

# Sentiment Analysis Based Strategies to Increase Reputation of Grand Paradise Hotel

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**ABSTRACT:** *In order to become more capable in providing great experience for the customers and maintain or even increase the reputations, hotels can try to leverage technology by creating some strategies regarding their operational business management based on the customer voices besides speculating independently from another information sources, so the actions that are taken can be more precise. One of the ways to do that is by conducting a sentiment analysis. This research specifically discusses a sentiment analysis of Grand Paradise Hotel, where the hotel has a luxurious architecture, but its stars are actually just three, and its ratings turned out to be not really high in several reputable travel and review platforms. Based on the online customer reviews that were being modelled by an 80% accuracy of Naive Bayesian Classifier machine learning model, the three-star and low ratings of Grand Paradise Hotel is studied to be caused by its deficient operational business management, which covers the atmosphere, comfortableness, exterior, interior, and facilities of the hotel. Thus, the management team of the hotel needs to run some strategies about that in order to become more capable in providing great experience for their customers and make their reputation better.*

**KEYWORDS** - hotel, reputation, reviews, sentiment analysis, strategies.

## I. INTRODUCTION

In order to operate properly, hotels are required to meet certain standards, which are ranging around economic, technology, consumer experiences and preferences, sustainability, and regulation factors [1]. However, amongst those all, technology has a more important role as the overall industries are now at 4.0 period [2]. Technology based in some parts of the hotel operational such as booking system, customer service, and information access are quite demanded to increase customer experiences and the hotels can run their business more smoothly as well as maintain their reputation. In order to become more capable in providing great experience for the customers and maintain or even improve the reputations, hotels can try to leverage the technology by creating some strategies regarding their operational business based on the customer voices besides speculating independently from another information sources, so the actions that are taken can be more precise.

One of the ways in creating some strategies based on the customer voices regarding to the hotel operational business is by conducting a sentiment analysis. Sentiment analysis of hotel reviews is important to the hotel itself because one of the reputable travel and shopping platform company, TripAdvisor, studies that 81% of people always read some reviews of a hotel before decide to booking it [3]. This means, the customer reviews have influence to the hotel reputation, whether it is capable in providing some adequate facilities and good services to satisfy its customers and earning their loyalty or not. This research specifically discusses an evaluation of Grand Paradise Hotel based on the customer reviews, where the hotel has a luxurious Greek architecture style, but its stars are actually just three, and its ratings turned out to be not really high in several reputable travel and review platforms. The reviews are being formed into some strategies to help the hotel in increasing its reputation.

## II. LITERATURE REVIEW

### 2.1. Customer Satisfaction for Hotels

There are three categories of customer satisfaction for hotels, which they consist of basic factor, excitement factor, and performance factor [4]. Basic factor focuses on the expectation of the customers toward the minimum standard of the services, whereas excitement factor focused on the real time experience that the customers are having from the services, and performance factor is the overall judgement that the customers got from both of the basic and excitement factors.

A research by [5] exposed that customer satisfaction can help a company reduce price sensitivity and switching to its competitors, as well as increase referrals and repeat purchase. The researchers have also conducted direct survey as a kind of application in finding some strategies to improve the performance of a

company, which in this case is a hotel. The direct survey provides detail information to support a more precise analysis result, but it is both time and cost consuming, as well as limited respondents to be approached. An automatic mechanism in collecting customer opinions and analyzing them will help to solve them.

## 2.2. Data Science

Data science is a field which consists of domain expertise, as well as traditional research, mathematics, and programming skills. The practices of data science proceed a question arises that could be answered with data, which the matters come from employers or clients with the perspective of current curiosity of surrounding events; prepare and perform analysis by finding relevant data, understanding its meaning, and converting it into a useful format to gain valuable insights; and report the results [6].

## 2.3. Natural Language Processing (NLP)

NLP is a specialized combination field of computer science, engineering, and artificial intelligence (AI) with roots in computational linguistics [7]. It focuses on designing and building applications and systems that enable interaction between machines and natural languages created by humans, with its techniques enable computers to process and understand human natural language and utilize it further to provide useful outputs. Some of the NLP applications are machine translating like Google Translate, speech recognition system like converting speeches into text, and text analytics like sentiment analysis.

