***Hotel Booking Analysis***

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##### *Contribution - Individual*

***Abstract :-***

This data collection covers reservation details for both city hotels and resort hotels. It includes details like the date of the reservation, the duration of the stay, the number of people, children, and/or infants staying, and the number of parking spaces that are available, among other things*.*

* *Reasons for cancelation of reservations according to different criteria*
* *Ideal time to reserve a hotel*

*Cancellations of reservations are a crucial part of hotel revenue management. Consequently, data-driven decision support systems are used to better manage the reservation system and implement suitable cancelation rules.*

***Introduction:-***

*The hotel business is highly erratic, and reservations are influenced by a wide range of variables, including hotel type, season, day of the week, and many more. Because of this, it is even more crucial to analyze the trends found in historical data to support the hotels' effective planning. Hotels are able to run a variety of marketing strategies to increase revenue by using the previous data.*

*The information at our disposal will be used to examine the variables influencing hotel reservations. These variables can be used to forecast future reservations and report trends.*

***Problem Statement:-***

*This project includes real-world data records of hotel reservations for both city hotels and resort hotels, including information about cancellations of reservations and the surrounding area, among other things. Understanding and visualizing the dataset from the hotel's and the customer's perspectives is the project's primary goal.*

***Dataset:-***

* **Hotel** : Kind of hotel (Resort or City)
* **is\_cancelled** : Whether the reservation was cancelled (1) or not (0)
* **Lead\_time** : Days that are left before the guests actually arrive
* **arrival\_date\_year** : Year of arrival date
* **arrival\_date\_month** : Month of arrival date
* **arrival\_date\_week\_number** : The week and year of the arrival
* **arrival\_date\_day\_of\_month** : Day of arrival date
* **stays\_in\_weekend\_nights** : How many weekends (Saturday or Sunday) do customers stay at the hotel?
* **stays\_in\_weel\_nights** : The number of weeknights (Monday through Friday) that visitors stay at the hotel.
* **adults**: Number of adults among the guests
* **children** : Number of children
* **babies** : Number of babies
* **meal** : Type of meal booked
* **country** : country of the guests
* **market\_segment** : Segmentation of the market
* **distribution\_channel** : The channel name for booking distribution
* **is\_repeated\_guest** : If the reservation came from a returning customer(1) or not (0)
* **previous\_cancellation** : The number of earlier reservations that the client cancelled before the current reservation
* **previous\_bookings\_not\_cancelled** : The number of prior bookings that the customer did not cancel before the current booking
* **reserved\_room\_type** : Code from room type reserved
* **assigned\_room\_type** : Code of room type assigned
* **booking\_changes** : Number of changes made to the booking
* **deposit\_type** : Type of deposit made by the guest
* **agent** : ID of travel agent who made the booking
* **company** : ID of the company that made the booking
* **days\_in\_waiting\_list** : Number of the days the booking was in the waiting list
* **customer\_type** : Type of customer, assuming one of four categories
* **adr** : Average daily rate
* **required\_car\_parking\_spaces** : The quantity of parking spaces needed, but the client
* **total\_of\_special\_requests** : The quantity of unique requests the client has made
* **reservation\_status** : Status of reservation (cancelled, checked out, or no-show)
* **reservation\_status\_date** : Date of the most recent update to the reservation status

1. ***Most preferred Meal Type :-***

### Meal types provided by hotel are:

1. Undefined/SC – no meal package
2. BB – Bed & Breakfast
3. HB – Half Board (Breakfast & one other meal – usually Dinner)
4. FB – Full Board (Breakfast, Lunch & Dinner)

Bed & Breakfast (BB) is the most popular meal, with approximately 77.2%

of orders. It is followed by Half Board (HB), No Meal Package (SC),

Undefined, and Full Board (FB).

1. ***Market Segment and Distribution Channel :-***

Market Segments are:

* Online TA
* Offline TA/TO
* Groups
* Direct
* Corporate
* Complementary
* Aviation
* Undefined

And, Distribution Channels are:

* TA/TO
* Direct
* Corporate
* GDS
* Undefined

Whether online or offline, TA/TO (Travel Agencies / Travel Operator) constituted the majority of the market sector and distribution channels.

1. ***Which type of hotel is mostly prefered by the guests?***

Types of hotel are :-

* City hotel
* Resort hotel

61.07% of bookings are at the city hotel, while 38.93% are at the resort hotel. The city

hotel can find additional services to draw in more visitors and boost earnings.

1. ***What is the most prefered room type by the customers?***

A-type rooms are the most popular, with a count of 46283, followed by D-type rooms, which have a count of 22419. Hotels are able to offer the same amenities in other room categories as they do in room type A.

1. ***In which month most of the bookings happened?***

The months with the most bookings are July and August, which benefits businesses. There are fewer bookings in November, December, and January, which has a positive effect. There are more reservations made in July and August than there are in November, December, and January than there are in these three months combined.

1. ***What percentage of bookings are cancelled?***

There are relatively few people who cancel hotel reservations compared to those who do not. Booking cancel (27.49%) is less than booking not cancelled (72.51%) which is a positive impact.

1. ***Which agent made most booking?***

9.0 agent make the most booking in the hotels. 9.0 (Agent) makes

the most number of reservation but other agents should

Concentrate on bringing in customers as well.

1. ***Which type of hotel have highest ADR?***

City hotel has more ADR as compare to resort hotel. Resort hotels

ought to concentrate on few amenities to boost their ADR.

1. ***Comparison of no of adults VS Booking***

Two nos of adults having major bookings. The hotel should prioritize

adults as they make up the majority and pay attention to other age groups

as well.

1. ***Which type of hotel having longer waiting time?***

City hotel having longer lead time than Resort hotel. In order to

shorten wait times, the city hotel should implement some changes.

***Conclusion :-***

To sum up, the hotel booking analysis system is a solid and all-encompassing way to comprehend, maximize, and improve hotel operations in the cutthroat and fast-paced hospitality sector. The utilization of hotel booking analytic systems can effectively enhance occupancy rates, customize marketing tactics, and eventually optimize income generation for lodging companies. The system's insights are a useful tool for stakeholders and hotel management that aim for operational excellence.