

Airbnb.R

rosha

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```
data <- read.csv("C:/Users/rosha/OneDrive/Desktop/listings.csv", header = TRUE, stringsAsFactors  
  = F)  
View(data)  
names(data)
```

```

## [1] "id" "listing_url"
## [3] "scrape_id" "last_scraped"
## [5] "name" "summary"
## [7] "space" "description"
## [9] "experiences_offered" "neighborhood_overview"
## [11] "notes" "transit"
## [13] "access" "interaction"
## [15] "house_rules" "thumbnail_url"
## [17] "medium_url" "picture_url"
## [19] "xl_picture_url" "host_id"
## [21] "host_url" "host_name"
## [23] "host_since" "host_location"
## [25] "host_about" "host_response_time"
## [27] "host_response_rate" "host_acceptance_rate"
## [29] "host_is_superhost" "host_thumbnail_url"
## [31] "host_picture_url" "host_neighbourhood"
## [33] "host_listings_count" "host_total_listings_count"
## [35] "host_verifications" "host_has_profile_pic"
## [37] "host_identity_verified" "street"
## [39] "neighbourhood" "neighbourhood_cleansed"
## [41] "neighbourhood_group_cleansed" "city"
## [43] "state" "zipcode"
## [45] "market" "smart_location"
## [47] "country_code" "country"
## [49] "latitude" "longitude"
## [51] "is_location_exact" "property_type"
## [53] "room_type" "accommodates"
## [55] "bathrooms" "bedrooms"
## [57] "beds" "bed_type"
## [59] "amenities" "square_feet"
## [61] "price" "weekly_price"
## [63] "monthly_price" "security_deposit"
## [65] "cleaning_fee" "guests_included"
## [67] "extra_people" "minimum_nights"
## [69] "maximum_nights" "calendar_updated"
## [71] "has_availability" "availability_30"
## [73] "availability_60" "availability_90"
## [75] "availability_365" "calendar_last_scraped"
## [77] "number_of_reviews" "first_review"
## [79] "last_review" "review_scores_rating"
## [81] "review_scores_accuracy" "review_scores_cleanliness"
## [83] "review_scores_checkin" "review_scores_communication"
## [85] "review_scores_location" "review_scores_value"
## [87] "requires_license" "license"
## [89] "jurisdiction_names" "instant_bookable"
## [91] "cancellation_policy" "require_guest_profile_picture"
## [93] "require_guest_phone_verification" "calculated_host_listings_count"
## [95] "reviews_per_month"

```

```
#####Data Preprocessing#####
```

```
a <- strsplit(data$amenities,"")

# Removing variables that contain only a single value
data <- data
a <- apply(data,2,unique)
is.vector(a)
```

```
## [1] TRUE
```

```
length(a)
```

```
## [1] 95
```

```
b <- NULL
for(i in 1:length(a))
{
  if(length(a[[i]])==1){
    b <- rbind(b,names(a[[i]]))
  }
}
b <- as.vector(b)
head(b)
```

```
## NULL
```

```
data[,b] <- NULL

#This leads to a removal of 9 such variables.

#All the url related variables can be removed as they contain weblinks which aren't useful for a
ny kind of analysis
data[,names(data)[grep("url",names(data))]] <- NULL
grep("url",names(data))
```

```
## integer(0)
```

```
#This leads to removal of 8 such variables.
#c. Next we removed all those variables which have more than 80% missing values.
a <- apply(data,2,is.na)
head(a)
```

```

##      id scrape_id last_scraped  name summary space description
## [1,] FALSE      FALSE          FALSE FALSE  FALSE FALSE      FALSE
## [2,] FALSE      FALSE          FALSE FALSE  FALSE FALSE      FALSE
## [3,] FALSE      FALSE          FALSE FALSE  FALSE FALSE      FALSE
## [4,] FALSE      FALSE          FALSE FALSE  FALSE FALSE      FALSE
## [5,] FALSE      FALSE          FALSE FALSE  FALSE FALSE      FALSE
## [6,] FALSE      FALSE          FALSE FALSE  FALSE FALSE      FALSE
##      experiences_offered neighborhood_overview notes transit access
## [1,]                    FALSE                    FALSE FALSE  FALSE  FALSE
## [2,]                    FALSE                    FALSE FALSE  FALSE  FALSE
## [3,]                    FALSE                    FALSE FALSE  FALSE  FALSE
## [4,]                    FALSE                    FALSE FALSE  FALSE  FALSE
## [5,]                    FALSE                    FALSE FALSE  FALSE  FALSE
## [6,]                    FALSE                    FALSE FALSE  FALSE  FALSE
##      interaction house_rules host_id host_name host_since host_location
## [1,]          FALSE      FALSE  FALSE  FALSE      FALSE      FALSE
## [2,]          FALSE      FALSE  FALSE  FALSE      FALSE      FALSE
## [3,]          FALSE      FALSE  FALSE  FALSE      FALSE      FALSE
## [4,]          FALSE      FALSE  FALSE  FALSE      FALSE      FALSE
## [5,]          FALSE      FALSE  FALSE  FALSE      FALSE      FALSE
## [6,]          FALSE      FALSE  FALSE  FALSE      FALSE      FALSE
##      host_about host_response_time host_response_rate host_acceptance_rate
## [1,]          FALSE                    FALSE              FALSE              FALSE
## [2,]          FALSE                    FALSE              FALSE              FALSE
## [3,]          FALSE                    FALSE              FALSE              FALSE
## [4,]          FALSE                    FALSE              FALSE              FALSE
## [5,]          FALSE                    FALSE              FALSE              FALSE
## [6,]          FALSE                    FALSE              FALSE              FALSE
##      host_is_superhost host_neighbourhood host_listings_count
## [1,]                FALSE                    FALSE              FALSE
## [2,]                FALSE                    FALSE              FALSE
## [3,]                FALSE                    FALSE              FALSE
## [4,]                FALSE                    FALSE              FALSE
## [5,]                FALSE                    FALSE              FALSE
## [6,]                FALSE                    FALSE              FALSE
##      host_total_listings_count host_verifications host_has_profile_pic
## [1,]                    FALSE              FALSE              FALSE
## [2,]                    FALSE              FALSE              FALSE
## [3,]                    FALSE              FALSE              FALSE
## [4,]                    FALSE              FALSE              FALSE
## [5,]                    FALSE              FALSE              FALSE
## [6,]                    FALSE              FALSE              FALSE
##      host_identity_verified street neighbourhood neighbourhood_cleansed
## [1,]                    FALSE  FALSE              FALSE              FALSE
## [2,]                    FALSE  FALSE              FALSE              FALSE
## [3,]                    FALSE  FALSE              FALSE              FALSE
## [4,]                    FALSE  FALSE              FALSE              FALSE
## [5,]                    FALSE  FALSE              FALSE              FALSE
## [6,]                    FALSE  FALSE              FALSE              FALSE
##      neighbourhood_group_cleansed city state zipcode market
## [1,]                    TRUE  FALSE  FALSE      FALSE  FALSE
## [2,]                    TRUE  FALSE  FALSE      FALSE  FALSE
## [3,]                    TRUE  FALSE  FALSE      FALSE  FALSE

```

```

## [4,] TRUE FALSE FALSE FALSE FALSE
## [5,] TRUE FALSE FALSE FALSE FALSE
## [6,] TRUE FALSE FALSE FALSE FALSE
## smart_location country_code country latitude longitude
## [1,] FALSE FALSE FALSE FALSE FALSE
## [2,] FALSE FALSE FALSE FALSE FALSE
## [3,] FALSE FALSE FALSE FALSE FALSE
## [4,] FALSE FALSE FALSE FALSE FALSE
## [5,] FALSE FALSE FALSE FALSE FALSE
## [6,] FALSE FALSE FALSE FALSE FALSE
## is_location_exact property_type room_type accommodates bathrooms
## [1,] FALSE FALSE FALSE FALSE FALSE
## [2,] FALSE FALSE FALSE FALSE FALSE
## [3,] FALSE FALSE FALSE FALSE FALSE
## [4,] FALSE FALSE FALSE FALSE FALSE
## [5,] FALSE FALSE FALSE FALSE FALSE
## [6,] FALSE FALSE FALSE FALSE FALSE
## bedrooms beds bed_type amenities square_feet price weekly_price
## [1,] FALSE FALSE FALSE FALSE TRUE FALSE FALSE
## [2,] FALSE FALSE FALSE FALSE TRUE FALSE FALSE
## [3,] FALSE FALSE FALSE FALSE TRUE FALSE FALSE
## [4,] FALSE FALSE FALSE FALSE TRUE FALSE FALSE
## [5,] FALSE FALSE FALSE FALSE TRUE FALSE FALSE
## [6,] FALSE FALSE FALSE FALSE TRUE FALSE FALSE
## monthly_price security_deposit cleaning_fee guests_included
## [1,] FALSE FALSE FALSE FALSE FALSE
## [2,] FALSE FALSE FALSE FALSE FALSE
## [3,] FALSE FALSE FALSE FALSE FALSE
## [4,] FALSE FALSE FALSE FALSE FALSE
## [5,] FALSE FALSE FALSE FALSE FALSE
## [6,] FALSE FALSE FALSE FALSE FALSE
## extra_people minimum_nights maximum_nights calendar_updated
## [1,] FALSE FALSE FALSE FALSE FALSE
## [2,] FALSE FALSE FALSE FALSE FALSE
## [3,] FALSE FALSE FALSE FALSE FALSE
## [4,] FALSE FALSE FALSE FALSE FALSE
## [5,] FALSE FALSE FALSE FALSE FALSE
## [6,] FALSE FALSE FALSE FALSE FALSE
## has_availability availability_30 availability_60 availability_90
## [1,] TRUE FALSE FALSE FALSE FALSE
## [2,] TRUE FALSE FALSE FALSE FALSE
## [3,] TRUE FALSE FALSE FALSE FALSE
## [4,] TRUE FALSE FALSE FALSE FALSE
## [5,] TRUE FALSE FALSE FALSE FALSE
## [6,] TRUE FALSE FALSE FALSE FALSE
## availability_365 calendar_last_scraped number_of_reviews first_review
## [1,] FALSE FALSE FALSE FALSE FALSE
## [2,] FALSE FALSE FALSE FALSE FALSE
## [3,] FALSE FALSE FALSE FALSE FALSE
## [4,] FALSE FALSE FALSE FALSE FALSE
## [5,] FALSE FALSE FALSE FALSE FALSE
## [6,] FALSE FALSE FALSE FALSE FALSE
## last_review review_scores_rating review_scores_accuracy
## [1,] FALSE FALSE FALSE

```

```
## [2,]      FALSE      TRUE      TRUE
## [3,]      FALSE      FALSE      FALSE
## [4,]      FALSE      FALSE      FALSE
## [5,]      FALSE      FALSE      FALSE
## [6,]      FALSE      FALSE      FALSE
##      review_scores_cleanliness review_scores_checkin
## [1,]                FALSE                FALSE
## [2,]                TRUE                 TRUE
## [3,]                FALSE                FALSE
## [4,]                FALSE                FALSE
## [5,]                FALSE                FALSE
## [6,]                FALSE                FALSE
##      review_scores_communication review_scores_location
## [1,]                FALSE                FALSE
## [2,]                TRUE                 TRUE
## [3,]                FALSE                FALSE
## [4,]                FALSE                FALSE
## [5,]                FALSE                FALSE
## [6,]                FALSE                FALSE
##      review_scores_value requires_license license jurisdiction_names
## [1,]                FALSE                FALSE FALSE                FALSE
## [2,]                TRUE                 FALSE FALSE                FALSE
## [3,]                FALSE                FALSE FALSE                FALSE
## [4,]                FALSE                FALSE FALSE                FALSE
## [5,]                FALSE                FALSE FALSE                FALSE
## [6,]                FALSE                FALSE FALSE                FALSE
##      instant_bookable cancellation_policy require_guest_profile_picture
## [1,]                FALSE                FALSE                FALSE
## [2,]                FALSE                FALSE                FALSE
## [3,]                FALSE                FALSE                FALSE
## [4,]                FALSE                FALSE                FALSE
## [5,]                FALSE                FALSE                FALSE
## [6,]                FALSE                FALSE                FALSE
##      require_guest_phone_verification calculated_host_listings_count
## [1,]                FALSE                FALSE
## [2,]                FALSE                FALSE
## [3,]                FALSE                FALSE
## [4,]                FALSE                FALSE
## [5,]                FALSE                FALSE
## [6,]                FALSE                FALSE
##      reviews_per_month
## [1,]                FALSE
## [2,]                TRUE
## [3,]                FALSE
## [4,]                FALSE
## [5,]                FALSE
## [6,]                FALSE
```

```
b <- apply(a,2,sum)
is.vector(b) #TRUE
```

```
## [1] TRUE
```

```
is.list(b)
```

```
## [1] FALSE
```

```
head(b)
```

```
##           id  scrape_id last_scraped      name  summary
##           0           0           0           0           1
##      space
##           0
```

```
b/5207>=0.80  #b/5207>=0.80 - missing
```

```

##          id          scrape_id
##          FALSE          FALSE
##      last_scraped          name
##          FALSE          FALSE
##          summary          space
##          FALSE          FALSE
##      description  experiences_offered
##          FALSE          FALSE
##      neighborhood_overview          notes
##          FALSE          FALSE
##          transit          access
##          FALSE          FALSE
##      interaction          house_rules
##          FALSE          FALSE
##          host_id          host_name
##          FALSE          FALSE
##          host_since          host_location
##          FALSE          FALSE
##          host_about          host_response_time
##          FALSE          FALSE
##      host_response_rate          host_acceptance_rate
##          FALSE          FALSE
##          host_is_superhost          host_neighbourhood
##          FALSE          FALSE
##      host_listings_count          host_total_listings_count
##          FALSE          FALSE
##          host_verifications          host_has_profile_pic
##          FALSE          FALSE
##      host_identity_verified          street
##          FALSE          FALSE
##          neighbourhood          neighbourhood_cleansed
##          FALSE          FALSE
##      neighbourhood_group_cleansed          city
##          TRUE          FALSE
##          state          zipcode
##          FALSE          FALSE
##          market          smart_location
##          FALSE          FALSE
##          country_code          country
##          FALSE          FALSE
##          latitude          longitude
##          FALSE          FALSE
##      is_location_exact          property_type
##          FALSE          FALSE
##          room_type          accommodates
##          FALSE          FALSE
##          bathrooms          bedrooms
##          FALSE          FALSE
##          beds          bed_type
##          FALSE          FALSE
##          amenities          square_feet
##          FALSE          TRUE
##          price          weekly_price

```



```
##                FALSE                FALSE
##      monthly_price      security_deposit
##                FALSE                FALSE
##      cleaning_fee      guests_included
##                FALSE                FALSE
##      extra_people      minimum_nights
##                FALSE                FALSE
##      maximum_nights      calendar_updated
##                FALSE                FALSE
##      has_availability      availability_30
##                TRUE                FALSE
##      availability_60      availability_90
##                FALSE                FALSE
##      availability_365      calendar_last_scraped
##                FALSE                FALSE
##      number_of_reviews      first_review
##                FALSE                FALSE
##      last_review      review_scores_rating
##                FALSE                FALSE
##      review_scores_accuracy      review_scores_cleanliness
##                FALSE                FALSE
##      review_scores_checkin      review_scores_communication
##                FALSE                FALSE
##      review_scores_location      review_scores_value
##                FALSE                FALSE
##      requires_license      license
##                FALSE                FALSE
##      jurisdiction_names      instant_bookable
##                FALSE                FALSE
##      cancellation_policy      require_guest_profile_picture
##                FALSE                FALSE
##      require_guest_phone_verification      calculated_host_listings_count
##                FALSE                FALSE
##      reviews_per_month
##                FALSE
```

```
b[b/5207>=0.80]
```

```
## neighbourhood_group_cleansed      square_feet
##                5207                5167
##      has_availability
##                5207
```

```
names(b[b/5207>=0.80])
```

```
## [1] "neighbourhood_group_cleansed" "square_feet"
## [3] "has_availability"
```

```
data[,names(b[b/5207>=0.80])] <- NULL
data$square_feet
```

```
## NULL
```

#This Leads to a removal of 1 variable

#d. Based on intuition and further inspection we observed that below variables does not add any value to our analysis and should be removed

```
data[,c("security_deposit","weekly_price","monthly_price","first_review","last_review","jurisdiction_names","zipcode","street","market","cleaning_fee","name","interaction","access","space","notes","description","host_name","host_has_profile_pic","host_verifications","host_neighborhood","require_guest_profile_picture","require_guest_phone_verification","calculated_host_listings_count","host_location","transit","neighborhood_overview","house_rules","host_about","license","requires_license","host_neighbourhood")] <- NULL
```

#e. Removing variables with duplicated values

