Hotel Booking

Data Analytics Project

Hotel Booking : Data Analytics Project

Problem Statement: Hotel Booking Cancellations and Revenue Optimization

City Hotel and Resort Hotel are facing high cancellation rates, leading to revenue losses and inefficient room utilization. This analysis aims to identify key factors influencing cancellations, differentiate impactful and non-impactful variables, and provide strategic recommendations to enhance revenue generation and operational efficiency.

Assumptions

1. The dataset from 2015 to 2017 is considered reliable, with no significant external events affecting its accuracy, making it suitable for analyzing hotel booking trends.

2. The proposed strategies have not been previously implemented by the hotels and are expected to have no unforeseen negative consequences.

3. Booking cancellations are the key factor impacting revenue generation and room utilization, leading to inefficiencies in operational management.

4. Most cancellations occur within the same year of booking, resulting in unoccupied rooms for the reserved duration and direct revenue loss.

Presentation By : Sameer Dahiya

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Research Question

1. What are the variables that affect hotel reservation cancellations?

2. How can we improve the hotel reservation cancellation rate?

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.

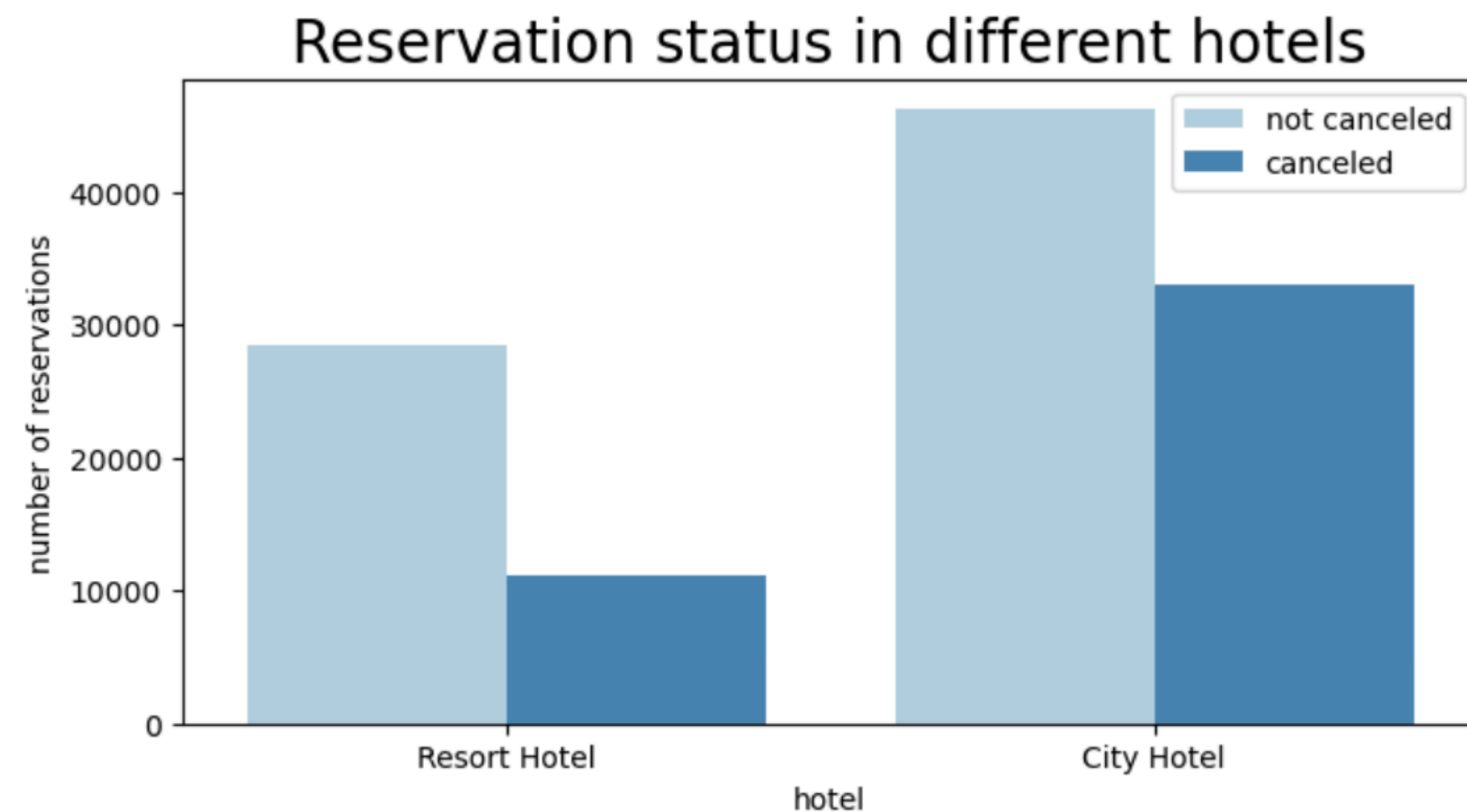3. The majority of clients are coming from offline travel agents to make their reservations.

