act-report

November 25, 2019

1 Data Analysis & Visualization

1.1 WeRateDogs Project

WeRateDogs is a Twitter account that rates people's dogs with a humorous comment about the dog. These ratings almost always have a denominator of 10. The numerators, though? Almost always greater than 10. 11/10, 12/10, 13/10, etc. As it might be obvious, because "they're good dogs." WeRateDogs has over 4 million followers and has received international media coverage.

WeRateDogs downloaded their Twitter archive and sent it to Udacity via email exclusively to be used in this project. This archive contains basic tweet data (tweet ID, timestamp, text, etc.) for all 5000+ of their tweets as they stood on August 1, 2017.

Tweepy package and tweeter API was used to collect the current status (retweet and favorite status) for the provided tweet IDs. At this stage, it is important to acknowledge that tweeter enabled me a developer account and provided me with needed keys to use tweeter APIs. A software was used to predict the dog breed in the tweets. The predictions were supplied in a separate data file.

In the previous data wrangling efforts, data were gathered, assessed, cleaned and finally combined in one master document to be used in data analysis and visualization.

```
In [8]: # Import needed packages
        import pandas as pd
        import numpy as np
        import matplotlib.pyplot as plt
        import seaborn as sns

In [2]: # Read dataframe
        tweeter_df = pd.read_csv('twitter_archive_master.csv')

In [3]: tweeter_df.head()
```

```
Out[3]:    Unnamed: 0            tweet_id            tweet_timestamp  \
        0           0  892420643555336193  2017-08-01 16:23:56 +0000
        1           1  892177421306343426  2017-08-01 00:17:27 +0000
        2           2  891815181378084864  2017-07-31 00:18:03 +0000
        3           3  891689557279858688  2017-07-30 15:58:51 +0000
        4           4  891327558926688256  2017-07-29 16:00:24 +0000

                                                source  \
```

```
0  Twitter for iphone  This is Phineas. He's a mystical boy. Only eve...
1  Twitter for iphone  This is Tilly. She's just checking pup on you...
2  Twitter for iphone  This is Archie. He is a rare Norwegian Pouncin...
3  Twitter for iphone  This is Darla. She commenced a snooze mid meal...
4  Twitter for iphone  This is Franklin. He would like you to stop ca...

                                        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

   rating_denominator  dog_name dog_class      ...       first_confidence  \
0                10.0   Phineas       NaN      ...               0.097049
1                10.0     Tilly       NaN      ...               0.323581
2                10.0    Archie       NaN      ...               0.716012
3                10.0     Darla       NaN      ...               0.170278
4                10.0  Franklin       NaN      ...               0.555712

  first_dog   second_prediction second_confidence second_dog  \
0     False               bagel          0.085851      False
1      True            Pekinese          0.090647       True
2      True            malamute          0.078253       True
3     False  Labrador_retriever          0.168086       True
4      True    English_springer          0.225770       True

              third_prediction third_confidence third_dog  favorite_count  \
0                      banana         0.076110     False         39467.0
1                    papillon         0.068957      True         33819.0
2                      kelpie         0.031379      True         25461.0
3                     spatula         0.040836     False         42908.0
4  German_short-haired_pointer         0.175219      True         41048.0

  retweet_count
0        8853.0
1        6514.0
2        4328.0
3        8964.0
4        9774.0

[5 rows x 22 columns]
```

