

# **Hotel Reservations Sales Report**

## **Introduction:-**

In recent years, both City Hotels and Resort Hotels have faced high cancellation rates. This has created several challenges, such as reduced revenues, unoccupied rooms, and inefficient use of hotel resources.

The goal of this project is to analyze booking data, identify the main factors affecting cancellations, and provide recommendations that can help hotels reduce cancellations and improve revenue.

## **Business Problems:-**

Hotels are struggling with:

- High cancellation rates, leading to lost revenue.
- Long lead times (customers booking far in advance and later canceling).
- Dependence on certain market segments like Online Travel Agencies (OTA), which show higher cancellation rates.
- Understanding these patterns will help hotels adjust pricing, promotions, and policies to reduce cancellations and optimize occupancy.

## **Assumptions:-**

For this analysis, we assume:

- No unusual events (like COVID-19 or other disruptions) occurred in the dataset period (2015–2017).
- The data is accurate and representative of actual hotel performance.
- Hotels are not already using advanced cancellation reduction strategies.
- Customer behavior during this time is a fair reflection of real booking patterns.

## **Research Questions:-**

This analysis is guided by three main questions:

1. What are the key factors that influence hotel booking cancellations?
2. How can hotels reduce the cancellation rate and improve revenue?
3. How can insights from this data guide pricing, marketing, and business decisions?

## Data Description:-

**Dataset: hotel\_bookings.csv (119,390 rows × 32 columns).**

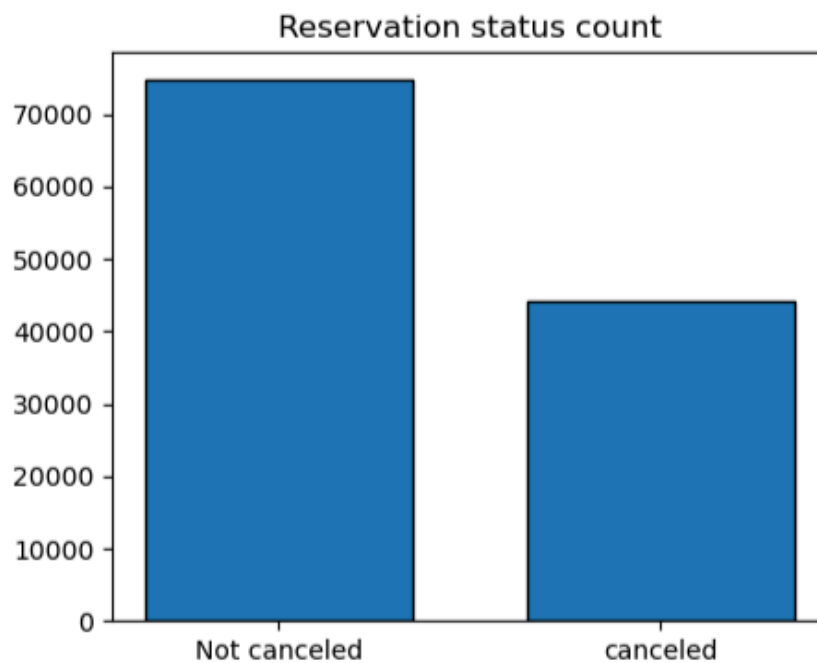
1. Period: 2015–2017.
2. Features include: hotel type, booking status, lead time, customer country, market segment, average daily rate (ADR), reservation status, etc.
3. Missing values: Found in children, country, agent, and company. These have been removed or dropped for simplicity.

