>	2
1988	<a href="https://twitter.com/dog_rates/status/666050758...">https://twitter.com/dog_rates/status/666050758...</a>	10
1989	<a href="https://twitter.com/dog_rates/status/666049248...">https://twitter.com/dog_rates/status/666049248...</a>	5
1990	<a href="https://twitter.com/dog_rates/status/666044226...">https://twitter.com/dog_rates/status/666044226...</a>	6
1991	<a href="https://twitter.com/dog_rates/status/666033412...">https://twitter.com/dog_rates/status/666033412...</a>	9
1992	<a href="https://twitter.com/dog_rates/status/666029285...">https://twitter.com/dog_rates/status/666029285...</a>	7
1993	<a href="https://twitter.com/dog_rates/status/666020888...">https://twitter.com/dog_rates/status/666020888...</a>	8

	rating_denominator	big	fluffy	small	adolescent	\
0	10	None	None	None	None	
1	10	None	None	None	None	
2	10	None	None	None	None	
3	10	None	None	None	None	

4	10	None	None	None	None
5	10	None	None	None	None
6	10	None	None	None	None
7	10	None	None	None	None
8	10	None	None	None	None
9	10	big	None	None	None
10	10	None	None	None	None
11	10	None	None	None	None
12	10	None	None	None	adolescent
13	10	None	None	None	None
14	10	None	None	None	adolescent
15	10	None	None	None	None
16	10	None	None	None	None
17	10	None	None	None	None
18	10	None	None	None	None
19	10	None	None	None	None
20	10	None	None	None	None
21	10	None	None	None	None
22	10	None	None	None	None
23	10	None	None	None	None
24	10	None	None	None	None
25	10	None	None	None	None
26	10	None	None	None	None
27	10	None	None	None	None
28	10	None	None	small	None
29	10	None	None	None	None
...	...	...	...	...	...
1964	10	None	None	None	None
1965	10	None	None	None	None
1966	10	None	None	None	None
1967	10	None	None	None	None
1968	10	None	None	None	None
1969	10	None	None	None	None
1970	10	None	None	None	None
1971	10	None	None	None	None
1972	10	None	None	None	None
1973	10	None	None	None	None
1974	10	None	None	None	None
1975	10	None	None	None	None
1976	10	None	None	None	None
1977	10	None	None	None	None
1978	10	None	None	None	None
1979	10	None	None	None	None
1980	10	None	None	None	None
1981	10	None	None	None	None
1982	10	None	None	None	None
1983	10	None	None	None	None
1984	10	None	None	None	None

1985	10	None	None	None	None
1986	10	None	None	None	None
1987	10	None	None	None	None
1988	10	None	None	None	None
1989	10	None	None	None	None
1990	10	None	None	None	None
1991	10	None	None	None	None
1992	10	None	None	None	None
1993	10	None	None	None	None

	jpg_url	img_num	\
0	<a href="https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg">https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg</a>	1	
1	<a href="https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg">https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg</a>	1	
2	<a href="https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg">https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg</a>	1	
3	<a href="https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg">https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg</a>	1	
4	<a href="https://pbs.twimg.com/media/DF6hr6BUMAAZgT.jpg">https://pbs.twimg.com/media/DF6hr6BUMAAZgT.jpg</a>	2	
5	<a href="https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg">https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg</a>	1	
6	<a href="https://pbs.twimg.com/media/DF1eOmZXUAAALUc.jpg">https://pbs.twimg.com/media/DF1eOmZXUAAALUc.jpg</a>	1	
7	<a href="https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg">https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg</a>	2	
8	<a href="https://pbs.twimg.com/media/DFwUU_XcAEpyXI.jpg">https://pbs.twimg.com/media/DFwUU_XcAEpyXI.jpg</a>	1	
9	<a href="https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg">https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg</a>	1	
10	<a href="https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg">https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg</a>	1	
11	<a href="https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg">https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg</a>	1	
12	<a href="https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg">https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg</a>	1	
13	<a href="https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg">https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg</a>	1	
14	<a href="https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg">https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg</a>	1	
15	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88927...">https://pbs.twimg.com/ext_tw_video_thumb/88927...</a>	1	
16	<a href="https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg">https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg</a>	1	
17	<a href="https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg">https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg</a>	1	
18	<a href="https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg">https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg</a>	3	
19	<a href="https://pbs.twimg.com/media/DFMWn56WsAAKA7B.jpg">https://pbs.twimg.com/media/DFMWn56WsAAKA7B.jpg</a>	1	
20	<a href="https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg">https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg</a>	1	
21	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88751...">https://pbs.twimg.com/ext_tw_video_thumb/88751...</a>	1	
22	<a href="https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg">https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg</a>	2	
23	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88734...">https://pbs.twimg.com/ext_tw_video_thumb/88734...</a>	1	
24	<a href="https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg">https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg</a>	1	
25	<a href="https://pbs.twimg.com/media/DE8yicJW0AAAavBJ.jpg">https://pbs.twimg.com/media/DE8yicJW0AAAavBJ.jpg</a>	2	
26	<a href="https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg">https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg</a>	1	
27	<a href="https://pbs.twimg.com/media/DE4fEDzWAAAyHMM.jpg">https://pbs.twimg.com/media/DE4fEDzWAAAyHMM.jpg</a>	1	
28	<a href="https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg">https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg</a>	1	
29	<a href="https://pbs.twimg.com/media/DEyfTG4UMAE4aE9.jpg">https://pbs.twimg.com/media/DEyfTG4UMAE4aE9.jpg</a>	1	
...	...	...	
1964	<a href="https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg">https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg</a>	1	
1965	<a href="https://pbs.twimg.com/media/CT-NvwmW4AAUGZ.jpg">https://pbs.twimg.com/media/CT-NvwmW4AAUGZ.jpg</a>	1	
1966	<a href="https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg">https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg</a>	1	
1967	<a href="https://pbs.twimg.com/media/CT9vZEYWUAA1Z05.jpg">https://pbs.twimg.com/media/CT9vZEYWUAA1Z05.jpg</a>	1	
1968	<a href="https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg">https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg</a>	1	
1969	<a href="https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg">https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg</a>	1	

1970	<a href="https://pbs.twimg.com/media/CT9Vn7PW0AA_ZCM.jpg">https://pbs.twimg.com/media/CT9Vn7PW0AA_ZCM.jpg</a>	1
1971	<a href="https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg">https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg</a>	1
1972	<a href="https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg">https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg</a>	1
1973	<a href="https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg">https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg</a>	1
1974	<a href="https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg">https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg</a>	1
1975	<a href="https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg">https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg</a>	1
1976	<a href="https://pbs.twimg.com/media/CT56LSZW0AA1Jj2.jpg">https://pbs.twimg.com/media/CT56LSZW0AA1Jj2.jpg</a>	1
1977	<a href="https://pbs.twimg.com/media/CT54YGiwUAEZnoK.jpg">https://pbs.twimg.com/media/CT54YGiwUAEZnoK.jpg</a>	1
1978	<a href="https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg">https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg</a>	1
1979	<a href="https://pbs.twimg.com/media/CT5w9gUW4AAAsBNN.jpg">https://pbs.twimg.com/media/CT5w9gUW4AAAsBNN.jpg</a>	1
1980	<a href="https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg">https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg</a>	1
1981	<a href="https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg">https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg</a>	1
1982	<a href="https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg">https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg</a>	1
1983	<a href="https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg">https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg</a>	1
1984	<a href="https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg">https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg</a>	1
1985	<a href="https://pbs.twimg.com/media/CT5PY90W0AAQGLo.jpg">https://pbs.twimg.com/media/CT5PY90W0AAQGLo.jpg</a>	1
1986	<a href="https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg">https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg</a>	1
1987	<a href="https://pbs.twimg.com/media/CT5KoJ1W0AAJash.jpg">https://pbs.twimg.com/media/CT5KoJ1W0AAJash.jpg</a>	1
1988	<a href="https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg">https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg</a>	1
1989	<a href="https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg">https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg</a>	1
1990	<a href="https://pbs.twimg.com/media/CT5Dr8HUEAA-lEu.jpg">https://pbs.twimg.com/media/CT5Dr8HUEAA-lEu.jpg</a>	1
1991	<a href="https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg">https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg</a>	1
1992	<a href="https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg">https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg</a>	1
1993	<a href="https://pbs.twimg.com/media/CT4udn0WwAA0aMy.jpg">https://pbs.twimg.com/media/CT4udn0WwAA0aMy.jpg</a>	1

	p1	p1_conf	p1_dog	retweet_count	\
0	orange	0.097049	False	8853	
1	Chihuahua	0.323581	True	6514	
2	Chihuahua	0.716012	True	4328	
3	paper_towel	0.170278	False	8964	
4	basset	0.555712	True	9774	
5	Chesapeake_Bay_retriever	0.425595	True	3261	
6	Appenzeller	0.341703	True	2158	
7	Pomeranian	0.566142	True	16716	
8	Irish_terrier	0.487574	True	4429	
9	Pembroke	0.511319	True	7711	
10	Samoyed	0.957979	True	7624	
11	French_bulldog	0.377417	True	5156	
12	Pembroke	0.966327	True	8538	
13	French_bulldog	0.991650	True	4735	
14	golden_retriever	0.953442	True	2321	
15	whippet	0.626152	True	5637	
16	golden_retriever	0.714719	True	4709	
17	golden_retriever	0.469760	True	4559	
18	Siberian_husky	0.700377	True	3732	
19	French_bulldog	0.995026	True	3653	
20	basset	0.821664	True	5609	
21	limousine	0.130432	False	12082	

