

Business Problem:

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.



About The Dataset:

It is Hotel booking Data Consists of 36 Columns and 118897 Rows

1. **hotel:** Type of hotel (e.g., "Resort Hotel").
2. **is_canceled:** Binary variable indicating whether the reservation was canceled (0 for not cancelled, 1 for cancelled).
3. **lead_time:** Number of days between booking date and arrival date.
4. **arrival_date_year:** Year of arrival date.
5. **arrival_date_month:** Month of arrival date.
6. **arrival_date_week_number:** Week number of the year for the arrival date.
7. **arrival_date_day_of_month:** Day of the month for the arrival date.
8. **stays_in_weekend_nights:** Number of weekend nights (Saturday or Sunday) the guest stayed.
9. **stays_in_week_nights:** Number of weeknights (Monday to Friday) the guest stayed.
10. **adults:** Number of adults included in the reservation.
11. **children:** Number of children included in the reservation.

12. **babies:** Number of babies included in the reservation.
13. **meal:** Type of meal booked (e.g., "BB" for Bed & Breakfast).
14. **country:** Country of origin of the guest.
15. **market_segment:** Market segment designation (e.g., "Direct," "Corporate," etc.).
16. **distribution_channel:** Distribution channel used to book the reservation (e.g., "Direct," "Travel Agents," etc.).
17. **is_repeated_guest:** Binary variable indicating whether the guest is a repeated guest (0 for not repeated, 1 for repeated).
18. **previous_cancellations:** Number of previous reservation cancellations by the guest.
19. **previous_bookings_not_canceled:** Number of previous reservations that were not canceled by the guest.
20. **reserved_room_type:** Code of room type booked by the guest initially.
21. **assigned_room_type:** Code of room type assigned to the guest upon arrival.
22. **booking_changes:** Number of changes made to the reservation from the initial booking.
23. **deposit_type:** Type of deposit made by the guest (e.g., "No Deposit," "Non-Refundable," "Refundable").
24. **agent:** ID of the travel agency that made the booking (if applicable).
25. **company:** ID of the company/entity that made the booking (if applicable).
26. **days_in_waiting_list:** Number of days the booking was in the waiting list before confirmed.
27. **customer_type:** Type of booking (e.g., "Transient," "Contract," "Group," etc.).
28. **adr:** Average Daily Rate, the average rental income per paid occupied room in a given time period.
29. **required_car_parking_spaces:** Number of car parking spaces required by the guest.
30. **total_of_special_requests:** Number of special requests made by the guest (e.g., extra bed, breakfast, etc.).
31. **reservation_status:** Current status of the reservation (e.g., "Canceled," "Check-Out," etc.).
32. **reservation_status_date:** Date when the reservation status was last updated.
33. **name:** Guest name.
34. **email:** Guest email address.
35. **phone-number:** Guest phone number (masked).
36. **credit_card:** Last four digits of the guest's credit card number (masked).

