

Identifying People in Need During a Natural Disaster

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During a disaster, it's difficult to...

Locate all the needs

Triage and prioritize aid

Streamline communication

**How might we identify people in
need based on what they're
tweeting?**



Twitter Scraper



Hurricanes

Dorian (2019)

Florence (2018)

Maria (2017)

Fires

Kincade (2019)

Carr (2018)

Thomas (2017)

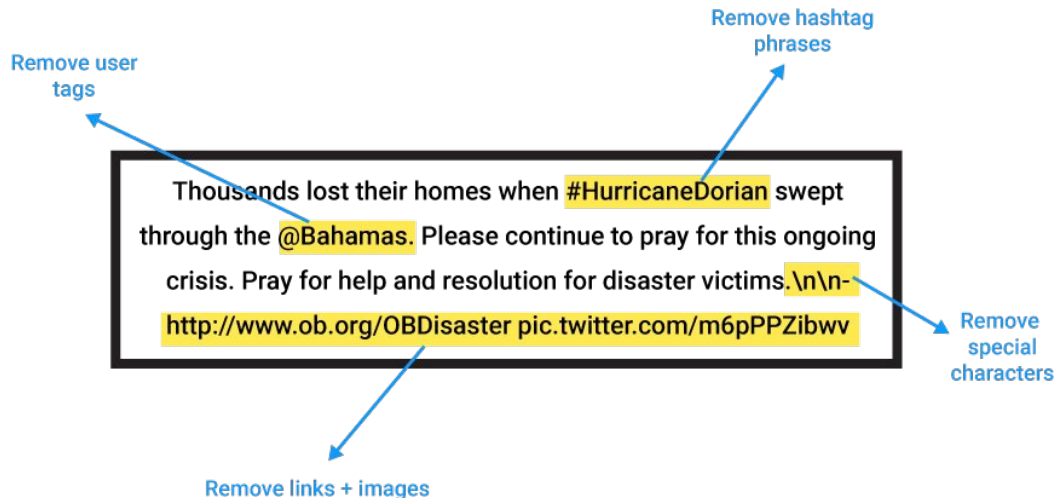
Start Date

End Date

+ 1 Week

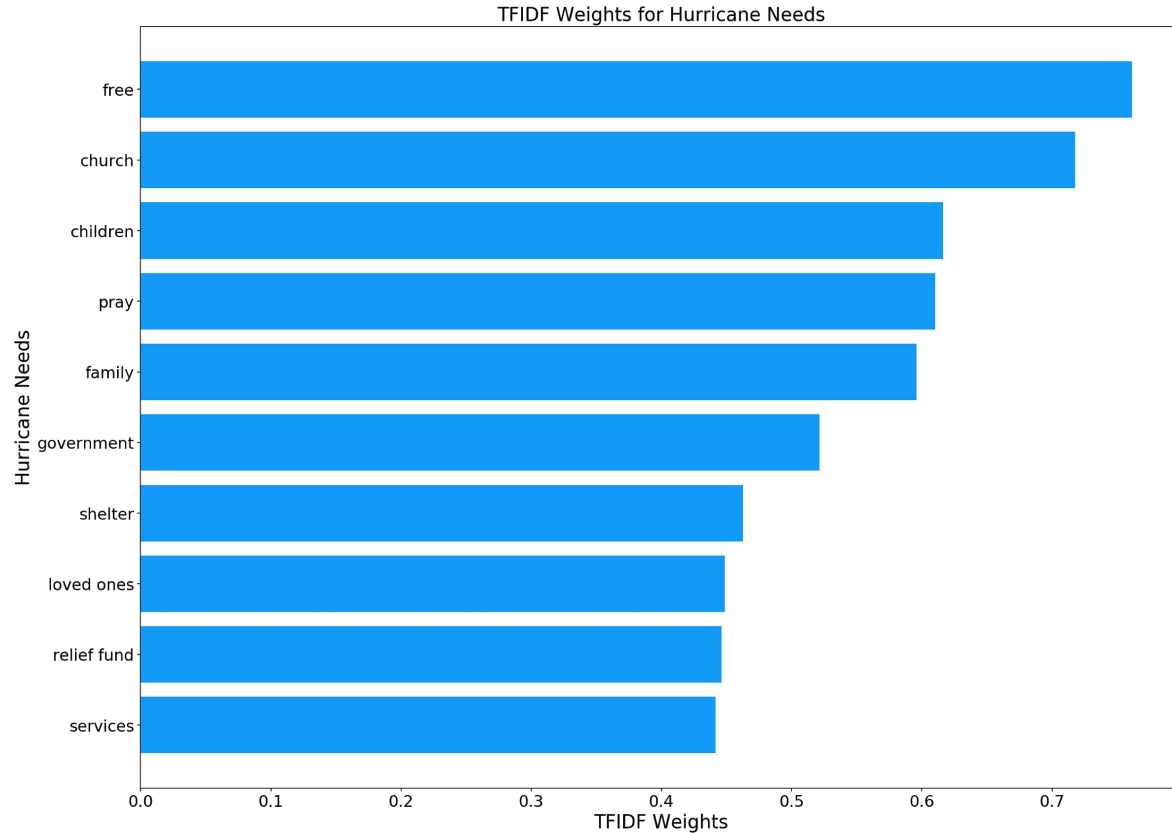
Data Preparation

1. Clean Tweets with Regex
2. Filter for English Tweets
3. Manually label 1,000 Tweets to classify need

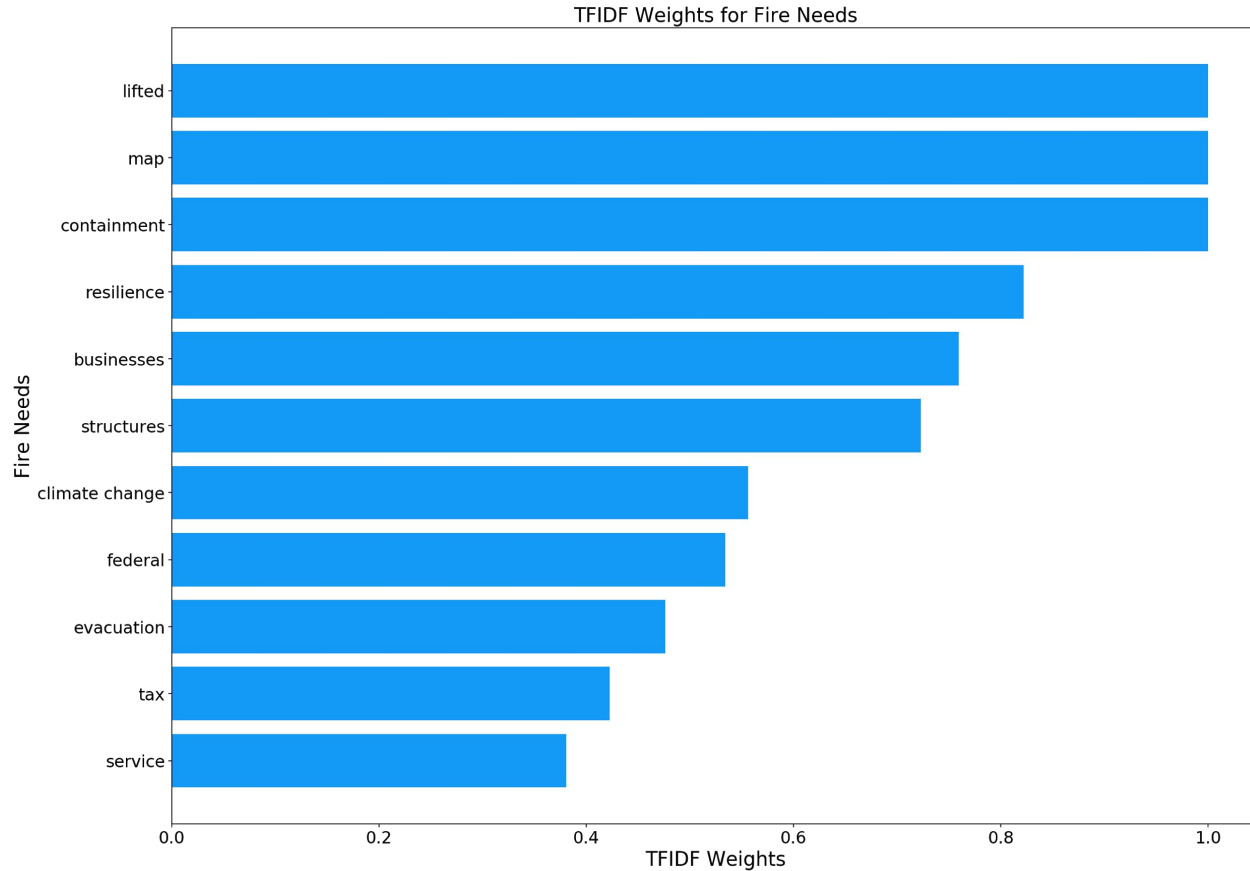


**What kind of tweets are we
working with?**

