

Data Analysis with Python Hotel Booking Data

1. Problem statement.
2. Data source and Data.
3. Data Exploration and Cleaning.
4. Data analysis to get useful information and insights.
5. Present the finding in form of Dashboard or Report.

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 both hotel bookings as well as other factors that have no bearing on their business and yearly revenue generation are the main topics of this report.

Assumption

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

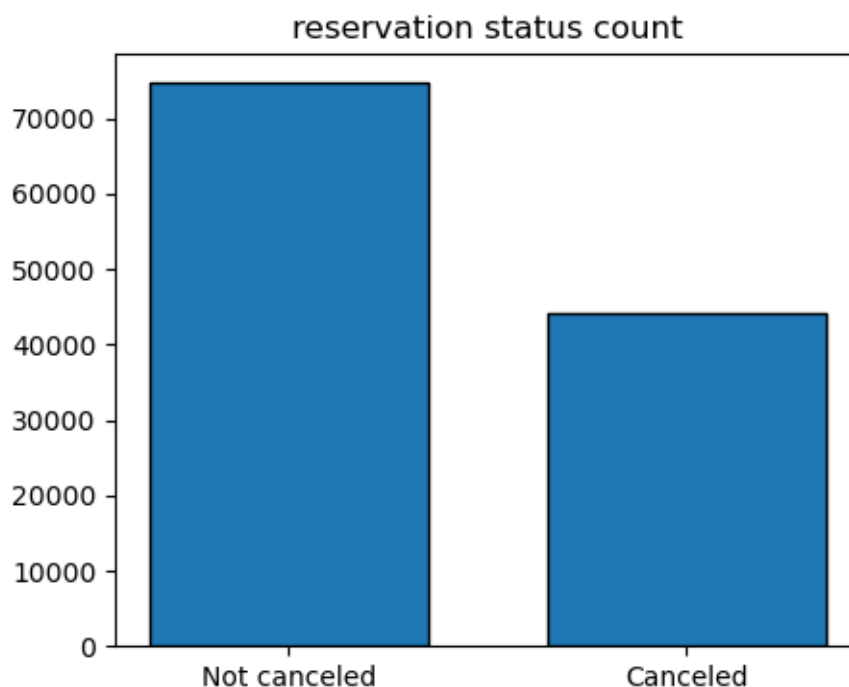
Research Questions

- What are the variables that affect hotel reservation cancellations?
- How can we make hotel reservation cancellations better?
- How will the hotel be assisted in making pricing and promotional decisions?

