

Sentiment Analysis

Matthew Werner DAT 511 Bag of Words & Sentiment Analysis

```
require(ggplot2)
```

```
## Loading required package: ggplot2
```

```
x <- readLines("C:\\Users\\matth\\OneDrive\\Documents\\Grad School\\Data Analytics\\Spring 2022\\DAT511\\Week 10\\dataset-CalheirosMoroRita-2017.csv")
```

```
head(x)
```

```
## [1] "Review"
## [2] " Everything from the weather, staff, food, property, fire pits, décor, spa, rooms and beach were top notch"
## [3] "\"The hotel it is fantastic built by the sea, living together with nature. Environment it is great as well as people and service.\""
## [4] "We full enjoyed the place, and facilities."
## [5] "Thanks for the \"cidreira\" and \"madalenas\" tea at reception\""
## [6] "One dream! Cozy and comfortable Hotel! The best personalized one! All the employees are congratulated! Very nice taste, since reception to the end of the stay! We were welcome with tea and cake, as I have gluten aversion,, all the employees already knew and were waiting carefully. At night, we were received in the fire pits, with some wine and all the guests were invited to participate and interact. "
```

```
library('corpus')
```

```
## Warning: package 'corpus' was built under R version 4.1.3
```

```
require(tm)
```

```
## Loading required package: tm
```

```
## Warning: package 'tm' was built under R version 4.1.3
```

```
## Loading required package: NLP
```

```
##
## Attaching package: 'NLP'
```

```
## The following object is masked from 'package:ggplot2':  
##  
##      annotate
```

```
sw_source<-VectorSource(x)
```

```
sw_corpus<-VCorpus(sw_source)
```

```
x<-tolower(x)  
x<-removePunctuation(x)  
x<-removeNumbers(x)  
x<-removeWords(x, stopwords("en"))  
x<-stripWhitespace(x)  
clean_source<-VectorSource(x)  
clean_corpus<-VCorpus(clean_source)
```

```
dtm<-TermDocumentMatrix(clean_corpus)  
mterms<-as.matrix(dtm)  
v<-sort(rowSums(mterms),decreasing=TRUE)  
d<-data.frame(word=names(v),freq=v)  
head(d,20)
```

```
##           word freq  
## place      place 162  
## thank      thank 148  
## hotel      hotel 147  
## wonderful  wonderful 108  
## stay       stay   95  
## room       room   90  
## back       back   89  
## staff      staff   86  
## amazing    amazing 81  
## experience experience 79  
## will       will   79  
## one        one    78  
## come       come   71  
## food       food   71  
## everything everything 69  
## beautiful  beautiful 65  
## time       time   59  
## nice       nice   57  
## fantastic  fantastic 56  
## great      great   56
```

```
require('wordcloud')
```

```
## Loading required package: wordcloud
```

```
## Warning: package 'wordcloud' was built under R version 4.1.3
```

```
## Loading required package: RColorBrewer
```

```
wordcloud(words=d$word,freq=d$freq,min.freq=3,max.words=100,rot.per=0.35)
```

```
## Warning in wordcloud(words = d$word, freq = d$freq, min.freq = 3, max.words =  
## 100, : place could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(words = d$word, freq = d$freq, min.freq = 3, max.words =  
## 100, : thank could not be fit on page. It will not be plotted.
```



Wordcloud insinuates that the reviews were positive.

```
findAssocs(dtm, terms="hotel", corlimit=0.1)
```