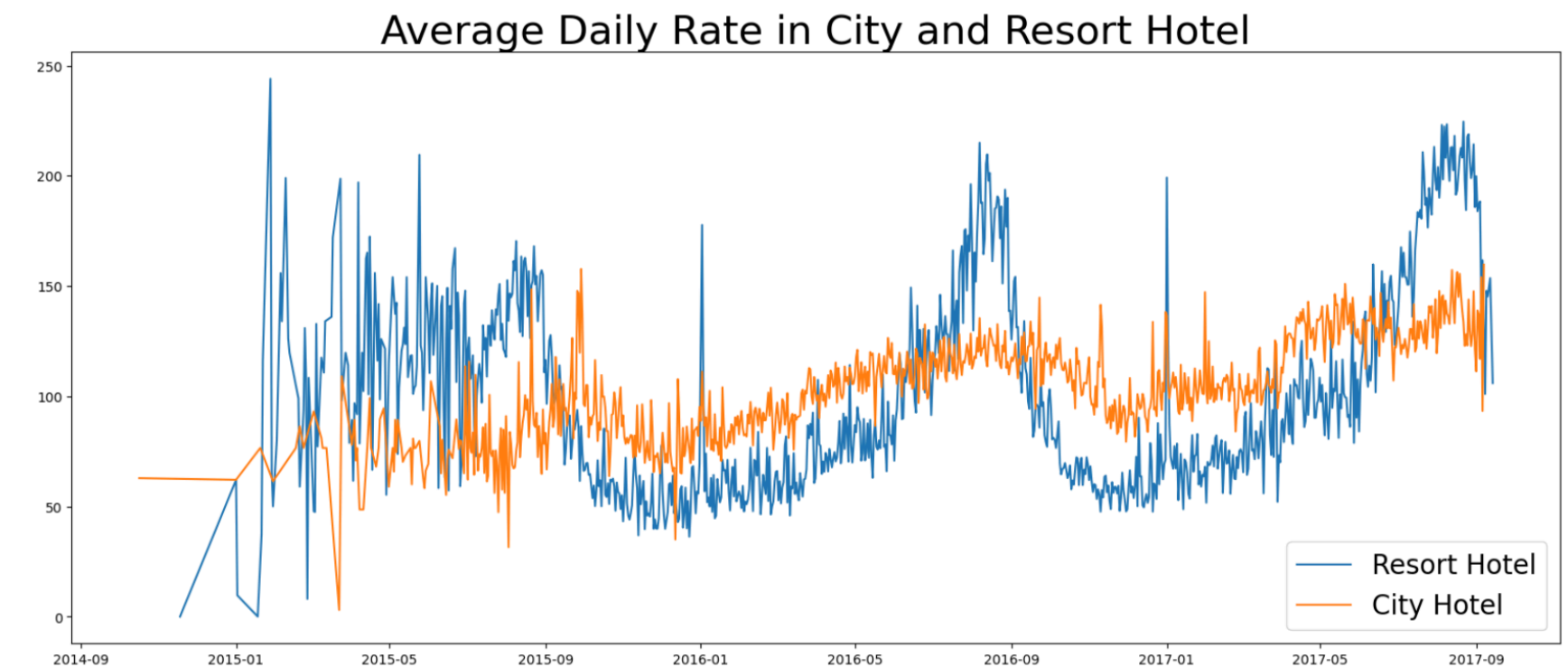**These Hypothesis are tested using graphs in Python**

Presentation By : Sameer Dahiya

Analysis and Findings

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

On General days ADR in city hotels are more than the resort hotels excluding holidays and weekends.

