# 📑 Hotel Booking Cancellation Analysis

## Problem Statement

The project focuses on analyzing hotel booking cancellations to answer three key questions:

1. What are the variables affecting reservation cancellations?

2. How can we reduce hotel booking cancellations?

3. How can hotels use this analysis to improve pricing and promotional decisions?

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## 1. Overall Reservation Status

Around 73,000 bookings were not canceled, compared to 44,000 cancellations.
This indicates a cancellation rate of nearly 38%, which significantly impacts revenue predictability.
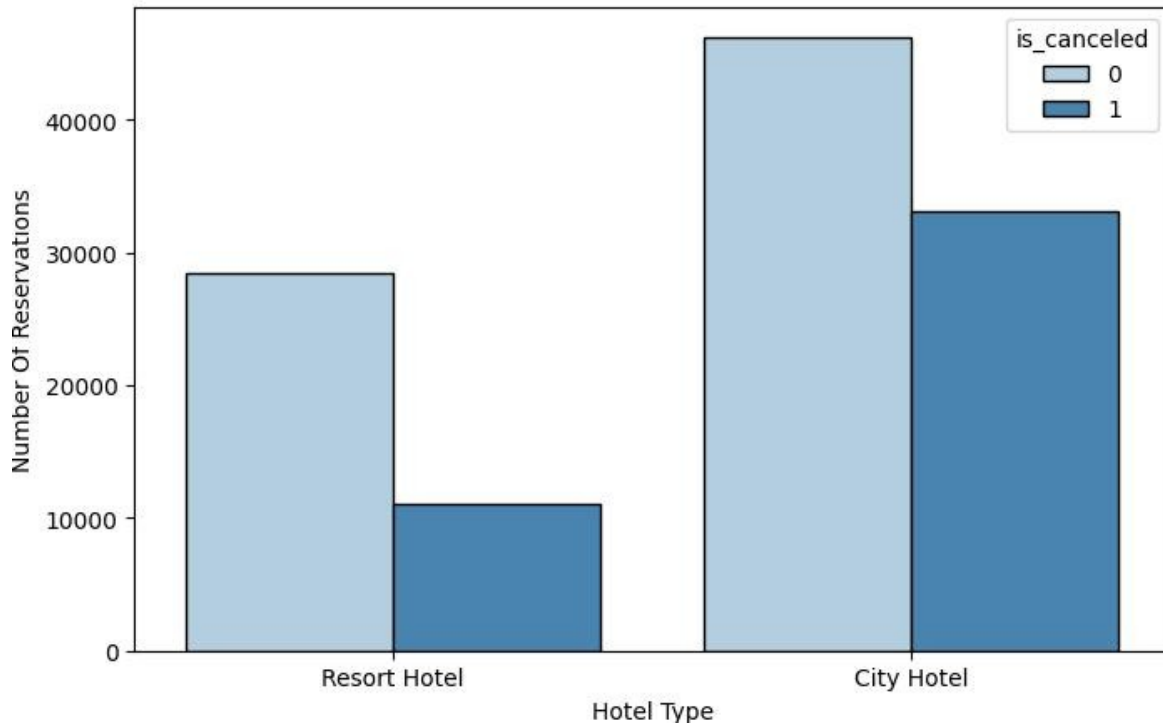


