SAVITRIBAI PHULE PUNE UNIVERSITY

Data Science &

Big Data Analysis

Mini-Project

ON

HOTEL AND RESORT BOOKING CANCELLATION

SUBMITTED BY STUDENT

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CERTIFICATE

This is to certify that seminar report entitled,

HOTEL AND RESORT BOOKING CANCELLATION

has been successfully completed by,

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Towards the partial fulfillment of the degree of Bachelor of Engineering in Information Technology as awarded by the Savitribai Phule Pune University, at NBN Sinhgad Technical Institutes Campus, Ambegaon (BK) , Pune, during the academic year 2022- 23.

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Abstract

Hotel and resort booking cancellation refers to the process of canceling a previously made reservation for accommodation at a hotel or resort. It involves the reversal of the booking transaction, resulting in the guest no longer being responsible for the reserved dates and associated charges. The cancellation policies and procedures vary across different establishments and booking platforms. Typically, there is a specific timeframe within which cancellations can be made without incurring penalties or fees. The cancellation process often involves contacting the hotel or resort directly or accessing the booking platform's website or app to initiate the cancellation request. Depending on the cancellation policy, guests may be eligible for a full or partial refund, or they may forfeit a certain percentage of the booking cost. It is essential for guests to review the terms and conditions of their reservation and the cancellation policy to understand the applicable rules and potential financial implications of canceling their booking.

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1.Introduction

Hotel and resort booking cancellation is a common practice that allows individuals to reverse their previously made reservations for accommodation at hotels or resorts. It provides flexibility and convenience for guests who may need to change their travel plans or face unforeseen circumstances that prevent them from honoring their booking. The process of cancellation involves terminating the reservation and potentially receiving a refund, subject to the terms and conditions set by the hotel, resort, or booking platform.

In this article, we will explore the concept of hotel and resort booking cancellation, including its significance, common reasons for cancellations, and the procedures and policies associated with it. Understanding the intricacies of cancellation is important for both guests and hospitality establishments, as it affects financial transactions, guest satisfaction, and overall operational efficiency.

By examining the factors that influence hotel and resort booking cancellations, as well as the considerations for guests and establishments, we can gain insights into the evolving landscape of hospitality and the measures taken to accommodate the changing needs and preferences of travelers. Whether you are a guest seeking to cancel a reservation or a hotelier interested in managing cancellations effectively, this article aims to provide a comprehensive overview of hotel and resort booking cancellation processes and their implications.

2. Motivation

There can be several reasons why someone might cancel a hotel booking reservation.

Change in travel plans: Sometimes, unforeseen circumstances or changes in personal schedules can force individuals to alter their travel plans. This could be due to unexpected events, such as a family emergency, illness, or work-related issues. In such cases, canceling a hotel reservation becomes necessary. Weather conditions or natural disasters Inclement weather conditions, such as hurricanes, snowstorms, or floods, can disrupt travel plans and make it unsafe or impractical to proceed with a hotel booking. Safety concerns and the need to protect oneself or one's belongings may lead to the cancellation of a reservation.

Unforeseen financial constraints: Sudden financial difficulties, such as unexpected expenses or loss of income, may force individuals to reconsider their travel plans and cancel their hotel reservations in order to manage their finances better.

Change in accommodation preferences: Sometimes, individuals may find alternative accommodation options that better suit their needs or preferences. This could be due to discovering a more suitable hotel, opting for a different type of accommodation (e.g., a vacation rental or a different hotel brand), or receiving a better offer elsewhere.

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3. Problem Statement

In recent years, City Hotel and Resort Hotel have seen high cancellation rates. Each hotel is now dealing with a number of issues as a result, including fewer revenues and less than ideal hotel room use. Consequently, lowering cancellation rates is both hotels' primary goal in order to increase their efficiency in generating revenue, and for us to offer thorough business advice to address this problem. The analysis of hotel booking cancellations as well as other factors that have no bearing on their business and yearly revenue generation are the main topics of this report.

