

# Investigate Business Hotel using Data Visualization



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“A People Analytics & Information System who has an interest in Data Science. I have 1-year of experience in Data Analytics in several projects, communities, and professional experiences. Moreover, I am a graduate of the Rakamin Data Science Bootcamp.”

A faded, light-colored background image of a city skyline with various skyscrapers and buildings, serving as a backdrop for the text.

“It is very important for a company to always analyze its business performance. On this occasion, we will explore the business in the hospitality sector more. Our focus is to find out how our customers behave in making hotel reservations, and their relationship to the cancellation rate of hotel reservations. 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.”

# First Section

# Data Preprocessing

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First of all, I explore the data and get several key takeaways before preprocessing the data, there are

1. We have 119,390 rows data since 2017 - 2019.
2. We have 33,261 duplicate values. We need to drop these data later.
3. We have several categorical features with null values. We will fill 'undefined' value for these null data.
4. There is no issue with each features data type.
5. `'is_canceled'` and `'is_repeated_guest'` should have bool data type, but it's not a big deal if we go with int type.
6. `'Agent'` and `'Company'` features seems refer to its ID, we can't analyze further these features otherwise we have its name.
7. There is an issue in `'adr (average daily rate)'` feature where we have negative values. It is an anomaly, we need to drop these data.

Then, I preprocess the data based on data exploration insight, there are

1. Drop the duplicate values
2. Fill the categoric features null values with 'Undefined' value
3. Drop `adr` negative value

For the end, we have 86,128 rows cleaned data.

## Second Section

# Monthly Hotel Booking Analysis Based on Hotel Type

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## More than a Half of Customers Booking City Hotel

Number of Booking Percentage based on Hotel Type



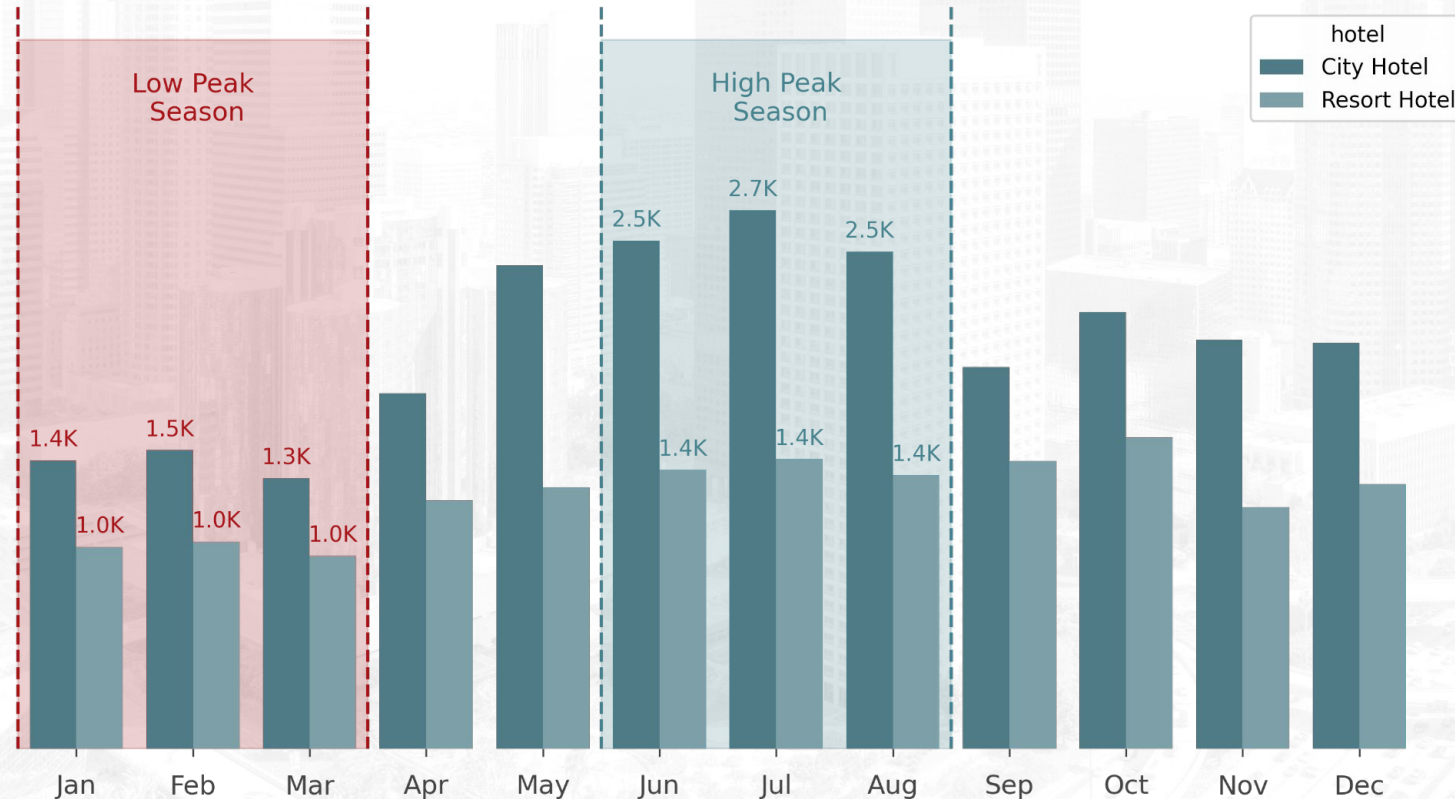
### Key Takeaways :

