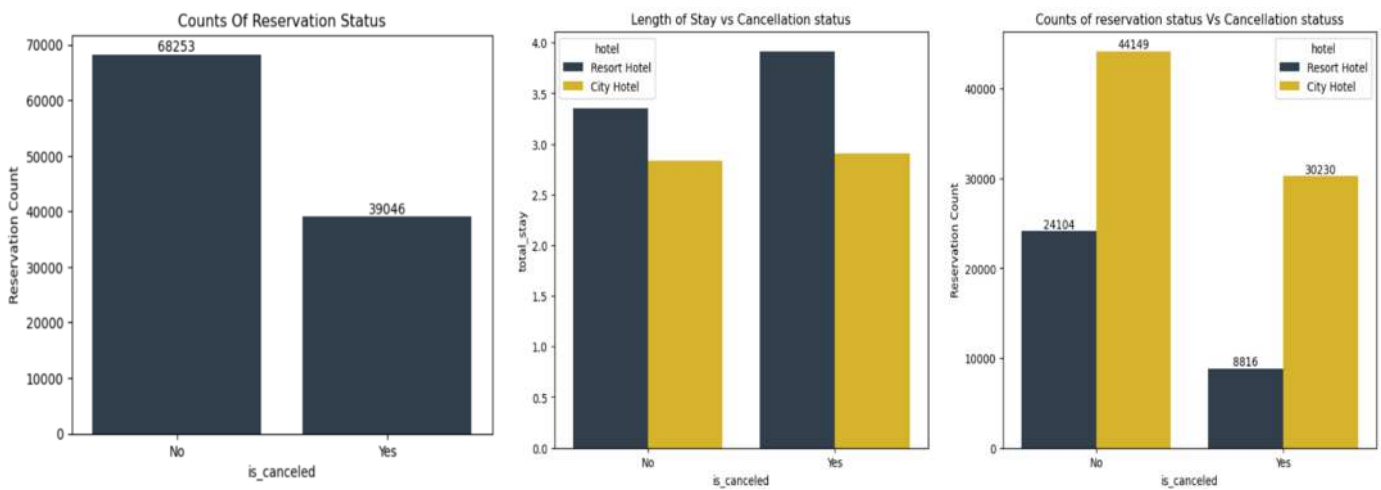# HOTEL BOOKING ANALYSIS REPORT

Executive Summary

This analysis examines booking patterns, cancellation rates, and key metrics across different hotel types (City Hotels and Resort Hotels) to understand customer behavior and operational performance.

Key Findings

1. Cancellation Rates by Hotel Type

- Reservations (No): There are 68,253 reservations that were not canceled
- Canceled Reservations (Yes): There are 39,046 reservations that were canceled.
- For Resort Hotel the average length of stay is higher for non-canceled reservations compared to canceled ones.
- For City Hotel the average length of stay is slightly higher for non-canceled reservations, but the difference is less pronounced compared to the Resort Hotel.

