



ANALYZING BOOKING TRENDS IN THE HOSPITALITY INDUSTRY

A predictive model to determine the booking status of a customer



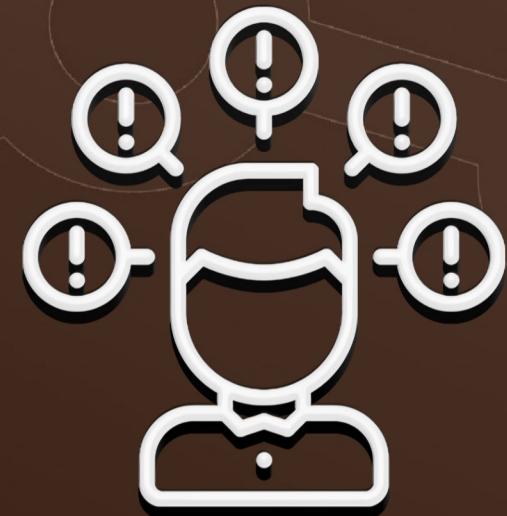
-- Business Introduction --

Hotel Haven is a luxury hotel chain with multiple locations. The hotel offers a wide range of services, including **various types of rooms, meal plans, and parking options.**

Hotel Haven has been facing challenges in **predicting customer cancellations**, which impacts their ability to **manage resources** effectively. The hotel wants to better **understand their booking patterns** and **create strategies** that could **improve customer retention** and **reduce cancellations.**

-- PROBLEM STATEMENT --

The hotel struggles with **high cancellation rates**, leading to **lost revenue** and **inefficient resource allocation**. The existing system does not provide sufficient insights into why customers cancel their bookings. The hotel management seeks to **predict cancellations** based on **booking data** to **improve operational efficiency** and **customer retention**.



-- Rationale for the Project--

•**Understanding Cancellation**

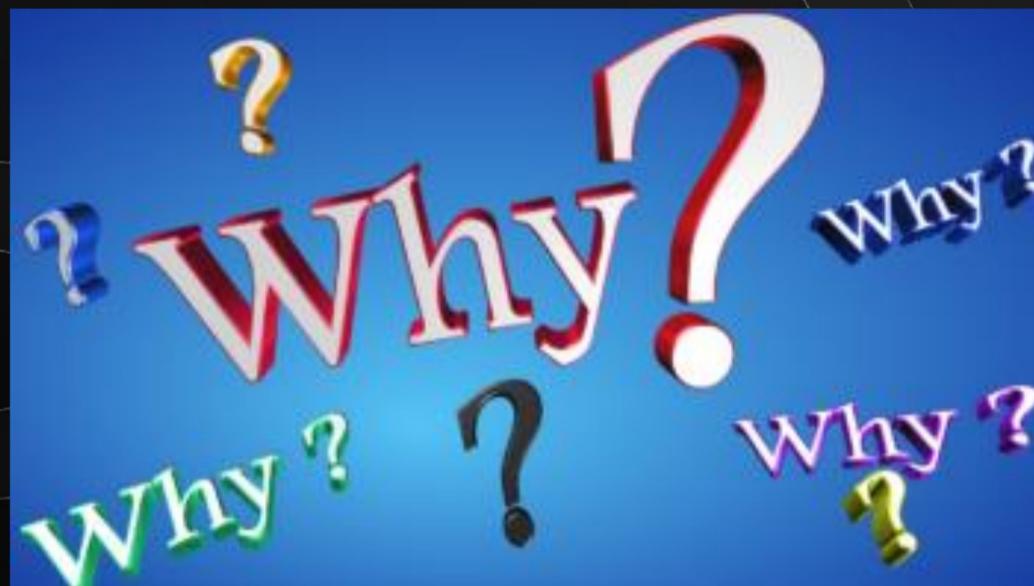
- Analyzing booking patterns helps uncover the underlying reasons why customers cancel their bookings.

•**Identifying Key Factors**

- By examining variables like lead time, room type, market segment, and price, the project allows the identification of specific factors that influence customers' decisions to either cancel or keep their bookings.

•**Optimizing customer Satisfaction**

- By minimizing cancellations, the hotel can ensure better resource allocation and improved guest experience. Customers who are less likely to cancel will contribute to smoother operations and increased satisfaction



--Deliverables--



Data Cleaning

Data Explorations

Comprehensive Data Analysis

Feature Engineering and Model Development

Model Evaluation and Fine Tuning

Jupyter Notebook Powerpoint Slides

-- Data Description --

| Column Name | Description | Data Type |
|---------------------------------|---|-------------|
| Booking_ID | Unique identifier for each booking | String |
| number of adults | Number of adults in the booking | Integer |
| number of children | Number of children in the booking | Integer |
| number of weekend nights | Number of weekend nights included in the booking | Integer |
| number of week nights | Number of week nights included in the booking | Integer |
| type of meal | Meal plan selection (e.g., Meal Plan 1, Not Selected) | Categorical |
| car parking space | Whether the booking includes parking (0: No, 1: Yes) | Binary |
| room type | Type of room booked (e.g., Room_Type 1, Room_Type 2) | Categorical |
| lead time | Time between the reservation and check-in date | Integer |
| market segment type | Booking channel (e.g., Online, Offline) | Categorical |

-- Data Description --

| Column Name | Description | Data Type |
|----------------------------|--|-------------|
| repeated | Whether the booking is from a repeat customer (0: No, 1: Yes) | Binary |
| P-C | Customer profile type indicator (0: Not Customer, 1: Customer) | Binary |
| P-not-C | Non-customer profile type indicator (0: Not Non-Customer, 1: Non-Customer) | Binary |
| average price | Average price of the booking | Float |
| special requests | Number of special requests made by the customer | Integer |
| date of reservation | Date the reservation was made | Date |
| booking status | Status of the booking (e.g., Canceled, Not Canceled) | Categorical |