

Business Problem:

In recent years, both City Hotel and Resort Hotel have experienced high cancellation rates. As a result, each hotel is facing several issues, including reduced revenue and suboptimal room occupancy. Therefore, reducing cancellation rates has become a primary goal for both hotels to improve revenue generation. This report focuses on analyzing hotel booking cancellations and other factors that may affect their business and annual revenue.

Assumptions:

1. No unusual occurrences between 2015 and 2017 will have a substantial impact on the data used.
2. The information is still current and can be used to analyze a hotel's possible plans in an efficient manner.
3. There are no unanticipated negatives to the hotel employing any advised technique.
4. The hotels are not currently using any of the suggested solutions.
5. The biggest factor affecting the effectiveness of earning income is booking cancellations.
6. Cancellations result in vacant rooms for the booked length of time.
7. Clients make hotel reservations the same year they make cancellations.

Research Questions:

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

Hypothesis:

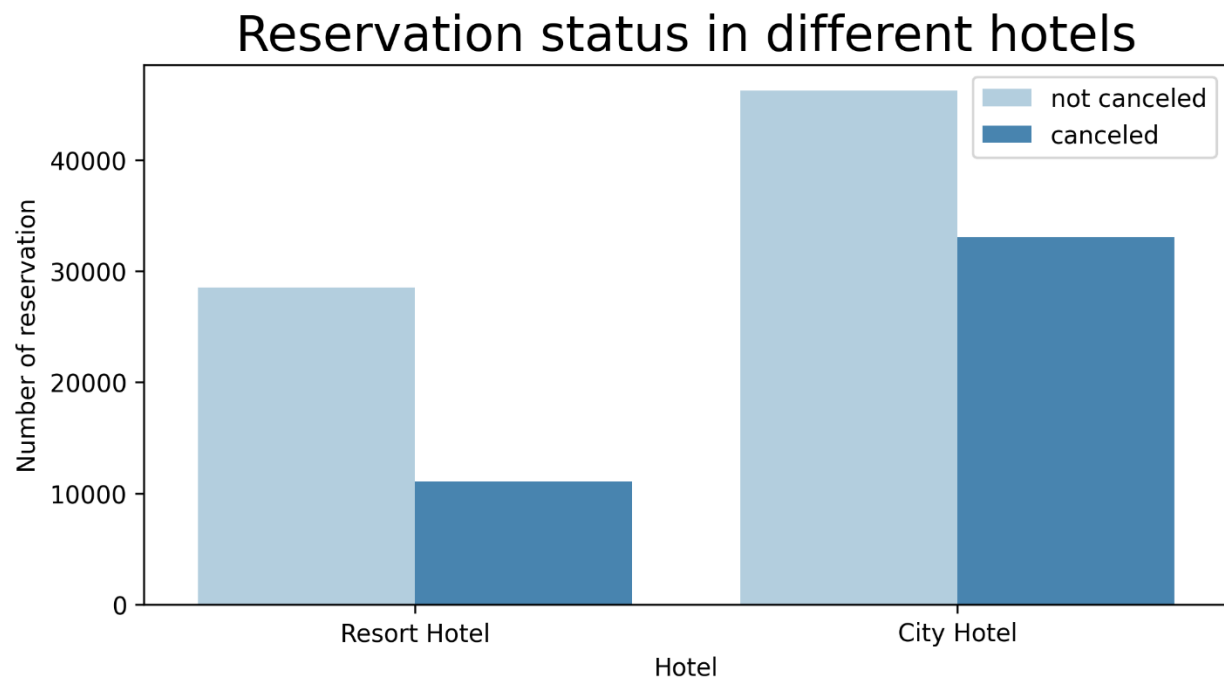
1. More cancellations occur when prices are higher.
2. When there is a longer waiting list, customers tend to cancel more frequently.
3. The majority of clients are coming from offline travel agents to make their reservations.