```
data[,names(data[(duplicated(t(data)))])] <- NULL
```

#f)We observed that different listings have different amenities and hence we created flag/dummy variables for the most important amenities we thought a user looks for while booking at Airbnb. #These amenities are TV, Internet, Air Conditioning, Breakfast, Kitchen, and Pets.

adding amenities categories

```
a <- data$amenities
data$TV <- ifelse(grepl("TV",a, ignore.case = T)==T,1,0)
data$Internet <- ifelse(grepl("Internet",a, ignore.case= T)==T,1,0)
data$AirCondition <- ifelse(grepl("conditioning",a, ignore.case =T)==T,1,0)
data$Pets <- ifelse(grepl("Pet",a, ignore.case = T)==T,1,0)
data$Pets <- ifelse(grepl("Dog",a, ignore.case = T)==T,1,data$Pets)
data$Pets <- ifelse(grepl("Cat",a, ignore.case = T)==T,1,data$Pets)
data$Kitchen <- ifelse(grepl("Kitchen",a, ignore.case = T)==T,1,0)
data$Breakfast <- ifelse(grepl("breakfast",a, ignore.case = T)==T,1,0)
data[,c("amenities")] <- NULL
```

#The data types of variables which we thought might be significant were converted to the appropriate data types.

Converting price variable to integer

```
data$price <- sub("\\$", "", data$price)
data$price <- sub(",", "", data$price)
data$price <- as.integer(data$price)
```

Changing the default character data type of categorical variable to factor

```
data$host_response_time <- as.factor(data$host_response_time)
data$host_is_superhost <- as.factor(data$host_is_superhost)
data$host_identity_verified <- as.factor(data$host_identity_verified)
data$neighbourhood_cleansed <- as.factor(data$neighbourhood_cleansed)
data$is_location_exact <- as.factor(data$is_location_exact)
data$property_type <- as.factor(data$property_type)
data$room_type <- as.factor(data$room_type)
data$bed_type <- as.factor(data$bed_type)
data$calendar_updated <- as.factor(data$calendar_updated)
data$instant_bookable <- as.factor(data$instant_bookable)
data$cancellation_policy <- as.factor(data$cancellation_policy)
```

Treating host_response_rate and extra_people from character to a numeric variable

```
data$host_response_rate<- as.numeric(sub("%", "", data$host_response_rate))
```

```
## Warning: NAs introduced by coercion
```

```
data$host_response_rate <- data$host_response_rate/100  
data$extra_people <- as.numeric(sub("\\$", "", data$extra_people))
```

```
# Removing listings which have price = 0  
data <- data[-c(717,1334,3093),]
```

```
#We also created a variable about the number of days since the listing was on Airbnb.  
data$host_since <- as.Date(data$host_since)  
data$host_since <- as.Date("2017-05-10")-data$host_since
```

```
#In order to reduce the number of levels in factor variables with large number of levels, we clustered the factors with low number of listings. In the dataset, we observed that neighbourhood_cleaned, which gives us an idea of the neighbourhood of the listing, has 72 levels.  
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 3.5.3
```

```
##  
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':  
##  
## filter, lag
```

```
## The following objects are masked from 'package:base':  
##  
## intersect, setdiff, setequal, union
```

```

a <- data %>% group_by(neighbourhood_cleansed) %>% summarise(len = length(neighbourhood_cleansed))

data <- merge(data,a,by = "neighbourhood_cleansed")
data$neighbourhood_cleansed <- as.character(data$neighbourhood_cleansed)
data$neighbourhood_cleansed <- ifelse(data$len<150,"Others",data$neighbourhood_cleansed)
data$len <- NULL

####Missing Value Treatment
# checking missing values in different columns
missing = data.frame(col=colnames(data), type = sapply(data, class),
missing = sapply(data, function(x) sum(is.na(x)| x==" " | x=="N/A"))/nrow(data) * 100)

# Replace missing values in host_response_time with the most common occurring category (its mode)
data$host_response_time<- sub("N/A","within an hour", data$host_response_time)
# replace missing values in host_response rate with mean values observed for host_response_time when it is within an hour
data$host_response_rate <- ifelse(is.na(data$host_response_rate)==T,0.99,data$host_response_rate)
# Replace missing values in bathrooms, bedrooms and beds with the median value
data$bathrooms <- ifelse(is.na(data$bathrooms)==T, 1, data$bathrooms)
data$bedrooms <- ifelse(is.na(data$bedrooms)==T,1,data$bedrooms)
data$beds <- ifelse(is.na(data$beds)==T,1,data$beds)
# Replace the missing values in review scores with the median values as well
data$review_scores_rating <- ifelse(is.na(data$review_scores_rating)==T,97,data$review_scores_rating)
data$review_scores_accuracy <- ifelse(is.na(data$review_scores_accuracy)==T,10,data$review_scores_accuracy)
data$review_scores_cleanliness <- ifelse(is.na(data$review_scores_cleanliness)==T,10,data$review_scores_cleanliness)
data$review_scores_checkin <- ifelse(is.na(data$review_scores_checkin)==T,10,data$review_scores_checkin)
data$review_scores_communication <- ifelse(is.na(data$review_scores_communication)==T,10,data$review_scores_communication)
data$review_scores_location <- ifelse(is.na(data$review_scores_location)==T,10,data$review_scores_location)
data$review_scores_value <- ifelse(is.na(data$review_scores_value)==T,10,data$review_scores_value)
data$reviews_per_month <- ifelse(is.na(data$reviews_per_month)==T,1.55,data$reviews_per_month)

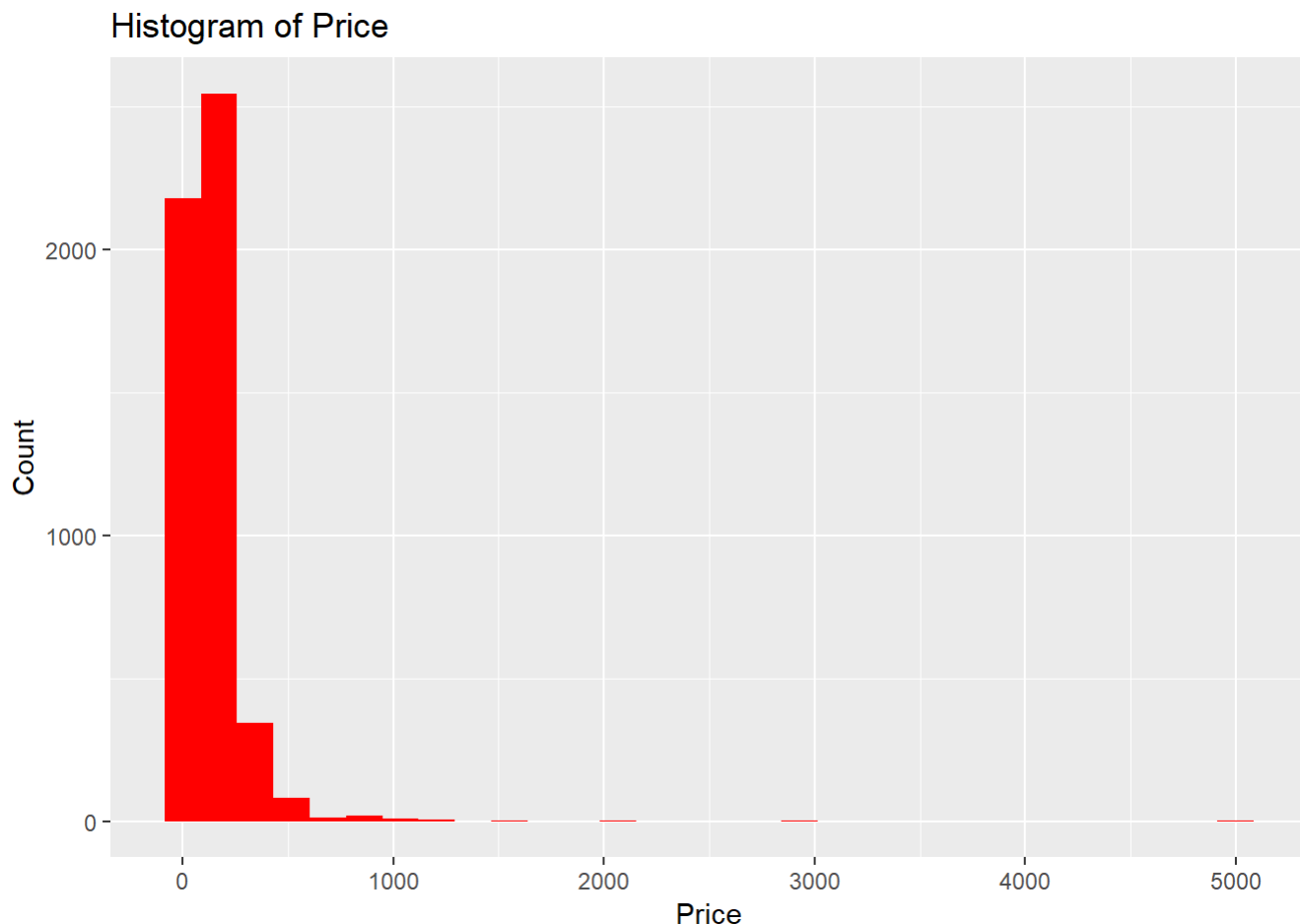
####Outliers
# Histogram of price
library(ggplot2)

```

```
## Warning: package 'ggplot2' was built under R version 3.5.3
```

```
ggplot(data=data, aes(price)) +
  geom_histogram(fill="red") +
  labs(title="Histogram of Price") +
  labs(x="Price", y="Count")
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



```
# Percentile of price
quantile(data$price, c(.9, .95, .97, 0.975, 0.98, 0.99, 0.995, 0.999, 0.9999))
```

```
##      90%      95%      97%      97.5%      98%      99%      99.5%      99.9%      99.99%
## 250.00  350.00  400.00  450.00  500.00  649.04  900.00 1898.50 5000.00
```

#As we can see from the histogram as well as the percentile distribution of Price, there are extreme values in Price, So we performed Winsorization at 99% Level and captured the maximum value of price at 650 USD.

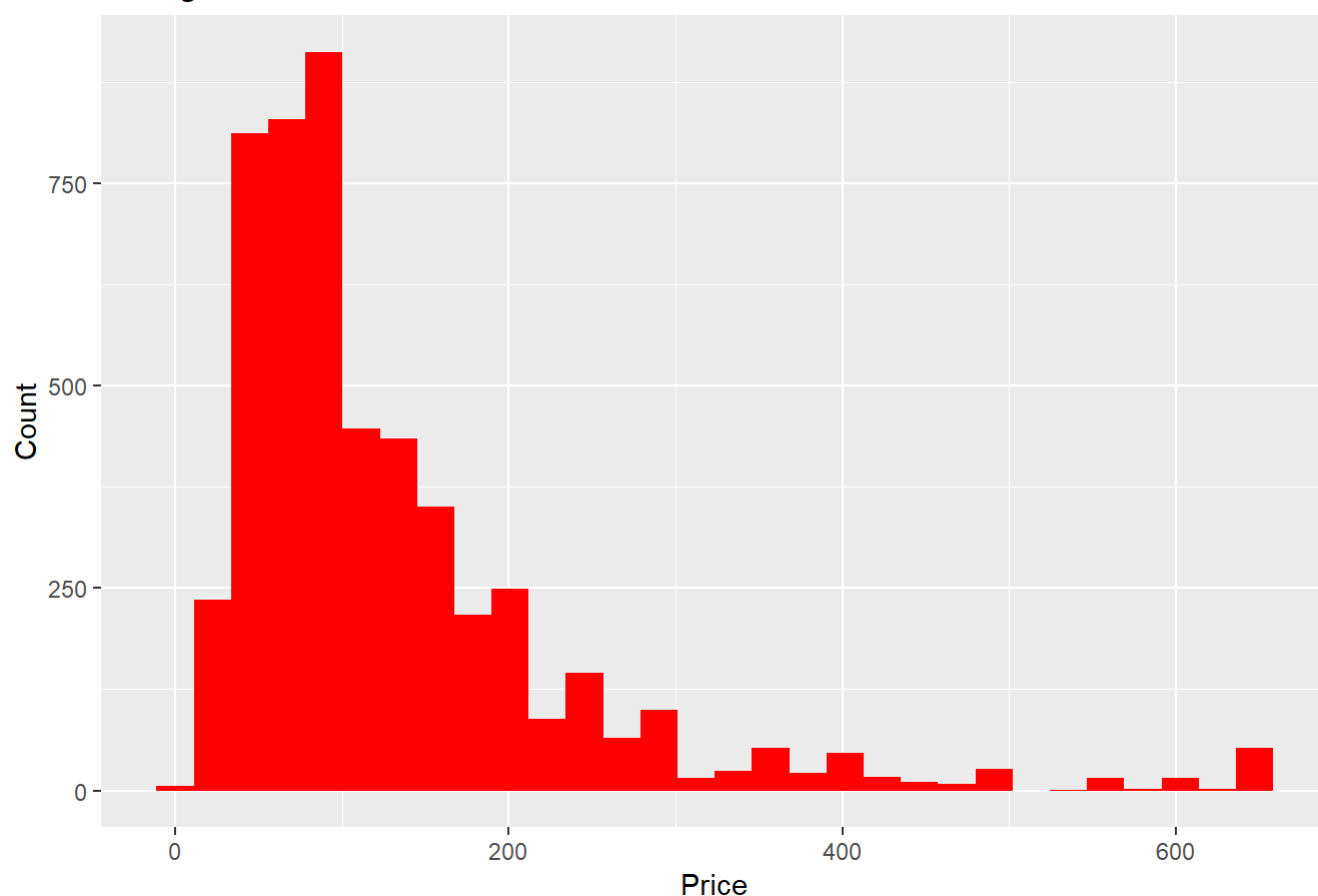
Capture the extreme values of Price at 99 percentile Level

```
data$price <- ifelse(data$price>650,650,data$price)
```

```
ggplot(data=data, aes(price)) +
  geom_histogram(fill="red") +
  labs(title="Histogram of Price") +
  labs(x="Price", y="Count")
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

Histogram of Price

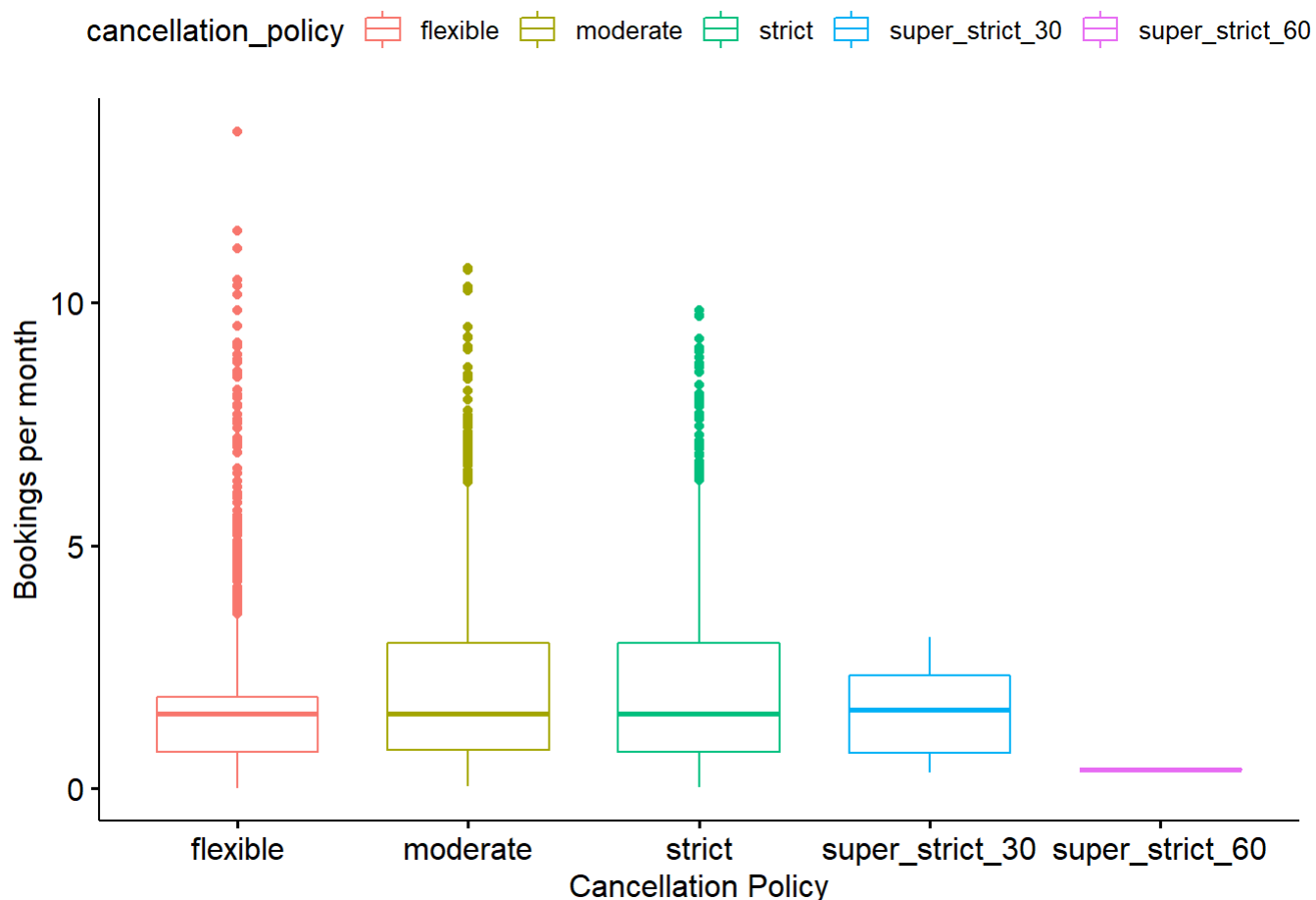


