

WHAT THE EXPECTATIONS AND EXPERIENCES OF HOTEL CUSTOMERS? TEXT ANALYSIS OF ONLINE REVIEWS

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Abstract:

In the current era, the challenges for firms are customer retention and customer acquisition. The study aims to understand the experiences of hotel customers and the expectations of the customers. Customers' data can be helpful to improve the services and to reduce service failure. We did text analysis to find out the satisfaction and dissatisfaction factors by doing sentiment analysis, polarity method, and a bag of words methods, cluster analysis, and topic modeling. 5543 reviews are extracted from TripAdvisor.com; we applied text analysis on reviews by rating wise. Good and excellent reviews have a positive polarity, and worst and bad reviews have a negative polarity. The common themes between positive and negative ratings are Hotel, breakfast, and the core product room and facilities in the room. The negative topics between positive and neutral ratings are hotel, breakfast, and amenities provided by the hotel. We did the sentiment analysis of online reviews by positive and negative ratings. Surprisingly, in positively rated reviews customers spoken negatively about a hotel, but the percentage is very minimum. Further study, can use advanced text mining analysis to know in-depth analysis.

Keywords: Online reviews, Sentiment Analysis, Polarity Score, Customer satisfaction

Introduction:

In the current era, the challenges for firms are customer retention and customer acquisition (Kumar, Bhagwat, & Zhang, 2015). With the evolution of technology, customers changed the way of doing business from a traditional approach to e-commerce to m-commerce. With one finger touch business transactions are happening (Leung, Law, Van Hoof, & Buhalis, 2013). These are the opportunities and challenges for the firms. With the help of technology, consumers can make buying decisions before buying a product by reading the experiences of experienced customers in the form of so-called online reviews (Chevalier & Mayzlin, 2006). Online reviews are influencing customers purchase decisions (Gretzel & Yoo, 2008; Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004; Litvin, Goldsmith, & Pan, 2008). Firms now are pondering on how to convert these reviews as a profitable art. The main reasons for customer posting online reviews are to express satisfaction or dissatisfaction about any

products or services. Positive reviews increase the sales of the products than negative reviews. So it's challenging for firms to handle the reviews carefully(Xie, Zhang, & Zhang, 2014; Ye, Law, & Gu, 2009).

Consumers share their experience in many ways like online reviews on the website, blogs, and mobile applications, in social network websites. But the effective and efficient mode of communication is writing in online review websites or applications(Hennig-Thurau, Walsh, & Walsh, 2003). The online reviews are divided into three types, review valence, review volume and review variation. Review valence is the star rating of the customers. Star rating represents the satisfaction or dissatisfaction about products or services(Chevalier & Mayzlin, 2006; Xie et al., 2014). The customer expresses their experience in the form of star rating; in traditional research, scholars used the questionnaire to measure the satisfaction level of customers or end users. But with the evolution of big data, the electronic word of mouth [e-WOM] gains the popularity.

With the evolution of big-data abundant unstructured data available to researchers(Li, Xu, Tang, Wang, & Li, 2018; Zhao, Xu, & Wang, 2019). With the abundant growth of e-commerce and m-commerce in developing countries, consumers are rapidly adopting the technology, so with one-click, the business transactions are happening. These are the opportunities as well as challenges for firms to provide the services without failure. Working on single discipline won't resolve the problem of service recovery(Tax, Brown, & Chandrashekar, 1998). As stated by(Tax et al., 1998) customers' data is used to improve the services and minimize the risk of service failures. So Customers experience is available in the form of online reviews.

5543 reviews are extracted from TripAdvisor.com; we applied text analysis on reviews by rating wise. Good and excellent reviews have a positive polarity and worst and bad reviews have a negative polarity. The common themes between positive and negative ratings are Hotel, breakfast, and the core product room and facilities in room. The negative topics between positive and neutral ratings are hotel, breakfast, and amenities provided by the hotel. We did the sentiment analysis of online reviews by positive and negative ratings. Surprisingly, in positively rated reviews customers spoken negatively about a hotel, but the percentage is very minimum. Further study, can use advanced text mining analysis to know in-depth analysis.

