In WeRateDogs project wrangling, we took a lot of time to gather, assess and clean the data sets. After putting in a lot of effort to get a clean dataset, we went further to generate some insights regarding the data. To produce some insights, we carefully went trhought the clean dataset to see what information we can derive out of it. The following insights were drafted out and they are listed thus:

1. Learn which rating has the highest retweet count and favorite count

2. Learn which dog has the highest rating

3. Learn what month has most retweet count and favorite count

4. Which prediction has the best confidence level

5. Learn which day has most retweeet count and favorite count

To visualize the generated insights we did the following:

We created two functions to plot our graph

Function 1: This functions plots a graph with only the x-axis column name give as an argument for x_val parameter

```
def plot_graph_with_xval(df, x_val, title_val):
    df.plot(kind='bar', x=x_val, title=title_val, figsize=(12,12))
    plt.xlabel(x_val)
    #plt.ylabel(y_val)
    plt.show(block=True);
```

Function: This functions plots a graph with both the x-axis and y-axis column name give as an argument for x_val and y_val parameter respectively

```
def plot_graph_with_xval_yval(df, x_val, y_val, title_val):
```

```
df.plot(kind='bar', x=x_val, y=y_val, title=title_val, figsize=(12,12))
plt.ylabel(y_val)
plt.xlabel(x_val)
plt.show(block=True);
```

Insight 1:

We got the rating and the corresponding sum of the retweets and favorite count of each associated dog. The code is given below;

```
We_rate_dogs_insight1 = We_rate_dogs_final.groupby(["rating"],as_index=False)["retweet_count", "favorite_count"].sum()
We_rate_dogs_insight1.sort_values(by=["retweet_count"], ascending = False).head(7)
```

The above displayed a table with the rating of 1.3 have the highest retweet count and favourite counts of 1888481 and 5601289 respectively.

	rating	retweet_count	favorite_count
13	1.3	1888481	5601289
12	1.2	1515038	4659641
11	1.1	962155	2499888
10	1.0	604606	1518405
14	1.4	365800	1002910
9	0.9	119422	352191
8	0.8	82971	201068

Table 1.0: table for rating and their repective sum of retweet and favorite count

We call the first function and our visualization was plotted

```
# Call the plot_graph_with_xval to plot the needed graph
plot_graph_with_xval(We_rate_dogs_insight1,'rating', 'Count per Rating')
```

Our visualization also clearly showed that 1.3 rating had the highest value of retweet and favorite counts.

