

act

June 16, 2020

```
In [1]: import pandas as pd
import numpy as np
import requests as r
import os
import tweepy as tp
import json
%matplotlib inline
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [2]: #read data
df = pd.read_csv('twitter_archive_master.csv')
```

```
In [3]: df
```

```
Out[3]:
```

	tweet_id	timestamp	source \
0	892420643555336193	2017-08-01 16:23:56 +0000	Twitter for iPhone
1	892177421306343426	2017-08-01 00:17:27 +0000	Twitter for iPhone
2	891815181378084864	2017-07-31 00:18:03 +0000	Twitter for iPhone
3	891689557279858688	2017-07-30 15:58:51 +0000	Twitter for iPhone
4	891327558926688256	2017-07-29 16:00:24 +0000	Twitter for iPhone
5	891087950875897856	2017-07-29 00:08:17 +0000	Twitter for iPhone
6	890971913173991426	2017-07-28 16:27:12 +0000	Twitter for iPhone
7	890729181411237888	2017-07-28 00:22:40 +0000	Twitter for iPhone
8	890609185150312448	2017-07-27 16:25:51 +0000	Twitter for iPhone
9	890240255349198849	2017-07-26 15:59:51 +0000	Twitter for iPhone
10	890006608113172480	2017-07-26 00:31:25 +0000	Twitter for iPhone
11	889880896479866881	2017-07-25 16:11:53 +0000	Twitter for iPhone
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13	889638837579907072	2017-07-25 00:10:02 +0000	Twitter for iPhone
14	889531135344209921	2017-07-24 17:02:04 +0000	Twitter for iPhone
15	889278841981685760	2017-07-24 00:19:32 +0000	Twitter for iPhone
16	888917238123831296	2017-07-23 00:22:39 +0000	Twitter for iPhone
17	888804989199671297	2017-07-22 16:56:37 +0000	Twitter for iPhone
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21	887517139158093824	2017-07-19 03:39:09 +0000	Twitter for iPhone

22	887473957103951883	2017-07-19 00:47:34 +0000	Twitter for iPhone
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1963	666055525042405380	2015-11-16 00:49:46 +0000	Twitter for iPhone
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1966	666049248165822465	2015-11-16 00:24:50 +0000	Twitter for iPhone
1967	666044226329800704	2015-11-16 00:04:52 +0000	Twitter for iPhone
1968	666033412701032449	2015-11-15 23:21:54 +0000	Twitter for iPhone
1969	666029285002620928	2015-11-15 23:05:30 +0000	Twitter for iPhone
1970	666020888022790149	2015-11-15 22:32:08 +0000	Twitter for iPhone

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...
 ...
 1941 This is quite the dog. Gets really excited whe...
 1942 This is a southern Vesuvius bumblegruff. Can d...
 1943 Oh goodness. A super rare northeast Qdoba kang...
 1944 Those are sunglasses and a jean jacket. 11/10 ...
 1945 Unique dog here. Very small. Lives in containe...
 1946 Here we have a mixed Asiago from the Galápagos...
 1947 Look at this jokester thinking seat belt laws ...
 1948 This is an extremely rare horned Parthenon. No...
 1949 This is a funny dog. Weird toes. Won't come do...
 1950 This is an Albanian 3 1/2 legged Episcopalian...
 1951 Can take selfies 11/10 <https://t.co/ws2AMaWpW>
 1952 Very concerned about fellow dog trapped in com...
 1953 Not familiar with this breed. No tail (weird)...
 1954 Oh my. Here you are seeing an Adobe Setter giv...
 1955 Can stand on stump for what seems like a while...
 1956 This appears to be a Mongolian Presbyterian mi...
 1957 Here we have a well-established sunblockerspan...
 1958 Let's hope this flight isn't Malaysian (lol). ...
 1959 Here we have a northern speckled Rhododendron...
 1960 This is the happiest dog you will ever see. Ve...
 1961 Here is the Rand Paul of retrievers folks! He'...
 1962 My oh my. This is a rare blond Canadian terrie...
 1963 Here is a Siberian heavily armored polar bear ...
 1964 This is an odd dog. Hard on the outside but lo...