\$hotel

| | | | | |
|----|--------------|---------------|---------------|--------------|
| ## | balanced | knowledgeable | amazed | charmed |
| ## | 0.28 | 0.28 | 0.27 | 0.27 |
| ## | discover | erected | exciting | fits |
| ## | 0.27 | 0.27 | 0.27 | 0.27 |
| ## | funny | guest | incredibly | modest |
| ## | 0.27 | 0.27 | 0.27 | 0.27 |
| ## | mouth | offering | remains | restrained |
| ## | 0.27 | 0.27 | 0.27 | 0.27 |
| ## | specifically | surpasses | varied | played |
| ## | 0.27 | 0.27 | 0.27 | 0.26 |
| ## | relax | totally | products | rather |
| ## | 0.26 | 0.26 | 0.24 | 0.24 |
| ## | reception | restaurant | spa | friend |
| ## | 0.24 | 0.24 | 0.24 | 0.23 |
| ## | impressive | managed | size | compared |
| ## | 0.23 | 0.23 | 0.23 | 0.22 |
| ## | corners | decoration | either | enter |
| ## | 0.22 | 0.22 | 0.22 | 0.22 |
| ## | level | outdoor | sense | night |
| ## | 0.22 | 0.22 | 0.22 | 0.21 |
| ## | staff | without | absolutely | architecture |
| ## | 0.21 | 0.21 | 0.20 | 0.20 |
| ## | bell | brief | cake | changed |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | cleaners | confused | culminates | cut |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | desert | despite | essentials | euros |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | finally | finely | front | horta |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | hundreds | icing | loudly | meadow |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | midday | oclock | outdoors | outline |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | playing | practically | produce | rocking |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | series | six | travels | unnoticed |
| ## | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | wastes | whole | can | guests |
| ## | 0.20 | 0.20 | 0.19 | 0.19 |
| ## | impressed | part | room | yoga |
| ## | 0.19 | 0.19 | 0.19 | 0.19 |
| ## | crotchet | due | entering | exorbitant |
| ## | 0.18 | 0.18 | 0.18 | 0.18 |
| ## | floral | freshness | integration | interiors |
| ## | 0.18 | 0.18 | 0.18 | 0.18 |
| ## | invite | mean | notice | one |
| ## | 0.18 | 0.18 | 0.18 | 0.18 |
| ## | open | short | unpretentious | ways |
| ## | 0.18 | 0.18 | 0.18 | 0.18 |
| ## | delicious | environment | nature | original |

| | | | | |
|----|------------|-----------------|-----------------|------------------|
| ## | 0.17 | 0.17 | 0.17 | 0.17 |
| ## | rooms | tasty | definitely | fact |
| ## | 0.17 | 0.17 | 0.16 | 0.16 |
| ## | just | offers | things | amazing |
| ## | 0.16 | 0.16 | 0.16 | 0.15 |
| ## | bathroom | bring | course | homemade |
| ## | 0.15 | 0.15 | 0.15 | 0.15 |
| ## | however | massage | mention | positive |
| ## | 0.15 | 0.15 | 0.15 | 0.15 |
| ## | presented | stop | wood | arrive |
| ## | 0.15 | 0.15 | 0.15 | 0.14 |
| ## | bold | change | check | design |
| ## | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | doors | expensive | feet | guess |
| ## | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | intimate | invited | lack | late |
| ## | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | looked | make | makes | materials |
| ## | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | morning | neha | professionalism | sand |
| ## | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | scenery | seems | stunning | style |
| ## | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | total | view | yes | absorb |
| ## | 0.14 | 0.14 | 0.14 | 0.13 |
| ## | across | added | adorable | adversely |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | afternoon | aggressive | alone | amazing-concrete |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | appointed | art | availability | awaits |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | bartenders | basics | bonus | bread |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | bright | brought | bumping | came |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | chatty | chicest | color | combinations |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | comes | comfortable-one | common | commune |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | complete | compliments | components | conditioning |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | confidence | contagious | coolest | cost |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | crap | cultivated | dead | deception |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | depend | didnt | dirty | doesnt |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | dunes | eaten | ecodesign | elevates |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | ended | enormous | ensure | escape |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | every | example | exceptions | exotic |

| | | | | |
|----|---------------|-------------|-------------|--------------|
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | experience | feature | felipe | felipes |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | fields | finalize | fingers | flies |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | flip | flirty | flowers | foggy |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | forgot | freshly | furnishings | getting |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | godinho | grown | gym | hada |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | hang | hazardous | herewith | hotels |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | immensely | impact | improvement | incredible |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | indoor | informed | inside | island |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | johanna | justify | kept | levels |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | lines | locale | lounging | low |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | manipedis | melt | members | modern |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | money | music | nails | naipolish |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | negative | nightmare | noma | nondescript |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | normal | numerous | oozes | overlooking |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | pastries | path | pavilion | pedimanicure |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | per | piped | placed | platform |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | pleasure | points | pond | productive |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | promotes | quality | quarter | quicker |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | quiet | razorthing | readjusting | recently |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | refinement | reinforced | reluctant | rivals |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | rustic | saudade | seemed | seemingly |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | seeped | sergio | serve | set |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | skin | sliding | sometimes | sorry |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | sort | spent | stargaze | stopped |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | strategically | strives | sublime | successive |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | surrounded | sustainable | switch | tea |

