

# HOTEL BOOKING ANALYSIS

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## Abstract:

The Hotel Industry platforms facilitates people travelling around different locations by having different tie-ups and collaborations with apps, seasonal demands, meal preferences, etc. We were provided with few such already classified labels in our data set.

Our experiment can help understand what could be the reason for the classification of such labels by feature selection, data analysis.

## 1.Problem Statement

The hotel contains number of hotel rooms available for hire to guests. The information relevant to each room is

- Room number
- Basic price
- Maximum occupancy
- Type of room (single, double, twin, executive, suite)

The price of room is the basic room price with any seasonal price adjustment added.

Potential guests can reserve one or more rooms for a specified period using the telephone. These reservations are handled by the booking clerks. The potential guest requests the type of the room, arrival date, duration (or departure date). A search is made for the availability of rooms for the dates

required. If successful, the customer is informed the details and the price.

If accepted, a provisional reservation is made. This provisional reservation is held for a duration entered by the booking clerk. The provisional reservation is modified to a firm reservation when a deposit payment is received and confirmed. This can be at the time of the initial reservation.

The receptionist can also make a reservation for potential guests who arrive without a reservation, the deposit payment must be made at the time of initial reservation.

It is noted when guests check in, at which time a specific room is assigned of the type required, and when the guest checks out.

The room telephone is enabled or disabled at checking in or checking out respectively. This is done using a telephone call logging monitor.

User can book the room if there is availability of the rooms in that particular hotel. There are three different types of user roles for the application they are administrator, hotel agent and normal user. Following are the actions provided for each user.

### Normal user :

- Can register for the site
- Search the hotel details basing on the criteria.
- Book the hotel room

### Hotel Agent:

- Can register for the site
- Can add/update the details of the hotel.

### Administrator:

- Will approve the new hotel details added to the application
- Can delete the user/hotel details.

### Minimal Features:

- Adding Hotel information such as hotel name, location, number of rooms, facilities etc. to the database
- Listing the hotels based on different criteria selected by the user.
- User able to select a hotel and book a room.
- Booking permitted only if there are rooms available
- Displaying Reservation Status
- Registration of users
- Update user details.
- Modify hotel details.
- Approval of the details entered by the hotel agent.
- Delete user/hotel details by admin, twin, executive, suite)

## 2. Introduction:

Hotel industry is a very volatile industry and the bookings depend on variety of factors such as type of hotels, seasonality, days of week and many more. This makes analyzing the patterns available in the past data more important to help the hotels plan better. Using the historical data, hotels can perform various campaigns to boost the business. We can use the patterns to predict the future bookings using time series or decision trees. User.

We will be using the data available to analyze the factors affecting the hotel bookings. These factors can be used for reporting the trends and predict the future bookings. Site

We will be tackling this problem statement in three stages:

#### A. We will be analyzing some key metrics for hotel bookings like:

- ✚ The number of cancellations
- ✚ Number of bookings on weekday vs weekends
- ✚ Most preferred meal types
- ✚ Country wise bookings
- ✚ New customers acquired
- ✚ Customer lifetime value of the existing customers
- ✚ Type of rooms preferred by customers
- ✚ Booking types,
- ✚ Hotels available for booking

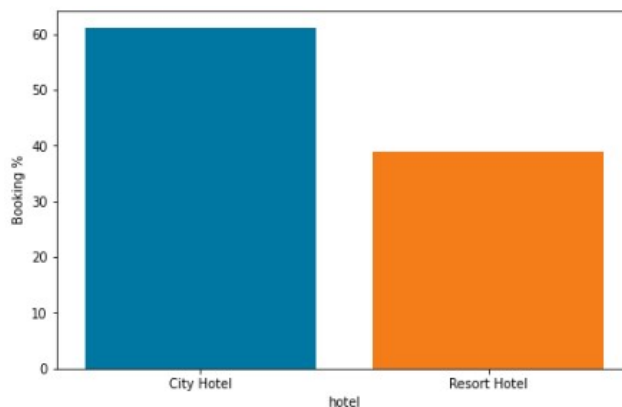
#### B. We will be using various lenses to look through the data to analyze patterns associated with each segment such as:

- ✚ The type of hotel
- ✚ Day of week
- ✚ Type of customers
- ✚ Type of rooms

## 3. Types of Hotels:

- ✚ Resorts
- ✚ City Hotels

Based on the data it is found that there are more number of city hotels as compared to resorts and if we look at the bookings ratio than more number of bookings are found in City hotels



## 4. Reasons for difference in bookings ratio.

Difference in booking percentage is caused due to difference between resorts and hotels and that is mainly in the amenities. Hotels cater to travelers who need a place to spend the night at a certain destination, resorts tend to be destinations in themselves. Resorts often have a more spacious layout, offering their guests everything they need in one place.

## 5. Factors Affecting Bookings.

- Meal preferences
- Deposit Policies
- Amenities
- Distribution channels
- Types of visitors

All the above factors may add on few more but these factors directly impacts the repeatability ratios of bookings done by visitors in the same hotel or resorts if they finds their requirement is fulfilled.