Hypothesis

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

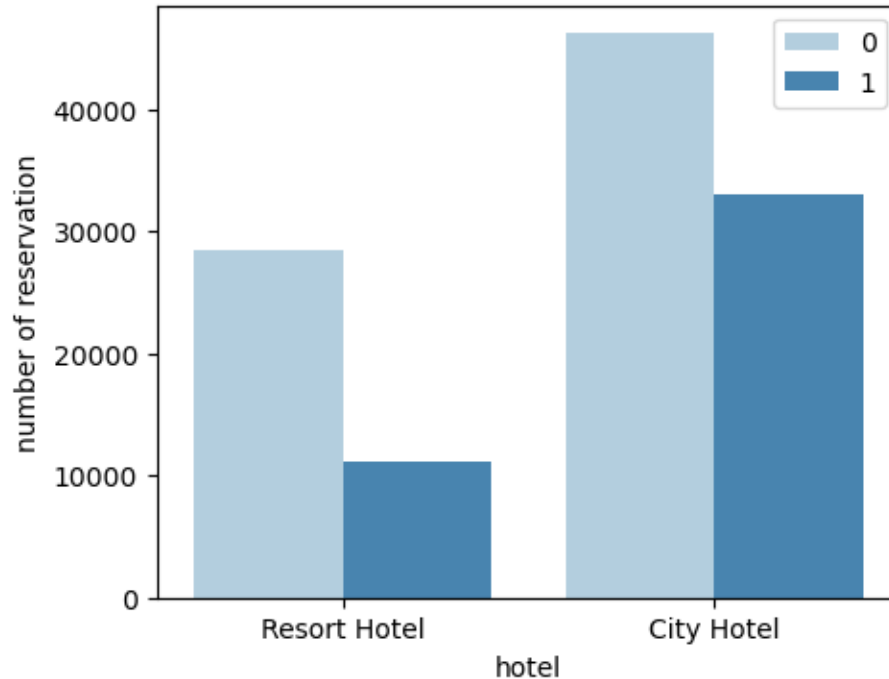
Analysis and Finding



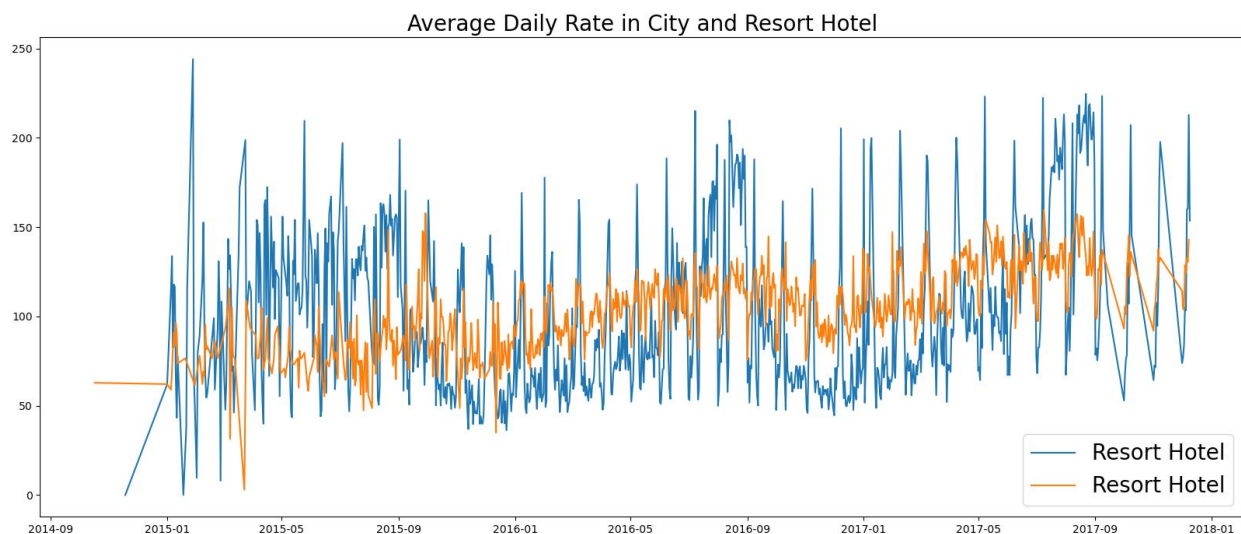
The accompanying bar graphs show the percentage reservations that are canceled and those reservations that are not. It is obvious that there are still significant numbers of reservations that have not been canceled. There are still 37% of

clients who have canceled their reservations, which has a significant impact on hotels' revenue.