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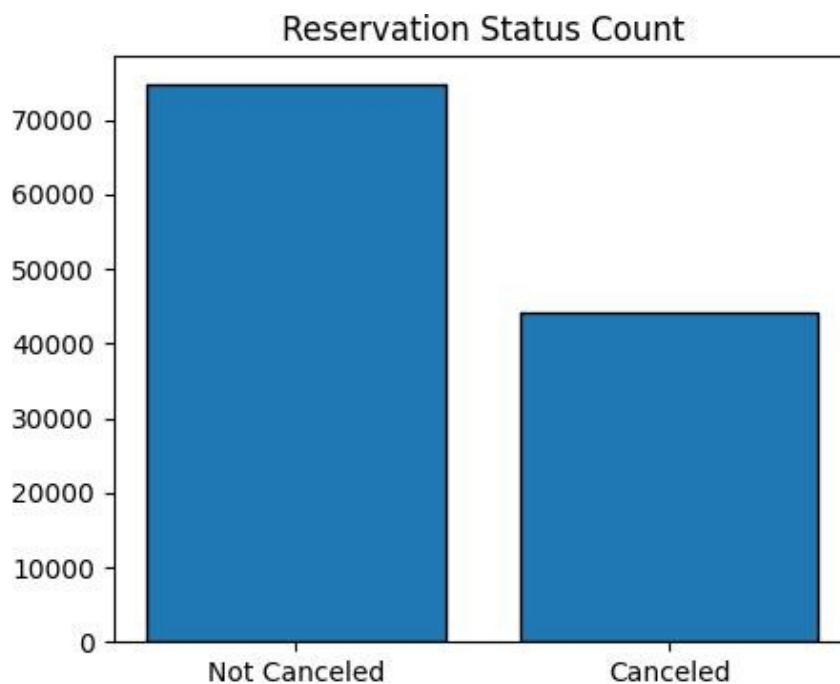
## 2. Reservation Status by Hotel Type

City Hotels dominate with ~46K not canceled vs. ~33K canceled.
Resort Hotels show fewer cancellations (11K) compared to confirmed bookings (~29K).
Thus, Resort Hotels experience higher booking reliability.

Reservation Status In Different Hotels

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## 3. `ADR by Reservation Date on Hotel Type`

The chart shows that Resort Hotels exhibit higher volatility in ADR, with frequent spikes and a wider range between 50 and 250, while City Hotels maintain a steadier ADR trend between 75 and 150, showing gradual growth over time. This indicates that Resort Hotels are more influenced by seasonal demand and pricing strategies, whereas City Hotels follow a more consistent and predictable pricing pattern.



Average Daily Rate
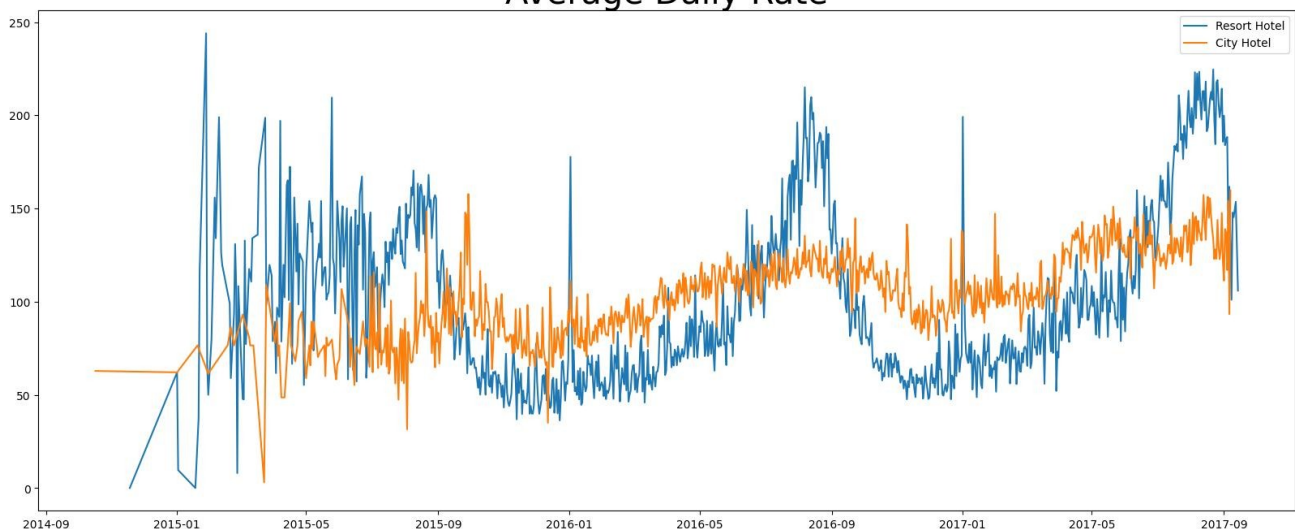
# 4. Reservation Status Per Month

Cancellations peak in January (over 6,000), coinciding with the highest ADR.