Analysis And Findings:

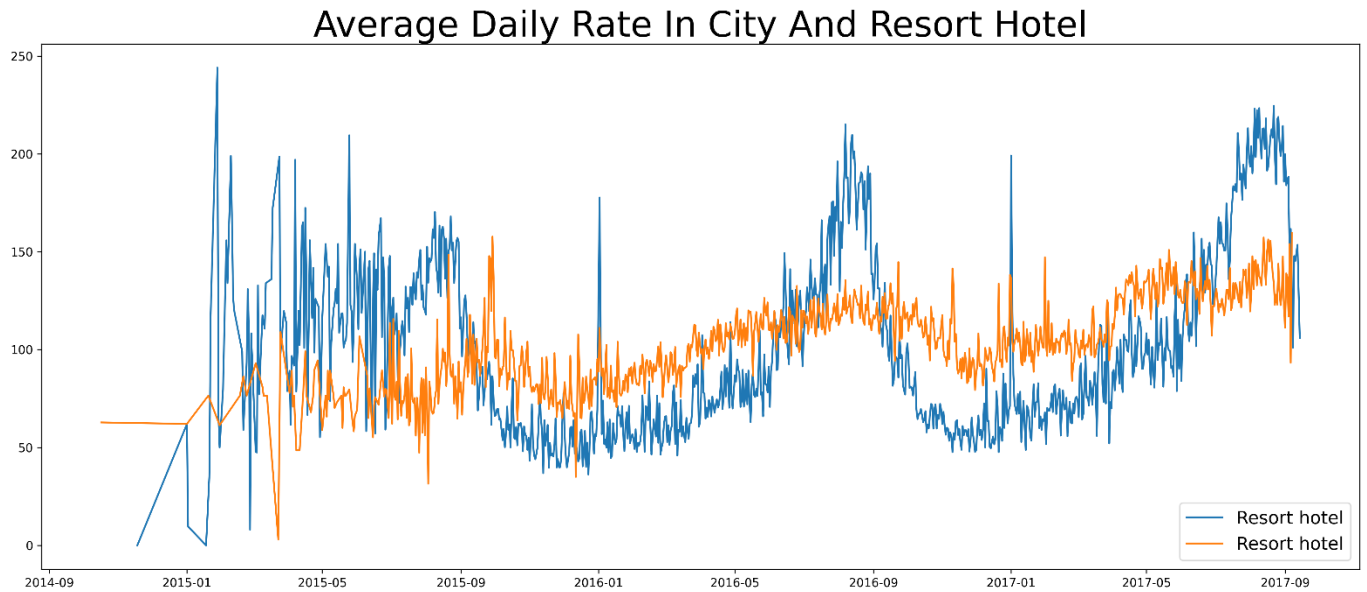
```
is_canceled
0    0.63
1    0.37
Name: proportion, dtype: float64
```



