

# Voice of Customers: Text Analysis of Hotel Customer Reviews (Cleanliness, Overall Environment & Value for Money)

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## ABSTRACT

The rise of the Internet has caused many changes on our daily lives. Internet has drastically changed the way we live our life, the way we spend our holidays, how we communicate with each other daily, and how we purchase products. The growth of Internet amongst consumer has generated content on the Internet by sources such as social media, review website, blogs, product fan page and many more. This has lead on to a new way of planning a holiday or looking for a suitable hotel to stay. Hence, hotel reviews websites have become a popular platform for customers to share their experiences, reviews, and recommendations on hotels, which they have visited. In Malaysia, hotel industry has been one of the most important economic growths of the country. The primary goal of a hotel is to satisfy customers, to be able to provide a high quality of service, and provide customers with a memorable experience whilst staying at the hotel. The purpose of this study is to understand and identify the range of factors, which may contribute to the satisfaction of customers as well as through their reviews to determine the standards of customers' expectations. Data was collected from online review websites such as Trip Advisor. Text analytics are used to analyze the contents collected.

## CCS Concepts

• Applied computing → Document analysis

## Keywords

Text Analytics, Hotel Reviews, Hotel Guest Satisfactions, and Customer Experience

## 1. INTRODUCTION

The ease of access to information through the Internet has increased the use of online hotel websites. Hotel review websites proves to be a reliable source of information for reviews. In comparison to the traditional word of mouth, you can only share your experiences with your friends and family; whereas through the Internet, you can create a wider interaction with people from around the world and share your experiences to the world. Customers would usually post their reviews and describe experiences on review websites after their stay at a hotel. Thus, many customers would check on the past reviews on the websites before making a reservation. This will allow for spotting of crucial factors, which affects the customers' satisfaction and dissatisfaction. Growth of the IT has provided a platform for the hotel industry to tap into these rich sources of information from the customers to improve their quality of service, brand recognition and reputation as well as customer experiences. The use of these data can provide a deeper insight to customer behaviors.

With all the wealth of information and reviews, what you don't know can hurt you [1]. Why? When you do not know how customers review and feel about your brand, you are losing out.

Upon detailed analysis of the hotel customer reviews, it shows the bigger picture in reviews about your brand, and it ensures that the "little-things" will not be missed out that could increase business opportunities, customer satisfactions and customer loyalty [1]. Text analysis can show details such as which brands in your industry speaks loudest, who is in conversations about your brand, products, industry, and competitors, and what topics in your industry generate the most buzz [1]. To have a competitive edge over other brands, the solution is to tap on all these information in the reviews, to understand customer experiences, demands and wants, and identify factors, which affects customer satisfaction [1].

The mission statement of Tourism Malaysia is to; market Malaysia as a destination of excellence to make the tourism industry a prime contributor in the socio-economic development of the nation [2]. A few objectives set by Tourism Malaysia includes creating Malaysia to be an exceptional tourist destination, showcasing the uniqueness of places, attractions and multi-cultural heritage of Malaysia and increasing the overall tourism revenue in Malaysia by attracting more tourists as well as extending the duration of stay [2].

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## 1.1 Research Objectives & Problem Statement

The objective of this study is to identify the hidden topic linking among travellers on hotel reviews that are affecting customer satisfaction and dissatisfaction towards the hotel. It gives an insight to the customer experiences, which allows for a better understanding of different customer groups based on their demographic, customer opinions, customer satisfaction, customer needs and demands. In addition, this paper focuses on three key factors that contribute to the customer's satisfaction which are Cleanliness, Overall Environment and Value for Money – cleanliness deals with the overall cleanliness with the rooms, internal and external surroundings, while overall environment deals with factors such as noise levels, disturbances, etc, whereas value for money looks at how customers feel about the value of this hotel. Why? Because an important aspect would be cleanliness and overall environment, customers want to see and feel comfortable the moment they arrive at a hotel. And customers who are satisfied and had good experiences would usually feel the hotel was value for money.