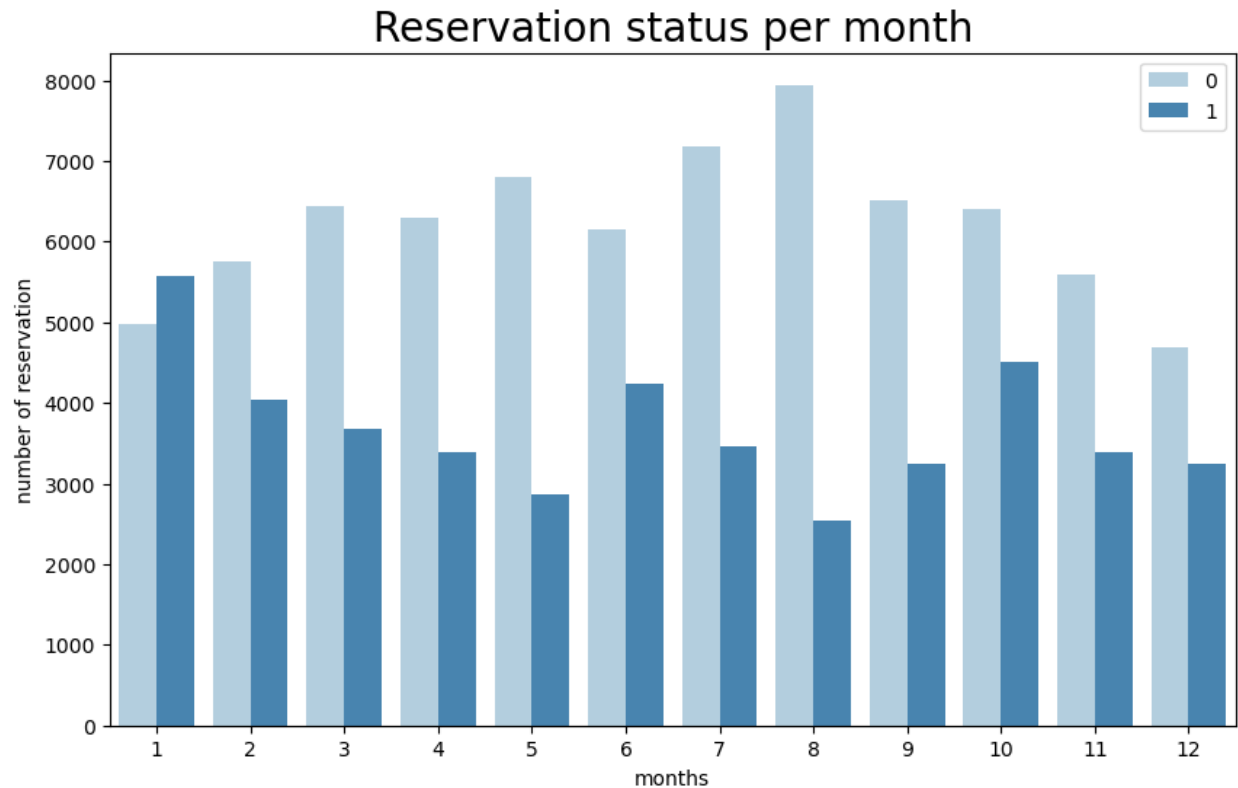
Reservation status in different hotels



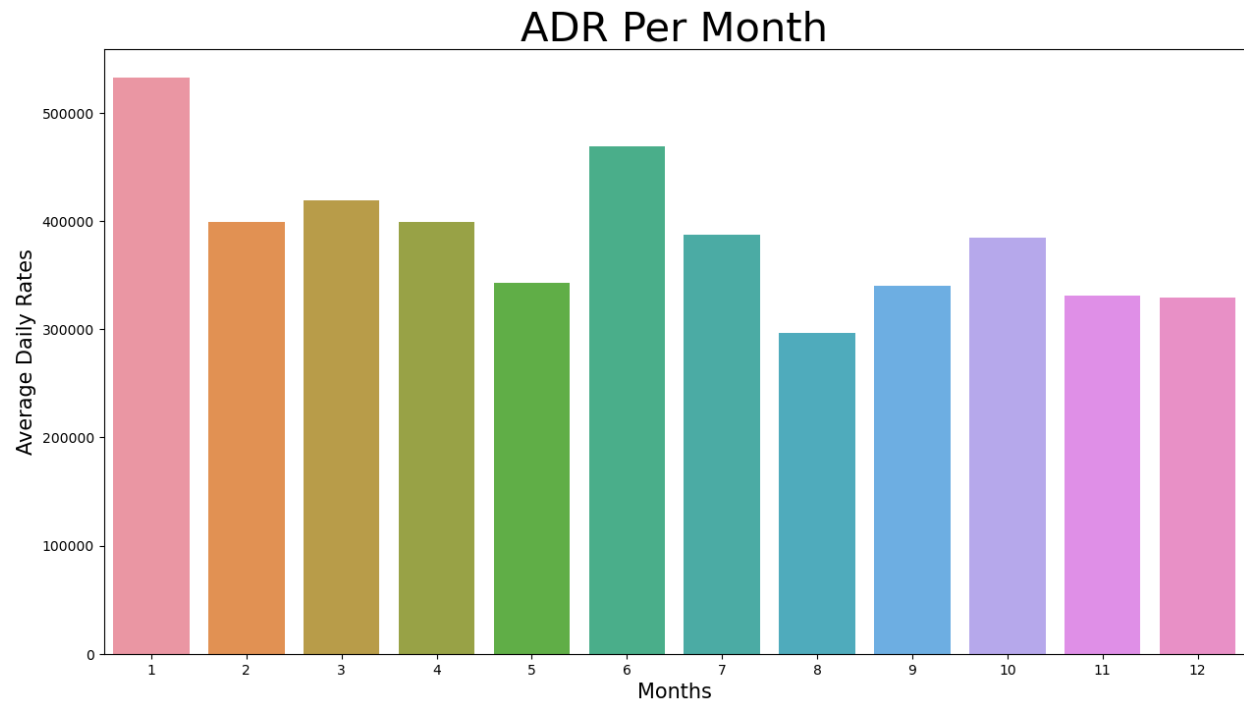
In comparison to resort hotels, city hotels have more bookings. It is possible that resort hotels are more expensive than city hotels.



The above lines show that, on certain days, the average daily rate for city hotels is less than that for resort hotels, and on other days, it is even less. It goes without saying that weekends and holidays may see a rise in resort hotel rates.