| | | | | |
|----|--------------|-------------|-------------|---------------|
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | tension | theres | throughout | tide |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | tine | toast | tone | tripping |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | trying | ultimately | unappealing | unforgettable |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | unique | walk | weekends | weeks |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | well | wind | witness | women |
| ## | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | workperhaps | write | youll | areas |
| ## | 0.13 | 0.13 | 0.13 | 0.12 |
| ## | bed | besides | connection | couldnt |
| ## | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | cozy | detail | perfect | real |
| ## | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | said | think | top | treatment |
| ## | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | two | air | arrived | away |
| ## | 0.12 | 0.11 | 0.11 | 0.11 |
| ## | concrete | decorated | directly | employee |
| ## | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | everybody | experienced | fresh | garden |
| ## | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | gastronomy | gorgeous | honeymoon | interior |
| ## | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | large | like | magnify | nice |
| ## | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | personalized | prices | sea | selection |
| ## | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | shower | small | thing | together |
| ## | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | treats | trip | tub | walls |
| ## | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | warmth | fantastic | great | relaxing |
| ## | 0.11 | 0.10 | 0.10 | 0.10 |

```
findAssocs(dtm, terms="staff", corlimit=0.1)
```

\$staff

| | | | | | |
|----|------------|---------------|-------------|---------------|--------------|
| ## | spa | receptionist | level | absolutely | charmed |
| ## | 0.25 | 0.23 | 0.22 | 0.21 | 0.21 |
| ## | cleaners | confused | crotchet | culminates | cut |
| ## | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| ## | desert | elevates | euros | finely | friendly |
| ## | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| ## | helpful | hotel | hundreds | keepers | loudly |
| ## | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| ## | meadow | midday | oclock | offering | outdoors |
| ## | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| ## | outline | playing | practically | promotes | series |
| ## | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| ## | six | smiley | strives | travels | unnoticed |
| ## | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| ## | varied | waitresses | property | totally | yoga |
| ## | 0.21 | 0.21 | 0.19 | 0.19 | 0.18 |
| ## | change | compared | floral | neha | outdoor |
| ## | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| ## | extremely | however | rooms | food | fresh |
| ## | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 |
| ## | reception | relaxing | activities | amazing | availability |
| ## | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 |
| ## | balanced | bright | ceremonious | cooked | cool |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | cost | exceptions | excursions | exorbitant | flexible |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | flowers | freshness | friend | herb | homemade |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | informed | integration | invite | lovely | lucas |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | managed | massages | needs | negotiations | notice |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | peaceful | per | planning | possibilities | quarter |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | romance | someone | starting | stunning | treats |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | understand | unpretentious | visit | walking | ways |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | yuliya | coming | kind | massage | personal |
| ## | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | relax | room | specially | stayed | architecture |
| ## | 0.13 | 0.13 | 0.13 | 0.13 | 0.12 |
| ## | available | decorated | dont | experience | gift |
| ## | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | gilberto | location | nothing | products | recommended |
| ## | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | star | sublime | thank | true | truly |
| ## | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | unique | welcoming | went | wind | ever |
| ## | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 |
| ## | excellent | made | nights | restaurant | want |

| | | | | | |
|----|---------|-------------|------------|-----------------|-----------|
| ## | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| ## | dinners | facilities | grass | gratitude | impressed |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | lack | local | located | looking | marta |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | must | picturesque | played | professionalism | ran |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | sand | scenery | slow | stay | till |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | top | total | treatments | waiters | |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | |

```
findAssocs(dtm,terms="food",corlimit=0.1)
```

