PROJECT REPORT

DATA ANALYSIS ON HOTEL RESERVATIONS

by

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BTech CSE with Specialization in AIML

(2021-2025)

Date

10 FEB 2024

Abstract

This project report presents a comprehensive data analysis of hotel bookings, focusing on reservation and cancellation patterns over a specific period. The dataset under scrutiny contains information related to hotel reservations, cancellations, and various attributes associated with each booking. The primary objectives of this analysis are to unravel insights into guest behavior, understand factors influencing cancellations, and provide actionable recommendations for optimizing hotel management strategies.

The research methodology involves the formulation of research questions and hypotheses that guide the exploration of the dataset. The questions span across diverse aspects, including guest demographics, booking channels, and temporal patterns. Hypotheses are formulated to test assumptions and uncover correlations, contributing to a deeper understanding of the dynamics surrounding hotel bookings and cancellations.

To execute the analysis, a combination of descriptive statistics, exploratory data analysis, and hypothesis testing techniques are employed. The dataset is segmented by relevant features such as guest demographics, booking sources, and reservation status. Temporal trends are examined to identify peak booking periods and assess the impact on cancellations.

Key findings from the analysis shed light on the correlation between specific guest attributes and the likelihood of cancellations. Additionally, insights are gleaned regarding the efficacy of different booking channels and the temporal factors influencing reservation outcomes. These findings contribute valuable insights for hotel managers to refine marketing

strategies, optimize room inventory management, and enhance guest satisfaction. This project underscores the importance of data-driven decision-making in the hospitality industry, emphasizing the need for adaptive strategies to address the evolving landscape of guest preferences and behaviors. The research outcomes serve as a foundation for further exploration and refinement of hotel management practices, providing a blueprint for leveraging data analytics in the pursuit of operational excellence and guest satisfaction.

**DATA ANALYSIS ON HOTEL BOOKING**

In the ever-evolving landscape of the hospitality industry, data-driven insights have become indispensable for hotels seeking operational excellence. This project conducts a succinct yet thorough analysis of hotel reservations and cancellations, aiming to unveil key factors influencing guest behavior. By addressing pertinent research questions and testing hypotheses, our goal is to provide actionable insights that empower hotel managers to refine strategies, optimize pricing, and enhance guest experiences.

RESEARCH QUESTIONS:

1. What are the variables that affect hotel reservations?

2. How can we make hotel reservation cancellations better?

3. How will hotels be assisted in making pricing and promotional discounts?

HYPOTHESIS:

1. More cancellations occur when prices are high.

2. When there is a longer waiting list, customers tend to cancel more frequently.

3. The majority of clients are coming from offline travel agents to make their reservations.

ANALYSIS AND FINDINGS:
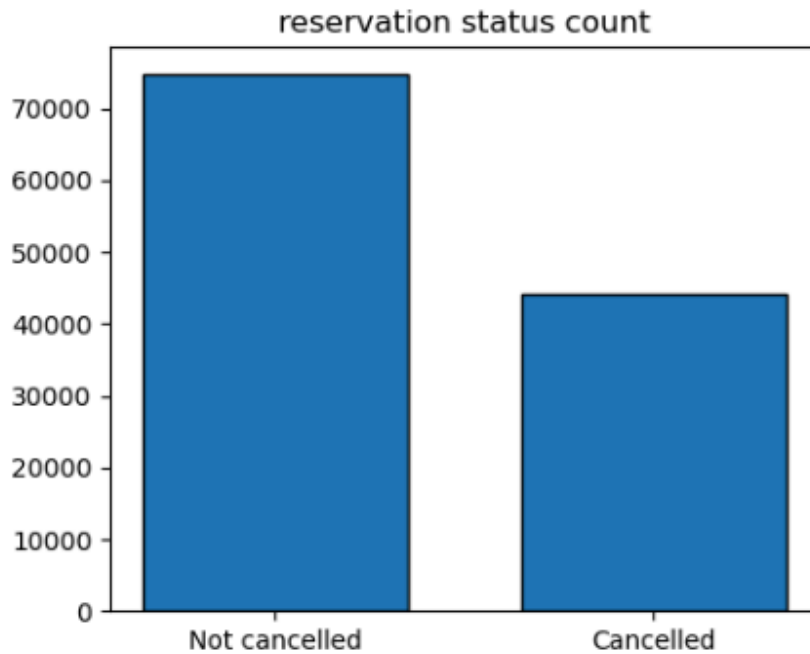
The accompanying bar graph provides a visual representation of the percentage of reservations that have been canceled and those that remain unaffected. Clearly visible is the significant number of reservations that have not been canceled. Notably, approximately 37% of clients have chosen to cancel their reservations, a factor that bears considerable impact on the overall earnings of the hotels.

