PS6 Li

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March 2018

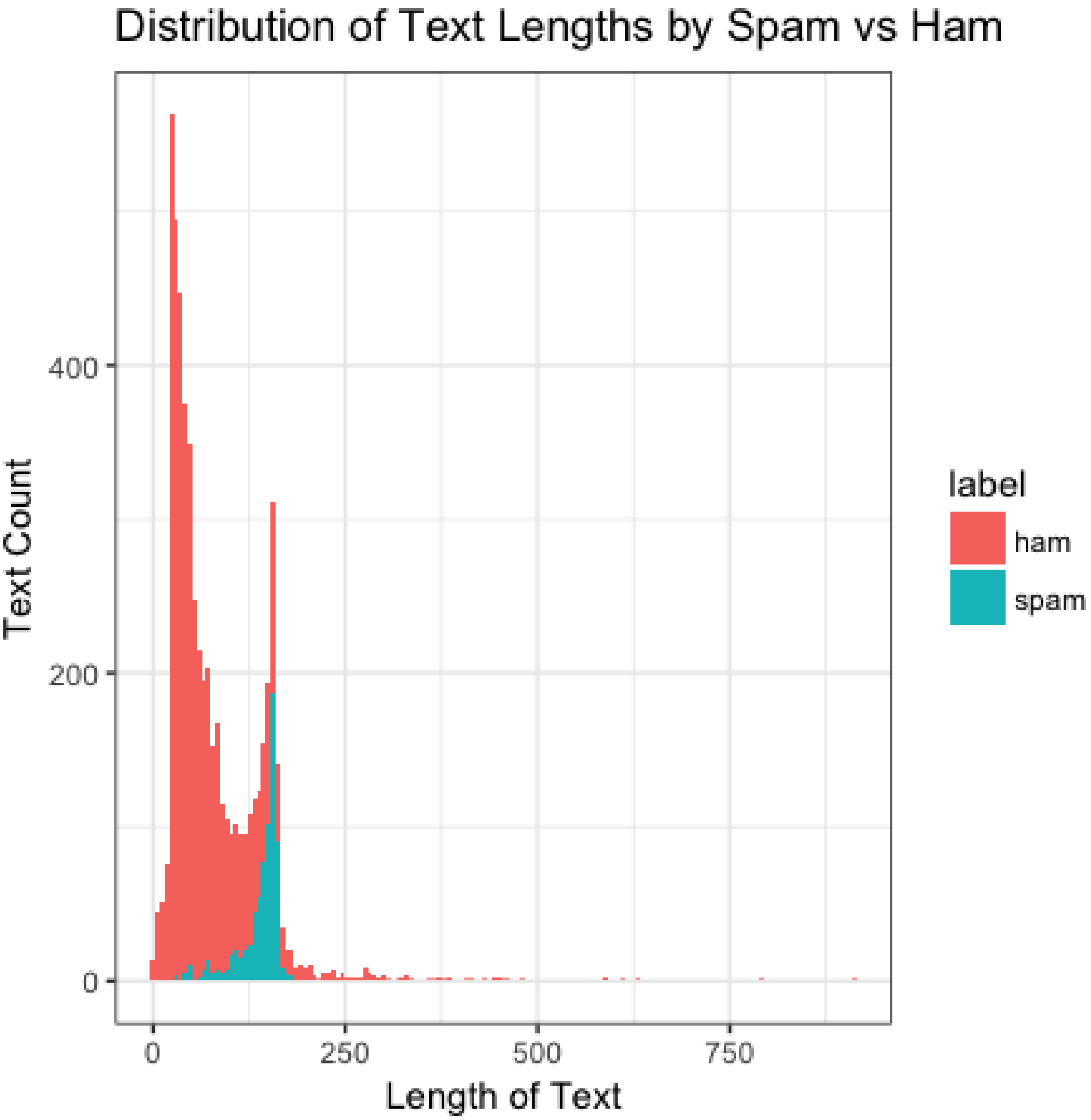
1 Introduction

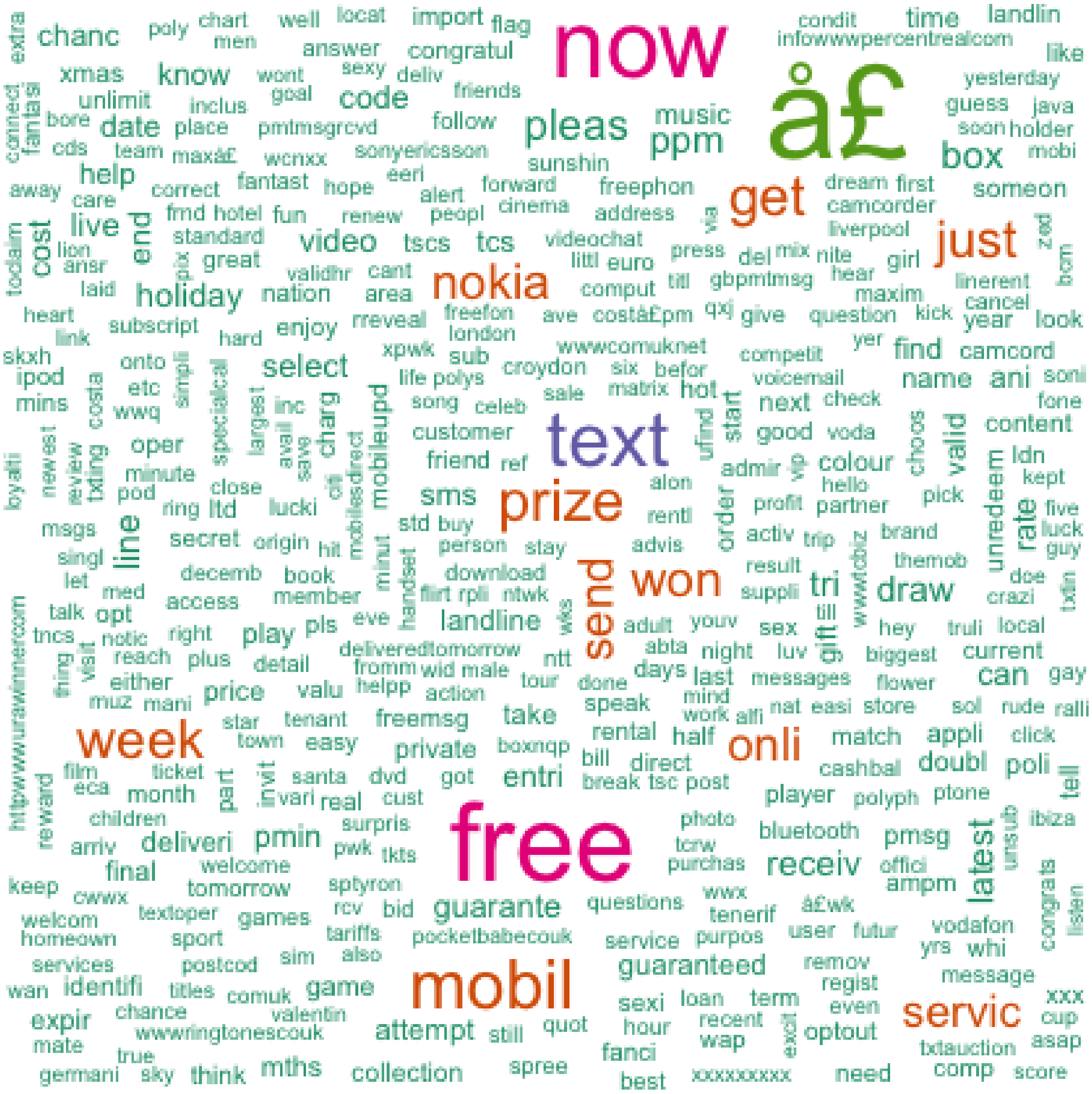
The data set I chose to visualize is from Kaggle. Natural Language processing is something that has always interested me. The data set from kaggle contains information over text messages. It then has a label stating if they are ”ham” real or spam ”fake”. My first step was to create column names for the labels. Then I set the label to factors and the texts to characters with the as.factor and as.character.

Going into it I knew I was going to create a bag of words model. However, I also knew the length of texts would be important to determine the classification of the texts. So as to not affect my future model I created a new data set called ”messages” to plot the spam and ham messages based off text length.

After that I used the ”TM” package to breakdown the texts. I changed all the texts to lower, stemming, removing white space, removing punctuation, removing stop words and remove numbers. At first I tried using the ”quanteda” package but I was having issues getting the word cloud visualizations to work.

From there on I created 3 word clouds. One was a word cloud of the entire corpus and the other two are the most common words in each class, ham/spam. The word clouds are important because it can give me clues as to which words are more predictive than others in the classification. Text analytics usually has high dimensionality so being able to reduce noise will help with my predicitions.