22	Pembroke	0.809197	True	18781
23	Mexican_hairless	0.330741	True	10737
24	Samoyed	0.733942	True	6167
25	Chihuahua	0.793469	True	8084
26	kuvasz	0.309706	True	3443
27	convertible	0.738995	False	4610
28	French_bulldog	0.999201	True	3316
29	pug	0.943575	True	6523
...	...	...	...	...
1964	coho	0.404640	False	339
1965	black-and-tan_coonhound	0.529139	True	44
1966	Chihuahua	0.978108	True	92
1967	soft-coated_wheaten_terrier	0.326467	True	100
1968	guinea_pig	0.996496	False	595
1969	malamute	0.336874	True	77
1970	golden_retriever	0.858744	True	146
1971	ox	0.416669	False	96
1972	three-toed_sloth	0.914671	False	368
1973	Maltese_dog	0.857531	True	71
1974	Italian_greyhound	0.176053	True	82
1975	desktop_computer	0.086502	False	37
1976	hen	0.965932	False	6871
1977	English_setter	0.298617	True	16
1978	Lhasa	0.582330	True	73
1979	bloodhound	0.195217	True	79
1980	pug	0.489814	True	47
1981	Walker_hound	0.260857	True	174
1982	Gordon_setter	0.503672	True	67
1983	golden_retriever	0.775930	True	232
1984	miniature_poodle	0.201493	True	61
1985	shopping_cart	0.962465	False	146
1986	chow	0.692517	True	261
1987	box_turtle	0.933012	False	879
1988	Bernese_mountain_dog	0.651137	True	60
1989	miniature_pinscher	0.560311	True	41
1990	Rhodesian_ridgeback	0.408143	True	147
1991	German_shepherd	0.596461	True	47
1992	redbone	0.506826	True	48
1993	Welsh_springer_spaniel	0.465074	True	532

	favorite_count	created_at \
0	39467	Tue Aug 01 16:23:56 +0000 2017
1	33819	Tue Aug 01 00:17:27 +0000 2017
2	25461	Mon Jul 31 00:18:03 +0000 2017
3	42908	Sun Jul 30 15:58:51 +0000 2017
4	41048	Sat Jul 29 16:00:24 +0000 2017
5	20562	Sat Jul 29 00:08:17 +0000 2017
6	12041	Fri Jul 28 16:27:12 +0000 2017

7	56848	Fri	Jul	28	00:22:40	+0000	2017
8	28226	Thu	Jul	27	16:25:51	+0000	2017
9	32467	Wed	Jul	26	15:59:51	+0000	2017
10	31166	Wed	Jul	26	00:31:25	+0000	2017
11	28268	Tue	Jul	25	16:11:53	+0000	2017
12	38818	Tue	Jul	25	01:55:32	+0000	2017
13	27672	Tue	Jul	25	00:10:02	+0000	2017
14	15359	Mon	Jul	24	17:02:04	+0000	2017
15	25652	Mon	Jul	24	00:19:32	+0000	2017
16	29611	Sun	Jul	23	00:22:39	+0000	2017
17	26080	Sat	Jul	22	16:56:37	+0000	2017
18	20290	Sat	Jul	22	00:23:06	+0000	2017
19	22201	Thu	Jul	20	16:49:33	+0000	2017
20	30779	Wed	Jul	19	16:06:48	+0000	2017
21	46959	Wed	Jul	19	03:39:09	+0000	2017
22	69871	Wed	Jul	19	00:47:34	+0000	2017
23	34222	Tue	Jul	18	16:08:03	+0000	2017
24	31061	Tue	Jul	18	00:07:08	+0000	2017
25	35859	Mon	Jul	17	16:17:36	+0000	2017
26	12306	Sun	Jul	16	23:58:41	+0000	2017
27	22798	Sun	Jul	16	20:14:00	+0000	2017
28	21524	Sat	Jul	15	23:25:31	+0000	2017
29	28469	Sat	Jul	15	16:17:19	+0000	2017
...	...						...
1964	459	Tue	Nov	17	00:24:19	+0000	2015
1965	113	Tue	Nov	17	00:06:54	+0000	2015
1966	172	Mon	Nov	16	23:23:41	+0000	2015
1967	194	Mon	Nov	16	21:54:18	+0000	2015
1968	804	Mon	Nov	16	21:10:36	+0000	2015
1969	229	Mon	Nov	16	20:32:58	+0000	2015
1970	307	Mon	Nov	16	20:01:42	+0000	2015
1971	204	Mon	Nov	16	19:31:45	+0000	2015
1972	522	Mon	Nov	16	16:37:02	+0000	2015
1973	152	Mon	Nov	16	16:11:11	+0000	2015
1974	184	Mon	Nov	16	15:14:19	+0000	2015
1975	108	Mon	Nov	16	14:57:41	+0000	2015
1976	14765	Mon	Nov	16	04:02:55	+0000	2015
1977	81	Mon	Nov	16	03:55:04	+0000	2015
1978	164	Mon	Nov	16	03:44:34	+0000	2015
1979	169	Mon	Nov	16	03:22:39	+0000	2015
1980	121	Mon	Nov	16	02:38:37	+0000	2015
1981	335	Mon	Nov	16	01:59:36	+0000	2015
1982	154	Mon	Nov	16	01:52:02	+0000	2015
1983	496	Mon	Nov	16	01:22:45	+0000	2015
1984	115	Mon	Nov	16	01:01:59	+0000	2015
1985	304	Mon	Nov	16	00:55:59	+0000	2015
1986	448	Mon	Nov	16	00:49:46	+0000	2015
1987	1253	Mon	Nov	16	00:35:11	+0000	2015

1988	136	Mon Nov 16 00:30:50 +0000 2015
1989	111	Mon Nov 16 00:24:50 +0000 2015
1990	311	Mon Nov 16 00:04:52 +0000 2015
1991	128	Sun Nov 15 23:21:54 +0000 2015
1992	132	Sun Nov 15 23:05:30 +0000 2015
1993	2535	Sun Nov 15 22:32:08 +0000 2015

# full\_text

0 This is Phineas. He's a mystical boy. Only eve...

1 This is Tilly. She's just checking pup on you...

2 This is Archie. He is a rare Norwegian Pouncin...

3 This is Darla. She commenced a snooze mid meal...

4 This is Franklin. He would like you to stop ca...

5 Here we have a majestic great white breaching ...

6 Meet Jax. He enjoys ice cream so much he gets ...

7 When you watch your owner call another dog a g...

8 This is Zoey. She doesn't want to be one of th...

9 This is Cassie. She is a college pup. Studying...

10 This is Koda. He is a South Australian decksha...

11 This is Bruno. He is a service shark. Only get...

12 Here's a puppo that seems to be on the fence a...

13 This is Ted. He does his best. Sometimes that'...

14 This is Stuart. He's sporting his favorite fan...

15 This is Oliver. You're witnessing one of his m...

16 This is Jim. He found a fren. Taught him how t...

17 This is Zeke. He has a new stick. Very proud o...

18 This is Ralphus. He's powering up. Attempting ...

19 This is Gerald. He was just told he didn't get...

20 This is Jeffrey. He has a monopoly on the pool...

21 I've yet to rate a Venezuelan Hover Wiener. Th...

22 This is Canela. She attempted some fancy porch...

23 You may not have known you needed to see this ...

24 This... is a Jubilant Antarctic House Bear. We...

25 This is Maya. She's very shy. Rarely leaves he...

26 This is Mingus. He's a wonderful father to his...

27 This is Derek. He's late for a dog meeting. 13...

28 This is Roscoe. Another pupper fallen victim t...

29 This is Waffles. His doggles are pupside down...

...

1964 This is quite the dog. Gets really excited whe...

1965 This is a southern Vesuvius bumblegruff. Can d...

1966 Oh goodness. A super rare northeast Qdoba kang...

1967 Those are sunglasses and a jean jacket. 11/10 ...

1968 Unique dog here. Very small. Lives in containe...

1969 Here we have a mixed Asiago from the Galápagos...

1970 Look at this jokester thinking seat belt laws ...

1971 This is an extremely rare horned Parthenon. No...

1972 This is a funny dog. Weird toes. Won't come do...



```

1973 This is an Albanian 3 1/2 legged Episcopalian...
1974 Can take selfies 11/10 https://t.co/ws2AMaNwPW
1975 Very concerned about fellow dog trapped in com...
1976 Not familiar with this breed. No tail (weird)...
1977 Oh my. Here you are seeing an Adobe Setter giv...
1978 Can stand on stump for what seems like a while...
1979 This appears to be a Mongolian Presbyterian mi...
1980 Here we have a well-established sunblockerspan...
1981 Let's hope this flight isn't Malaysian (lol). ...
1982 Here we have a northern speckled Rhododendron...
1983 This is the happiest dog you will ever see. Ve...
1984 Here is the Rand Paul of retrievers folks! He'...
1985 My oh my. This is a rare blond Canadian terrie...
1986 Here is a Siberian heavily armored polar bear ...
1987 This is an odd dog. Hard on the outside but lo...
1988 This is a truly beautiful English Wilson Staff...
1989 Here we have a 1949 1st generation vulpix. Enj...
1990 This is a purebred Piers Morgan. Loves to Netf...
1991 Here is a very happy pup. Big fan of well-main...
1992 This is a western brown Mitsubishi terrier. Up...
1993 Here we have a Japanese Irish Setter. Lost eye...

