

An Analysis of Tourist Preferences For Luxury Resort Stays In Bali Based On Tripadvisor Reviews: A Big Data Perspective

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Abstract

This study aims to analyze guest satisfaction trends at The Ubud Village Resort & Spa based on reviews from TripAdvisor using the time series ARIMA (AutoRegressive Integrated Moving Average) approach. The data used consists of historical customer ratings, analyzed to identify satisfaction trends and the factors contributing to rating fluctuations over time. The findings indicate that Sleep Quality and Cleanliness have lower ratings compared to other categories, highlighting the need for improvement to enhance the guest experience. Additionally, it was found that NONE travelers provided lower ratings than other customer categories, suggesting the necessity for more personalized service strategies to address this segment's needs. The time series analysis also reveals the presence of seasonal patterns in customer satisfaction levels, showing fluctuations in ratings based on specific periods. This study provides forecasts on future guest satisfaction trends, enabling hotel management to anticipate changes and develop more effective service improvement strategies. Based on these findings, strategic recommendations include enhancing sleep quality and cleanliness, improving services for lower-rated customer segments, and optimizing operational strategies based on seasonal patterns and ARIMA projections. This research insight for the company to improve guest satisfaction, maintain customer loyalty, and strengthen its positive reputation in the hospitality industry.

Keywords: ARIMA, Customer Satisfaction, Time Series Analysis, TripAdvisor

<https://doi.org/10.26905/jp.v21i2.15512>

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1. INTRODUCTION

The hospitality industry have an important role in the Indonesian economy, especially in Bali as a major destination, but increasingly fierce competition requires hotels to understand guest preferences in order to increase occupancy rates, one of which is through online review analysis that plays a role in room booking decisions, where positive reviews can increase guest interest, while negative reviews can decrease it (Ningrat et al., 2024). One of the hotels studied in this research is The Ubud Village Resort & Spa, located in Ubud, Bali. This hotel has a strategic location, high accessibility, competitive prices, and online review platform specifically from TripAdvisor to attract consumers by understanding guest preferences based on online reviews to develop strategies to increase occupancy.

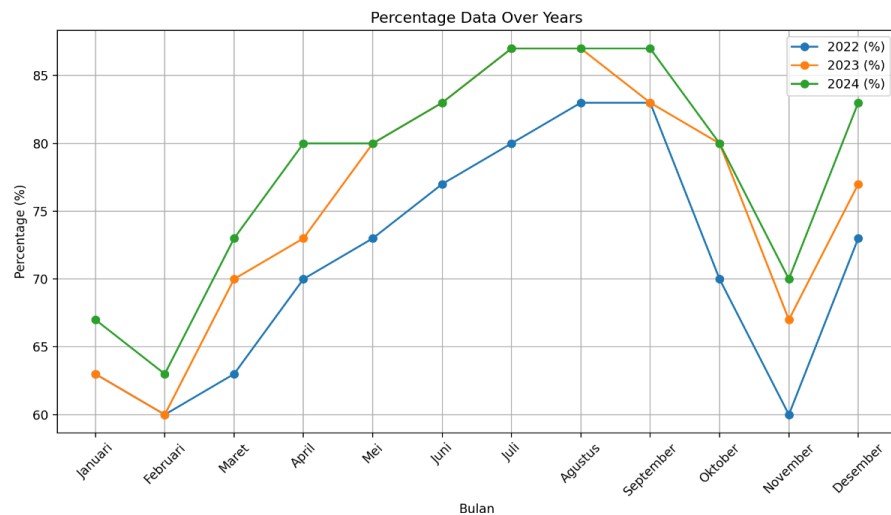


Figure 1. Percentage Occupancy The Ubud Village Resort & SPA period 2022 – 2024
Source: The Ubud Village Reosrt & SPA (2024).

Based on the room occupancy rate data of The Ubud Village Resort & Spa from 2022 to 2024, there is a positive increasing trend every year, but seasonal fluctuations at the beginning and end of the year, especially in January, February, November, and December, cause the occupancy rate to be lower than other months, which can affect the stability of the hotel's income (Rezeki & Eka Prasetya, 2019). The occupancy rate is the percentage of rooms that have been successfully rented compared to the total rooms available in a certain period, which is often used to evaluate the operational performance of a hotel on a monthly or annual basis (Rezeki & Eka Prasetya, 2019). In the competitive hospitality industry, online reviews play a significant role in influencing room booking decisions, as shown in the research of Rechia & Wulansari (2023), which found that Electronic Word of Mouth (E-WOM) contributed 24.1% to room purchase decisions, while 75.9% was influenced by other factors, in line with previous findings that information from online reviews can increase the trust and interest of potential guests to stay.