Specific Needs: Hurricane



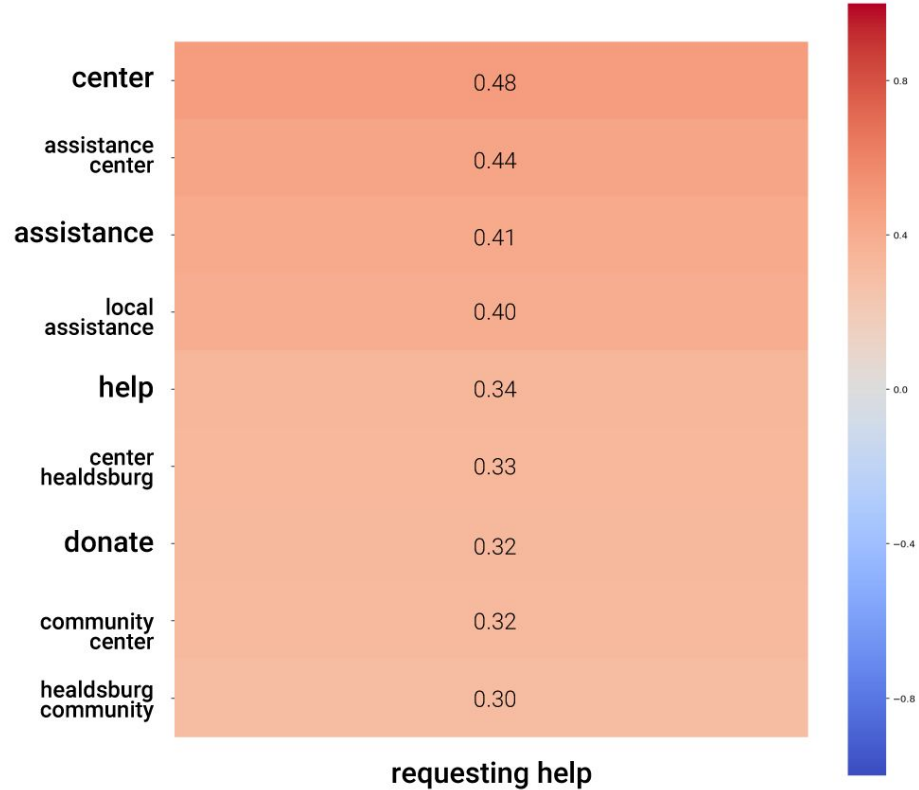
Specific Needs: Fire



Correlations: Hurricane



Correlations: Fire



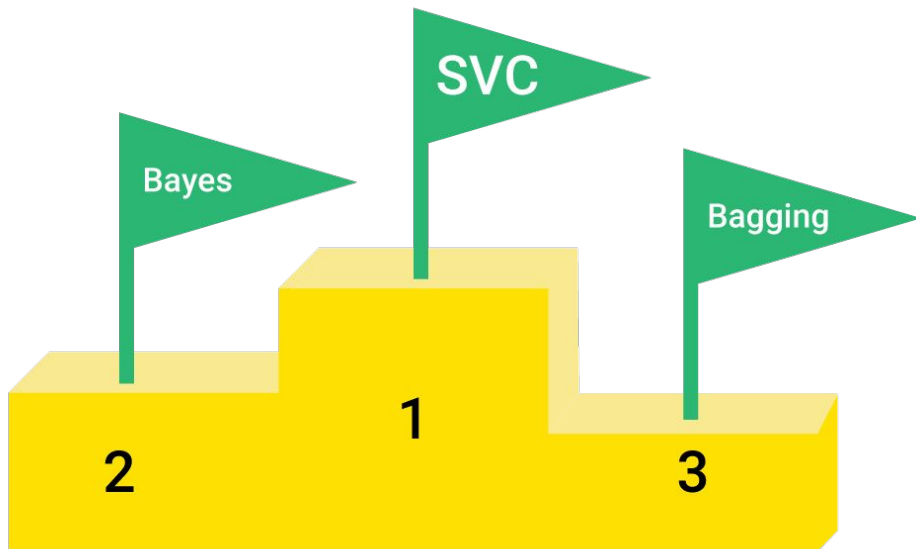
Limitations

- Location data
- Limited training on tweets
- Named disasters
- Internet trolls
- Twitter is not the go-to medium to request help
- Internet connectivity could be compromised