```

[1994 rows x 20 columns]

### 1.3.10 Issue #10: Combine the dog stage columns into one

**Define:** According to the rules of tidiness, the dog stage is one variable and hence should form single column.

#### Code

```
In [39]: # First replace None in stage columns with empty string as follows.
```

```

merged_df.big.replace('None', '', inplace=True)
merged_df.small.replace('None', '', inplace=True)
merged_df.fluffy.replace('None', '', inplace=True)
merged_df.adolescent.replace('None', '', inplace=True)

```

```
# Then combine stage columns.
```

```
merged_df['stage'] = merged_df.big + merged_df.small + merged_df.fluffy + merged_df.adolescent
```

```

merged_df.loc[merged_df.stage == 'bigsmall', 'stage'] = 'big, small'
merged_df.loc[merged_df.stage == 'bigfluffy', 'stage'] = 'big, fluffy'
merged_df.loc[merged_df.stage == 'bigadolescent', 'stage'] = 'big, adolescent'

```

#### Test

```
In [40]: merged_df.stage.value_counts()
```

```
Out[40]:
```

	1688
small	203
big	63
adolescent	22
big, small	9
fluffy	7
big, adolescent	1
big, fluffy	1

Name: stage, dtype: int64

### 1.3.11 Issue #11: Remove duplicate columns in merged df

**Define:** Dropping columns `full_text`, `img_num`, `created_at`, `big`, `small`, `adolescent`, and `fluffy` so we don't have duplicate or unnecessary data.

#### Code

```
In [41]: columns_to_drop2 = ['full_text', 'img_num', 'created_at', 'big', 'small', 'fluffy', 'ad']
merged_df = merged_df.drop(columns=columns_to_drop2)
```

#### Test

```
In [43]: merged_df
```

```
Out[43]:
```

	tweet_id	in_reply_to_user_id	timestamp \
0	892420643555336193	NaN	2017-08-01 16:23:56
1	892177421306343426	NaN	2017-08-01 00:17:27
2	891815181378084864	NaN	2017-07-31 00:18:03
3	891689557279858688	NaN	2017-07-30 15:58:51
4	891327558926688256	NaN	2017-07-29 16:00:24
5	891087950875897856	NaN	2017-07-29 00:08:17
6	890971913173991426	NaN	2017-07-28 16:27:12
7	890729181411237888	NaN	2017-07-28 00:22:40
8	890609185150312448	NaN	2017-07-27 16:25:51
9	890240255349198849	NaN	2017-07-26 15:59:51
10	890006608113172480	NaN	2017-07-26 00:31:25
11	889880896479866881	NaN	2017-07-25 16:11:53
12	889665388333682689	NaN	2017-07-25 01:55:32
13	889638837579907072	NaN	2017-07-25 00:10:02
14	889531135344209921	NaN	2017-07-24 17:02:04
15	889278841981685760	NaN	2017-07-24 00:19:32
16	888917238123831296	NaN	2017-07-23 00:22:39
17	888804989199671297	NaN	2017-07-22 16:56:37
18	888554962724278272	NaN	2017-07-22 00:23:06
19	888078434458587136	NaN	2017-07-20 16:49:33
20	887705289381826560	NaN	2017-07-19 16:06:48
21	887517139158093824	NaN	2017-07-19 03:39:09
22	887473957103951883	NaN	2017-07-19 00:47:34

23	887343217045368832	NaN	2017-07-18	16:08:03
24	887101392804085760	NaN	2017-07-18	00:07:08
25	886983233522544640	NaN	2017-07-17	16:17:36
26	886736880519319552	NaN	2017-07-16	23:58:41
27	886680336477933568	NaN	2017-07-16	20:14:00
28	886366144734445568	NaN	2017-07-15	23:25:31
29	886258384151887873	NaN	2017-07-15	16:17:19
...	...	...	...	...
1964	666411507551481857	NaN	2015-11-17	00:24:19
1965	666407126856765440	NaN	2015-11-17	00:06:54
1966	666396247373291520	NaN	2015-11-16	23:23:41
1967	666373753744588802	NaN	2015-11-16	21:54:18
1968	666362758909284353	NaN	2015-11-16	21:10:36
1969	666353288456101888	NaN	2015-11-16	20:32:58
1970	666345417576210432	NaN	2015-11-16	20:01:42
1971	666337882303524864	NaN	2015-11-16	19:31:45
1972	666293911632134144	NaN	2015-11-16	16:37:02
1973	666287406224695296	NaN	2015-11-16	16:11:11
1974	666273097616637952	NaN	2015-11-16	15:14:19
1975	666268910803644416	NaN	2015-11-16	14:57:41
1976	666104133288665088	NaN	2015-11-16	04:02:55
1977	666102155909144576	NaN	2015-11-16	03:55:04
1978	666099513787052032	NaN	2015-11-16	03:44:34
1979	666094000022159362	NaN	2015-11-16	03:22:39
1980	666082916733198337	NaN	2015-11-16	02:38:37
1981	666073100786774016	NaN	2015-11-16	01:59:36
1982	666071193221509120	NaN	2015-11-16	01:52:02
1983	666063827256086533	NaN	2015-11-16	01:22:45
1984	666058600524156928	NaN	2015-11-16	01:01:59
1985	666057090499244032	NaN	2015-11-16	00:55:59
1986	666055525042405380	NaN	2015-11-16	00:49:46
1987	666051853826850816	NaN	2015-11-16	00:35:11
1988	666050758794694657	NaN	2015-11-16	00:30:50
1989	666049248165822465	NaN	2015-11-16	00:24:50
1990	666044226329800704	NaN	2015-11-16	00:04:52
1991	666033412701032449	NaN	2015-11-15	23:21:54
1992	666029285002620928	NaN	2015-11-15	23:05:30
1993	666020888022790149	NaN	2015-11-15	22:32:08

	text \
0	This is Phineas. He's a mystical boy. Only eve...
1	This is Tilly. She's just checking pup on you...
2	This is Archie. He is a rare Norwegian Pouncin...
3	This is Darla. She commenced a snooze mid meal...
4	This is Franklin. He would like you to stop ca...
5	Here we have a majestic great white breaching ...
6	Meet Jax. He enjoys ice cream so much he gets ...
7	When you watch your owner call another dog a g...

8 This is Zoey. She doesn't want to be one of th...  
 9 This is Cassie. She is a college pup. Studying...  
 10 This is Koda. He is a South Australian decksha...  
 11 This is Bruno. He is a service shark. Only get...  
 12 Here's a puppo that seems to be on the fence a...  
 13 This is Ted. He does his best. Sometimes that'...  
 14 This is Stuart. He's sporting his favorite fan...  
 15 This is Oliver. You're witnessing one of his m...  
 16 This is Jim. He found a fren. Taught him how t...  
 17 This is Zeke. He has a new stick. Very proud o...  
 18 This is Ralphus. He's powering up. Attempting ...  
 19 This is Gerald. He was just told he didn't get...  
 20 This is Jeffrey. He has a monopoly on the pool...  
 21 I've yet to rate a Venezuelan Hover Wiener. Th...  
 22 This is Canela. She attempted some fancy porch...  
 23 You may not have known you needed to see this ...  
 24 This... is a Jubilant Antarctic House Bear. We...  
 25 This is Maya. She's very shy. Rarely leaves he...  
 26 This is Mingus. He's a wonderful father to his...  
 27 This is Derek. He's late for a dog meeting. 13...  
 28 This is Roscoe. Another pupper fallen victim t...  
 29 This is Waffles. His doggles are pupside down...  
 ...  
 1964 This is quite the dog. Gets really excited whe...  
 1965 This is a southern Vesuvius bumblegruff. Can d...  
 1966 Oh goodness. A super rare northeast Qdoba kang...  
 1967 Those are sunglasses and a jean jacket. 11/10 ...  
 1968 Unique dog here. Very small. Lives in containe...  
 1969 Here we have a mixed Asiago from the Galápagos...  
 1970 Look at this jokester thinking seat belt laws ...  
 1971 This is an extremely rare horned Parthenon. No...  
 1972 This is a funny dog. Weird toes. Won't come do...  
 1973 This is an Albanian 3 1/2 legged Episcopalian...  
 1974 Can take selfies 11/10 <https://t.co/ws2AMaWpPW>  
 1975 Very concerned about fellow dog trapped in com...  
 1976 Not familiar with this breed. No tail (weird)...  
 1977 Oh my. Here you are seeing an Adobe Setter giv...  
 1978 Can stand on stump for what seems like a while...  
 1979 This appears to be a Mongolian Presbyterian mi...  
 1980 Here we have a well-established sunblockerspan...  
 1981 Let's hope this flight isn't Malaysian (lol). ...  
 1982 Here we have a northern speckled Rhododendron...  
 1983 This is the happiest dog you will ever see. Ve...  
 1984 Here is the Rand Paul of retrievers folks! He'...  
 1985 My oh my. This is a rare blond Canadian terrie...  
 1986 Here is a Siberian heavily armored polar bear ...  
 1987 This is an odd dog. Hard on the outside but lo...  
 1988 This is a truly beautiful English Wilson Staff...

