Assigment 2

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0. Read input

```
train = read.table(file = 'train.tsv', sep = '\t', header = TRUE, stringsAsFactors = FALSE)
test = read.table(file = 'test.tsv', sep = '\t', header = TRUE)
length(which(!complete.cases(train)))
```

```
## [1] 0
```

```
train$text_a[1:3]
```

```
## [1] "Xanax  was  her  death  blow.  \\\\xc2\\\\xa0That  stuff  is  totally  dangerous  because  you
## [2] "you  are  both  morons  and  that  is  never  happening"
## [3] "you  are  just  an  idiot  blabbermouth  that  is  gonna  get  stopped  HARD  one  day!  You  WI
```

1. Cleaning data

Remove punctuation and stopwords

```
train$text_a = as.character(train$text_a)
train$text_a = tm::removePunctuation(train$text_a)
train$text_a = tm::removeWords(x = train$text_a, stopwords(kind = "SMART"))
train$text_a = tm::stripWhitespace(train$text_a)
train$text_a[1:3]
```

```
## [1] "Xanax death blow xc2xa0That stuff totally dangerous build tolerance quickly stop abruptly xc2xa
## [2] " morons happening"
## [3] " idiot blabbermouth gonna stopped HARD day You WILL NOT saved"
```

Anonymize proper nouns

Remove unknown symbols (non UTF-8 characters)

```
train$text_a = str_replace_all(train$text_a, "[^[:alnum:],[:blank:]/\\-]", "")
train$text_a[1:3]
```

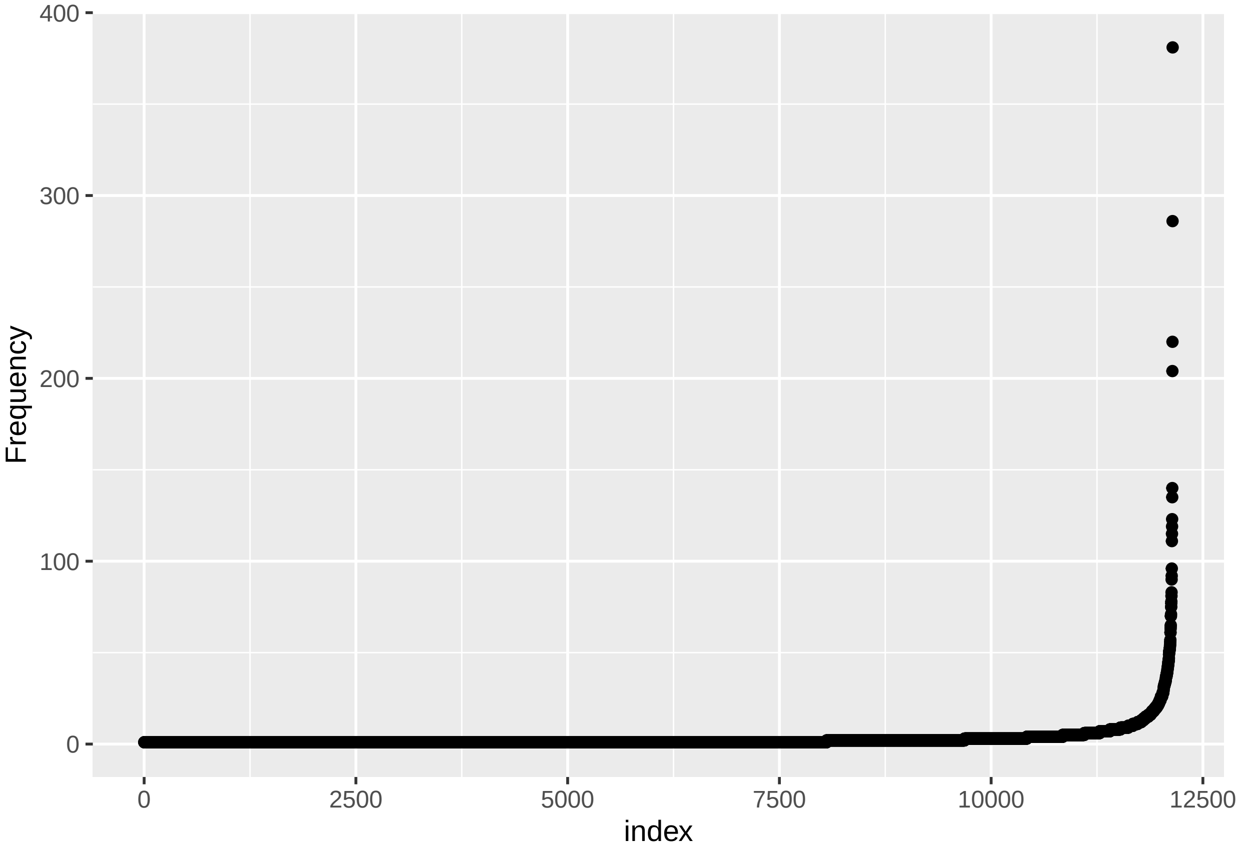
```
## [1] "Xanax death blow xc2xa0That stuff totally dangerous build tolerance quickly stop abruptly xc2xa
## [2] " morons happening"
## [3] " idiot blabbermouth gonna stopped HARD day You WILL NOT saved"
```