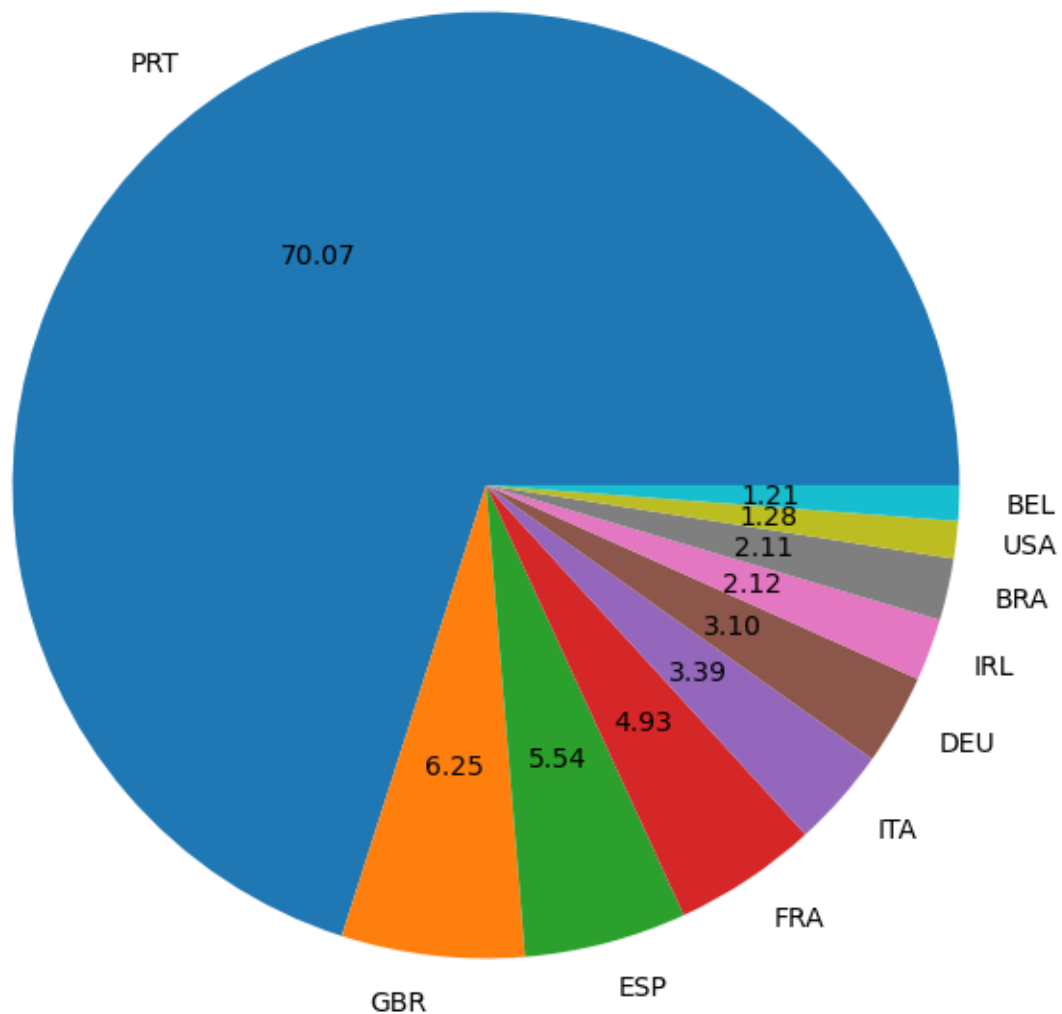
We have developed the bar graph to analyze the month with the highest and lowest reservation level according to the reservation status. As can be seen, both the rate of confirmed reservations and the number of canceled reservations are largest in the month of august. Whereas the month of January is with most canceled reservations.