1989 Here we have a 1949 1st generation vulpix. Enj...  
 1990 This is a purebred Piers Morgan. Loves to Netf...  
 1991 Here is a very happy pup. Big fan of well-main...  
 1992 This is a western brown Mitsubishi terrier. Up...  
 1993 Here we have a Japanese Irish Setter. Lost eye...

	expanded_urls	rating_numerator \
0	https://twitter.com/dog_rates/status/892420643...	13
1	https://twitter.com/dog_rates/status/892177421...	13
2	https://twitter.com/dog_rates/status/891815181...	12
3	https://twitter.com/dog_rates/status/891689557...	13
4	https://twitter.com/dog_rates/status/891327558...	12
5	https://twitter.com/dog_rates/status/891087950...	13
6	https://gofundme.com/ydvmve-surgery-for-jax,ht...	13
7	https://twitter.com/dog_rates/status/890729181...	13
8	https://twitter.com/dog_rates/status/890609185...	13
9	https://twitter.com/dog_rates/status/890240255...	14
10	https://twitter.com/dog_rates/status/890006608...	13
11	https://twitter.com/dog_rates/status/889880896...	13
12	https://twitter.com/dog_rates/status/889665388...	13
13	https://twitter.com/dog_rates/status/889638837...	12
14	https://twitter.com/dog_rates/status/889531135...	13
15	https://twitter.com/dog_rates/status/889278841...	13
16	https://twitter.com/dog_rates/status/888917238...	12
17	https://twitter.com/dog_rates/status/888804989...	13
18	https://twitter.com/dog_rates/status/888554962...	13
19	https://twitter.com/dog_rates/status/888078434...	12
20	https://twitter.com/dog_rates/status/887705289...	13
21	https://twitter.com/dog_rates/status/887517139...	14
22	https://twitter.com/dog_rates/status/887473957...	13
23	https://twitter.com/dog_rates/status/887343217...	13
24	https://twitter.com/dog_rates/status/887101392...	12
25	https://twitter.com/dog_rates/status/886983233...	13
26	https://www.gofundme.com/mingusneedsus,https://...	13
27	https://twitter.com/dog_rates/status/886680336...	13
28	https://twitter.com/dog_rates/status/886366144...	12
29	https://twitter.com/dog_rates/status/886258384...	13
...	...	...
1964	https://twitter.com/dog_rates/status/666411507...	2
1965	https://twitter.com/dog_rates/status/666407126...	7
1966	https://twitter.com/dog_rates/status/666396247...	9
1967	https://twitter.com/dog_rates/status/666373753...	11
1968	https://twitter.com/dog_rates/status/666362758...	6
1969	https://twitter.com/dog_rates/status/666353288...	8
1970	https://twitter.com/dog_rates/status/666345417...	10
1971	https://twitter.com/dog_rates/status/666337882...	9
1972	https://twitter.com/dog_rates/status/666293911...	3
1973	https://twitter.com/dog_rates/status/666287406...	1

1974	<a href="https://twitter.com/dog_rates/status/666273097...">https://twitter.com/dog_rates/status/666273097...</a>	11
1975	<a href="https://twitter.com/dog_rates/status/666268910...">https://twitter.com/dog_rates/status/666268910...</a>	10
1976	<a href="https://twitter.com/dog_rates/status/666104133...">https://twitter.com/dog_rates/status/666104133...</a>	1
1977	<a href="https://twitter.com/dog_rates/status/666102155...">https://twitter.com/dog_rates/status/666102155...</a>	11
1978	<a href="https://twitter.com/dog_rates/status/666099513...">https://twitter.com/dog_rates/status/666099513...</a>	8
1979	<a href="https://twitter.com/dog_rates/status/666094000...">https://twitter.com/dog_rates/status/666094000...</a>	9
1980	<a href="https://twitter.com/dog_rates/status/666082916...">https://twitter.com/dog_rates/status/666082916...</a>	6
1981	<a href="https://twitter.com/dog_rates/status/666073100...">https://twitter.com/dog_rates/status/666073100...</a>	10
1982	<a href="https://twitter.com/dog_rates/status/666071193...">https://twitter.com/dog_rates/status/666071193...</a>	9
1983	<a href="https://twitter.com/dog_rates/status/666063827...">https://twitter.com/dog_rates/status/666063827...</a>	10
1984	<a href="https://twitter.com/dog_rates/status/666058600...">https://twitter.com/dog_rates/status/666058600...</a>	8
1985	<a href="https://twitter.com/dog_rates/status/666057090...">https://twitter.com/dog_rates/status/666057090...</a>	9
1986	<a href="https://twitter.com/dog_rates/status/666055525...">https://twitter.com/dog_rates/status/666055525...</a>	10
1987	<a href="https://twitter.com/dog_rates/status/666051853...">https://twitter.com/dog_rates/status/666051853...</a>	2
1988	<a href="https://twitter.com/dog_rates/status/666050758...">https://twitter.com/dog_rates/status/666050758...</a>	10
1989	<a href="https://twitter.com/dog_rates/status/666049248...">https://twitter.com/dog_rates/status/666049248...</a>	5
1990	<a href="https://twitter.com/dog_rates/status/666044226...">https://twitter.com/dog_rates/status/666044226...</a>	6
1991	<a href="https://twitter.com/dog_rates/status/666033412...">https://twitter.com/dog_rates/status/666033412...</a>	9
1992	<a href="https://twitter.com/dog_rates/status/666029285...">https://twitter.com/dog_rates/status/666029285...</a>	7
1993	<a href="https://twitter.com/dog_rates/status/666020888...">https://twitter.com/dog_rates/status/666020888...</a>	8

	rating_denominator	jpg_url \
0	10	<a href="https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg">https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg</a>
1	10	<a href="https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg">https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg</a>
2	10	<a href="https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg">https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg</a>
3	10	<a href="https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg">https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg</a>
4	10	<a href="https://pbs.twimg.com/media/DF6hr6BUMAAzZgT.jpg">https://pbs.twimg.com/media/DF6hr6BUMAAzZgT.jpg</a>
5	10	<a href="https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg">https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg</a>
6	10	<a href="https://pbs.twimg.com/media/DF1eOmZXUAAALUc.jpg">https://pbs.twimg.com/media/DF1eOmZXUAAALUc.jpg</a>
7	10	<a href="https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg">https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg</a>
8	10	<a href="https://pbs.twimg.com/media/DFwUU__XcAEpyXI.jpg">https://pbs.twimg.com/media/DFwUU__XcAEpyXI.jpg</a>
9	10	<a href="https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg">https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg</a>
10	10	<a href="https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg">https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg</a>
11	10	<a href="https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg">https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg</a>
12	10	<a href="https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg">https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg</a>
13	10	<a href="https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg">https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg</a>
14	10	<a href="https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg">https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg</a>
15	10	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88927...">https://pbs.twimg.com/ext_tw_video_thumb/88927...</a>
16	10	<a href="https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg">https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg</a>
17	10	<a href="https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg">https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg</a>
18	10	<a href="https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg">https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg</a>
19	10	<a href="https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg">https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg</a>
20	10	<a href="https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg">https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg</a>
21	10	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88751...">https://pbs.twimg.com/ext_tw_video_thumb/88751...</a>
22	10	<a href="https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg">https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg</a>
23	10	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88734...">https://pbs.twimg.com/ext_tw_video_thumb/88734...</a>
24	10	<a href="https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg">https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg</a>
25	10	<a href="https://pbs.twimg.com/media/DE8yicJW0AAAavBJ.jpg">https://pbs.twimg.com/media/DE8yicJW0AAAavBJ.jpg</a>