2. **Market Segment Analysis**
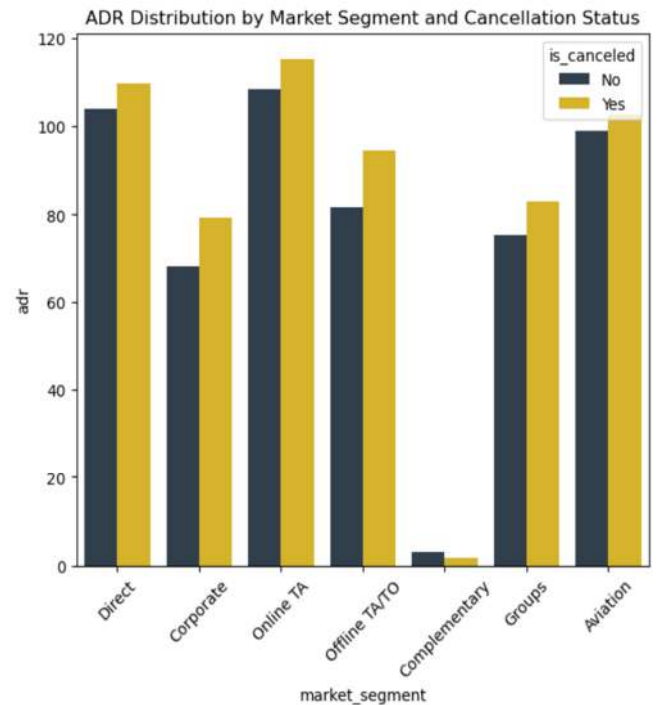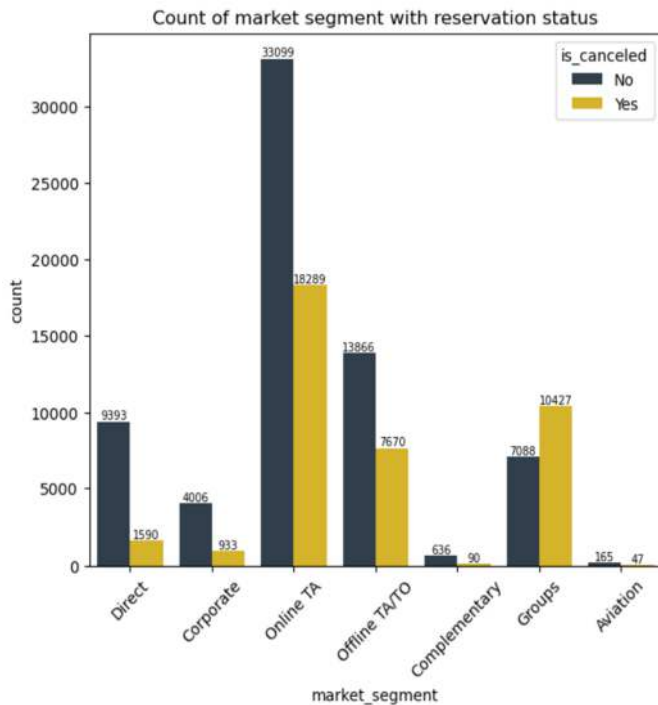
- Online TA (Online Travel Agents) has the highest number of reservations overall, with a high proportion of both canceled and non-canceled bookings (33,099 non-canceled and 18,289 canceled).
- Online TA segments has highest ADRs, with canceled bookings showing slightly higher ADRs than non-canceled ones.
- Direct and Aviation segment have similar ADRs, and canceled bookings tend to have a higher ADR.
- Direct bookings show lower cancellation rates.

ADR (Average Daily Rate) Distribution by Market Segment

Significant price volatility observed in City Hotels compared to Resort Hotels

Key pricing patterns:

- Aviation segment: Most consistent pricing
- Complementary segment: Lowest ADR
- Online TA and Offline TA/TO: Widest price range
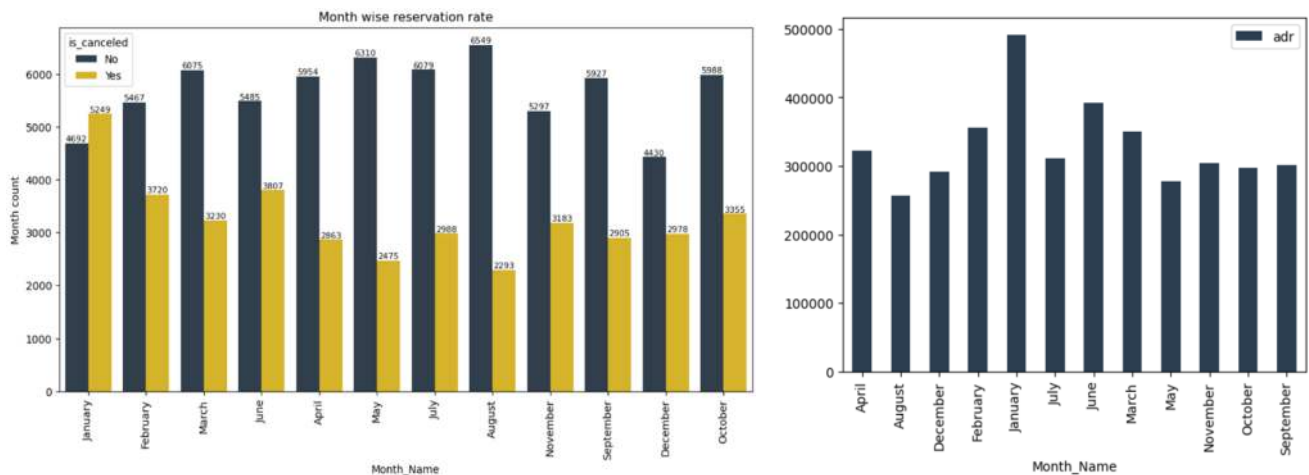- Corporate segment: Moderate price stability