## 2.4. Text Analytics

According to [8] and [9], text analytics is a process to obtain insights from unstructured text data, where its application implements data science, involves NLP, and can also be visualized in various types like any data in common. Text analytics which is applied to understand the meaning within a text is called sentiment analysis [10].

A research by [11] exposed text mining application in evaluating customer comments regarding particular software performance. The research shows the overall frequent words, proportion of the sentiments toward its service quality factors, as well as their classification toward the general topic and categories. But, the analysis would be more comprehensive if there are also some provision of actionable recommendations regarding the obtained results.

## 2.5. Machine Learning (ML)

ML is a discipline of programming computers to learn from known data to make predictions and find valuable insights on new data [6]. It can be applied widely across numerous fields such as sales, healthcare, security, and image recognition. There are two types of ML, which they are supervised learning and unsupervised learning. Supervised learning is a kind of finding a pattern based on the already labeled data, which one of its examples is classification model, whereas the unsupervised one based on the unlabeled data, which one of its examples is clustering model. ML model creation involves division of a dataset into training data and testing data in certain proportions, where the training is higher than the testing. The training data will be used to create the model, whereas the testing is to its evaluation.

## 2.6. Naïve Bayesian Classifier

Mathematically, Naïve Bayes classification is defined by:

$$P(A|B) = \frac{P(B|A) \cdot P(A)}{P(B)}, \quad (1)$$

where  $P(A|B)$  and  $P(B|A)$  represent conditional probabilities, which for  $P(A|B)$  means the probability of event  $A$  happening given that  $B$  is true and  $P(B|A)$  means the probability of event  $B$  happening given that  $A$  is true for  $P(B|A)$ ; and  $P(A)$  and  $P(B)$  represent the prior probabilities of observing  $A$  and  $B$  without any conditions. If the formula is being applied to a real case with  $n$  type of decisions, where  $n = \{1, 2, \dots, i\}$  and  $i \in \mathbb{R}^+$ , the final result that can be used is the condition on  $\max\{P(A_1|B), P(A_2|B), \dots, P(A_n|B)\}$  [12].

## 2.7. SWOT Analysis

SWOT analysis is a tool for evaluating the performance of an organization, which consists of strength (S) and weakness (W) of it, as well as opportunity (O) and threat (T) for it [13]. The SW elements there are counted as internal components, whereas OT as the external one [14]. SWOT analysis is used as a guidance to develop some strategies because its goal is to match the strengths of the organization to the attractive opportunities in the environment while eliminating or overcoming the weaknesses and minimizing the threats that exist, and it needs to be continuously updated due to the changing environment inside and outside the organization.

A research by [15] exposed a combination of SWOT analysis and other field, that is text mining (sentiment analysis). The sentiment analysis is about the customer reviews of two particular travel agencies on the same certain website, which one of them is the main object to be focused and the other one is just for a comparison. The sentiment analysis results are being formed in a SWOT matrix, where the positive sentiments of the main travel agency are classified into the strength element and the negative ones are into the weakness, then the positive sentiments of the other travel agency are into the threat and the negative ones are into the

opportunity. The analysis stops there, which has left some spaces for an improvement like a strategy recommendation based on it to become more applicable.

### 2.8. TOWS Analysis

TOWS analysis is an extension of SWOT analysis that matches between each of the S and W elements to both of O and T. The SO components use internal strengths to capitalize the external opportunities for the organization, whereas ST use strengths to prevent the impacts of external threats, WO aim to address internal deficiencies by capitalizing on external opportunities, and WT is defensive methods to prevent both of the internal flaws and external dangers [13].

