

How do our
customers feel
about Apple
products?

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Overview

- 1) Business Problem
- 2) The Data
- 3) The Modeling
- 4) Model Evaluation
- 5) Conclusions/Next Steps

Business Problem

Problem: Help TSC determine whether or not to sell/promote Apple products.

Goals:

- Track Tech Sales Company (TSC) customers **sentiment** about Apple products based on user Tweets.
- Develop machine learning model to classify tweets as **Critical** to review.

The Data

- Data from over 3,000 Twitter posts from December 2014.
- Each post is associated with a sentiment rating.

Example)

Rating: 1

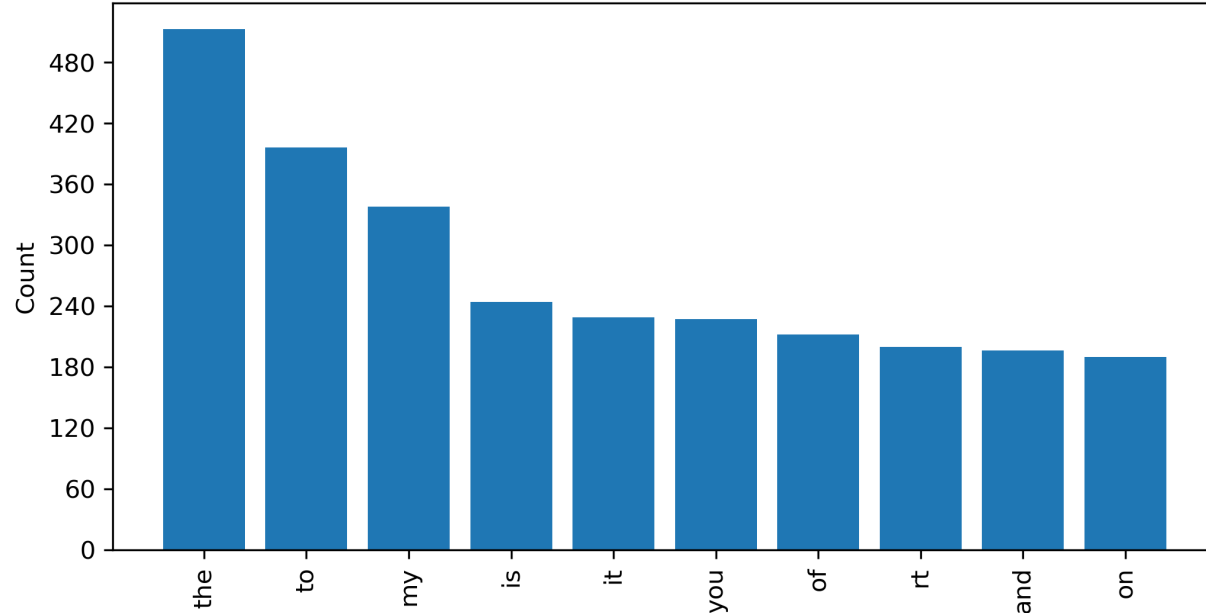
Text: “My iPhone 5's photos are no longer downloading automatically to my laptop when I sync it. @apple support is unhelpful. Any ideas?”

Data/Text Cleaning

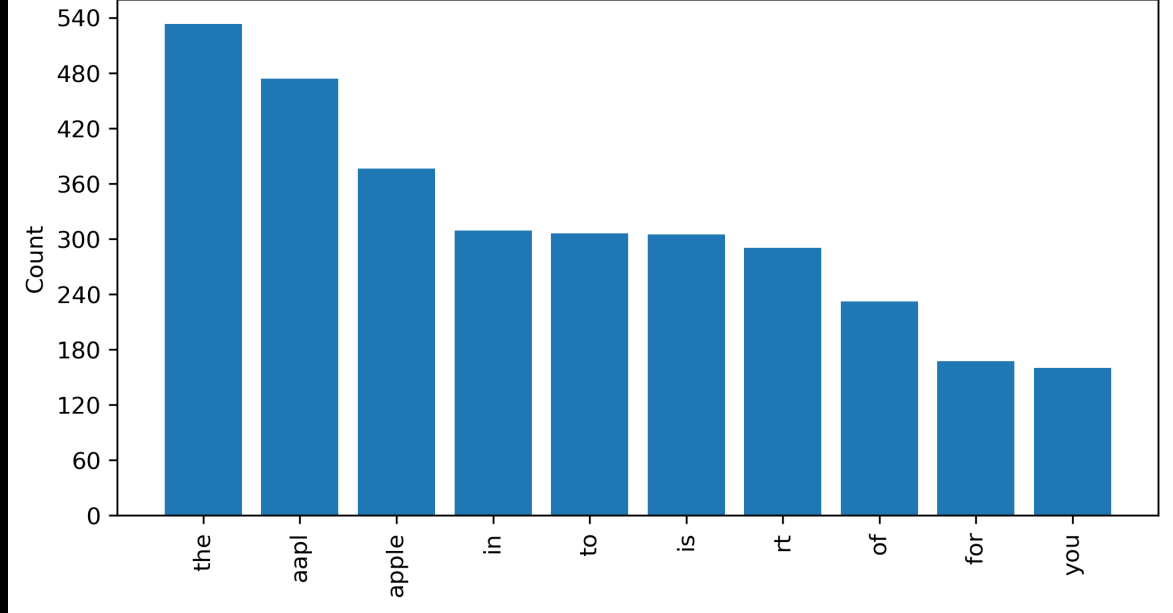
1. Convert sentiment ratings to “Not Critical” and “Critical”
2. Standardize Text:
 1. Lower case, spaces, etc.
 2. Remove @, URLs, Emojies
3. Tokenize Data