```
# Visualizing the distribution of no of reviews for different cancellation policy using a boxplot  
library(ggpubr)
```

```
## Warning: package 'ggpubr' was built under R version 3.5.3
```

```
## Loading required package: magrittr
```

```
ggboxplot(data, x = "cancellation_policy", y = "reviews_per_month",  
          color = "cancellation_policy",  
          ylab = "Bookings per month", xlab = "Cancellation Policy")
```



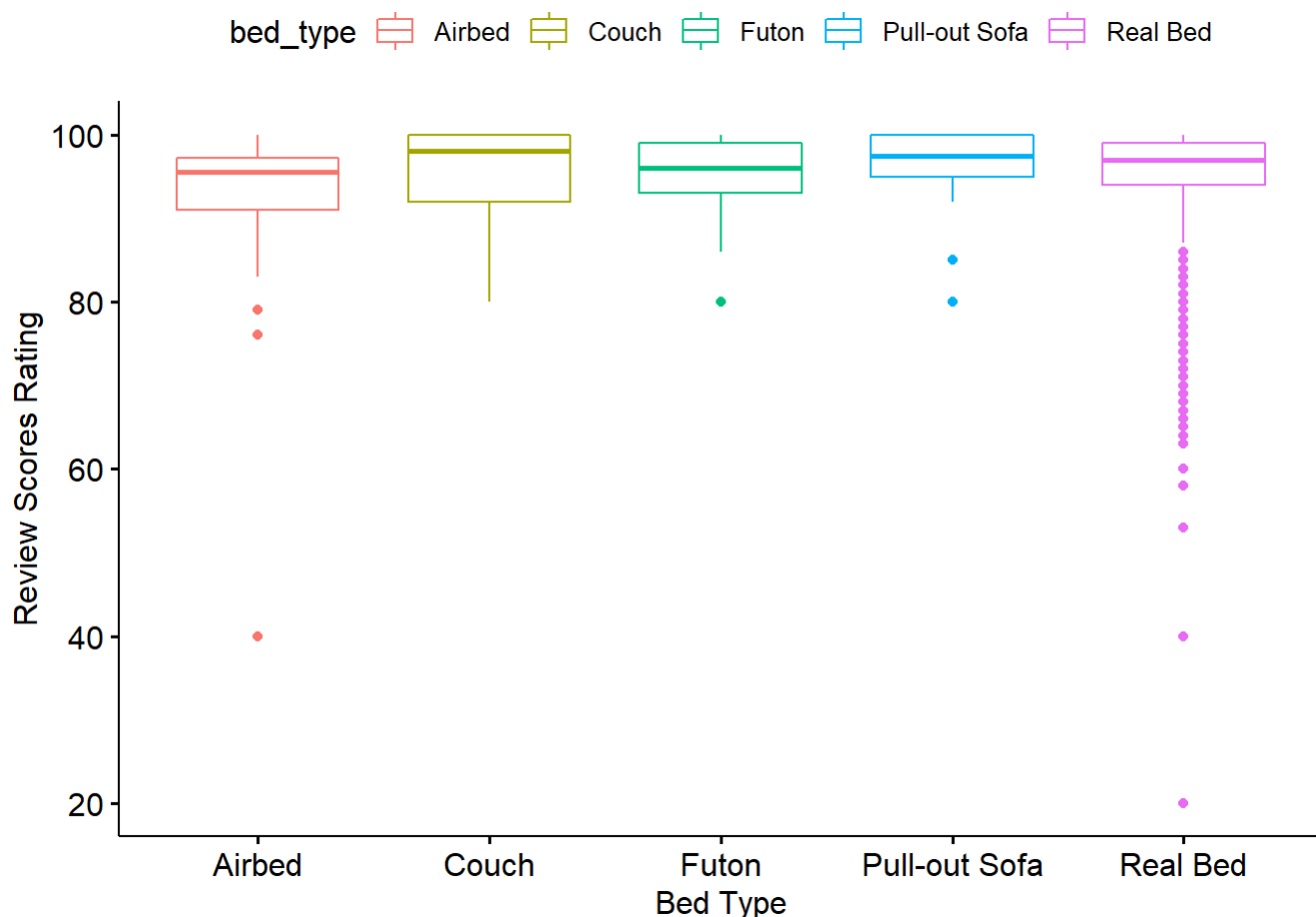
#Initial inspection of the data using the boxplot suggests that there are differences in the booking rates for different cancellation policies: the accommodations with Strict and Moderate cancellation policies have higher average booking rates (staying rate). To investigate for if there are significant differences among groups quantitatively, we then fitted an one-way ANOVA model as below.

```
# Compute the analysis of variance
anova1 <- aov(reviews_per_month ~ cancellation_policy, data = data)
# Summary of the analysis
summary(anova1)
```

```
##              Df Sum Sq Mean Sq F value    Pr(>F)
## cancellation_policy    4    136   33.93   11.31 3.89e-09 ***
## Residuals          5199  15600    3.00
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


#Since, p -value is less than the significance level 0.05 in the model summary, we reject the null hypothesis and we can say that the average booking rates are different with different cancellation policies.

```
# Visualizing the distribution of review_scores_rating for different bed type using a boxplot
ggboxplot(data, x = "bed_type", y = "review_scores_rating",
  color = "bed_type",
  ylab = "Review Scores Rating", xlab = "Bed Type")
```



#Initial inspection of the data using the boxplot suggests that there are no differences in the review rating for different bed types. To investigate for if there are differences among different groups quantitatively, we fitted an one-way ANOVA model.

```
# Compute the analysis of variance
anova2 <- aov(review_scores_rating ~ bed_type, data = data)
# Summary of the analysis
summary(anova2)
```

```
##           Df Sum Sq Mean Sq F value Pr(>F)
## bed_type    4     269    67.32   2.035 0.0867 .
## Residuals 5199 171951    33.07
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

#Since P-value is larger than 0.05, we accpet the null hypothesis that the average review scores do not change with the bed types.

##Lm

```
data_size <- floor(0.8 * nrow(data))
train_data <- sample(seq_len(nrow(data)), size = data_size)
train <- data[train_data, ]
test <- data[-train_data, ]
price_model <- lm(price ~ as.factor(neighbourhood_cleansed) + host_since + Breakfast + Kitchen +
  Pets + AirCondition + Internet + TV + reviews_per_month + review_scores_rating + number_of_reviews + review_scores_accuracy + review_scores_value + review_scores_cleanliness + review_scores_checkin + review_scores_communication + review_scores_location + as.factor(cancellation_policy) +
  guests_included + beds + as.factor(bed_type) + bathrooms + as.factor(property_type) + as.factor(room_type),
  data = train)
summary(price_model)
```

```
##
## Call:
## lm(formula = price ~ as.factor(neighbourhood_cleansed) + host_since +
##     Breakfast + Kitchen + Pets + AirCondition + Internet + TV +
##     reviews_per_month + review_scores_rating + number_of_reviews +
##     review_scores_accuracy + review_scores_value + review_scores_cleanliness +
##     review_scores_checkin + review_scores_communication + review_scores_location +
##     as.factor(cancellation_policy) + guests_included + beds +
##     as.factor.bed_type) + bathrooms + as.factor(property_type) +
##     as.factor(room_type), data = train)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -439.85  -36.28   -7.08   19.98  560.35
##
## Coefficients:
##                                     Estimate Std. Error
## (Intercept)                       -6.410e+01  3.512e+01
## as.factor(neighbourhood_cleansed)Lake View      3.267e+01  7.628e+00
## as.factor(neighbourhood_cleansed)Lincoln Park   3.581e+01  8.342e+00
## as.factor(neighbourhood_cleansed)Logan Square   3.588e+00  7.921e+00
## as.factor(neighbourhood_cleansed)Loop           3.384e+01  8.523e+00
## as.factor(neighbourhood_cleansed)Lower West Side -5.670e+00  9.365e+00
## as.factor(neighbourhood_cleansed)Near North Side  5.916e+01  7.886e+00
## as.factor(neighbourhood_cleansed)Near West Side  1.560e+01  8.808e+00
## as.factor(neighbourhood_cleansed)Others         -9.881e+00  7.105e+00
## as.factor(neighbourhood_cleansed)Uptown          5.170e+00  8.949e+00
## as.factor(neighbourhood_cleansed)West Town       7.295e+00  7.393e+00
## host_since                          3.707e-03  2.042e-03
## Breakfast                          -6.228e+00  3.190e+00
## Kitchen                            -9.606e+00  5.343e+00
## Pets                              -2.828e+00  2.624e+00
## AirCondition                       1.239e+01  4.158e+00
## Internet                          -8.268e+00  7.099e+00
## TV                                1.382e+01  3.202e+00
## reviews_per_month                  -8.799e+00  8.591e-01
## review_scores_rating                 3.767e-01  3.868e-01
## number_of_reviews                   -5.722e-02  3.942e-02
## review_scores_accuracy               -5.015e-01  2.916e+00
## review_scores_value                 -5.696e+00  2.799e+00
## review_scores_cleanliness            9.768e+00  2.289e+00
## review_scores_checkin                3.598e+00  3.570e+00
## review_scores_communication          -1.100e+01  3.964e+00
## review_scores_location               1.174e+01  2.152e+00
## as.factor(cancellation_policy)moderate          1.804e+00  3.197e+00
## as.factor(cancellation_policy)strict            -3.894e+00  3.108e+00
## as.factor(cancellation_policy)super_strict_30    6.223e+01  3.756e+01
## as.factor(cancellation_policy)super_strict_60   -6.275e+01  7.505e+01
## guests_included                     4.515e+00  9.896e-01
## beds                                1.830e+01  1.215e+00
## as.factor.bed_type)Couch              1.515e+01  2.340e+01
## as.factor.bed_type)Futon              3.357e+00  1.571e+01
## as.factor.bed_type)Pull-out Sofa       -8.571e+00  1.862e+01
```

```

## as.factor(bed_type)Real Bed          -2.044e+00  1.085e+01
## bathrooms                          4.758e+01  2.416e+00
## as.factor(property_type)Bed & Breakfast  4.166e+01  1.971e+01
## as.factor(property_type)Boat          1.756e+02  2.095e+01
## as.factor(property_type)Boutique hotel  6.764e+01  2.404e+01
## as.factor(property_type)Bungalow      -4.275e+01  3.750e+01
## as.factor(property_type)Condominium    1.199e+01  3.797e+00
## as.factor(property_type)Dorm          -1.208e+02  2.031e+01
## as.factor(property_type)Guest suite    -2.553e+01  2.833e+01
## as.factor(property_type)Guesthouse     2.607e+01  2.012e+01
## as.factor(property_type)Hostel        -1.648e+01  3.465e+01
## as.factor(property_type)House          1.116e+01  3.689e+00
## as.factor(property_type)In-law        -5.516e+01  5.293e+01
## as.factor(property_type)Loft          1.589e+01  8.893e+00
## as.factor(property_type)Other         2.797e+01  1.443e+01
## as.factor(property_type)Serviced apartment  8.495e+01  7.519e+01
## as.factor(property_type)Timeshare      5.744e+01  7.505e+01
## as.factor(property_type)Townhouse     2.321e+01  9.329e+00
## as.factor(property_type)Vacation home  1.326e+02  7.481e+01
## as.factor(property_type)Villa         1.183e+02  7.478e+01
## as.factor(room_type)Private room      -4.756e+01  3.010e+00
## as.factor(room_type)Shared room       -9.506e+01  7.340e+00
##                                     t value Pr(>|t|)
## (Intercept)                       -1.825  0.06808 .
## as.factor(neighbourhood_cleansed)Lake View    4.283  1.89e-05 ***
## as.factor(neighbourhood_cleansed)Lincoln Park  4.293  1.80e-05 ***
## as.factor(neighbourhood_cleansed)Logan Square  0.453  0.65060
## as.factor(neighbourhood_cleansed)Loop        3.971  7.28e-05 ***
## as.factor(neighbourhood_cleansed)Lower West Side -0.605  0.54491
## as.factor(neighbourhood_cleansed)Near North Side  7.503  7.62e-14 ***
## as.factor(neighbourhood_cleansed)Near West Side  1.772  0.07653 .
## as.factor(neighbourhood_cleansed)Others      -1.391  0.16441
## as.factor(neighbourhood_cleansed)Uptown       0.578  0.56345
## as.factor(neighbourhood_cleansed)West Town    0.987  0.32385
## host_since                          1.815  0.06952 .
## Breakfast                          -1.952  0.05098 .
## Kitchen                            -1.798  0.07228 .
## Pets                               -1.078  0.28122
## AirCondition                       2.979  0.00291 **
## Internet                           -1.165  0.24424
## TV                                  4.316  1.62e-05 ***
## reviews_per_month                 -10.241 < 2e-16 ***
## review_scores_rating               0.974  0.33021
## number_of_reviews                 -1.451  0.14673
## review_scores_accuracy             -0.172  0.86345
## review_scores_value               -2.035  0.04194 *
## review_scores_cleanliness         4.267  2.03e-05 ***
## review_scores_checkin              1.008  0.31360
## review_scores_communication       -2.776  0.00552 **
## review_scores_location             5.457  5.13e-08 ***
## as.factor(cancellation_policy)moderate      0.564  0.57271
## as.factor(cancellation_policy)strict      -1.253  0.21036
## as.factor(cancellation_policy)super_strict_30  1.657  0.09768 .
## as.factor(cancellation_policy)super_strict_60 -0.836  0.40313

```

```
## guests_included          4.562 5.21e-06 ***
## beds                    15.061 < 2e-16 ***
## as.factor(bed_type)Couch    0.647 0.51742
## as.factor(bed_type)Futon    0.214 0.83075
## as.factor(bed_type)Pull-out Sofa -0.460 0.64522
## as.factor(bed_type)Real Bed -0.188 0.85059
## bathrooms                19.690 < 2e-16 ***
## as.factor(property_type)Bed & Breakfast 2.114 0.03458 *
## as.factor(property_type)Boat  8.382 < 2e-16 ***
## as.factor(property_type)Boutique hotel 2.813 0.00493 **
## as.factor(property_type)Bungalow -1.140 0.25430
## as.factor(property_type)Condominium 3.157 0.00161 **
## as.factor(property_type)Dorm -5.949 2.92e-09 ***
## as.factor(property_type)Guest suite -0.901 0.36759
## as.factor(property_type)Guesthouse 1.295 0.19528
## as.factor(property_type)Hostel -0.476 0.63427
## as.factor(property_type)House 3.025 0.00250 **
## as.factor(property_type)In-law -1.042 0.29740
## as.factor(property_type)Loft 1.787 0.07409 .
## as.factor(property_type)Other 1.938 0.05269 .
## as.factor(property_type)Serviced apartment 1.130 0.25862
## as.factor(property_type)Timeshare 0.765 0.44409
## as.factor(property_type)Townhouse 2.489 0.01287 *
## as.factor(property_type)Vacation home 1.772 0.07645 .
## as.factor(property_type)Villa 1.581 0.11385
## as.factor(room_type)Private room -15.802 < 2e-16 ***
## as.factor(room_type)Shared room -12.950 < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 74.64 on 4105 degrees of freedom
## Multiple R-squared:  0.5191, Adjusted R-squared:  0.5125
## F-statistic: 77.75 on 57 and 4105 DF, p-value: < 2.2e-16
```