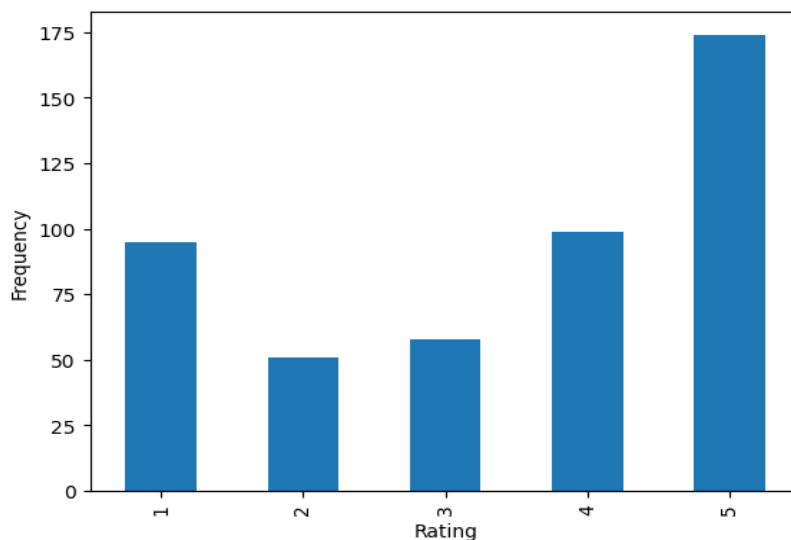
A research by [16] exposed a strategy formation of certain distinct subjects, which one of them is about energy and the other one is tourism. Both of them are started in SWOT analysis, then moved to TOWS, where the information sources are only based on some recent studies or phenomenon. These researches have also left some spaces for an improvement, which there could be an information source addition to increase the evaluation precision like involving several researcher opinions regarding the topic for the energy subject and local citizen or visitor ones for the tourism.

## III. RESEARCH METHODOLOGY

The method used in this research is a mixed of quantitative and qualitative, which involves quantification and interpretation in generating some insights. The data used here is counted as secondary, which was collected through online observation from Google Review site. The collection took the period along January 2022 to December 2023, and was recorded manually in Microsoft Excel. The data contains of ratings as integers and the correspond reviews from the customers about the hotel as strings, which for the ratings, with the range of 1 to 5, the data was initially separated into three groups, where rating 1 and 2 are labelled as negatives, rating 3 as neutral, and rating 4 and 5 as positives to make the further analysis become easier. Then, the data was processed through some visualization creations to know the most frequent alluded words and sentiment analysis to know their truly characteristics by using Python programming language and machine learning approach for an easier credibility evaluation. The results there were analyzed further through descriptive, SWOT, and TOWS analysis, where the determined positive words were adopted as strengths if they are included as internal aspects and also being formulated as opportunities of the hotel if they are included as external aspects, whereas the negative ones as weaknesses if they are included as internal aspects and threats if they are included as external aspects. The results here are the final ones to be summed up.

## IV. RESULT AND DISCUSSION

Based on the gathered data [17], the ratings of Grand Paradise Hotel are distributed like the Figure 1. The ratings of the hotel are mostly high, where the rate 5 is the highest and the lowest one is rate 2. This means, the overall hotel operations have actually considered as good already by the customers. As for their review texts, the overall most frequent alluded words are shown in the Figure 2. The words size there indicate their frequencies, where the bigger they are mean the more frequent they were being alluded. Through the visualization, it appears that the customers often discussed about the hotel's exterior by mentioning the word 'build', as well as about its situation by mentioning the word 'use', 'maintain', 'turn', and 'smell'.



**Fig. 1 Ratings Distribution of Grand Paradise Hotel**



Fig. 2 The Most Frequent Alluded Words in The Grand Paradise Hotel Reviews

Then, the distribution of their reviews category is shown in the figure below.

