



Using social media, can we
locate legitimate power
outages?



Data Collection

EDA

Preprocessing

Model

Evaluation

Visualization



Data Collection: Twitter

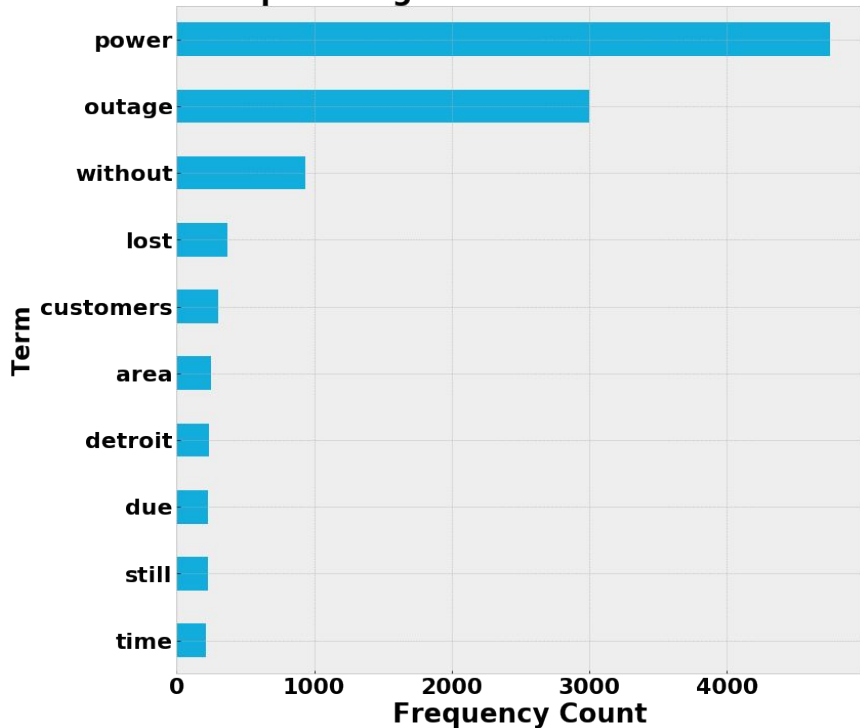
- Scraper v. API?
- Keyword Choice
- Location Analysis & Testing

Data Collection: Weather

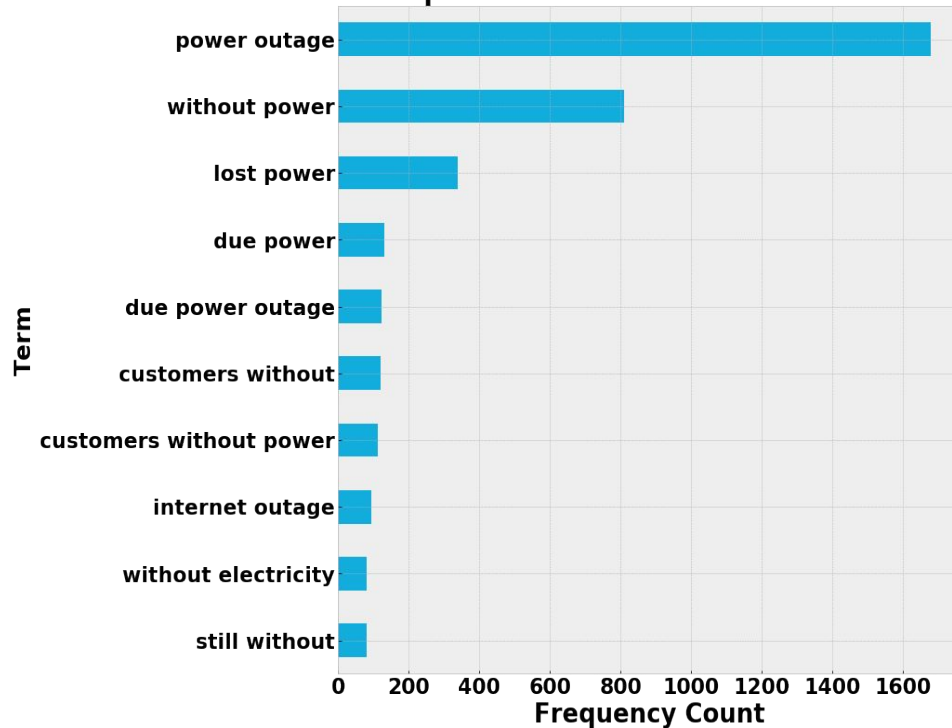
- Weather APIs Choice
- Collection Considerations: Location
- Collection Considerations: Weather Data