Terms used in this paper:

Electronic Word-of-Mouth [eWOM] can be defined as “all informal communications directed at consumers through Internet-based technology related to the usage or characteristics of particular goods and services, or their sellers”(Litvin et al., 2008)

The valence of eWOM includes “the average numerical ratings found in reviews, the ratio of positive to negative reviews, or the absence or presence of negative reviews on the websites”(Liu, 2006).

Literature Review:

Online reviews:

“Online customer reviews can be defined as peer-generated product evaluations posted on the company or third-party websites” (Mudambi & Schuff, 2010). With the easy of internet usage and availability of big data, consumers rely on online reviews for information search of the products/ services. Consumers’ refer online reviews to avoid confusions on buying choices and to save time by referring the reviews(Hennig-Thurau et al., 2003). Customers’ trust informal communications rather than the messages spread by the company directly(Nieto, Hernández-Maestro, & Muñoz-Gallego, 2014; Yang & Mai, 2010). For example, IBEF report stated that customers trust social media for planning and booking trips(Ignace Bauwen, 2019). Customers disseminate their knowledge through writing reviews, posting videos and images in many online channels like third-party websites [For example, TripAdvisor, ctrip ,etc.], web-blogs, social network sites[For example, facebook, twitter, Instagram, and youtube, etc.].

Attributes of Online Reviews:

Review Volume: The total number of the ratings posted by the customers

Review Valence: The average ratings posted by the customers

Review variation: The standard deviation of the review ratings.

Online Rating: TripAdvisor divides the rating into the 5 point scale. Xie et al. (2014) defined rating 1 means “worst”, 2 means “bad”, 3 –“average”,4 –“good” and 5 means “excellent”.

The attributes of the online reviews play a dominant role in any organization(Duan, Gu, & Whinston, 2008), for example, review volume creates the awareness of any products or services, review valence defines the overall satisfaction of any products or services, and review variation shows the consistency of the ratings(Xie et al., 2014).

Online reviews and firm performance:

The hospitality industry offers the experience to guests, guests or a customer check out the hotel with some experience [Good or bad]. Due to the sensitive nature of the hospitality industry, consumers rely on expert opinion before processing a booking. Studying the role of online reviews becomes a prominent topic for researchers and industrialists. Schuckert, Liu, and Law (2015) did a meta-analysis of 50 research articles on online reviews and identified four prominent research areas: 1. Effect of online reviews on firm performance, 2. Role of managers responses 3.Text Mining 4. Reasons and motivations to write reviews in third party websites.

Research Methodology:

The purpose of this paper is to understand the satisfied and dissatisfied customers and the reasons for service failure and success by studying customer reviews. To address our research question, we have used text mining tools to identify the factors. We used QSR Nvivo 12 and R programming to do text analysis.

Text analysis start with (Kwartler, 2017)

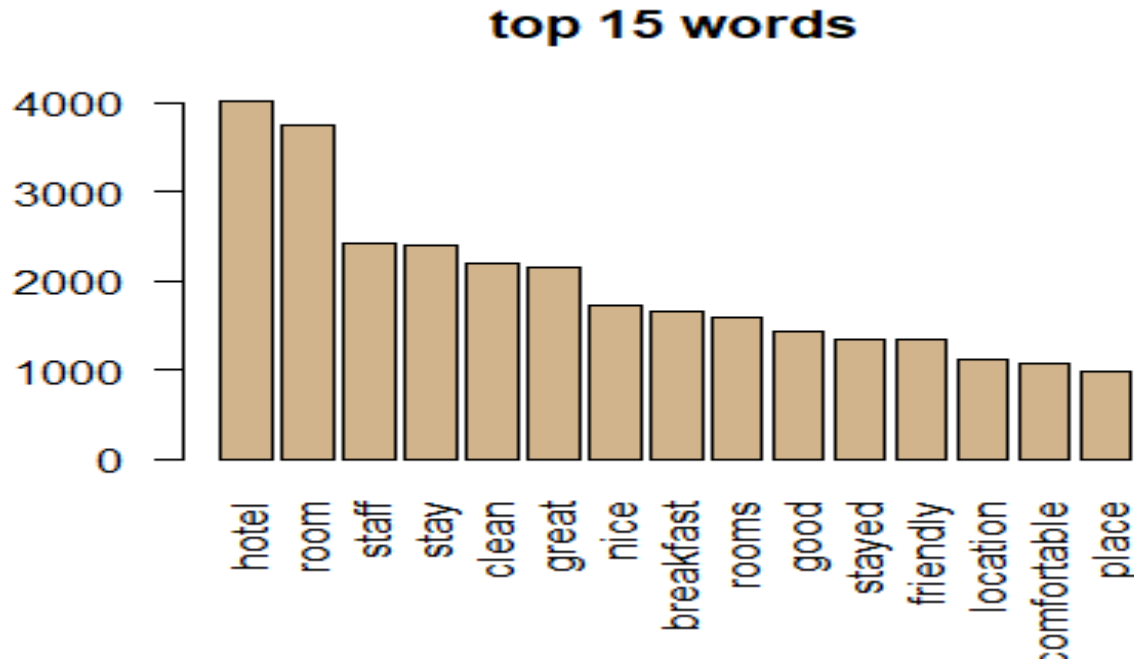
1. Problem identification,
2. Identify the source and collection of the data [TripAdvisor],
3. Cleaning the data [Using Qdap package in R, we clean the text data by removing numbers, stop words, punctuations, white space and by Replacing abbreviations, and by convert contractions back to their base words.
4. By doing a bag of words method [frequency analysis, word cloud]
5. Analysis [sentiment analysis, polarity and topic modeling, an association of words]