There are some researches investigate on hotel customer reviews, what customer really think about the hotel, and the factors which affect customer satisfaction [3][4]. However, little attention has been given to the reviews in the Malaysia hotel industry. Individual can rate hotels, leave comments and reviews on the good and bad experiences, and share it to the world. This has becoming very popular trend [5]. In a recent article, it reports that Trip Advisor has over 465 million reviews and opinions, making it the world's most popular hotel review website [6].

## 2. LITERATURE REVIEW

### 2.1 Big Data Analytics in Hotel Industry

Big data analytics has revolutionized the hospitality industry by improving overall customer experience and increasing customer satisfaction or improving business operations [7]. To leverage on this potential, data must be put to effective use; data which is the most valuable to business would be the data which provides insights into business operations, purchasing processes and financial performance and allow decision making more accurately and up-to-date. The hotel and hospitality industry caters to millions of travelers. Each customer comes to your hotel with their own set of expectations and desires, which makes it difficult for hotels to meet their expectations in a substantial manner [8]. Thus, hotel industry is now turning to advanced analytical solutions for clues on ways to satisfy customers and ensure their customers are satisfied [9].

An area which analytics is able to help hotel industry would be through marketing management [8]. The process of leveraging information regarding peak demand seasons, weather and local events, number of guests during a specific period, big data analytics can analyze this information and adjust their hotel room prices and create special promotional campaigns in accordance to the guest information [8]. An International Inc hotel reported in Europe is one of the world's largest hospitality companies with over 3,900 properties, 18 brands and is currently present in over 72 countries around the world [10]. In 2013, the reported revenues of the reported hotel were nearly \$13 billion. How does Marriott incorporate big data analytics? They incorporated big data analytics into their operations by extending their revenue management with Group Pricing Optimizer (GPO) [10]. GPO uses price elastic price modulators for each statistically derived market segment to recommend and adjust room rates based on

inquiries; thus, it replaced the static target rates with rates derived from advanced analytical techniques that resulted in revenue gains for the hotel [10]. Customers can experience faster booking processes through quick and finely tuned rates based on dates and hotels; beyond that, GPO is able to provide answers to questions which sales managers might have and allow for instant decisions to be made [10]. Another big international chain hotel deployed 3 major analytics which are Operational (to allow investors to make better decisions through reporting structures), Advanced (to better understand trends and identify the right trend to adopt and invest by using data mining) and Predictive Analytics (to determine the "what's next" journey, to allow for better understanding of customers, and how to deliver a better overall experience) [10]. By combining data such as customer details, transactional information, feedback, and ratings, they managed to gather immediate decisions to provide customers with personalized and enhanced services in various aspects such as rooms, menu choices, or hotel facilities [11]. Hotel staff were given access at real-time through their smartphones – which empowers them to anticipate customers' needs such as maybe a customer wants to order room service at 12a.m. or a customer wants extra bottles of mineral water [11]. Another reputable hotel chain rolled out predictive analytics in their company for upsell [12]. It collects data of how, when and where their customers would book the rooms, and through that data they analyze and identify patterns to customize their merchandising effort to suit the customer demands – the aim of the analysis is to effectively upsell customers who have already booked rooms to more expensive rooms that are larger with better views, providing more amenities as well as increased spending on hotel spas as well as restaurants [12]. These are just some of the examples of large hotel companies who have adopted the big data analytics power to boost their business performance and gaining a key advantage over their arch rivals.