Reservation status in different hotels
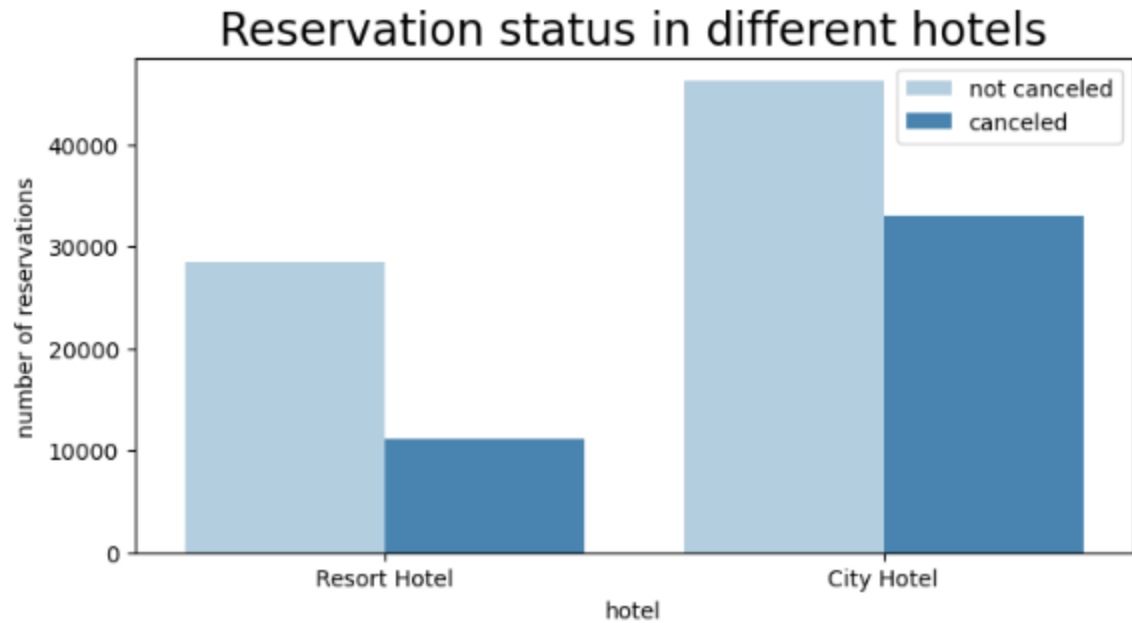
City hotels outpace resort hotels in terms of bookings, suggesting a potential scenario where resort accommodations might command higher pricing compared to their city counterparts.