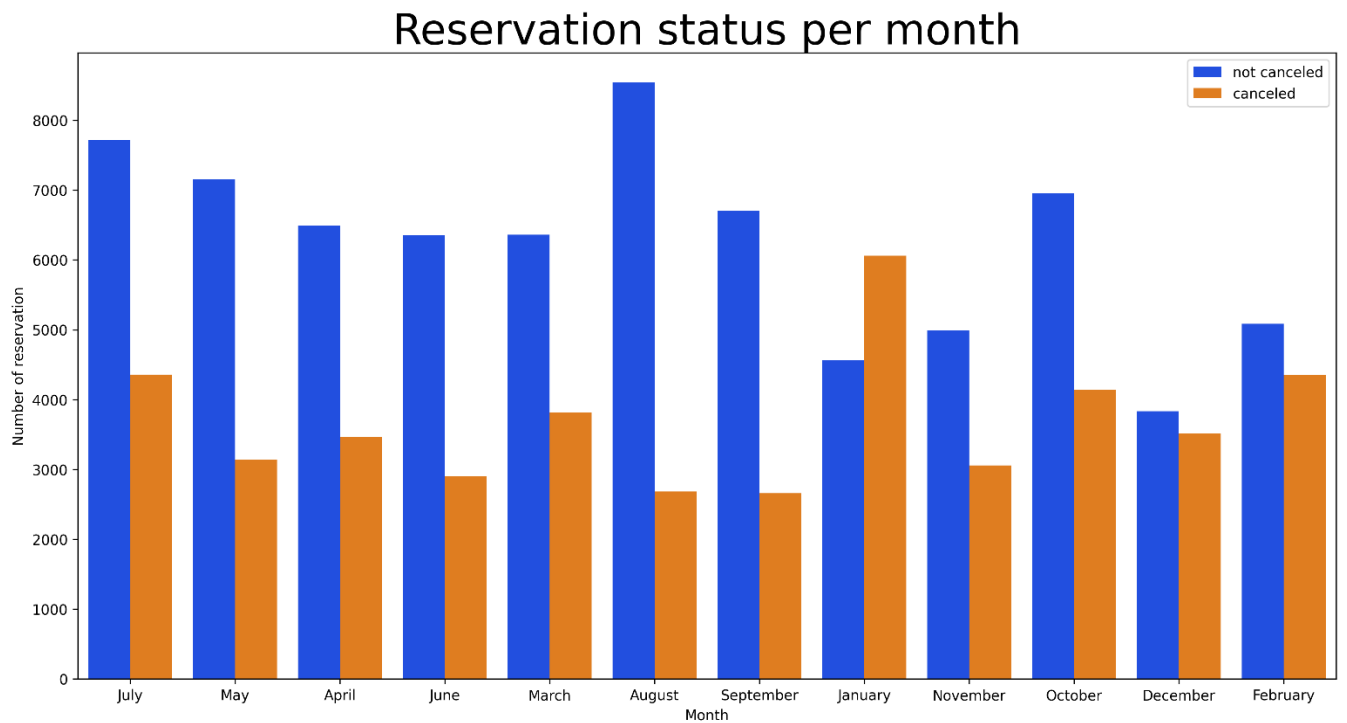
The bar chart illustrates the reservation status for hotel bookings, showing that approximately 62% of bookings were not cancelled, while 37% were cancelled. Although the majority of bookings were retained, the 37% cancellation rate is still significant, indicating that more than one-third of all hotel reservations were cancelled. This relatively high percentage may raise concerns, as it reflects that a substantial portion of potential business is lost, which could have financial implications for the hotel industry. The graph highlights that even though most bookings are confirmed, the cancellation rate remains notable.



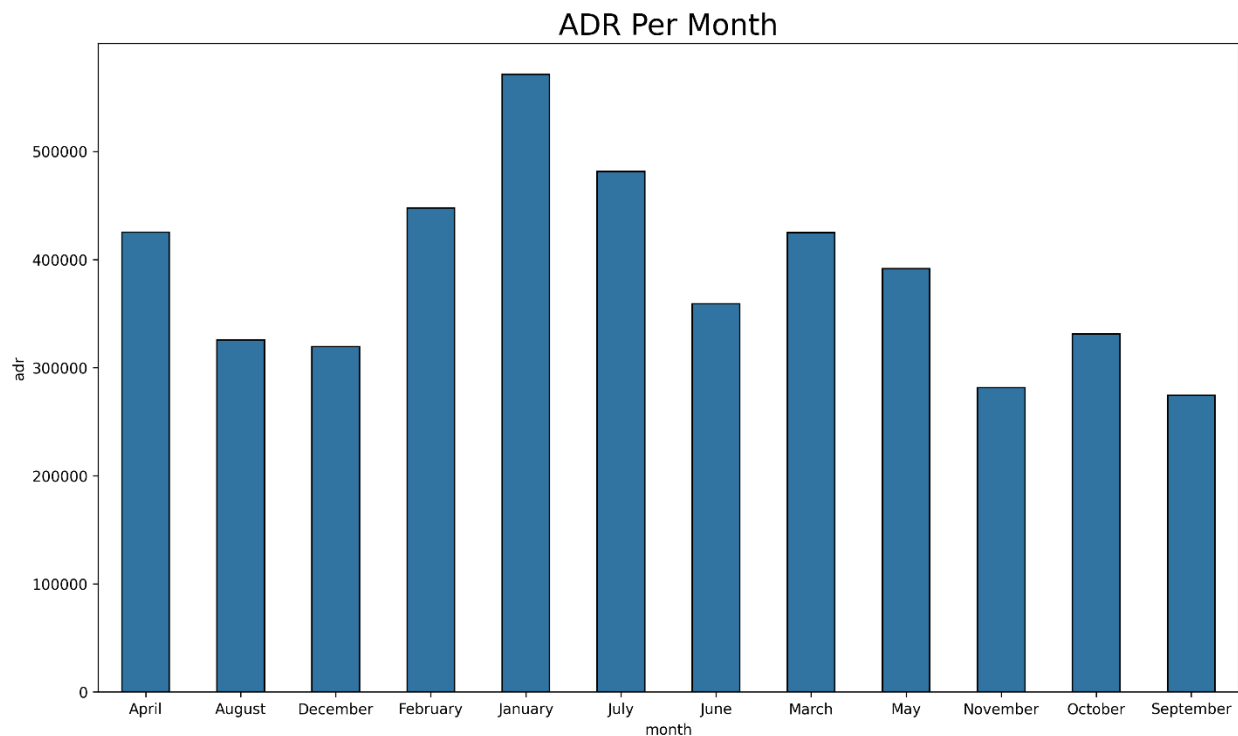
In comparison to resort hotels, city hotels have more bookings. It's possible that resort hotels are more expensive than those in cities.