1965 This is a truly beautiful English Wilson Staff...
 1966 Here we have a 1949 1st generation vulpix. Enj...
 1967 This is a purebred Piers Morgan. Loves to Netf...
 1968 Here is a very happy pup. Big fan of well-main...
 1969 This is a western brown Mitsubishi terrier. Up...
 1970 Here we have a Japanese Irish Setter. Lost eye...

	expanded_urls	rating_numerator \
0	https://twitter.com/dog_rates/status/892420643...	13.0
1	https://twitter.com/dog_rates/status/892177421...	13.0
2	https://twitter.com/dog_rates/status/891815181...	12.0
3	https://twitter.com/dog_rates/status/891689557...	13.0
4	https://twitter.com/dog_rates/status/891327558...	12.0
5	https://twitter.com/dog_rates/status/891087950...	13.0
6	https://gofundme.com/ydvmve-surgery-for-jax,ht...	13.0
7	https://twitter.com/dog_rates/status/890729181...	13.0
8	https://twitter.com/dog_rates/status/890609185...	13.0
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10	https://twitter.com/dog_rates/status/890006608...	13.0
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25	https://twitter.com/dog_rates/status/886983233...	13.0
26	https://www.gofundme.com/mingusneedsus,https:/...	13.0
27	https://twitter.com/dog_rates/status/886680336...	13.0
28	https://twitter.com/dog_rates/status/886366144...	12.0
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1970	https://twitter.com/dog_rates/status/666020888...	8.0

	rating_denominator	name	growth \
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1	10.0	Tilly	NaN
2	10.0	Archie	NaN
3	10.0	Darla	NaN
4	10.0	Franklin	NaN
5	10.0	Africa	NaN
6	10.0	Jax	NaN
7	10.0	NaN	NaN
8	10.0	Zoey	NaN
9	10.0	Cassie	doggo
10	10.0	Koda	NaN
11	10.0	Bruno	NaN
12	10.0	NaN	puppo
13	10.0	Ted	NaN
14	10.0	Stuart	puppo
15	10.0	Oliver	NaN
16	10.0	Jim	NaN
17	10.0	Zeke	NaN
18	10.0	Ralphus	NaN
19	10.0	Gerald	NaN
20	10.0	Jeffrey	NaN
21	10.0	Venezuelan	NaN
22	10.0	Canela	NaN
23	10.0	NaN	NaN
24	10.0	Jubilant	NaN

25	10.0	Maya	NaN
26	10.0	Mingus	NaN
27	10.0	Derek	NaN
28	10.0	Roscoe	pupper
29	10.0	Waffles	NaN
...
1941	10.0	NaN	NaN
1942	10.0	Vesuvius	NaN
1943	10.0	Qdoba	NaN
1944	10.0	NaN	NaN
1945	10.0	Flakes	NaN
1946	10.0	Asiago	NaN
1947	10.0	NaN	NaN
1948	10.0	Parthenon	NaN
1949	10.0	NaN	NaN
1950	10.0	Albanian	NaN
1951	10.0	NaN	NaN
1952	10.0	NaN	NaN
1953	10.0	NaN	NaN
1954	10.0	Adobe	NaN
1955	10.0	NaN	NaN
1956	10.0	Mongolian	NaN
1957	10.0	NaN	NaN
1958	10.0	Malaysian	NaN
1959	10.0	Rhododendron	NaN
1960	10.0	NaN	NaN
1961	10.0	Rand	NaN
1962	10.0	Canadian	NaN
1963	10.0	Siberian	NaN
1964	10.0	NaN	NaN
1965	10.0	English	NaN
1966	10.0	Fox	NaN
1967	10.0	Piers	NaN
1968	10.0	NaN	NaN
1969	10.0	Mitsubishi	NaN
1970	10.0	Japanese	NaN