The bar graph demonstrates that cancelations are most common where prices are highest and are least common when they are lowest. The cost of accommodation is solely responsible for cancelation.

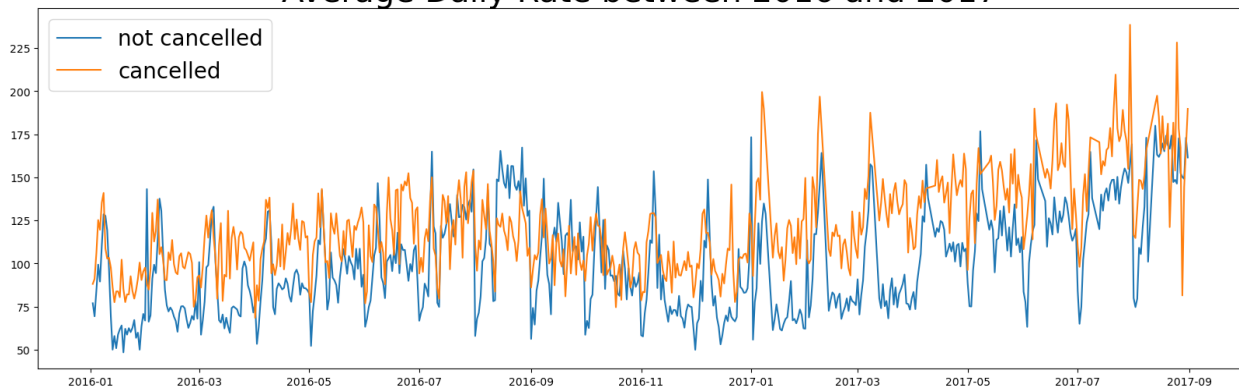
Now, let's see which country has the highest reservation canceled. The top country is Portugal with the highest number of cancelations.

Top 10 Countries with reservation canceled



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% of clients come from groups. Only 4% of client's books hotel by directly visiting them and making reservations.

Average Daily Rate between 2016 and 2017



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

Suggestion

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 customer.
2. As the ratio of cancellation and not cancellation of the resort hotel is higher in the resort hotel than the city hotels. So the hotel should provide a reasonable discounts on the room prices on weekends and holidays.
3. In the month of January, hotels can start marketing or campaigns and 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 hotels and their services mainly in Portugal to reduce the cancellation rate.