Hotel Booking Analysis Report

Business Problem:

Recently, both City and Resort Hotels have faced high cancellation rates, leading to lower revenue and poor room utilization. Reducing cancellations is now a key goal, and our aim is to provide practical recommendations to address this issue.

Assumptions:

- No major events between 2015 and 2017 significantly affected the data.
- The data remains relevant for analysing hotel performance.
- Booking cancellations are the main factor impacting revenue.
- Cancellations leave rooms vacant for the reserved period.
- The hotels are not currently using the suggested solutions.

Research Questions:

- What factors influence hotel reservation cancellations?
- How can hotels reduce their cancellation rates?
- How can data insights support better pricing and promotional decisions?

Hypothesis:

- Higher room prices lead to more cancellations.
- Longer waiting periods increase the likelihood of cancellations.
- Most bookings come through online travel agents.

Analysis and Findings
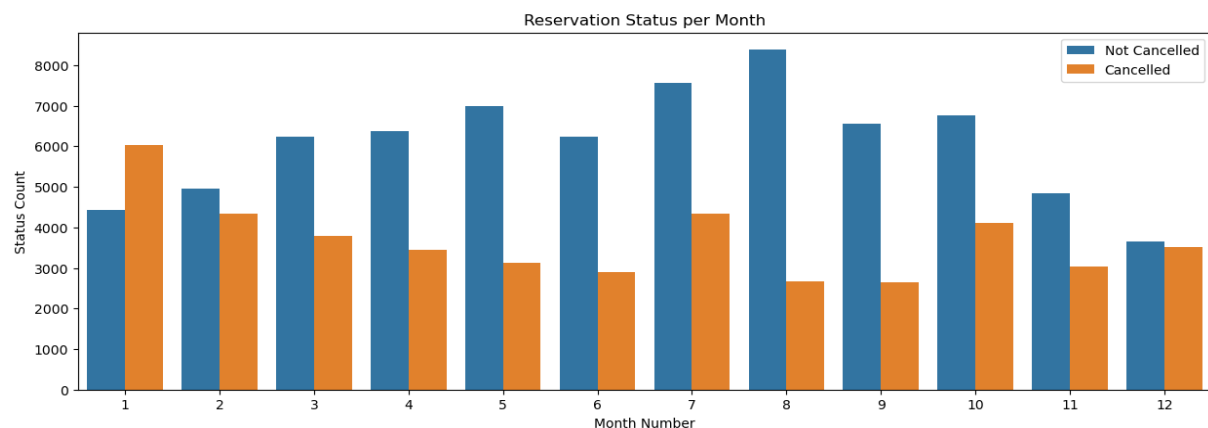

Reservation Status Count
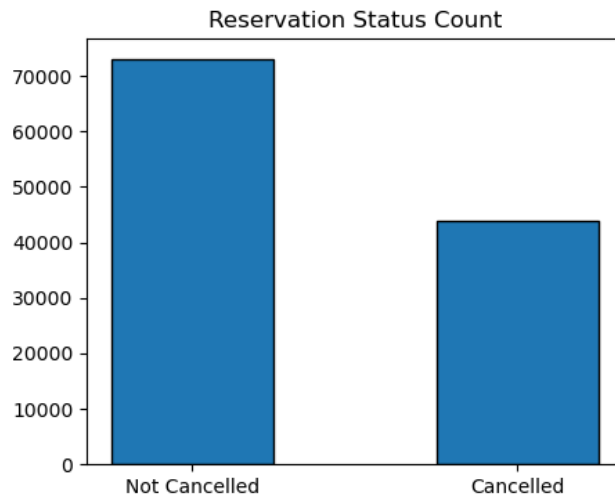
The bar graph illustrates the percentage of cancelled and non-cancelled reservations. While most bookings remain confirmed, about 37% of customers cancelled their reservations — a figure that significantly affects the hotels' overall revenue.

Reservation Status in different Hotels

City hotels receive more bookings compared to resort hotels, possibly because resort stays tend to be more expensive.