\$food

| | | | | | |
|----|--------------|-------------|---------------|-------------|--------------|
| ## | artist | bottle | experimenting | focusing | foreign |
| ## | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
| ## | introduction | mini | pain | promote | show |
| ## | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
| ## | clean | mattress | bad | taken | also |
| ## | 0.29 | 0.29 | 0.25 | 0.25 | 0.23 |
| ## | ground | leonardo | think | extremely | portuguese |
| ## | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 |
| ## | three | arrive | beds | energy | evening |
| ## | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 |
| ## | including | opportunity | addressing | adorable | afforded |
| ## | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 |
| ## | appeared | appointed | awaits | blood | bonus |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | breast | celery | chicest | comes | command |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | comment | common | commune | components | consequences |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | constructive | contact | coolest | cultivated | dina |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | diners | distraction | dragged | effects | ensure |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | evenings | exotic | focused | furnishings | happier |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | harm | homes | ignorance | incident | johanna |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | knockon | locale | matters | merit | mistakes |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | networks | noma | nondescript | numerous | overwhelmed |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | partridge | partridges | passing | pigeon | placed |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | poisoning | puree | readjusting | recall | redoubled |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | refinement | remove | restaurant... | salmonella | security |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | seemingly | serious | similar | social | stained |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | stargaze | stood | strategically | strong | struck |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | stupidity | tasting | terms | throughout | tuesday |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| ## | ultimately | unable | witness | youll | dessert |
| ## | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 |
| ## | dish | drinks | seems | sunday | worthy |
| ## | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| ## | amazing | case | delicious | directly | fantastic |
| ## | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| ## | happened | intention | july | people | rare |
| ## | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| ## | beautifully | change | eco | ingredients | menu |

| | | | | | |
|----|------------|------------|----------------|--------------|-------------|
| ## | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| ## | organic | pereira | philippe | restaurant | sent |
| ## | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| ## | swings | tell | turns | yesterday | chef |
| ## | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 |
| ## | nature | served | beyond | environment | lunch |
| ## | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 |
| ## | magical | meal | order | rooms | staff |
| ## | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| ## | stars | views | accommodating | account | added |
| ## | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 |
| ## | additional | along | balance | beaches | blown |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | brings | busy | center | confess | constantly |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | cooked | couples | courses | cutlery | decided |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | entering | eyes | fact | fitting | form |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | freshness | herb | hereby | kitchen | mark |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | meals | mention | nomad | notice | owner |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | pairing | path | proved | purpose | raw |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | soft | speak | table | tables | theres |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | treat | unexpected | vacation | waitress | water |
| ## | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ## | wonder | worked | entire | exceptional | friendly |
| ## | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 |
| ## | happen | however | might | please | welcoming |
| ## | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| ## | bread | detail | dishes | fresh | help |
| ## | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | long | maybe | nice | part | recommended |
| ## | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| ## | seemed | waiting | work | high | look |
| ## | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 |
| ## | lovely | makes | meat | architecture | areas |
| ## | 0.11 | 0.11 | 0.11 | 0.10 | 0.10 |
| ## | ate | chosen | country | course | doors |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | dunes | every | fine | green | group |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | happens | highly | interact | kiki | location |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | love | meet | ordered | respect | room |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | service | slice | sustainability | tasty | though |
| ## | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| ## | totally | treatments | waiters | working | wow |

```
##      0.10      0.10      0.10      0.10      0.10
##      year
##      0.10
```