```
predictions=predict(price_model,newdata = test)
predictions
```

##	2	8	11	20	24	35
##	69.8467372	155.7099090	39.4222880	43.9620013	116.1327686	63.8427270
##	38	44	45	49	61	64
##	-24.3854100	136.1057733	32.8230099	60.2586072	136.6186449	65.2405632
##	74	75	78	89	91	101
##	25.4643312	41.5315705	145.8440871	-49.7595635	176.4544203	169.1225539
##	104	112	115	118	135	139
##	102.7830898	425.7894595	39.0163891	60.5079473	113.9429092	27.2046495
##	140	143	145	146	151	152
##	34.8843488	61.8638755	9.6558969	53.4205955	142.4987602	69.7997646
##	160	163	184	186	196	198
##	71.3757707	21.5831459	77.0483257	53.3385525	56.4961815	62.8679763
##	199	201	205	206	215	216
##	10.8029818	124.6785614	87.4774205	117.4925562	205.8389095	-34.3716866
##	227	241	243	248	250	258
##	121.4280754	58.3027309	77.5086496	81.4272738	28.6762505	76.2288812
##	266	270	273	283	292	302
##	126.4269757	128.5335045	18.0853676	133.9520005	100.3204330	-5.5597200
##	311	330	331	337	345	348
##	99.1882756	185.4702871	198.4791803	27.7506133	62.0558472	109.5053253
##	350	351	352	358	360	362
##	108.9929855	339.5314288	82.4296033	202.4523135	79.8360689	93.9774164
##	365	366	369	370	373	375
##	82.0380656	288.4952944	25.3464572	110.0419432	129.4649699	44.0746330
##	397	399	406	407	414	416
##	111.5577735	12.4439453	113.9628975	16.4024054	160.4719089	75.9586023
##	421	422	429	431	432	453
##	51.0255193	128.5838559	182.6594636	86.6401305	119.8813114	137.8023018
##	459	471	473	482	483	489
##	128.8079789	71.3338246	150.7877135	127.0094858	56.8645449	95.5022684
##	490	494	522	528	531	538
##	132.3282329	94.2599659	38.5087154	188.6982314	142.5466888	182.7601350
##	542	545	546	556	557	558
##	102.3463576	114.0935698	88.3769430	116.3150063	61.7402669	86.9370430
##	559	560	573	575	580	592
##	134.2704042	80.8875750	105.7069950	200.2707230	105.2354691	143.6069569
##	596	597	598	599	605	606
##	127.8148175	106.3400551	109.1519352	134.1079367	115.2545328	74.9516086
##	609	617	619	620	630	634
##	244.6810696	158.8323185	-4.9284926	-3.5735575	167.9881434	325.5634563
##	642	652	655	656	670	671
##	50.2525373	132.2178958	61.8719099	98.5044560	159.6348607	273.4612482
##	675	679	681	684	689	698
##	35.2453146	97.2937988	68.8804431	109.1145117	46.9001183	174.1676532
##	704	712	716	722	724	728
##	88.9296565	49.9625315	104.8798076	215.7203717	85.9378117	43.0470597
##	733	734	735	739	740	743
##	85.5569826	106.2569562	57.5159895	240.0376130	56.5349144	17.0479552
##	751	754	756	758	776	779
##	264.8290366	49.3378394	-5.2603981	254.2024308	73.5726270	40.2613110
##	796	800	809	811	814	820
##	63.9243377	131.0596919	231.5777687	157.4225342	166.7037150	99.7808671
##	828	829	830	838	843	846

```
## 32.7591059 95.7122053 36.7653804 130.4405249 136.7964609 99.2073689
##      858      859      860      862      864      866
## 56.6202879 99.4010494 75.9368671 117.4844318 17.0015744 124.7309837
##      867      868      876      886      890      892
## 45.6053848 216.0966219 52.1736376 36.6878396 159.7296293 62.0595281
##      894      910      921      924      933      940
## 133.0790726 61.2839642 64.7718389 143.2628318 64.6732608 125.6013883
##      942      945      952      958      963      964
## 48.5566963 29.1025865 -44.6552533 5.2522221 91.3966003 64.5889371
##      976      978      991      995      1012      1018
## 49.0368324 152.9024448 76.2217919 121.6649282 195.1166762 363.7198822
##      1019      1020      1024      1025      1026      1033
## 112.6662358 102.3301641 64.4753756 112.8646113 228.7713320 141.7961375
##      1041      1047      1048      1052      1054      1062
## 79.6216626 71.6491761 52.8560940 108.4647946 108.1357601 111.5513765
##      1068      1079      1083      1086      1089      1094
## 147.7644900 135.6697808 156.7452796 132.1097175 139.9991672 200.3722453
##      1096      1098      1103      1109      1113      1116
## 196.5773124 157.9147030 255.6794380 164.0605999 324.6940921 135.6072930
##      1118      1126      1128      1137      1142      1145
## 156.8311574 161.5464309 169.2876616 45.7204621 139.7338596 144.2221833
##      1149      1152      1154      1156      1161      1164
## 242.4187429 138.8670204 167.4076457 275.0680499 183.2558192 339.3260475
##      1178      1182      1188      1190      1199      1201
## 134.7367987 95.2904267 186.5469676 256.8650076 199.4214916 194.5379136
##      1204      1218      1220      1221      1234      1247
## 181.9888023 295.6679024 151.9679167 122.8275702 141.7076019 176.9229895
##      1252      1260      1263      1265      1268      1273
## 382.0139965 176.5670097 176.7543137 162.0654539 166.0798758 116.2877145
##      1279      1285      1298      1305      1306      1309
## 114.7626415 227.4515603 89.6276683 139.8668038 293.0346011 281.5889118
##      1310      1311      1317      1321      1322      1324
## 150.5912197 276.5818707 187.8210804 190.8618041 141.2526524 191.4034714
##      1335      1337      1344      1346      1352      1354
## 210.6608459 151.9058513 70.9591525 146.2668448 150.7444620 197.0868953
##      1358      1361      1363      1364      1368      1371
## 215.5522358 165.2176472 194.0233288 118.4945228 237.9219533 129.1953938
##      1374      1380      1381      1384      1390      1405
## 135.9775797 231.1393303 97.1720626 155.7947660 117.9527271 232.0651876
##      1413      1424      1429      1436      1437      1440
## 136.6271099 133.9094488 87.9590298 145.6723236 104.7164515 52.2109992
##      1444      1447      1449      1452      1455      1475
## 83.8820848 155.7338867 162.8999081 100.4970272 286.9196813 104.8134122
##      1477      1480      1483      1488      1494      1495
## 192.9351745 255.0076837 294.0185408 84.9269456 150.0242967 195.4576833
##      1499      1515      1516      1519      1529      1545
## 120.0541874 264.9499721 344.5914584 89.8196695 180.0263869 191.4842164
##      1562      1566      1567      1572      1586      1592
## 456.0686752 279.7755274 123.9696539 160.7200328 44.9130246 115.0865040
##      1599      1605      1606      1609      1610      1611
## 118.6244989 148.5439628 116.2188356 130.6049943 102.6982193 75.7031550
##      1627      1631      1633      1635      1636      1637
## 144.3413887 178.6483186 112.3222923 130.1315990 67.7746919 237.3904282
##      1643      1655      1656      1666      1667      1673
```

```
## 263.4375633 90.8327952 249.0777603 303.3822037 143.5215074 174.9368374
##      1681      1683      1684      1691      1696      1703
## 130.2503292 69.2975267 174.6772489 170.3695414 125.9690603 284.4095582
##      1711      1714      1721      1728      1746      1755
## 172.5250828 203.8455111 201.8563190 133.8256658 242.4967163 185.3968389
##      1767      1781      1783      1811      1815      1816
## 76.5542437 87.2877861 198.1319496 176.2795813 130.5981294 158.7058926
##      1817      1819      1822      1826      1828      1836
## 104.2424118 140.1084305 269.6803229 112.4021669 183.3704916 218.0377552
##      1839      1843      1851      1853      1854      1858
## 164.2744860 87.8685635 152.7749878 128.4287599 118.7970181 92.8179826
##      1861      1870      1876      1877      1879      1893
## 318.0085528 101.5180184 132.7957636 99.9077225 135.4562930 75.7711471
##      1910      1917      1928      1933      1934      1936
## 175.7576939 40.3513254 106.1038180 59.2012531 40.6640075 133.1581879
##      1938      1940      1950      1957      1964      1966
## 71.9904725 116.3501727 175.6826254 89.4072576 91.3104347 119.5559790
##      1972      1982      1985      1988      1993      1995
## 101.1978262 131.0244342 35.3113500 114.8077831 80.4478072 116.2402012
##      1996      2009      2019      2023      2034      2041
## 93.0132572 52.2405791 140.1861376 141.1800669 177.3094229 81.5629151
##      2044      2046      2051      2052      2057      2059
## 209.1475372 116.1838303 138.5102946 99.9287672 166.6699810 141.5188836
##      2063      2065      2071      2075      2077      2086
## 23.1144111 111.1465493 99.1944956 80.6096038 81.8421715 112.2867536
##      2089      2092      2104      2105      2109      2111
## 87.9473033 125.8992140 132.7555412 96.3798760 82.8938089 147.5658490
##      2118      2122      2123      2124      2125      2130
## 62.8043261 128.7594987 102.9206763 57.9922683 216.6115364 75.2534846
##      2136      2144      2146      2168      2169      2172
## 72.7421252 111.1962863 148.7428761 96.5170321 112.6820852 138.7790261
##      2173      2174      2175      2178      2183      2188
## 100.6248933 311.9191071 386.2037981 82.1452266 92.4345916 161.8502752
##      2189      2191      2205      2207      2210      2213
## 35.4461746 159.6348062 271.5520416 41.1447431 154.1716691 138.6550012
##      2215      2218      2220      2226      2243      2247
## 161.5679400 91.3310001 81.1789252 112.0303293 98.4508585 245.9228519
##      2254      2255      2261      2262      2265      2266
## 122.2423768 154.3733287 124.8759636 90.0159038 65.4026061 88.9509179
##      2267      2269      2270      2271      2276      2277
## 154.2833880 97.3520972 84.1042450 130.0724945 119.8002269 174.2168492
##      2282      2293      2294      2297      2313      2317
## 60.5481534 130.4647747 118.4306896 192.3298332 132.3868551 54.9427876
##      2322      2326      2327      2330      2331      2340
## 140.9246813 310.8932638 203.6604413 209.1018717 40.3099439 188.0198154
##      2347      2356      2366      2375      2379      2388
## 172.7251540 71.4908574 94.6643861 101.4515071 108.3357756 183.2919585
##      2389      2393      2394      2396      2398      2405
## 92.2717628 249.5433137 122.1434239 77.0665244 154.3555838 83.9290078
##      2406      2409      2424      2425      2434      2435
## 156.4197000 176.8793100 -51.0140041 48.5415695 111.2632310 225.4470167
##      2437      2438      2443      2444      2447      2449
## 233.9666797 165.8027808 218.9996454 129.0350420 143.7091447 217.5979174
##      2452      2457      2460      2462      2467      2473
```



```

## 165.0221720 236.1543329 213.9652320 217.8512491 277.4685251 151.9672898
##          2478          2503          2514          2516          2517          2523
## 239.0239144 135.3666107 64.6062933 235.6097043 217.3103849 216.3543323
##          2525          2531          2532          2533          2538          2541
## 165.5780840 104.7993912 206.6576560 145.4053892 170.4032606 130.4630505
##          2543          2547          2550          2556          2558          2569
## 172.2525640 232.6134360 61.3526113 226.9835125 149.4761126 -18.0596452
##          2572          2583          2584          2586          2592          2596
## 83.0991955 162.5314141 158.8343628 11.2011913 33.8605496 89.9098228
##          2602          2614          2615          2621          2624          2636
## 117.0281038 149.9411776 149.1468065 100.5595398 151.2185593 72.7661274
##          2637          2640          2642          2644          2649          2651
## 85.5376361 104.4489678 194.1715408 195.0190424 165.4199484 154.3640264
##          2652          2656          2659          2664          2667          2688
## 245.4137570 169.7668474 128.0534149 106.3573770 84.7817554 95.8524474
##          2689          2693          2695          2701          2708          2728
## 137.2211485 154.2789801 66.9924968 142.6311187 -39.6416827 98.4509322
##          2731          2740          2741          2744          2747          2750
## 31.5098762 52.1695641 118.9879403 121.5390086 134.3508858 143.9577519
##          2752          2753          2754          2755          2756          2759
## 135.8280637 193.3215219 60.7670933 95.0352750 87.2688515 34.8296590
##          2772          2776          2783          2788          2794          2798
## 63.4819312 63.6652819 114.8058695 145.5144990 139.4408274 98.2085008
##          2804          2806          2810          2811          2816          2820
## 67.4520368 1.2087092 84.5071632 60.4572343 84.6185892 95.0303416
##          2827          2828          2829          2833          2839          2841
## -26.0377994 111.4505993 38.9656381 152.1331398 38.1770355 97.6005240
##          2853          2860          2862          2884          2885          2903
## 69.9385612 94.6427838 99.1883226 145.8475263 152.2158660 173.9245757
##          2907          2910          2911          2912          2913          2919
## 122.9571584 137.5529277 153.4748378 271.3331056 167.0391281 147.2603844
##          2922          2929          2931          2933          2939          2940
## 191.1807772 198.1671942 241.6764643 267.8129264 305.2226953 176.8834143
##          2947          2949          2950          2963          2965          2972
## 269.9672571 190.1816576 258.3366671 175.0116712 177.1942630 195.2657444
##          2973          2975          2981          2982          2983          2989
## 179.9214713 134.0591157 183.2656508 244.8996212 43.8368455 203.9212237
##          3005          3006          3012          3015          3022          3023
## 179.0083730 162.7834605 252.3641020 151.8044987 151.8074263 195.5547983
##          3042          3044          3048          3054          3065          3068
## 197.9930445 259.8643063 209.4722578 168.6959247 186.5603304 153.3044507
##          3080          3087          3090          3093          3094          3102
## 92.8781647 149.7526897 143.7607545 255.8552356 326.9504809 266.0593724
##          3105          3114          3118          3120          3121          3128
## 243.5255778 203.5477306 114.7905754 148.0033699 160.8400772 185.1115337
##          3131          3137          3139          3145          3151          3159
## 147.0354133 267.5016847 191.0769350 163.2320938 132.1190800 166.7201422
##          3162          3170          3179          3184          3186          3187
## 183.9917674 258.8355515 163.3602618 218.0691856 128.6648461 242.1095537
##          3188          3191          3198          3199          3204          3207
## 190.1682390 189.2732628 204.4774964 262.4796583 211.0699253 125.0924103
##          3208          3220          3222          3233          3236          3240
## 299.8350417 168.4931327 171.4695403 167.5889777 244.2710703 355.9749309
##          3250          3251          3252          3255          3262          3268

```

```

## 188.1954916 207.4342585 239.9523834 177.2894217 79.9629466 235.6786738
##          3272          3279          3282          3285          3289          3294
## 163.8701037 449.9901190 275.8710994 116.1077872 182.5137110 175.0859476
##          3297          3298          3299          3309          3314          3316
## 281.6318435 190.6271530 306.2443256 178.7931079 279.7719979 256.0504706
##          3331          3342          3359          3368          3370          3371
## 249.1887236 108.2084297 230.5166004 181.1741183 5.1914546 207.3840475
##          3383          3393          3402          3404          3407          3408
## 64.9580879 122.4680314 74.7660893 196.3920438 429.9848056 168.7422835
##          3410          3411          3414          3419          3422          3429
## 165.7760288 124.3797294 89.0284952 83.1830815 117.9905134 109.9528291
##          3442          3443          3447          3454          3455          3463
## 113.3320332 68.5890354 258.0030264 215.7446656 102.4827935 170.0414980
##          3466          3467          3468          3469          3481          3482
## 276.1578570 217.9878528 139.2731320 134.6794592 53.8579330 114.8150086
##          3489          3492          3497          3504          3509          3513
## 62.7165294 245.8208527 274.3111210 107.3246440 77.8315351 181.7035364
##          3516          3517          3518          3522          3523          3524
## 143.1181096 88.7909711 164.9187449 112.9383192 81.6961631 74.4871930
##          3530          3537          3553          3560          3561          3567
## 12.5956505 74.4878667 87.5339228 90.1835525 76.0005846 164.9094661
##          3570          3571          3578          3582          3585          3593
## 208.3317334 -19.4734998 -18.5231523 300.8625323 151.4912709 200.5204281
##          3600          3603          3609          3610          3616          3632
## 133.1217307 10.1878493 138.6897049 106.3994483 155.8722287 102.3139934
##          3633          3638          3645          3651          3652          3653
## 246.0222100 136.3617991 161.6129126 496.7628239 74.6246315 185.0705741
##          3658          3661          3664          3673          3675          3678
## 85.8397107 104.0074526 116.0612189 138.3092150 139.8988244 177.7572292
##          3683          3691          3696          3697          3715          3719
## 250.1354488 159.9326899 117.1318230 207.8489563 153.1793729 239.9888792
##          3728          3730          3732          3734          3738          3743
## 105.1525971 59.4513866 48.9937132 134.6532769 191.5923271 110.2231713
##          3744          3745          3752          3764          3765          3771
## 86.4967380 115.0538603 157.7647832 48.2182320 171.0894124 135.9640225
##          3777          3778          3785          3787          3793          3794
## 41.4753349 243.2852915 -29.0440678 67.7751552 140.2147667 30.3809856
##          3797          3800          3802          3806          3810          3811
## 55.6170505 18.5978128 119.4777249 81.7058615 125.6671678 39.3513505
##          3816          3817          3822          3826          3842          3850
## 143.1553076 78.4318454 87.5934791 59.7778309 107.3135793 49.8126916
##          3852          3853          3863          3866          3867          3872
## 118.2730684 219.0301671 55.0474803 67.6789394 26.7990730 28.0149387
##          3873          3877          3887          3898          3903          3906
## 91.5663832 88.1673239 60.1917441 43.2684092 67.7322431 50.0022630
##          3908          3910          3918          3922          3924          3927
## 26.4341862 113.5922357 85.8649016 58.3380802 165.5737420 94.5472226
##          3928          3930          3931          3932          3938          3942
## 79.0501003 52.6370759 40.0628525 -9.1599812 106.9417104 46.5439980
##          3943          3946          3950          3954          3956          3957
## 48.1091177 112.0823224 88.5604051 108.1538404 100.8691474 175.6156439
##          3964          3965          3967          3981          3988          3993
## 310.5860855 84.9107708 41.9077894 28.6621647 125.0492064 90.1912876
##          3995          4000          4002          4004          4011          4016

```

