

Hotel Booking Data Analysis Report

1. Introduction

This report provides an analysis of hotel booking data, aiming to uncover trends in customer behavior, cancellation patterns, and pricing insights. The dataset used contains booking details, customer demographics, and reservation statuses.

2. Data Preparation & Cleaning

- The dataset was loaded using **Pandas** and explored using `.head()`, `.info()`, and `.describe()`.
- Missing values in certain columns were handled using `.dropna()`.
- Unnecessary columns like company and agent were dropped to optimize analysis.
- The reservation_status_date column was converted into a datetime format for better time-based analysis.

3. Exploratory Data Analysis (EDA)

- **Booking Cancellations:** The dataset includes a significant number of cancellations, analyzed by visualizing is_canceled trends.
- **Monthly ADR Trends:** The Average Daily Rate (ADR) was studied across months, highlighting price fluctuations.
- **Customer Demographics:** The number of adults, children, and babies per booking was analyzed.
- **Market Segments & Distribution Channels:** The role of different channels in booking behavior was examined.
- **Room Type Allocation:** Reserved vs. assigned room types were compared to detect any inconsistencies.

4. Key Insights & Visualizations

- **Cancellation Patterns:** A trend of higher ADR for canceled bookings was observed.
- **Seasonality Effects:** ADR fluctuates throughout the year, peaking during high-demand months.

- **Customer Preferences:** Most bookings are made by adults with minimal children involvement.
- **Booking Sources:** Online platforms contribute significantly to reservations.

5. Conclusion & Recommendations

- **Reducing Cancellations:** Introduce flexible but incentivized cancellation policies.
- **Optimizing Pricing Strategy:** Adjust ADR dynamically based on seasonal trends.
- **Enhancing Customer Experience:** Improve room assignment strategies to match reservations accurately.
- **Strengthening Direct Bookings:** Encourage customers to book via direct channels to reduce commission costs.

This analysis provides actionable insights that can help hotels optimize their booking strategies and revenue management.