Hotel, Staff, and Food all are associated with words that describe their respective department.

```
require('SentimentAnalysis')
```

```
## Loading required package: SentimentAnalysis
```

```
## Warning: package 'SentimentAnalysis' was built under R version 4.1.3
```

```
##
## Attaching package: 'SentimentAnalysis'
```

```
## The following object is masked from 'package:base':
##
##      write
```

```
#sa<-analyzeSentiment(x)
#sa
#convertToBinaryResponse(sa)$SentimentQDAP
```

```
require(SnowballC)
```

```
## Loading required package: SnowballC
```

```
require('SentimentAnalysis')
sa<-analyzeSentiment(x)
head(sa)
```

```
## WordCount SentimentGI NegativityGI PositivityGI SentimentHE NegativityHE
## 1      1  0.00000000  0.00000000  0.00000000  0.00000000  0
## 2     13 -0.07692308  0.07692308  0.00000000  0.00000000  0
## 3     12  0.41666667  0.08333333  0.50000000  0.00000000  0
## 4      4  0.50000000  0.00000000  0.50000000  0.25000000  0
## 5      5  0.40000000  0.00000000  0.40000000  0.00000000  0
## 6     35  0.20000000  0.08571429  0.2857143  0.02857143  0
## PositivityHE SentimentLM NegativityLM PositivityLM RatioUncertaintyLM
## 1  0.00000000  0.00000000  0.00000000  0.00000000  0
## 2  0.00000000 -0.07692308  0.07692308  0.00000000  0
## 3  0.00000000  0.16666667  0.00000000  0.16666667  0
## 4  0.25000000  0.25000000  0.00000000  0.25000000  0
## 5  0.00000000  0.20000000  0.00000000  0.20000000  0
## 6  0.02857143  0.02857143  0.05714286  0.08571429  0
## SentimentQDAP NegativityQDAP PositivityQDAP
## 1  0.00000000  0.00000000  0.00000000
## 2  0.07692308  0.00000000  0.07692308
## 3  0.41666667  0.00000000  0.41666667
## 4  0.25000000  0.00000000  0.25000000
## 5  0.40000000  0.00000000  0.40000000
## 6  0.20000000  0.02857143  0.22857143
```

```
head(convertToBinaryResponse(sa)$SentimentQDAP)
```

```
## [1] positive positive positive positive positive positive
## Levels: negative positive
```

```
dict.QDAP<-loadDictionaryQDAP()
dict.GI<-loadDictionaryGI()
```

```
dtemp<-preprocessCorpus(clean_corpus)
sentiment_direction<-convertToDirection(analyzeSentiment(dtemp)$SentimentQDAP)
```

```
for (k in 1:10)
{
  print(sentiment_direction[k])
  cat(x[k],"\n")
}
```

```
## [1] neutral
## Levels: negative neutral positive
## review
## [1] positive
## Levels: negative neutral positive
## everything weather staff food property fire pits décor spa rooms beach top notch
## [1] positive
## Levels: negative neutral positive
## hotel fantastic built sea living together nature environment great well people service
## [1] positive
## Levels: negative neutral positive
## full enjoyed place facilities
## [1] positive
## Levels: negative neutral positive
## thanks cidreira madalenas tea reception
## [1] positive
## Levels: negative neutral positive
## one dream cozy comfortable hotel best personalized one employees congratulated nice taste sin
ce reception end stay welcome tea cake gluten aversion employees already knew waiting carefully
night received fire pits wine guests invited participate interact
## [1] positive
## Levels: negative neutral positive
## hotel concept hard grasp communicate environmental sustainability fashionable buzzwords like
upcycling use pillows made duck feathers
## [1] negative
## Levels: negative neutral positive
## pricing utterly ridiculous get
## [1] neutral
## Levels: negative neutral positive
## breakfast highquality products lacks choice
## [1] positive
## Levels: negative neutral positive
## service friendly although friendly times
```

```
dtemp<-preprocessCorpus(sw_corpus)
sw_sa<-analyzeSentiment(dtemp)
sentiment_direction<-convertToDirection(sw_sa$SentimentQDAP)
```

```
str(sw_sa)
```

```
## 'data.frame':    652 obs. of  14 variables:
## $ WordCount      : num  1 13 12 4 5 35 16 4 5 5 ...
## $ SentimentGI    : num  0 -0.0769 0.4167 0.5 0.4 ...
## $ NegativityGI    : num  0 0.0769 0.0833 0 0 ...
## $ PositivityGI    : num  0 0 0.5 0.5 0.4 ...
## $ SentimentHE     : num  0 0 0 0.25 0 ...
## $ NegativityHE    : num  0 0 0 0 0 0 0 0 0 ...
## $ PositivityHE    : num  0 0 0 0.25 0 ...
## $ SentimentLM     : num  0 -0.0769 0.1667 0.25 0.2 ...
## $ NegativityLM    : num  0 0.0769 0 0 0 ...
## $ PositivityLM    : num  0 0 0.167 0.25 0.2 ...
## $ RatioUncertaintyLM: num  0 0 0 0 0 0 0 0 0 ...
## $ SentimentQDAP   : num  0 0.0769 0.4167 0.25 0.4 ...
## $ NegativityQDAP  : num  0 0 0 0 0 0 0.0625 0.5 0.2 0 ...
## $ PositivityQDAP  : num  0 0.0769 0.4167 0.25 0.4 ...
```

```
for (k in 1:10)
{
  print(sentiment_direction[k])
  print(unlist(sw_corpus[k])["content.content"])
  cat("\n")
}
```

```

## [1] neutral
## Levels: negative neutral positive
## content.content
##      "Review"
##
## [1] positive
## Levels: negative neutral positive
##
content.content
## " Everything from the weather, staff, food, property, fire pits, décor, spa, rooms and beach
were top notch"
##
## [1] positive
## Levels: negative neutral positive
##
content.content
## "\"The hotel it is fantastic built by the sea, living together with nature. Environment it is
great as well as people and service."
##
## [1] positive
## Levels: negative neutral positive
##                      content.content
## "We full enjoyed the place, and facilities."
##
## [1] positive
## Levels: negative neutral positive
##                      content.content
## "Thanks for the \"cidreira\" and \"madalenas\" tea at reception\"
##
## [1] positive
## Levels: negative neutral positive
##
content.content
## "One dream! Cozy and comfortable Hotel! The best personalized one! All the employees are co
ngratulated! Very nice taste, since reception to the end of the stay! We were welcome with tea a
nd cake, as I have gluten aversion,, all the employees already knew and were waiting carefully.
At night, we were received in the fire pits, with some wine and all the guests were invited to p
articipate and interact. "
##
## [1] positive
## Levels: negative neutral positive
##
content.content
## "\"Hotel concept is hard to grasp. They communicate environmental sustainability, through fas
hionable buzzwords like upcycling but they use pillows made out of duck feathers!?!\"
##
## [1] negative
## Levels: negative neutral positive
##                      content.content
## "Pricing is utterly ridiculous, for what you get."
##
## [1] neutral