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Analysis and Findings

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 canceled reservations are largest in the month of August. whereas January is the month with the most canceled reservations.
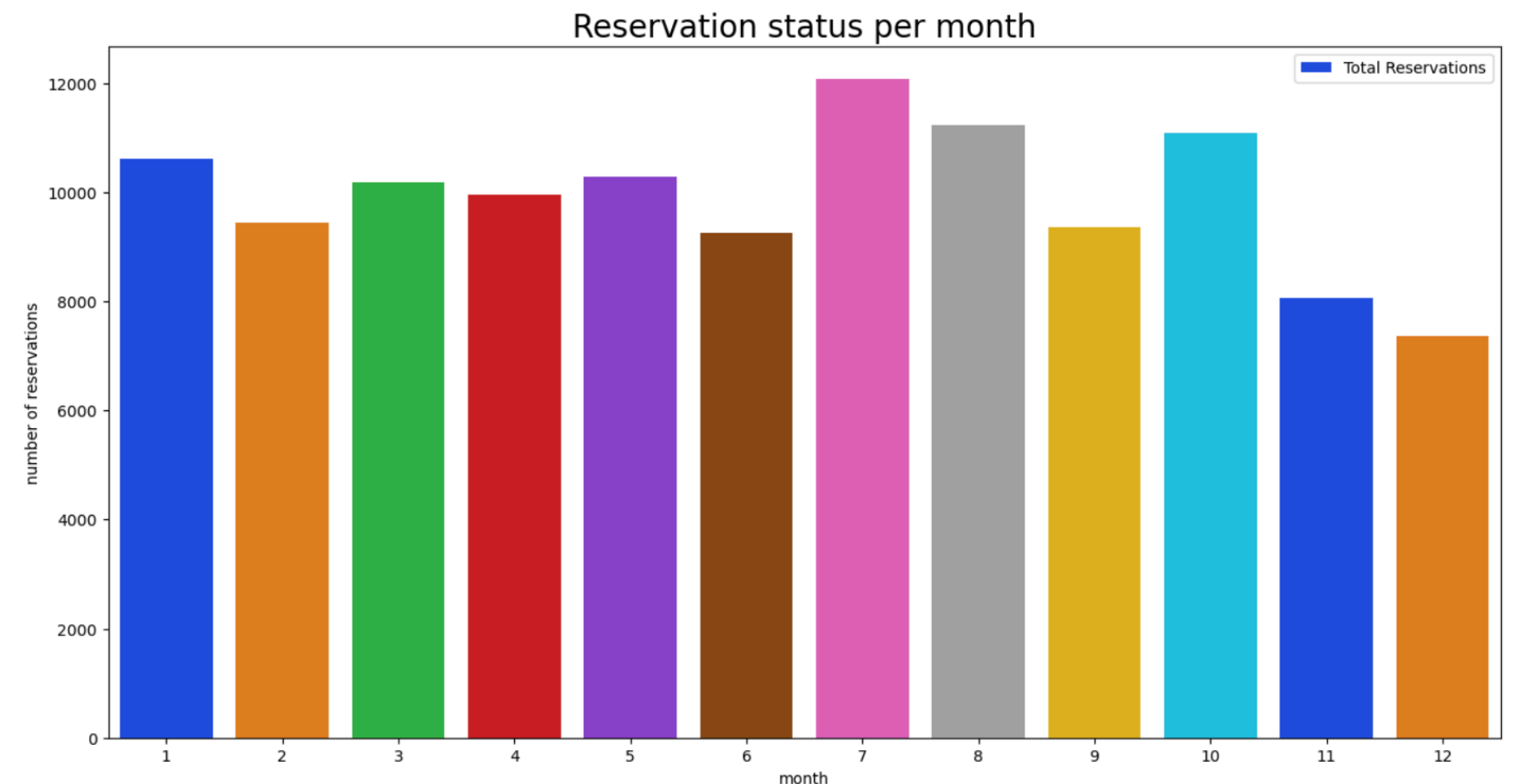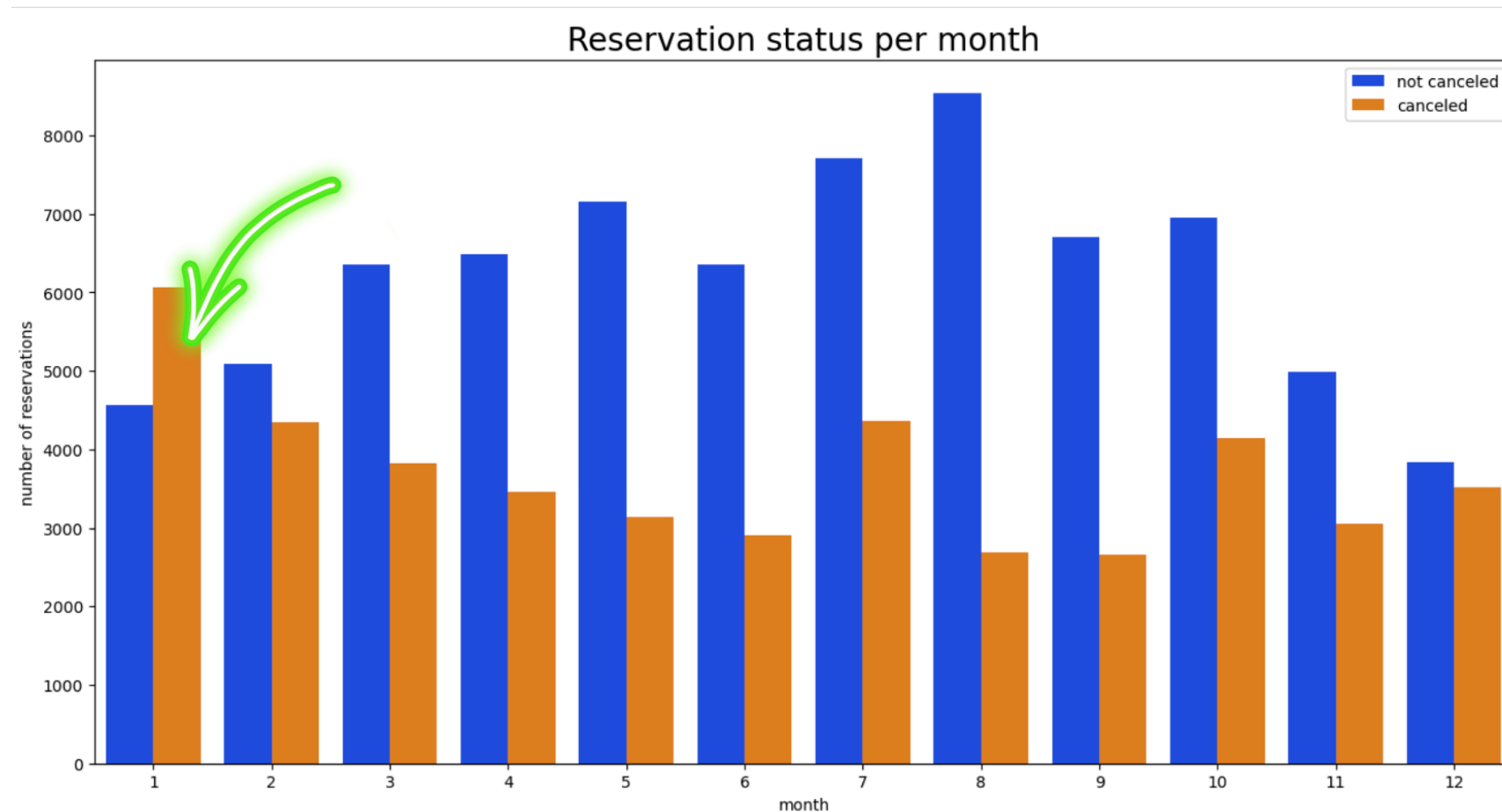