```

## 135.8799478 126.5358471 74.0776841 200.4482738 144.0607259 142.2817337
##          4017          4018          4026          4045          4053          4056
## 192.5094213 53.3419816 112.6701819 61.9079601 12.5505474 131.9778519
##          4057          4068          4075          4076          4077          4079
## 35.0908175 0.2536141 99.7992789 2.6204990 50.3866970 178.8684216
##          4083          4100          4101          4111          4114          4116
## 37.8629550 96.1353527 46.7045702 74.3570982 77.4283549 81.6413132
##          4119          4124          4130          4142          4147          4154
## 53.5062686 117.0029035 235.8558620 89.8965526 139.3925436 32.9156519
##          4155          4173          4179          4184          4190          4196
## 12.0082537 97.1649760 117.4784118 33.7798151 115.5388554 85.0830312
##          4200          4202          4204          4209          4215          4217
## 81.3699211 191.4907818 124.0037132 105.9945782 93.6534232 71.3771300
##          4218          4222          4223          4226          4229          4232
## 122.4020138 125.5648328 205.5120632 51.5249525 82.4341783 95.9140204
##          4234          4235          4238          4240          4242          4255
## 91.0658115 18.2787813 186.1297043 181.7136347 89.3349438 122.4904017
##          4265          4272          4273          4279          4281          4287
## 114.1460758 7.9882753 60.5826424 103.9899458 158.6921243 93.7923107
##          4298          4301          4304          4310          4313          4317
## 33.8922711 -0.8174548 62.9103082 131.9782786 137.4396573 81.2110959
##          4320          4321          4323          4326          4327          4328
## 117.9228468 309.5530882 103.4353176 -26.1283826 34.1962956 59.9593265
##          4330          4332          4336          4340          4346          4352
## 55.8487371 13.2878004 100.9509385 -12.7658735 192.7227985 206.2040708
##          4358          4360          4364          4367          4369          4371
## 104.7478697 95.9052875 -3.8076709 27.3954446 20.6446578 6.0400665
##          4376          4380          4381          4383          4387          4388
## 55.6188892 183.9856203 16.7024400 58.6766818 216.0381761 84.8078401
##          4390          4392          4394          4408          4412          4413
## 231.6814086 127.0206545 57.3373098 51.3670816 37.1369106 26.4302853
##          4421          4440          4448          4457          4459          4464
## 71.6563600 102.5147168 85.0211771 139.3009127 128.4563317 152.8480243
##          4467          4472          4474          4478          4487          4489
## 157.4027736 66.6828979 304.9768946 303.9928474 327.0569961 131.8207931
##          4496          4501          4505          4508          4512          4529
## 92.1184824 125.7952579 73.7200728 95.3234917 254.3772382 148.0339132
##          4533          4544          4550          4555          4572          4573
## 150.0655695 199.0269652 114.5805215 98.3004965 127.7322431 212.6329615
##          4574          4576          4577          4585          4602          4606
## 193.3335689 200.1283181 137.4958859 54.8141180 221.3818017 174.8276571
##          4610          4611          4619          4624          4628          4631
## 102.1019396 71.6546531 123.1369675 86.2600075 60.1028447 76.6605357
##          4637          4638          4640          4642          4645          4648
## 38.8226320 65.6622385 107.3212913 142.7601038 131.1977447 45.9471638
##          4652          4654          4657          4672          4678          4685
## 258.7180990 117.8655936 136.0745653 162.5012999 241.0126132 67.1763014
##          4687          4694          4700          4702          4704          4712
## 124.8540163 169.6337956 91.1562476 101.5249613 130.2602114 316.5809489
##          4715          4719          4721          4725          4727          4730
## 53.5319754 121.9544556 61.6514212 56.3129355 126.2306735 17.6507599
##          4736          4746          4760          4768          4770          4774
## 59.2202522 144.9856428 76.0130823 93.4692651 118.1574707 231.9267005
##          4786          4793          4811          4814          4819          4831

```

```
## 125.0340873 200.7368932 153.4458533 44.2711369 163.2385461 127.2235512
##          4833          4834          4836          4844          4848          4851
## 71.1045981 154.8440679 176.7829255 189.7174628 94.4794462 99.9838155
##          4856          4864          4866          4878          4880          4886
## 147.6035886 48.9102003 342.3867046 54.4356273 65.7199764 227.9408511
##          4891          4904          4916          4922          4926          4932
## 77.4337862 5.4814200 125.1182875 127.6100159 237.4251918 127.2973355
##          4933          4935          4938          4941          4944          4959
## 189.3170684 25.2256396 171.2627323 112.3239159 69.3020840 138.1979838
##          4961          4973          4978          4980          4981          4987
## 91.5987675 76.0522115 137.6509951 134.9164745 181.3769706 253.7896250
##          4995          5004          5012          5018          5019          5024
## 211.6294252 94.0233325 91.6887131 33.1966465 203.5268996 102.2127429
##          5026          5028          5029          5030          5031          5034
## 96.4832416 157.1914812 98.9441865 133.6910939 309.2114462 165.2444025
##          5044          5049          5063          5072          5073          5075
## 270.0747088 234.1078399 117.8147872 73.9681454 65.6501211 102.7945049
##          5078          5087          5089          5096          5097          5102
## 54.2837778 114.6787514 209.8485012 328.7358303 207.6820499 104.6904407
##          5103          5104          5116          5117          5130          5132
## 110.4795422 126.8674135 123.5742956 143.8223903 148.4016357 52.0159208
##          5141          5147          5156          5177          5179          5185
## 88.8156420 173.1423639 141.4091929 8.1761536 82.8028752 115.6600565
##          5189          5191          5203
## 102.8779227 49.4436346 132.8963308
```

```
baseline_model <- mean(data$price)
(RMSE <- sqrt(mean(baseline_model- test$price)^2))
```

```
## [1] 0.9520924
```

```
coefficients(price_model)
```

```

##                (Intercept)
##                -6.410033e+01
##    as.factor(neighbourhood_cleansed)Lake View
##                3.266969e+01
##    as.factor(neighbourhood_cleansed)Lincoln Park
##                3.581028e+01
##    as.factor(neighbourhood_cleansed)Logan Square
##                3.587735e+00
##    as.factor(neighbourhood_cleansed)Loop
##                3.384267e+01
## as.factor(neighbourhood_cleansed)Lower West Side
##                -5.670173e+00
## as.factor(neighbourhood_cleansed)Near North Side
##                5.916480e+01
## as.factor(neighbourhood_cleansed)Near West Side
##                1.560403e+01
##    as.factor(neighbourhood_cleansed)Others
##                -9.880956e+00
##    as.factor(neighbourhood_cleansed)Uptown
##                5.170270e+00
##    as.factor(neighbourhood_cleansed)West Town
##                7.294506e+00
##                host_since
##                3.707333e-03
##                Breakfast
##                -6.228241e+00
##                Kitchen
##                -9.606253e+00
##                Pets
##                -2.828020e+00
##                AirCondition
##                1.238513e+01
##                Internet
##                -8.268200e+00
##                TV
##                1.382082e+01
##                reviews_per_month
##                -8.798850e+00
##                review_scores_rating
##                3.766820e-01
##                number_of_reviews
##                -5.721988e-02
##                review_scores_accuracy
##                -5.014651e-01
##                review_scores_value
##                -5.695612e+00
##                review_scores_cleanliness
##                9.767630e+00
##                review_scores_checkin
##                3.598184e+00
##                review_scores_communication
##                -1.100461e+01
##                review_scores_location

```

```

##                1.174218e+01
##      as.factor(cancellation_policy)moderate
##                1.803672e+00
##      as.factor(cancellation_policy)strict
##                -3.893653e+00
##      as.factor(cancellation_policy)super_strict_30
##                6.222506e+01
##      as.factor(cancellation_policy)super_strict_60
##                -6.274852e+01
##      guests_included
##                4.514837e+00
##      beds
##                1.830308e+01
##      as.factor(bed_type)Couch
##                1.514678e+01
##      as.factor(bed_type)Futon
##                3.357247e+00
##      as.factor(bed_type)Pull-out Sofa
##                -8.571441e+00
##      as.factor(bed_type)Real Bed
##                -2.044151e+00
##      bathrooms
##                4.758088e+01
##      as.factor(property_type)Bed & Breakfast
##                4.165740e+01
##      as.factor(property_type)Boat
##                1.756282e+02
##      as.factor(property_type)Boutique hotel
##                6.764270e+01
##      as.factor(property_type)Bungalow
##                -4.275288e+01
##      as.factor(property_type)Condominium
##                1.198614e+01
##      as.factor(property_type)Dorm
##                -1.208068e+02
##      as.factor(property_type)Guest suite
##                -2.552525e+01
##      as.factor(property_type)Guesthouse
##                2.606596e+01
##      as.factor(property_type)Hostel
##                -1.648428e+01
##      as.factor(property_type)House
##                1.115905e+01
##      as.factor(property_type)In-law
##                -5.516210e+01
##      as.factor(property_type)Loft
##                1.588684e+01
##      as.factor(property_type)Other
##                2.797280e+01
##      as.factor(property_type)Serviced apartment
##                8.495185e+01
##      as.factor(property_type)Timeshare
##                5.744184e+01
##      as.factor(property_type)Townhouse

```

```
##                2.321481e+01
##      as.factor(property_type)Vacation home
##                1.325719e+02
##      as.factor(property_type)Villa
##                1.182634e+02
##      as.factor(room_type)Private room
##                -4.756392e+01
##      as.factor(room_type)Shared room
##                -9.506046e+01
```

#Following are the results that we obtained from the above Linear regression model along with the hypothesis/explanations of behaviors of the variables:

*#Based on the p-values for the above regression model, we can say that amenities like TV and Air Conditioning significantly impact the prices. Since the Beta-values are positive, we can say that TV and AC have positive effects on prices (considering other variables are fixed). This can be because AC and TV are comparatively expensive amenities.**
*

*#Also, the booking rate is inversely proportional to the prices considering the other factors remain unchanged.**
*

*#Number of guests, number of beds, and number of bathrooms directly affect the prices. As the number of guests, beds or bathrooms increases, prices increase (considering amenities/comfort and location is same). This is reasonable and hotels share the same theory.**
*

*#The categorical variables: neighbourhood, property type, and room type have significant impacts on prices. This is generally true as properties in Luxurious Localities will be more expensive than other housing areas where provide similar services. Also, a shared room will be cheaper than a whole house/apartment in the same Locality.**
*

#XGBoost

```
library(xgboost)
```

```
## Warning: package 'xgboost' was built under R version 3.5.3
```

```
##
## Attaching package: 'xgboost'
```

```
## The following object is masked from 'package:dplyr':
##
##      slice
```

```
target_train=train$price
target_test=test$price
str(target_train)
```

```
##  num [1:4163] 49 230 90 105 275 45 160 115 75 120 ...
```

```
str(train)
```



```
## 'data.frame': 4163 obs. of 57 variables:
## $ neighbourhood_cleansed : chr "Others" "Logan Square" "West Town" "West Town" ...
## $ id : int 12831376 11399852 12681123 6953009 12464708 17905286 168
24616 11475540 13014497 12227483 ...
## $ scrape_id : num 2.02e+13 2.02e+13 2.02e+13 2.02e+13 2.02e+13 ...
## $ last_scraped : chr "2017-05-10" "2017-05-10" "2017-05-10" "2017-05-10" ...
## $ summary : chr "Welcome to Chicago! Guests from all over the world have
stayed in my 100-year-old 1400 sq ft condo in South Sho"| __truncated__ "Spacious 4 story, 3 bed
room home with a rooftop deck, nestled in the up and coming Logan Square neighborhood. "| __tru
ncated__ "This cozy garden apartment has everything you need to have a comfortable stay in the g
reat city of Chicago." "Our Garden Apartment is ideally located on a quiet residential street in
Wicker Park. A short walk to the Damen"| __truncated__ ...
## $ experiences_offered : chr "none" "none" "none" "none" ...
## $ host_id : int 13374424 17345747 68904679 32541724 15277773 35740881 10
7490586 5228114 4015620 65767768 ...
## $ host_since : 'difftime' num 1146 786 380 738 ...
## ... attr(*, "units")= chr "days"
## $ host_response_time : chr "within a few hours" "within a day" "within a few hours"
"within an hour" ...
## $ host_response_rate : num 1 0.8 0.8 1 1 1 1 1 1 0.99 ...
## $ host_acceptance_rate : chr "N/A" "N/A" "N/A" "N/A" ...
## $ host_is_superhost : Factor w/ 2 levels "f","t": 1 1 1 2 2 1 2 1 1 1 ...
## $ host_listings_count : int 4 1 1 1 1 1 1 1 1 1 ...
## $ host_identity_verified : Factor w/ 2 levels "f","t": 2 2 2 2 2 2 2 2 2 ...
## $ neighbourhood : chr "South Shore" "Logan Square" "" "Wicker Park" ...
## $ city : chr "Chicago" "Chicago" "Chicago" "Chicago" ...
## $ state : chr "IL" "IL" "IL" "IL" ...
## $ smart_location : chr "Chicago, IL" "Chicago, IL" "Chicago, IL" "Chicago, IL"
...
## $ country_code : chr "US" "US" "US" "US" ...
## $ country : chr "United States" "United States" "United States" "United
States" ...
## $ latitude : num 41.8 41.9 41.9 41.9 41.9 ...
## $ longitude : num -87.6 -87.7 -87.7 -87.7 -87.7 ...
## $ is_location_exact : Factor w/ 2 levels "f","t": 2 2 1 2 2 1 2 2 2 2 ...
## $ property_type : Factor w/ 19 levels "Apartment","Bed & Breakfast",...: 6 11 1
1 11 1 1 11 6 6 ...
## $ room_type : Factor w/ 3 levels "Entire home/apt",...: 1 1 1 1 1 2 1 1 2 1
...
## $ accommodates : int 6 5 2 4 6 2 7 4 2 4 ...
## $ bathrooms : num 1 5 1 1 2 1 1 1 1 1 ...
## $ bedrooms : num 3 3 1 1 3 1 3 2 1 2 ...
## $ beds : num 3 3 1 1 2 1 3 1 1 2 ...
## $ bed_type : Factor w/ 5 levels "Airbed","Couch",...: 5 5 5 5 5 5 5 5 3 5
...
## $ price : num 49 230 90 105 275 45 160 115 75 120 ...
## $ guests_included : int 3 5 1 2 4 1 1 2 1 2 ...
## $ extra_people : num 7 30 20 15 40 10 0 20 0 10 ...
## $ minimum_nights : int 7 5 1 1 1 3 2 1 1 2 ...
## $ maximum_nights : int 1125 1125 1125 25 1125 31 1125 1125 1125 3 ...
## $ calendar_updated : Factor w/ 33 levels "1 week ago","10 months ago",...: 16 11 16
14 9 32 32 11 33 16 ...
## $ availability_30 : int 8 28 7 4 0 8 0 14 24 0 ...
```