By making it easier for customers to share their experiences and comments online and easier for them to access to the comments, it has resulted in a profound impact and influence on customers buying decisions [13] [14] [15]. In a survey performed by Bright Local from the UK, 88% of customers trust online reviews as much as a recommendation from a friend which is astonishing, because most of the reviews found online are posted by strangers; only a minimal 12% did not read reviews regularly before making a purchase. According to Price Waterhouse Coopers (PWC) [16], online reviews are vital information when it comes to traveler booking accommodation. Even if they are not booking their travel online, most customers will run through hotel review websites before deciding [16]. The evolution in technology has changed the way travelers shop for their accommodation [17]. For many travelers, the reviews are their opportunity to check for the overall hotel rating. Hotels can benefit from them by understanding and listening to customer reviews and what they have to say. Hotels must understand the impact and take full advantage of the reviews to boost their business perspective and business opportunities [18].

### 2.2 Customer Experience and Customer Satisfaction

Customer satisfaction is an integral part in the hotel industry [19]. Hotel industry can only flourish and prosper through the ability to retain customers [20]. Thus, if customers from a hotel do not receive services up to their standard, they would move on to the next hotel in search of better services elsewhere [19]. Satisfaction is considered as the evaluation, which customers have experienced with services, is as good as advertised; while another stated that customer satisfaction refers to the emotional response,

an individual has towards a product or service [4]. Past experiences of travelers will change their expectations towards a hotel, and with the instant access to online hotel reviews, it will have a more profound impact dictating travelers' expectations towards a hotel [3]. Customer experience can be defined as a bond and relationship formed between the company and its customer meaning it has an immediate impact on customer satisfactions [21]. It is crucial for a company to build strong connection and leave a good memory in the minds of their customers, these memories will enhance the experiences of every individual customer which will result in satisfied customers while also improving the loyalty of customers [21]. Stating satisfaction comes only through good experiences, it can strengthen relationship between a company, and a customer can draw a conclusion. Companies are encouraged to go the extra mile to deliver an experience like no other and exceed the expectations of customers, which may lead to customer retention [21].

### 2.3 Text Analytics

The importance of listening to your customer's voice has been well established and publicized by researchers [22]. By analyzing text data, it enables hotel operators to better understand the context of the text as well as improve decision-making. Text Analytics is the transformation of unstructured text into meaningful data [23]. Text Analytics focuses on extracting key and valuable pieces of information from text data such as reviews, conversations, and emails [23]. Through the understanding of the languages, text analytics can discover hidden insights of the "who", "where", and "when" of each conversation as well as the "what" and the "buzz" of the topic of conversation, "how" people involved in each conversation are feeling, and "why" is this conversation happening [23]. It is an opportunity to understand every part and to find meaning in each conversation [23]. Text analytics is key to unveiling hidden insights and knowledge to better understand customers and improve overall business.

## 3. RESEARCH METHODOLOGY



Figure 1. Text Mining Process

- **Identification**

Trip Advisor was used to carry out this research. A famous hotel in Klang Valley, Malaysia was selected. We decided to crawl on a review that affects customer satisfaction. Why? This is to create better, understanding on the factors, which affects customer satisfaction.

- **Extraction (Data Collection)**

The active nature of users on TripAdvisor shows that it contains vast amount of comments and reviews. The comments and reviews were collected from the month of 2015 to 2017, a total period of 2 years with approximately 3000 reviews.

- **Cleaning and Analyzing**

Text Parsing were use to breaks the terms into various roles such as Verb, Noun, and Adjectives. Which terms are used the most based on frequencies and frequency for roles were found through text parsing. It can increase efficiency by focusing on key terms to speed up analysis process. Meanwhile, Text Filter is a process to identify terms and filter them according to the built-in dictionary, repeated terms, stop-words, etc. The weight and frequency can be determinants for the importance of each term and the relationships it may have with another. An Interactive Viewer under Text Filter allows us to determine concept linking between other terms to identify correlation and patterns. For example, looking at the term Room will allow us to drill down to the key terms, which are correlated with Room and identify underlying trends and patterns. Text Cluster – is the process of grouping similar terms together. Grouping terms will show hidden insights, which allows us to identify the main theme or idea. Text Topic – is to group and combine terms into topic groups. Topic groups can only be formed if there are sufficient terms, which are correlated or consistently mentioned. Text Topic allows us to uniquely separate the topics based on the terms used in customer reviews.