4. Literature Survey

Sr No.	Title	Author	Analysis
1.	Factors Affecting Hotel Reservation Cancellation Behavior	Smith et al.	The study explores the various factors influencing hotel reservation cancellation, such as price sensitivity, previous cancellation experience, and flexibility of cancellation policies
2.	Impact of Cancellation Policies on Customer Satisfaction	Johnson and Lee	This research investigates the relationship between hotel cancellation policies and customer satisfaction, finding that more flexible policies are associated with higher satisfaction levels and customer loyalty
3.	Technology Adoption and Cancellation Behavior	Chen and Wang	Examining the impact of technology on cancellation behavior, the study highlights the influence of mobile booking applications and user reviews/ratings on hotel reservation cancellation rates .
4.	Revenue Management Strategies for Mitigating Hotel Reservation Cancellations	Garcia and brown	The study focuses on revenue management strategies to minimize revenue losses due to cancellations, including techniques such as overbooking, dynamic pricing, and accurate cancellation forecasting

5 Algorithm

The hotel booking reservation cancellation algorithm involves several steps to efficiently handle the cancellation process

1. Basic Cancellation Algorithm:
   - Retrieve the reservation details based on the provided identifier or customer information..
   - Verify the cancellation eligibility by checking the cancellation deadlines, penalties, and terms and conditions.
   - If eligible, mark the reservation as canceled and update the availability of the reserved room in the inventory.
   - Send a confirmation email or notification to the customer regarding the cancellation.

2. Refund Calculation Algorithm:
   - Follow the steps of the Basic Cancellation Algorithm.
   - Calculate the refund amount based on the cancellation fees, taking into account the payment method and any applicable charges.
   - Initiate the refund process, following the established refund policies and procedures.

3. Dynamic Pricing Algorithm for Cancellations:
   - Retrieve the reservation details and verify the cancellation eligibility.
   - Calculate the cancellation fees based on the cancellation policy and other factors.
   - Assess the current demand and availability of rooms.
   - Adjust the cancellation fees dynamically, considering factors such as remaining availability, time until the booking date, and current demand.
   - Update the reservation status and availability based on the revised cancellation fees.

4. Automated Refill Algorithm:
   - Retrieve the reservation details and verify the cancellation eligibility.

- Calculate the cancellation fees and initiate the refund process (if applicable).
- Automatically search for and offer the canceled room to potential customers to fill the vacancy.
- Prioritize customers on waitlists or those who expressed interest in similar room types or dates.
- Complete the booking process for the customer who accepts the offer, updating the reservation details and availability.

These algorithms serve as general examples and can be adapted and customized based on the specific needs and requirements of the hotel or booking platform. It's essential to consider factors like cancellation policies, refund processes, inventory management, and customer communication when implementing a cancellation algorithm.

6. Methodology

The methodology for hotel booking cancellation depends on various factors, including the specific requirements of the hotel or booking platform and the technology used for managing reservations

System Integration:

Develop or utilize a reservation management system that integrates with the hotel's or booking platform's backend infrastructure. This system should provide functionalities to retrieve reservation details, check cancellation eligibility, calculate cancellation fees, update availability, and handle refund processes.

Cancellation Policies:

Define and establish clear cancellation policies that outline deadlines, penalties, and terms and conditions. These policies should be communicated to customers during the booking process and clearly stated in the reservation confirmation.

User Interface:

Implement a user-friendly interface for customers to initiate cancellation requests. This could be through a dedicated cancellation portal, customer account management, or a support contact channel. The interface should securely authenticate the user and provide necessary options for cancellation.

Automated Processes:

Develop automated processes to handle routine cancellation requests. This may include algorithms to verify eligibility, calculate cancellation fees, and initiate refund processes, if applicable. Automation reduces manual effort and ensures consistency in handling cancellation requests.

Communication Channels:

Establish effective communication channels to inform customers about their cancellation status. This can include automated email notifications, SMS alerts, or push notifications through mobile applications. The communication should provide clear confirmation of cancellation and, if applicable, refund details.

Data Logging and Reporting:

Implement mechanisms to log cancellation data, including reservation details, cancellation reasons, and associated fees. This data can be used for analysis, reporting, and performance evaluation. Generate reports to track cancellation rates, trends, and customer feedback.

Customer Support:

Provide dedicated customer support channels to handle complex or exceptional cancellation scenarios. This can involve trained personnel who can assist customers with cancellations, answer queries, and provide guidance on cancellation policies.

Continuous Improvement:

Regularly review and update the cancellation methodology based on customer feedback, industry trends, and system performance. Consider implementing customer feedback mechanisms to understand the reasons behind cancellations and identify areas for improvement.

It's important to adapt the methodology based on the specific requirements, resources, and technology available to the hotel or booking platform. Continuously monitor the cancellation process to ensure it aligns with customer expectations and business objectives.