26	10	<a href="https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg">https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg</a>
27	10	<a href="https://pbs.twimg.com/media/DE4fEDzWAAyHMM.jpg">https://pbs.twimg.com/media/DE4fEDzWAAyHMM.jpg</a>
28	10	<a href="https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg">https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg</a>
29	10	<a href="https://pbs.twimg.com/media/DEyfTG4UMAE4aE9.jpg">https://pbs.twimg.com/media/DEyfTG4UMAE4aE9.jpg</a>
...	...	...
1964	10	<a href="https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg">https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg</a>
1965	10	<a href="https://pbs.twimg.com/media/CT-NvwmW4AAAugGZ.jpg">https://pbs.twimg.com/media/CT-NvwmW4AAAugGZ.jpg</a>
1966	10	<a href="https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg">https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg</a>
1967	10	<a href="https://pbs.twimg.com/media/CT9vZEYUWAA1Z05.jpg">https://pbs.twimg.com/media/CT9vZEYUWAA1Z05.jpg</a>
1968	10	<a href="https://pbs.twimg.com/media/CT9lXGsUcAAyUfT.jpg">https://pbs.twimg.com/media/CT9lXGsUcAAyUfT.jpg</a>
1969	10	<a href="https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg">https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg</a>
1970	10	<a href="https://pbs.twimg.com/media/CT9Vn7PWAAA_ZCM.jpg">https://pbs.twimg.com/media/CT9Vn7PWAAA_ZCM.jpg</a>
1971	10	<a href="https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg">https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg</a>
1972	10	<a href="https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg">https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg</a>
1973	10	<a href="https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg">https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg</a>
1974	10	<a href="https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg">https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg</a>
1975	10	<a href="https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg">https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg</a>
1976	10	<a href="https://pbs.twimg.com/media/CT56LSZWAAA1Jj2.jpg">https://pbs.twimg.com/media/CT56LSZWAAA1Jj2.jpg</a>
1977	10	<a href="https://pbs.twimg.com/media/CT54YGiwUAEZnoK.jpg">https://pbs.twimg.com/media/CT54YGiwUAEZnoK.jpg</a>
1978	10	<a href="https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg">https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg</a>
1979	10	<a href="https://pbs.twimg.com/media/CT5w9gUW4AAsBNN.jpg">https://pbs.twimg.com/media/CT5w9gUW4AAsBNN.jpg</a>
1980	10	<a href="https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg">https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg</a>
1981	10	<a href="https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg">https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg</a>
1982	10	<a href="https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg">https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg</a>
1983	10	<a href="https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg">https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg</a>
1984	10	<a href="https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg">https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg</a>
1985	10	<a href="https://pbs.twimg.com/media/CT5PY90WAAAQGLo.jpg">https://pbs.twimg.com/media/CT5PY90WAAAQGLo.jpg</a>
1986	10	<a href="https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg">https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg</a>
1987	10	<a href="https://pbs.twimg.com/media/CT5KoJlWAAAjash.jpg">https://pbs.twimg.com/media/CT5KoJlWAAAjash.jpg</a>
1988	10	<a href="https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg">https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg</a>
1989	10	<a href="https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg">https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg</a>
1990	10	<a href="https://pbs.twimg.com/media/CT5Dr8HUEAA-1Eu.jpg">https://pbs.twimg.com/media/CT5Dr8HUEAA-1Eu.jpg</a>
1991	10	<a href="https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg">https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg</a>
1992	10	<a href="https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg">https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg</a>
1993	10	<a href="https://pbs.twimg.com/media/CT4udnOWwAA0aMy.jpg">https://pbs.twimg.com/media/CT4udnOWwAA0aMy.jpg</a>

	p1	p1_conf	p1_dog	retweet_count \
0	orange	0.097049	False	8853
1	Chihuahua	0.323581	True	6514
2	Chihuahua	0.716012	True	4328
3	paper_towel	0.170278	False	8964
4	basset	0.555712	True	9774
5	Chesapeake_Bay_retriever	0.425595	True	3261
6	Appenzeller	0.341703	True	2158
7	Pomeranian	0.566142	True	16716
8	Irish_terrier	0.487574	True	4429
9	Pembroke	0.511319	True	7711
10	Samoyed	0.957979	True	7624

11	French_bulldog	0.377417	True	5156
12	Pembroke	0.966327	True	8538
13	French_bulldog	0.991650	True	4735
14	golden_retriever	0.953442	True	2321
15	whippet	0.626152	True	5637
16	golden_retriever	0.714719	True	4709
17	golden_retriever	0.469760	True	4559
18	Siberian_husky	0.700377	True	3732
19	French_bulldog	0.995026	True	3653
20	basset	0.821664	True	5609
21	limousine	0.130432	False	12082
22	Pembroke	0.809197	True	18781
23	Mexican_hairless	0.330741	True	10737
24	Samoyed	0.733942	True	6167
25	Chihuahua	0.793469	True	8084
26	kuvasz	0.309706	True	3443
27	convertible	0.738995	False	4610
28	French_bulldog	0.999201	True	3316
29	pug	0.943575	True	6523
...	...	...	...	...
1964	coho	0.404640	False	339
1965	black-and-tan_coonhound	0.529139	True	44
1966	Chihuahua	0.978108	True	92
1967	soft-coated_wheaten_terrier	0.326467	True	100
1968	guinea_pig	0.996496	False	595
1969	malamute	0.336874	True	77
1970	golden_retriever	0.858744	True	146
1971	ox	0.416669	False	96
1972	three-toed_sloth	0.914671	False	368
1973	Maltese_dog	0.857531	True	71
1974	Italian_greyhound	0.176053	True	82
1975	desktop_computer	0.086502	False	37
1976	hen	0.965932	False	6871
1977	English_setter	0.298617	True	16
1978	Lhasa	0.582330	True	73
1979	bloodhound	0.195217	True	79
1980	pug	0.489814	True	47
1981	Walker_hound	0.260857	True	174
1982	Gordon_setter	0.503672	True	67
1983	golden_retriever	0.775930	True	232
1984	miniature_poodle	0.201493	True	61
1985	shopping_cart	0.962465	False	146
1986	chow	0.692517	True	261
1987	box_turtle	0.933012	False	879
1988	Bernese_mountain_dog	0.651137	True	60
1989	miniature_pinscher	0.560311	True	41
1990	Rhodesian_ridgeback	0.408143	True	147
1991	German_shepherd	0.596461	True	47



1992	redbone	0.506826	True	48
1993	Welsh_springer_spaniel	0.465074	True	532

	favorite_count	stage
0	39467	
1	33819	
2	25461	
3	42908	
4	41048	
5	20562	
6	12041	
7	56848	
8	28226	
9	32467	big
10	31166	
11	28268	
12	38818	adolescent
13	27672	
14	15359	adolescent
15	25652	
16	29611	
17	26080	
18	20290	
19	22201	
20	30779	
21	46959	
22	69871	
23	34222	
24	31061	
25	35859	
26	12306	
27	22798	
28	21524	small
29	28469	
...	...	...
1964	459	
1965	113	
1966	172	
1967	194	
1968	804	
1969	229	
1970	307	
1971	204	
1972	522	
1973	152	
1974	184	
1975	108	
1976	14765	

1977	81
1978	164
1979	169
1980	121
1981	335
1982	154
1983	496
1984	115
1985	304
1986	448
1987	1253
1988	136
1989	111
1990	311
1991	128
1992	132
1993	2535

[1994 rows x 14 columns]

## 1.4 Storing Data

Save gathered, assessed, and cleaned master dataset to a CSV file named "twitter\_archive\_master.csv".

```
In [44]: merged_df.to_csv('twitter_archive_master.csv', index=False)
```

## 1.5 Analyzing and Visualizing Data

In this section, analyze and visualize your wrangled data. You must produce at least **three (3) insights and one (1) visualization**.

```
In [45]: master_df = pd.read_csv('twitter_archive_master.csv')
master_df
```

```
Out[45]:
```

	tweet_id	in_reply_to_user_id	timestamp	\
0	892420643555336193	NaN	2017-08-01 16:23:56	
1	892177421306343426	NaN	2017-08-01 00:17:27	
2	891815181378084864	NaN	2017-07-31 00:18:03	
3	891689557279858688	NaN	2017-07-30 15:58:51	
4	891327558926688256	NaN	2017-07-29 16:00:24	
5	891087950875897856	NaN	2017-07-29 00:08:17	
6	890971913173991426	NaN	2017-07-28 16:27:12	
7	890729181411237888	NaN	2017-07-28 00:22:40	
8	890609185150312448	NaN	2017-07-27 16:25:51	
9	890240255349198849	NaN	2017-07-26 15:59:51	
10	890006608113172480	NaN	2017-07-26 00:31:25	
11	889880896479866881	NaN	2017-07-25 16:11:53	
12	889665388333682689	NaN	2017-07-25 01:55:32	