From March to June, cancellations drop gradually.

August sees the highest confirmed bookings (8,500+).

Cancellations rise again in October (~4,200).



Reservation Status Per Month

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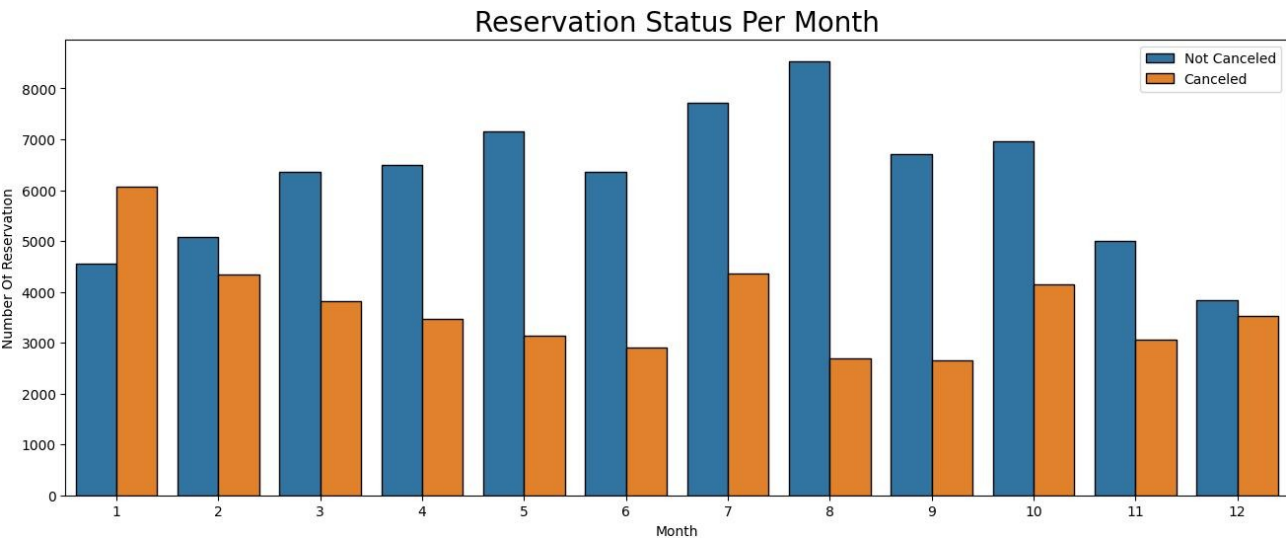
# 5. ADR per Month (Canceled Bookings)