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.



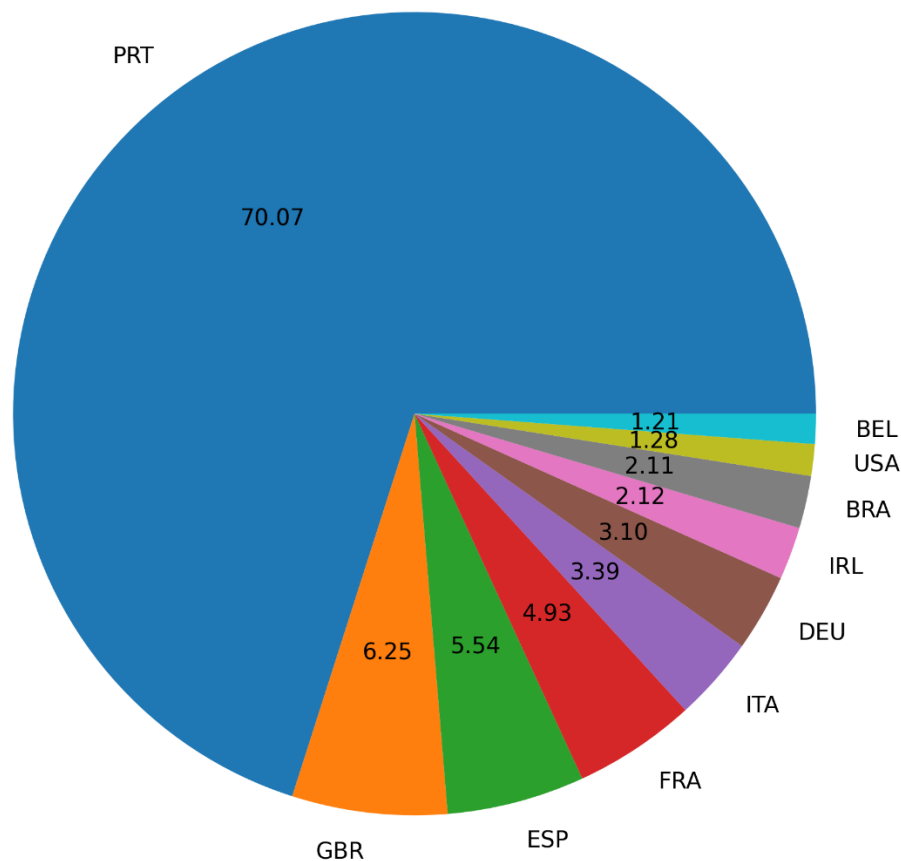
We have developed the grouped bar graph to analyze the months with the highest and lowest reservation levels according to reservation status. As can be seen, both the number of confirmed reservations and the number of cancelled reservations is largest in the month of August. whereas January is the month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



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 cancelled. The top country is Portugal with the highest number of cancellations.