```
## $ availability_60      : int  30 58 34 9 6 8 7 37 47 0 ...
## $ availability_90      : int  39 88 62 28 30 8 30 67 77 0 ...
## $ availability_365     : int  314 239 337 28 301 8 30 83 166 0 ...
## $ number_of_reviews    : int   0 6 27 106 15 2 18 18 3 4 ...
## $ review_scores_rating : num  97 93 88 98 99 100 92 93 100 100 ...
## $ review_scores_accuracy : num  10 9 9 10 10 10 9 9 10 10 ...
## $ review_scores_cleanliness : num  10 9 8 10 10 10 10 9 9 9 ...
## $ review_scores_checkin : num  10 10 9 10 10 10 10 10 10 10 ...
## $ review_scores_communication: num  10 9 10 10 10 10 10 10 10 10 ...
## $ review_scores_location : num  10 9 9 10 9 10 9 9 9 10 ...
## $ review_scores_value   : num  10 9 9 10 9 10 10 10 9 10 ...
## $ instant_bookable      : Factor w/ 2 levels "f","t": 1 1 1 1 1 2 2 1 1 2 ...
## $ cancellation_policy    : Factor w/ 5 levels "flexible","moderate",...: 3 2 2 2 3 2 2 3
3 1 ...
## $ reviews_per_month    : num  1.55 0.57 2.15 4.66 1.32 1.58 4.95 1.39 0.27 0.39 ...
## $ TV                    : num   0 1 1 1 1 0 0 1 1 1 ...
## $ Internet              : num   1 1 1 1 1 1 1 1 1 1 ...
## $ AirCondition          : num   0 1 1 1 1 1 1 1 1 1 ...
## $ Pets                  : num   0 1 1 0 0 0 0 0 0 0 ...
## $ Kitchen               : num   1 1 1 1 1 1 1 1 1 1 ...
## $ Breakfast             : num   0 0 0 0 0 0 1 0 0 0 ...
```

```
train$price=NULL
feature_names <- names(train)
test$price=NULL
dtrain <- xgb.DMatrix(as.matrix(sapply(train, as.numeric)),label=target_train, missing=NA)
```

```
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
```

```
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
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## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
```

```
dtest <- xgb.DMatrix(as.matrix(sapply(test, as.numeric)),label=target_test, missing=NA)
```

```
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
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## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion
```

```
# Set up cross-validation scheme (3-fold)
library(caret)
```

```
## Warning: package 'caret' was built under R version 3.5.3
```

```
## Loading required package: lattice
```

```

foldsCV <- createFolds(target_train, k=7, list=TRUE, returnTrain=FALSE)
param <- list(booster = "gblinear"
  , objective = "reg:linear"
  , subsample = 0.7
  , max_depth = 5
  , colsample_bytree = 0.7
  , eta = 0.037
  , eval_metric = 'mae'
  , base_score = 0.012 #average
  , min_child_weight = 100)

xgb_cv <- xgb.cv(data=dtrain,
  params=param,
  nrounds=100,
  prediction=TRUE,
  maximize=FALSE,
  folds=foldsCV,
  early_stopping_rounds = 30,
  print_every_n = 5)

```

```

## [1] train-mae:64.960886+0.313599    test-mae:64.948528+2.771278
## Multiple eval metrics are present. Will use test_mae for early stopping.
## Will train until test_mae hasn't improved in 30 rounds.
##
## [6] train-mae:65.000670+0.349731      test-mae:65.045272+2.306484
## [11] train-mae:61.415541+0.397067      test-mae:61.506932+2.171066
## [16] train-mae:58.833363+0.405820      test-mae:58.966975+2.061913
## [21] train-mae:56.960055+0.395605      test-mae:57.120713+1.945868
## [26] train-mae:55.582043+0.411692      test-mae:55.777493+1.864523
## [31] train-mae:54.575514+0.398096      test-mae:54.788246+1.825438
## [36] train-mae:53.792560+0.394658      test-mae:54.027749+1.773080
## [41] train-mae:53.200951+0.403778      test-mae:53.448827+1.731730
## [46] train-mae:52.721571+0.404170      test-mae:52.980846+1.689955
## [51] train-mae:52.337888+0.401140      test-mae:52.610768+1.654741
## [56] train-mae:52.022540+0.396529      test-mae:52.307599+1.625243
## [61] train-mae:51.763048+0.395904      test-mae:52.057956+1.604541
## [66] train-mae:51.534784+0.400510      test-mae:51.837652+1.585621
## [71] train-mae:51.340085+0.402731      test-mae:51.647183+1.568582
## [76] train-mae:51.166310+0.401230      test-mae:51.477760+1.554447
## [81] train-mae:51.004872+0.398664      test-mae:51.320634+1.542739
## [86] train-mae:50.863122+0.397639      test-mae:51.180602+1.535191
## [91] train-mae:50.729698+0.396109      test-mae:51.050234+1.529946
## [96] train-mae:50.613331+0.395458      test-mae:50.935444+1.525249
## [100] train-mae:50.517620+0.398092      test-mae:50.841879+1.519358

```

```

# Check best results and get best nrounds
print(xgb_cv$evaluation_log[which.min(xgb_cv$evaluation_log$test_mae_mean)])

```

```

##      iter train_mae_mean train_mae_std test_mae_mean test_mae_std
## 1:   100      50.51762      0.3980918      50.84188      1.519358

```

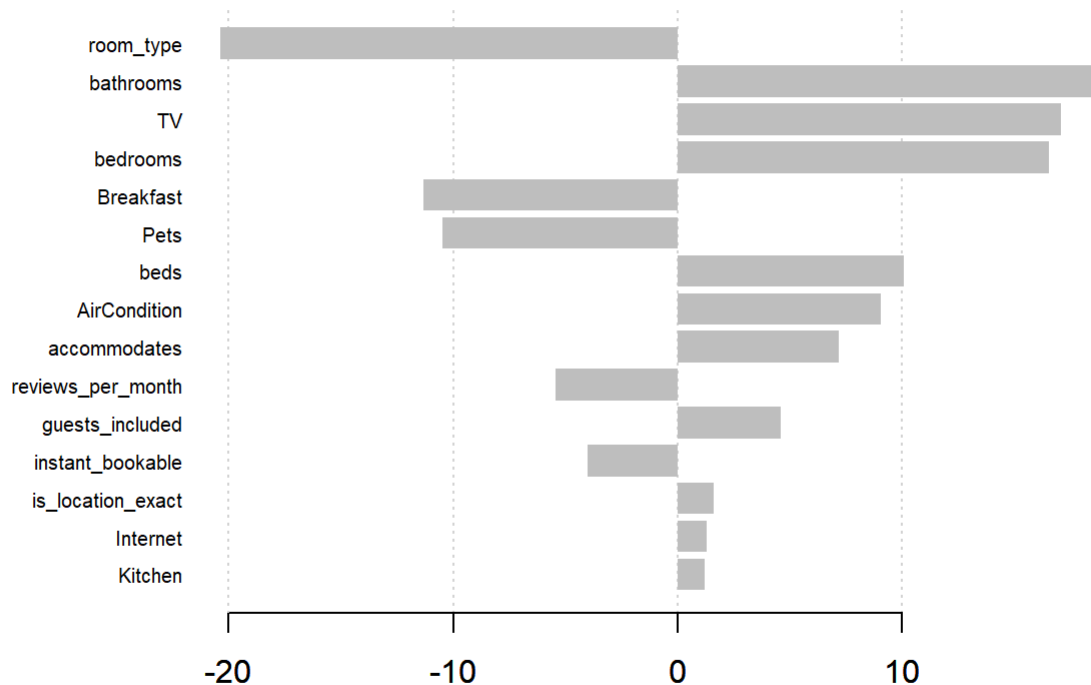
```

nrounds <- xgb_cv$best_iteration

xgb <- xgb.train(params = param
  , data = dtrain
  # , watchlist = list(train = dtrain)
  , nrounds = nrounds
  , verbose = 1
  , print_every_n = 5
  #, feval = amm_mae
)

# Feature Importance
importance_matrix <- xgb.importance(feature_names,model=xgb)
xgb.plot.importance(importance_matrix[1:15,])

```



```
head(test)
```

```

##      neighbourhood_cleaned      id      scrape_id last_scraped
## 2              Others    4330309 2.017051e+13   2017-05-10
## 8              Others    4692586 2.017051e+13   2017-05-10
## 11             Others    7989793 2.017051e+13   2017-05-10
## 20             Others    7330851 2.017051e+13   2017-05-10
## 24             Others     313227 2.017051e+13   2017-05-10
## 35             Others   12874125 2.017051e+13   2017-05-10
##
summary
## 2
Are you a female traveling solo, in need of comfortable lodging? Stay in my cute, cozy spare room! Breakfast & travel tips from a native Chicagoan. I'm a single gal with friendly cats, clean bathroom & walking distance to public transportation.
## 8
Bright & Contemporary Apartment Large front Living Room with great natural light and windows. Located close to Ohare, downtown and 90 & 94. Accommodate to 8 guests.
## 11
I'm traveling to EURO and looking for someone to stay 8/5 - 8/21 in my 2 bedroom apartment located in Albany Park/ Lincoln Square. The queen size bed can fit 2. The living room, kitchen, tv (cable/Netflix/HBO), wifi, washer & dryer is available to use anytime. Laid back area with free parking & a 5 min walk to the Francisco Brown Line (transfer to Red). I just opened this room up for Airbnb, please check out my reviews on my other room https://www.airbnb.com/rooms *mi casa es su casa*
## 20
NOTE I have a FRIENDLY DOG in my 2-bedroom apartment located on the border of Lincoln Square. Free street parking and a 5 min walk to the Francisco brown line (transfer to Red). #communitysharing *ðŸ’ð±ñ\200ðŸ’ð±ñ\210ðŸ’ð±ñ,*mi casa es su casa*
## 24
## 35 Private bedroom with multiple bathrooms in a vintage style apartment located on the main street of Old Chinatown. Minutes away from local restaurants, downtown, public transit (both bus and train), Divvy Bike Stations, and McCormick Convention Center. Flexible booking/check-in/check-out with around the clock manager for any questions/help. ä¼ä½²äºŒè¿€ä½²,âž‰ä½²,äºŒé\200é¥©é£æ¼¹ä½²,â½²«çæ¼æ´²\201i½²ä½²äºŒè¿€ä½²,âž‰ä½²,â½²¹â½²ä½²\217ä½²æ´²é|ä½²,â½²°é\201,â½²«çæ¼æ´²\231â½²±â½²æ¼201è¹,â½²210°â½²,âž‰ä½²,æ¼â½²æ¼\201ä½²æ¼¹ä½²,é»230â½²·â½²â½²é\231ä½²â½²±â½²,âž‰ä½²±â½²é\231è¿€ä½²,â½²éé\217æ½²,â½²¢,â½²äºŒ,ç¼\231â½²çæ¼,æ½²35¥è³äºŒä½²,â½²â½²220ä½²°,ç¼â½²â½²220ä½²°,æ½²30`ä½² â½²210°è¼\235â½² â½²¥ä½²,â½²â½²çæ¼æ¼\200ä½²³é\200æ¼@,ä½²·æ½²ç»217æ¼ä½²°æ¼ ,é\200ä½²\220\210â½²ä½²ä½²\200
##      experiences_offered host_id host_since host_response_time
## 2                none    9998136   1274 days       within an hour
## 8                none    23748915    908 days within a few hours
## 11               none    38405611    667 days within a few hours
## 20               none    38405611    667 days within a few hours
## 24               none     259284   2403 days within a few hours
## 35               none    60390549    440 days       within an hour
##      host_response_rate host_acceptance_rate host_is_superhost
## 2                  1.0                 N/A                   f
## 8                  1.0                 N/A                   f
## 11                 0.9                 N/A                   f
## 20                 0.9                 N/A                   f
## 24                 1.0                 N/A                   f
## 35                 1.0                 N/A                   f
##      host_listings_count host_identity_verified neighbourhood city state
## 2                      1                        t         Chicago IL

```

```

## 8          1          t  Albany Park Chicago  IL
## 11          2          t  Albany Park Chicago  IL
## 20          2          t  Albany Park Chicago  IL
## 24          1          t  Albany Park Chicago  IL
## 35          7          t          Chicago  IL
## smart_location country_code      country latitude longitude
## 2    Chicago, IL      US United States 41.96757 -87.72050
## 8    Chicago, IL      US United States 41.96767 -87.73541
## 11   Chicago, IL      US United States 41.96884 -87.70342
## 20   Chicago, IL      US United States 41.97104 -87.70503
## 24   Chicago, IL      US United States 41.96331 -87.70916
## 35   Chicago, IL      US United States 41.84850 -87.63115
## is_location_exact property_type      room_type accommodates bathrooms
## 2          f      Apartment      Private room          2          1
## 8          t      Apartment Entire home/apt          8          1
## 11         t      Apartment      Private room          2          1
## 20         t      Apartment      Private room          3          1
## 24         t      Apartment Entire home/apt          2          1
## 35         f          House      Private room          2          2
## bedrooms beds bed_type guests_included extra_people minimum_nights
## 2          1    2 Real Bed          1          15          1
## 8          3    3 Real Bed          3          15         15
## 11         1    1 Real Bed          1           5          1
## 20         1    1 Real Bed          2          10          1
## 24         1    1 Real Bed          1           0          3
## 35         1    1 Real Bed          1          30          1
## maximum_nights calendar_updated availability_30 availability_60
## 2          1125      2 weeks ago          5          35
## 8          1125           today          22          22
## 11         1125      2 months ago          30          60
## 20         1125      yesterday           4          15
## 24          7      yesterday           3          26
## 35         1125      5 weeks ago          8          24
## availability_90 availability_365 number_of_reviews review_scores_rating
## 2          65          65          30          99
## 8          22          289          14          89
## 11         90          365           5          95
## 20         45          317          57          96
## 24         39          292          42          98
## 35         44          317          45          86
## review_scores_accuracy review_scores_cleanliness review_scores_checkin
## 2          10          10          10
## 8           9           9           10
## 11         10          10           9
## 20         10          10          10
## 24         10          10          10
## 35          9           9           9
## review_scores_communication review_scores_location review_scores_value
## 2          10          10          10
## 8           9           9           9
## 11         10           9          10
## 20         10          10          10
## 24         10           9          10
## 35          9           9           9

```

```
##      instant_bookable cancellation_policy reviews_per_month TV Internet
## 2                f          flexible          1.58 1      1
## 8                f          moderate          0.60 1      1
## 11               f          flexible          0.25 1      1
## 20               f          moderate          2.60 1      1
## 24               f          moderate          0.67 1      1
## 35               t          strict           3.97 0      1
##      AirCondition Pets Kitchen Breakfast
## 2                1      1      1          1
## 8                1      0      1          0
## 11               0      1      1          0
## 20               1      1      1          1
## 24               1      1      0          0
## 35               1      0      1          0
```