- **Visualization**

Graphical representation was generated via Tableau. Hidden messages are able to draw out from visualization and are able to provide an overview analysis on the term linking.

## 4. DESCRIPTIVE ANALYSIS

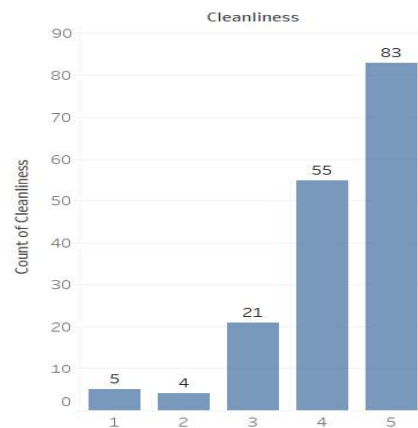
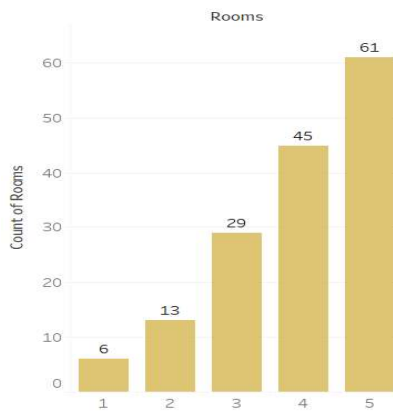


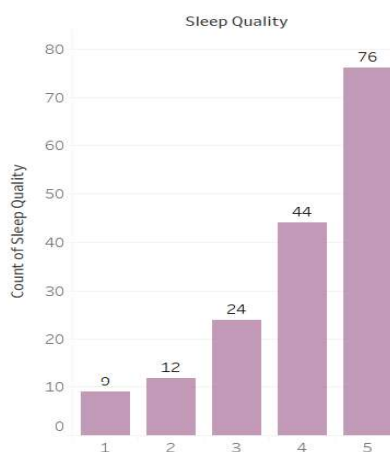
Figure 2. Cleanliness Rating

Figure 2 shows the Cleanliness rating. The rating ranges from 1 to 5, 1 being very bad, 2 being bad, 3 being neutral, 4 being good and 5 being very good. In this case, 1 and 2 has a fairly low count as only 5 and 4 customers respectively rated the Cleanliness for being bad or poor. Between 3 to 5 rating, there is a steady increase from 21 to 83. Most of the customers rated the hotel cleanliness at 5. A conclusion can be drawn stating this hotel focuses on ensuring top-notch cleanliness for the customers.



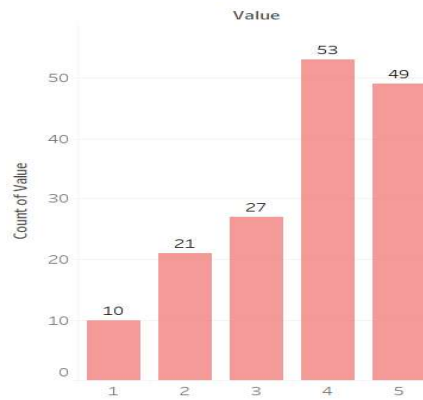
**Figure 3. Rooms Rating**

Figure 3 shows the Rooms Rating given by the customers. Here, we can identify that there is a gradual increase meaning there are more customers who gave a higher rating than those of a lower rating. Between ratings of 1 and 2, there were only 6 and 13 customers respectively who gave a poor rating. 29 customers left a rating of 3, which is neutral, and 45 and 61 respective customers left a rating of 4 and 5, signify that the room was good based on the customer ratings given.