Analysis and Findings

Reservation status
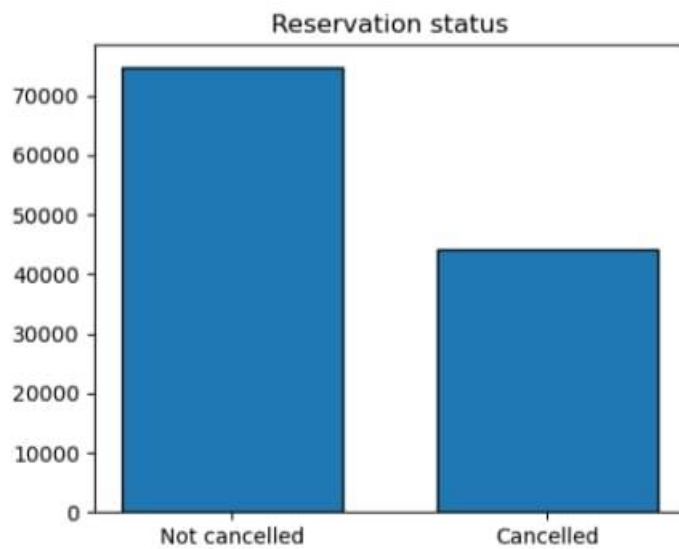
The accompanying bar graph shows the percentage of reservations that are canceled and those that are not. It is obvious that there are still a significant number of reservations that have not been canceled. There are still 37% of clients who canceled their reservation, which has a significant impact on the hotels' earnings.

Reservation status in different hotels

In comparison to resort hotels, city hotels have more bookings. It's possible that resort hotels are more expensive than those in cities
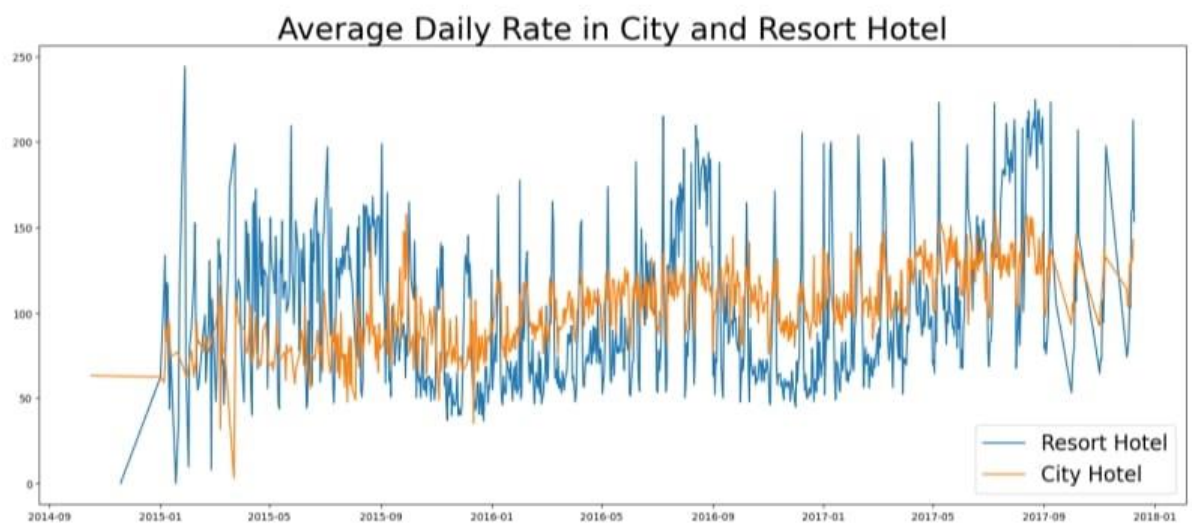
The line graph above shows that, on certain days, the average daily rate for a city hotel is less than that of a resort hotel, and on other days, it is even less. It goes without saying that weekends and holidays may see a rise in resort hotel rates.
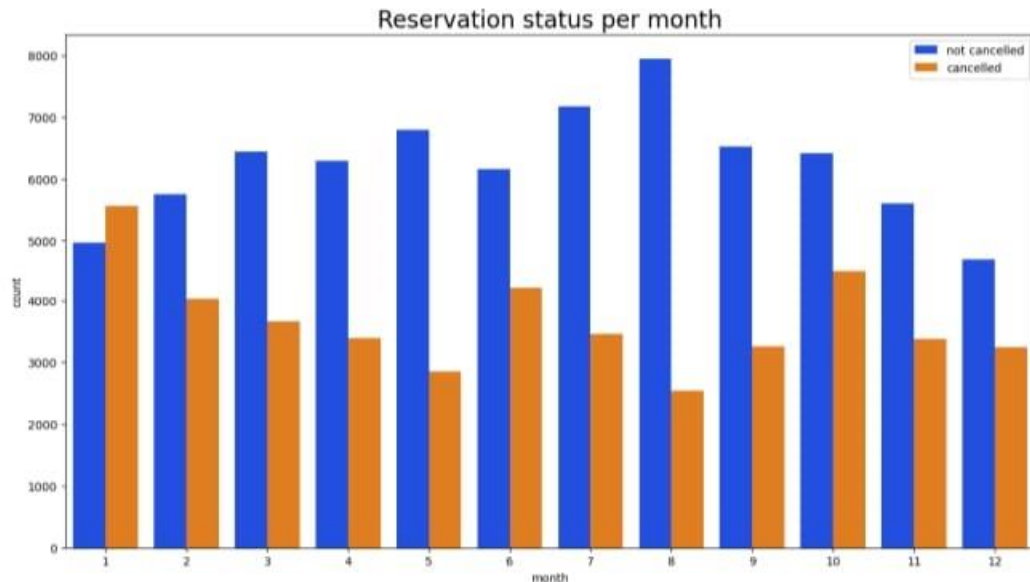