Most Common Dog Category

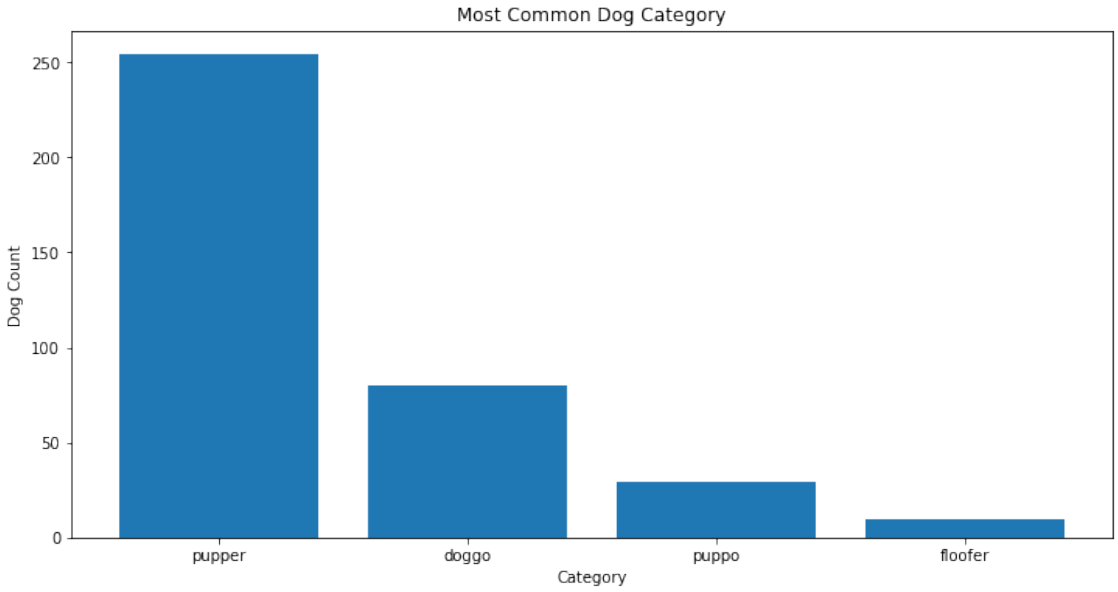
```
In [4]: tweeter_df.dog_class.value_counts()

Out[4]: pupper     251
        doggo       80
```

```
puppo       29
floofer     10
Name: dog_class, dtype: int64
```

```
In [5]: dog_type = ['pupper', 'doggo', 'puppo', 'floofer']
        dog_counts = [254, 80, 29, 10]

        fig,ax = plt.subplots(figsize = (12,6))
        ax.bar(dog_type, dog_counts, width = 0.8)
        ax.set_ylabel('Dog Count')
        ax.set_xlabel('Category')
        plt.title("Most Common Dog Category")
        plt.show()
```



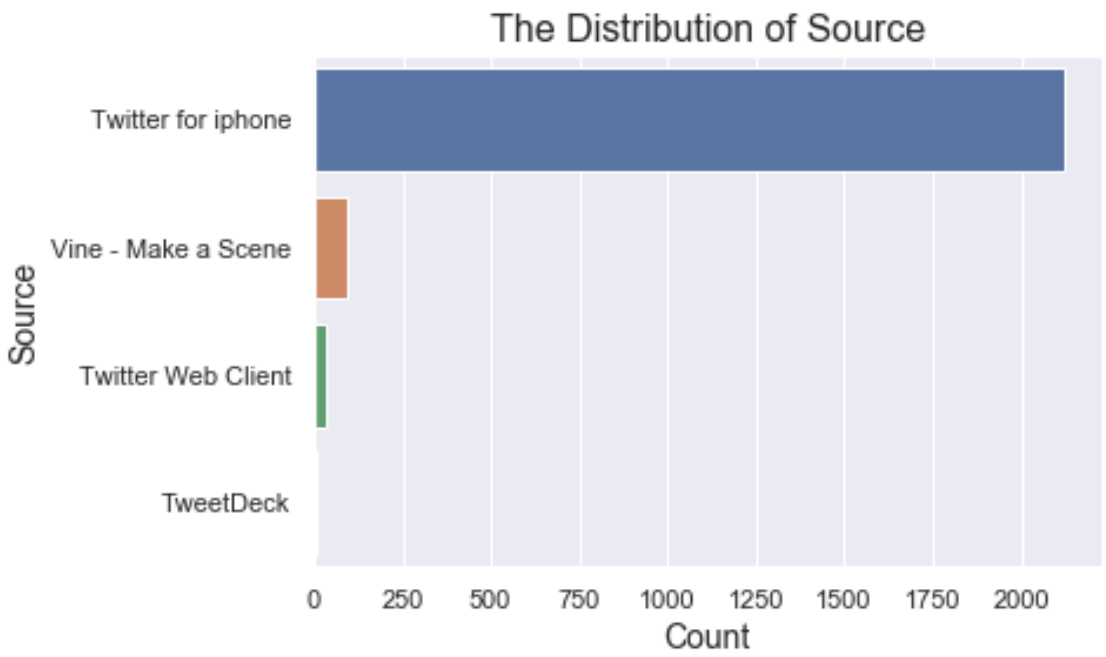
Similarly, I check the distribution of dog stages. It shows that 'pupper' is the most popular dog stage, followed by 'doggo' and 'puppo'. It could be due to the young and unmatured dog is usually cuter than the adult dog. It should also be noticed that there's huge amount missing data in dog stages, thus the distribution may not reflect the truth.