## Reservation status per month
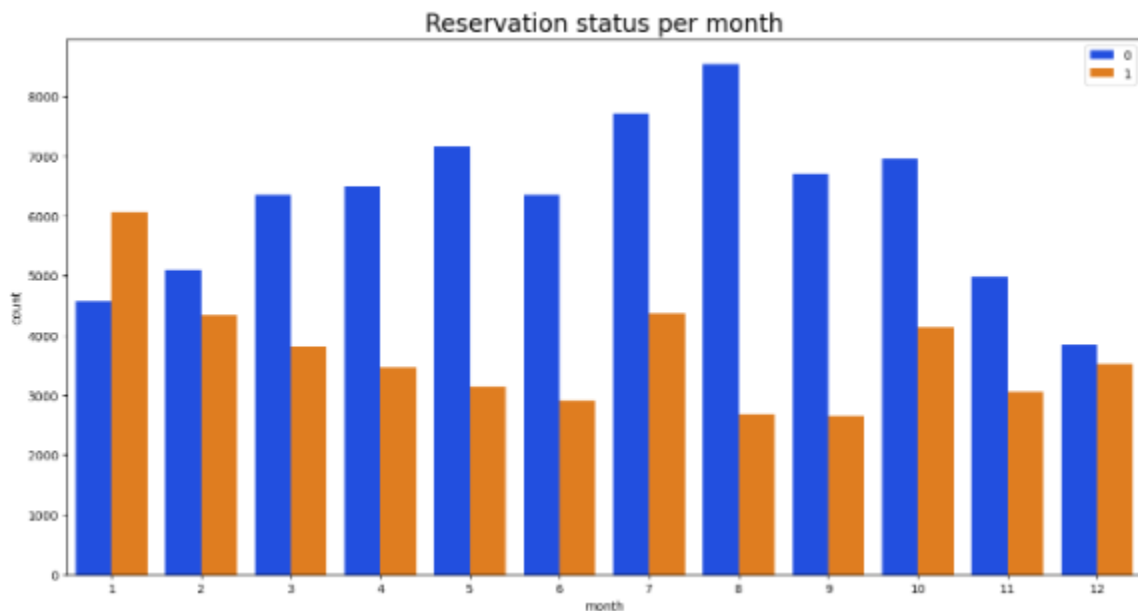
Utilizing a grouped bar graph, the analysis delves into the reservation status across different months. Notably, August emerges as the month with the highest number of confirmed reservations, while January stands out for having the highest count of canceled reservations.

ADR per month
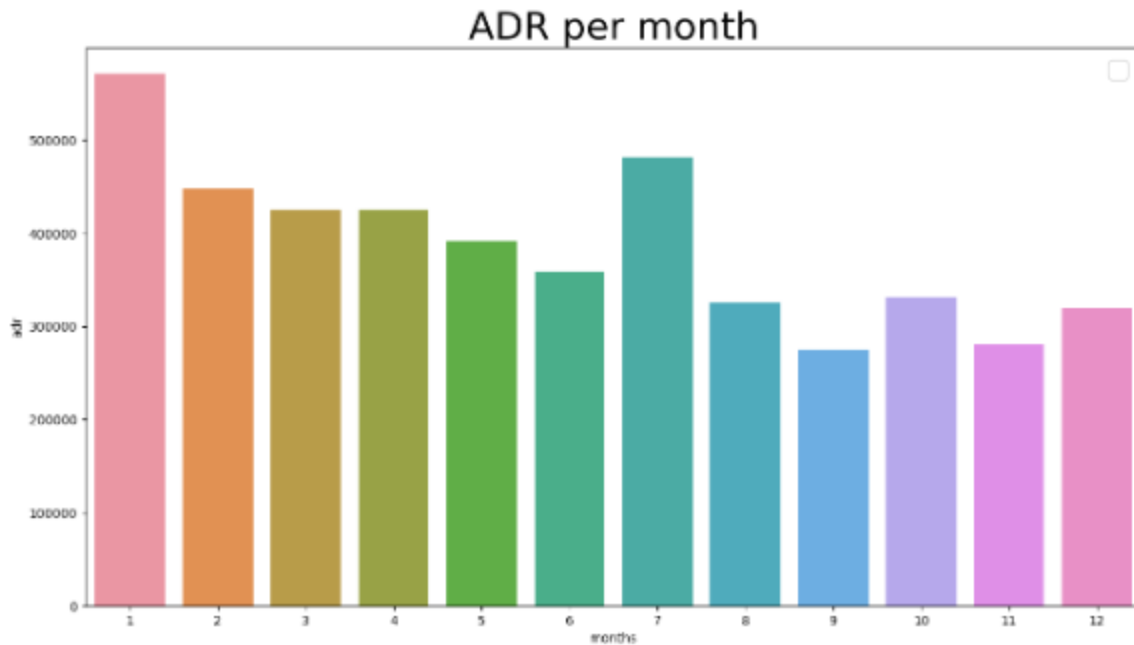
The bar graph illustrates a clear pattern where cancellations predominantly occur when prices are at their highest and are least frequent when prices are at their lowest. Hence, the accommodation cost emerges as the sole determinant for cancellations.