Research Question

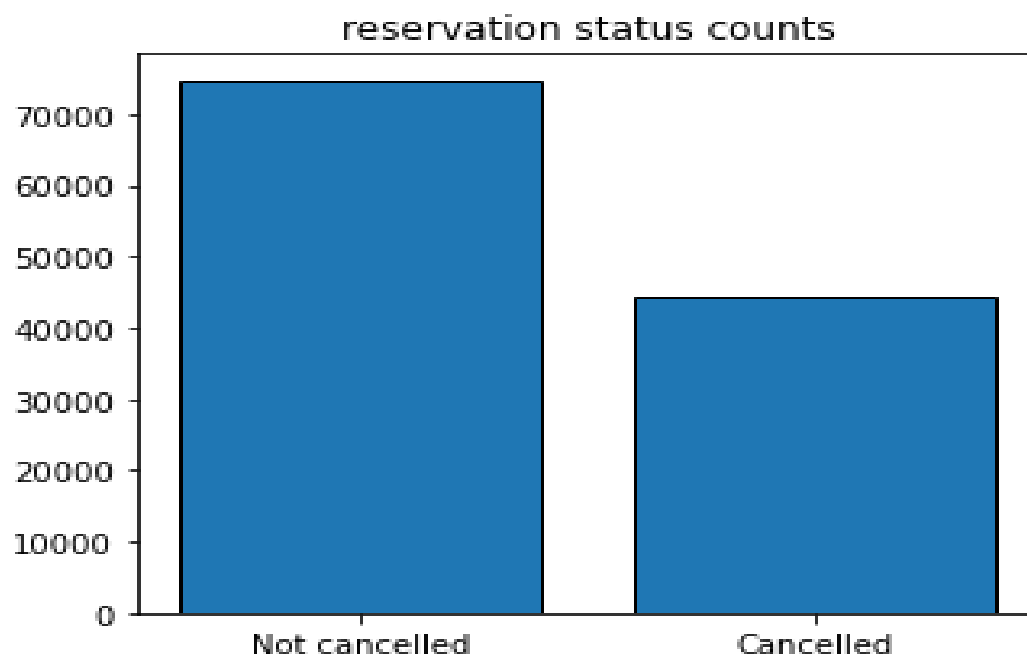
1. What are the variables that affect hotel reservation cancellations?
2. How can we make hotel reservations cancellations better?
3. How will hotels be assisted in making pricing and promotional decisions?

Hypothesis

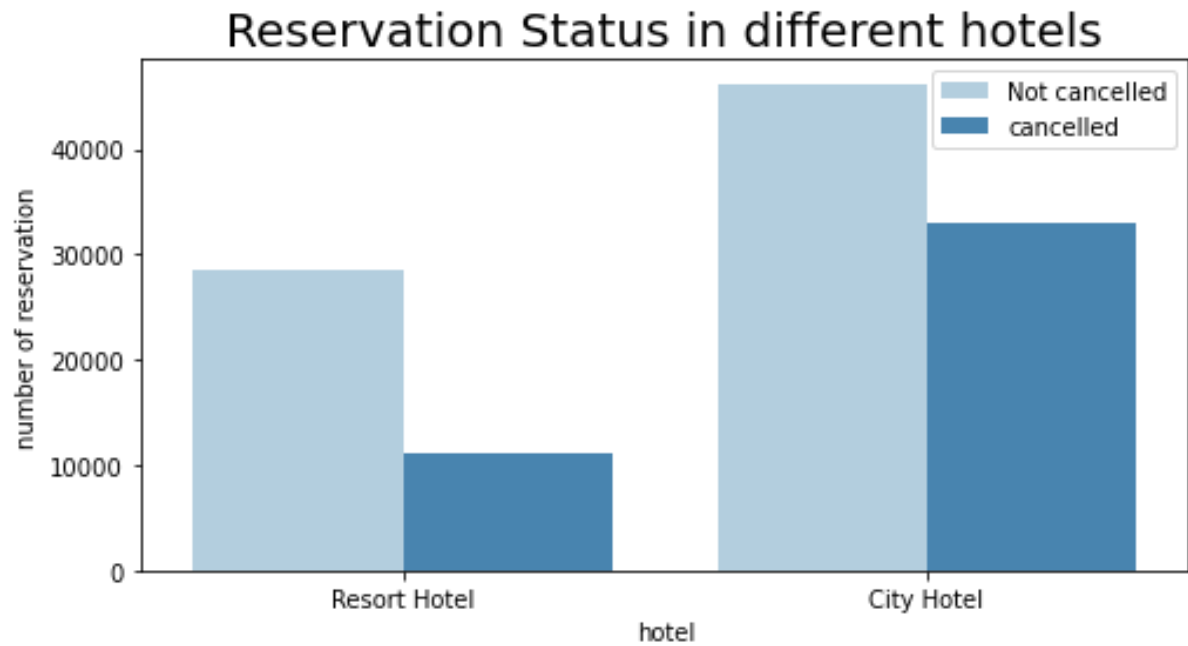
1. More cancellations occur when prices are higher.
2. When there is a longer waiting list, customers tend to cancel more frequently.
3. The majority of clients are coming from offline travel agents to make them