## Key Findings:-

### **1. Overall Cancellation Rate:**

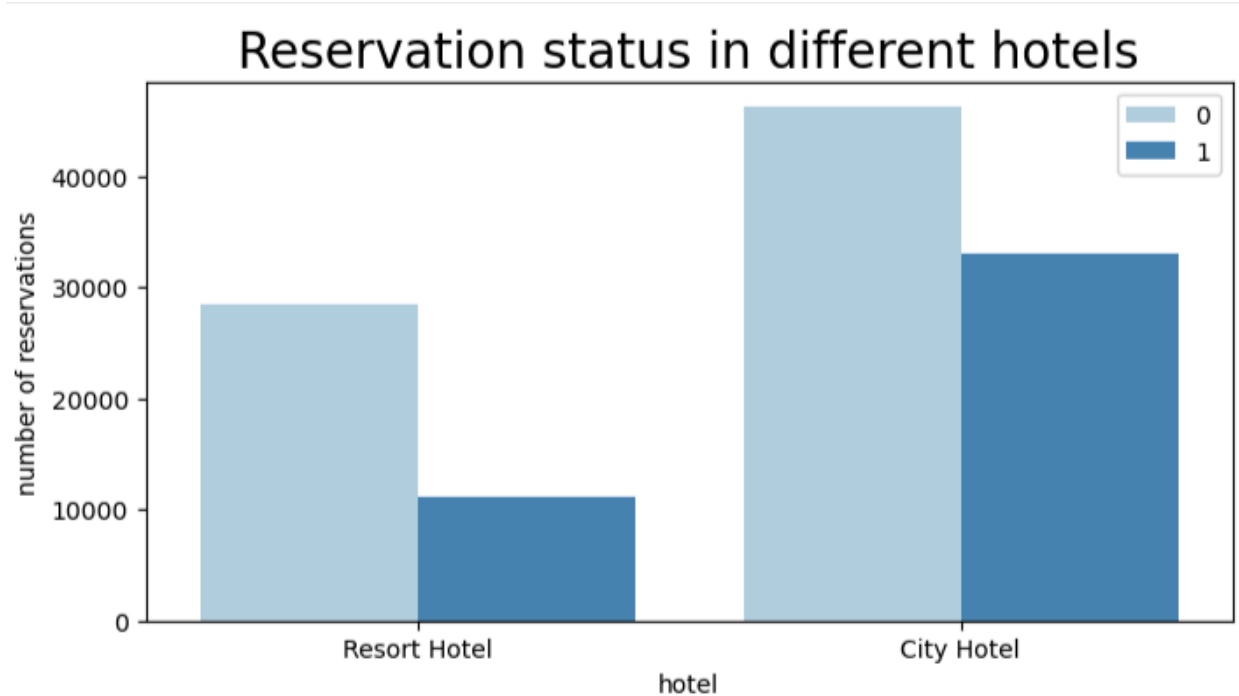
As per data analysis, About 37% of all bookings were cancelled.

```
is_canceled
0    0.628653
1    0.371347
Name: proportion, dtype: float64
```