Token Frequency

Top 10 Word Frequency - Critical Posts

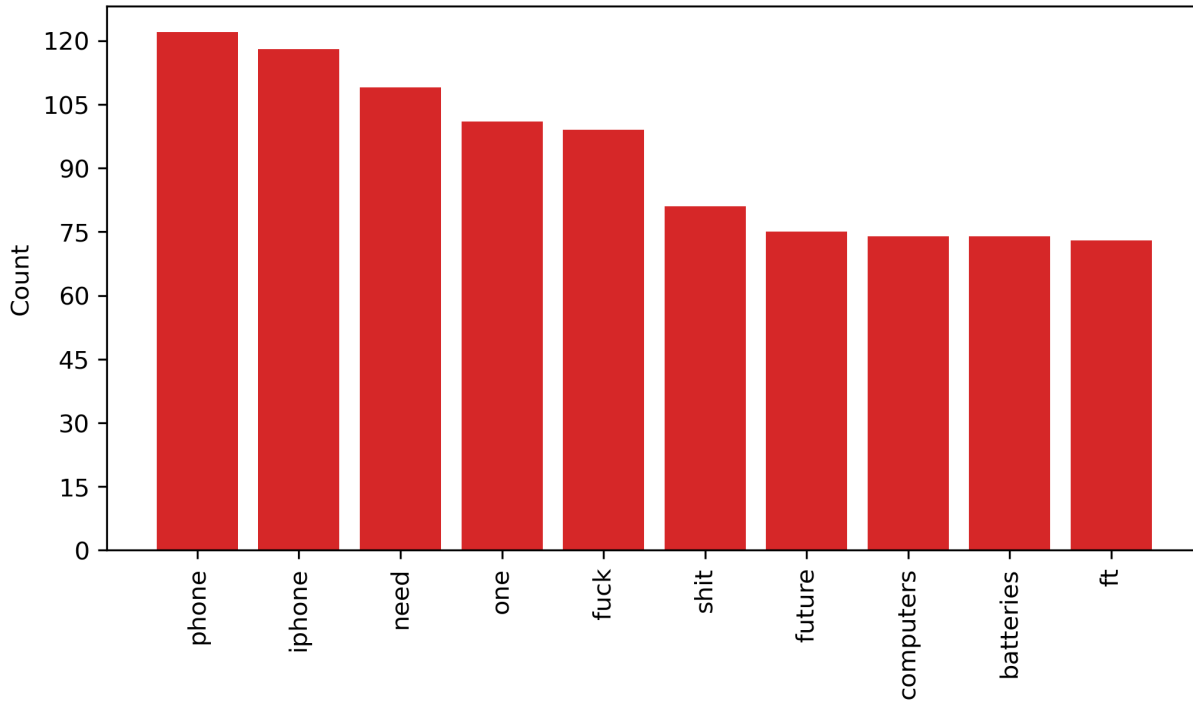


Top 10 Word Frequency - Not Critical Posts

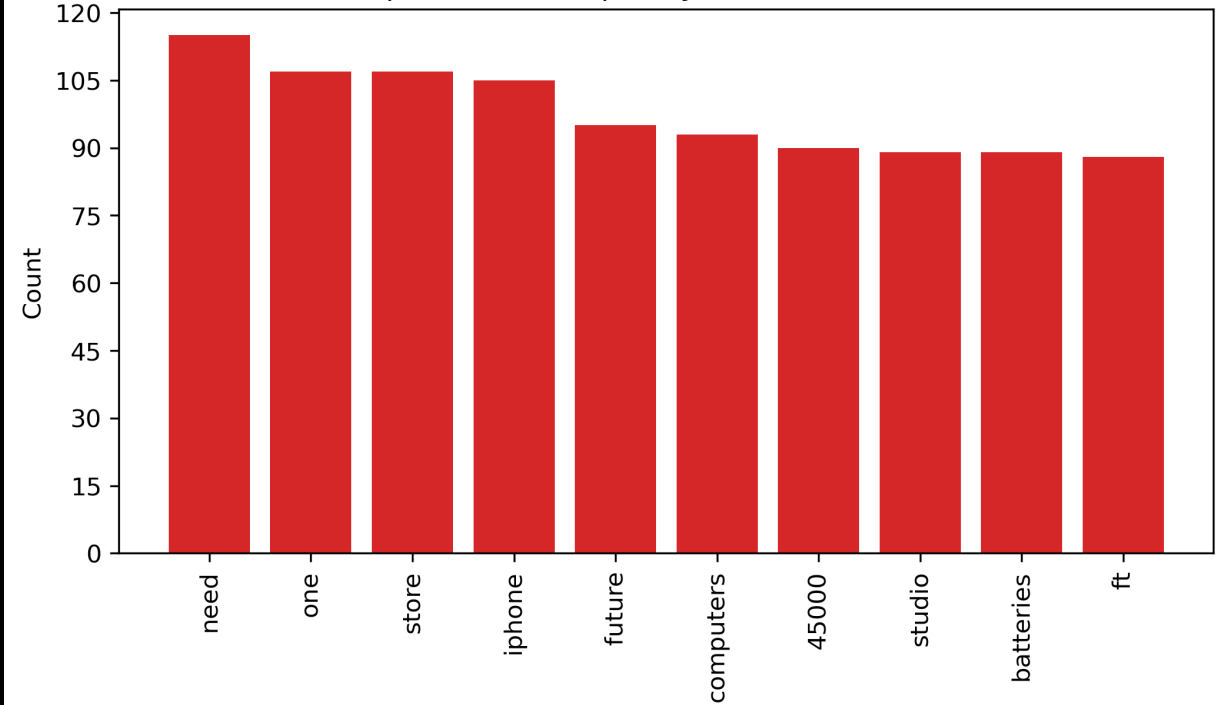


Token Frequency – No Stop Words

Top 10 Word Frequency - Critical Posts



Top 10 Word Frequency - Not Critical Posts



Additional Tokens Removed: “apple”, “aapl”, “rt”

The Modeling

- Classify a tweet as “Critical” vs “Not Critical”
- Primary Features:
 - Text
 - Rating
- Utilize TF-IDF vectorization
- Evaluation: Recall Score

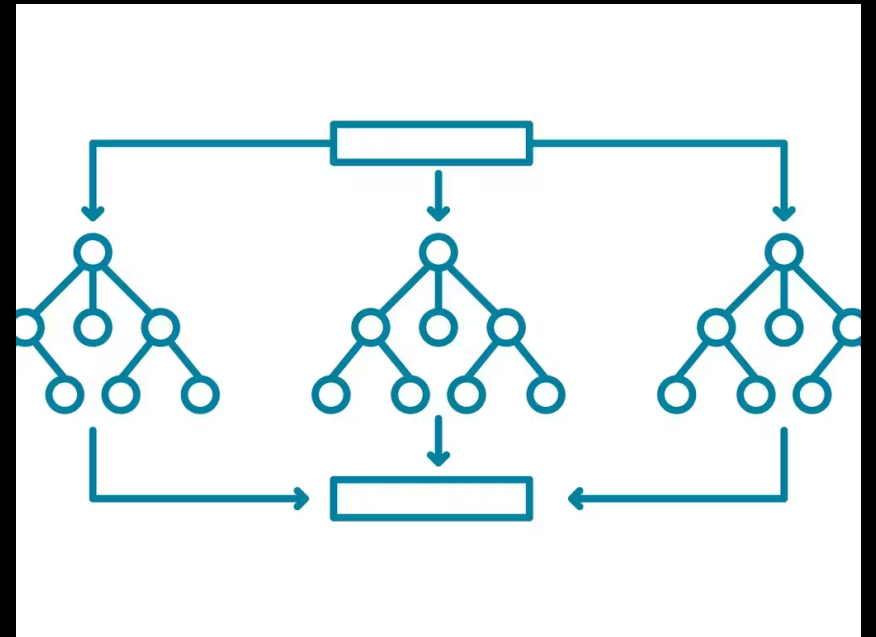
Final Model and Evaluation

Random Forest Classifier

Training Recall: 0.88

Testing Recall: 0.80

Average Cross Validation Scores: 0.73



Conclusions/Recommendations

- The model performs well and is not overfitting or underfitting.
- TSC can review posts and determine which posts are **Critical** to review.
- This model can help determine TSC's strategy for selling Apple products.

Limitations

- Model is based on data from a specific time period.
- Dataset is slightly outdated, as Apple continuously updates products.

The next steps

- Evaluate the model on a yearly basis to ensure model is up to date based on the current Apple product.
- Consider incorporating reviews from other sources.

Thank you