Data:

5543 reviews used for the content analysis, the USA hotels reviews used, reviews are extracted from the Tripadvisor website. Trip advisor is one of the popular social network websites for travelers reviews (Duverger, 2013; Phillips, Zigan, Silva, & Schegg, 2015; Xie, Chen, & Wu, 2016). With 661 Million reviews and with 456Million unique visitors per Month, TripAdvisor influencing the travelers buying decisions(Biz, 2019). Customers can find the genuine reviews in TripAdvisor because of its policies; TripAdvisor verifies the user details like user ID, IP address before posting in the website(Xie, Zhang, Zhang, Singh, & Lee, 2016). Many scholars have used TripAdvisor data in various contexts. A separate analysis was conducted for positive and negative reviews. As stated by Xie, Zhang, et al. (2016), review ratings 1 represent the high dissatisfaction to 5 represents the highly satisfied customers.

Results:

Image 1 and 2 shows the word cloud of positive and negative reviews. For positive reviews, the most common themes mentioned by customers are: Room- a core product offered by the customer, stay, hotel- a place of business, staff, service, clean and location, etc. For negative reviews, frequently repeated words are highlighted with big fonts, the customers showed their dissatisfaction in the form of the reviews. The reasons for the dissatisfaction are- Room, price , hygiene of the room, check-in process and staff behavior.

Image 3: Term Frequency:**Table 1: Polarity Score:**

Rating	total.sentences	total.words	ave.polarity	sd.polarity	stan.mean.polarity
1	340	26469	-0.214	0.337	-0.634
2	282	20259	0.001	0.363	0.003
3	625	46426	0.321	0.441	0.728
4	1468	99617	0.691	0.473	1.462
5	2827	184750	0.866	0.522	1.66
All	5542	377521	0.648	0.581	1.116

Sentiment polarity can be defined as the positive and negative emotions spoken by the customer in the form of text reviews. The range of polarity score is -1 to +1. Table 1 discusses the sentiment polarity score by rating wise. As defined by Xie et al. (2014) the online rating in TripAdvisor scaled to 1 to 5. Ratings are classified as: 1 “terrible”, 2 “poor”, 3 “average”, 4 “very good”, and 5 “excellent”. Our polarity scores are matching with ratings given by customers. Rating 1 and 2 have negative and zero sentiments. When customers are faced with service failure, they give a negative score, rating 4 and 5 have 0.691, 0.866 polarities. It’s very high and positive polarity score. When customers are highly satisfied and dissatisfied, they speak more positivity and spread positive word of mouth in the form of reviews.

