

Capstone Project Submission

Instructions:

- i) Please fill in all the required information.
- ii) Avoid grammatical errors.

Team Member's Name, Email and Contribution:

1. Adil Khan (adil.bm009@gmail.com)

- 1.1. Data Processing
- 1.2. Data Wrangling
 - 1.2.1. Data Cleaning
 - 1.2.1.1. Fixing all the missing values in the data set.
 - 1.2.1.2. Percentage of null values in data set and total null values in data set.
 - 1.2.1.3. Heatmap for null values.
- 1.3. EDA - Hotel wise analysis
 - 1.3.1. Bar graph to check which hotel was more engaging and in demand.
 - 1.3.2. Pie chart to show the percentage of customers of hotel in 3 years
 - 1.3.3. Finding out the number of reservations cancelled in the last 3 years.
- 1.4. Conclusion

2. Sunil Kumar Panigrahi(sunilpanigrahi104@gmail.com)

- 2.1 Data Wrangling
- 2.2 Exploratory Data Analysis - Hotel Wise Analysis
 - 3.1.1 Finding the most profitable year for hotel in the given time span of 2015-2017
 - 3.1.2 Finding the most profitable year for individual hotel i.e. for City hotel and Resort hotel
 - 3.1.3 Checking the total cancellation of booking between 2015-2017 for both hotels.
 - 3.1.4 Number of cancellations in individual years from 2015-2017.
- 2.3 Exploratory Data Analysis - Time Wise Analysis
 - 3.2.1 Finding out which month has the most number of guests in all 3 years.
 - 3.2.2 Finding out which month is busiest and profitable for the hotels.
 - 3.2.3 Checking the month which has the highest number of arrivals for individual year.
- 2.4 Observations

3. Vivek Singh (sviveksingh31@gmail.com)

- 3.1 Data Wrangling
- 3.2 Exploratory Data Analysis
 - 3.2.2 Finding out numbers of travellers who stayed on a weekend night on the basis of their arrival in given years (2015-2017).
 - 3.2.3 Finding out the numbers of travellers staying on a weeknight on the basis of their arrival in given years (2015-2017).
 - 3.2.4 Figuring Top 3 ways Travellers preferred to travel with the help of Graph.
 - 3.2.5 Finding out and showing the percentage of travellers who travel without Kids with the help of pie chart.

- 3.2.6 Finding out what type of hotel provides what type of Meal with table.
- 3.2.7 Finding out Top 5 Countries Guests/Travellers Visiting From.
- 3.3 Observations

4. Shubham Kumar (Samsonknight25@gmail.com)

- 4.1 Data Wrangling
- 4.2 Exploratory Data Analysis - Univariate Analysis
 - 4.2.1 Finding out how many hotel bookings were made by which market segment.
 - 4.2.2 Finding out which distribution channel is used for most of the hotel bookings.
- 4.3 Exploratory Data Analysis - Hotel wise Analysis
 - 4.3.1 Finding out the number of repeated guests counted by hotel type.
 - 4.3.2 Finding out the number of bookings with no deposit and refundable deposits.
 - 4.3.3 Finding out the most preferred room type.
- 4.4 Exploratory Data Analysis - Some other important questions
 - 4.4.1 Finding out the number of guests that change their bookings.
 - 4.4.2 Finding out the types of customers.
 - 4.4.3 Finding out the requirements of car parking.
 - 4.4.4 Finding out the number of special requests.
- 4.5 Conclusion

Please paste the GitHub Repo link.

Github Link:-<https://github.com/adilbm009/Hotel-Booking-Analysis---EDA-Project>

Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches and your conclusions. (200-400 words)

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.

The Hotel booking data set includes Numerical, Categorical and Binary data. The data set has columns like the hotel type, is_canceled, arrival_date_year, arrival_date_month, stays_in_weekend_nights, stays_in_week_nights, country, market_segment, distribution_channel, etc. which helped us draw major insights from the data set. Our aim here is to understand the important factors that govern hotel bookings.

Hotel Booking is governed by many factors including the time of the year, number of guests, distribution channel, hotel type, etc. The problem statement for this project is to perform Exploratory data analysis and draw insights to understand all the important factors that govern Hotel bookings.

We have performed analyses such as univariate analysis, Hotel wise analysis, and Timewise analysis and also tried to answer other important questions to solve the problem statement.

We tried to answer the questions such as:

- Which distribution channel gave most of the bookings?
- Which room type is in most demand?
- From which country most of the customers are coming?

- What is the most preferred meal by customers?
- Which hotel type was more engaging and in most demand?
- Which hotel type receives more guests?
- Which hotel type makes more revenue?
- Which type of guests have the most check-ins?
- What is the most preferred length of stay in each hotel?
- Which hotel has a higher and how many customers' return rate?
- What are the busiest months for hotels?
- How is the deposit type affecting the profit?
- Which hotel type received more special requests?
- How many special requests were received?

We used different libraries to form tables and graphs in order to understand and answer these questions. We go to know that:

- Type A room is in most demand.
- Most bookings were made by online travel agents.
- Most customers are from Portugal.
- Most customers prefer the Bed and breakfast meal type.
- City hotels are more engaging and in demand. Hence, city hotels are more profitable.
- City hotels receive a higher number of guests than resort hotels. However, the cancellation rate is more for city hotels.
- City hotels have a higher number of repeat customers. However, the ratio of repeat customers is more for resort hotels as the city hotels receive a higher number of guests than the resort hotels.
- Non-refundable deposits tend to convert to a successful transaction.
- May is the busier and most profitable month for the hotels in 2017.
- On average, May-June is the busier and most profitable month for the hotels.
- City hotels have received the most special requests.
- 1 number of requests is the highest.
- 1 car parking was needed for most of the guests.