**Figure 4. Sleep Quality Rating**

Figure 4 shows the Sleep Quality rating by customers. This category would fall under the Overall Environment because it deals with the internal factors such as noises, disturbances, and the comfort quality. Here, we observe that many customers are satisfied with their sleep quality as 44 at the rating of 4 and 76 at rating of 5. Most customers gave a high rating whereas only 9 rated 1 and 12 rated 2. When it is converted to percentage, 73% of the customers had good rest and only 13% did not. We can state that customers who stay at this hotel usually will have a high possibility of getting good sleep and they loving it.



**Figure 5. Value for Money Rating**

Figure 5 shows the Value for Money rating by customers. Some of the factors, which determine value for money, would be the cleanliness and environment. If a hotel is able to provide customers with good experiences, the customers can deem it as value for money. Looking at the bar chart, 53 customers rated good which this highly indicate that the customers feel that the hotel is value for money.



**Figure 6. Word Cloud (Country of Customers)**

Figure 6 shows the Countries of customers whom have visited the hotel and left a review on Trip Advisor. Here, it is notable that Australia, Singapore, Malaysia, Saudi Arabia, etc are the most prominent countries that their customers are coming from. This shows that most of the customers are from these countries. Visualization tools able us to generate word cloud easily and the bigger the word is the greater the value is.



**Figure 7. Word Cloud (Travel Status of Customers)**

Figure 7 represents the Travel Status of customers who have stayed at the selected hotel. It comprises from mainly Families, Business, Couple, followed by Friends and the least are Solo travelers. 371 customers travelled with their families, while 157

were business travelers, 96 travelled as a couple, 31 travelled with friends and only 17 travelled individually. This shows a clear overview that the chosen hotel could well be suited for Families, Business, and maybe Couples.

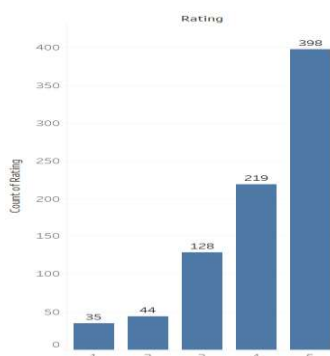


Figure 8. Overall Hotel Rating

Figure 8 shows the Overall Hotel Rating given by customers. This rating is given by customers based on their experiences and their stay whether it is good or bad. This is an assumption drawn because based on the usual rating that is the basic boundary. From this analysis, we can observe that between ratings of 1 and 2, the number of customers who gave this rating is in the tenths, with 35 and 44 respectively. Moving up the rating scale between 3 and 4, the number of customers were 128 and 219 respectively and at 5, it suddenly spike to 400 customers. This gives us an overview that most of the customers were happy and they were satisfied with their experiences. It shows that the travelers had good experiences as well. In comparison, the number of customers who had good experiences was standing at 75%, whereas the number of customers who had bad experiences was roughly 10%.

## 5. TEXT ANALYTICS

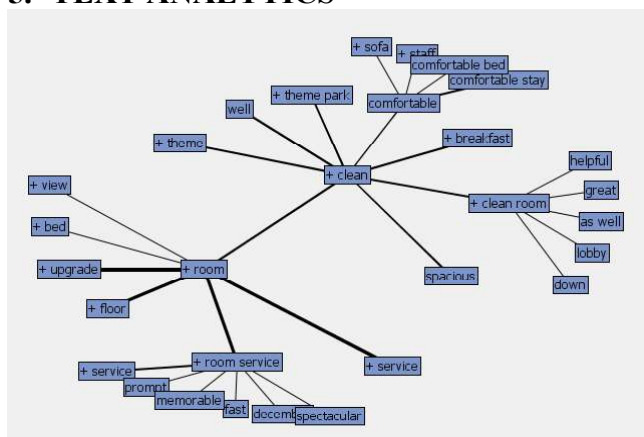


Figure 9. Context Diagram (Clean)