Modeling

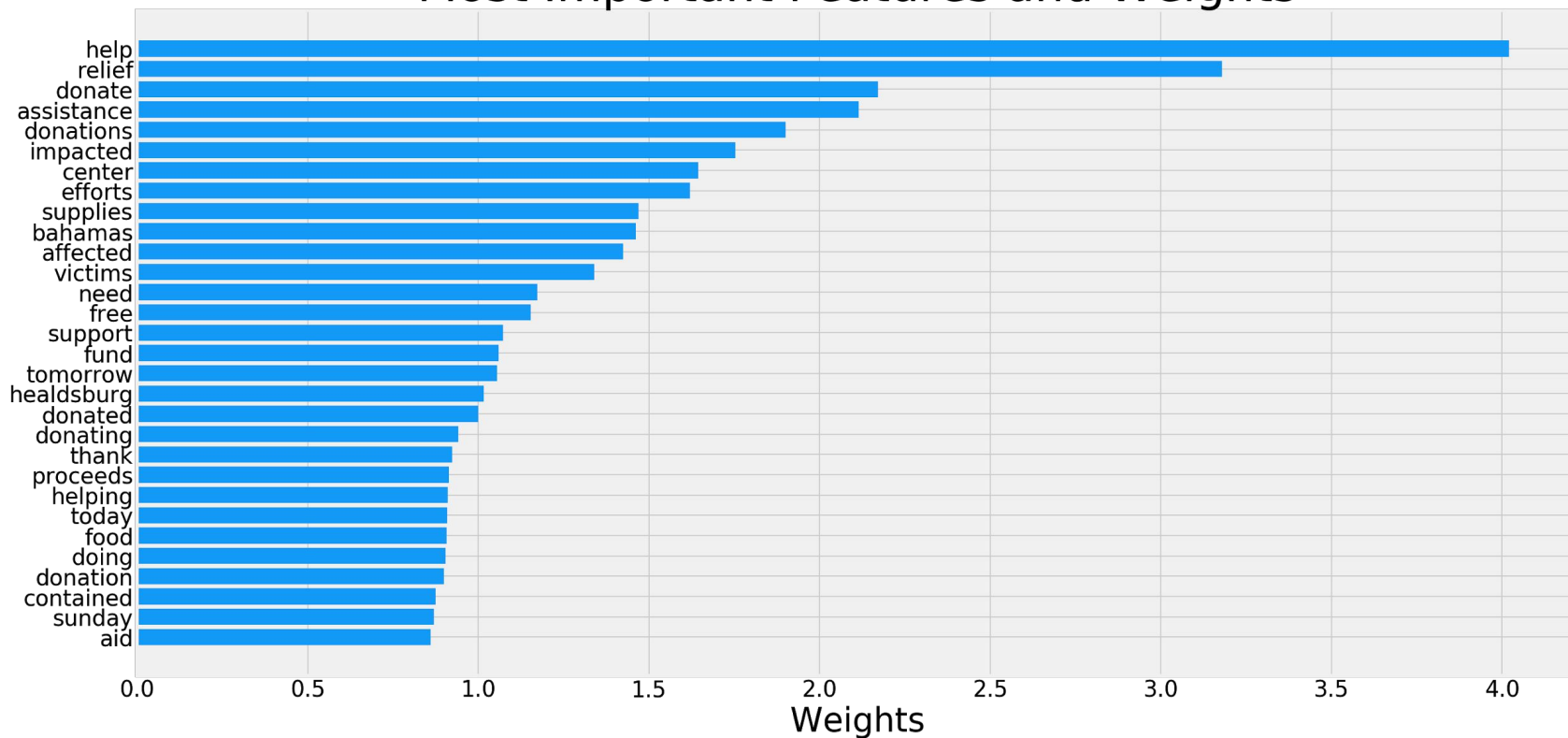
We noticed that there was a trade-off between adjusting an overfit model and optimizing for positive predictions.