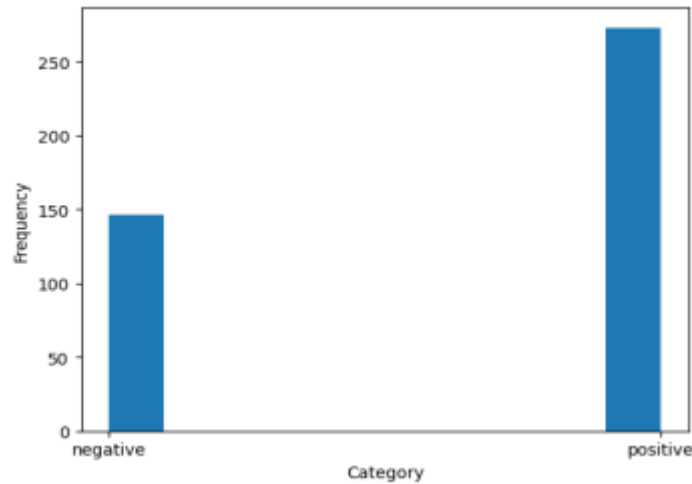


Fig. 3 Reviews Category Distribution of Grand Paradise Hotel

The difference between the positive and negative reviews is a little bit far, but they are still relevant to be evaluated. Based on those divisions, the most frequent alluded words for each category are shown in the Figures 4 and 5. Through both of the visualizations, it appears that the customers often discussed about the hotel's condition by mentioning the word 'hotel' itself and 'room'. The distinctions between them are the word 'good', 'place' and 'comfortable' in the positive ones, 'really' and 'service' in the negative ones, and 'good' indications for both categories. Then, the Naïve Bayesian Classifier model for determining the characteristics of those words has an accuracy of 80%, which means it is capable in detecting words or sentences for the similar topic, whether they are in a positive context or negative one.

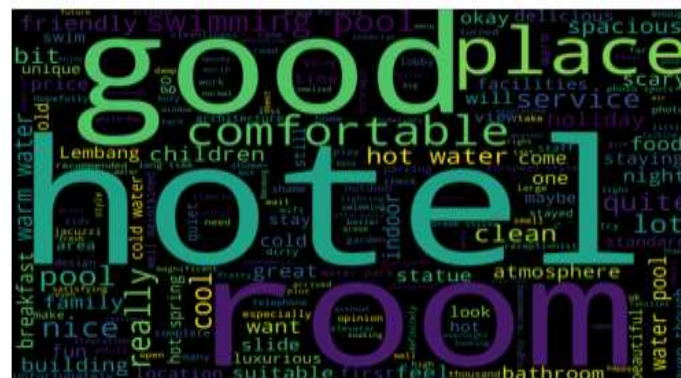


Fig. 4 The Most Frequent Positive Words Alluded in The Grand Paradise Hotel Reviews



Fig. 5 The Most Frequent Negative Words Alluded in The Grand Paradise Hotel Reviews

Based on those results, the SWOT analysis for the Grand Paradise Hotel is being summarized and described as follows.

Table 1 SWOT Matrix of Grand Paradise Hotel

<b>Strengths (S)</b>  bathroom comfortable family/friends time suitability good for photo hot water luxurious classic style spacious strategic location swimming pool unique quite	<b>Weaknesses (W)</b>  air conditioner ancient Greek architecture bedroom dirty facilities garden infrastructure foods menu options looks old maintenance parking area people price receptionists response scary security guards
<b>Opportunities (O)</b>  cool air beautiful view	<b>Threats (T)</b>  customer expectations customer reviews location

A. Strengths (S)

- 1) The bathrooms are completed with hot water, which make the customers can get showered anytime without need to be worried of getting freezed. The hot water is also available in the swimming pool, so the customers, especially the children, can relax when enjoying the cool air of the surrounding environment of the hotel.
- 2) The hotel has provided some comfortable areas and furnitures like privacy supportive and soft mattresses, as well as quiet atmosphere of the hotel.
- 3) The colours of the hotel, which is dominantly covered by gold and white, create a luxurious classic style nuance for the hotel. By the fact that the hotel has stars of three and added with this kind of style make the hotel unique.
- 4) The hotel has spacious area, which makes the customers can do their activities more freely.
- 5) The hotel is located near various public facilities and all of their accesses are pretty easy to be reached.
- 6) Due to its explained aspects in point 1-5 above, the hotel is concluded to be suitable place to spend time with families or friends.