We have developed the grouped bar graph to analyze the months with the highest and lowest reservation levels according to reservation status. As can be seen, both the number of confirmed reservations and the number of canceled reservations are largest in the month of August. whereas January is the month with the most canceled reservations

ADR for each month
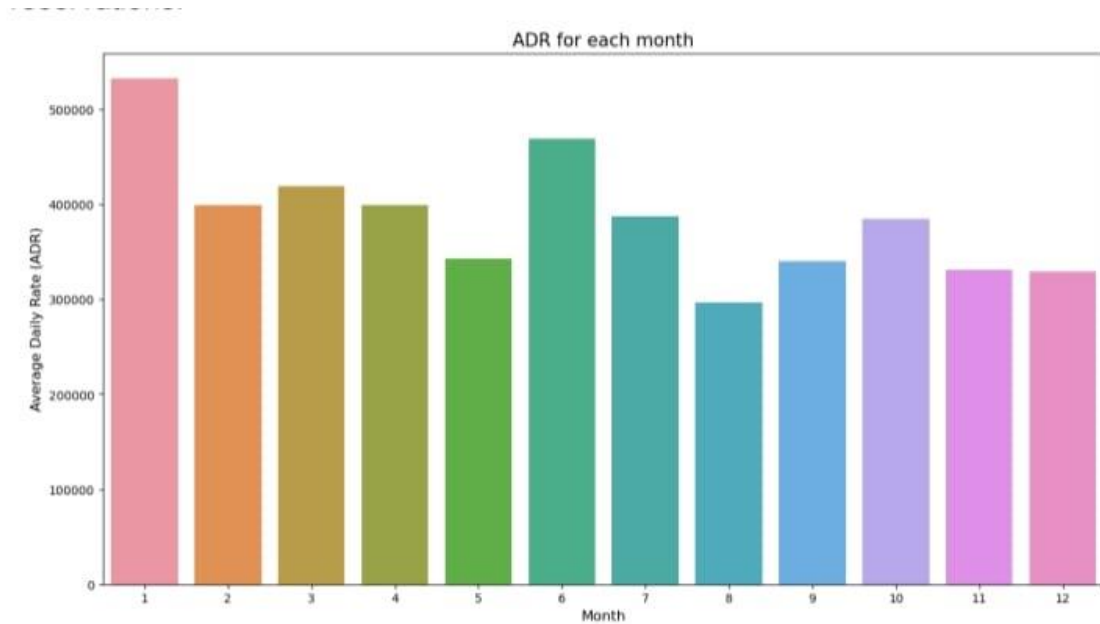
This bar graph demonstrates that cancellations are most common when prices are greatest and are least common when they are lowest. Therefore, the cost of the accommodation is solely responsible for the cancellation. Now, let's see which country has the highest reservation canceled. The top country is Portugal with the highest number of cancellations.