Reservations

Analysis and Findings:

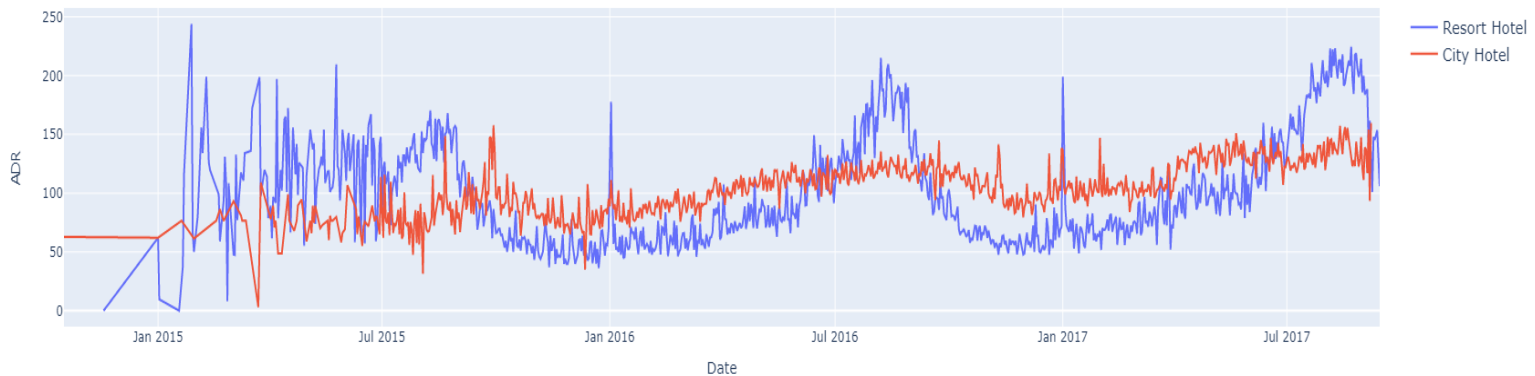


The accompanying bar graph depicts the percentage of reservations that are cancelled versus those that are not. It is clear that there are still a significant number of reservations that have not been cancelled. There are still 37% of clients who cancelled their reservation, which has a significant impact on hotel earnings.