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3	https://pbs.twimg.com/media/DF_q7IAWsAEuuN8.jpg	...	
4	https://pbs.twimg.com/media/DF6hr6BUMAAZgT.jpg	...	
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1968	https://pbs.twimg.com/media/CT4521TWwAEvMyu.jpg	...
1969	https://pbs.twimg.com/media/CT42GRgUYAA5iDo.jpg	...
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	p1_conf	p1_dog		p2	p2_conf	p2_dog	\
0	0.097049	False		bagel	0.085851	False	
1	0.323581	True		pekinese	0.090647	True	
2	0.716012	True		malamute	0.078253	True	
3	0.170278	False	labrador_retriever		0.168086	True	
4	0.555712	True	english_springer		0.225770	True	
5	0.425595	True	irish_terrier		0.116317	True	
6	0.341703	True	border_collie		0.199287	True	
7	0.566142	True	eskimo_dog		0.178406	True	
8	0.487574	True	irish_setter		0.193054	True	
9	0.511319	True	cardigan		0.451038	True	
10	0.957979	True	pomeranian		0.013884	True	
11	0.377417	True	labrador_retriever		0.151317	True	
12	0.966327	True	cardigan		0.027356	True	
13	0.991650	True	boxer		0.002129	True	
14	0.953442	True	labrador_retriever		0.013834	True	
15	0.626152	True	borzoi		0.194742	True	
16	0.714719	True	tibetan_mastiff		0.120184	True	
17	0.469760	True	labrador_retriever		0.184172	True	
18	0.700377	True	eskimo_dog		0.166511	True	
19	0.995026	True	pug		0.000932	True	
20	0.821664	True	redbone		0.087582	True	
21	0.130432	False	tow_truck		0.029175	False	
22	0.809197	True	rhodesian_ridgeback		0.054950	True	
23	0.330741	True	sea_lion		0.275645	False	
24	0.733942	True	eskimo_dog		0.035029	True	
25	0.793469	True	toy_terrier		0.143528	True	
26	0.309706	True	great_pyrenees		0.186136	True	
27	0.738995	False	sports_car		0.139952	False	
28	0.999201	True	chihuahua		0.000361	True	
29	0.943575	True	shower_cap		0.025286	False	
...	
1941	0.404640	False	barracouta		0.271485	False	
1942	0.529139	True	bloodhound		0.244220	True	
1943	0.978108	True	toy_terrier		0.009397	True	
1944	0.326467	True	afghan_hound		0.259551	True	
1945	0.996496	False	skunk		0.002402	False	
1946	0.336874	True	siberian_husky		0.147655	True	
1947	0.858744	True	chesapeake_bay_retriever		0.054787	True	
1948	0.416669	False	newfoundland		0.278407	True	
1949	0.914671	False	otter		0.015250	False	
1950	0.857531	True	toy_poodle		0.063064	True	
1951	0.176053	True	toy_terrier		0.111884	True	
1952	0.086502	False	desk		0.085547	False	

1953	0.965932	False	cock	0.033919	False
1954	0.298617	True	newfoundland	0.149842	True
1955	0.582330	True	shih-tzu	0.166192	True
1956	0.195217	True	german_shepherd	0.078260	True
1957	0.489814	True	bull_mastiff	0.404722	True
1958	0.260857	True	english_foxhound	0.175382	True
1959	0.503672	True	yorkshire_terrier	0.174201	True
1960	0.775930	True	tibetan_mastiff	0.093718	True
1961	0.201493	True	komondor	0.192305	True
1962	0.962465	False	shopping_basket	0.014594	False
1963	0.692517	True	tibetan_mastiff	0.058279	True
1964	0.933012	False	mud_turtle	0.045885	False
1965	0.651137	True	english_springer	0.263788	True
1966	0.560311	True	rottweiler	0.243682	True
1967	0.408143	True	redbone	0.360687	True
1968	0.596461	True	malinois	0.138584	True
1969	0.506826	True	miniature_pinscher	0.074192	True
1970	0.465074	True	collie	0.156665	True

	p3	p3_conf	p3_dog	favorite_count	\
0	banana	0.076110	False	39467	
1	papillon	0.068957	True	33819	
2	kelpie	0.031379	True	25461	
3	spatula	0.040836	False	42908	
4	german_short-haired_pointer	0.175219	True	41048	
5	indian_elephant	0.076902	False	20562	
6	ice_lolly	0.193548	False	12041	
7	pembroke	0.076507	True	56848	
8	chesapeake_bay_retriever	0.118184	True	28226	
9	chihuahua	0.029248	True	32467	
10	chow	0.008167	True	31166	
11	muzzle	0.082981	False	28268	
12	basenji	0.004633	True	38818	
13	staffordshire_bullterrier	0.001498	True	27672	
14	redbone	0.007958	True	15359	
15	saluki	0.027351	True	25652	
16	labrador_retriever	0.105506	True	29611	
17	english_setter	0.073482	True	26080	
18	malamute	0.111411	True	20290	
19	bull_mastiff	0.000903	True	22201	
20	weimaraner	0.026236	True	30779	
21	shopping_cart	0.026321	False	46959	
22	beagle	0.038915	True	69871	
23	weimaraner	0.134203	True	34222	
24	staffordshire_bullterrier	0.029705	True	31061	
25	can_opener	0.032253	False	35859	
26	dandie_dinmont	0.086346	True	12306	
27	car_wheel	0.044173	False	22798	