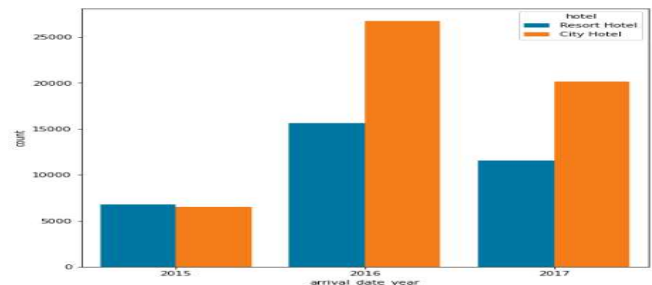
## 6. Steps Involved .

- Null values Treatment**  
Our dataset contains a large number of null values which might tend to disturb our accuracy hence we dropped them at the beginning of our project inorder to get a better result.
- Exploratory Data Analysis**  
After loading the dataset we performed this method by comparing our target variable that is types of Hotel and bookings ratio with other independent variables. This process helped us figuring out various aspects and relationships among the target and the independent variables.

It gave us a better idea of which feature behaves in which manner compared to the target variable.

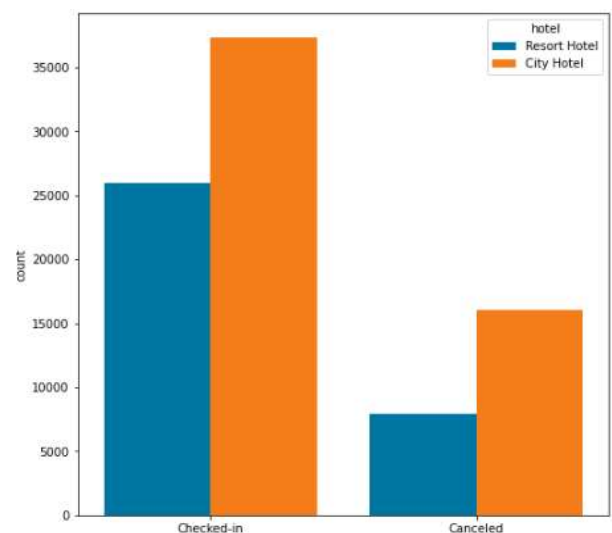
- Annual Metrics.**

The number of bookings is different for the two hotel types. Further, the volume of booking will vary across the years and in the months too...



- Check-In & Cancellation (Hotel Wise).**

It can be seen from the data plotted below that more number of check-in and cancellation is found in City hotels rather than resorts.

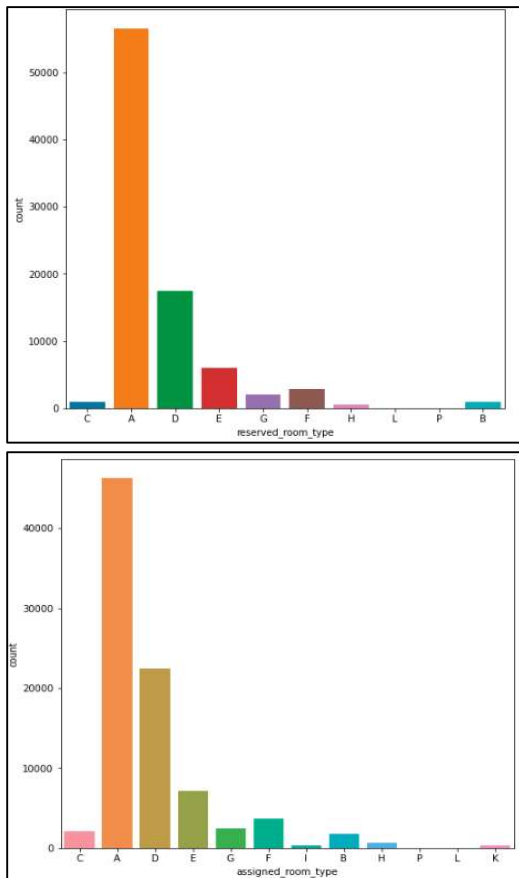


- Improving Customer Experience:**

Hotel industry is also driven by the **Customer Experience**. Imagine if you

book a hotel and you are not provided the preferred room, or you are not served the type of breakfast served. Would you recommend the hotel to your family and friends? No way!

For this reason, we need to keep a track of the type of room preferred, the breakfast requirements and any other facto that might enhance customer experience. This makes analyzing the service indicators important which will help hotel to plan better for enhancing the customer experience.



Above data shows room booked and assigned are same for room type A .

## 7. Conclusion:

Through this analysis, we were able to answer key business questions which are stated below

- Is there a difference in volume of bookings across the two type of hotels?
- What type of meal is preferred?
- What type of rooms are preferred?

## Methodology

1.Majority of the analysis was EDA which was digging one level deeper and getting the data to answer the above questions

2.To answer few questions I sliced the data across various cuts

3.Another methodology included using different lenses to view data across segments

## Insights

- The number of bookings seems to be high in 2016 while the bookings seem to be less in 2015 and 2017.
- The ratio of bookings cancelled to the confirmed bookings seems high for City Hotels
- The growth is higher from 2015 to 2016 as compared to the jump from 2016 to 2017
- The hotels need to have more of Type A room followed by other types

## Implication to business

- 1.Based on the results of EDA, hotel can plan on targeting the new customers to increase spends and maintain good relations with the existing customers
- 2.The hotels have an insight on the meal preference and room preference which will help them price the commodities better

## References

- Stack overflow
- Kaggle...
- Geeks for geeks