Figure 9 shows there are 8 terms connected to Clean. 7 terms, which are Room, Spacious, Clean Room, Breakfast, Comfortable, Theme Park and Well have strong correlation with Clean but Theme has a weak correlation. Meaning whenever Clean was mentioned, any of the 8 terms could be tied with it but out of the 8 terms, the 7 terms could have a higher association because of the stronger correlation. From these linkages, we can understand that customers mention that the rooms are clean because the most common terms connected are both Room and Clean Room, thus it

justifies that the rooms in the hotel are clean. By expanding Room Service under Room, we noticed that many had highlighted responses in prompt and fast in terms of room services. This can be further justified through the Clean Room terms linking. Besides, customers also mentioned that the lobby is clean. Leaving a good first impression when customers arrive is important, and having a clean lobby and external environment would be key to providing customer satisfaction. Below is a text filter to analyze what the customers regarding the lobby mentioned, and it has proven that many stated that the lobby was impressive and the lobby lounge was comfortable and exceptional. This would relate to the Overall Environment of the hotel. Besides being a clean hotel, the surrounding environment left many customers impressed with the grandeur atmosphere. Next, it would be Comfortable. Which leads us to create a conclusion, when there are clean rooms and environment, it provides customers with a comfortable place to rest and relax. This will relate to the Sleep Quality of the customers. Meaning having a comfortable place to rest, it will increase the sleep quality of the customers. However, sleep quality will also be dependent on other factors such as noise levels and other disturbances, which will be analyzed in the latter stages.

```

... great. The lobby was still impressive and well ... level below the lobby. One of the rooms ...
... appointed. The lobby lounge is a really nice ... staff in the lobby lounge are exceptional. The ...
... . The hotel lobby feels very grand with the ... in, the lobby is actually on the 6th ...
... I entered the lobby all the way till it ... faces. The lobby looks amazing, the hotel ...
... Maz in the Lobby Lounge who took all 12 ... tea in the Lobby Lounge. ...
... on the main lobby door were great particularly with ... there) the lobby areas are lovely and
... The entrance and lobby are like in the middle-level ... from the elevator lobby to the gym room.
... start using the lobby toilet for the 5days ... go to the lobby then as we checked out ...
... access pool from lobby or waterpark ...
... came from the lobby the hotel very proud of ...
... Impressive lobby, great stay and nice ...
... changed to the lobby level which was more convenient ...
... later lunch at lobby lounge with a nice view ...
... entrance facade, lobby (especially at night) ...
... proximity to the lobby and also deep bass beats ...
... to the hotel lobby to rest as we can ...
... also loved the lobby, it was impressive, ...
    
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Figure 10. Text Filter (Lobby)

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... The room was clean, nicely air-conditioned and the ... was nice and clean too. I enjoyed by ...
... were punctual and clean. Drivers were full of ... The rooms were clean and very well presented and ...
... a spacious and clean room. Seems to be ... Toilet was clean and the shower worked well ...
... awesome and very clean staff are friendly and smiling ... park it was clean organised alot of restaurants and ...
... room to be clean. So during the second ... room to be clean. And only after that ...
... hotel itself was clean and tidy, free Wi-Fi ... The pool was clean and not very busy although ...
... kept and very clean and were worthy of the ... overlooking pool, clean and had all the amenities ...
... itself was very clean. I have travelled a ... Everything was clean and fresh and presented to ...
... refused to deliver clean clothes unless I pay ... All premises are clean and personnel is polite. ...
... trip. Super clean. Amazing staff who always ... The pool was clean with ample lounges available. ...
    
```

Figure 11. Text Filter (Clean)

Many customers mentioned that the rooms, toilets, and facilities were clean. In addition, customers also mentioned about the laundry cleaning services and how they performed an excellent job in cleaning the clothes as well as the staff dressing being neat, tidy and looking clean. Through this simple filtering process, we managed to identify the various aspects of how cleanliness was mentioned. The most common aspect of cleanliness points to the clean rooms.