The chart shows that cancellations are strongly associated with higher ADR values, with January recording the highest average daily rate (above 560,000) and another significant peak in July (~480,000), while months like September to November record much lower ADRs (270,000–280,000), suggesting that higher prices drive more cancellations.
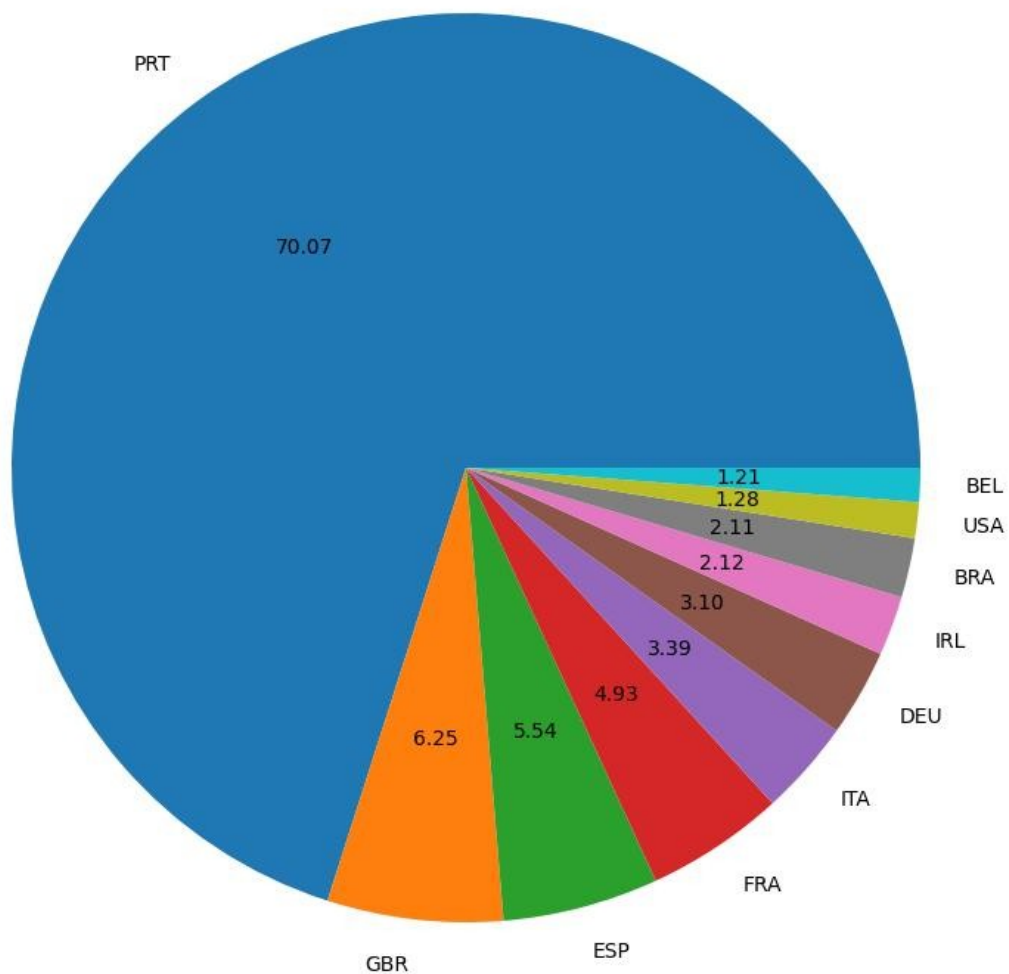


ADR Per Month
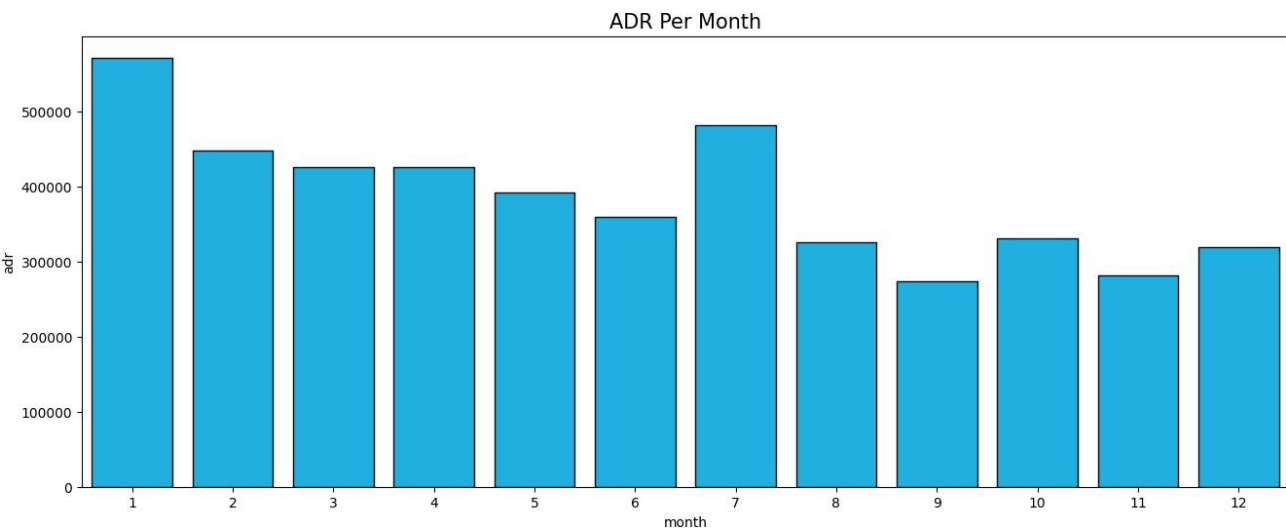
# 6. Cancellations by Country