28	boston_bull	0.000076	True	21524
29	siamese_cat	0.002849	False	28469
...
1941	gar	0.189945	False	459
1942	flat-coated_retriever	0.173810	True	113
1943	papillon	0.004577	True	172
1944	briard	0.206803	True	194
1945	hamster	0.000461	False	804
1946	eskimo_dog	0.093412	True	229
1947	labrador_retriever	0.014241	True	307
1948	groenendael	0.102643	True	204
1949	great_grey_owl	0.013207	False	522
1950	miniature_poodle	0.025581	True	152
1951	basenji	0.111152	True	184
1952	bookcase	0.079480	False	108
1953	partridge	0.000052	False	14765
1954	borzoi	0.133649	True	81
1955	dandie_dinmont	0.089688	True	164
1956	malinois	0.075628	True	169
1957	french_bulldog	0.048960	True	121
1958	ibizan_hound	0.097471	True	335
1959	pekinese	0.109454	True	154
1960	labrador_retriever	0.072427	True	496
1961	soft-coated_wheaten_terrier	0.082086	True	115
1962	golden_retriever	0.007959	True	304
1963	fur_coat	0.054449	False	448
1964	terrapien	0.017885	False	1253
1965	greater_swiss_mountain_dog	0.016199	True	136
1966	doberman	0.154629	True	111
1967	miniature_pinscher	0.222752	True	311
1968	bloodhound	0.116197	True	128
1969	rhodesian_ridgeback	0.072010	True	132
1970	shetland_sheepdog	0.061428	True	2535

	retweet_count
0	8853
1	6514
2	4328
3	8964
4	9774
5	3261
6	2158
7	16716
8	4429
9	7711
10	7624
11	5156
12	8538

13	4735
14	2321
15	5637
16	4709
17	4559
18	3732
19	3653
20	5609
21	12082
22	18781
23	10737
24	6167
25	8084
26	3443
27	4610
28	3316
29	6523
...	...
1941	339
1942	44
1943	92
1944	100
1945	595
1946	77
1947	146
1948	96
1949	368
1950	71
1951	82
1952	37
1953	6871
1954	16
1955	73
1956	79
1957	47
1958	174
1959	67
1960	232
1961	61
1962	146
1963	261
1964	879
1965	60
1966	41
1967	147
1968	47
1969	48
1970	532

[1971 rows x 22 columns]

1 Data Analysis and Visualization

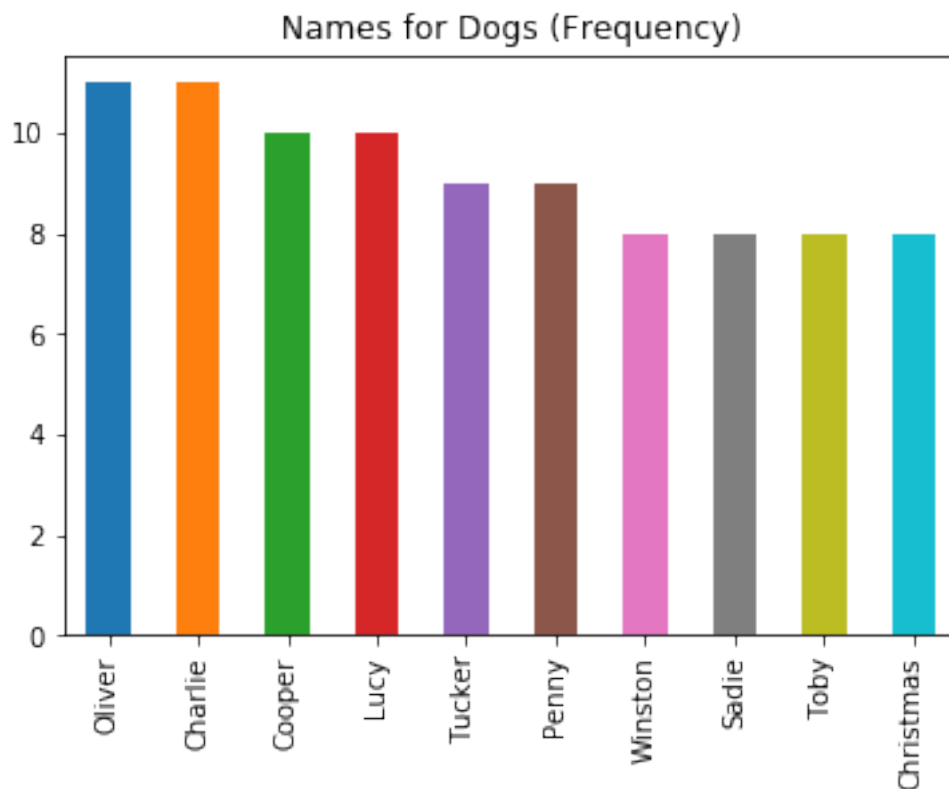
1.1 Research Questions:

1.1.1 1. What names of dogs are most popular?

```
In [4]: name_list = df['name'].value_counts().head(10)
name_list
```

```
Out[4]: Oliver      11
Charlie      11
Cooper       10
Lucy         10
Tucker        9
Penny         9
Winston        8
Sadie          8
Toby           8
Christmas      8
Name: name, dtype: int64
```

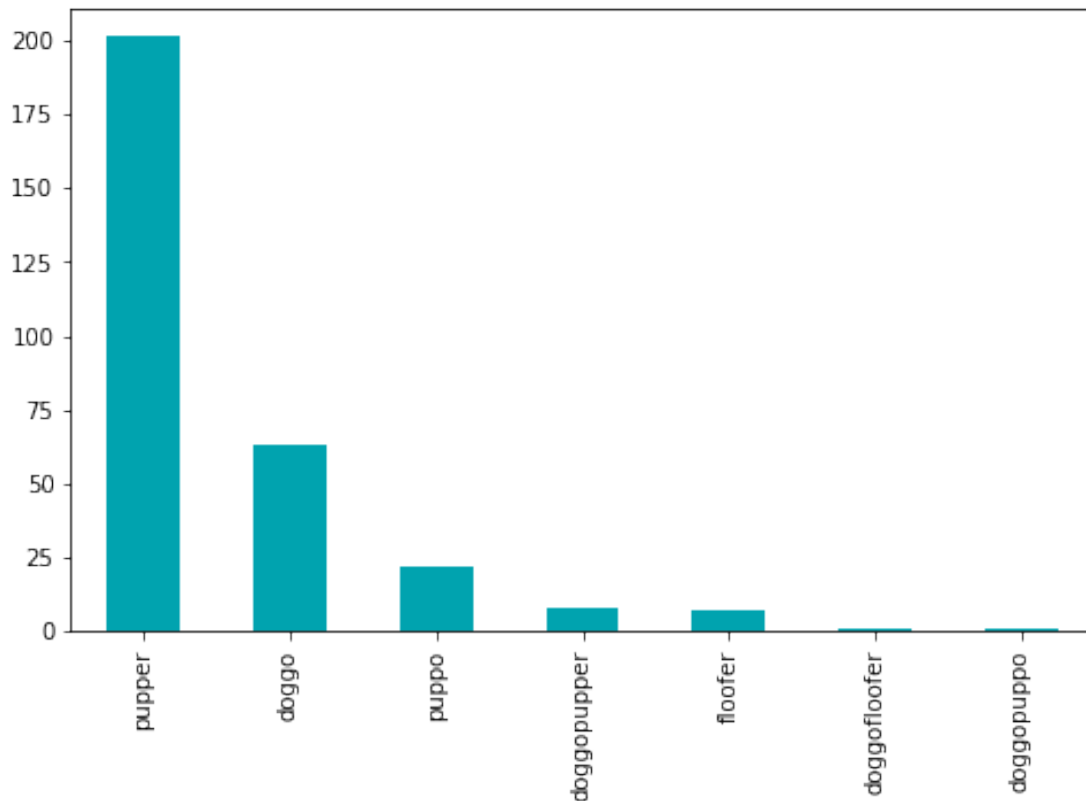
```
In [5]: #Visualization
name_list.plot(kind='bar', title = 'Names for Dogs (Frequency)');
```



According to the number of frequencies of top 10 dog names, we can see that Oliver and Charlie are the most popular names.