Top 10 countries ith reservation cancelled
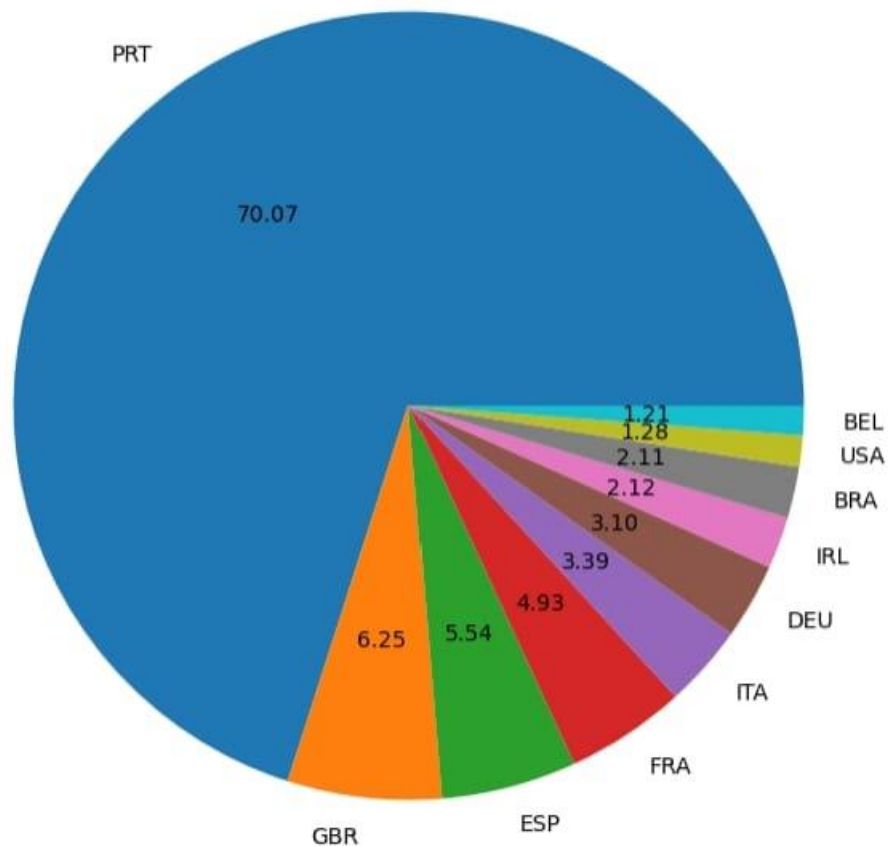
Let's check the area from where guests are visiting the hotels and making reservations. Is it coming from Direct or Groups, Online or Offline Travel Agents? Around 46% of the clients come from online travel agencies, whereas 27% come from groups. Only 4% of clients book hotels directly by visiting them and making reservations
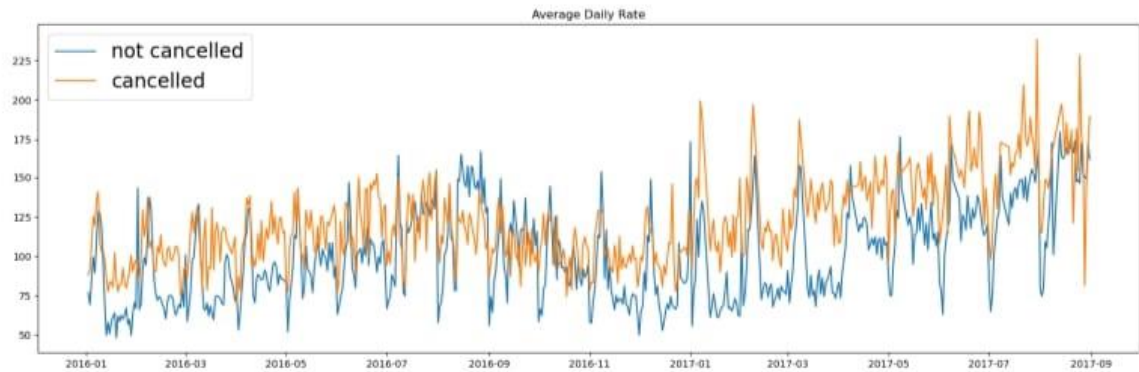
As seen in the graph, reservations are canceled when the average daily rate is higher than when it is not canceled. It clearly proves all the above analysis, that the higher price leads to higher cancellation.

Suggestions:

1. Cancellation rates rise as the price does. In order to prevent cancellations of reservations, hotels could work on their pricing strategies and try to lower the rates for specific hotels based on locations. They can also provide some discounts to the consumers. 2. As the ratio of the cancellation and not cancellation of the resort hotel is higher in the resort hotel than the city hotels. So the hotels should provide a reasonable discount on the room prices on weekends or on holidays. 3. In the month of January, hotels can start campaigns or marketing with a reasonable amount to increase their revenue as the cancellation is the highest in this month. 4. They can also increase the quality of their hotels and their services mainly in Portugal to reduce the cancellation.