Average Daily Rate in City and Resort Hotel
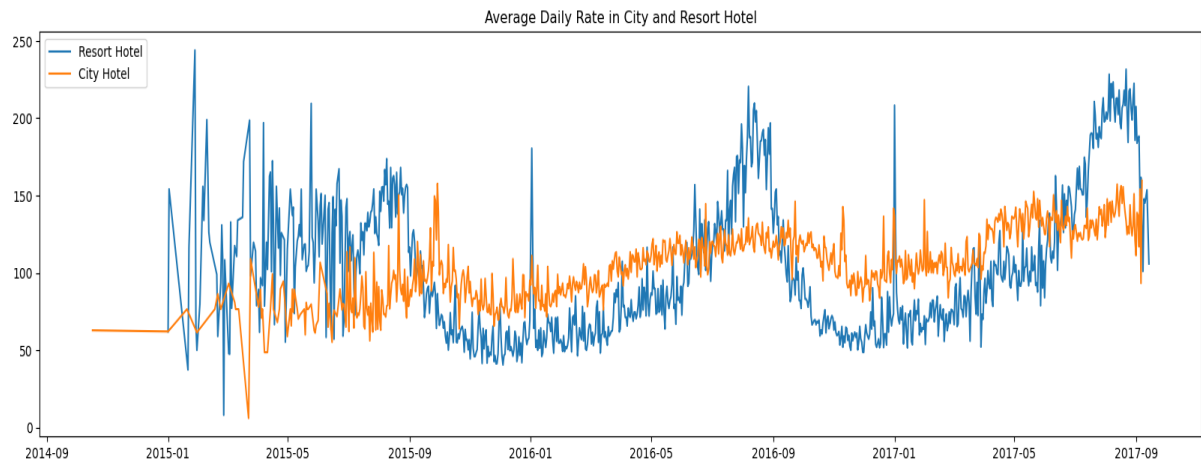
The line graph shows that on some days, the average daily rate for city hotels is higher than that of resort hotels, while on other days the difference is even greater. It's evident that resort hotel rates tend to increase during weekends and holidays.

Reservation Status per Month

We created a grouped bar graph to identify the months with the highest and lowest reservation levels based on their status. The data shows that both confirmed and cancelled reservations peak in August, while January records the highest proportion of cancellations.

Now let's see which country has the highest reservation cancelled. The top country is Portugal with the highest number of cancellations up to 70%.