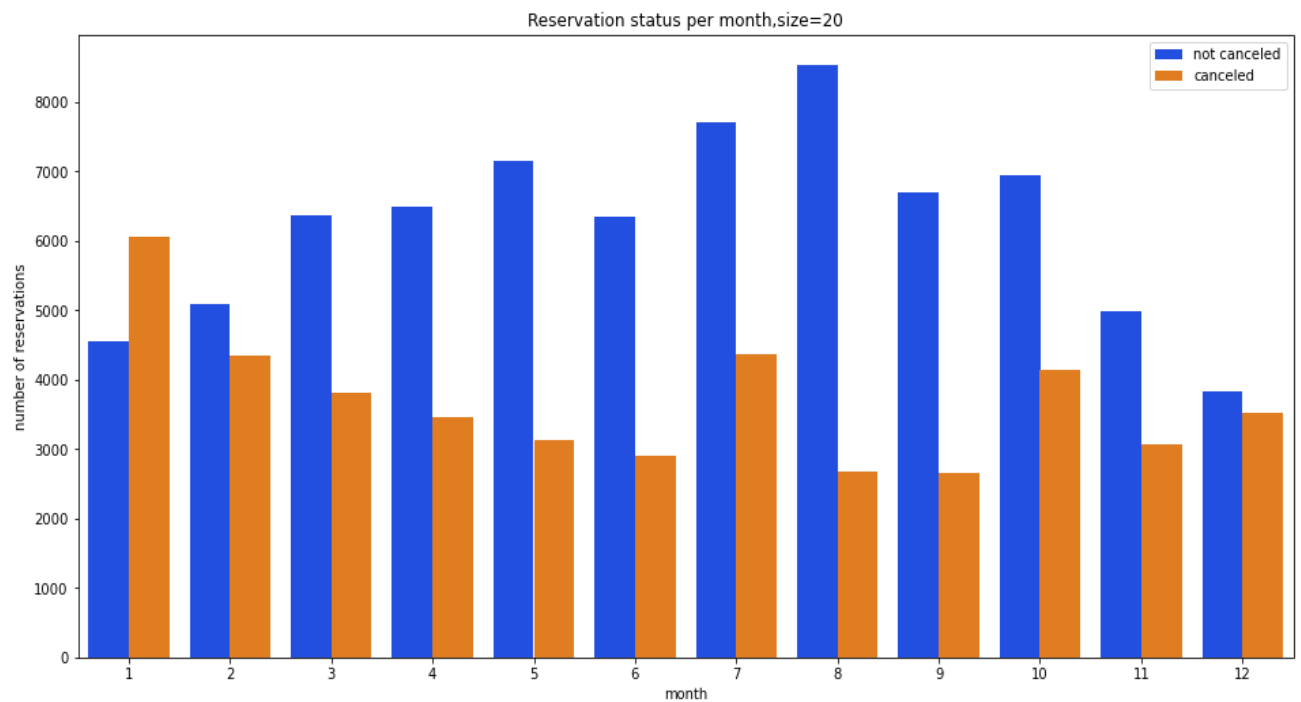


During comparison between Resort Hotel and city Hotel, City hotel have more bookings than resort hotels. There is possibility that Resort hotels are more expensive than City Hotels.

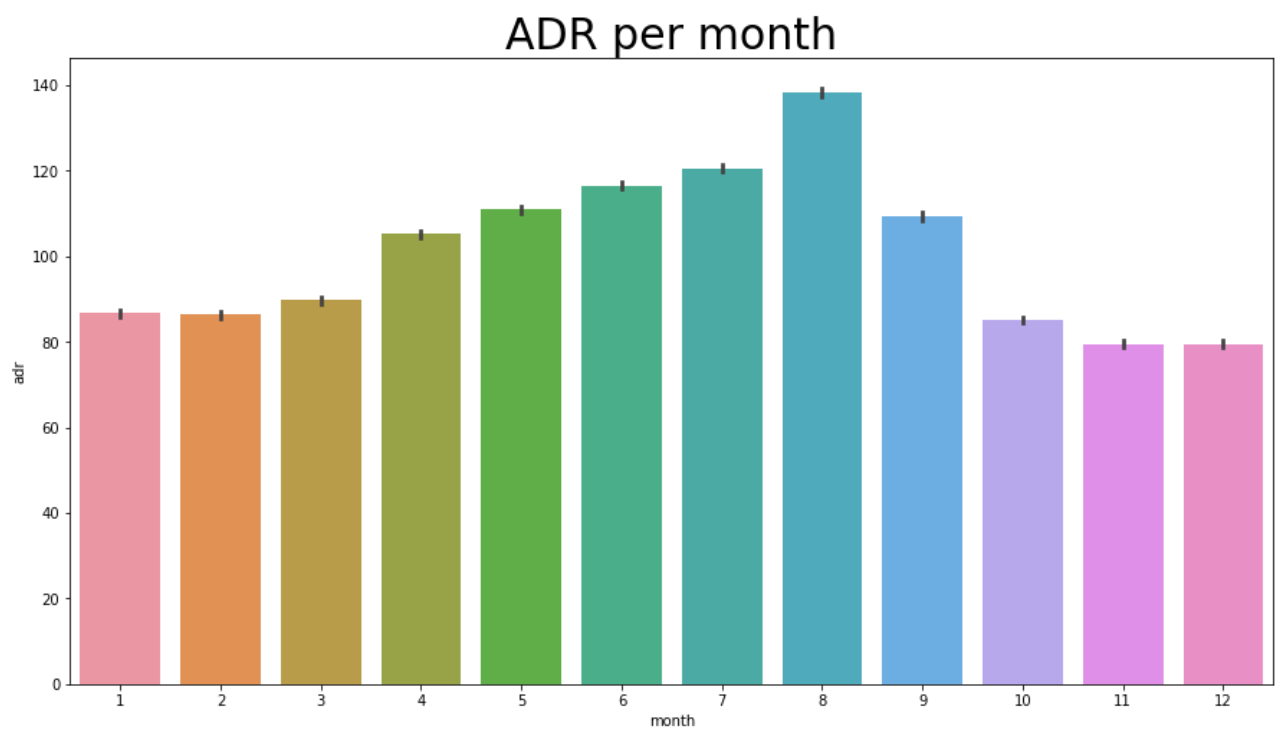
Average Daily Rate in City and Resort Hotel