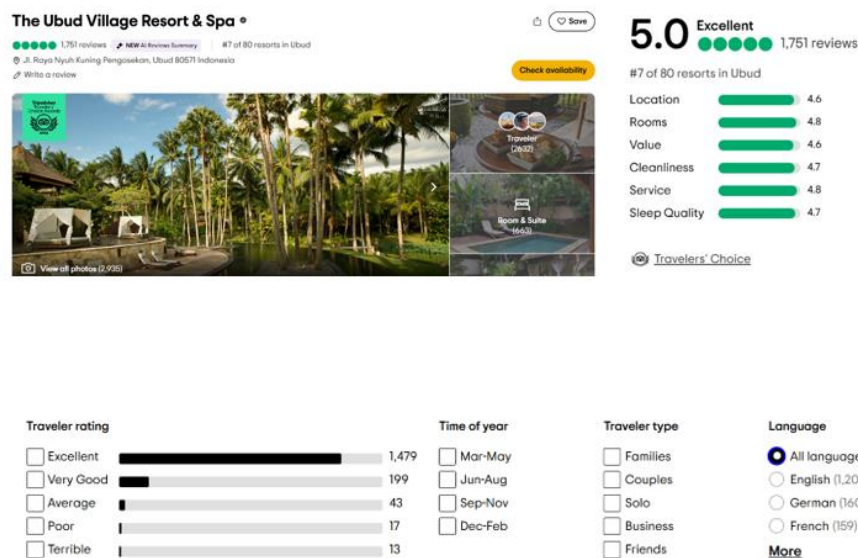


Figure 2. Overview TripAdvisor The Ubud Village Resort & SPA
Source: TripAdvisor (The Ubud Village Resort & SPA), 2025

Based on Figure 2 which shows the TripAdvisor page for The Ubud Village Resort & Spa which offers various features, including the option to filter reviews by guest category, such as family, couple, solo, business, and friends. Based on the available review data, it was noted that 13 guests gave a rating of "Terrible", 17 guests gave a rating of "Poor", 43 guests gave a rating of "Average", 199 guests gave a rating of "Very Good", and 1,479 guests gave a rating of "Excellent".

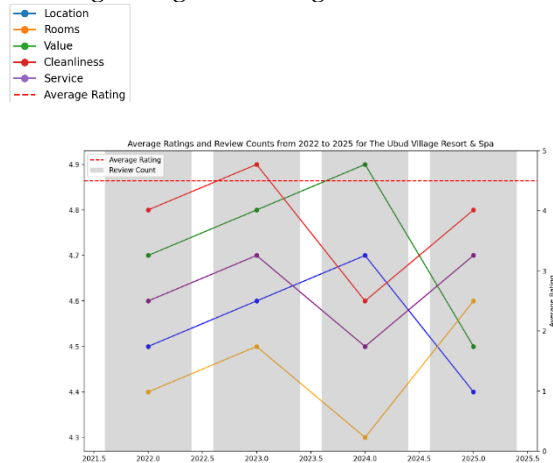


Figure 3. Average TripAdvisor review of The Ubud Village Resort & SPA

Source: Author's research (2025)

Figure 3 shows the trend in average rating and review count from 2022 to 2025. The average rating tends to remain stable at a high number near 4.9, indicating overall guest satisfaction. However, the number of reviews fluctuates significantly over the period. For example, there is an increase in the number of reviews in 2023, but a sharp decline in 2024 before increasing again in 2025. These fluctuations can be caused by a variety of factors, such as the travel season, guest engagement levels in providing reviews, or changes in the resort's promotional strategy.

Guest Segmentation by TripAdvisor for The Ubud Village Resort & Spa

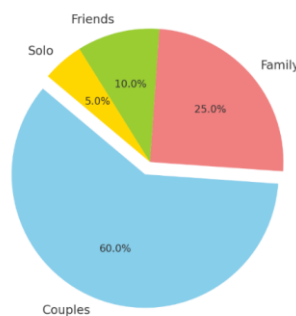


Figure 4. Guest segmentation review on TripAdvisor of The Ubud Village Resort & SPA

Source: Author's research (2025)

Based on figure above, guest segmentation at The Ubud Village Resort & Spa shows that couples are the dominant group with a percentage of 60%, followed by families (25%), friends (10%), and solo travelers (5%). This shows that the resort is more attractive to couples, who are most likely looking for a romantic and exclusive atmosphere. This segmentation provides important insights for resort management to focus marketing strategies on the needs and preferences of couples, such as offering honeymoon packages or other romantic experiences.