B. Weaknesses (W)

- 1) The ancient Greek architecture, which is often alluded or highlighted as the uniqueness of the hotel is turned out to be one of its weaknesses because the impression created from it is negative to the customers. This could be happened due to the poor maintenance like some corrossions and cracks which have not been fixed.
- 2) The facilities and infrastructures of the hotel seem to be rarely get cleaned and maintained, where its swimming pool and some of the bathrooms are filled with dirt, then some of its bedroom equipments are found to be broken or cannot work properly like a not cold air conditioner and leakage shower pipes, as well as its garden seems vacant, and the outdoor pathways are not really smooth to be crossed either by pedestrians or vehicles.
- 3) Due to its explained aspects in point 1 and 2 above, the hotel becomes looked old and generates a scary nuance to its several certain or desolate areas for the customers.
- 4) The hotel has limited food menu options, so the customers have difficulties in choosing the closest ones to their preferences and get bored quickly.
- 5) The hotel has an unclear vehicle groups parking location and unorganized area for them, where there is a parking sign only without further information of the vehicle types and some fading parking lines, so the customers have to rely on the security guides and often getting confused in finding the right way to placed their vehicles.
- 6) The employees of the hotel are not really friendly to the customers and pretty slow in giving response to their needs, especially the receptionists and security guards, so they often reluctant to discuss something with them and need to be more patient in waiting the solution for their problems or even ended up in having to find their alternatives alone.
- 7) Due to its explained aspects in point 4-6 above, the price of the hotel is counted as unfair and expensive for the customers.

**C. Opportunities (O)**

- 1) The hotel is filled by cool air, which can give impacts to both of its customers and the hotel itself. The cool air can make the customers calmer and get relax easily, which could lead to a good selling point to those who want to wellness-focused stay, as well as promotion point in campaigning an eco-tourism concept to those who are interested in sustainable travelling moment. It can also make the hotel save more energies, which could lead to cost savings to allocate them in another important or more urgent aspects like maintenance things; applicate sustainable practices to minimize some negative environment effects, as well as enhance the customers appeal, and increase its reputation and revenue in the end.
- 2) The hotel is surrounded by beautiful view, where there are a lot of high trees and some green cliffs. This can also give impacts to both of its customers and the hotel itself. The beautiful view can make the customer enjoy the nature and capture various scenes, which could lead to them in having a great experience, as well as make the hotel enhance its customers appeal, and increase its reputation and revenue in the end too.

**D. Threats (T)**

- 1) The customer expectations can become threat to the hotel because their standards will always change due to the knowledge evolvment, especially in technology and services fields. If the hotel fails to meet the standards, it could lead to the customers dissatisfaction and loss of the business, which would affect the reputation competition among the other hotels as well.
- 2) The customer reviews can become threat to the hotel because they would affect its reputation, which it could lead to the loss of the customers trust and loyalty, as well as revenue decline for the hotel in the end.
- 3) The location of the hotel in the threats element there refers to the natural disaster potentials, where its location which is like in a valley could be a perfect target of surrounding landslides or floods.

Based on the SWOT analysis above, the TOWS analysis for the hotel is being summarized and described as follows.

**Table 2: TOWS Matrix of Grand Paradise Hotel**

<p><b>Strengths (S)</b> + <b>Opportunities (O)</b></p> <p><b>internal resources maximization</b> <b>other local businesses partnership</b> <b>sustainable practices</b> <b>unique selling proposition</b></p>	<p><b>Weaknesses (W)</b> + <b>Opportunities (O)</b></p> <p><b>continuous maintenances</b> <b>financial evaluation</b></p>
<p><b>Strengths (S)</b> +</p>	<p><b>Weaknesses (W)</b> +</p>

<b>Threats (T)</b>  <b>internal resources maximization surrounding area strengthening</b>	<b>Threats (T)</b>  continuous maintenances employee development programs financial evaluation service improvements
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**A. Strengths (S) + Opportunities (O)**