```
# Predict
preds <- predict(xgb,dtest)
preds
```



```
## [1] 8.831231e+01 2.278923e+02 1.106570e+02 5.975185e+01
## [5] 9.566970e+01 6.698136e+01 4.367750e+01 1.961456e+02
## [9] 9.206107e+01 7.225912e+01 2.120407e+02 9.273173e+01
## [13] 4.438865e+01 8.251068e+01 1.965184e+02 7.947694e+01
## [17] 2.511620e+02 2.526187e+02 8.774525e+01 4.250447e+02
## [21] 6.170046e+01 1.054202e+02 1.539910e+02 6.813761e+01
## [25] 6.643857e+01 7.329155e+01 5.663477e+01 5.717015e+01
## [29] 1.761929e+02 7.342625e+01 7.382552e+01 9.883135e+01
## [33] 1.187822e+02 1.019102e+02 4.930679e+01 9.497753e+01
## [37] 6.850288e+01 1.387988e+02 9.987964e+01 1.490113e+02
## [41] 2.215314e+02 5.780925e+01 1.548709e+02 8.782059e+01
## [45] 1.367796e+02 1.024295e+02 1.194739e+02 6.016707e+01
## [49] 1.472822e+02 2.128123e+02 7.363656e+01 1.262856e+02
## [53] 1.570103e+02 5.541018e+01 1.206178e+02 1.901460e+02
## [57] 2.044063e+02 7.223910e+01 1.259395e+02 9.653396e+01
## [61] 1.291813e+02 3.296259e+02 9.595061e+01 2.596395e+02
## [65] 1.269758e+02 1.185466e+02 1.252050e+02 2.390773e+02
## [69] 5.916011e+01 1.275212e+02 1.024840e+02 8.526575e+01
## [73] 1.261521e+02 7.288521e+01 2.646959e+02 6.942417e+01
## [77] 1.918050e+02 9.348926e+01 6.293691e+01 1.784751e+02
## [81] 2.201727e+02 1.214459e+02 8.987532e+01 1.144225e+02
## [85] 1.166065e+02 1.038754e+02 1.664091e+02 1.087404e+02
## [89] 9.309484e+01 1.157488e+02 1.420447e+02 8.432591e+01
## [93] 8.594665e+01 1.817794e+02 1.562113e+02 2.221356e+02
## [97] 8.351733e+01 1.149716e+02 7.736569e+01 1.257820e+02
## [101] 6.371950e+01 7.626540e+01 1.594843e+02 3.933902e+01
## [105] 1.059265e+02 1.777673e+02 4.071236e+01 1.405707e+02
## [109] 1.359662e+02 1.063418e+02 8.907439e+01 1.460737e+02
## [113] 1.071765e+02 5.872225e+01 2.074382e+02 2.056963e+02
## [117] 9.493110e+01 7.968645e+01 1.817345e+02 3.400334e+02
## [121] 9.602016e+01 1.174224e+02 1.004403e+02 1.460579e+02
## [125] 1.939242e+02 2.746802e+02 4.960812e+01 1.116934e+02
## [129] 8.890810e+01 1.040705e+02 9.524734e+01 1.954984e+02
## [133] 8.374851e+01 5.467393e+01 1.400431e+02 2.662816e+02
## [137] 1.320933e+02 7.689264e+01 1.375466e+02 1.608557e+02
## [141] 7.706805e+01 2.649448e+02 1.263163e+02 5.153546e+01
## [145] 2.782576e+02 6.565345e+01 7.799122e+01 3.054922e+02
## [149] 1.389413e+02 4.893207e+01 9.213572e+01 1.369823e+02
## [153] 2.599983e+02 1.969790e+02 1.736369e+02 1.181345e+02
## [157] 6.268240e+01 1.029221e+02 5.077552e+01 1.412243e+02
## [161] 1.202414e+02 1.087993e+02 5.595066e+01 9.684423e+01
## [165] 7.097815e+01 2.076795e+02 5.521655e+01 1.524640e+02
## [169] 5.632692e+01 1.934467e+02 9.917710e+01 7.498579e+01
## [173] 1.782490e+02 8.288923e+01 1.649120e+02 8.608002e+01
## [177] 1.194791e+02 2.054554e+02 6.456467e+01 1.217855e+02
## [181] 7.056829e+01 7.053458e+01 5.431093e+00 5.140849e+01
## [185] 1.099282e+02 1.298856e+02 9.427133e+01 1.587145e+02
## [189] 8.422660e+01 1.676923e+02 2.295573e+02 3.376194e+02
## [193] 1.267878e+02 1.409802e+02 1.005926e+02 9.465434e+01
## [197] 3.192070e+02 1.329596e+02 1.072599e+02 9.345563e+01
## [201] 1.015029e+02 9.016752e+01 9.072150e+01 9.619973e+01
## [205] 1.028026e+02 1.059789e+02 1.199484e+02 8.940360e+01
## [209] 6.284688e+01 1.300944e+02 1.575706e+02 1.238350e+02
```

```

## [213] 2.390318e+02 1.552138e+02 3.334251e+02 7.579255e+01
## [217] 1.127215e+02 1.118958e+02 1.491574e+02 6.627673e+01
## [221] 1.377371e+02 6.292451e+01 2.026153e+02 1.220010e+02
## [225] 2.079051e+02 2.947630e+02 1.789427e+02 3.118055e+02
## [229] 1.059163e+02 7.577695e+01 1.490483e+02 1.715985e+02
## [233] 1.683969e+02 1.879310e+02 1.280915e+02 2.989607e+02
## [237] 1.351188e+02 1.135348e+02 1.154936e+02 1.023987e+02
## [241] 3.394707e+02 1.761463e+02 1.399781e+02 1.645300e+02
## [245] 1.546899e+02 7.993855e+01 1.167628e+02 1.782377e+02
## [249] 1.053960e+02 1.236766e+02 2.620121e+02 2.425759e+02
## [253] 1.167443e+02 2.404360e+02 1.236266e+02 1.234794e+02
## [257] 8.994431e+01 1.974774e+02 2.254397e+02 1.294202e+02
## [261] 3.346658e+01 1.202590e+02 1.416111e+02 1.215501e+02
## [265] 2.315588e+02 1.316649e+02 2.010388e+02 6.524036e+01
## [269] 1.881969e+02 1.159636e+02 1.004396e+02 2.163198e+02
## [273] 8.456478e+01 1.199250e+02 1.020297e+02 1.886336e+02
## [277] 8.846407e+01 1.103650e+02 9.411010e+01 1.061747e+02
## [281] 9.848152e+01 2.443018e+01 6.076457e+01 1.202132e+02
## [285] 1.273172e+02 1.151639e+02 2.173413e+02 6.947395e+01
## [289] 2.069424e+02 2.211734e+02 2.542336e+02 7.167312e+01
## [293] 1.129141e+02 1.530475e+02 8.890531e+01 2.082100e+02
## [297] 2.552051e+02 7.200706e+01 1.424332e+02 1.804261e+02
## [301] 4.406782e+02 2.518836e+02 1.151870e+02 1.331116e+02
## [305] 4.659338e+01 8.862574e+01 1.102539e+02 1.033012e+02
## [309] 9.032548e+01 1.127217e+02 5.611784e+01 6.707761e+01
## [313] 1.249642e+02 1.585513e+02 6.686894e+01 1.015560e+02
## [317] 6.432863e+01 2.678764e+02 2.729997e+02 6.695341e+01
## [321] 2.239299e+02 3.237584e+02 7.633858e+01 1.846752e+02
## [325] 5.282129e+01 5.351299e+01 1.606227e+02 1.115633e+02
## [329] 7.293211e+01 2.949125e+02 1.477327e+02 1.160320e+02
## [333] 1.351794e+02 6.786044e+01 1.990963e+02 1.386022e+02
## [337] 5.879095e+01 5.501052e+01 1.583444e+02 1.399683e+02
## [341] 1.133170e+02 1.033707e+02 1.300479e+02 9.763911e+01
## [345] 2.286035e+02 9.988032e+01 1.349982e+02 1.820546e+02
## [349] 1.203422e+02 7.804385e+01 9.293344e+01 8.942619e+01
## [353] 6.963385e+01 3.963708e+01 2.941371e+02 6.820228e+01
## [357] 8.053331e+01 6.438461e+01 7.517919e+01 9.227216e+01
## [361] 1.953901e+02 9.291928e+01 1.027742e+02 9.300321e+01
## [365] 8.540061e+01 1.543864e+02 5.218159e+01 9.835607e+01
## [369] 2.042227e+02 6.220020e+01 9.460110e+01 1.815789e+02
## [373] 1.545406e+02 1.562629e+02 5.434192e+01 1.387448e+02
## [377] 8.410753e+01 8.204021e+01 1.198872e+02 6.678996e+01
## [381] 1.327841e+02 1.525799e+02 1.915310e+02 1.871570e+02
## [385] 2.031776e+02 9.283780e+01 1.883192e+02 6.617702e+01
## [389] 1.835534e+02 1.354945e+02 4.807540e+01 6.620956e+01
## [393] 8.140011e+01 9.686793e+01 1.314939e+02 1.425316e+02
## [397] 8.641776e+01 1.785337e+02 1.856379e+02 9.133739e+01
## [401] 8.149210e+01 1.574122e+02 5.195905e+01 1.604695e+02
## [405] 1.046718e+02 6.160275e+01 2.127850e+02 5.273665e+01
## [409] 8.593342e+01 1.097170e+02 1.557738e+02 1.134785e+02
## [413] 1.160021e+02 1.955115e+02 1.325486e+02 2.596156e+02
## [417] 4.454016e+02 9.946478e+01 8.463471e+01 1.821444e+02
## [421] 7.217425e+01 1.223078e+02 3.034152e+02 3.760863e+01
## [425] 2.060907e+02 1.443958e+02 1.459659e+02 4.935964e+01

```

##	[429]	1.085627e+02	1.415401e+02	8.812584e+01	2.463963e+02
##	[433]	9.396400e+01	1.596868e+02	1.145667e+02	1.141480e+02
##	[437]	8.657355e+01	1.066524e+02	1.320368e+02	9.486469e+01
##	[441]	1.292589e+02	1.281272e+02	1.484545e+02	2.060595e+02
##	[445]	8.236861e+01	1.498423e+02	1.455736e+02	1.735285e+02
##	[449]	1.708646e+02	7.835531e+01	1.299224e+02	3.013939e+02
##	[453]	2.147046e+02	1.937293e+02	4.313247e+01	1.867459e+02
##	[457]	1.805748e+02	4.874276e+01	1.090415e+02	1.526804e+02
##	[461]	7.050869e+01	2.367803e+02	1.102765e+02	2.184818e+02
##	[465]	9.314004e+01	5.605147e+01	1.122279e+02	3.532976e+01
##	[469]	1.216282e+02	1.481704e+02	6.317552e+01	6.697961e+01
##	[473]	9.258479e+01	1.961645e+02	2.171543e+02	1.554940e+02
##	[477]	1.751479e+02	7.643591e+01	1.464691e+02	1.994970e+02
##	[481]	1.126658e+02	2.257394e+02	1.825168e+02	2.008408e+02
##	[485]	1.996391e+02	1.484534e+02	2.327367e+02	8.695017e+01
##	[489]	4.912532e+01	2.529536e+02	1.836304e+02	1.599192e+02
##	[493]	1.037488e+02	5.440136e+01	1.386161e+02	1.316487e+02
##	[497]	1.607007e+02	1.040306e+02	1.280655e+02	2.152496e+02
##	[501]	6.684904e+01	1.595117e+02	1.113429e+02	9.106021e+01
##	[505]	5.907951e+01	1.466964e+02	1.239078e+02	6.733139e+01
##	[509]	3.166845e+01	7.027313e+01	9.161456e+01	1.250373e+02
##	[513]	9.491563e+01	6.943646e+01	1.151587e+02	5.244778e+01
##	[517]	8.975459e+01	9.653325e+01	1.523733e+02	1.508710e+02
##	[521]	1.414530e+02	1.468483e+02	1.897881e+02	1.635871e+02
##	[525]	8.619534e+01	1.022012e+02	6.919302e+01	8.621349e+01
##	[529]	9.990287e+01	1.682869e+02	9.217858e+01	1.778820e+02
##	[533]	3.473220e+01	1.096611e+02	6.830579e+01	6.371868e+01
##	[537]	2.106056e+02	1.343945e+02	1.607752e+02	2.086015e+02
##	[541]	1.745480e+02	2.324239e+02	8.031643e+01	1.304624e+02
##	[545]	1.046768e+02	7.621646e+01	6.968048e+01	9.330363e+01
##	[549]	1.645411e+02	1.768467e+02	1.132112e+02	1.167699e+02
##	[553]	8.290185e+01	4.881178e+01	1.133903e+02	8.305166e+01
##	[557]	1.098937e+02	1.352585e+02	2.051179e+01	1.144858e+02
##	[561]	5.048494e+01	2.180797e+02	4.125269e+01	1.504134e+02
##	[565]	7.575430e+01	8.566515e+01	1.081239e+02	5.887764e+01
##	[569]	9.684435e+01	1.272497e+02	5.728367e+01	7.515028e+01
##	[573]	1.050496e+02	1.879732e+02	9.964359e+01	8.430498e+01
##	[577]	1.329343e+02	1.658263e+02	2.024286e+02	2.025400e+02
##	[581]	1.881765e+02	1.263979e+02	2.114314e+02	1.372029e+02
##	[585]	1.652251e+02	9.046082e+01	1.184239e+02	1.575628e+02
##	[589]	8.360233e+01	7.677352e+01	1.071004e+02	1.855706e+02
##	[593]	2.515543e+01	1.678534e+02	1.359430e+02	1.151129e+02
##	[597]	1.921673e+02	6.062071e+01	1.314270e+02	1.585875e+02
##	[601]	1.359938e+02	1.989311e+02	1.504813e+02	8.983724e+01
##	[605]	8.659646e+01	1.175280e+02	4.623549e+01	1.221978e+02
##	[609]	2.784867e+01	1.802581e+02	2.494863e+02	2.286714e+02
##	[613]	2.037724e+02	1.417775e+02	5.486916e+01	7.742761e+01
##	[617]	1.148529e+02	1.391033e+02	8.365643e+06	2.024200e+02
##	[621]	6.731301e+01	1.431304e+02	7.292411e+01	8.924920e+01
##	[625]	1.343343e+02	2.059313e+02	9.504991e+01	1.779068e+02
##	[629]	9.098602e+00	1.760819e+02	1.368253e+02	7.817197e+01
##	[633]	1.891250e+02	2.102729e+02	1.879771e+02	4.816536e+01
##	[637]	2.481445e+02	1.028498e+02	1.472453e+02	1.332257e+02
##	[641]	2.037056e+02	2.639200e+02	1.058397e+02	1.444950e+02

```

## [645] 1.862575e+02 1.404580e+02 5.553279e+01 1.816167e+02
## [649] 7.390889e+01 3.034884e+02 1.986633e+02 7.785880e+01
## [653] 1.300445e+02 1.238063e+02 2.442141e+02 1.349240e+02
## [657] 2.531460e+02 1.076447e+02 2.045412e+02 2.400830e+02
## [661] 1.799265e+02 1.057838e+02 2.151486e+02 1.945114e+02
## [665] 2.188415e+01 2.021745e+02 7.322070e+01 1.601965e+02
## [669] 8.314203e+01 1.739216e+02 3.522404e+02 1.706771e+02
## [673] 1.183782e+02 1.643654e+02 1.051345e+02 7.980914e+01
## [677] 1.378272e+02 1.517782e+02 8.730738e+01 9.989183e+01
## [681] 2.267602e+02 1.838147e+02 1.149218e+02 1.451485e+02
## [685] 2.600226e+02 1.940609e+02 1.079183e+02 1.157737e+02
## [689] 7.925466e+01 1.092018e+02 8.532900e+01 2.013992e+02
## [693] 2.812197e+02 9.952911e+01 6.849232e+01 2.251309e+02
## [697] 1.296464e+02 5.515105e+01 1.500852e+02 1.352117e+02
## [701] 4.650376e+01 6.938017e+01 -1.368392e+01 8.524229e+01
## [705] 8.091661e+01 9.211202e+01 7.914980e+01 1.728058e+02
## [709] 1.608531e+02 5.532826e+00 2.613480e+00 3.072866e+02
## [713] 1.736352e+02 1.548928e+02 9.436945e+01 1.193581e+01
## [717] 1.014363e+02 1.072199e+02 1.327733e+02 1.160339e+02
## [721] 2.230632e+02 1.299566e+02 1.473721e+02 4.745055e+02
## [725] 8.677234e+01 1.504841e+02 7.442625e+01 8.289500e+01
## [729] 1.496040e+02 1.554367e+02 1.898415e+02 2.125699e+02
## [733] 2.766515e+02 2.083368e+02 1.283738e+02 2.095888e+02
## [737] 1.930784e+02 2.960695e+02 9.211739e+01 6.777783e+01
## [741] 6.000770e+01 1.548584e+02 2.271001e+02 1.401195e+02
## [745] 1.409288e+02 1.297020e+02 2.177167e+02 5.074240e+01
## [749] 1.906131e+02 1.933818e+02 6.931417e+01 3.251289e+02
## [753] 3.372947e+01 1.024475e+02 1.716724e+02 6.500787e+01
## [757] 7.944087e+01 1.074132e+02 1.600919e+02 8.883752e+01
## [761] 1.469330e+02 7.806313e+01 8.335275e+01 7.182658e+01
## [765] 1.175241e+02 8.993874e+01 1.201379e+02 5.967499e+01
## [769] 1.311208e+02 3.169335e+02 6.749023e+01 1.026903e+02
## [773] 9.978951e+01 1.113206e+02 8.209815e+01 9.533598e+01
## [777] 9.329598e+01 4.025277e+01 9.579694e+01 7.841597e+01
## [781] 6.634364e+01 1.500656e+02 8.414521e+01 1.067210e+02
## [785] 1.840827e+02 1.045811e+02 5.286950e+01 9.777688e+01
## [789] 8.927814e+01 5.082597e+01 1.347188e+02 8.608792e+01
## [793] 8.255193e+01 1.629984e+02 9.462057e+01 1.241005e+02
## [797] 1.160430e+02 1.928989e+02 3.360175e+02 1.195757e+02
## [801] 6.186640e+01 5.346788e+01 1.252090e+02 9.454125e+01
## [805] 1.479220e+02 1.598318e+02 9.127560e+01 1.754742e+02
## [809] 1.718591e+02 1.917784e+02 2.141284e+02 5.877799e+01
## [813] 1.915551e+02 6.699320e+01 4.555806e+01 1.494911e+02
## [817] 6.764803e+01 6.351110e+01 8.473112e+01 5.920502e+01
## [821] 8.558156e+01 1.628533e+02 8.009585e+01 1.205724e+02
## [825] 1.143142e+02 1.321950e+02 1.357919e+02 1.100816e+02
## [829] 4.420586e+01 8.554380e+01 1.800357e+02 1.282544e+02
## [833] 1.414156e+02 8.138166e+01 7.641953e+01 7.885443e+01
## [837] 7.600156e+01 8.312278e+01 1.206704e+02 7.718793e+01
## [841] 8.603600e+01 2.154369e+02 9.662495e+01 9.992182e+01
## [845] 9.944856e+01 8.457871e+01 1.129532e+02 1.308099e+02
## [849] 2.232823e+02 7.143742e+01 1.122650e+02 1.360353e+02
## [853] 1.035724e+02 7.267999e+01 1.739732e+02 1.581581e+02
## [857] 1.054472e+02 1.106310e+02 9.415276e+01 1.643481e+01

```