Exploratory Data Analysis

Top 10 Single-Word Terms in Tweets



Top 10 Multi-Word Terms in Tweets



Preprocessing

- Master File
- Cleaning Function
- Tokenized Tweets
- Removed Stopwords

Raw Tweet

Total Traffic Austin @TotalTrafficAUS
Power outage in the area causing delays. treat as all way
stop. in #Austin on Parmer Ln at Dessau Rd #ATXtraffic
<http://bit.ly/10BGKax>, dry, hot, cold

5 30 90

Tokenized Tweet

Total Traffic Austin @TotalTrafficAUS
'power', 'outage', 'in', 'the', 'area', 'causing', 'delays', 'treat',
'as', 'all', 'way', 'stop', 'in', 'austin', 'on', 'parmer', 'ln', 'at',
'dessau', 'rd', 'atxtraffic', 'dry', 'hot', 'cold'

5 30 90

Tokenized Tweet (Stopwords Removed)

Total Traffic Austin @TotalTrafficAUS
'power', 'outage', 'area', 'causing', 'delays', 'treat', 'way',
'stop', 'austin', 'parmer', 'ln', 'dessau', 'rd', 'atxtraffic', 'dry',
'hot', 'cold'

5 30 90

Model



Word2Vec



Parameters



Build Vocabulary



Training

Source Text

Training Samples

The quick brown fox jumps over the lazy dog. →

(the, quick)
(the, brown)

The quick brown fox jumps over the lazy dog. →

(quick, the)
(quick, brown)
(quick, fox)