3. Geographic Analysis

**Count of country with cancelled reservation**
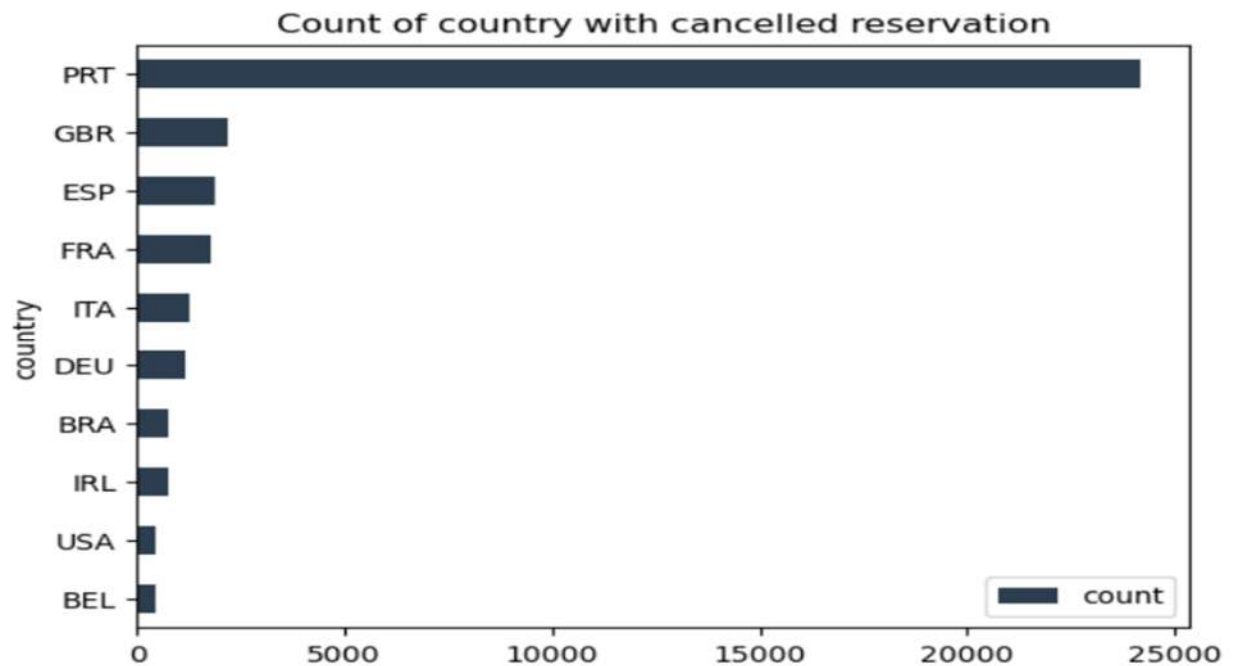
Top Countries with Cancelled Reservations:

- Portugal (PRT): Highest cancellation volume
- Great Britain (GBR): Second highest
- France (FRA): Third highest
- Spain (ESP): Fourth highest
- Germany (DEU): Fifth highest

