**Hotel Booking Cancellation Analysis Report**

**1. Business Problem Statement**

**City Hotel and Resort Hotel have experienced high cancellation rates, leading to reduced revenue and inefficient room utilization. This analysis aims to explore factors influencing cancellations and provide data-driven recommendations to reduce cancellations and improve revenue.**

**2. Research Questions**

1. **What are the variables that affect hotel reservation cancellations?**
2. **How can we make hotel reservation cancellations better?**
3. **How will hotels be assisted in making pricing and promotional decisions?**

**3. 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.**

**4. Dataset Overview**

**The dataset contains information about hotel bookings, including:**

* **Booking details (arrival date, number of nights, etc.)**
* **Customer demographics**
* **Room preferences**
* **Cancellation status**
* **Market segment and deposit types**
* **Lead time, ADR (Average Daily Rate), and other financial metrics**

**5. Exploratory Data Analysis (EDA)**

**5.1 Data Cleaning and Preprocessing**

* **Checked for missing values and handled them appropriately.**
* **Converted categorical variables for analysis.**
* **Removed irrelevant or duplicate records.**

**5.2 Key Statistical Insights**

* **Overall Cancellation Rate: 62.87% of total bookings were canceled.**
* **Most Canceled Hotel Type: City Hotel had a higher cancellation rate (41.71%) compared to Resort Hotel (27.98%).**
* **Effect of Lead Time: Longer lead times correlated with higher cancellation rates:** 
  + **0-30 days: 20.99%**
  + **31-90 days: 37.71%**
  + **91-180 days: 44.75%**
  + **181-365 days: 55.42%**
* **Impact of Deposit Type: Customers who paid no deposit had the highest cancellation rate.**
* **Market Segments: The highest cancellation rates were observed in Group bookings (61.08%) and Online Travel Agencies (OTA) (36.77%).**
* **ADR Analysis: Higher ADR bookings had a slightly higher cancellation tendency.**

**6. Visualizations**

* **Booking Status Distribution (Canceled vs. Not Canceled)**
* **Cancellation Rate by Hotel Type**
* **Impact of Lead Time on Cancellations**
* **Market Segment vs. Cancellation Rate**
* **ADR Distribution and Cancellation Trends**

**7. Key Findings and Recommendations**

**7.1 Findings**

* **Lead time, deposit type, and market segment significantly influence cancellations.**
* **City Hotels face more cancellations than Resort Hotels.**
* **Non-refundable deposit options drastically reduce cancellations.**
* **High ADR bookings often lead to cancellations, possibly due to price sensitivity.**

**7.2 Recommendations**

* **Introduce discounts for early confirmations to reduce last-minute cancellations.**
* **Offer incentives for customers choosing non-refundable deposit options.**
* **Adjust pricing strategies based on market segment trends.**
* **Implement targeted retention strategies for segments with high cancellations.**

**8. Conclusion**

**This analysis highlights the key factors affecting hotel booking cancellations and provides actionable recommendations to minimize revenue loss. Further analysis on customer behavior and seasonal trends could enhance the findings.**

**Visuals will be added separately to support these findings. Let me know if you'd like any modifications! 📊**