For a better visualization of all the dogs names, I would like to build a word cloud to show the popularity of names. The larger the word is, the more dogs are called by that particular name.

```
In [6]: names_list = df.name.value_counts().index.tolist()
        from wordcloud import WordCloud, STOPWORDS
        import matplotlib.pyplot as plt
        text = names_list
        wordcloud = WordCloud(
            width = 2000,
            height = 2000,
            background_color = 'white',
            stopwords = STOPWORDS).generate(str(text))
        fig = plt.figure(
            figsize = (30, 30),
            facecolor = 'c',
            edgecolor = 'c')
        plt.imshow(wordcloud)
        plt.axis('off')
        plt.tight_layout(pad=0)
        plt.show()
```

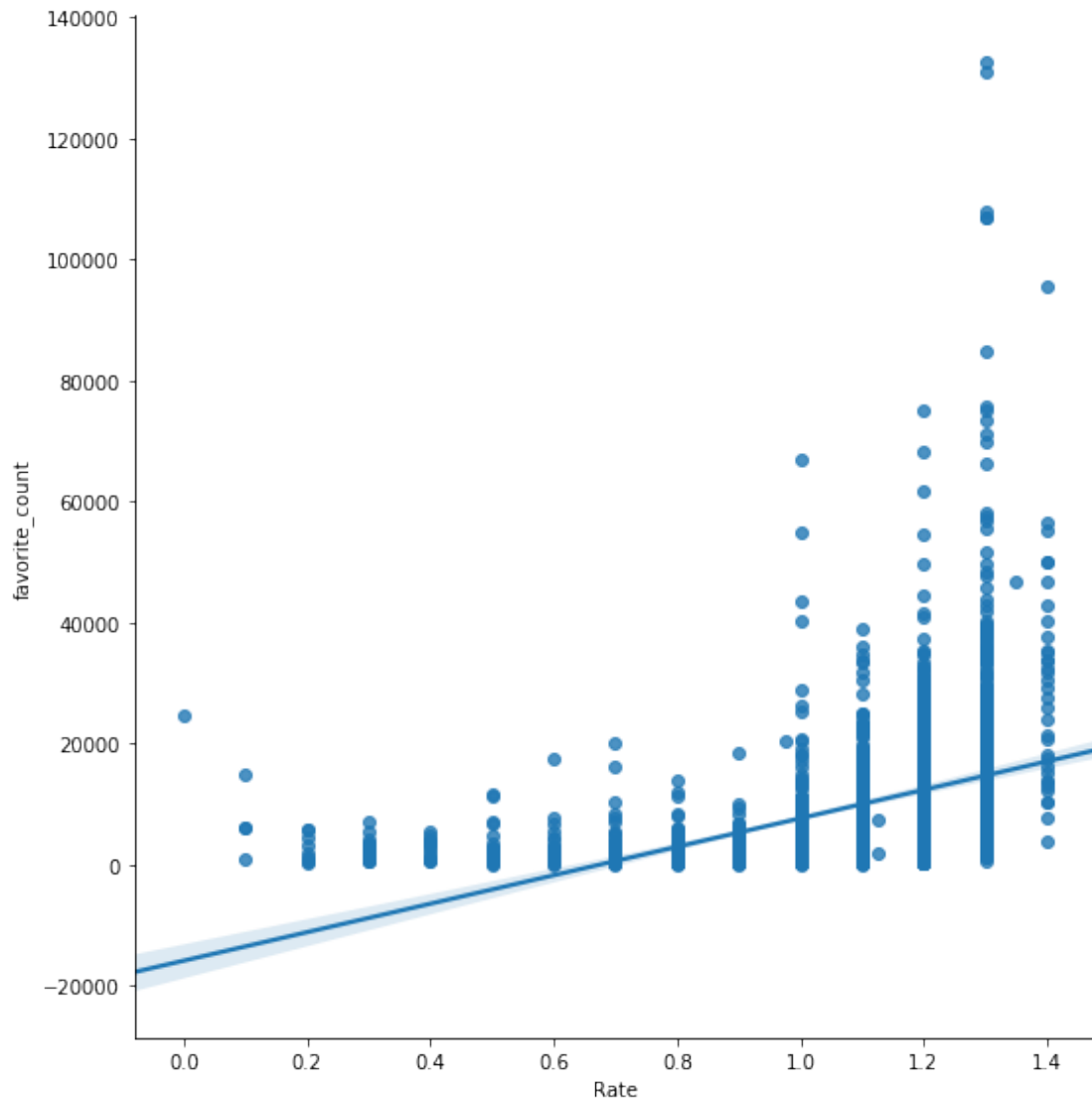



Most of the dogs are at the pupper stage.

