



Executive Summary: Hotel Booking Cancellations (2015–2017)

Project Objective

This data analysis and visualization project focuses on understanding hotel booking behavior and cancellation trends from 2015 to 2017 across both **city** and **resort hotels**. The goal was to identify underlying patterns influencing cancellations, customer preferences, and seasonality, ultimately enabling data-driven decisions in hotel operations and revenue management.

The project uses an Excel-based interactive dashboard, combining **pivot tables**, **charts**, and **slicers** to provide real-time filtering across years and categories.



Dataset Overview

- **Total Bookings Analyzed:** 119,390
 - **Total Cancellations Recorded:** 44,224 (~37% of bookings)
 - **Time Period Covered:** 2015, 2016, and 2017
 - **Hotel Types:** City Hotel, Resort Hotel
 - **Customer Types:** Couples, Families, Singles
 - **Other Features Explored:** Month of booking, Room allocation preference (Desired/Undesired)
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Year-wise Booking & Cancellation Trends

Year	Total Bookings	Total Cancellations	Cancellation Rate
2015	21,997	8,143	37%

2016	56,708	20,338	35.9%
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2017	40,688	15,746	38.7%
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Insight:

- **2016** saw a surge in bookings and cancellations, suggesting expanded hotel operations or promotions.
 - Cancellation rates remained consistently high across all years, indicating a persistent trend that warrants action.
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Cancellations by Customer Type

- **Couples** were the most frequent bookers and also had the highest cancellation count.
- **Families** and **Singles** showed relatively lower cancellation activity, both in absolute and relative terms.

Interpretation:

Couples may represent leisure travelers who are more likely to change plans last minute. Offering flexible date rescheduling or reminder systems could reduce these cancellations.

Seasonal Trends in Cancellation

- **Peak months:** July, August, and September had the highest number of cancellations.
- **Low months:** January and December consistently showed lower booking and cancellation activity.

Interpretation:

The summer season correlates with holiday travel but also with increased volatility in travel plans. Hotels could explore offering flexible packages during peak months with better cancellation policies or prepayment incentives.

Impact of Room Assignment (Desired vs Undesired)

- **Desired rooms** had significantly higher booking counts and fewer cancellations.
- **Undesired rooms** had lower overall booking volume but a proportionally high cancellation rate.

Interpretation:

Room assignment directly affects guest satisfaction and booking confidence. Ensuring that more guests receive their preferred rooms may lead to better retention and fewer cancellations.

Hotel Type Analysis: City vs Resort Hotels

- **City Hotels:** ~30,000 cancellations
- **Resort Hotels:** ~12,000 cancellations

Interpretation:

City hotels, typically used for business and short-term stays, see higher volume and more dynamic booking behavior, leading to a higher cancellation rate. Resort hotels might cater more to leisure travelers with more committed plans. Customizing cancellation policies by hotel type could help.

Tools & Techniques Used

- **Microsoft Excel:**
 - Pivot Tables for summarization
 - Slicers for year-based filtering
 - Clustered column charts for categorical analysis
 - Conditional formatting and icon sets for UI clarity
 - **Data Cleaning & Preprocessing:**
 - Removed nulls, standardized date formats, and normalized categorical data
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Business Applications & Recommendations

Category	Strategic Insight	Recommended Action
High Cancellation Months	Cancellations peak in July–September	Use predictive booking models to manage overbooking
Customer Segment (Couples)	Most likely to cancel	Offer loyalty incentives or flexible terms
Room Preference	Desired room allocation reduces cancellations	Improve pre-arrival room assignment accuracy
City Hotel Cancellations	Higher rate than resorts	Segment policies by hotel type; improve refund handling
Year-on-Year Growth	High activity in 2016	Review what caused 2016's spike to replicate success without risk

Conclusion

This dashboard demonstrates the power of data-driven insights in the hotel industry. It provides clarity on:

- Who cancels
- When they cancel
- Why cancellations are happening
- And how different business variables contribute to the problem

Hotels can use this to revise their cancellation policies, forecast occupancy more accurately, and create better guest experiences. With a 37% cancellation rate, strategic changes based on these insights could significantly improve revenue protection and operational efficiency.

