

Hotel Booking Analysis

Project Summary

This EDA project on Hotel Booking Analysis investigates cancellations, and their underlying patterns; and suggests measures that can be implemented to reduce cancellations and secure revenue¹

The project covers booking information for a city hotel and a resort hotel including information such as when the booking was made, length of stay, the number of adults, children. The project went through the basic idea of the EDA and visualization process.

In this project I will do Exploratory Data Analysis on the given dataset. The project suggests measures that can be implemented to reduce cancellations and secure revenue. For example, hotels can offer discounts or promotions to customers who book early or who book for longer stays. Hotels can also offer incentives such as free parking or free breakfast to customers who book directly with them instead of through third-party websites.

This EDA involves following steps where in first step involves exploration and inspection over raw data, and second in second step I have dealt with data impurities and cleaned the data by handling null values and dropping irrelevant data from the dataset.

This EDA is divided into following 3 analysis:

Univariate analysis: Univariate analysis is the simplest of the three analyses where the data, you are analysing is only one variable.

Bivariate analysis: Bivariate analysis is where you are comparing two variables to study their relationships.

Multivariate analysis: Multivariate analysis is similar to Bivariate analysis but you are comparing more than two variables.

The project concludes that by analysing hotel bookings data and understanding cancellations patterns, hotels can take steps to reduce cancellations and increase revenue.

Problem Statement

Have you ever wondered when the best time of year to book a hotel room is? Or the optimal length of stay in order to get the best daily rate? What if you wanted to predict whether or not a hotel was likely to receive a disproportionately high number of special requests? This hotel booking dataset can help you explore those questions! This data set contains booking information for a city hotel and a resort hotel, and includes information such as when the booking was made, length of stay, the number of adults, children, and/or babies, and the number of available parking spaces, among other things. All personally identifying information has been removed from the data.

Business Objective?

The project aims to gain interesting insight into customers' behaviour when booking a hotel. The demand for different segment of customer may differ and forecasting become harder as it may

requires different model for different segment. These insights can guide hotels to adjust their customer strategies and make preparation for unknown.

Insight :-

Which type of hotel is most preferred by the guests?

➔ Guests prefer Resort Hotel most over City Hotel

What is percentage of hotel booking cancellation?

➔ Around 72.48% bookings are not cancelled by guests but around 27.52% bookings are cancelled by guests.

Which type of meal is most preferred by guests?

➔ Bed and Breakfast is the most preferred meal by guests.

Which year has the most bookings?

➔ Hotel was booked most times in year 2016

Which month has the most bookings in each hotel type?

➔ August & July were 2 most busy months in compare to others.

From Which country most guests come?

➔ Most guests come from Portugal

Which distribution channel is most used in booking?

➔ Travel agent/Tour operator is most used distribution channel by guests

Which room type is most preferred by guests?

➔ Room Type A most preferred by the guests while booking the hotel

Which room type is most assigned?

➔ Room Type A is most assigned to guests

Top 5 agents in terms of most bookings?

➔ Agent number 9 has made the most number of bookings followed by agent number 240,0,14,7

What is the percentage of repeated guests?

➔ 3.86% guests are repeated guests

Which customers type has the most booking?

➔ Transient customer has most number of booking

Which Market Segment has the most booking?

➔ Online TA (Travel Agent) has the most bookings

Which deposit type is most preferred?

➔ No Deposit type is most preferred

How long people stay in the hotel?

➔ In City hotel people stay for 3 days and in Resort hotel most people stay for 1 day only.

Which hotel makes most revenue?

- ➔ City hotel has more share in revenue generation over Resort Hotel

Which hotel has the longer waiting time?

- ➔ City hotel has more waiting period

Hotel with most repeated guests

- ➔ Resort Hotel has slightly more repeated guests over City Hotel

What is the adr across different months?

- ➔ City Hotel generates more revenue in May months in comparison to other months
- ➔ Resort hotel generates more revenue in between July and August months

Which distribution channel has highest adr?

- ➔ GDS has contributed more in generating the ADR

Solution to Business Objective

- Resort Hotel is most preferred so Stakeholders can offer discounts on City Hotel to increase bookings.
- Around 27.52% of bookings are cancelled so Hotel can offer loyalty discount if guests don't cancel their booking.
- Hotel can maintain raw materials for BB type meal in advance to avoid delay as BB(Bread and Breakfast) is the most preferred meal.
- Hotel should increase number of rooms in City Hotels to decrease the waiting time.
- TA has the most number of bookings over other Market segments so Hotel could run some offer to get more bookings from other segment.
- Room type A is most preferred by guests so Hotel should increase the number of A type room.
- Number of repeated guests is low that indicates that there is something they don't like about Hotel and that needs to be fixed to increase number of repeated guests.
- Waiting time period for City hotel is high as compared to resort hotels. That means city hotels are much busier than Resort hotels.
- Optimal stay in both the type hotel is less than 7 days. Usually people stay for a week so Hotel need to take some actions to improve their performance.
- Maximum number of guests were from Portugal.

Conclusion

In order to achieve the business objective, i would suggest the client to make the price dynamic, introduce offers and packages to attract new customers. To retain the existing customers and ensure their repetition the client must introduce loyalty points program which can be redeemed by the customers in their next bookings. Amenities such as parking spaces, kids corner, free internet connection can be provided to increase the number of bookings.