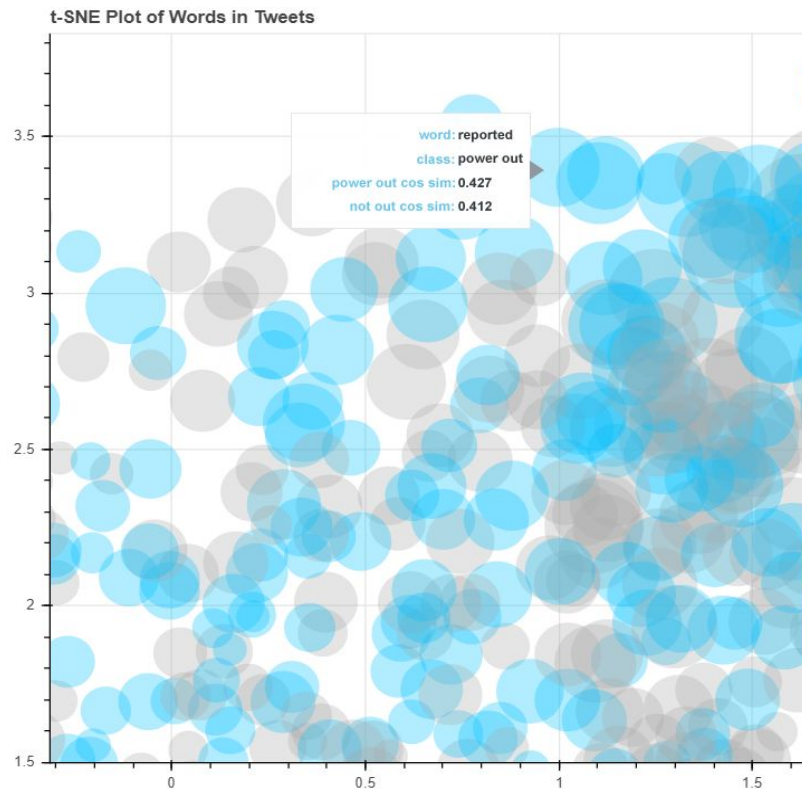
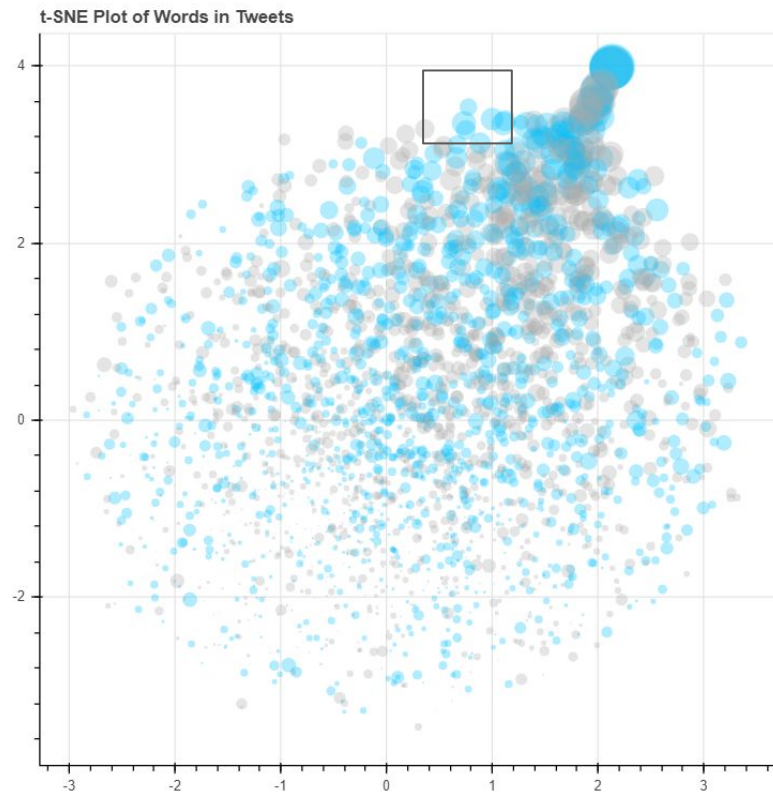
The quick brown fox jumps over the lazy dog. →

(brown, the)
(brown, quick)
(brown, fox)
(brown, jumps)

The quick brown fox jumps over the lazy dog. →

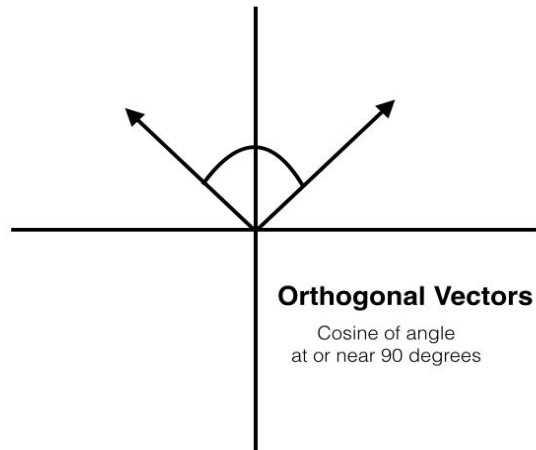
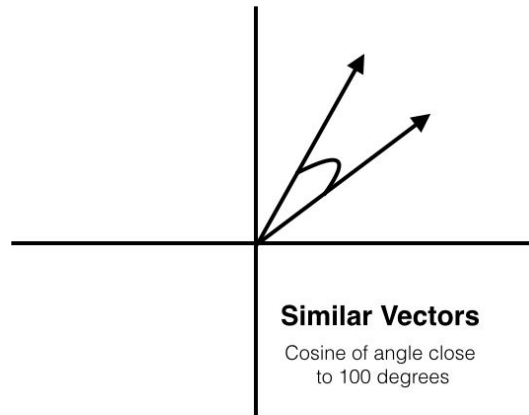
(fox, quick)
(fox, brown)
(fox, jumps)
(fox, over)