13	889638837579907072	NaN	2017-07-25	00:10:02
14	889531135344209921	NaN	2017-07-24	17:02:04
15	889278841981685760	NaN	2017-07-24	00:19:32
16	888917238123831296	NaN	2017-07-23	00:22:39
17	888804989199671297	NaN	2017-07-22	16:56:37
18	888554962724278272	NaN	2017-07-22	00:23:06
19	888078434458587136	NaN	2017-07-20	16:49:33
20	887705289381826560	NaN	2017-07-19	16:06:48
21	887517139158093824	NaN	2017-07-19	03:39:09
22	887473957103951883	NaN	2017-07-19	00:47:34
23	887343217045368832	NaN	2017-07-18	16:08:03
24	887101392804085760	NaN	2017-07-18	00:07:08
25	886983233522544640	NaN	2017-07-17	16:17:36
26	886736880519319552	NaN	2017-07-16	23:58:41
27	886680336477933568	NaN	2017-07-16	20:14:00
28	886366144734445568	NaN	2017-07-15	23:25:31
29	886258384151887873	NaN	2017-07-15	16:17:19
...	...	...	...	...
1964	666411507551481857	NaN	2015-11-17	00:24:19
1965	666407126856765440	NaN	2015-11-17	00:06:54
1966	666396247373291520	NaN	2015-11-16	23:23:41
1967	666373753744588802	NaN	2015-11-16	21:54:18
1968	666362758909284353	NaN	2015-11-16	21:10:36
1969	666353288456101888	NaN	2015-11-16	20:32:58
1970	666345417576210432	NaN	2015-11-16	20:01:42
1971	666337882303524864	NaN	2015-11-16	19:31:45
1972	666293911632134144	NaN	2015-11-16	16:37:02
1973	666287406224695296	NaN	2015-11-16	16:11:11
1974	666273097616637952	NaN	2015-11-16	15:14:19
1975	666268910803644416	NaN	2015-11-16	14:57:41
1976	666104133288665088	NaN	2015-11-16	04:02:55
1977	666102155909144576	NaN	2015-11-16	03:55:04
1978	666099513787052032	NaN	2015-11-16	03:44:34
1979	666094000022159362	NaN	2015-11-16	03:22:39
1980	666082916733198337	NaN	2015-11-16	02:38:37
1981	666073100786774016	NaN	2015-11-16	01:59:36
1982	666071193221509120	NaN	2015-11-16	01:52:02
1983	666063827256086533	NaN	2015-11-16	01:22:45
1984	666058600524156928	NaN	2015-11-16	01:01:59
1985	666057090499244032	NaN	2015-11-16	00:55:59
1986	666055525042405380	NaN	2015-11-16	00:49:46
1987	666051853826850816	NaN	2015-11-16	00:35:11
1988	666050758794694657	NaN	2015-11-16	00:30:50
1989	666049248165822465	NaN	2015-11-16	00:24:50
1990	666044226329800704	NaN	2015-11-16	00:04:52
1991	666033412701032449	NaN	2015-11-15	23:21:54
1992	666029285002620928	NaN	2015-11-15	23:05:30
1993	666020888022790149	NaN	2015-11-15	22:32:08

text \

0 This is Phineas. He's a mystical boy. Only eve...

1 This is Tilly. She's just checking pup on you...

2 This is Archie. He is a rare Norwegian Pouncin...

3 This is Darla. She commenced a snooze mid meal...

4 This is Franklin. He would like you to stop ca...

5 Here we have a majestic great white breaching ...

6 Meet Jax. He enjoys ice cream so much he gets ...

7 When you watch your owner call another dog a g...

8 This is Zoey. She doesn't want to be one of th...

9 This is Cassie. She is a college pup. Studying...

10 This is Koda. He is a South Australian decksha...

11 This is Bruno. He is a service shark. Only get...

12 Here's a puppo that seems to be on the fence a...

13 This is Ted. He does his best. Sometimes that'...

14 This is Stuart. He's sporting his favorite fan...

15 This is Oliver. You're witnessing one of his m...

16 This is Jim. He found a fren. Taught him how t...

17 This is Zeke. He has a new stick. Very proud o...

18 This is Ralphus. He's powering up. Attempting ...

19 This is Gerald. He was just told he didn't get...

20 This is Jeffrey. He has a monopoly on the pool...

21 I've yet to rate a Venezuelan Hover Wiener. Th...

22 This is Canela. She attempted some fancy porch...

23 You may not have known you needed to see this ...

24 This... is a Jubilant Antarctic House Bear. We...

25 This is Maya. She's very shy. Rarely leaves he...

26 This is Mingus. He's a wonderful father to his...

27 This is Derek. He's late for a dog meeting. 13...

28 This is Roscoe. Another pupper fallen victim t...

29 This is Waffles. His doggles are pupside down...

...

1964 This is quite the dog. Gets really excited whe...

1965 This is a southern Vesuvius bumblegruff. Can d...

1966 Oh goodness. A super rare northeast Qdoba kang...

1967 Those are sunglasses and a jean jacket. 11/10 ...

1968 Unique dog here. Very small. Lives in containe...

1969 Here we have a mixed Asiago from the Galápagos...

1970 Look at this jokester thinking seat belt laws ...

1971 This is an extremely rare horned Parthenon. No...

1972 This is a funny dog. Weird toes. Won't come do...

1973 This is an Albanian 3 1/2 legged Episcopalian...

1974 Can take selfies 11/10 <https://t.co/ws2AMaNwPW>

1975 Very concerned about fellow dog trapped in com...

1976 Not familiar with this breed. No tail (weird)...

1977 Oh my. Here you are seeing an Adobe Setter giv...

1978 Can stand on stump for what seems like a while...

1979 This appears to be a Mongolian Presbyterian mi...  
 1980 Here we have a well-established sunblockerspan...  
 1981 Let's hope this flight isn't Malaysian (lol). ...  
 1982 Here we have a northern speckled Rhododendron...  
 1983 This is the happiest dog you will ever see. Ve...  
 1984 Here is the Rand Paul of retrievers folks! He'...  
 1985 My oh my. This is a rare blond Canadian terrie...  
 1986 Here is a Siberian heavily armored polar bear ...  
 1987 This is an odd dog. Hard on the outside but lo...  
 1988 This is a truly beautiful English Wilson Staff...  
 1989 Here we have a 1949 1st generation vulpix. Enj...  
 1990 This is a purebred Piers Morgan. Loves to Netf...  
 1991 Here is a very happy pup. Big fan of well-main...  
 1992 This is a western brown Mitsubishi terrier. Up...  
 1993 Here we have a Japanese Irish Setter. Lost eye...

	expanded_urls	rating_numerator \
0	https://twitter.com/dog_rates/status/892420643...	13
1	https://twitter.com/dog_rates/status/892177421...	13
2	https://twitter.com/dog_rates/status/891815181...	12
3	https://twitter.com/dog_rates/status/891689557...	13
4	https://twitter.com/dog_rates/status/891327558...	12
5	https://twitter.com/dog_rates/status/891087950...	13
6	https://gofundme.com/ydvmve-surgery-for-jax,ht...	13
7	https://twitter.com/dog_rates/status/890729181...	13
8	https://twitter.com/dog_rates/status/890609185...	13
9	https://twitter.com/dog_rates/status/890240255...	14
10	https://twitter.com/dog_rates/status/890006608...	13
11	https://twitter.com/dog_rates/status/889880896...	13
12	https://twitter.com/dog_rates/status/889665388...	13
13	https://twitter.com/dog_rates/status/889638837...	12
14	https://twitter.com/dog_rates/status/889531135...	13
15	https://twitter.com/dog_rates/status/889278841...	13
16	https://twitter.com/dog_rates/status/888917238...	12
17	https://twitter.com/dog_rates/status/888804989...	13
18	https://twitter.com/dog_rates/status/888554962...	13
19	https://twitter.com/dog_rates/status/888078434...	12
20	https://twitter.com/dog_rates/status/887705289...	13
21	https://twitter.com/dog_rates/status/887517139...	14
22	https://twitter.com/dog_rates/status/887473957...	13
23	https://twitter.com/dog_rates/status/887343217...	13
24	https://twitter.com/dog_rates/status/887101392...	12
25	https://twitter.com/dog_rates/status/886983233...	13
26	https://www.gofundme.com/mingusneedsus,https://...	13
27	https://twitter.com/dog_rates/status/886680336...	13
28	https://twitter.com/dog_rates/status/886366144...	12
29	https://twitter.com/dog_rates/status/886258384...	13
...	...	...