Figure 5. Positive Online Customer Review on TripAdvisor.com of The Ubud Village Resort & SPA
Source: TripAdvisor (The Ubud Village Resort & SPA), 2025

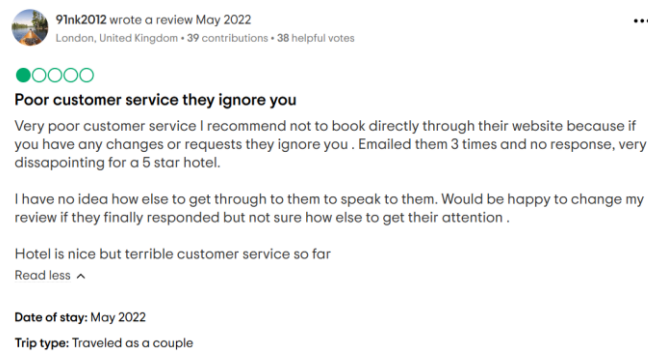


Figure 6. Negative Online Customer Review on TripAdvisor.com of The Ubud Village Resort & SPA
Source: TripAdvisor (The Ubud Village Resort & SPA), 2025

Guest reviews on platforms like TripAdvisor play a significant role in shaping the perceptions of potential guests, with positive reviews increasing booking interest while negative reviews decreasing it, as a research by (Rezeki & Eka Prasetya, 2019) shows a correlation between online reviews and consumer purchasing interest in accommodation services. By applying a time series approach to TripAdvisor reviews, hotels can identify guest preference trends and adjust the services and amenities offered to increase overall room occupancy rates. This approach not only helps understand guest rating trends but also forms the basis for more effective marketing strategies, as time series analysis allows predicting customer behavior based on historical patterns. (Hyndman & Athanasopoulos, 2024). Therefore, in the context of The Ubud Village Resort & Spa, identifying guest preferences through online reviews with a time series approach is an effective strategy to increase occupancy, in line with research findings on the positive role of Electronic Word of Mouth (E-WOM) in the hospitality industry.

2. METHODS

This research using a time series analysis approach with the Autoregressive Integrated Moving Average (ARIMA) method to identify and predict guest preference trends based on TripAdvisor reviews to increase occupancy rates at The Ubud Village Resort & Spa. The time series approach was chosen because online reviews are chronological data and experience changes in patterns over time, so that ARIMA analysis allows trend forecasting based on existing historical patterns.

2.1 Data dan Data Sources

The data in this study were obtained from TripAdvisor, which includes guest reviews of The Ubud Village Resort & Spa within a certain period (2022–2024). The data used include:

- Review date (timestamp)
- Review rating (scale 1–5)
- Review sentiment (positive, neutral, negative)
- Review frequency per period (daily, weekly, monthly)

- e. Guest preference factors (service, facilities, location, price, etc.)

2.2 ARIMA Model

ARIMA is a method of time series analysis that is used to analyze and predict data based on its historical patterns. The ARIMA model consists of three main components:

- a. Autoregressive (AR): Using past values of a variable to predict the current value.
- b. Integrated (I) : Making the data stationary by performing differencing (Δ).
- c. Moving Average (MA): Using past errors in the forecasting model.

2.3 Process Analysis

The ARIMA model is generally written as $ARIMA(p, d, q)$, with:

- a. p = order of the AR component (the number of lags used in the autoregressive model)
- b. d = the number of differences required to achieve stationarity
- c. q = order of the MA component (the number of lags in the moving average model)

The ARIMA model can be written in the following equation form:

$$Y_t = c + \sum_{i=1}^p \phi_i Y_{t-i} + \sum_{j=1}^q \theta_j \varepsilon_{t-j} + \varepsilon_t$$

Whereas:

- Y_t is the predicted variable value at time t
- c is a constant
- ϕ_i is an autoregressive (AR) model
- θ_j is a parameter of moving average (MA) model
- ε_t is the error term or residual at time t