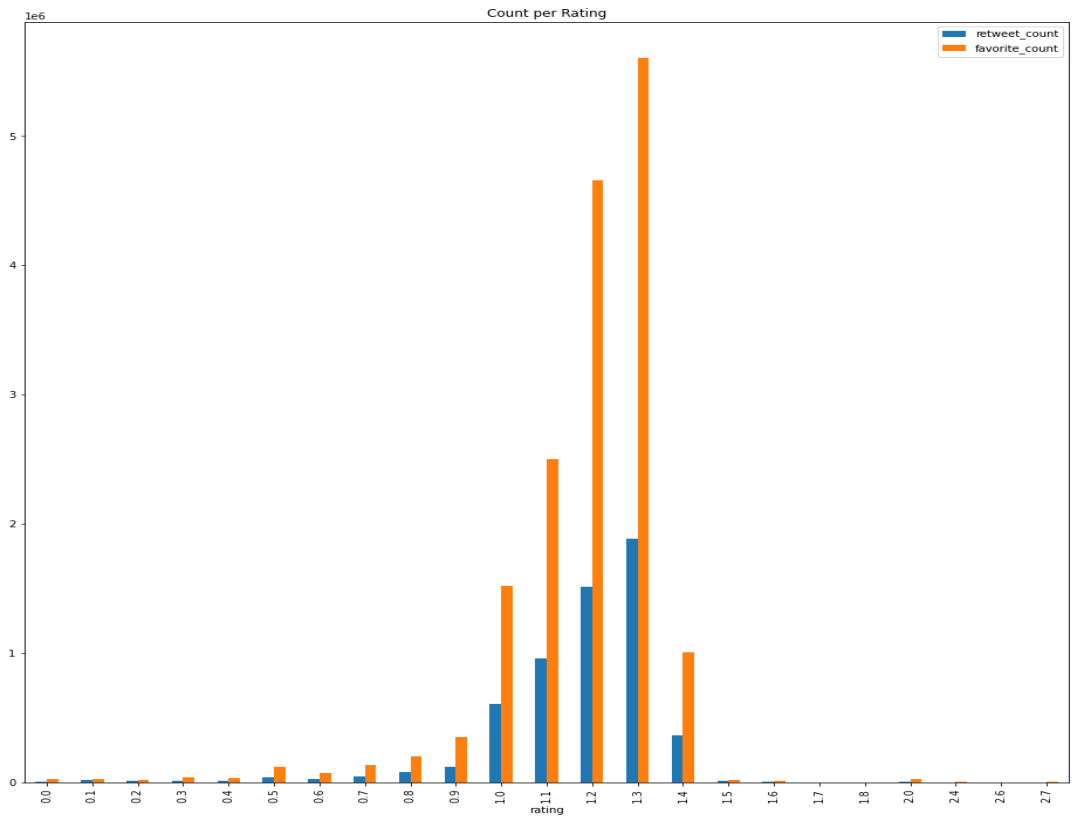


Fig 1.0: visualization for rating with the highest value

Insight 2:

We got the dog name and the corresponding sum of the retweets and favorite count of each associated dog thus;

We_rate_dogs_insight2 = We_rate_dogs_final.groupby(["name"],as_index=False)["retweet_count", "favorite_count"].sum()

We_rate_dogs_insight2.sort_values(by=["retweet_count"], ascending = False).head(7)

The above code snippest displayed the result below;

	name	retweet_count	favorite_count
625	none	2089517	5300027
136	buddy	60668	65704
841	sunny	55120	76711
824	stephan	51663	111681
777	seamus	38904	40204
261	duddles	37403	92778

	name	retweet_count	favorite_count
392	hurley	34056	29431

Table 1.1: table for dog name and their repective sum of retweet and favorite count

‘None’ stands for dogs without name, as such we won’t say it is a dog. Rather we will point out that ‘buddy’ is the dog with the highest retweet and favorite counts of 60668 and stephan' has the highest favorite count of 111681

Insight 3:

We got the tweet_month and the corresponding sum of the retweets and favorite count of each associated dog.

We_rate_dogs_insight3 = We_rate_dogs_final.groupby(["tweet_month"],as_index=False) ["retweet_count", "favorite_count"].sum()

We_rate_dogs_insight3.sort_values(by=["retweet_count"], ascending = False).head(5)

This result is displayed thus;

	tweet_month	retweet_count	favorite_count
2	December	795308	1999699
4	January	758681	1814609
6	June	608686	1990703
5	July	568128	2063657
3	February	485770	1477579

Table 1.2: table for tweet month and their repective sum of retweet and favorite count

December possesses the highest retweet while July possesses the highest favorite count.

Our visualization for this insight was plotted thus;

#call plot_graph_with_xval_yval to plot the graph

plot_graph_with_xval_yval(We_rate_dogs_insight3, 'tweet_month', 'retweet_count', 'Retweet Count versus Tweet Month')

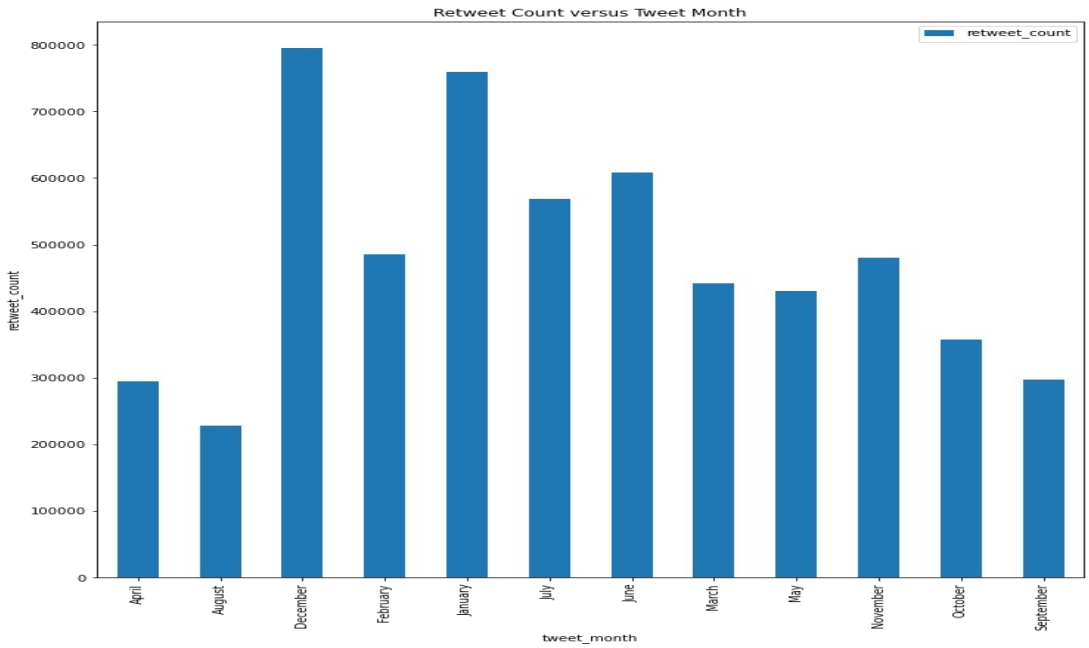


Fig. 1.1 Retweet count per tweet month

From the visualization above most of the retweet was done in the month of December with January as a second. I assumed that this could be because of the christmas and new year holidays.

The visualization below, clearly shows July with the highest favorite count.

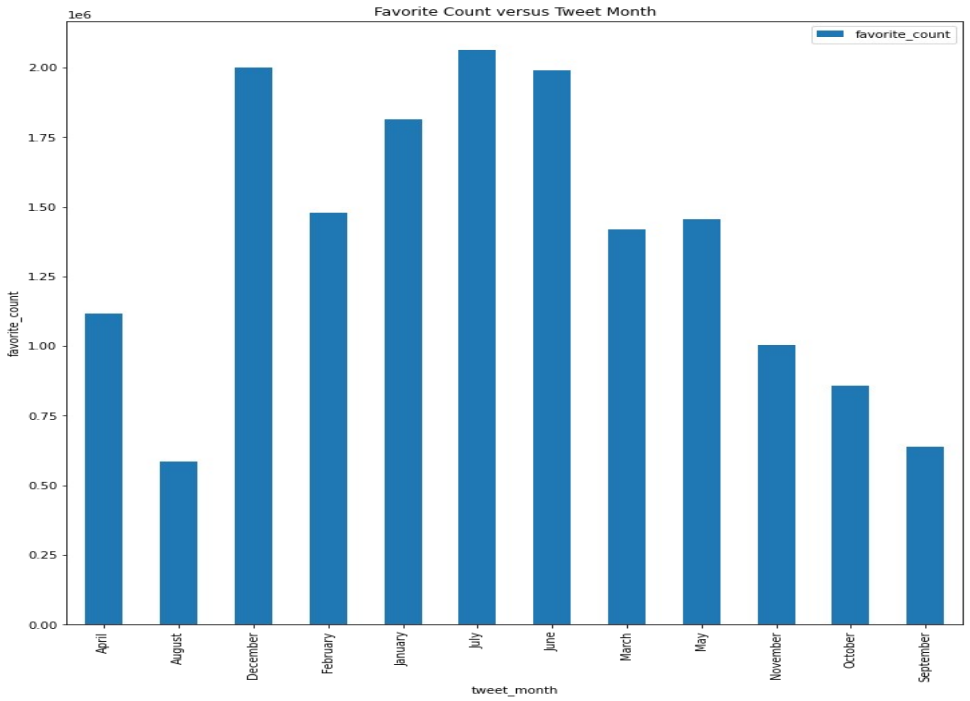


Fig. 1.2 Favorite count per tweet month

Insight 4:

We got the descriptive summary using;

We_rate_dogs_final.describe()

	tweet_id	p1_conf	p2_conf	p3_conf	
count	2.327000e+03	1232.000000	1232.000000	1232.000000	
mean	7.417930e+17	0.626173	0.143554	0.061857	
std	6.820795e+16	0.253180	0.103855	0.053140	
min	6.660209e+17	0.044333	0.000056	0.000008	
25%	6.781394e+17	0.414978	0.055919	0.015925	
50%	7.178418e+17	0.627879	0.131007	0.048775	
75%	7.986547e+17	0.853315	0.207230	0.095678	
max	8.924206e+17	0.999885	0.467678	0.273419	

Table 1.3: Descriptive summary of the dataframe

Since the highest value of a confidence level is 1. On the max row, P1_conf has the best value (0.999885) close to 1. Also on the 50 percentile, p1_conf has the best value

Insight 5:

In learning which day has the most retweet and favorite count, we got the day and the sum of the retweet and favorite count as thus;

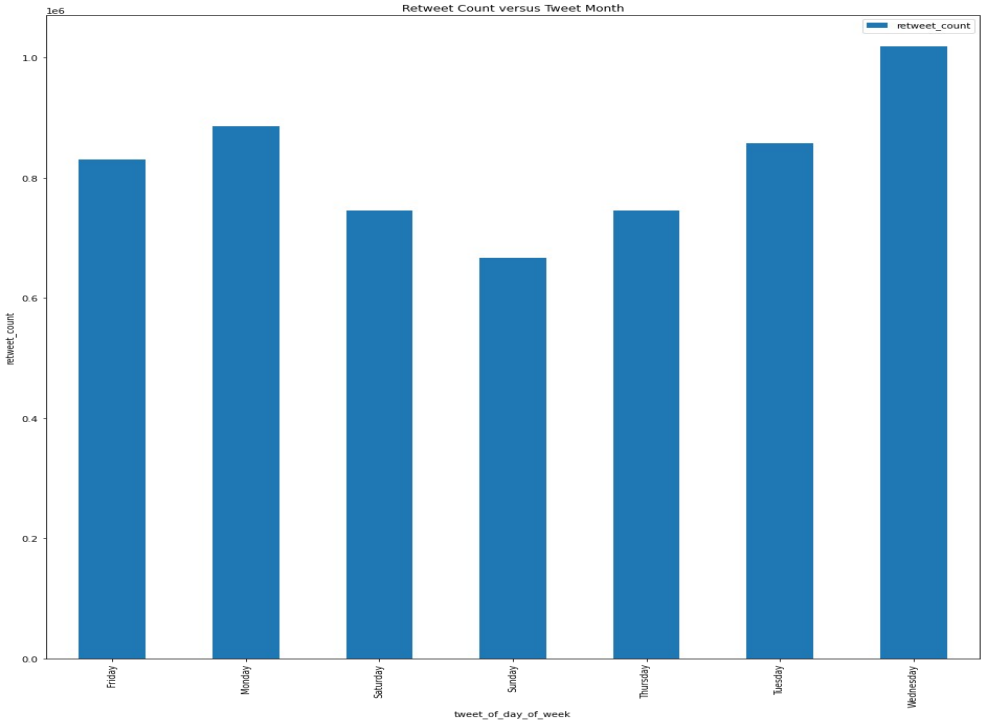
```
We_rate_dogs_insight5 = We_rate_dogs_final.groupby(["tweet_of_day_of_week"],as_index=False)
["retweet_count", "favorite_count"].sum()
We_rate_dogs_insight5.sort_values(by=["retweet_count"], ascending = False).head(5)
```

The result of the above code cell is given below;

	tweet_of_day_of_week	retweet_count	favorite_count
6	Wednesday	1018794	2693812
1	Monday	885853	2631188
5	Tuesday	857425	2481202
0	Friday	830125	2240704
4	Thursday	745045	2102115

Table 1.4: table for tweet day of the week and their repective sum of retweet and favorite count

The visualization plot below shows Wednesday having the highest retweet count



The next visualization also shows wednesday having the highest favorite count