1.2 The Distribution of Source

```
In [10]: sorted_source = tweeter_df['source'].value_counts().index
         print(tweeter_df['source'].value_counts())
         sns.set(style="darkgrid")
         sns.countplot(data = tweeter_df , y = 'source', order = sorted_source)
         plt.xticks(rotation = 360)
         plt.xlabel('Count', fontsize=14)
         plt.ylabel('Source', fontsize=14)
         plt.title('The Distribution of Source',fontsize=16)
```

```
Twitter for iphone     2121
Vine - Make a Scene      91
Twitter Web Client       32
TweetDeck                10
Name: source, dtype: int64
```

```
Out[10]: Text(0.5, 1.0, 'The Distribution of Source')
```

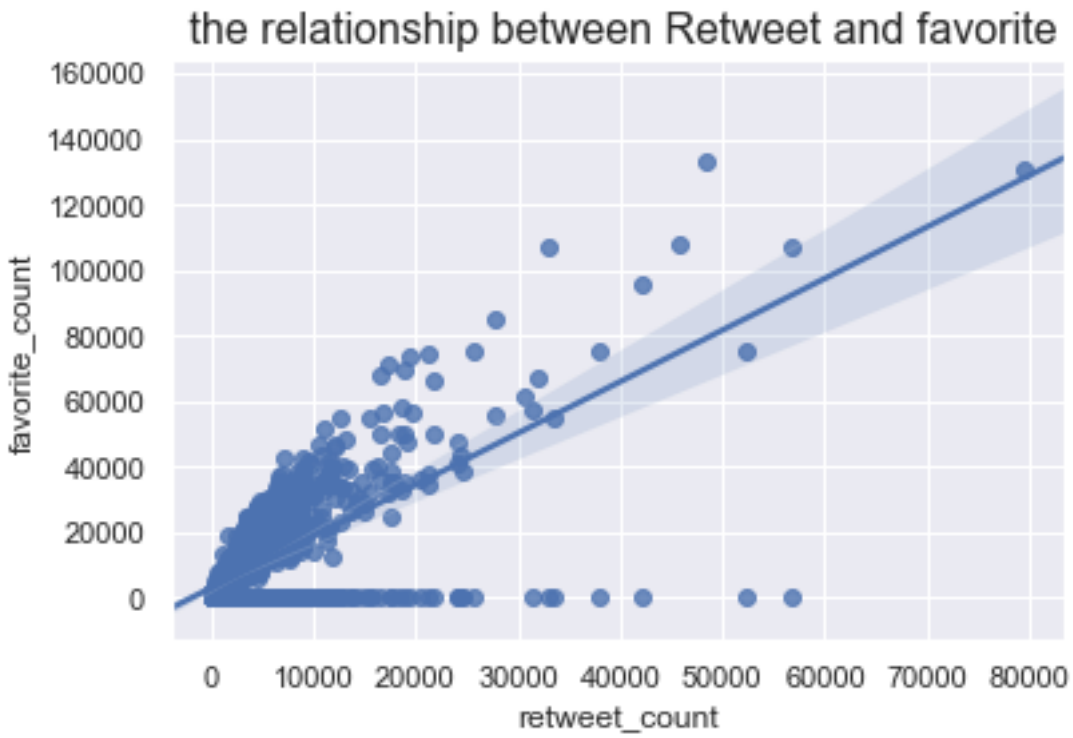


This plot above shows the distribution of source. We can see that the dominate source of tweets is from iPhone twitter app, which is 94% in the total. That means the twitter app is the main channel for people using to tweet, retweet, post, and others, while the TweetDesk is pretty rare (less than 1%).

1.3 Retweet_count and favorite_count

```
In [11]: sns.regplot(x="retweet_count", y="favorite_count", data=tweeter_df)
         plt.title(' the relationship between Retweet and favorite',fontsize=16)
```

```
Out[11]: Text(0.5, 1.0, ' the relationship between Retweet and favorite')
```



A reasonable hypothesis is that most popular tweets usually get a large number of retweets and favorite counts. I test the correlation between 'retweet_count' and 'favorite_count'. the plot showing a strong positive relationship between 'retweet_count' and 'favorite_count'. That confirms this hypothesis.

```
In [12]: tweeter_df.rating_numerator.describe()

Out[12]: count    2254.000000
         mean       10.700089
         std         2.126207
         min         1.000000
         25%        10.000000
         50%        11.000000
         75%        12.000000
         max        15.000000
         Name: rating_numerator, dtype: float64