3. RESULTS

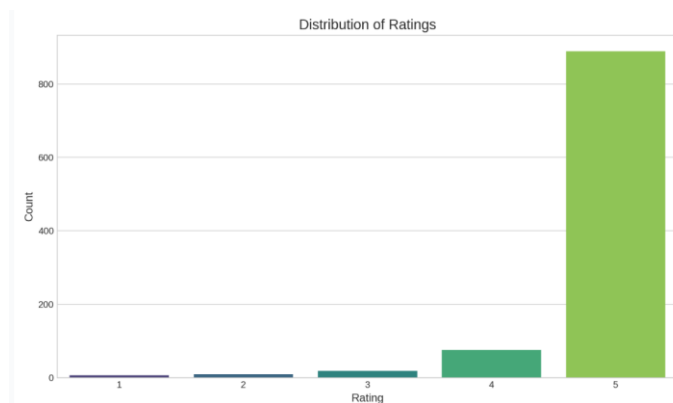


Figure 7. Distribution Ratings
Source: primary data processed , 2025

Based on the rating distribution graph displayed, it can be seen that more than 800 reviews gave a rating of 5, which indicates a very high level of customer satisfaction with the services and facilities provided by The Ubud Village Resort & Spa. The dominance of this highest rating shows that the majority of guests had a positive experience while staying at the hotel. Factors such as friendliness of staff, cleanliness of rooms, premium amenities, and exclusive resort atmosphere likely contribute to high customer satisfaction. The high number of 5 ratings also reflects that the hotel is able to meet or even exceed guest expectations, which ultimately strengthens the hotel's positive image in the eyes of potential customers (Juniarta et al., 2023).

On the other hand, the number of ratings 1, 2, and 3 seems very small compared to ratings 5, indicating that only a small number of guests were less than satisfied with their experience. This can be

caused by certain problems, such as mismatched expectations regarding price, problems in service, or personal experiences that do not match the hotel's general standards. However, the very small proportion of these negative reviews suggests that these factors are not systemic problems, but rather individual cases that are insignificant in influencing overall customer perception. In this way, hotels can focus on strategies to maintain high satisfaction while still improving aspects that receive complaints from a small number of guests (Indradewi et al., 2022).

The importance of customer reviews on platforms like TripAdvisor cannot be overstated, as potential guests often rely on ratings and reviews before deciding to make a reservation. In the world of hospitality, Electronic Word of Mouth (E-WOM) plays a key role in shaping customer perceptions. Previous research shows that positive reviews significantly increase a potential customer's likelihood of choosing a hotel, while negative reviews can have the opposite effect. With over 800 top ratings, The Ubud Village Resort & Spa has a strong competitive advantage in the market, as these positive reviews can build the trust of potential guests and drive higher occupancy rates (Hayati & Silitonga, 2023).

From a marketing perspective, this rating distribution shows that hotels can utilize testimonial marketing strategies, where satisfied customer reviews are made part of the promotional strategy. For example, testimonials from guests who give a rating of 5 can be published on social media or the hotel's official website to attract more potential customers. Additionally, hotels can provide incentives for guests to leave positive reviews after a stay, such as a discount on their next visit or a dining voucher at the hotel's restaurant. In this way, the hotel's reputation can continue to be strengthened through authentic and proven customer experiences (Rahmawati et al., 2024).

Overall, the high number of 5 ratings is the main indicator that The Ubud Village Resort & Spa has an extraordinarily high level of customer satisfaction. However, to maintain this reputation, hotels still need to carry out regular evaluations of customer reviews, including trend analysis using the ARIMA time series method, to anticipate fluctuations in satisfaction in the future. With a data-driven approach, hotels can continuously improve their services and marketing strategies so that they remain the top choice for tourists looking for a premium stay in Ubud (Atiramaniya et al., 2024).