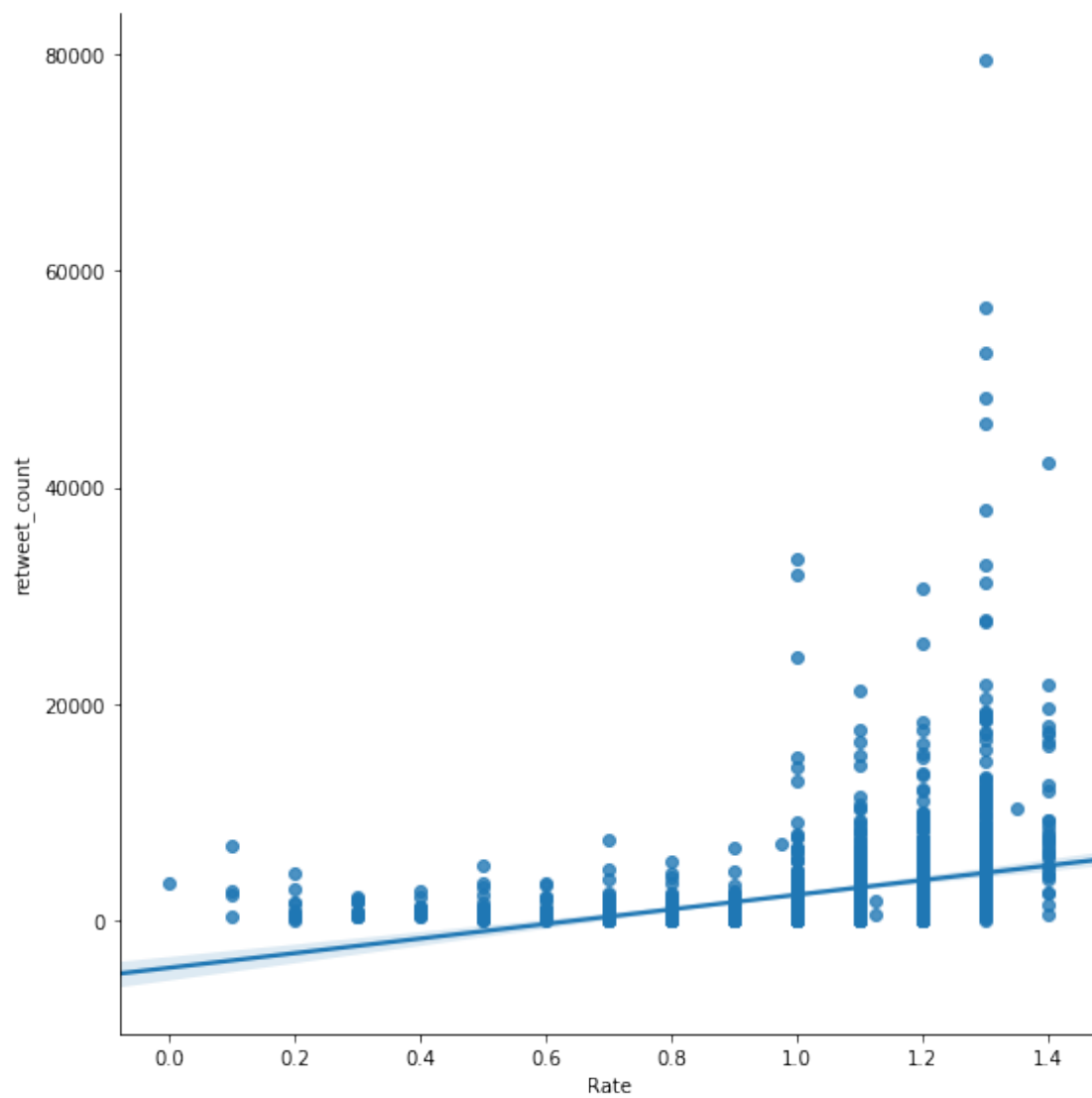
1.1.3 3. Do rating numerator and denominator have correlations to favorite counts and retweet counts?

```
In [9]: Rate = df[['rating_numerator', 'rating_denominator', 'retweet_count', 'favorite_count']].dr
Rate['Rate'] = df['rating_numerator'] / df['rating_denominator']
Rate = Rate[Rate['Rate'] < 1.5]
sns.lmplot(x='Rate', y='favorite_count', data=Rate, size=8)
```

```
Out[9]: <seaborn.axisgrid.FacetGrid at 0x7f7c402de3c8>
```