2. Exploration

Plot the frequency of words (without stemmization)

```
corpus <- Corpus(VectorSource(train$text_a)) # turn into corpus
tdm <- TermDocumentMatrix(corpus)
```

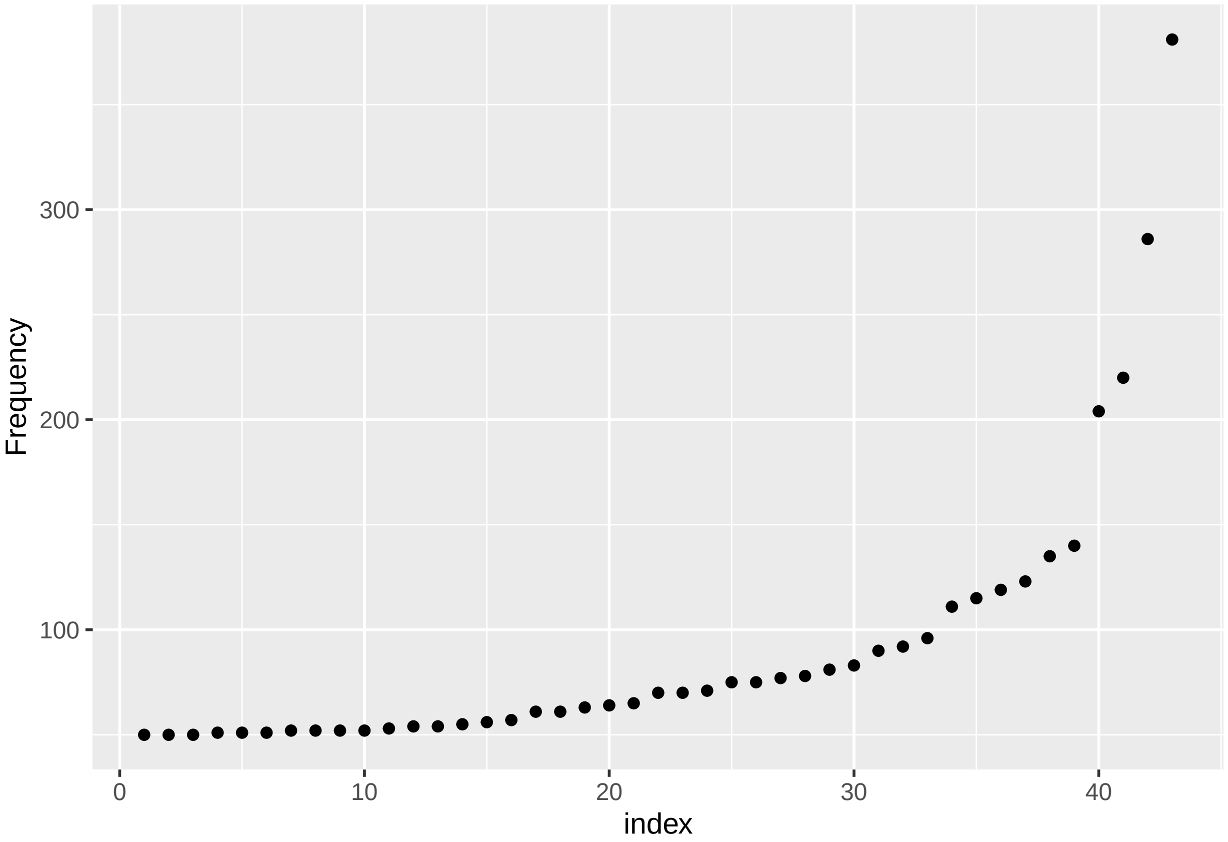
```
wordFreq <- sort(rowSums(as.matrix(tdm)), decreasing=TRUE)
qplot(seq(length(wordFreq)),sort(wordFreq), xlab = "index", ylab = "Frequency")
```



```
findFreqTerms(tdm, lowfreq=50)
```

```
##  [1] "big"      "didnt"    "dont"     "stop"     "day"      "idiot"
##  [7] "you"      "love"     "stupid"   "the"      "things"   "shit"
## [13] "fuck"     "thing"    "and"      "time"     "good"     "people"
## [19] "that"     "they"     "gay"      "white"    "man"      "doesnt"
## [25] "make"     "feel"     "all"      "fucking"  "what"     "ass"
## [31] "bitch"    "back"     "its"      "life"     "money"    "obama"
## [37] "post"     "this"     "world"    "years"    "your"     "youre"
## [43] "democrat"
```

```
mostFreq <- subset(wordFreq, wordFreq >= 50)
qplot(seq(length(mostFreq)),sort(mostFreq), xlab = "index", ylab = "Frequency")
```



```
length(wordFreq)
```

```
## [1] 12143
```

```
length(wordFreq[wordFreq<10])
```

```
## [1] 11618
```