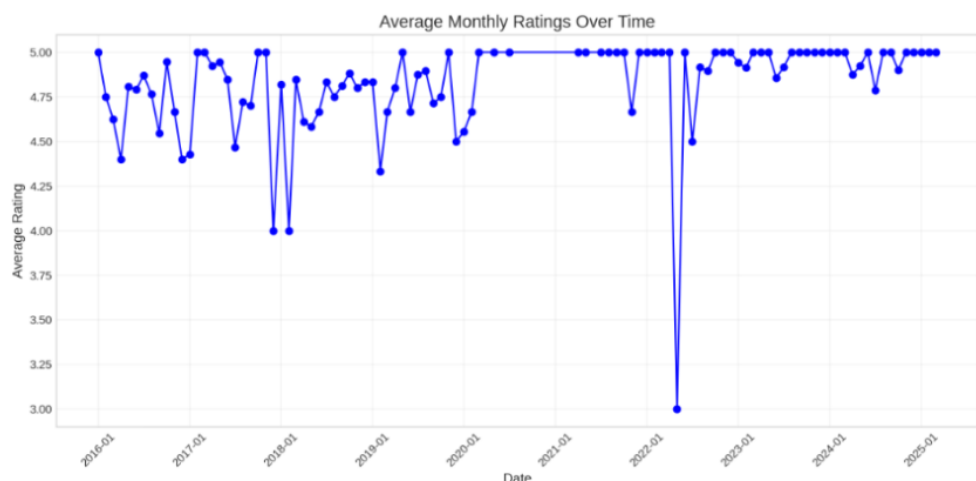


Figure 8. Average Monthly Ratings Over Time

Source: primary data processed , 2025

The graph shows that the average monthly rating for The Ubud Village Resort & Spa is consistently high, with the majority of scores in the 4.5 to 5.0 range. This indicates that the majority of guests were satisfied with their stay and gave positive reviews of the services and facilities available at this hotel. Consistency in maintaining a high rating shows that the management has succeeded in maintaining adequate service quality standards and providing a stay experience that meets customer expectations. Apart from that, this positive trend can also be attributed to effective marketing strategies and customer loyalty which continues to increase over time. By maintaining this performance, hotels can continue to attract new tourists while retaining returning guests.

Although in general the ratings obtained remain high, there were several periods where there was a significant decline, especially in several months in 2018 and 2022. This decline was most likely influenced by internal and external factors that influenced hotel operations and the overall guest experience. Internal factors may include changes in management, renovations that cause inconvenience to guests, or service issues that do not meet customer expectations. Meanwhile, external factors can include changes in tourism trends, economic fluctuations, or external conditions such as natural disasters that affect customer satisfaction levels. Therefore, understanding the causes behind rating fluctuations is very important for hotels to be able to implement appropriate improvement strategies to increase customer satisfaction in the future (Hardiani & Rahayu, 2023).

One of the sharpest drops in the graph was seen at the start of 2022, where the average monthly rating saw a drastic drop to nearly 3.0. This event was most likely caused by the impact of the COVID-19 pandemic, which dealt a major blow to the hospitality industry globally. In this period, many hotels experienced a reduction in the number of staff, changes in operational procedures due to the implementation of health protocols, as well as limited services that could be provided to guests. In addition, travel restrictions imposed in various countries also affect the number of guests staying overnight, which may cause a decrease in occupancy rates and an increase in the number of complaints from guests who experience limitations in enjoying hotel facilities. However, after this period, the graph shows a significant recovery, indicating that hotel management has made various improvement efforts to return customer satisfaction to optimal levels (Rezeki & Prasetya, 2019).

To understand customer satisfaction trends in more depth, time series-based analysis is needed, which can provide insight into the pattern of changes in ratings over time. One effective method for performing this analysis is the Autoregressive Integrated Moving Average (ARIMA), which allows predicting future trends based on historical data. By using the ARIMA model, hotel management can identify patterns of rating decline that may occur and take anticipatory steps to prevent negative impacts on the hotel's image. In addition, this analysis also helps in understanding seasonal factors that influence the guest experience, such as an increase in the number of tourists during the holiday season or a possible decrease in ratings due to bad weather that hinders guest activities. By implementing this data-driven approach, hotels can optimize their service strategies to ensure more stable levels of customer satisfaction in the future (Sarbaini & Nazaruddin, 2023).

Based on rating trends obtained from historical data analysis, The Ubud Village Resort & Spa can design more targeted service improvement strategies to maintain a positive image and ensure guest satisfaction remains high. Some steps that can be implemented include increasing training for staff to ensure more professional and responsive service, making improvements to facilities that frequently receive complaints, and offering more personalized service to improve the guest experience. In addition, effective digital marketing strategies, such as promoting positive reviews on social media and providing quick responses to customer complaints on review platforms such as TripAdvisor, can help improve tourists' perceptions of hotels. By implementing this strategy on an ongoing basis, hotels can maintain a high rating level which not only increases the number of guests staying but also strengthens customer loyalty in the long term (Indradewi et al., 2022).