Top 10 countries with reservation canceled
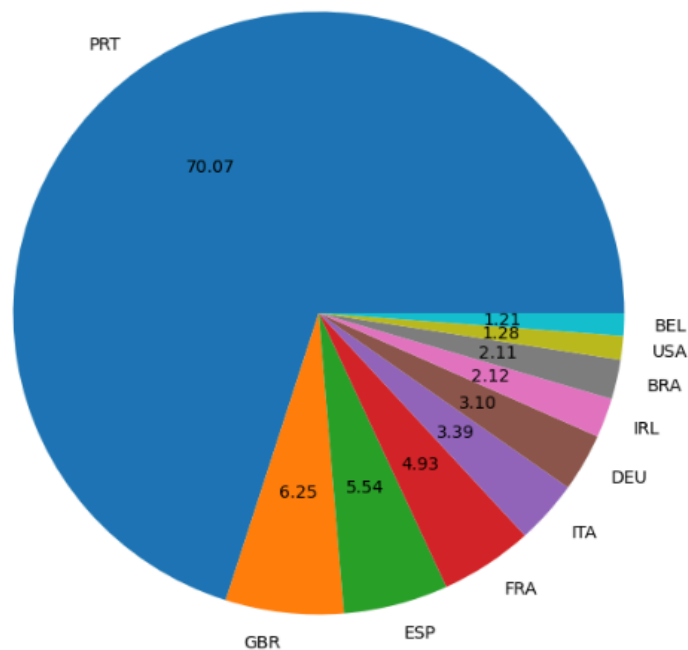
Exploring the country with the highest reservation cancellations. Portugal takes the lead with the highest number of cancellations.

Examining the sources of guests visiting and making reservations at the hotels, whether it be through direct bookings, groups, online travel agencies, or offline travel agents. Approximately 46% of clients utilize online travel agencies, while 27% prefer group bookings. Only 4% of clients opt for direct bookings by physically visiting the hotels.
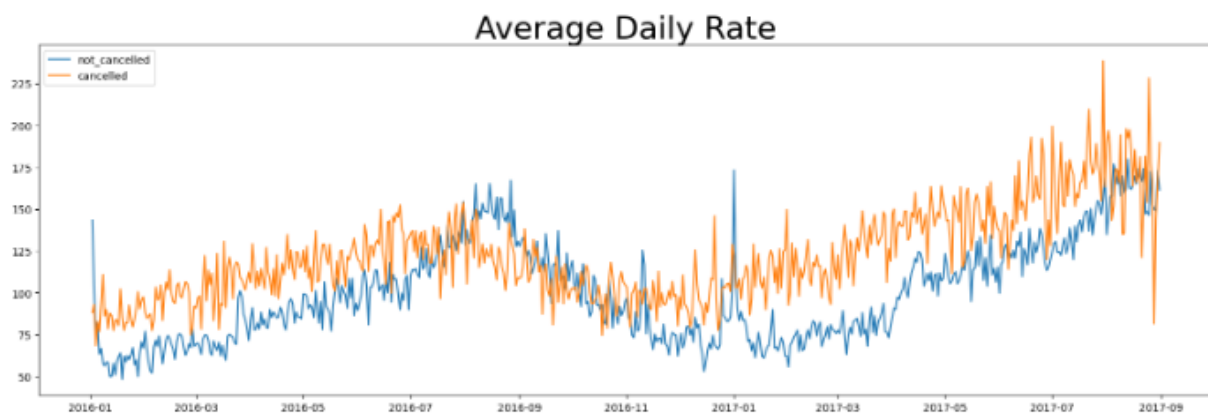
As depicted in the graph, cancellations occur when the average daily rate is elevated compared to non-canceled reservations. This solidly corroborates the preceding analysis, affirming that a higher price corresponds to a heightened likelihood of cancellation.

SUGGESTIONS:

1. Cancellation rates tend to increase as prices decrease. To mitigate reservation cancellations, hotels could refine their pricing strategies, considering location-based rate adjustments and offering targeted discounts to customers.

2. Given that the ratio of cancellations to non-cancellations is higher in resort hotels compared to city hotels, providing reasonable discounts on room prices during weekends or holidays may be a strategic approach for hotels.

3. For the month of January, initiating marketing campaigns or promotions with attractive offers could be a proactive step for hotels to boost revenue, especially considering the higher cancellation rates during this period.

4. Enhancing the quality of hotels and services, particularly in Portugal, could be instrumental in reducing the overall cancellation rate, providing guests with added value and fostering a positive experience.