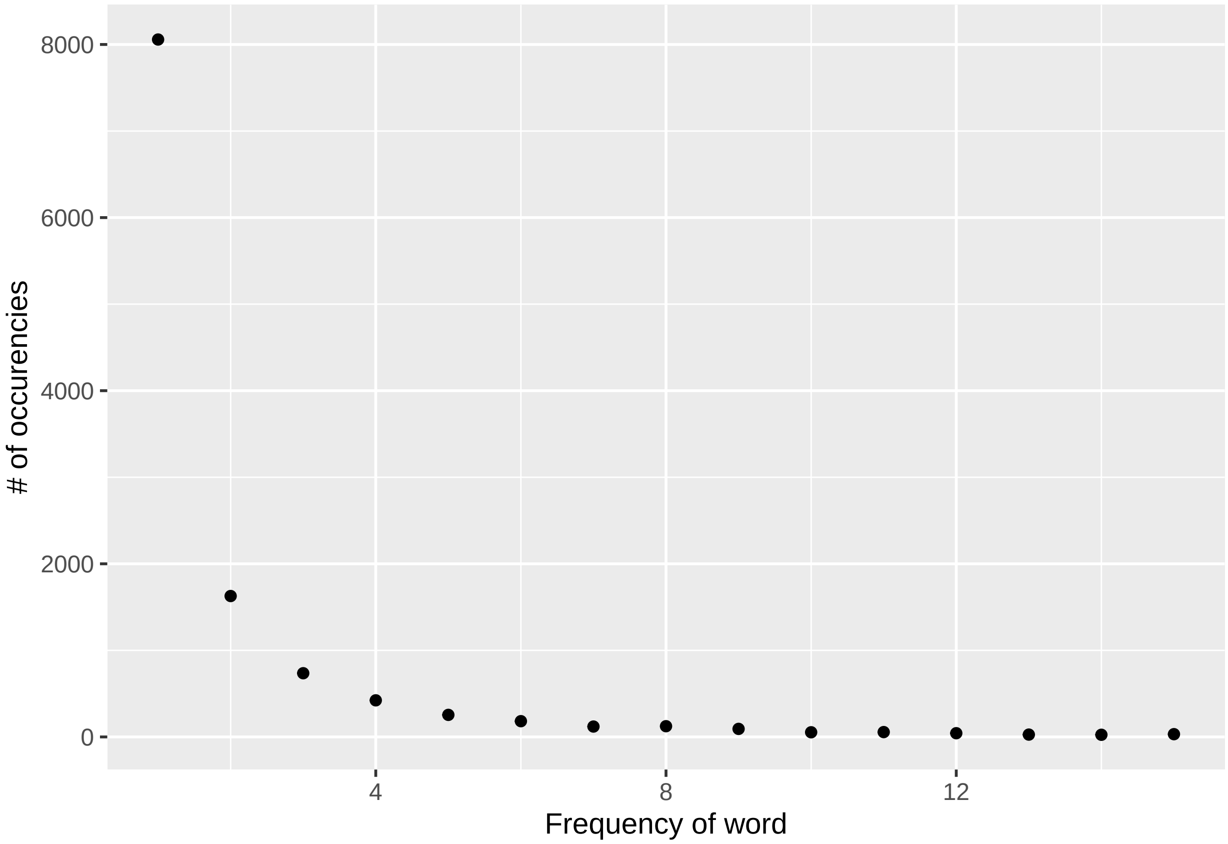
```
length(wordFreq[wordFreq<5])
```

```
## [1] 10844
```

```
length(wordFreq[wordFreq==1])
```

```
## [1] 8057
```