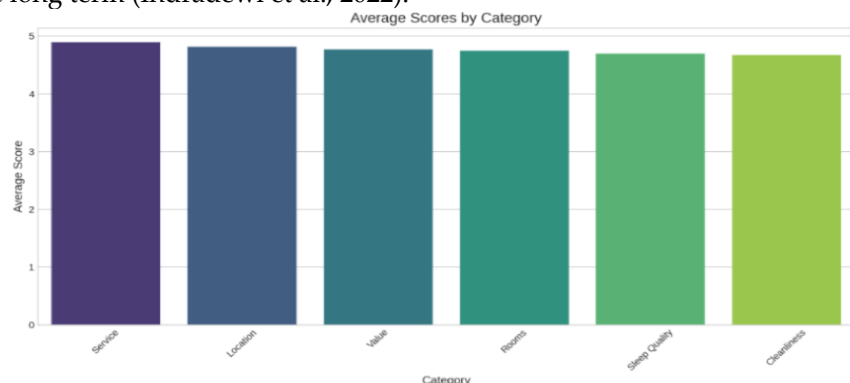


Figure 9. Average Scores by Category
Source: primary data processed , 2025

The results of TripAdvisor review analysis show that guest satisfaction with The Ubud Village Resort & Spa is generally very high in various categories, such as service, location, value, rooms, sleep quality and cleanliness. From the graph displayed, it can be seen that service has the highest score, which indicates that the friendliness and professionalism of the resort staff is one of the main factors in creating a positive stay experience for guests. This is very important because good service can increase customer loyalty and strengthen the resort's reputation on travel review platforms such as TripAdvisor. Apart from that, the resort's location also received a high rating, which shows that guests feel comfortable with the accessibility and surroundings of the place where they stay. This factor is the main attraction for tourists who are looking for a stay experience that is close to nature and local culture in Ubud (Juniarta et al., 2023).

However, although all categories received high scores, there were slight differences in satisfaction levels between these aspects. For example, the value category has a slightly lower score than other aspects, which may indicate that some guests feel that the price they pay is not fully commensurate with the facilities and services they receive. By using a time series approach, resort management can track changes in these scores over time to identify patterns and factors that influence guest perceptions. If a trend of decreasing scores is found in certain aspects, such as cleanliness or sleep quality, corrective steps must be taken immediately to maintain a high level of satisfaction. Apart from that, this analysis can also help resorts in designing more competitive promotional strategies or price adjustments to increase the perceived value of staying guests (Hayati & Silitonga, 2023).

The time series approach in customer review analysis provides great benefits for management in making data-based decisions. By understanding how guest preferences change over time, The Ubud Village Resort & Spa can develop more appropriate strategies to maintain its competitive advantage. For example, if there are increasing positive trends in the service and location categories, then marketing strategies can be focused on these aspects to attract more new guests. Conversely, if there is a decrease in scores in a certain category, then resources can be allocated to improve that aspect to avoid a negative impact on occupancy levels. With this dynamic, data-driven approach, resorts can ensure that every aspect of the guest experience is continuously improved, creating an increasingly satisfying stay and contributing to a sustainable increase in occupancy (Ningrat et al., 2024).

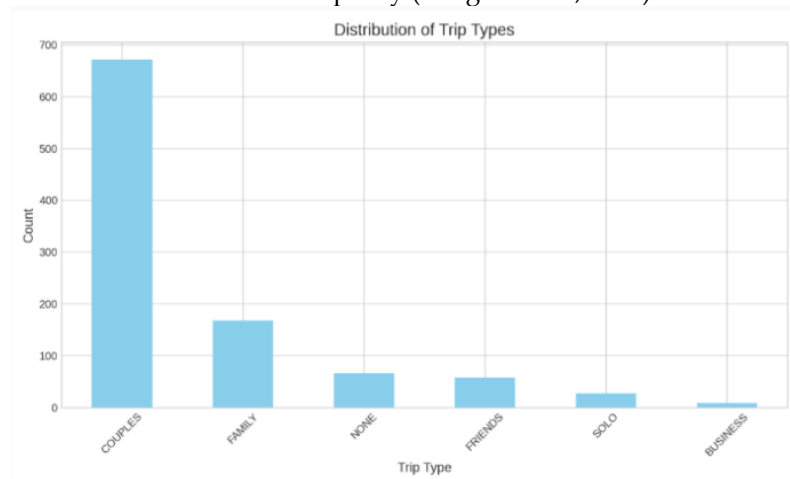


Figure 10. Distribution of Trip Types
Source: primary data processed , 2025

Based on the distribution graph of the types of trips made by guests at The Ubud Village Resort & Spa, the majority of guests staying are from the couple category. The number of guests in this category is much higher than other types of travel, such as family, friends, solo travelers, or business trips. This shows that this resort is the main choice for couples who want to enjoy the romantic and calm atmosphere in Ubud. This advantage can be attributed to the resort concept which offers private facilities, a beautiful natural atmosphere, and services that support an intimate and exclusive staying

experience. Thus, marketing strategies and facility development can be focused on improving services for the couples segment in order to maintain the appeal of this resort for its main target market.