Table 2: Word Count:

Positive Reviews[Rating>4.0]			Negative Reviews(Ratings<3.0)		
Word	Weighted		Word	Weighted	
	Count	Percentage (%)		Count	Percentage (%)
Stay	5106	2.84	room	821	3.20
Room	4906	2.83	stay	696	2.27
Hotel	4095	2.57	hotel	522	2.10
Great	3918	2.10	place	514	1.21
Good	3969	1.51	night	230	0.88
Clean	2697	1.47	clean	252	0.78
Staff	2342	1.47	need	286	0.78
location	3187	1.45	just	275	0.70
comfortable	3113	1.31	called	231	0.66
Nice	2186	1.31	front	245	0.65
Get	3724	1.17	time	162	0.63
friendly	1519	0.94	check	366	0.62
service	2137	0.94	like	200	0.62
breakfast	1472	0.92	work	279	0.62
Place	3172	0.83	service	208	0.60

Table3: Themes for positive & negative reviews:

Positive Reviews		Negative Reviews	
Name	Count	Name	Count
hotel	1108	bed	58
room	1108	desk	119
good	823	experience	43
staff	808	hotel	112
breakfast	665	room	171
location	603	service	50
place	594	staff	49
stay	504		
desk	477		

area	475
service	474
friendly	371
clean	369
bed	334
comfortable	327

Table 3 and 4 discuss the word count and themes addressed by customers. The most frequently repeated themes are:

1. A pace of business: Hotel, Room
2. Amenities: Place, Desk, Area,
3. Product & Services: Food, Breakfast
4. Staff
5. Location.

The disappointed customers discussed : Hygiene of the hotel, staff behavior and amenities and services provided by the hotel. Table 4 discuss the sentiment analysis of positively rated hotels, The common themes addressed by customers are hotel [1706:181], staff [1560:79], room [1484:187], location [1059: 45], clean [1262 :37]. By dividing positive sentiment score with negative sentiment score we can obtain sentiment polarity score(Geetha, Singha, & Sinha, 2017), the score is very positive and above 1.5.

Table 4: Sentiment Analysis for positive reviews:

Sentiment analysis(positive reviews)											
Highly positive			Moderately positive			Highly Negative			Moderately Negative		
Word	Weighte		Word	Weighte		Word	Weighte		Word	Weighte	
	Cou nt	Percenta ge (%)		Cou nt	Percenta ge (%)		Cou nt	Percenta ge (%)		Cou nt	Percenta ge (%)
Staff	930	3.51	great	1664	4.30	hotel	86	2.33	room	99	1.91
Room	919	3.31	hotel	957	2.47	room	88	2.30	hotel	95	1.83
Clean	912	3.24	staff	630	1.63	stay	54	1.31	breakfa st	42	0.81
Hotel	749	2.83	locatio n	574	1.48	good	70	1.27	staff	41	0.79
Great	762	2.59	stay	566	1.46	great	49	1.13	good	39	0.75
Stay	701	2.37	room	565	1.46	place	67	1.12	night	38	0.73
Helpful	588	2.14	excelle nt	478	1.23	staff	38	1.03	stay	38	0.73
Friendly	564	2.11	service	362	0.94	nice	35	0.93	complai nt	35	0.68
Nice	558	2.04	nice	364	0.94	little	40	0.82	little	34	0.66
comforta ble	628	1.67	breakfa st	357	0.92	clean	37	0.80	proble m	33	0.64
Good	651	1.45	friendl y	349	0.90	breakfa st	29	0.79	rooms	33	0.64
Location	485	1.36	clean	350	0.90	really	31	0.70	great	31	0.60
Enjoyed	528	1.33	rooms	324	0.84	make	52	0.69	get	29	0.56
Breakfast	248	0.94	good	312	0.81	feel	42	0.68	one	28	0.54
Place	450	0.89	place	298	0.77	like	28	0.65	bad	27	0.52

Table 5: Sentiment Analysis for negative reviews:

Sentiment analysis(Negative reviews)											
Highly positive			Moderately positive			Highly Negative			Moderately Negative		
Word	Count	Weighte	Word	Count	Weighte	Word	Count	Weighte	Word	Count	Weighte
		d			d			d			d
		Percenta			Percenta			Percenta			Percenta
		ge (%)			ge (%)			ge (%)			ge (%)
hotel	17	2.23	room	90	3.29	room	102	3.38	room	111	3.33
room	17	2.23	hotel	70	2.72	hotel	60	2.04	hotel	61	1.90
nice	10	1.31	stay	59	1.70	stay	62	1.66	stay	70	1.82
staff	9	1.18	location	55	1.60	place	61	1.42	dirty	65	1.52
clean	8	1.05	great	46	1.55	clean	42	1.28	place	43	0.99
really	8	1.05	good	61	1.44	horrible	46	1.26	need	45	0.96
stay	8	1.05	clean	39	1.27	terrible	43	1.11	good	46	0.90
desk	6	0.79	staff	30	1.17	experie	42	1.03	poor	35	0.88
friendl	6	0.79	experie	36	0.96	service	34	0.99	smelled	40	0.85
y			nice	24	0.93	front	36	0.96	work	40	0.78
place	6	0.79	place	47	0.93	rude	27	0.92	call	30	0.74
rooms	6	0.79	service	25	0.91	staff	27	0.92	disappoint	25	0.73
great	5	0.65	front	35	0.89	dirty	28	0.87	ing		
howev	5	0.65	want	28	0.84	manage	28	0.81	clean	31	0.73
er			work	31	0.81	r			service	28	0.70
locatio	5	0.65				night	25	0.78	like	27	0.69
n											
needs	5	0.65									

Discussion:

With technology revolutions, plenty of options are available to customers. It's very challenging to product and service industry. Due to the risk associated with the service industry, customers depend highly on online feedback before buying travel products. Previous studies find that after family and friends customers trust online reviews written in review website by unknown people (Blal & Sturman, 2014; Hennig-Thurau, Gwinner, & Gremler, 2002; Litvin et al., 2008). Whereas, studies find that online reviews impact the future firm performance (Assaf, Josiassen, Cvelbar, & Woo, 2015; Chevalier & Mayzlin, 2006; Kim, Lim, & Brymer, 2015; Phillips, Barnes, Zigan, & Schegg, 2017). Studies found that positive reviews improve the occupancy and sales of the hotels, which leads to improving performance. Customers data in the form of online reviews help to identify the service failure and reasons for the customer dissatisfaction reasons (Tax et al., 1998). We did the text mining analysis and identified satisfaction and dissatisfaction reasons.

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Annexure:

Image 5: Topic Modelling:



Image 7: Positive and negative sentiments associated with experience:

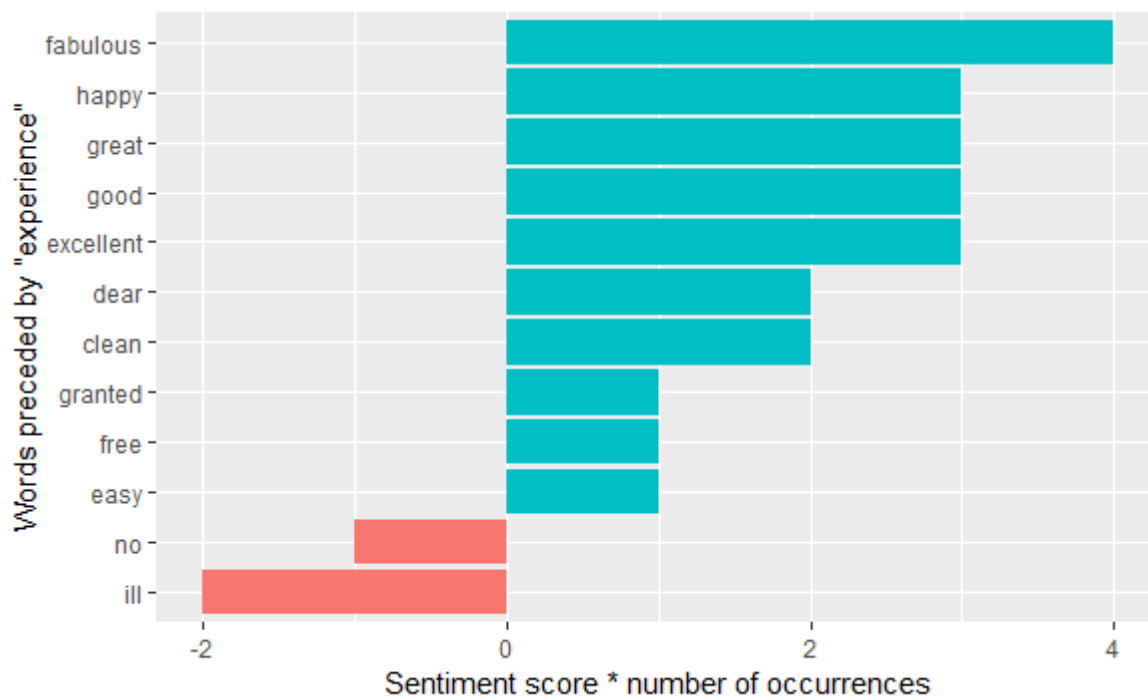


Image8: Positive and negative sentiments associated with food:

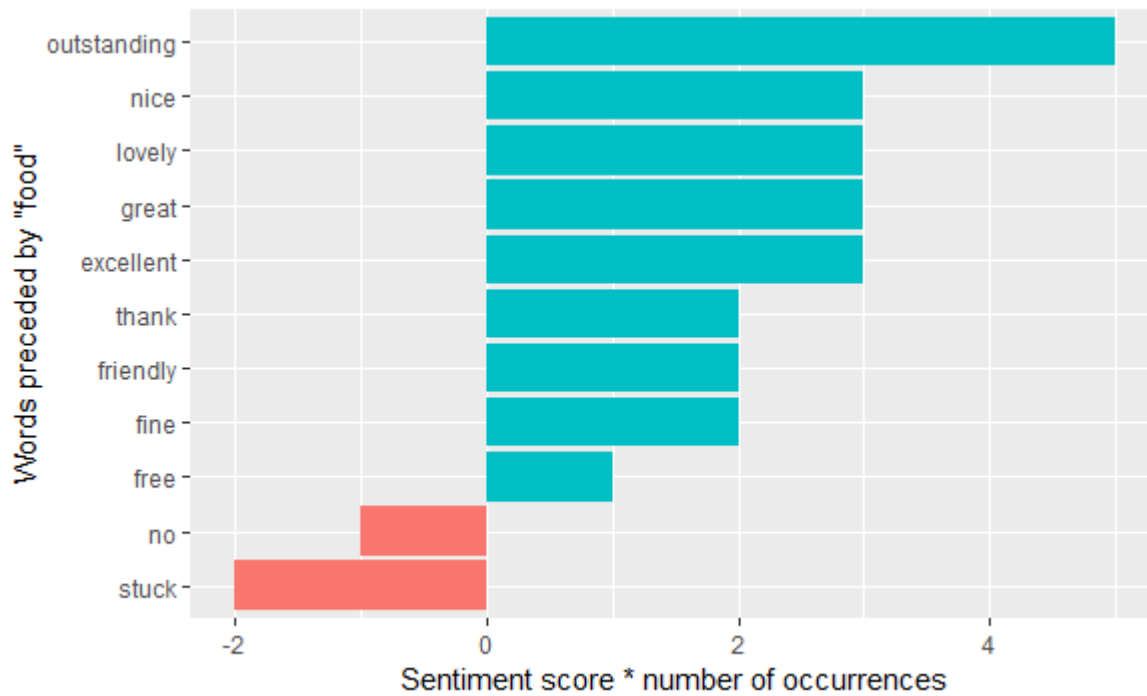


Image 9: Positive and negative sentiments associated with experience:

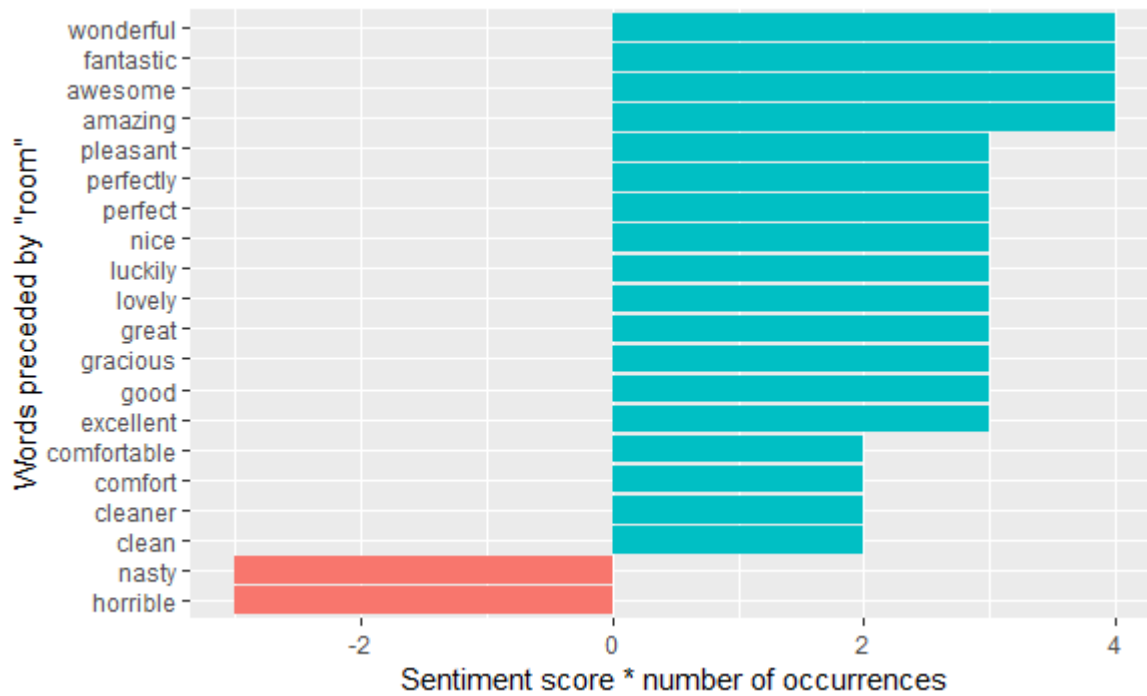


Image 10: Positive and negative sentiments associated with hotel:

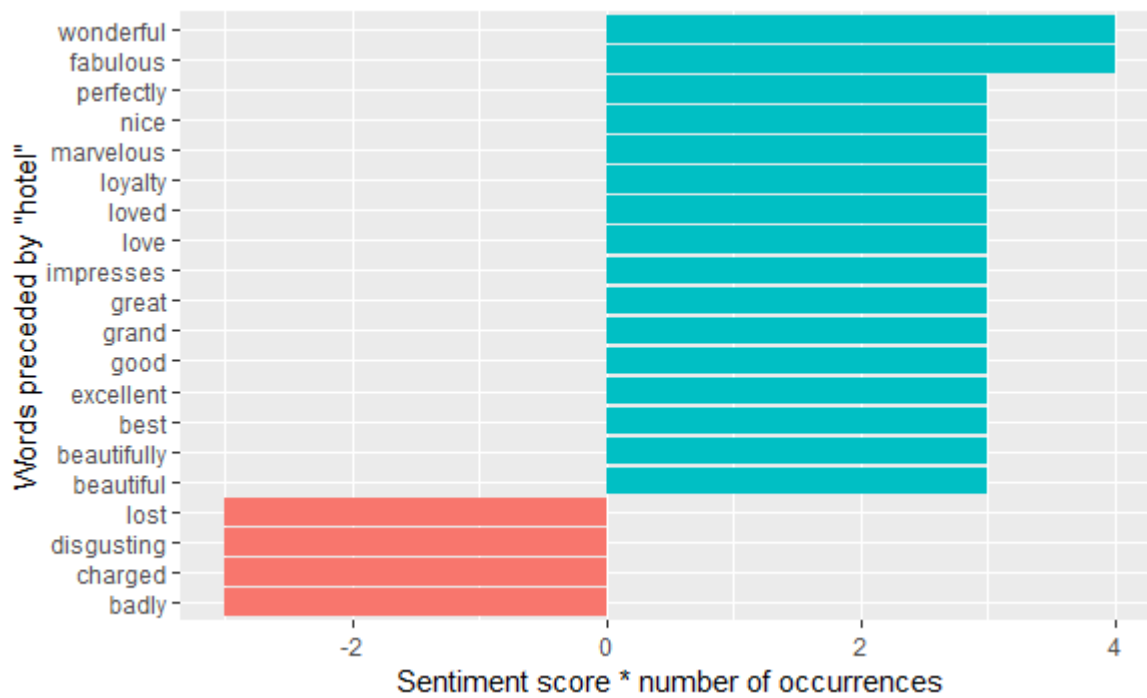


Image 11: Positive and negative sentiments associated with staff:

