"Wrangle and Analyze Data" Project

Wrangle report

Gather

First, I gathered 3 different format files, twitter_archive_enhanced.csv, image_predictions.tsv and at last twitter-json.txt that holds tweets json data sets.

The first file was downloaded directly, the second was downloaded programmatically, the third was extracted from a zip file programmatically after failing of code of twitter API to get the data.

After that, I loaded their data in corresponding pandas dataframes as copies.

Assess

Then I assessed the files dataframes tables:

1. Visually: using spreadsheets, text editor software and pandas.

2. Programmatically: using pandas functions and methods like: `head()` , `info` , `value_counts()` , `duplicated()` , `sum()` , `sort_values()` ,`describe()`

Below is what I had found out:

Quality issues

`twitter_archive` table

- Data type of tweet_id column is int64 instead of category
- Data type of timestamp column is object instead of datetime
- Source column contains distracting HTML tags
- Dublicated url strings in expanded_urls column
- Inaccurate username in expanded_urls column like (4bonds2carbon, kaijohnson_19,bbcworld) in urls column instead of (dog_rates)
- Embedded Urls like (https://www.gofundme.com/mingusneedsus,) and (https://www.gofundme.com/3yd6y1c,) (https://www.gofundme.com/help-my-baby-sierra-get-better,) strings in expanded_urls column
- Wrong urls of tweets in expanded_urls column
- Missing urls of tweets in expanded_urls column
- Data type of rating_numerator and rating_denominator columns is int64 instead of float
- 'None's in (doggo ,floofer,pupper,puppo) instead of null
- 'None's instead of null in name column
- Ratings with decimal values incorrectly extracted
- Wrong assigned rating for tweets with ids 810984652412424192 , 675153376133427200, 670783437142401025, 667549055577362432, and 666104133288665088
- Rows that contain 'retweets' data that are not the original tweets meant for analysis
- Rows that contain 'replys' data that are not the original tweets meant for analysis
- Columns (in_reply_to_status_id, in_reply_to_user_id column, retweeted_status_id, retweeted_status_user_id, retweeted_status_timestamp) in twitter_archive table not needed in our analysis

`image_predictions` table

- img_num data type is int64 instead of category

`tweet_json_df` table

Tidiness issues

- (doggo ,floofer,pupper,puppo) in `twitter_archive` table represent one variable "stage" in four columns
- (retweet_counts, favorite_counts) columns in `tweet_json_df` table should be part of the `twitter_archive` table, also (jpg_url,img_num) columns in `image_predictions` table should be part of the `twitter_archive` table. In general the three datasets should be merged as they are part of the same observational unit

Clean

Tidiness

I made stage column of concatenating (doggo,floofer,pupper,puppo) columns in twitter_archive table, then dropped the four separated columns at the end of cleaning up.

Then, I merged `tweet_json_df_clean` dataeframe to `twitter_archive_clean` dataFrame to have the columns `retweet_counts` and `favorite_counts` within one `twitter_archive_clean` dataFrame

After that I also merged `image_predictions_clean` dataeframe to `twitter_archive_clean`.

Quality

In a brief:

- **I omitted rows retweets and replys:**

  by removing rows that have non-empty retweeted_status_id, retweeted_status_user_id, or retweeted_status_timestamp and in_reply_to_status_id.

- **Then replacing distracting HTML tags in `source` column with the original sources like:**

  "Twitter for iPhone" replaced `<a href="http://twitter.com/download/iphone" rel="nofollow">Twitter for iPhone</a>`

- **URLs in `expanded_urls` were rehandled with the string ("https://twitter.com/dog_rates/status/"+ tweet ID) where tweet ID was taken from the `tweet_id` column to set the tweet url correctly in its place on the table and to overcome issues like:**

  1. URL dublications within the same cell in expanded_urls column
  2. Usernames like (4bonds2carbon, kaijohnson_19,bbcworld) in urls on expanded_urls column cells instead of the accurate username (dog_rates)
  3. trange embedded urls like (https://www.gofundme.com/mingusneedsus,), (https://www.gofundme.com/3yd6y1c,) and (https://www.gofundme.com/help-my-baby-sierra-get-better,) strings in expanded_urls column
  4. Wrong urls of tweets in expanded_urls column
  5. Missing urls in expanded_urls column

- **Extracting correct decimal values ratings came later, then removing wrong assigned rating for a number of tweets.**

- **The 'None's in name column, and empty cells in stage column were changed to nulls.**

- **Columns `doggo`, `floofer`, `pupper`, `puppo`, and other columns not needed, at least in our analysis `in_reply_to_user_id`,`in_reply_to_user_id`, `retweeted_status_id`, `retweeted_status_user_id`, `retweeted_status_timestamp` were dropped off.**

- **Eventually, here were the conversions of columns' data types:**

  - `tweet_id` and `img_num` columns to category
  - `favorite_count` and `retweet_count` to int
  - `timestamp` column to datetime
  - `rating_numerator` and `rating_denominator` to float

Arranging `twitter_archive_clean` columns and exporting to a csv file

- **I tended to sort the master tweets table by `timestamp` column ignoring maintaining original indexing of table.**
- **Then, I sorted the table columns in a list to rearrange columns order in the table as they fit.**
- **At last step I exported the master table to a csv file named `'twitter_archive_master.csv'`**

Insights revealed

- **Finally, I tried to extract a number of insights and here are some:**

1st Insight: **The vast majority of the tweets were pushed up from "Twitter" app on an iPhone device with 1964 times and about 94% of total tweets**

2nd Insight: **'Charlie', 'Lucy', 'Oliver' and Cooper are sharing almost the same times 11 or 10 to be a given name lying within the most given names, while 'Laika', 'Jeffri', 'Mollie', 'Leela', and 'Rhino' are lying on the tail with one time to be a given name.**

3rd Insight: **With 132810 likes, a tweet sent on 2017-01-21 6:26:02 PM from Twitter for iPhone hitted the top score of favorite (like) count with the text "Here's a super supportive puppo participating in the Toronto #WomensMarch today. 13/10 https://t.co/nTz3FtorBc" amongst all other tweets till August,1 2017**

4th Insight: **Though not reaching the highest favorite count, and being sent from the least source of tweets, an 'Atticus' got the top rating numerator with 1776 from @dog_rates amongst all other tweets since 2015-11-15 10:32:08 PM, till August,1 2017 4:23:56 PM, on a tweet sent on 2016-07-04 3:00:45 PM from TweetDeck with the text "This is Atticus. He's quite simply America af. 1776/10 https://t.co/GRXwMxLBkh"**

5th Insight: **The most retweet count was for the favor of a "doggo" captured in a video by Tina Conrad, on a tweet sent on 2016-06-18 6:26:18 PM with the text "Here's a doggo realizing you can stand in a pool. 13/10 enlightened af (vid by Tina Conrad) https://t.co/7wE9LTEXC4"**