4. Temporal Analysis

- **High Booking Months:** August has the most non-canceled reservations, followed by July and January.
- **High Cancellation Months:** January has the highest cancellations, followed by July.
- **Low Cancellations:** May and August have the fewest cancellations, implying people are more likely to keep their travel plans in these months.
- **Seasonal Trends:** Summer (June–August) has high bookings with fewer cancellations, making it a stable period for reservations. Spring and fall (March, April, September) show lower bookings and moderate cancellations, suggesting these are off-peak times.
- **Peak ADR:** January has the highest average daily rate, followed by June and February which may be main cause of hotels cancellation.
- **Low ADR:** May, August, September, October, and November have the lowest rates.
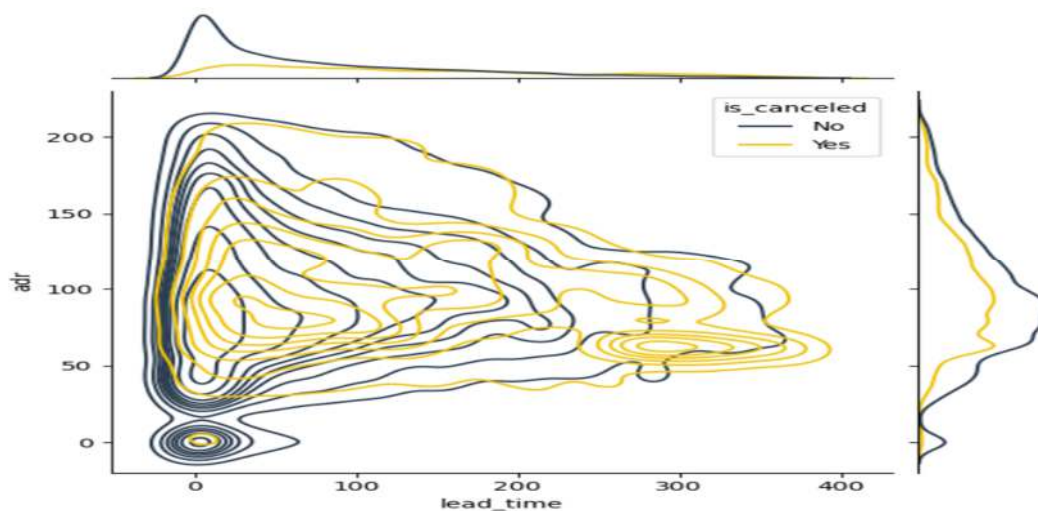
- Most bookings are made with shorter lead times (0-100 days)
- Non-cancelled bookings (blue) show a higher peak at very short lead times.
- Cancelled bookings (orange) have a flatter distribution
- ADR mostly ranges from about 50 to 200.
- There's a peak in the middle range - Key observation: Bookings with longer lead times show higher cancellation probability

Lead Time vs Reservation Date by Cancellation Status
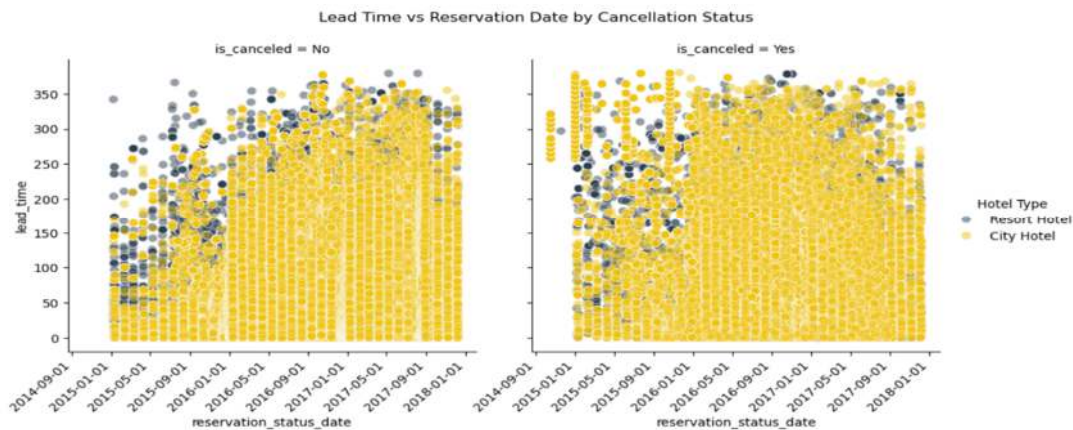
- The right panel (is_canceled = Yes) shows more bookings overall, suggesting a high cancellation rate
- City Hotels (orange) have significantly more cancellations than Resort Hotels (blue)
- Most bookings are made between 0-200 days in advance
- There's a noticeable increase in longer lead times (200+ days) from 2016 onwards

Recommendations

1. Pricing Strategy
- Implement dynamic pricing for City Hotels to manage volatility.
- Consider seasonal adjustments based on cancellation patterns

2. Booking Policies
- Review deposit requirements for bookings with extended lead times.
- Develop targeted retention strategies for high-risk cancellation segments.

3. Market Segment Focus
- Strengthen direct booking channels to reduce cancellation rates.
- Develop specific strategies for Online Travel Agent segment to improve retention.

4. Geographic Considerations
- Create tailored policies for top cancellation countries
- Implement region-specific marketing and retention strategies

Conclusion

The analysis reveals significant patterns in booking behavior and cancellation rates across different hotel types and market segments. Understanding these patterns can help optimize pricing strategies and reduce cancellation rates while improving overall revenue management.