```
## [861] 7.610813e+01 8.076498e+01 1.456482e+02 9.515418e+01
## [865] 6.593691e+01 8.176292e+01 5.939005e+01 9.941858e+01
## [869] 1.096830e+02 8.157733e+01 9.171402e+01 1.379198e+02
## [873] 1.242088e+02 3.361897e+01 1.063554e+02 8.586488e+01
## [877] 9.160084e+01 6.335830e+01 1.309124e+02 1.084918e+02
## [881] 8.013730e+01 1.212908e+02 1.354687e+02 1.239953e+02
## [885] 4.547038e+01 7.185625e+01 7.500163e+01 1.076134e+02
## [889] 6.867966e+01 1.943734e+02 7.952386e+01 1.053036e+02
## [893] 2.097959e+02 1.097092e+02 3.051501e+02 1.434355e+02
## [897] 5.263313e+01 8.570498e+01 9.475337e+01 5.762939e+01
## [901] 1.298324e+02 1.360699e+02 9.138573e+01 1.706577e+02
## [905] 1.289591e+02 1.836838e+02 1.778449e+02 8.256686e+01
## [909] 2.867820e+02 3.305687e+02 3.296617e+02 1.385590e+02
## [913] 9.938802e+01 1.384085e+02 6.002802e+01 9.031811e+01
## [917] 2.155682e+02 1.357635e+02 1.567612e+02 1.710071e+02
## [921] 1.024750e+02 9.423578e+01 1.428867e+02 1.744503e+02
## [925] 2.072528e+02 1.896288e+02 6.472691e+01 7.444609e+01
## [929] 1.747350e+02 2.058920e+02 1.197543e+02 7.566500e+01
## [933] 1.382387e+02 1.228588e+02 5.534476e+01 7.021027e+01
## [937] 8.944867e+01 8.146176e+01 1.233470e+02 1.764400e+02
## [941] 9.648533e+01 3.907177e+01 2.269885e+02 1.121064e+02
## [945] 1.107547e+02 1.905521e+02 3.136874e+02 7.039240e+01
## [949] 8.768667e+01 1.674171e+02 1.026276e+02 1.073232e+02
## [953] 1.416833e+02 2.884095e+02 6.416522e+01 1.527959e+02
## [957] 6.142891e+01 5.989432e+01 9.079642e+01 2.598534e+01
## [961] 7.269999e+01 1.301570e+02 8.251322e+01 9.873703e+01
## [965] 9.257801e+01 2.295531e+02 1.006130e+02 1.795171e+02
## [969] 1.435562e+02 7.265570e+01 1.929691e+02 1.254856e+02
## [973] 7.540349e+01 1.977930e+02 1.895904e+02 1.726935e+02
## [977] 9.989004e+01 7.056894e+01 7.445788e+01 7.440969e+01
## [981] 3.324267e+02 8.711330e+01 9.463883e+01 2.293629e+02
## [985] 8.093417e+01 2.141217e+00 1.332437e+02 1.194825e+02
## [989] 1.994677e+02 1.201357e+02 2.304443e+02 8.516584e+01
## [993] 2.096037e+02 1.223285e+02 6.808543e+01 1.461001e+02
## [997] 9.164870e+01 7.186011e+01 1.679799e+02 1.129657e+02
## [1001] 2.088219e+02 2.301160e+02 2.205418e+02 5.853079e+01
## [1005] 1.296339e+02 9.197080e+01 1.737421e+02 1.008762e+02
## [1009] 1.111624e+02 1.749111e+02 9.549026e+01 1.240467e+02
## [1013] 2.597650e+02 1.666974e+02 2.527758e+02 2.378792e+02
## [1017] 1.394146e+02 6.222065e+01 7.244827e+01 1.351746e+02
## [1021] 9.338699e+01 1.398001e+02 2.298419e+02 3.228268e+02
## [1025] 2.037902e+02 8.492970e+01 9.151628e+01 1.138316e+02
## [1029] 1.013716e+02 1.257394e+02 1.227165e+02 6.985379e+01
## [1033] 1.167631e+02 1.592246e+02 1.785900e+02 8.404110e+01
## [1037] 9.624426e+01 1.327711e+02 7.451266e+01 9.344743e+01
## [1041] 1.208034e+02
```

```
#####Wordcloud#####
library(tm)
```

```
## Warning: package 'tm' was built under R version 3.5.3
```

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

```
## Warning: package 'NLP' was built under R version 3.5.2
```

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

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

```
library(wordcloud)
```

```
## Warning: package 'wordcloud' was built under R version 3.5.3
```

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

```
library(RColorBrewer)  
Description= data$summary  
  
data1<-Corpus(VectorSource(Description))  
data1<-tm_map(data1,stripWhitespace)
```

```
## Warning in tm_map.SimpleCorpus(data1, stripWhitespace): transformation  
## drops documents
```

```
data1<-tm_map(data1,tolower)
```

```
## Warning in tm_map.SimpleCorpus(data1, tolower): transformation drops  
## documents
```

```
data1<-tm_map(data1,removeNumbers)
```

```
## Warning in tm_map.SimpleCorpus(data1, removeNumbers): transformation drops  
## documents
```

```
data1<-tm_map(data1,removePunctuation)
```

```
## Warning in tm_map.SimpleCorpus(data1, removePunctuation): transformation  
## drops documents
```

```
data1<-tm_map(data1,removeWords, stopwords('english'))
```

```
## Warning in tm_map.SimpleCorpus(data1, removeWords, stopwords("english")):  
## transformation drops documents
```

```
data1<-tm_map(data1,removeWords, c('and','the','our','that','for','are','also','more','has','must',  
'have','should','this','with'))
```

```
## Warning in tm_map.SimpleCorpus(data1, removeWords, c("and", "the", "our", :  
## transformation drops documents
```

```
wordcloud(data1, scale=c(3,0.5), max.words=1000,  
           random.order=FALSE, rot.per=0.35, use.r.layout=FALSE, colors=brewer.pal(8,'Dark2'))
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : people could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : please could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : family could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : university could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : shared could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : need could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : guest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : magnificent could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : night could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : neighborhoods could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : village could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : airport could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : plenty could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : district could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : luxury could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : get could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : front could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : parks could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : features could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : closet could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : laundry could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : mins could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : groups could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ceilings could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : renovated could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : brown could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : newly could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : convenient could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : across could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pool could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : windows could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : open could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : millennium could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : mattress could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : garden could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sunny could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : local could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : patio could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : friends could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : museum could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lakeview could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : small could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : nearby could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bright could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rooftop could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : make could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : looking could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : balcony could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : come could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : listing could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : drive could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : spot could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lovely could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : around could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : brand could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : tons could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : charming could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lakefront could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : less could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : couch could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : apt could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hardwood could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stops could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : buses could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bathrooms could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : experience could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : conveniently could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : navy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : entire could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sleeps could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : three could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : attractions could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : shower could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : central could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : metra could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rooms could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : desk could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : including could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : wrigleyville could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : appliances could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : zoo could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : side could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : entertainment could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : natural could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : want could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : equipped could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : table could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : outside could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : soldier could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : super could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : andersonville could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : separate could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : theater could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : explore could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : level could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : music could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : unique could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : brick could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : areas could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : comfortably could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sized could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : museums could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : tower could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dryer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sleep could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pilsen could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : subway could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : quick could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : grant could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : vibrant could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : may could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : breakfast could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bucktown could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : entrance could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : host could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : skyline could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gorgeous could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : remodeled could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : grill could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : trains could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : garage could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : division could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : airbnb could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : green could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : popular could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : updated could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : campus could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : washer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : check could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : cubs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : half could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : options could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : boystown could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : trail could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : cafes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ambiance could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : comfort could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : trendy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : loyola could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : basement could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : internet could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : belmont could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : major could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : coziness could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pets could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : united could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : single could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : youre could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : humboldt could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : yard could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : style could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : privacy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : washerdryer could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : treelined could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : residential could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : medical could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : directly could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : coast could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : middle could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : uber could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : cool could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : shore could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gold could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fridge could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : convenience could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stainless could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ukrainian could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : main could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : every could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fireplace could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : backyard could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : couple could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : famous could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : property could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : price could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : common could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : provide could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : netflix could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ceiling could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : beautifully could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : recently could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : beaches could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hidden could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : classic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lined could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : towels could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : excellent could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hotel could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : provided could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : chicago□s could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : futon could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stocked could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : microwave could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : world could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : note could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : divvy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : awesome could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : plus could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fantastic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : steel could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hour could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : market could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : decor could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : students could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : indoor could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : accommodate could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : granite could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pink could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : weekend could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : easily could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : reviews could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rent could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : restaurant could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : furniture could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : roof could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : duplex could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : double could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : centrally could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : additional could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : water could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hospital could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : exposed could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : surrounded could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : wonderful could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rehabbed could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : transport could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : decorated could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : damen could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : uic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hottest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : southport could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : office could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : multiple could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : comes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : foot could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : furry could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : institute could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : brba could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : diverse could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : midway could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : path could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fresh could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : situated could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : way could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : request could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : visiting could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : smart could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : jacuzzi could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : summer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : story could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : even could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : booking could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bean could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : long could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : upon could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stays could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : walkable could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : staying could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : anywhere could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stations could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : prime could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : kitchenette could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : screen could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : relaxing could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : person could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sleeper could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : getaway could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : group could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : baths could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : spaces could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : redline could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : highway could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stunning could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : needed could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : per could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sleeping could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : roscoe could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : porch could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : vacation could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : theaters could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : california could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : plan could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ample could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : along could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : oasis could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gourmet could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lounge could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ask could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : throughout could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : illinois could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : warm could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : charm could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : townhouse could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : overlooking could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : contemporary could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : accessible could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : read could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : chinatown could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : designed could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : addison could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dog could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : look could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : starbucks could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fitness could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : traveling could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : morning could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : filled could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : four could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : penthouse could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : places could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : luxurious could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : theres could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : coming could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : inunit could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : italy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : western could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : tourist could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : furnishings could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : community could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : traveler could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : proximity could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : venues could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dont could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : theatre could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : boutiques could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : heat could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : different could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : extremely could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : outdoors could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : travel could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : several could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gas could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : third could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : incredible could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : mexican could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : checkin could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bustling could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : accommodations could not be fit on page. It will  
## not be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : always could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : complete could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fits could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : peaceful could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : victorian could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : straight could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sox could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : know could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : whether could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : foam could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : number could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : help could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sits could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : details could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bikes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : club could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : five could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : days could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : galleries could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : depaul could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : uptown could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : game could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stadium could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : direct could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : security could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hosting could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fast could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bunk could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hancock could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : original could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : willis could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : yet could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : eclectic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : basic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : culture could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fire could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dishwasher could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : spots could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : exploring could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : boasts could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : northwestern could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : upstairs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : secure could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lively could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : nights could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : makes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : chic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : millenium could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pizza could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : eat could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : literally could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dogs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : happy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : white could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : memory could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : artist could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : science could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : minimum could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : express could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : anyone could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : year could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : routes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : movie could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lower could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : system could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : milwaukee could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : play could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rise could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dates could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : airy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lakeshore could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : streets could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : trendiest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : entry could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : essentials could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dresser could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : perfectly could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hello could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : service could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rogers could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : star could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : storage could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : attached could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : row could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hosts could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : soon could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : used could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : terrace could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : everywhere could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : simple could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : personal could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sharing could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : joes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : walkin could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pictures could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : industry could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : highrise could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : coach could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : elevator could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : complimentary could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stylish could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sqft could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : maker could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : times could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : finishes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : really could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : aquarium could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : marble could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : edgewater could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : exciting could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sweet could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sun could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : give could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bedding could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : mattresses could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : part could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : needs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : questions could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bbq could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : affordable could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : metro could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : scene could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : union could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : halsted could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : cats could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : irving could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : window could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : late could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : completely could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : now could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : either could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : comforts could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : cleaning could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : things could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : message could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : yoga could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pullout could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : marianos could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : shop could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : walkup could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : spectacular could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : countless could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : downstairs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : welcoming could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : head could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sleek could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : renting could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : appointed could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : walgreens could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fullsize could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : cooking could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : enough could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : layout could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fullerton could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : touches could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : beer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : getting could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : tea could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : designer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : company could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sports could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : luggage could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bronzeville could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : obamas could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : driving could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : premium could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : soft could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : orange could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : computer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : expressway could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : years could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : speed could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : commute could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fans could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : colorful could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : history could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : nestled could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : boutique could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : library could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : john could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : working could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : doorman could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : aragon could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : glass could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : mind could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : true could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : professional could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : provides could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : permit could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : inside could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : jewel could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : target could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sheets could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : historical could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : vibe could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : charge could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : roosevelt could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : harbor could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : owner could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : island could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : various could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bdrm could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : photos could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : courtyard could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : citys could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : offering could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : montrose could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rates could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : option could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : weve could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rate could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : highend could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : quite could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : adorable could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : artsy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : forward could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : apartments could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : wish could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : countertops could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : concrete could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : elevated could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stateofheart could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : armitage could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : midcentury could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bridgeport could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : upscale could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : together could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : another could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : youd could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : longer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : keurig could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : neighbors could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : value could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : games could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : spend could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pretty could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : french could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gives could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : cultural could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : clubs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ravenswood could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : quality could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : avondale could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ready could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gets could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : quaint could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : convention could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : month could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : truly could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : design could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : adjacent could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sunlight could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : court could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : today could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : put could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : purple could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : northwest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : going could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hope could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : flexible could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sure could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gated could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : iconic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : tucked could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : grand could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : hang could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : young could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : chairs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sectional could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : artistic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : busy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : environment could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : booked could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : occupied could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : walls could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sauna could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : doors could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : massive could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : parties could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : course could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : making could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pay could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : activities could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : feeling could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sitting could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : enjoying could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : everyone could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : atmosphere could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : character could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : gardens could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : eateries could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : goes could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : twobedroom could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : refrigerator could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : wall could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : state could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : wireless could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : queensized could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lives could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : randolph could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : couches could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : smoking could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : expansive could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : possible could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : architectural could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : custom could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dry could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : comedy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lounges could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : special could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : authentic could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : else could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : bungalow could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : border could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : groceries could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : budget could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : complex could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : international could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : boulevard could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : safest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : diversey could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : week could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : windy could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : intersection could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : chefs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : centers could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : steam could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : shedd could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : counter could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : greystone could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : professionals could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : mention could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : fan could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : pet could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : onebedroom could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : arrive could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : golf could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : checkout could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : riviera could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : planetarium could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rentals could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : without could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : children could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : demand could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : availability could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : listings could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : endless could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : corners could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : homey could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : swimming could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : decks could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : lighting could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : evanston could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : code could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : grills could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rugs could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : royal could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : freehand could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : allowed could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : artists could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : locations could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : stone could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : sink could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ground could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : means could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : depending could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : watch could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : casual could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : drink could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : brewery could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : corporate could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : extended could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : trans could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : information could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : simply could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : spa could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rich could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : running could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : permits could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : dream could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ultra could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : palmer could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : flanked could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : thats could not be fit on page. It will not be  
## plotted.
```



```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : rear could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : beauty could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : based could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : care could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : tennis could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : description could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : breathtaking could not be fit on page. It will not  
## be plotted.
```

```
## Warning in wordcloud(data1, scale = c(3, 0.5), max.words = 1000,  
## random.order = FALSE, : ultimate could not be fit on page. It will not be  
## plotted.
```