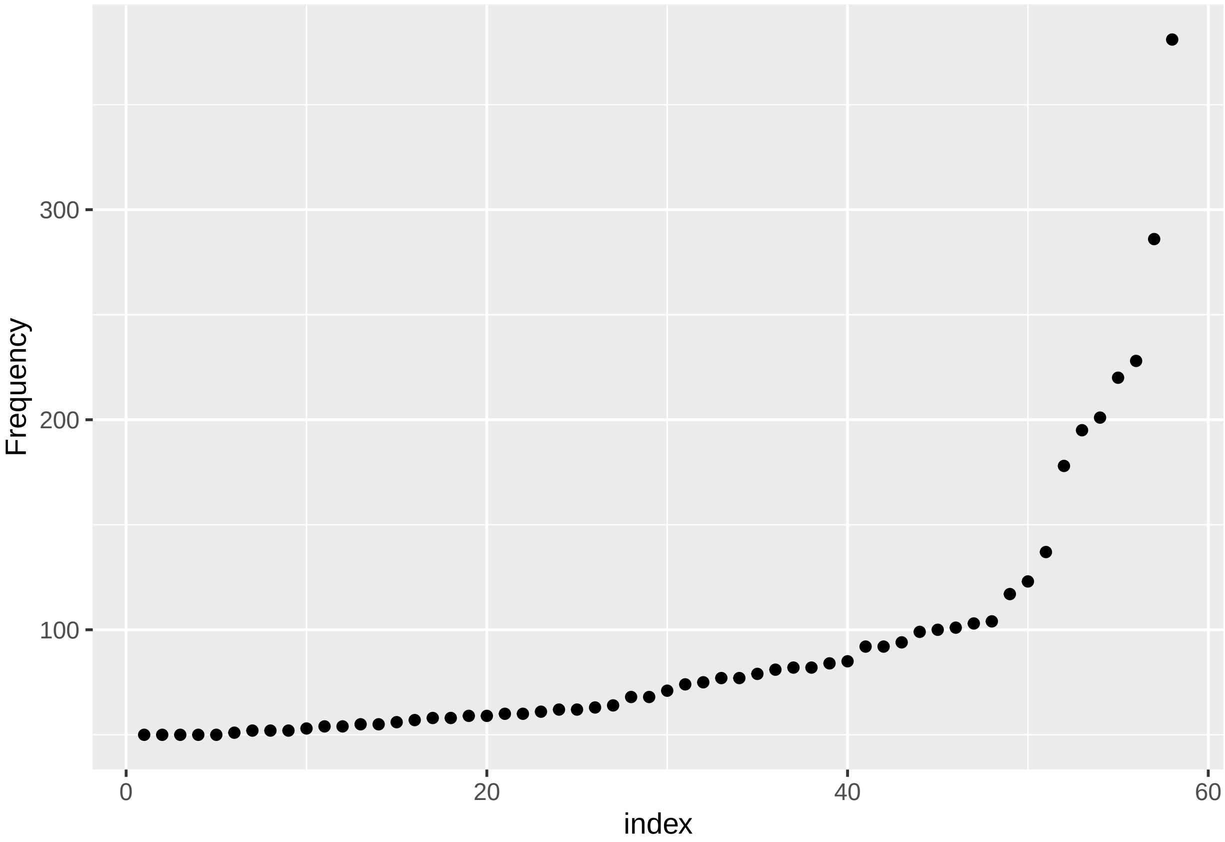
```
freq <- sort(unique(wordFreq), decreasing=FALSE)
occ <- vector()
for (i in 1:length(freq)) {
  occ[i] <- length(wordFreq[wordFreq == freq[i]])
}
qplot(freq[1:15], occ[1:15], xlab = "Frequency of word", ylab = "# of occurencies")
```