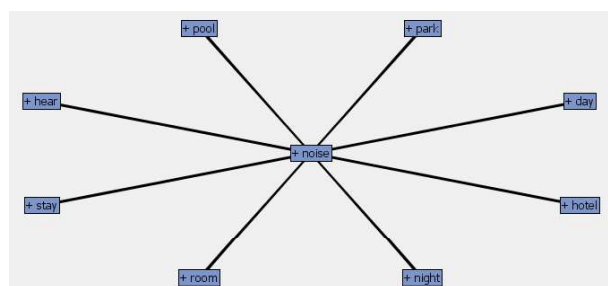


Figure 12. Context Diagram (Noise)



Figure 12 shows the context diagram for Noise. Because we have to take into consideration regarding the Overall Environment, we decided to analyze on the Noise and what are the terms and mentions related to Noise. However, in this case a context diagram would not tell much of a story as compared to the text filter but we will still look through the diagram. Through this context diagram, the story we can create would be, noises are heard by customers during their stay, be it noises coming from the pool or park, day or night in the rooms, it would suggest that the customers are hearing noises quite consistently. This would definitely affect the customer satisfaction towards the overall environment. And with high levels of noise, it may disrupt Sleep Quality as well.

... the people's **noise** from the amusement park. ... still hear the **noise**. It's a good ...  
 ... hrs but the **noise** by the pool was so ... still hear the **noise** but not so bad. ...  
 ... hotel however the **noise** and deep-thumping rave-like music ( ... Unfortunately the **noise** is/was  
 ... adding to the **noise** as well as the very ...  
 ... but a little **noise** from lagoon park, good ...  
 ... "kick-cock" **noise**. ...  
 ... from the maddening **noise** so we could hear each ...  
 ... hotel. The **noise** was preventing me to get ...  
 ... they made loud **noise** too on the 2nd night ...  
 ... and spa No **noise**, wonderful breakfast and swimming ...  
 ... guest instead making **noise** and showing sour face to ...  
 ... of deep bass-booming **noise**. ...  
 ... a problem with **noise** at night and despite the ...  
 ... produced really loud **noise**, they laughed and was ...  
 ... can hear the **noise** going on when sitting by ...  
 ... and the waterfall **noise** around the pool can be ...  
 ... Lots of **noise** from staff over night with ...  
 ... there is no **noise** from the hallways, the ...  
 ... spoiled by the **noise** from the fun park at ...  
 ... calm, no **noise** at all. The view ...  
 ... business travelers. **Noise** insulation of rooms is zero ...

Figure13. Text Filter (Noise)

Figure 13 shows the text filter of Noise. Immediately, we notice that customers complain about the noise levels heard in the rooms. Some customers claimed that there is no insulation from the rooms that is why noises are heard, while some customers claimed that the rooms had no noise. This brings us to another conclusion that it is a challenge to gauge noise levels because every individual has a different tolerance level. Therefore, when one customer complaints regarding the noise level, maybe to another customer it is not a problem or disturbance at all. But overall, this is a split perspective and experience, which will affect the overall environment. But in this case, the hotel have only a small issue with noise pollution, thus it is not a cause for major concern.

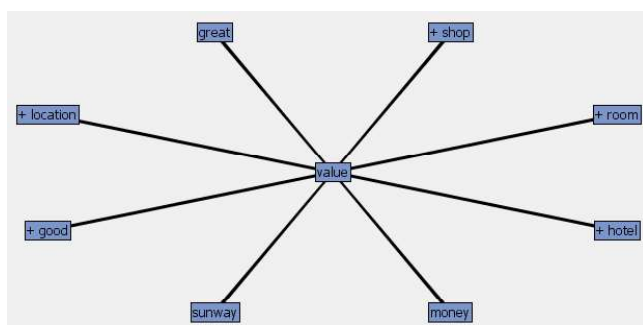


Figure14. Context Diagram (Value)

Figure14 shows the context diagram for Value. Similar to the previous context diagram regarding Noise, we cannot identify much details until we analyze through the text filter. However, the story we can gather is that some of the customers have mentioned that the hotel is good or even excellent value for money. Why? Because of the location, mall and rooms. Which we will further analyze when we look into the text filter.

