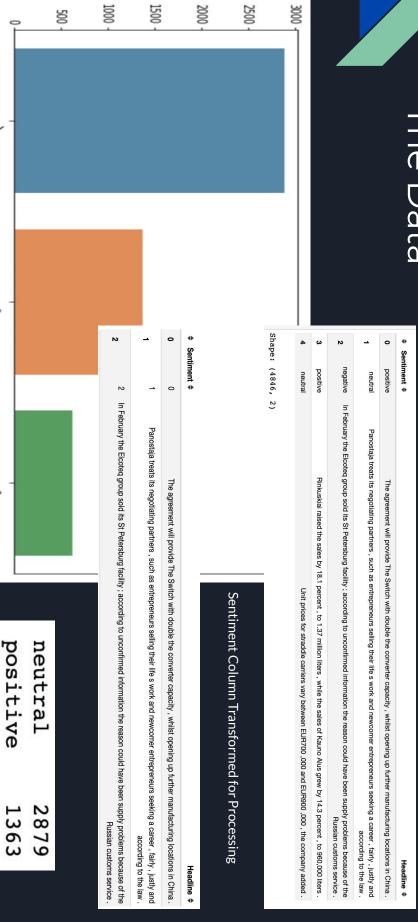
Sentiment Analysis Networks Using Neural Financial News

Arash Peimani Flatiron Capstone 1/27/20201

The Data



Number of Occurrences

Ruttal

POSITIVE

Regaring

negative

604

Sentiment

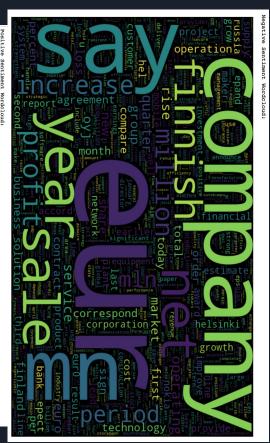
Clean the Data

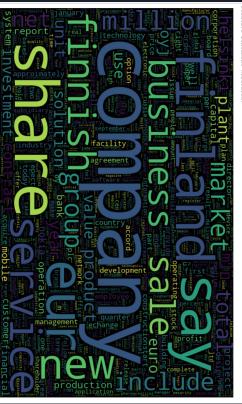
Stopwords: Remove words in the string that have no unique values.

a word to its base root mode. 1 Lemmatization: a method that switches any kind of

metadata Beautiful Soup: used to strip any HTML tags and

body of the text Tokenizer: Splitting sentences and words from the





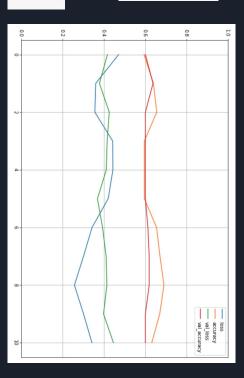
The Model and It's Evaluation

Hidden Layer

```
model = Sequential()
model.add(Embedding(num_words, embedding_dim, input_length=64))
model.add(Dense(200, activation='relu'))
model.add(Dropout(0.2)) # Optional Regularization
model.add(Dense(1, activation='sigmoid'))
```

LSTM (Long Short Term Memory)

```
model.add(Embedding(num_words, embedding_dim, input_length=max_length))
model.add(Dense(1, activation='sigmoid'))
                                               model.add(Dense(32, activation='relu'))
                                                                                              model.add(LSTM(64, dropout = 0.1))
```



Train Loss: 30.066%
Train Accuracy: 60.502%
Test Loss: 40.929%
Test Accuracy: 59.922%

Testing The Model With Our Own Headlines

Scoring: 1=Positive, .5=Neutral, 0=Negative

```
apple factory shut down, lay off hundred employee
                                                                                                                                                                                                                                                                                                                    stock rise rapid for tesla
                                                                                                                                                                                                                                                                                                                                                                          Easier Headlines:
                                                                                                                                  64), dtype=float32), but it was called on an input with incompatible shape (None, 50).
                                                                                                                                                                              WARNING: tensorflow: Model was constructed with shape (None, 64) for input Tensor("embedding_3_input:0", shape=(None,
                                                                                                                                                                                                                             average day of return for microsoft
                                                                                   [[[0.9118428]
[0.95264506]
                                            [0.13337815]
```

```
Realistic Headlines:
```

europe economic revival imperil raising the specter grind downturn [[[0.85545903] fed debate next step after shifting approach to rate setting snowflake more [0.85545903] [0.03135353] double debut wall street embrace tech ipos

Future Work:

- Develop a Web Scraper to take Headlines from Financial News. Example: Reddit Financial Sites
- Fine Tune Neural Network for More Accurate Results.
- Cross Reference Sentiment Results with Stock Prices for that Day to Check Correlation.

THANK YOU

me through this project. To the Flatiron Cohort and Staff for providing support and information to help and guide

References

Analytics Steps https://www.analyticssteps.com/blogs/what-stemming-and-lemmatization-nlp