NLP
DISASTER TWEETS

A binary classification problem
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PROBLEM STATEMENT

Kaggle: In this competition, you're challenged *to build a machine learning model that predicts which Tweets are about real disasters and which one's aren't*. You'll have access to a dataset of 10,000 tweets that were hand classified.

WHY IS THIS IMPORTANT?

Twitter has become an important communication channel in times of emergency. The ubiquitousness of smartphones enables people to announce an emergency they’re observing in real-time. Because of this, more agencies are interested in programatically monitoring Twitter (i.e. disaster relief organizations and news agencies).

DATA SOURCE

(1) Kaggle/Data for Everyone

Files:
train.csv with 7,613 records.
test.csv with 3,263 records.

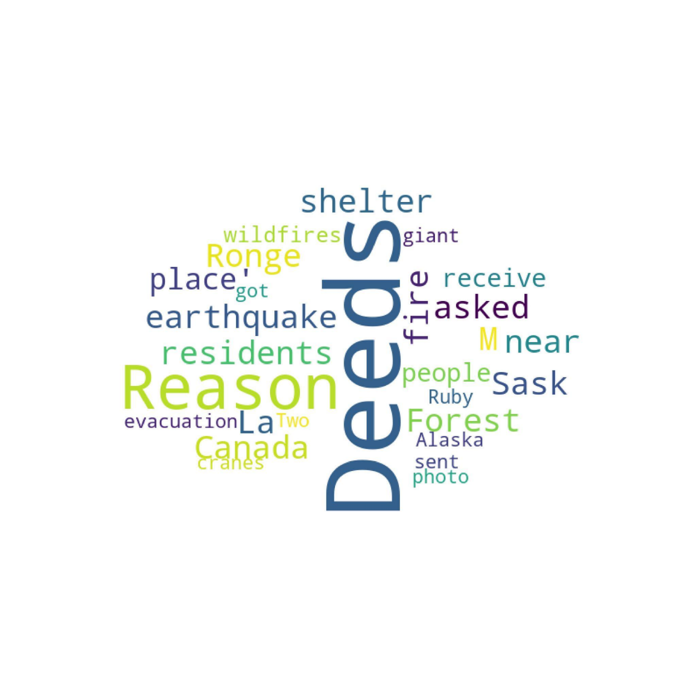
Train data has 7,613 rows.
Test data has 3,263 rows.

Text text data was run through several cleanup functions to remove punctuation, numbers, misspelled words, stop words, etc. The cleaned data was then split into features and target, vectorized, and transformed into tensors/multidimensional arrays to be fed into the neural network model.

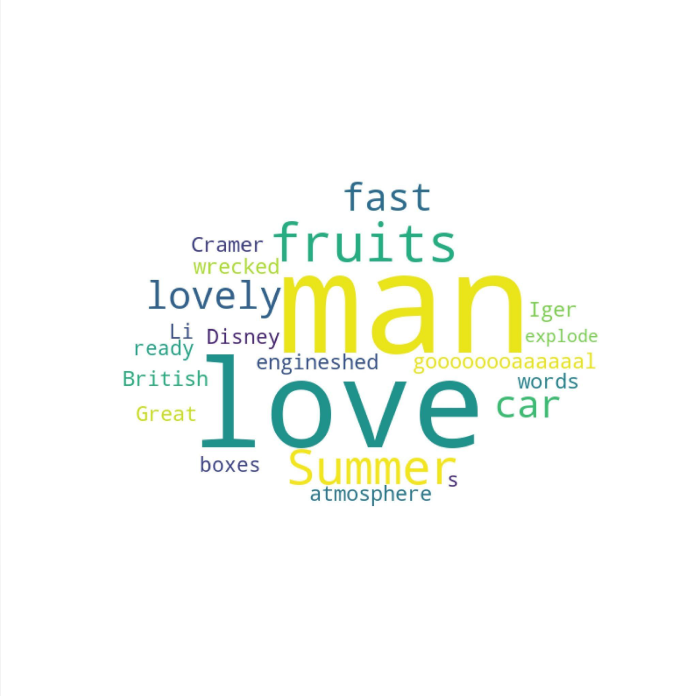
DATA DICTIONARY

Feature	Type	Description
id	int64	a unique identifier for each tweet
text	object	the text of the tweet
location	object	the location the tweet was sent from (may be blank)
keyword	object	a particular keyword from the tweet (may be blank)
target	int64	in train.csv only, this denotes whether a tweet is about a real disaster (1) or not (0)

WORD CLOUDS



shelter
wildfires
giant
Ronge
place'
got
receive
asked
earthquake
Deeds
fire
M
near
residents
Reason
people
Sask
Ruby
evacuation
La
Two
Forest
Canada
Alaska
cranes
sent
photo



fast
fruits
Cramer
wrecked
lovely
man
Iger
Li
Disney
explode
ready
engineshed
goooooooaaaaaal
British
love
words
car
Great
boxes
Summer
s
atmosphere

MODELS

Models used:

- Dense Neural Network with three layers, 16 units each, activation function 'relu', and output function 'sigmoid'; optimizer 'rmsprop', loss function 'binary crossentropy', and metric 'accuracy'. Accuracy 79%.
- Multinomial Naive Bayes. Accuracy 80%.

CONCLUSIONS AND RECOMMENDATIONS

(1) Disaster tweets contain words like forest, evacuation, residents, shelter, wildfires, earthquake.
(2) Not Disaster tweets contain words like love, lovely, man, car ,summer, fruits.
(3) The Naive Bayes models performed best, with 80% accuracy.
(4) Neural Networks requires very large amounts of data, so they may not be the best option for working with this dataset.