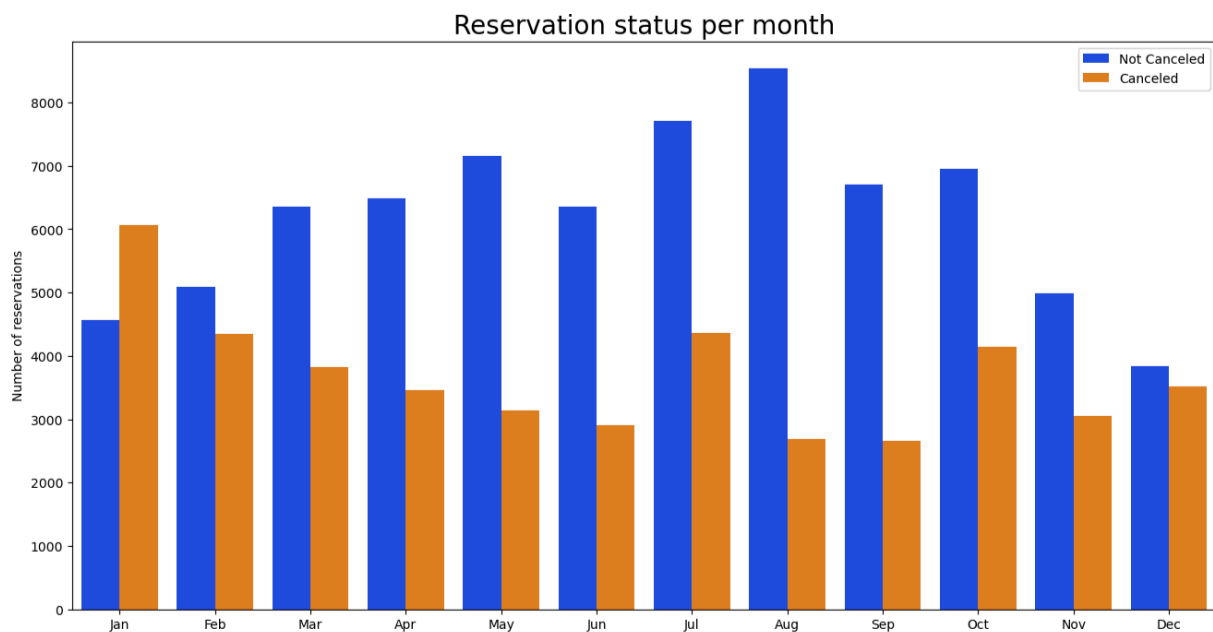
### **2. Hotel Type Comparison:**

As per my findings, Resort hotels cancellations rate is lower as compared to City hotels cancellations. As per this data, ~28% hotel room cancellations in resorts and ~42% hotel room cancellations in City hotels which is higher than resort.



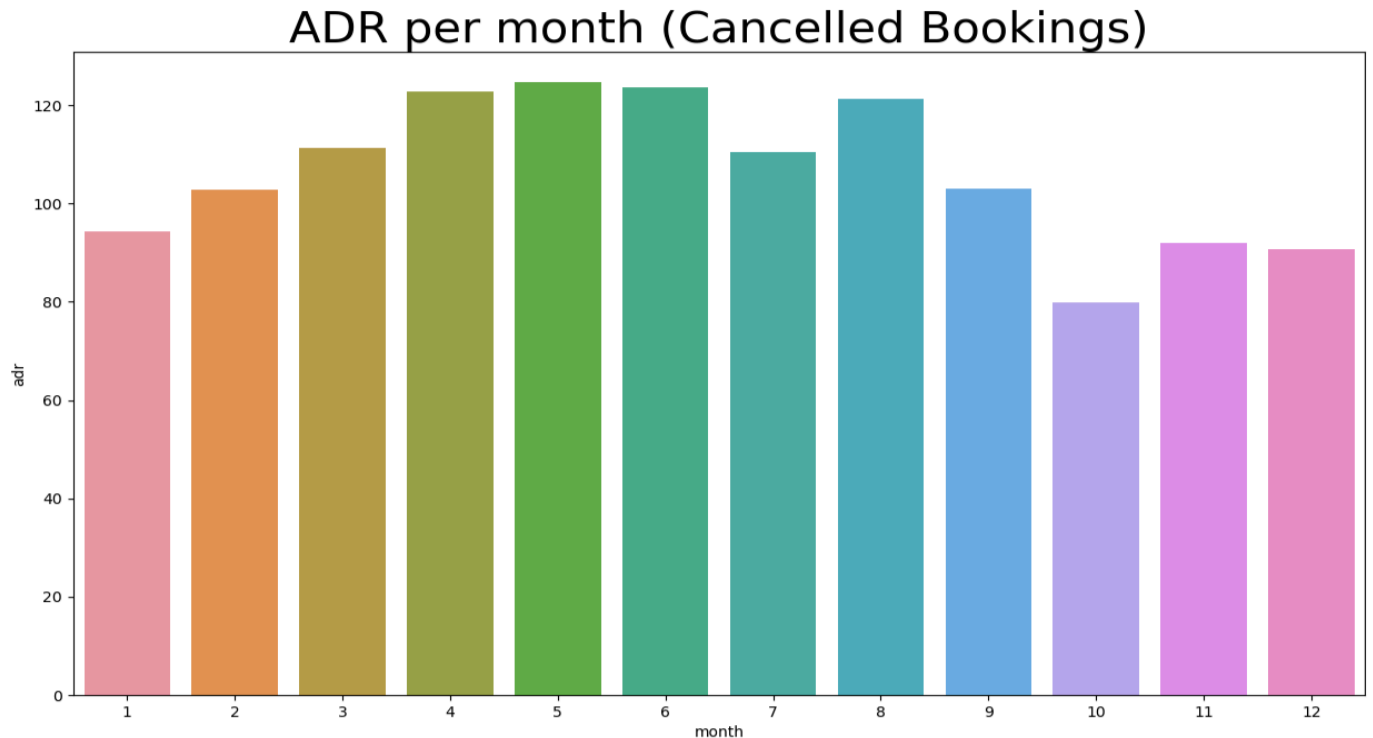
### 3. Seasonality Demand (Monthly Trends)