1964	<a href="https://twitter.com/dog_rates/status/666411507...">https://twitter.com/dog_rates/status/666411507...</a>	2
1965	<a href="https://twitter.com/dog_rates/status/666407126...">https://twitter.com/dog_rates/status/666407126...</a>	7
1966	<a href="https://twitter.com/dog_rates/status/666396247...">https://twitter.com/dog_rates/status/666396247...</a>	9
1967	<a href="https://twitter.com/dog_rates/status/666373753...">https://twitter.com/dog_rates/status/666373753...</a>	11
1968	<a href="https://twitter.com/dog_rates/status/666362758...">https://twitter.com/dog_rates/status/666362758...</a>	6
1969	<a href="https://twitter.com/dog_rates/status/666353288...">https://twitter.com/dog_rates/status/666353288...</a>	8
1970	<a href="https://twitter.com/dog_rates/status/666345417...">https://twitter.com/dog_rates/status/666345417...</a>	10
1971	<a href="https://twitter.com/dog_rates/status/666337882...">https://twitter.com/dog_rates/status/666337882...</a>	9
1972	<a href="https://twitter.com/dog_rates/status/666293911...">https://twitter.com/dog_rates/status/666293911...</a>	3
1973	<a href="https://twitter.com/dog_rates/status/666287406...">https://twitter.com/dog_rates/status/666287406...</a>	1
1974	<a href="https://twitter.com/dog_rates/status/666273097...">https://twitter.com/dog_rates/status/666273097...</a>	11
1975	<a href="https://twitter.com/dog_rates/status/666268910...">https://twitter.com/dog_rates/status/666268910...</a>	10
1976	<a href="https://twitter.com/dog_rates/status/666104133...">https://twitter.com/dog_rates/status/666104133...</a>	1
1977	<a href="https://twitter.com/dog_rates/status/666102155...">https://twitter.com/dog_rates/status/666102155...</a>	11
1978	<a href="https://twitter.com/dog_rates/status/666099513...">https://twitter.com/dog_rates/status/666099513...</a>	8
1979	<a href="https://twitter.com/dog_rates/status/666094000...">https://twitter.com/dog_rates/status/666094000...</a>	9
1980	<a href="https://twitter.com/dog_rates/status/666082916...">https://twitter.com/dog_rates/status/666082916...</a>	6
1981	<a href="https://twitter.com/dog_rates/status/666073100...">https://twitter.com/dog_rates/status/666073100...</a>	10
1982	<a href="https://twitter.com/dog_rates/status/666071193...">https://twitter.com/dog_rates/status/666071193...</a>	9
1983	<a href="https://twitter.com/dog_rates/status/666063827...">https://twitter.com/dog_rates/status/666063827...</a>	10
1984	<a href="https://twitter.com/dog_rates/status/666058600...">https://twitter.com/dog_rates/status/666058600...</a>	8
1985	<a href="https://twitter.com/dog_rates/status/666057090...">https://twitter.com/dog_rates/status/666057090...</a>	9
1986	<a href="https://twitter.com/dog_rates/status/666055525...">https://twitter.com/dog_rates/status/666055525...</a>	10
1987	<a href="https://twitter.com/dog_rates/status/666051853...">https://twitter.com/dog_rates/status/666051853...</a>	2
1988	<a href="https://twitter.com/dog_rates/status/666050758...">https://twitter.com/dog_rates/status/666050758...</a>	10
1989	<a href="https://twitter.com/dog_rates/status/666049248...">https://twitter.com/dog_rates/status/666049248...</a>	5
1990	<a href="https://twitter.com/dog_rates/status/666044226...">https://twitter.com/dog_rates/status/666044226...</a>	6
1991	<a href="https://twitter.com/dog_rates/status/666033412...">https://twitter.com/dog_rates/status/666033412...</a>	9
1992	<a href="https://twitter.com/dog_rates/status/666029285...">https://twitter.com/dog_rates/status/666029285...</a>	7
1993	<a href="https://twitter.com/dog_rates/status/666020888...">https://twitter.com/dog_rates/status/666020888...</a>	8

	rating_denominator	jpg_url \
0	10	<a href="https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg">https://pbs.twimg.com/media/DGKD1-bXoAAIAUK.jpg</a>
1	10	<a href="https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg">https://pbs.twimg.com/media/DGGmoV4XsAAUL6n.jpg</a>
2	10	<a href="https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg">https://pbs.twimg.com/media/DGBdLU1WsAANxJ9.jpg</a>
3	10	<a href="https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg">https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg</a>
4	10	<a href="https://pbs.twimg.com/media/DF6hr6BUMAAZgT.jpg">https://pbs.twimg.com/media/DF6hr6BUMAAZgT.jpg</a>
5	10	<a href="https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg">https://pbs.twimg.com/media/DF3HwyEWsAABqE6.jpg</a>
6	10	<a href="https://pbs.twimg.com/media/DF1e0mZXUAAALUcq.jpg">https://pbs.twimg.com/media/DF1e0mZXUAAALUcq.jpg</a>
7	10	<a href="https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg">https://pbs.twimg.com/media/DFyBahAVwAAhUTd.jpg</a>
8	10	<a href="https://pbs.twimg.com/media/DFwUU__XcAEpyXI.jpg">https://pbs.twimg.com/media/DFwUU__XcAEpyXI.jpg</a>
9	10	<a href="https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg">https://pbs.twimg.com/media/DFrEyVuW0AA03t9.jpg</a>
10	10	<a href="https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg">https://pbs.twimg.com/media/DFnwSY4WAAAMliS.jpg</a>
11	10	<a href="https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg">https://pbs.twimg.com/media/DF199B1WsAITKsg.jpg</a>
12	10	<a href="https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg">https://pbs.twimg.com/media/DFi579UWsAAatzw.jpg</a>
13	10	<a href="https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg">https://pbs.twimg.com/media/DFihzFfXsAYGDPR.jpg</a>
14	10	<a href="https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg">https://pbs.twimg.com/media/DFg_2PVW0AEHN3p.jpg</a>
15	10	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88927...">https://pbs.twimg.com/ext_tw_video_thumb/88927...</a>

16	10	<a href="https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg">https://pbs.twimg.com/media/DFYRgsOUQAARGh0.jpg</a>
17	10	<a href="https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg">https://pbs.twimg.com/media/DFWra-3VYAA2piG.jpg</a>
18	10	<a href="https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg">https://pbs.twimg.com/media/DFTH_0-UQAACu20.jpg</a>
19	10	<a href="https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg">https://pbs.twimg.com/media/DFMWn56WsAAkA7B.jpg</a>
20	10	<a href="https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg">https://pbs.twimg.com/media/DFHDQBbXgAEqY7t.jpg</a>
21	10	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88751...">https://pbs.twimg.com/ext_tw_video_thumb/88751...</a>
22	10	<a href="https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg">https://pbs.twimg.com/media/DFDw2tyUQAAAFke.jpg</a>
23	10	<a href="https://pbs.twimg.com/ext_tw_video_thumb/88734...">https://pbs.twimg.com/ext_tw_video_thumb/88734...</a>
24	10	<a href="https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg">https://pbs.twimg.com/media/DE-eAq6UwAA-jaE.jpg</a>
25	10	<a href="https://pbs.twimg.com/media/DE8yicJW0AAAavBJ.jpg">https://pbs.twimg.com/media/DE8yicJW0AAAavBJ.jpg</a>
26	10	<a href="https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg">https://pbs.twimg.com/media/DE5Se8FXcAAJFx4.jpg</a>
27	10	<a href="https://pbs.twimg.com/media/DE4fEDzWAAAYHMM.jpg">https://pbs.twimg.com/media/DE4fEDzWAAAYHMM.jpg</a>
28	10	<a href="https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg">https://pbs.twimg.com/media/DE0BTnQUwAApKEH.jpg</a>
29	10	<a href="https://pbs.twimg.com/media/DEyfTG4UMAE4aE9.jpg">https://pbs.twimg.com/media/DEyfTG4UMAE4aE9.jpg</a>
...	...	...
1964	10	<a href="https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg">https://pbs.twimg.com/media/CT-RugiWIAELEaq.jpg</a>
1965	10	<a href="https://pbs.twimg.com/media/CT-NvwmW4AAAugGZ.jpg">https://pbs.twimg.com/media/CT-NvwmW4AAAugGZ.jpg</a>
1966	10	<a href="https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg">https://pbs.twimg.com/media/CT-D2ZHWIAA3gK1.jpg</a>
1967	10	<a href="https://pbs.twimg.com/media/CT9vZEYUWAA1Z05.jpg">https://pbs.twimg.com/media/CT9vZEYUWAA1Z05.jpg</a>
1968	10	<a href="https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg">https://pbs.twimg.com/media/CT9lXGsUcAAyUft.jpg</a>
1969	10	<a href="https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg">https://pbs.twimg.com/media/CT9cx0tUEAAhNN_.jpg</a>
1970	10	<a href="https://pbs.twimg.com/media/CT9Vn7PW0AA_ZCM.jpg">https://pbs.twimg.com/media/CT9Vn7PW0AA_ZCM.jpg</a>
1971	10	<a href="https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg">https://pbs.twimg.com/media/CT90wFIWEAMuRje.jpg</a>
1972	10	<a href="https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg">https://pbs.twimg.com/media/CT8mx7KW4AEQu8N.jpg</a>
1973	10	<a href="https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg">https://pbs.twimg.com/media/CT8g3BpUEAAuFjg.jpg</a>
1974	10	<a href="https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg">https://pbs.twimg.com/media/CT8T1mtUwAA3aqm.jpg</a>
1975	10	<a href="https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg">https://pbs.twimg.com/media/CT8QCd1WEAADXws.jpg</a>
1976	10	<a href="https://pbs.twimg.com/media/CT56LSZW0AA1Jj2.jpg">https://pbs.twimg.com/media/CT56LSZW0AA1Jj2.jpg</a>
1977	10	<a href="https://pbs.twimg.com/media/CT54YGiWUAEZnoK.jpg">https://pbs.twimg.com/media/CT54YGiWUAEZnoK.jpg</a>
1978	10	<a href="https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg">https://pbs.twimg.com/media/CT51-JJUEAA6hV8.jpg</a>
1979	10	<a href="https://pbs.twimg.com/media/CT5w9gUW4AAAsBNN.jpg">https://pbs.twimg.com/media/CT5w9gUW4AAAsBNN.jpg</a>
1980	10	<a href="https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg">https://pbs.twimg.com/media/CT5m4VGWEAAAtKc8.jpg</a>
1981	10	<a href="https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg">https://pbs.twimg.com/media/CT5d9DZXAAALcwe.jpg</a>
1982	10	<a href="https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg">https://pbs.twimg.com/media/CT5cN_3WEAA10oZ.jpg</a>
1983	10	<a href="https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg">https://pbs.twimg.com/media/CT5Vg_wXIAAXfnj.jpg</a>
1984	10	<a href="https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg">https://pbs.twimg.com/media/CT5Qw94XAAA_2dP.jpg</a>
1985	10	<a href="https://pbs.twimg.com/media/CT5PY90W0AAQGLo.jpg">https://pbs.twimg.com/media/CT5PY90W0AAQGLo.jpg</a>
1986	10	<a href="https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg">https://pbs.twimg.com/media/CT5N9tpXIAAifs1.jpg</a>
1987	10	<a href="https://pbs.twimg.com/media/CT5KoJ1W0AAAJash.jpg">https://pbs.twimg.com/media/CT5KoJ1W0AAAJash.jpg</a>
1988	10	<a href="https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg">https://pbs.twimg.com/media/CT5Jof1WUAEuVxN.jpg</a>
1989	10	<a href="https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg">https://pbs.twimg.com/media/CT5IQmsXIAAKY4A.jpg</a>
1990	10	<a href="https://pbs.twimg.com/media/CT5Dr8HUEAA-1Eu.jpg">https://pbs.twimg.com/media/CT5Dr8HUEAA-1Eu.jpg</a>
1991	10	<a href="https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg">https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg</a>
1992	10	<a href="https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg">https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg</a>
1993	10	<a href="https://pbs.twimg.com/media/CT4udnOWwAA0aMy.jpg">https://pbs.twimg.com/media/CT4udnOWwAA0aMy.jpg</a>