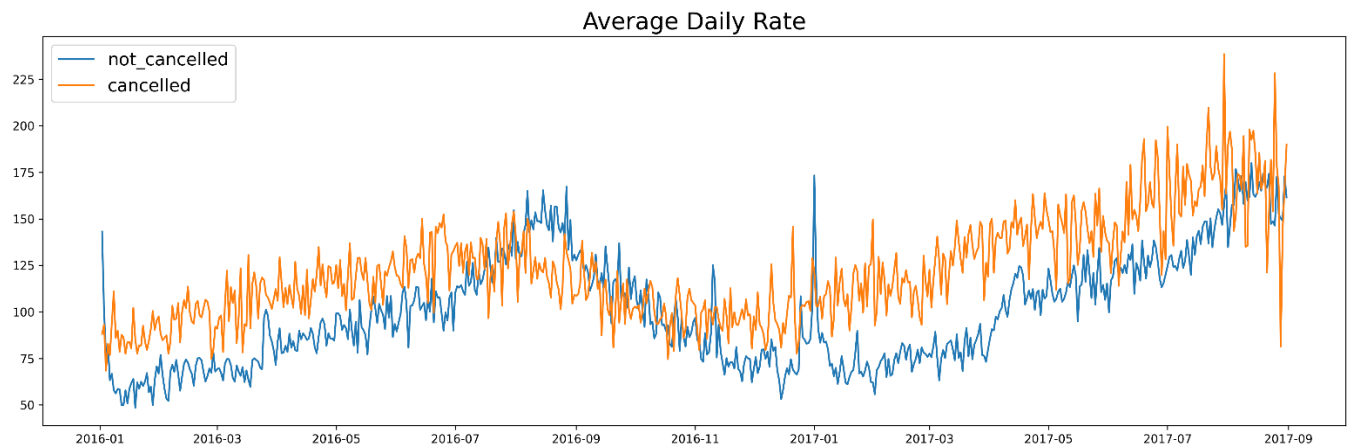
Top 10 countries with reservation cancellation



The pie chart shows the top 10 countries with the highest hotel reservation cancellations, with Portugal (PRT) significantly leading at 70.07%. The next largest portions are the United Kingdom (GBR) at 6.25%, Spain (ESP) at 5.54%, France (FRA) at 4.93%, and Italy (ITA) at 3.39%, while other countries like Germany (DEU), Ireland (IRL), Brazil (BRA), the USA, and Belgium (BEL) make up smaller portions. This suggests that the majority of hotel cancellations come from Portuguese guests. Hotels should focus on understanding the reasons behind this high cancellation rate and consider enhancing their services or offering incentives to reduce cancellations from Portugal, potentially improving customer retention in the region.

```
market_segment
Online TA      0.47
Offline TA/TO  0.20
Groups         0.17
Direct         0.10
Corporate      0.04
Complementary  0.01
Aviation       0.00
Name: proportion, dtype: float64
```

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 47% of the clients come from online travel agencies, whereas 17% come from groups. Only 4% of clients book hotels directly by visiting them and making reservations.



As seen in the graph above, reservations are cancelled when the average daily rate is higher than when it is not cancelled. It clearly proves all the above analysis, that the higher price leads to higher cancellation.

Suggestions:

1. Cancellation rates tend to rise as prices increase. To prevent reservation cancellations, hotels could work on adjusting their pricing strategies, potentially lowering rates for specific locations or offering targeted discounts to consumers.
2. The cancellation rate is higher for resort hotels compared to city hotels. To address this, hotels could offer reasonable discounts on room prices during weekends or holidays to encourage bookings.
3. In January, when cancellations are highest, hotels could launch marketing campaigns or promotions to boost revenue during this period.
4. To reduce the cancellation rate, hotels in Portugal should consider improving the quality of their services and facilities, as Portugal has the highest rate of cancellations.