According to this graph, the cancellation rate is high in January but slightly decreases the cancellation rate from January till June, after June the cancellation rate is again increased.



#### 4. Average Daily Rate (ADR)

As per this graph, Cancelled bookings generally had a higher ADR compared to non-cancelled bookings. Especially from April to June, more customers are cancelled due to an increase in the price of hotel rooms. Suggests that high prices discourage customers from following through.

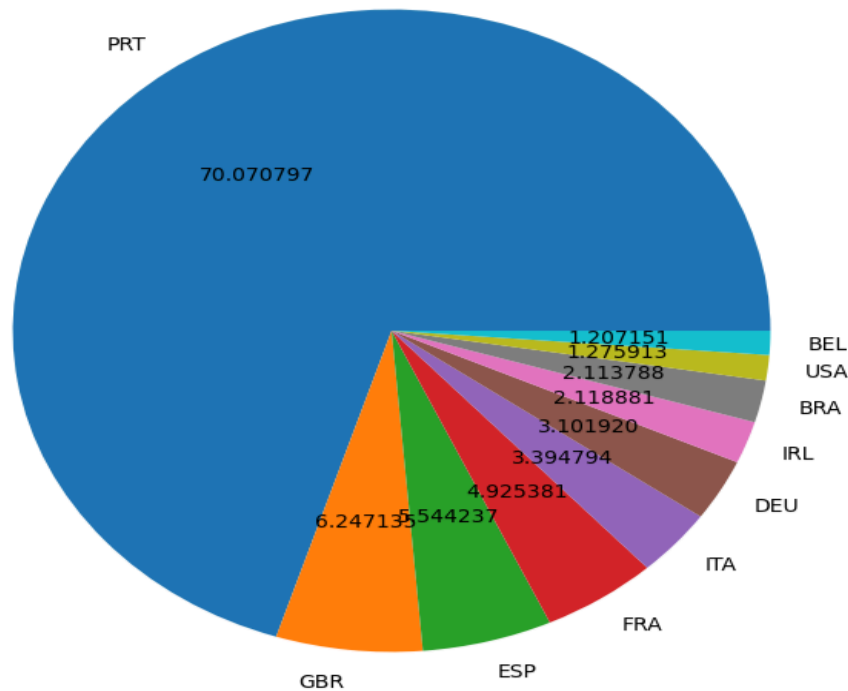


#### 5. Country Insights:-

**Top countries with cancellations include Portugal, the UK, USA, Spain, and France.**

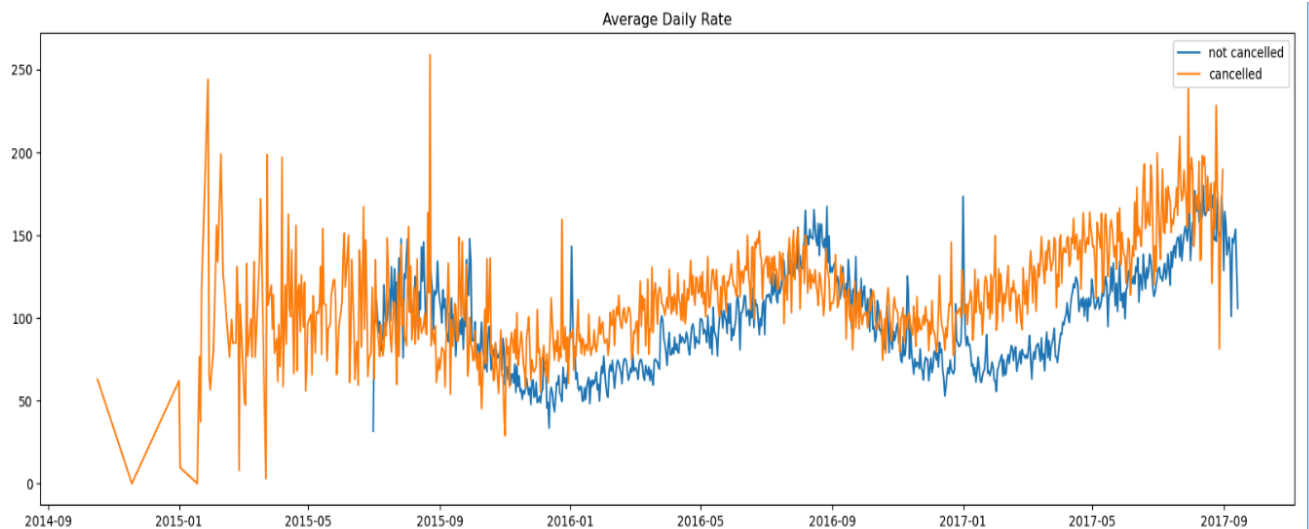
As per this Piechart, the top 10 countries where Cancellations rate is higher than other countries. and as per data, in Portugal, there are high cancellation rates (70.07).

Top 10 countries with reservation canceled



## 6. Market Segments:

As per data,online Travel Agencies (OTA) make up nearly 47% of all bookings but also show the highest cancellation rates, direct and corporate bookings are less likely to be cancelled.



```
market_segment
Online TA      0.469696
Groups         0.273985
Offline TA/TO  0.187466
Direct         0.043486
Corporate      0.022151
Complementary  0.002038
Aviation       0.001178
Name: proportion, dtype: float64
```

## **Recommendations:-**

**Based on the findings, hotels should consider:**

- Hotels should adjust price depending upon market situations like Demand and Supply, off season and on season, facilities provided by them, adjust price also as per location like tier 1 city, tier 2 city.
- During ADR months, prices should be reduced because during this season of high demand, customers charged high prices may be forced to cancel more.
- If Customers give discounts for non-refundable bookings, they will be encouraged to do non-refundable booking. As per human psychology, if we get discounts, we are attracted to that.
- Encouraging customers to Direct Bookings, it will reduce the chance of cancellations. so,
- Incentivize customers to book directly (special offers, loyalty programs, discounts).
- Identify high-cancel countries and adjust policies accordingly (e.g., stricter deposits).
- Bookings made very early should be flagged, hotels can ask for partial deposits. If customers pay half the amount, they avoid cancelling without any big reasons.
- Focus campaigns on repeat guests and direct customers to reduce dependency on OTAs.

## **Conclusion:**

The analysis clearly shows that cancellation rates are a major issue for hotels, especially for City Hotels and OTA-driven bookings. By adopting data-driven policies like price adjustments, discounts, loyalty rewards, stricter deposit rules, promotional campaigns and focusing on direct bookings, hotels can significantly reduce cancellations and improve revenue stability.