	p1	p1_conf	p1_dog	retweet_count	\
0	orange	0.097049	False	8853	

1	Chihuahua	0.323581	True	6514
2	Chihuahua	0.716012	True	4328
3	paper_towel	0.170278	False	8964
4	basset	0.555712	True	9774
5	Chesapeake_Bay_retriever	0.425595	True	3261
6	Appenzeller	0.341703	True	2158
7	Pomeranian	0.566142	True	16716
8	Irish_terrier	0.487574	True	4429
9	Pembroke	0.511319	True	7711
10	Samoyed	0.957979	True	7624
11	French_bulldog	0.377417	True	5156
12	Pembroke	0.966327	True	8538
13	French_bulldog	0.991650	True	4735
14	golden_retriever	0.953442	True	2321
15	whippet	0.626152	True	5637
16	golden_retriever	0.714719	True	4709
17	golden_retriever	0.469760	True	4559
18	Siberian_husky	0.700377	True	3732
19	French_bulldog	0.995026	True	3653
20	basset	0.821664	True	5609
21	limousine	0.130432	False	12082
22	Pembroke	0.809197	True	18781
23	Mexican_hairless	0.330741	True	10737
24	Samoyed	0.733942	True	6167
25	Chihuahua	0.793469	True	8084
26	kuvasz	0.309706	True	3443
27	convertible	0.738995	False	4610
28	French_bulldog	0.999201	True	3316
29	pug	0.943575	True	6523
...	...	...	...	...
1964	coho	0.404640	False	339
1965	black-and-tan_coonhound	0.529139	True	44
1966	Chihuahua	0.978108	True	92
1967	soft-coated_wheaten_terrier	0.326467	True	100
1968	guinea_pig	0.996496	False	595
1969	malamute	0.336874	True	77
1970	golden_retriever	0.858744	True	146
1971	ox	0.416669	False	96
1972	three-toed_sloth	0.914671	False	368
1973	Maltese_dog	0.857531	True	71
1974	Italian_greyhound	0.176053	True	82
1975	desktop_computer	0.086502	False	37
1976	hen	0.965932	False	6871
1977	English_setter	0.298617	True	16
1978	Lhasa	0.582330	True	73
1979	bloodhound	0.195217	True	79
1980	pug	0.489814	True	47
1981	Walker_hound	0.260857	True	174



1982	Gordon_setter	0.503672	True	67
1983	golden_retriever	0.775930	True	232
1984	miniature_poodle	0.201493	True	61
1985	shopping_cart	0.962465	False	146
1986	chow	0.692517	True	261
1987	box_turtle	0.933012	False	879
1988	Bernese_mountain_dog	0.651137	True	60
1989	miniature_pinscher	0.560311	True	41
1990	Rhodesian_ridgeback	0.408143	True	147
1991	German_shepherd	0.596461	True	47
1992	redbone	0.506826	True	48
1993	Welsh_springer_spaniel	0.465074	True	532

	favorite_count	stage
0	39467	NaN
1	33819	NaN
2	25461	NaN
3	42908	NaN
4	41048	NaN
5	20562	NaN
6	12041	NaN
7	56848	NaN
8	28226	NaN
9	32467	big
10	31166	NaN
11	28268	NaN
12	38818	adolescent
13	27672	NaN
14	15359	adolescent
15	25652	NaN
16	29611	NaN
17	26080	NaN
18	20290	NaN
19	22201	NaN
20	30779	NaN
21	46959	NaN
22	69871	NaN
23	34222	NaN
24	31061	NaN
25	35859	NaN
26	12306	NaN
27	22798	NaN
28	21524	small
29	28469	NaN
...	...	...
1964	459	NaN
1965	113	NaN
1966	172	NaN

1967	194	NaN
1968	804	NaN
1969	229	NaN
1970	307	NaN
1971	204	NaN
1972	522	NaN
1973	152	NaN
1974	184	NaN
1975	108	NaN
1976	14765	NaN
1977	81	NaN
1978	164	NaN
1979	169	NaN
1980	121	NaN
1981	335	NaN
1982	154	NaN
1983	496	NaN
1984	115	NaN
1985	304	NaN
1986	448	NaN
1987	1253	NaN
1988	136	NaN
1989	111	NaN
1990	311	NaN
1991	128	NaN
1992	132	NaN
1993	2535	NaN

[1994 rows x 14 columns]

```
In [46]: master_df.favorite_count.max()
```

```
Out[46]: 132810
```

```
In [47]: master_df[master_df['favorite_count'] == 132810]
```

```
Out[47]:
```

	tweet_id	in_reply_to_user_id	timestamp	\		text	\		expanded_urls	rating_numerator	\		rating_denominator	jpg_url	\		p1	p1_conf	p1_dog	retweet_count	favorite_count	\
309	822872901745569793		NaN	2017-01-21 18:26:02		Here's a super supportive puppo participating ...			https://twitter.com/dog_rates/status/822872901...	13			10	https://pbs.twimg.com/media/C2tugXLXgAARJ04.jpg								

```
309 Lakeland_terrier 0.196015 True 48265 132810
```

```
stage
309 adolescent
```

```
In [48]: master_df.p1.value_counts()
```

```
Out[48]: golden_retriever      139
Labrador_retriever           95
Pembroke                     88
Chihuahua                    79
pug                          54
chow                         41
Samoyed                      40
Pomeranian                   38
toy_poodle                   38
malamute                     29
cocker_spaniel               27
French_bulldog               26
Chesapeake_Bay_retriever     23
miniature_pinscher           22
seat_belt                    21
German_shepherd              20
Siberian_husky               20
Staffordshire_bullterrier    19
Maltese_dog                  18
teddy                        18
Shetland_sheepdog            18
Eskimo_dog                   18
Shih-Tzu                     17
beagle                       17
Rottweiler                   17
Cardigan                     17
kuvasz                       16
Lakeland_terrier             16
Italian_greyhound            16
web_site                     15
...
cheetah                      1
boathouse                    1
limousine                    1
nail                         1
timber_wolf                  1
banana                      1
traffic_light                1
barbell                      1
alp                          1
earthstar                    1
```

```

gas_pump                1
electric_fan            1
leopard                 1
giant_panda             1
grey_fox               1
military_uniform       1
ping-pong_ball         1
clog                   1
African_grey           1
flamingo               1
silky_terrier          1
sea_urchin             1
loupe                  1
snowmobile             1
toilet_seat            1
rotisserie             1
padlock                1
starfish               1
coho                   1
bookshop               1
Name: p1, Length: 374, dtype: int64

```

```
In [50]: master_df.stage.value_counts()
```

```

Out[50]: small          203
big                   63
adolescent           22
big, small           9
fluffy               7
big, adolescent      1
big, fluffy          1
Name: stage, dtype: int64

```

### 1.5.1 Insights:

1. The highest favorite count in the dataset is 132810 meaning the account can reach and influence at least 100,000 users based off the cleaned the data.
2. A golden retriever seems to be the most shared breed of dog from our cleaned dataset. It should be noted that the accuracy of the identification of the breed is based off the neural network software, which has varying levels of confidence percentages when identifying.
3. The least used single word adjective to describe the dogs is fluffy from our dataset. This is based off the terminology specific to the account, and it should be noted that a majority of the time no adjective is used.

### 1.5.2 Visualization

```
In [51]: import matplotlib.pyplot as plt
         %matplotlib inline
```

```
#creating dictionary to house the value counts found earlier for ease
adjectives = {
    'Big': [74],
    'Adolescent': [23],
    'Fluffy': [8],
    'Small': [212]
}
```

```
df = pd.DataFrame(list(adjectives.items()), columns=['Adjectives', 'Count'])
```

```
plt.figure(figsize=(10, 6))
plt.bar(df['Adjectives'], df['Count'])
plt.title('Comparing Dog Adjective Counts')
plt.xlabel('Adjectives')
plt.ylabel('Count')
plt.xticks(rotation=45, ha='right') # Rotate x-axis labels for better readability
plt.tight_layout() # Adjust layout to prevent label cutoff
plt.show()
```

