INVESTIGATE BUSINESS HOTEL USING DATA VISUALIZATION

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OVERVIEW

"It is very important for a company to always analyze its business performance. This time, we will go deeper into the business in the hospitality sector. Our focus is to find out how our customers behave in making hotel bookings, and their relationship to the cancellation rate of hotel bookings. The results of the insights we find will be presented in the form of visualization data to make it easier to understand and more persuasive."

TOOLS

Google colab

DATA PREPROCESSING

Handle Null Values

How to handle:
1. Null values in company and agent means that the booking didn't came from travel agent, so it is imputed with a value of 0.
2. Null values in city and children have a small percentage so rows with null values are dropped.

Handle Error Values

There is 'undefined' value in 'meals', 'market_segment' and 'distribution_channel' features, this value is changed to avoid misunderstanding.

How to handle:
1. The 'undefined' value in the 'meals' feature is changed to 'No Meals'.
2. The 'undefined' value in the 'market_segment' and 'distribution_channel' feature is dropped because the amount is not significant.

Change Data Type

Changed the feature data type of 'child', 'agent' and 'company' from float to int.

Feature Engineering

Created a new columns to define the total number of guests and the value of the duration of stay.

after checking the values in the newly created column it turns out that there is a data error where there are no guests and there is data where the duration of stay is zero so this data is dropped.

CHAPTER I

# Monthly Hotel Booking Analysis Based on Hotel Type

The hospitality business is very closely related to customers. The more customers booking, the higher the company's revenue. Therefore, analyzing the behavior of customers in booking hotels is very important. For example, we can identify what types of hotels are most in demand by customers, and we can also relate this to the season conditions when the hotel is booked.

Monthly Hotel Booking Analysis Based on Hotel Type

Both Hotels Have More Guests During The Holiday Season

The number of City Hotel guests is more than Resort Hotels but the trend for both is the same, there is a significant increase in guests leading up to and during the holiday season in June-July and December and then decreases after the holiday season is over.
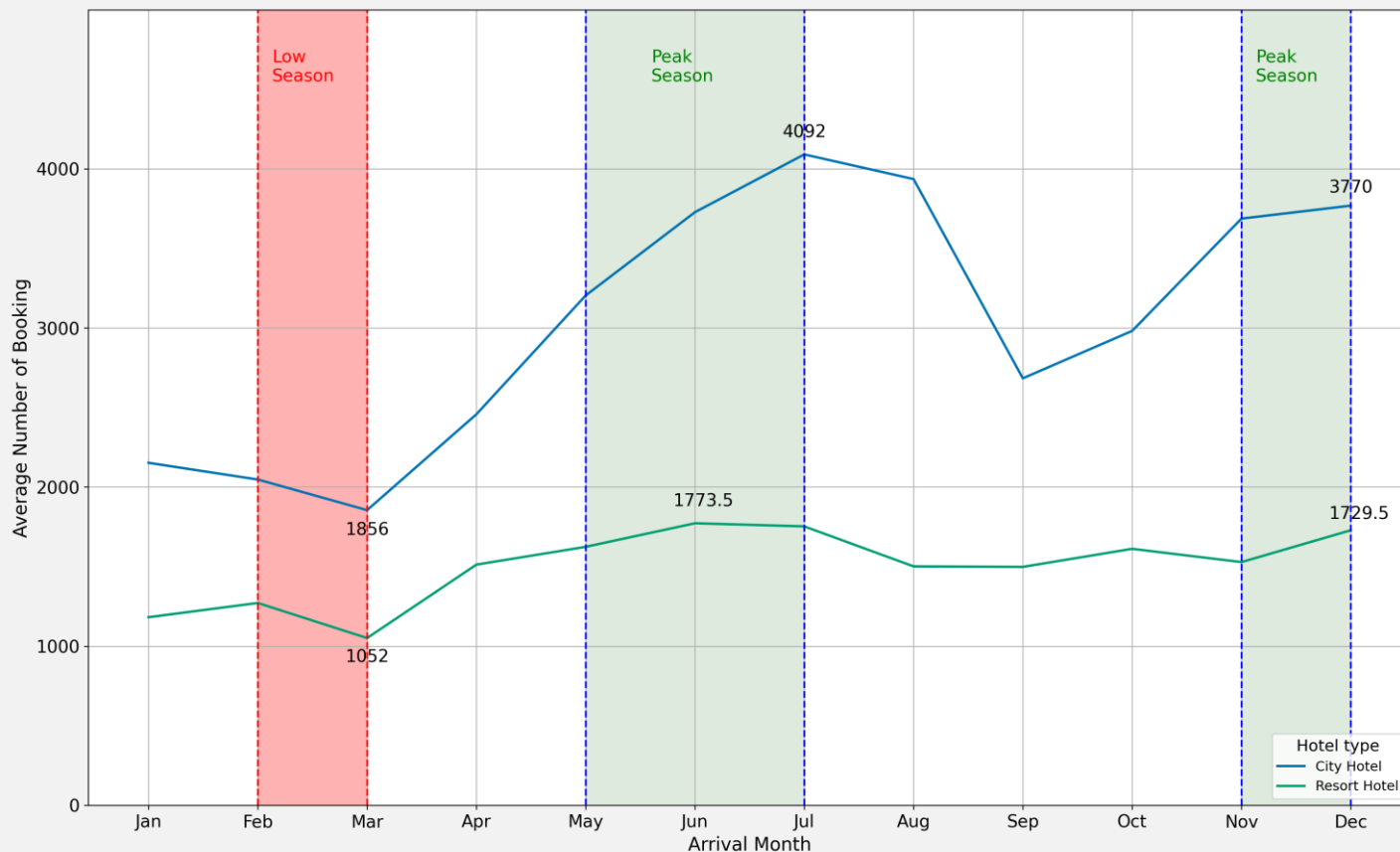
Insight/Analysis:

- The number of city hotel guests is more than resort hotels, this may be because the majority of city hotel customers are tourists on the go or business travelers. While at the resort, there are more vacationers so that there will be more guests at certain holiday times. However the trend for both is the same.

- The peak season for hotel guests occurs twice, the first occurs in June-July which is probably due to the first semester holidays for students in Indonesia, the second occurs in December which occurs due to the Christmas and New Year holidays.

- Low season occurs in February-March, this is likely because the holidays have ended and this month is not a busy time for business travel as it is still the beginning of the year.

- To optimize hotel resources during low season, this can be done by providing early year holiday promos

ANALYSIS ON HOTEL BOOKINGS CANCELLATION RATES

CHAPTER II

The cancellation rate of bookings can be used as a measure of the success of the hospitality business. If many customers cancel their orders, the company will lose its income. The analysis was carried out by looking at the lead days and stay duration factors for the cancellation rate.

Impact Analysis of Stay Duration on Hotel Bookings Cancellation Rates

The Longer The Stay Duration, The More Canceled Bookings

Over 40% of bookings were canceled for stays longer than 2 weeks except for resort hotel for stays longer than 4 weeks
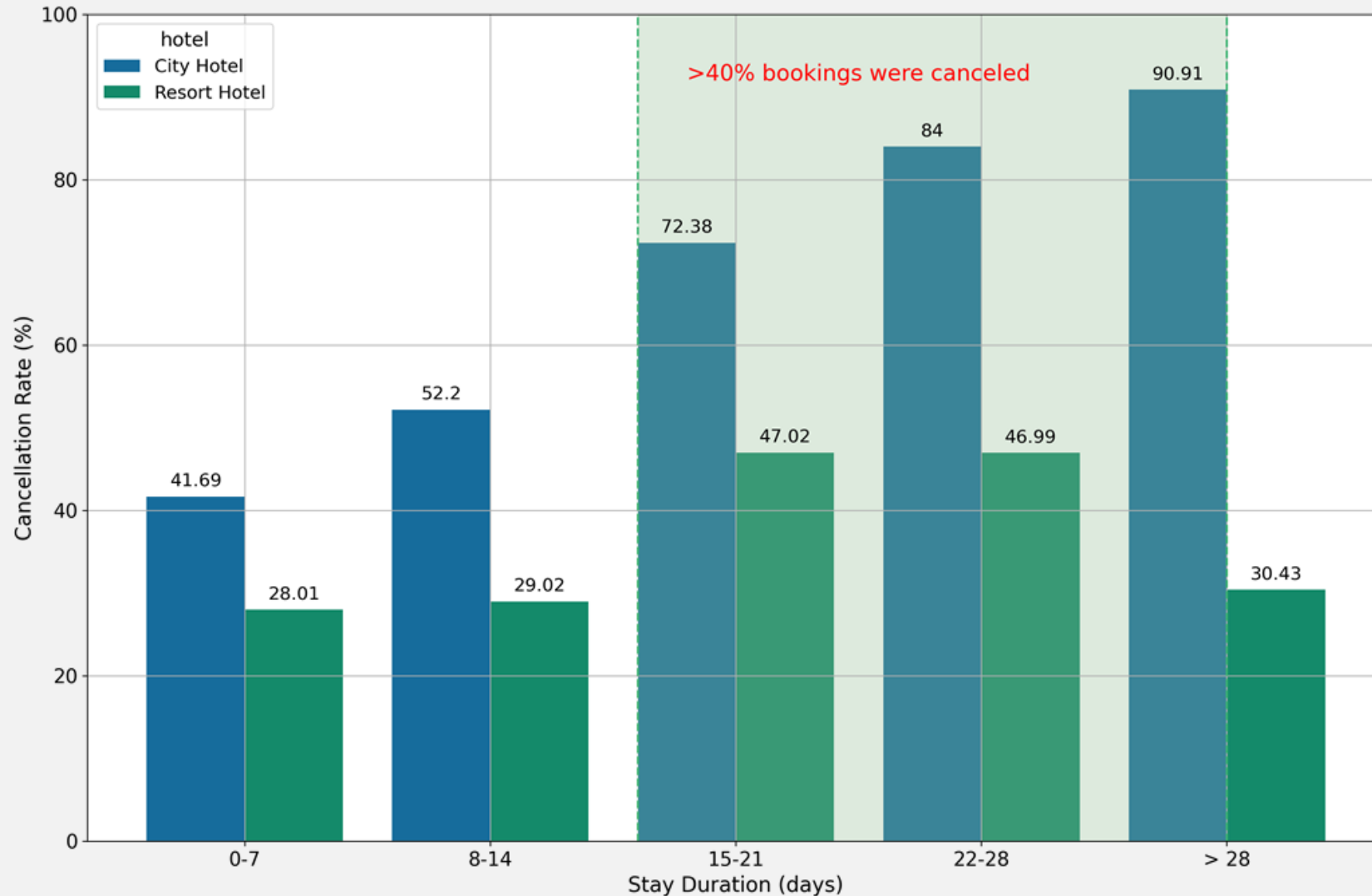
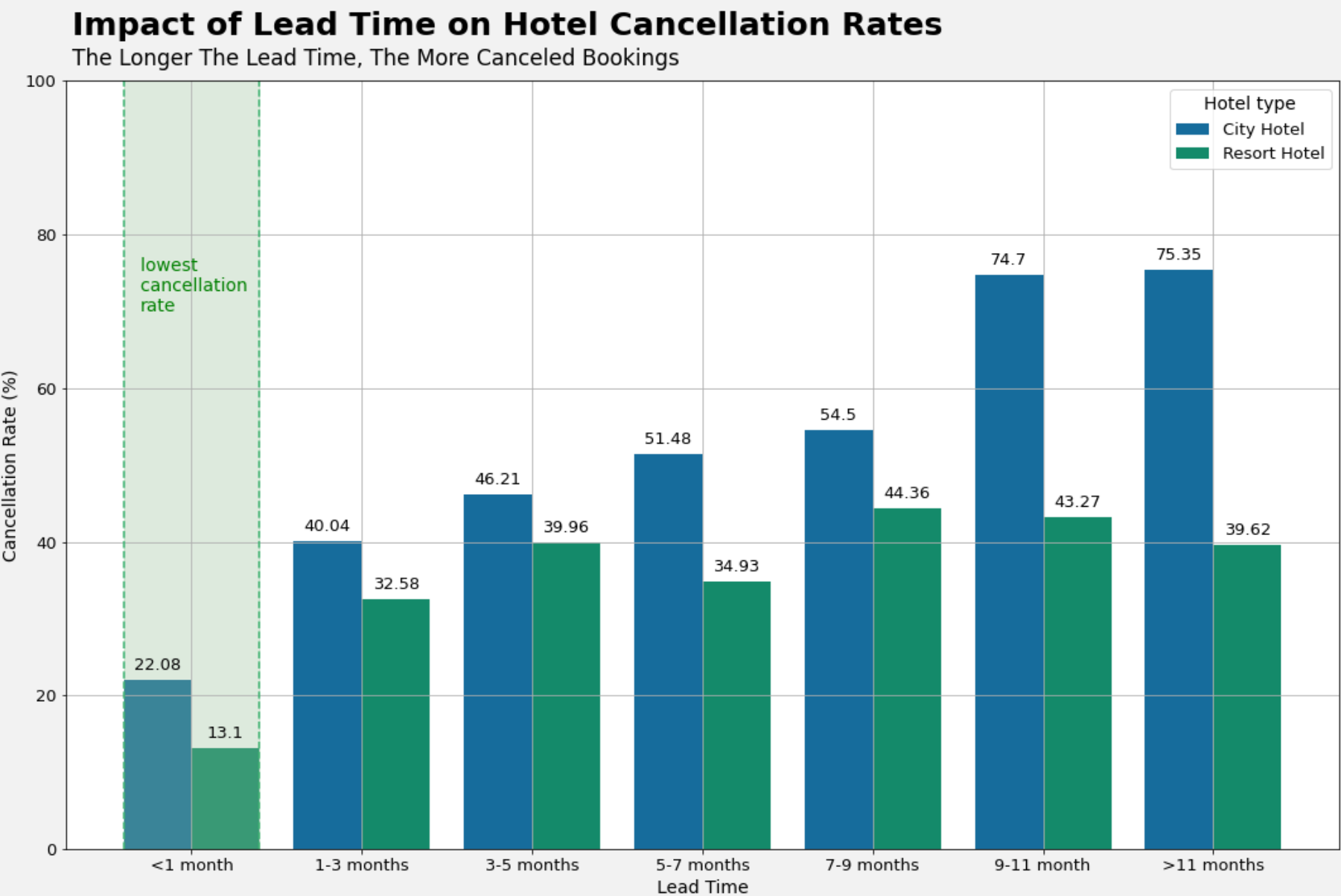# Impact Analysis of Stay Duration on Hotel Bookings Cancellation Rates