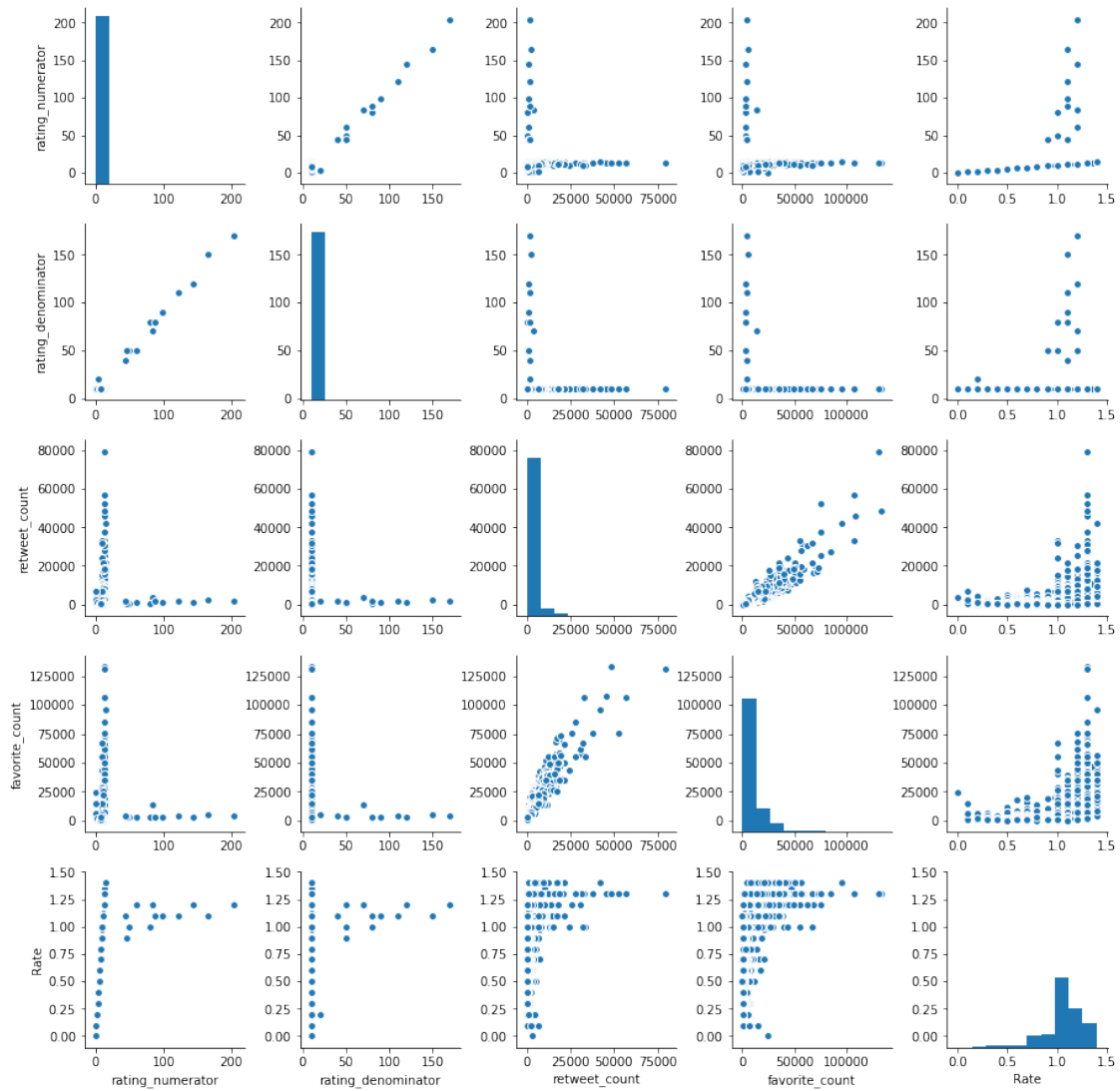


```
In [10]: sns.lmplot(x='Rate', y='retweet_count',data=Rate,size=8);
```

```
In [11]: sns.pairplot(Rate)
```

```
Out[11]: <seaborn.axisgrid.PairGrid at 0x7f7c39a589e8>
```



According to the plots, the rate is positive correlated to the retweet count and favorite count.