The line graph above shows that the Average Daily Rate (ADR) for a city hotel is less than that of a resort hotel on some days, and even less on others. It goes without saying that resort hotel rates may rise on weekends and holidays.



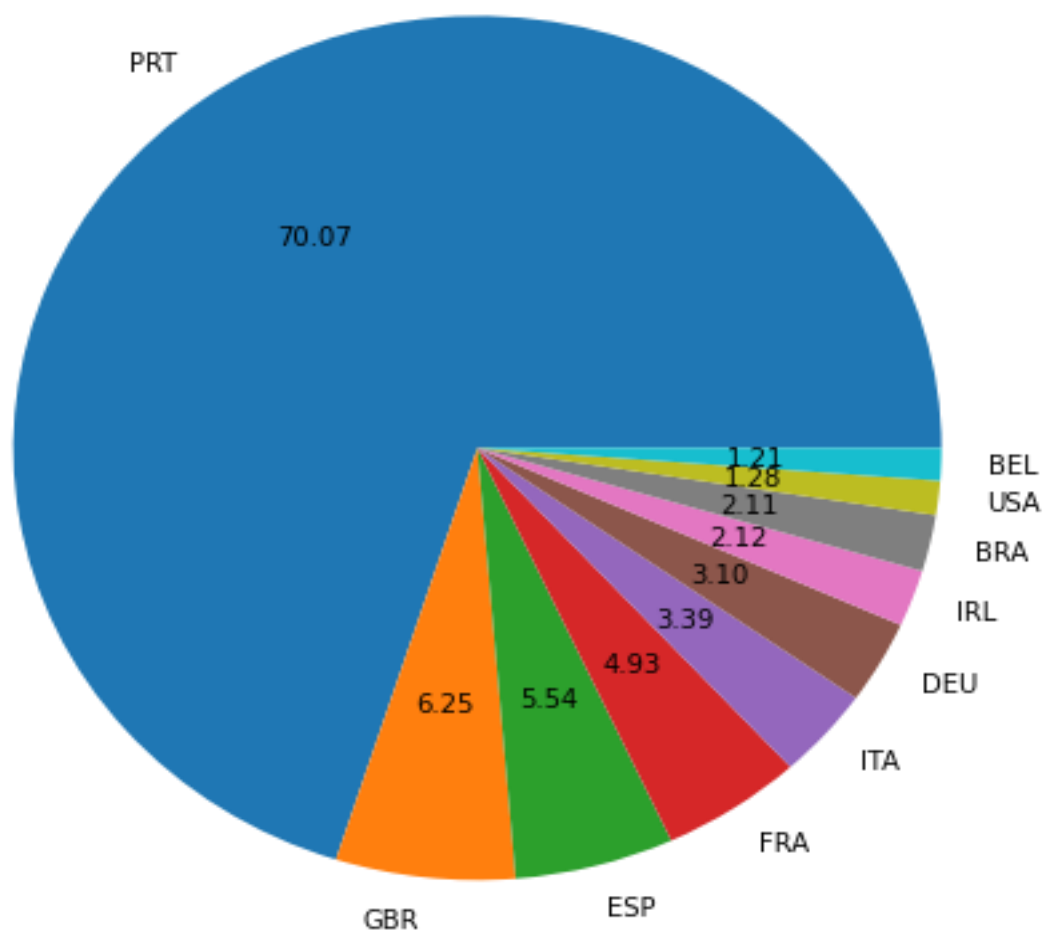
The grouped bar graph was created to analyse the months with the highest and lowest reservation levels based on reservation status. As we can see, that the month of August has the highest number of confirmed reservations as well as the highest number of cancelled reservations. whereas January had the highest number of cancelled reservations.