This bar graph demonstrates that cancellations are most common when prices are greatest and are least common when they are lowest. Therefore, the cost of the accommodation is solely responsible for the cancellation.
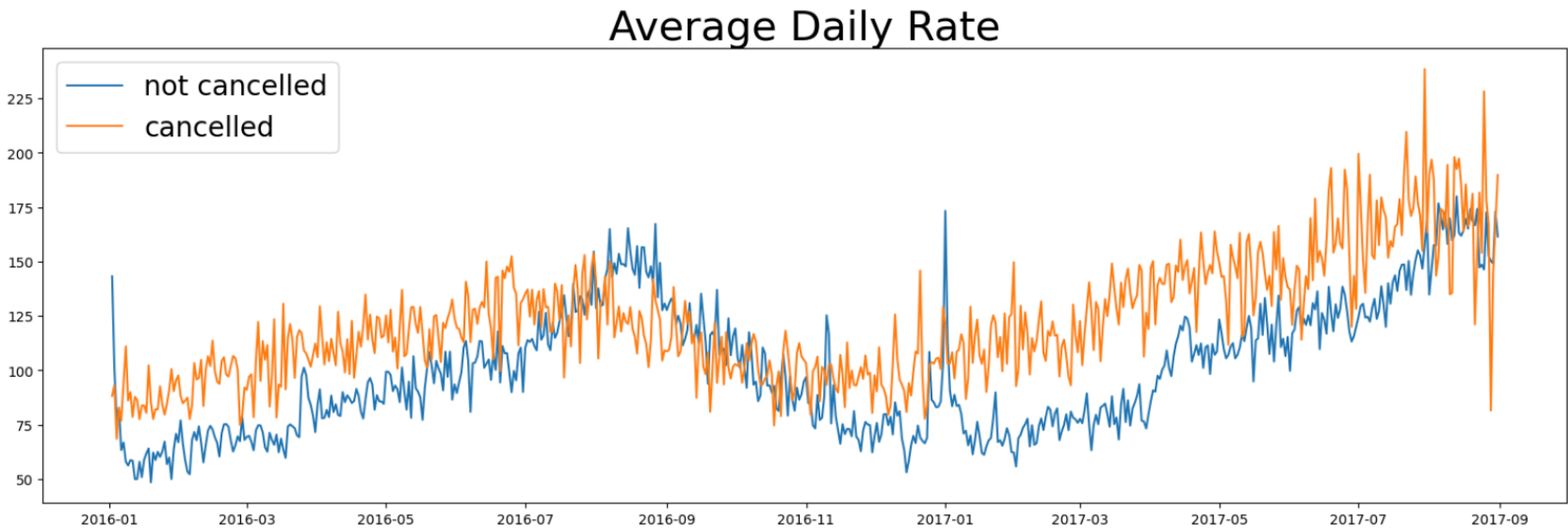
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Analysis and Findings