- 1) Add more windows or replace with the taller/wider ones to enhance the natural atmosphere of the hotel and energies-savings.
- 2) Partner with other local businesses around the hotel area like providing several vouchers or packages for the customers to play in other excursion places near the hotel location or buy some souvenirs while they are spending the nights in the hotel. This could help to increase the customer experiences as well as the revenue of the hotel.
- 3) Create a unique selling proposition of the hotel in its marketing aspect, which highlight the great nature condition, surrounding atmosphere, and the luxurious classic style that is complemented by an ancient Greek architecture of it to differentiate with the competitors and attract more customers. This thing can be started from showcasing them in the official website and social medias of the hotel.

**B. Weaknesses (W) + Opportunities (O)**

- 1) Do maintenance continuously like once every two weeks for the facilities equipments of the hotel and monthly for its infrastructures, so they can always work properly and the hotel can keep its good shape luxurious style.
- 2) Evaluate the financial aspect of the hotel like what are their sources and what things they are being spent on, so the hotel can choose which ones are worth or needed to be replaced with the better ones for the cost-savings.

**C. Strengths (S) + Threats (T)**

- 1) Prioritize the direct booking system of the hotel like through its official website or social medias to optimize the main sources of the hotel, as well as decrease commission fees of the third parties and save more money.
- 2) Provide a good water absorption and build some terracings around the environment of the hotel, so that it would only has a little normal puddles when there was a heavy rain, and also minimize the impact if there was a landslide.

**D. Weaknesses (W) + Threats (T)**

- 1) Schedule the cleaning time everyday for both the occupied rooms and the empty ones, so the customers can do their activities more comfortable, the employees can be more confident in giving the services, and diseases potential like diarrhea and those which are caused by mosquitos can be decreased.
- 2) Enlarge the parking area, as well as provides clear vehicle group area distinctions between cars, motorcycles, and bicycles, as well as some proper parking lines for them, so the hotel can accommodate a lot more vehicles and the customers can park in orderly manner.
- 3) Complete and enrich the facilities of the hotel like more bedroom and bathroom equipments and supplies to satisfy the customer needs, then provides gym area and several different convention room types such as the one which is specialized for wedding event, working, and casual gathering, so the customers can do more variative exercises and they do not have to be in a waiting list to hold various distinctive events in the same time and day due to the limited available rooms for them.
- 4) Enrich the foods menu options, especially the breakfast one, so the customers will hardly get bored in choosing their preferences.
- 5) Provide comprehensive employees development programs from the low management level until the upper one to improve their capabilities in giving services, especially in hospitality industry, and do a continuous assessment for their work performances like weekly or once every two weeks to keep track the customers satisfaction toward the hotel. The programs can be hold by providing various seminars or workshops about hospitality to enrich both of technical and soft skills of the employees, which the facilitators can be from the upper management people (if it is for the low level one) or some external experts.
- 6) Create a supportive working condition for the employees by providing some incentives and togetherness events, so they can be more motivated in doing their jobs.
- 7) Maximize the customers satisfaction by giving corresponding reply to their reviews, either they are positives or negatives, so the hotel can really know the expectation of its customers, being keep updated, and for a further improvement, as well as to increase a good responsive image of the hotel.

## V. CONCLUSION

Based on the customer reviews, the three-star and low ratings of Grand Paradise Hotel is caused by its deficient operational business management, which covers the atmosphere, comfortableness, exterior, interior, and facilities of the hotel. The interior of the hotel is found to be the most alluded positively by the customers in their reviews, whereas the negatively one is its facilities. The strategies that can be done to manage those problems, so it can have a better reputation are do continuous maintenances, hold employee development programs, maximize the internal resources of the hotel, strengthen its surrounding area, create unique selling proposition, and partnering with other local businesses near the location of the hotel.