Although couples dominate the number of guests, the family category also has a significant number of visits. This shows that there is other market potential that can be optimized, especially by increasing family-friendly facilities, such as children's play areas, family activities, or room options that are more suitable for guests who come with children. Meanwhile, the business travel and solo traveler categories have a very low number of visits, which shows that this resort is not the main choice for business travelers or solo tourists. If you want to attract more guests from this segment, The Ubud Village Resort & Spa can consider providing more adequate work facilities, such as small meeting rooms, fast internet access, or special packages for guests traveling alone (Atiramaniya et al., 2024).

A time series approach in guest preference analysis can help understand whether there are changing trends in guest composition over time. For example, if in recent years there has been a significant increase in the family or friends category, then the resort can adapt its service and marketing strategy to better suit the needs of that segment. On the other hand, if there is a decline in the number of couple guests, strategic steps need to be implemented to maintain the resort's appeal as a romantic destination. With this data-based approach, The Ubud Village Resort & Spa can be more flexible in adjusting its business strategy, so that it can increase occupancy levels more optimally in the long term (Rahmawati et al., 2024).

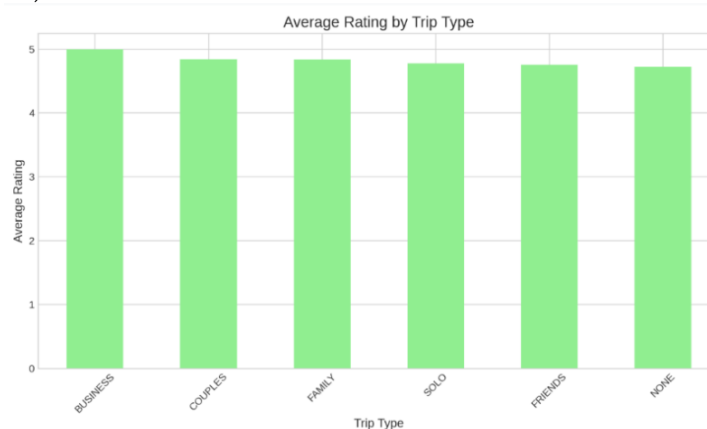


Figure 11. Average Rating by Trip Type
Source: primary data processed , 2025

Based on the graph of average ratings based on travel type, it can be seen that guests on business trips give the highest ratings compared to other categories, including couples, families, solo travelers and friends. This is quite interesting because the number of guests in the business travel category is very small compared to other categories, but they actually give very positive ratings. This can be caused by comfort, facilities and services that suit the needs of business travelers. Although the resort is more popular with couples, business guests seem to be very satisfied with their experience, which could be an opportunity for management to further develop facilities for this segment to increase occupancy (Hayati & Silitonga, 2023).

4. DISCUSSION

The research results, in the mid-2022 to 2023 period, there will be a trend of decreasing rating values in general, including for the business travel category. By using a time series approach, it can be analyzed whether this decline is seasonal or caused by external factors such as travel policies, economic conditions, or changes in resort services. For example, if there is a decrease in service quality or renovation of facilities that disrupts guest comfort, this could have an impact on the rating given. Apart from that, if there is an increase in the volume of tourists in a certain period without being balanced by an increase in service, guest satisfaction can also decrease. Therefore, monitoring seasonal patterns in

TripAdvisor reviews is critical to identifying when ratings spikes or drops occur and why they occur (Ningrat et al., 2024).

Knowing seasonality in the rating is very important for management to design a more effective service improvement strategy. If the rating decrease occurs in the high season (*peak season*), So resorts need to ensure that service capacity remains optimal so that the guest experience remains satisfying even though the number of visitors increases. On the other hand, if the decline occurs in the low season, promotional strategies or special service packages can be implemented to increase the attractiveness of the resort during that period. By using this data-based approach, The Ubud Village Resort & Spa can be more adaptive in maintaining customer satisfaction, increasing ratings consistently, and ultimately supporting increased occupancy levels in the long term.

5. CONCLUSION

Based on historical analysis of ratings, there are several main aspects that need to be considered to increase overall customer satisfaction. Sleep quality (*Sleep Quality*) and hygiene (*Cleanliness*) are the two main factors that require improvement, because they have a lower rating than other categories. Therefore, improvements in aspects of bed comfort, noise levels, and cleanliness of hotel rooms and facilities need to be a top priority to improve the guest experience. In addition, special attention also needs to be paid to the group of travelers belonging to the NONE category, which shows a lower level of satisfaction than other customer groups. A personalized approach in understanding the specific needs of this segment can help improve their ratings. Seasonal patterns in ratings also need to be considered, so that management can anticipate spikes and declines in the number of guests with appropriate operational strategies during high and low seasons. By implementing a data-driven approach using the ARIMA method, hotels can project future customer satisfaction trends and adjust service strategies to remain competitive and relevant. Therefore, improvement strategies should focus on improving sleep quality and hygiene, while still leveraging excellence in service (*Service*) and location (*Location*) to maintain competitiveness. With a holistic and data-driven approach, hotels can continue to increase customer satisfaction, maintain guest loyalty, and strengthen a positive reputation in the hospitality industry.

REFERENCES

- Ardhian Ayu Hardiani, W., & Rahayu, E. (2023). ELECTRONIC WORD OF MOUTH ANTESEDEN DAN KONSEKUENSI DALAM PENINGKATAN INTENTION TO STAY: SEBUAH INVESTIGASI EMPIRIS. *Equilibrum*, 12(1).
- Atiramaniya, N. W. C., Suastini, N. M., & Wiarta, N. G. M. (2024). Pengaruh Harga Kamar dan Kualitas Pelayanan terhadap Keputusan Menginap di Westin Resort & Spa Ubud, Bali. *TOBA: Journal of Tourism, Hospitality and Destination*, 3(3), 83–88. <https://doi.org/10.55123/toba.v3i3.4060>
- Diatri Indradewi, I. G. A. A., Mulyani, N. P. S., & Parwita, W. G. S. (2022). Peramalan Tingkat Penghunian Kamar Berdasarkan Kelas Hotel di Bali Menggunakan Metode ARIMA Forecasting Room Occupancy Rates Based on Hotel Class in Bali Using the ARIMA Method. *Journal of Computing Engineering, System and Science*, 7(2), 325–339. www.jurnal.unimed.ac.id
- Hayati, S., & Silitonga, P. (2023). Pengaruh Kualitas Produk, Kualitas Pelayanan Dan E-Wom Terhadap Keputusan Menginap Di Whiz Prime Hotel Kelapa Gading Jakarta. *Human Capital Development*, 10(3). <http://ejournal.asaindo.ac.id/index.php/hcd>
- Juniarta, P. P., Sari, R. J., Saputra, K. W. A., & Astawa, I. N. D. (2023). Analisis Electronic Word of Mouth (e-WOM) dalam Keputusan Menginap: Study Kasus Pengaruh e-WOM Terhadap Keputusan Tamu Menginap di Richland Glamping Bali. *Jurnal Manajemen Perhotelan Dan Pariwisata*, 6(2), 2023. www.booking.com,

- Ningrat, A. A. G. R. K., Santi Diwyarthi, N. D. M., & Pinaria, N. W. C. (2024). Pengaruh Online Customer Review di Tripadvisor Terhadap Minat Pemesanan Kamar di Hotel Fairfield by Marriott Bali Kuta Sunset Road. *Jurnal Multidisiplin West Science*, 03(10), 1639–1650.
- Rahmawati, A., Nurmawati, E., & Sugiyarto, T. (2024). Nowcasting Hotel Room Occupancy Rate using Google Trends Index and Online Traveler Reviews Given Lag Effect with Machine Learning (Case Research: East Kalimantan Province). *Scientific Journal of Informatics*, 11(2), 507–522. <https://doi.org/10.15294/sji.v11i2.5553>
- Rechia, A. R., & Wulansari, N. (2023). Pengaruh Electronic Word of Mouth (E-WoM) terhadap Keputusan Pembelian Kamar di Fave Hotel Olo Padang. *ARZUSIN*, 3(5), 552–561. <https://doi.org/10.58578/arzusin.v3i5.1583>
- Rezeki, S., & Eka Prasetya. (2019). PENGARUH HARGA, ONLINE CUSTOMER REVIEW DAN FASILITAS TERHADAP TINGKAT HUNIAN DI PT. KARYA CIPTA PESONA (ARYADUTA MEDAN). *Jurnal Manajemen Bisnis Eka Prasetya (MBEP)*, 5.
- Rob J Hyndman and George Athanasopoulos. (2024). *Forecasting: Principle and Practice*. <https://Otexts.Com/Fpp3/>.