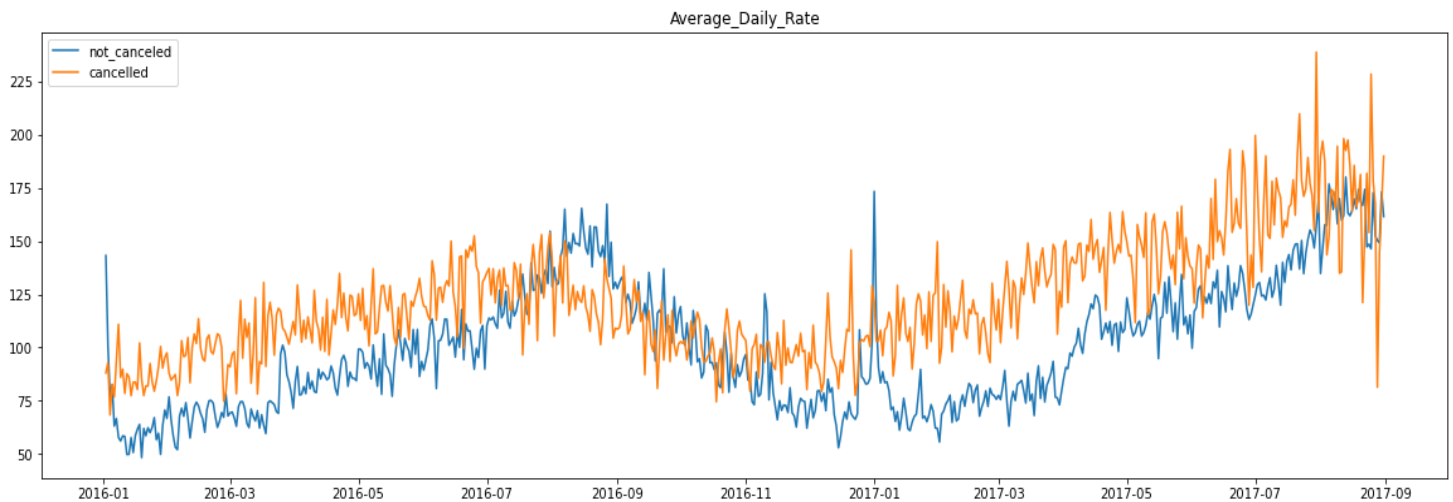
This bar graph shows that cancellations are most common when prices are highest and least common when prices are lowest. As a result, the expense of the lodging is totally to blame for the cancellation.

Let's check which country has the most cancelled reservations. Portugal is the country with the highest number of cancellations.

Top 10 countries with 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? Approximately 46% of clients come from online travel agencies, while 27% come from groups. Only 4% of customers book hotels directly by going to them and making reservations.



As shown in the graph, reservations are cancelled when the average daily charge is higher than when they are not. It clearly demonstrates that the higher the price, the higher the cancellation.

Suggestions:

1. As the price rises, so do cancellation rates. Hotels might improve their pricing tactics and aim to cut costs for specific hotels based on location to prevent reservation cancellations. They may also offer discounts to customers.
2. As the ratio of cancellation to non-cancellation in resort hotels is larger than in city hotels. As a result, hotels should offer a reasonable discount on room rates over the weekends and holidays.
3. As cancellations are higher in January, hotels can start campaigns or marketing with a modest budget to improve income.
4. They can also improve the quality of their hotels and services, particularly Mini Portugal, in order to lower the cancellation rate.