Top 10 countries with reservation cancelled

PRT 69.95
BEL 1.21
USA 1.28
BRA 2.12
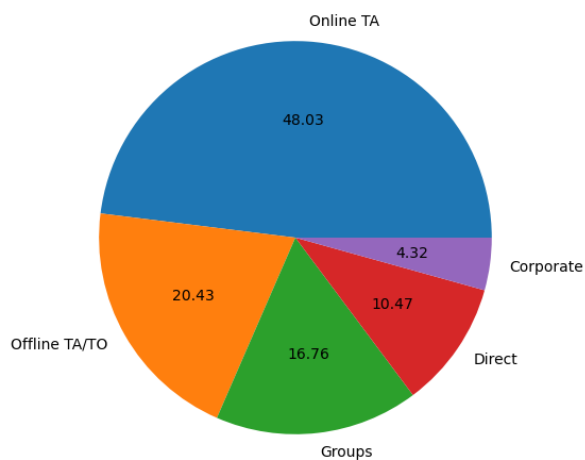IRL 2.13
DEU 3.12
ITA 3.41
FRA 4.95
ESP 5.57
GBR 6.27
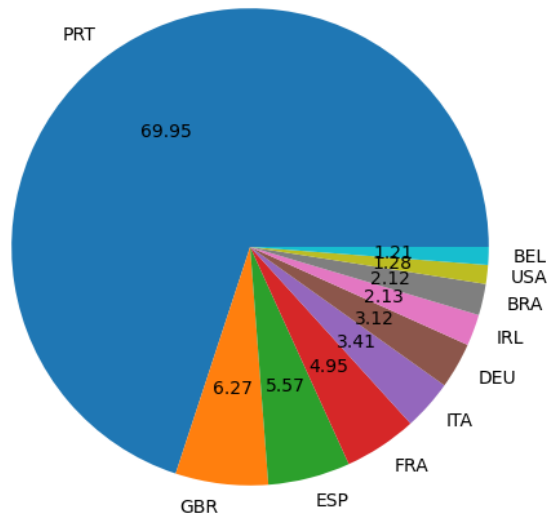
Let's examine the sources through which guests make their hotel reservations — whether Direct, Group, Online, or Offline Travel Agents.
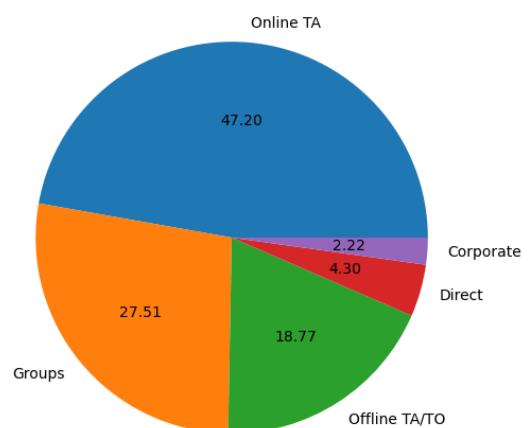
About 48% of bookings come from online travel agencies, 20% from offline agents, and 26% from Direct and Group channels combined, with the remaining from other sources.
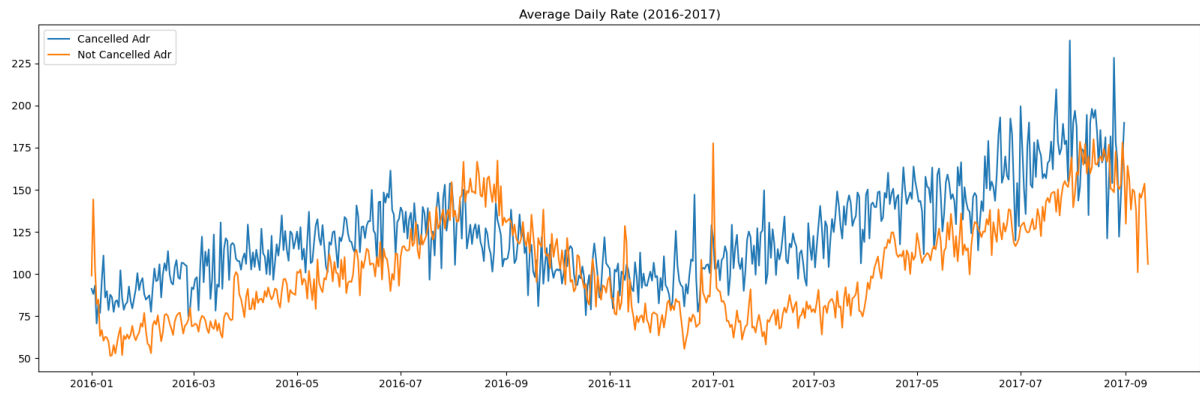
Among these, 47% of online bookings are cancelled, followed by 27% from Groups, 18% from offline agents, and a smaller share from other channels.

Top Reservation Channels

Online TA 48.03
Corporate 4.32
Direct 10.47
Groups 16.76
Offline TA/TO 20.43

Top Cancelled Reservation Channels

Online TA 47.20
Corporate 2.22
Direct 4.30
Offline TA/TO 18.77
Groups 27.51

Average Daily Rate (2016-2017)

As shown in the graph, cancellations tend to occur when the average daily rate is higher than for non-cancelled bookings. This supports the earlier analysis, confirming that higher prices lead to more cancellations.

Suggestions:

- Since cancellation rates increase with higher prices, hotels should review their pricing strategies — offering location-based discounts or special deals to reduce cancellations.
- As resort hotels face higher cancellation ratios than city hotels, they can consider offering reasonable discounts during weekends and holidays.
- Given that January sees the highest cancellations, hotels can run targeted marketing campaigns during this month to boost bookings and revenue.
- Improving hotel quality and service standards, especially in Portugal, may also help reduce cancellation rates.