```



```
## Levels: negative neutral positive
##                               content.content
## "Breakfast has high-quality products, but it lacks in choice."
##
## [1] positive
## Levels: negative neutral positive
##                               content.content
## "Service is friendly, although \"too friendly\" at times."
```

```
table(convertToDirection(sw_sa$SentimentQDAP))
```

```
##
## negative  neutral positive
##      17      57      560
```

```
table(convertToDirection(sw_sa$SentimentLM))
```

```
##
## negative  neutral positive
##      88      245      301
```

```
unlist(sw_corpus[which.max(sw_sa$SentimentQDAP)]["content.content"])
```

```
##                               content.content
## "Thanks, 1000 thanks for this again... "
```

```
sort((sw_sa$SentimentQDAP),decreasing=F)[1:10]
```

```
## [1] -0.50000000 -0.25000000 -0.21428571 -0.20000000 -0.16666667 -0.14285714
## [7] -0.13157895 -0.12000000 -0.11111111 -0.09090909
```

```
unlist(sw_corpus[which.min(sw_sa$SentimentQDAP)]["content.content"])
```

```
##                               content.content
## "Pricing is utterly ridiculous, for what you get."
```

```
cor(na.omit(sw_sa[, c("SentimentLM", "SentimentHE", "SentimentQDAP", "SentimentGI"))))
```

```
##          SentimentLM SentimentHE SentimentQDAP SentimentGI
## SentimentLM      1.0000000    0.4067972    0.3401876    0.2667891
## SentimentHE      0.4067972    1.0000000    0.1372350    0.1122909
## SentimentQDAP    0.3401876    0.1372350    1.0000000    0.8091213
## SentimentGI      0.2667891    0.1122909    0.8091213    1.0000000
```

The correlation between GI and QDAP is relatively high, which would be expected.