Portugal (PRT) accounts for 70% of cancellations, followed by UK (6.25%), Spain (5.54%), France (4.93%), and Italy (3.39%).
This indicates strong domestic cancellation behavior in Portugal, possibly due to flexible local travel habits.

Top 10 Country With Reservation Canceled



# 7. ADR by Reservation Date (Canceled vs. Not Canceled)

The chart shows that canceled bookings consistently have higher ADR compared to non-canceled bookings, with canceled reservations following an upward trend above 100–200, while non-canceled bookings remain lower and more stable; this pattern highlights that customers are more likely to cancel when prices are higher, reflecting strong price sensitivity.

Average Daily Rate
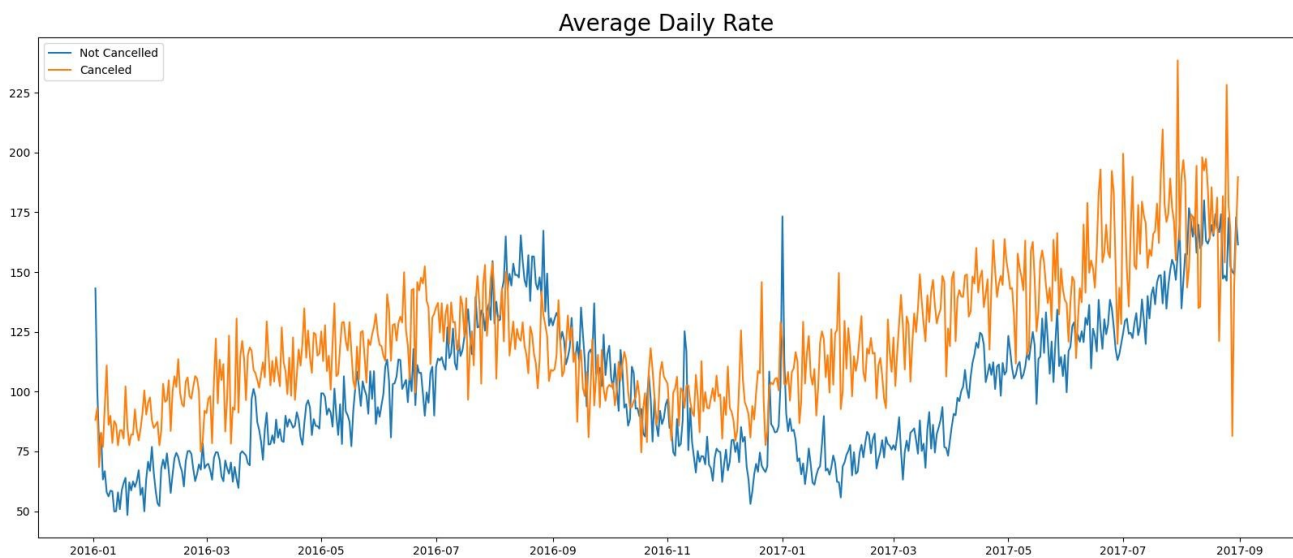
## Key Insights

- High ADR drives cancellations – months with higher ADR (January, July) also see higher cancellations.

- City Hotels face higher cancellation risk than Resort Hotels.

- August is the peak travel month, but cancellations remain relatively low then.

- Portugal dominates cancellations, likely due to speculative local bookings.

## Recommendations

- Implement dynamic pricing strategy during peak months to balance ADR and reduce cancellations.

- Introduce stricter cancellation policies for City Hotels.

- Target Portuguese travelers with incentives for non-refundable bookings.

- Maintain Resort Hotel strategies, as cancellations are already lower.