t-SNE Plot



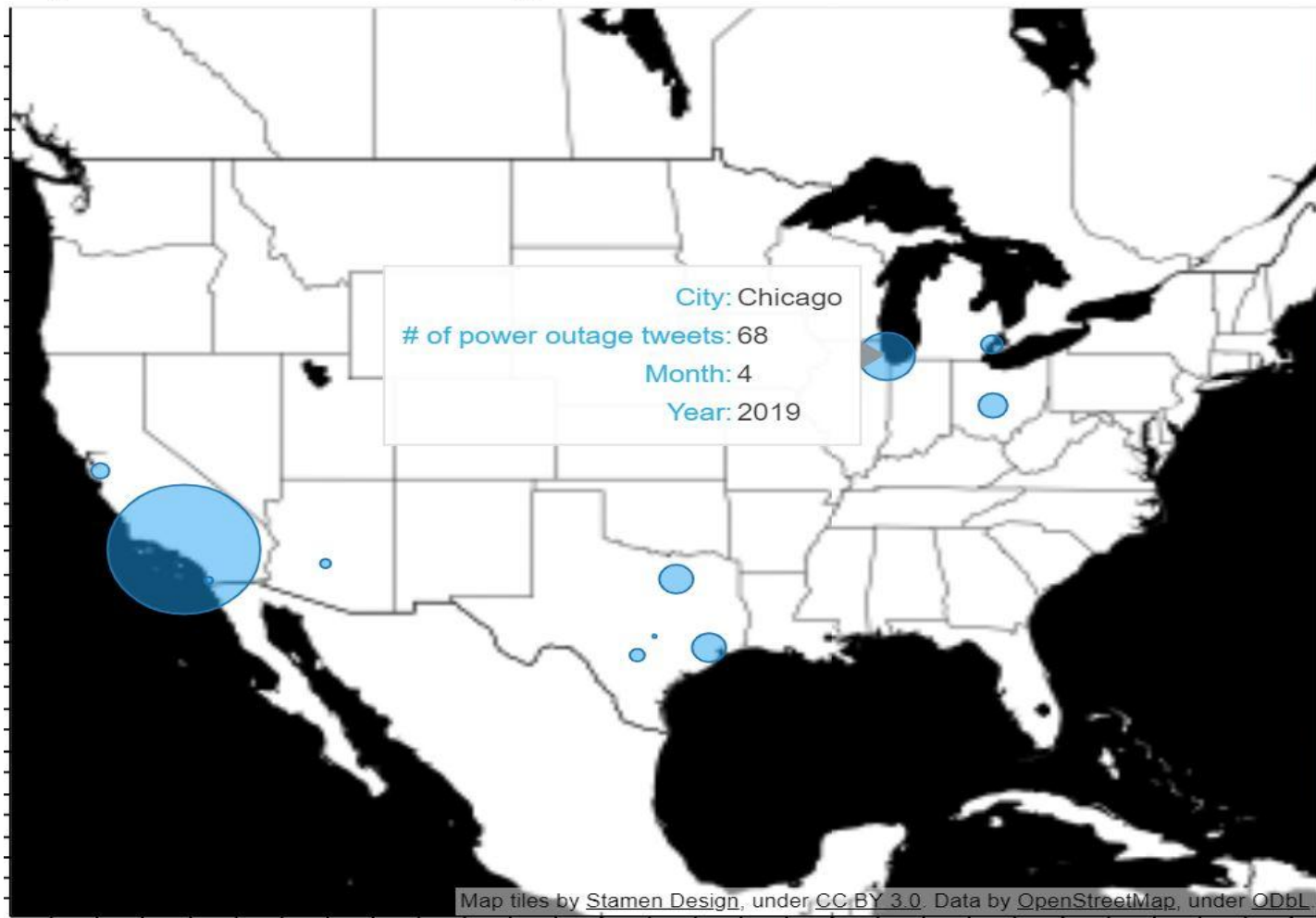
Evaluation Metric

- Cosine Similarity
- Positive/Negative List
- Findings



Mapping

Map of Tweets About Power Outages



Next Steps

- Realtime Data Collection
- Clustering Algorithms
- Dimensionality Reduction



