**Hotel Booking Analysis**

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**Abstract:**

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.

**1.Problem Statement**

We will be tackling this problem statement in three stages.

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
* The revenue of the hotels

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

1. The type of hotel
2. Day of week
3. Type of customers
4. Type of rooms
5. No of days stay in the hotel
6. Parking is required or not

**2. Introduction**

### 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.

**Goal:** The goal of this notebook is to practice EDA and figure out the standard patterns of booking.

## **3. Types of H**

* Resort hotel
* City hotel

### The booking of city hotels is very large as compare to the resort hotel because city hotel provides accommodation, and meals to travels whereas resort hotel provides more privacy , entertainment and experiences during the stay and these are more expansive than the city hotel

## **4. Reasons for price varying**

The reasons for price varying are:

* Booking type
* Booking month
* Required car parking space
* Depend on total no of guest
* Depend on numbers of days stay in the hotel

# **5. How price and booking hotel works**

## **Demand for booking increases**

There are times when so many people are booking hotel that there aren’t enough rooms in the hotel to help take them all. Time of festival, weather condition, month of year, no of days, and special events, for instance, may cause unusually large numbers of people to want to book the hotel at the same time.

## **Prices go up**

In these cases of very high demand, prices may increase to help ensure that those who need a room can get one. This system is called price hike, and it lets the app continue to be a reliable choice.

## **Customer pay more or wait**

Whenever rates are raised due to shortage of room, the app lets customer know. Some customer will choose to pay, while some will choose to wait to see if the rates go back down.

**6. Steps involved:**

* **Exploratory Data Analysis**

After loading the dataset we performed this method by comparing our target variable t

* **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 in order to get a better result.

* **Encoding of categorical columns**

We used One Hot Encoding to produce binary integers of 0 and 1 to encode our categorical features because categorical features that are in string format cannot be understood by the machine and needs to be converted to numerical format.

We have to convert string into integers and convert date time as a correct format

* **Make some graphs between the entities**

In this process we make some graphs to check the relation between the dependent and independent variable and also check how the price of booking the hotel vary with the other factors so visualizing the graphs we