For example, a bagging model with similar train & test scores returned a 0 (not requesting help) for nearly all our rows.



Insights from our best model: SVM & Count Vectorizer

Most Important Features and Weights



Insights from our best model:

Test Score 91.3 / Baseline 77

Support Vector Machine utilizing Count Vectorizer

SVM default kernel of RBF or Radial Basis Function, C=2

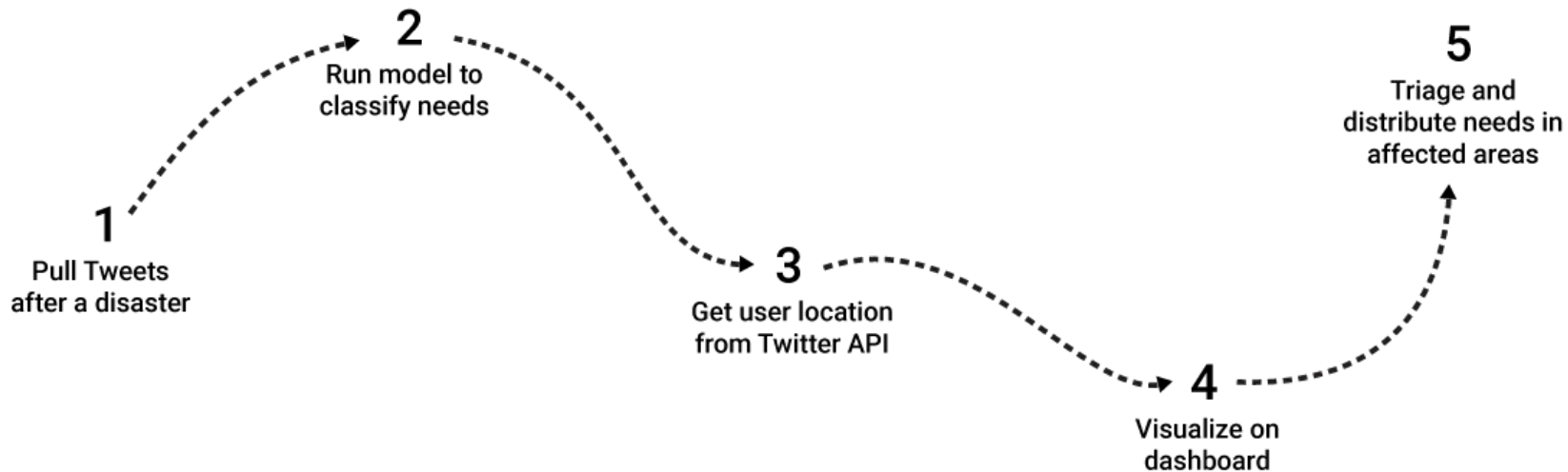
Maximum Features 2000

Min DF of 3

N-Gram range (1,1)

Stop Words: English

Creating a Relief Dashboard



Dashboard Demo

Identifying People in Need During a Disaster

Search:

Select Disaster Type

Flood

Where is Help Needed?



	screen_name	text	location
1	Williem60552109	im a disabled veteran that lost everything in the flood here in louisiana in wife is also disabled everything we owned was paid for we had to replace our home and our now we have to start all over again we need about to pay	Denham Springs, LA
2	Williem60552109	my wife and i are both disabled and need help to pay off our mobile home and our car that we had to get after the flood of here in louisiana my gofundme account williemcdonald com	Denham Springs, LA
3	EddieeDaBoss	work the flood in louisiana we have lives to but	Louisiana, USA
4	mbender224	nt trump i m sure you are aware all cropsaska frames are hurtin	Staten Island, NY
5	threerivers_ph	shelter update am if you are in need of shelter please go to fremont nazareen church at johnson road fremont ne	Fremont, NE
6	DawsonTire	hi family if you are able to donate to any nebraska flood groups please do we just made a deliver to north east nebraska and there are still thousands that need help clean water nonperishable food cleaning supplies give us a call if you need guidance	Gothenburg, NE

[**CLICK HERE**](#)





Thank you!