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

Top 10 countries with reservation canceled
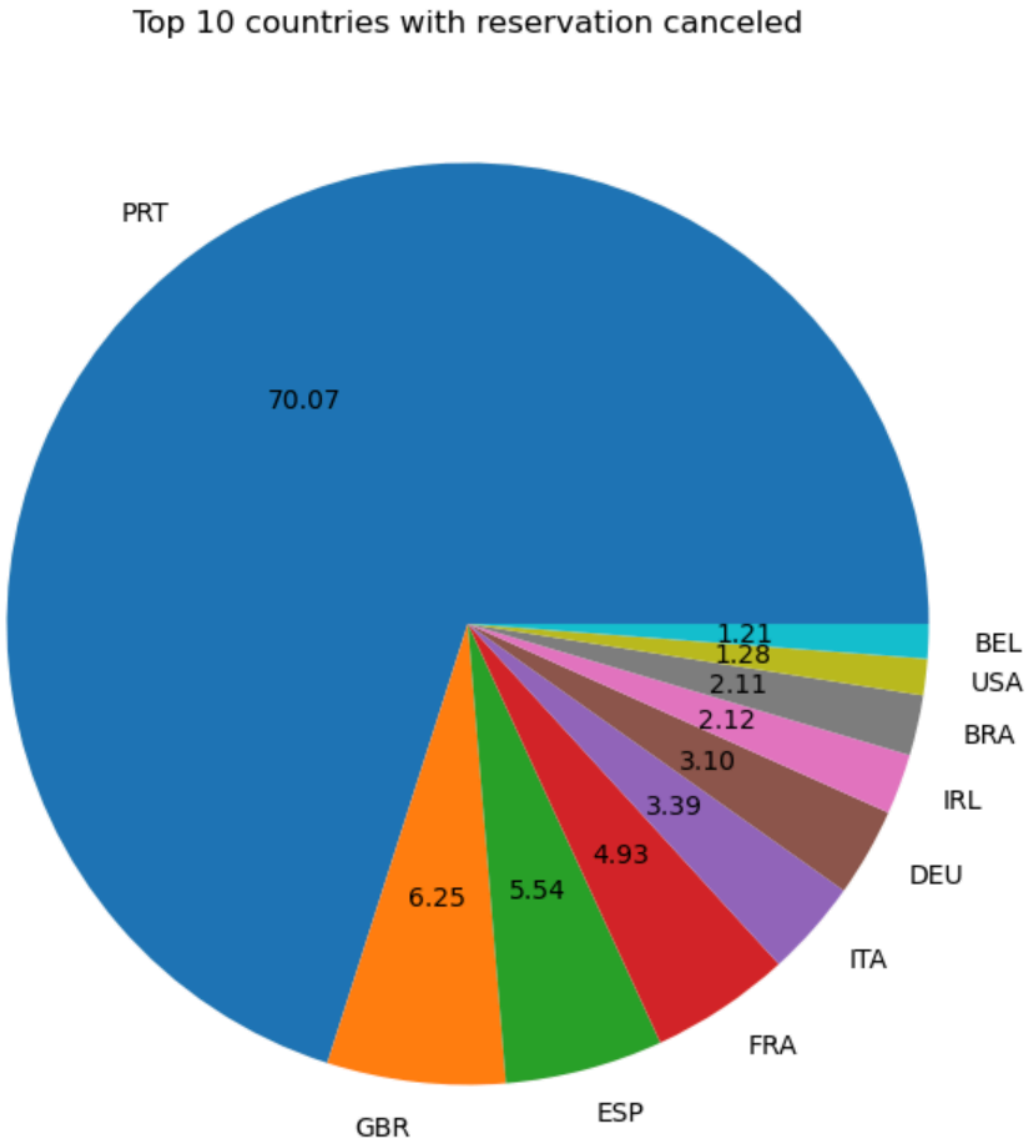
Around 46% of clients book through online travel agencies, 27% through group bookings, and only 4% make direct reservations. Cancellations are more frequent when the average daily rate is high, confirming that higher prices lead to increased cancellations.

Average Daily Rate

General Trend : Blue Line is below Orange Line

Suggestions

1. Dynamic Pricing Strategy – Since cancellation rates increase with higher prices, hotels should optimize their pricing strategies by adjusting rates based on location-specific demand. Implementing targeted discounts and promotional offers can help reduce cancellations and improve occupancy rates.

2. Weekend & Holiday Pricing Adjustments – Resort hotels experience a higher cancellation ratio than city hotels. To mitigate this, they should offer competitive discounts on room rates during weekends and holidays, encouraging more confirmed bookings and reducing last-minute cancellations.

3. Targeted Marketing & Campaigns – With January experiencing the highest cancellation rates, hotels should launch strategic marketing campaigns and promotional offers during this period to enhance revenue and attract more stable bookings.

4. Service Enhancement & Regional Focus – To reduce cancellations in Portugal, hotels should focus on improving service quality, customer experience, and tailored offerings to increase guest retention and minimize cancellations.

Thank You