In [13]: tweeter_df.first_prediction.value_counts()

Out[13]: 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
Siberian_husky	20
German_shepherd	20
Staffordshire_bullterrier	20
Cardigan	19
web_site	19
Maltese_dog	18
Shetland_sheepdog	18
Eskimo_dog	18
beagle	18
teddy	18
Shih-Tzu	17
Rottweiler	17
Lakeland_terrier	17
kuvasz	16
Italian_greyhound	16
...	
walking_stick	1
trombone	1
microwave	1
sundial	1
tricycle	1
flamingo	1
crane	1
maillot	1
lion	1
pitcher	1
boathouse	1
china_cabinet	1
fountain	1
terrapin	1
shield	1
African_crocodile	1
long-horned_beetle	1
rain_barrel	1
scorpion	1
coil	1
ping-pong_ball	1
Japanese_spaniel	1
marmot	1

```
carousel                    1
prayer_rug                  1
basketball                  1
lorikeet                    1
handkerchief                1
picket_fence                1
tailed_frog                 1
Name: first_prediction, Length: 378, dtype: int64
```

```
In [14]: tweeter_df.retweet_count.describe()
```

```
Out[14]: count     2354.000000
         mean      3164.797366
         std       5284.770364
         min          0.000000
         25%        624.500000
         50%       1473.500000
         75%       3652.000000
         max      79515.000000
         Name: retweet_count, dtype: float64
```

```
In [15]: tweeter_df.favorite_count.describe()
```

```
Out[15]: count      2354.000000
         mean       8080.968564
         std       11814.771334
         min           0.000000
         25%        1415.000000
         50%        3603.500000
         75%       10122.250000
         max      132810.000000
         Name: favorite_count, dtype: float64
```

1.4 insight

The most popular dog type is a "pupper" The most popular dog, based on image predictions, is a Golden Retriever The median and mean ratings out of ten are 11 and 12.7 respectively The median and mean retweet count is 1337 and 2837 respectively The median and mean favorite count is 3744 and 8490 respectively

```
In [ ]:
```