Plot the frequency of words (with stemmization)

```
stemmed <- stemDocument(train$text_a, language = "english")
corpus2 <- Corpus(VectorSource(stemmed)) # turn into corpus
```

```
qplot(seq(length(mostFreq)),sort(mostFreq), xlab = "index", ylab = "Frequency")
```



```
length(wordFreq)
```

```
## [1] 10124
```

```
length(wordFreq[wordFreq<10])
```

```
## [1] 9497
```

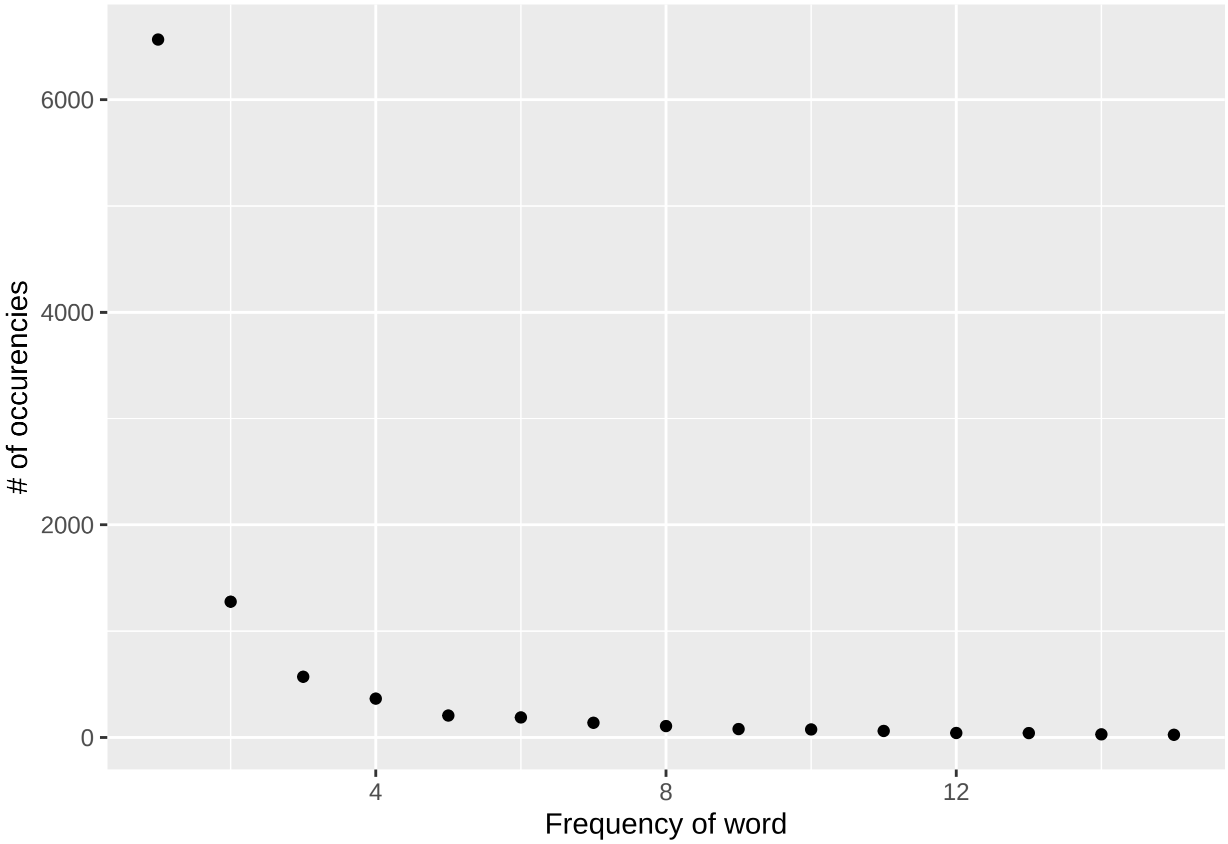
```
length(wordFreq[wordFreq<5])
```

```
## [1] 8779
```

```
length(wordFreq[wordFreq==1])
```

```
## [1] 6566
```

```
qplot(freq[1:15], occ[1:15], xlab = "Frequency of word", ylab = "# of occurencies")
```


6000
4000
2000
0
# of occurencies
4
8
12
Frequency of word