Distribution of Text Lengths by Spam vs Ham
Text Count
400
200
0
0
250
500
750
Length of Text
label
ham
spam



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get
camcorder
end
standard
video
tscs
tcs
videochat
via
liverpool
zed
just
todaim
cost
lion
ansr
great
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cant
littl
euro
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enjoy
london
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competit
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find
camcord
ipod
simpli
select
life
polys
croydon
six
befor
voicemail
name
ani
soni
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local
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abta
night
luv
biggest
current
thing
visit
reach
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detail
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male
gb
days
last
messages
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gay
either
tour
done
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muz
mani
price
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action
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alfi
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sol
rude
ralli
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tenant
freemsg
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click
week
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direct
cashbal
doubl
poli
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ticket
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cust
player
polyph
ptone
reward
children
surpris
photo
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optout
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sky
think
mths
collection
spree
best
xxxxxxxxx
need
comp
score

Figure 2: Ham

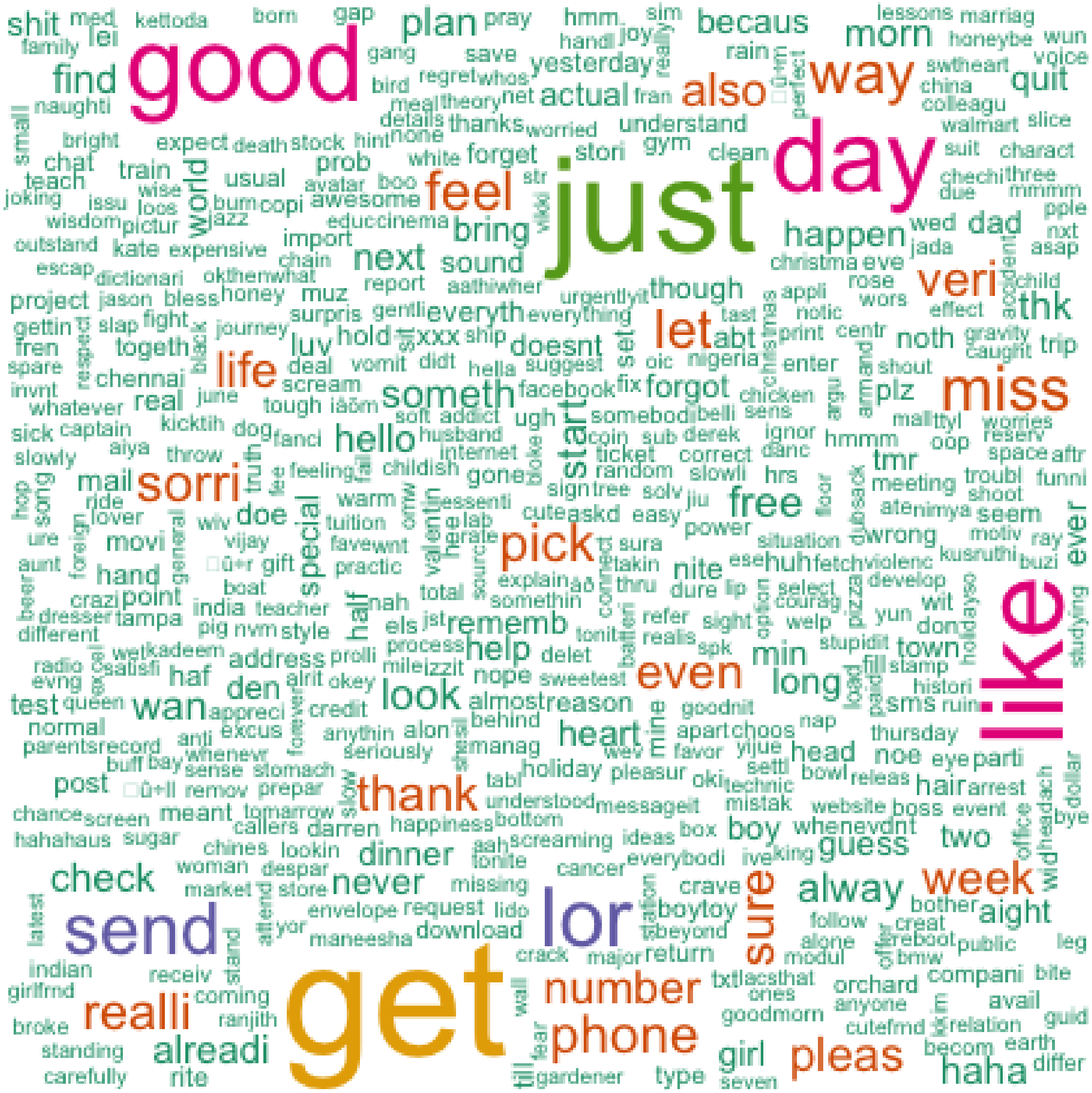

Figure 3: Spam