... Good **value** for money.. Stuff ...  
 ... This offers better **value** than hotel evening dining or ...  
 ... and actually good **value** for money. The breakfast ...  
 ... and not good **value** for money. I am ...  
 ... business travellers reasonable **value**. ...  
 ... by. A **value** for money location to suit ...  
 ... compliment. Excellent **value**, Service and Quality . ...  
 ... deal is good **value**. About the same as ...  
 ... did not receive **value** for my money. ...  
 ... excellent property with **value** for money. At the ...  
 ... floor had no **value**, except the express checkout ...  
 ... how much they **value** their customers who decide to ...  
 ... is worth of **value**. ...  
 ... is worth of **value**. ...  
 ... it wasn't good **value** for money compared to its ...  
 ... loads of great **value** restaurants in addition to the ...  
 ... more conscious of **value** for money. However, ...  
 ... n cursine. **Value** for money. One stop ...  
 ... package - great **value!** A wide and diverse ...  
 ... park. Great **value!** However the room provided ...  
 ... quick. Great **value** for money and I can ...

Figure 15. Text Filter (Value)

Figure 15 shows the text filter of Value and we have a clearer view of what was mentioned by the customers regarding value for money. The number of customers who mentioned that it is value for money is substantially higher than those who claim otherwise. Excellent value comes in different forms though; some are referring to the hotel being value for money, while some refer to the restaurants in the malls being value for money. But mostly are on the hotel. This can be further justified through the ratings in the first part of the analysis because more customers gave a higher rating for value for money and it is shown here through the customer reviews as well.

## 6. CONCLUSION

Cleanliness, Overall Environment and Value for Money are some of the key aspects customers look for when choosing a hotel. Cleanliness is the most important though because it sets the tone of your trip. When we step into a hotel, seeing that the hotel is clean and the overall environment looks inviting and grandeur, it leaves a good first impression. This impression will create a good first experience of the hotel. Having clean rooms, clean hallways, clean amenities, clean restaurants, and overall clean surroundings shows that the hotel takes the effort to clean up the place to allow customers to stay in comfort. Cleanliness and Overall Environment somehow relates and connects to one another. Why? Because overall environment covers cleanliness, noise levels, surrounding conditions, etc. Therefore, when the overall environment is good and rated well, it would mean that cleanliness is also above average and customers are satisfied.

Cleanliness: Cleanliness of this hotel is top notch – 82% of the customers gave a rating of good, which means that this hotel is clean and customers are happy. This is a major factor for customers who visit the hotel. So, by achieving a high standard, it shows that the hotel take effort to ensure the cleanliness of the hotel.

Overall Environment: From cleanliness to noise, surroundings, and amenities provided, this hotel proves that they have it all. They can provide customers with a clean and comfortable place to stay, rooms with minimal noise levels, good sleep quality.

Value for Money: 64% of the customers are satisfied with the value of this hotel. While value comes from a variety such as hotel value or restaurant value, it depends on which category the customers are referring to, but on the whole, customers are happy and satisfied with the value of this hotel.

Target Segment: Families – almost 50% of the travelers who had stayed at the chosen hotel are Families. It shows that the hotel is a

family friendly hotel and families who intend to choose a hotel to stay.

## 7. LIMITATIONS AND FUTURE RESEARCH

The methodology was strengthened by framing in one of the chosen hotel in Klang Valley Malaysia; however the results of this study must be observed under a few limitations. Firstly, the data have only been collected for one hotel and for two years, which limits the generalizability of the results to other hotels in the travel industry. Future studies are recommended to sample few more hotels or perhaps the same chain of hotel in different nation.

Secondly, the study has only demonstrated the results of topic linking in overview, which limits one on knowing the Inverse Document Frequency (IDF). Future studies are recommended to simulate the study of term weights and the dimension reduction with SVD to have the weight value between each term where this will determine the importance's of each term topics.

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