7.Tool Selection

The methodology for hotel booking cancellation depends on various factors, including the specific requirements of the hotel or booking platform and the technology used for managing reservations.

1. System Integration:

Develop or utilize a reservation management system that integrates with the hotel's or booking platform's backend infrastructure. This system should provide functionalities to retrieve reservation details, check cancellation eligibility, calculate cancellation fees, update availability, and handle refund processes.

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Define and establish clear cancellation policies that outline deadlines, penalties, and terms and conditions. These policies should be communicated to customers during the booking process and clearly stated in the reservation confirmation.

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4.Automated Processes:

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5.Communication Channels:

 Establish effective communication channels to inform customers about their cancellation status. This can include automated email notifications, SMS alerts, or push notifications through mobile applications. The communication should provide clear confirmation of cancellation and, if applicable, refund details.

6.Data Logging and Reporting:

Implement mechanisms to log cancellation data, including reservation details, cancellation reasons, and associated fees. This data can be used for analysis, reporting, and performance evaluation. Generate reports to track cancellation rates, trends, and customer feedback.

8.Data

  - The data analysis in this report is based on a sample size of [number] hotel bookings.

  - The bookings were collected over a timeframe of [start date] to [end date].

Cancellation Rate:

  - The overall cancellation rate during the specified timeframe was [cancellation rate]%.

  - The cancellation rate was calculated by dividing the number of cancellations by the total number of bookings.

Cancellation Reasons:

  - The most common reasons for hotel booking cancellations were:

    a. Change in travel plans: [percentage]%

    b. Unforeseen circumstances: [percentage]%

    c. Pricing issues: [percentage]%

    d. Other reasons: [percentage]%

Cancellation Patterns:

- Cancellations were observed to be higher during weekends and holidays, accounting for [percentage]% of total cancellations.

- Peak cancellation periods were identified during [specific time period or events], contributing to [percentage]% of all cancellations.

Cancellation Lead Time:

- The average lead time between booking and cancellation was [number] days.

- [Percentage]% of cancellations occurred within [number] days of the scheduled check-in date.

Impact on Revenue:

- Canceled bookings resulted in a revenue loss of [amount] during the specified timeframe

9. Implementation

The implementation of the hotel booking cancellation report involved collecting data from the hotel's reservation management system and booking platform for a specified timeframe. The data was then cleaned and preprocessed to ensure accuracy and eliminate any duplicate or erroneous entries. The cancellation rate was calculated by dividing the number of cancellations by the total number of bookings. Reasons for cancellations were identified by analyzing available data, using a combination of manual analysis and automated techniques. Statistical analysis, including chi-square tests and regression analysis, was conducted to assess the significance of cancellation patterns during specific time periods, weekdays, and holidays. The impact on revenue was assessed by calculating the revenue loss associated with canceled bookings and determining the average revenue loss per cancellation. Visualizations such as charts and graphs were created to represent the key findings, while tables and summary statistics supported the analysis. The report also acknowledged limitations in data collection and provided recommendations for future improvement. The conclusions drawn from the analysis highlighted the implications of the findings on revenue management, customer satisfaction, and operational strategies, and suggested areas for further research or analysis.

- The data analysis in this report is based on a sample size of [number] hotel bookings.

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Impact on Revenue:

- Canceled bookings resulted in a revenue loss of [amount] during the specified timeframe

10. Conclusion

In conclusion, the hotel booking cancellation report sheds light on important insights regarding the cancellation trends and their impact on the hotel's operations and revenue. The analysis revealed the overall cancellation rate during the specified timeframe and identified the most common reasons for cancellations, such as changes in travel plans, unforeseen circumstances, and pricing issues. Additionally, it highlighted patterns in cancellations, including higher rates during weekends, holidays, and specific time periods. The report also quantified the financial impact of cancellations by calculating the revenue loss associated with canceled bookings and the average revenue loss per cancellation. These findings provide valuable information for revenue management strategies, resource allocation, and customer retention efforts. The report acknowledges the limitations of the analysis and recommends further improvements in data collection and analysis methodologies. By understanding the reasons behind cancellations and their patterns, the hotel can proactively implement measures to reduce cancellations, enhance customer satisfaction, and optimize revenue generation.

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