Insight/Analysis:

- Most of the cancellation rate is dominated by city hotel bookings, the difference in cancellation rates between city hotels and resort hotels can be caused by different types of visitors, city hotel visitors make hotels only as a stopover to rest while resort hotel visitors are usually tourists who make resort hotels as a vacation place so their commitment to order is higher.

- Both types of hotels have a positive correlation for cancellation rate and stay duration, but the relationship is more significant for city hotels. This happen because the longer the duration of the stay, the more expensive the hotel bill will be. The customer may check other alternatives as a price comparison and this results in canceling the hotel booking.

- To reduce cancellation rates, we could offer non-refundable rates for long stay bookings. However, these rates will be cheaper than standard rates which allow free cancellation. Customers who make non-refundable reservations are generally more committed to their stay because they have to pay if they cancel, make changes, or don't show up.

Impact Analysis of Lead Time on Hotel Bookings Cancellation Rates

Impact of Lead Time on Hotel Cancellation Rates
The Longer The Lead Time, The More Canceled Bookings

Impact Analysis of Lead Time on Hotel Bookings Cancellation Rates

Insight/Analysis:

- Most of the cancellation rate is dominated by city hotel bookings, the difference in cancellation rates between city hotels and resort hotels can be caused by different types of visitors.

- Both types of hotels have a positive correlation for cancellation rate and lead time, but the relationship is more significant for city hotels. The longer the lead time, the more likely the bookings will be cancelled, this could happen because the customer has more time to change their mind about the booking, or something else happened in that period of lead time that would disrupt their travel plans, or maybe they just forgot about the booking.

- Lead time less than 1 month has the lowest cancel rate, this value needs to be maintained.

- Referring to the average hotel cancellation rate in 2018 which was 39.6%, the lead time above 1 month for city hotels and above 3 months for resort hotels had a poor cancellation rate.

- Things that can be done to prevent cancellation:
  - Set the maximum booking lead time.
  - Placing a booking deposit requirement for a lead time >1 month for city hotels and >3 months for resort hotels.
  - Set limitation for the cancellation period.