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## [1]. REFERENCES

- [2]. Nain, A. (2018). A Study on Major Challenges Faced by Hotel Industry Globally. *International Journal of Creative Research Thoughts (IJCRT)*, 6(1), 563-570.
- [3]. Isna, T. D. (2018, November 21). *Tantangan Bisnis Perhotelan dalam Industri 4.0*. Retrieved from Warta Ekonomi: <https://wartaekonomi.co.id/read204416/tantangan-bisnis-perhotelan-dalam-industri-40>.
- [4]. 10x DS Team. (2022, July 31). *Why is Sentiment Analysis of Hotel Reviews important?* Retrieved from 10x DS TM: <https://10xds.com/blog/sentiment-analysis-of-hotel-reviews/>.
- [5]. Hong, X. L., Yong, L., Chee-Wee, T., & Feng, H. (2020). Comprehending Customer Satisfaction with Hotels Data Analysis of Consumer-Generated Reviews. *International Journal of Contemporary Hospitality Management*, 32(5), 1716-1717, 1721-1723. doi:10.1108/IJCHM-06-2019-0581.
- [6]. Reem Bahaa El Masry, et. al. (2015). Assessing the implementation of TQM in the hospitality industry in Alexandria. *International Academic Conference in Paris (IACP)*. Paris: The Business and Management Review.
- [7]. Carter, N. (2021). *Data Science for Mathematicians* (1st ed.). Boca Raton: CRC Press.
- [8]. Sarkar, D. (2019). *Text Analytics with Python* (2nd ed.). Bangalor: Apress.
- [9]. David Antons, et. al. (2020). The Application of Text Mining Methods in Innovation Research: Current State, Evolution Patterns, and Development Priorities.
- [10]. Ranjan, N. M., & Prasad, R. (2021). Text Analytics: An Application of Text Mining. *Journal of Data Mining and Management*, 6(3), 3-4. doi:10.46610/JoDMM.2021.v06i03.001.
- [11]. Hossain, A., Karimuzzaman, M., Hossain, M. M., & Rahman, A. (2021). Text Mining and Sentiment Analysis of Newspaper Headlines. *Information*, 12(10), 2-8. doi:10.3390/info12100414.
- [12]. Sugiantoro, N. R., & Siallagan, M. P. (2022). Feature and Service Quality Improvement of Jenius Digital Bank Using Text Mining Method. *American International Journal of Business Management (AIJBM)*, 5(9), 50-55.
- [13]. Jurafsky, D., & Martin, J. H. (2023). Naive Bayes and Sentiment Classification. In D. Jurafsky, & J. H. Martin, *Speech and Language Processing* (2nd ed., pp. 2-9). New Jersey: PEARSON.
- [14]. Kotler, P., & Armstrong, G. (2018). *Principles of Marketing* (17th ed.). London: Pearson Education.
- [15]. Shu, F. T., Ching, S. H., & Yu, T. L. (2021). Improving RE-SWOT Analysis with Sentiment Classification: A Case Study of Travel Agencies. *Future Internet*, 13(9), 8-15. doi:10.3390/fi13090226.
- [16]. Maity, R., Sudhakar, K., Razak, A. A., Karthick, A., & Barbulescu, D. (2023). Agrivoltaic: A Strategic Assessment Using SWOT and TOWS Matrix. *Energies*, 16(8), 5-12. doi:10.3390/en16083313.
- [17]. PIRNAR, İ., KURTURAL, S., & ERİŞ, E. D. (2019). SWOT - TOWS Analysis Of Urla Destination's Alternative Tourism Development. *International Journal of Contemporary Tourism Research*, 3(2), 238-241. doi:10.30625/ijctr.650380.
- [18]. *Grand Paradise Hotel Lembang*. (n.d.). Retrieved from Google: <https://www.google.com/travel/search?q=grand%20paradise&ts=CAAaGhIYEhIKBwjoDxAEGAkSBwjoDxAEGAoyAggAKgcKBToDSURS&q=MidDaGtJMWN5TW9LQ3RyTWJhQVJvTUwyY3ZNV EZ5T0hJNWJqSm1FQUU&ap=ugEHcmV2aWV3cw>.

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