1. We know that **61% customers are tourists or business travelers** who more likely to stay at a city hotel so that they can tour around the place where they are staying. They do not spend their day in the hotel and they only come back to sleep and shower, maybe a meal or two.
2. While **39% of customers are vacationers** who visit a resort hotel to get away from other people and cities. They stay in the resort and probably don't travel around as they may do when staying at a city hotel.

# Monthly Hotel Booking Analysis Based on Hotel Type

## Offer an Early Year Promo in Low Peak Season

Hotel Booking Monthly Trend based on Hotel Type



Find the Codes [here](#)



## Key Takeaways :

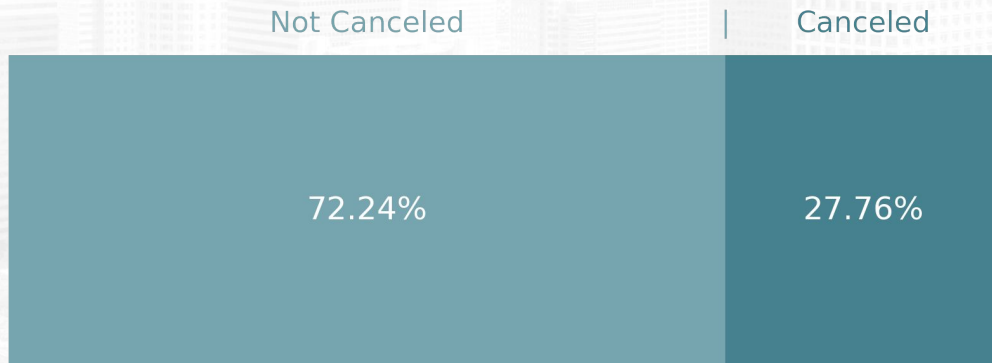
1. **High Peak Season happened in June - August** for the city hotel and resort hotel booking, it may happen because June - August is the first semester holiday months for Indonesian students, so they have a long holiday to go vacation.
2. Whereas, **Low Peak Season happened in January - March** for the city hotel and resort hotel booking, it may happen because January - March is the second semester holiday with short holiday time, and not a busy business travel time because it still an early year.
3. To optimize hotel resources, we need to control high demand in June - August by **offering an early year promo** to shift customers' intention go to on vacation from June - August to January - March.

## Third Section

# Impact Analysis of Stay Duration on Hotel Bookings Cancellation Rates

## Almost 30% of Bookings have been Canceled

Number of Booking Canceled Rate



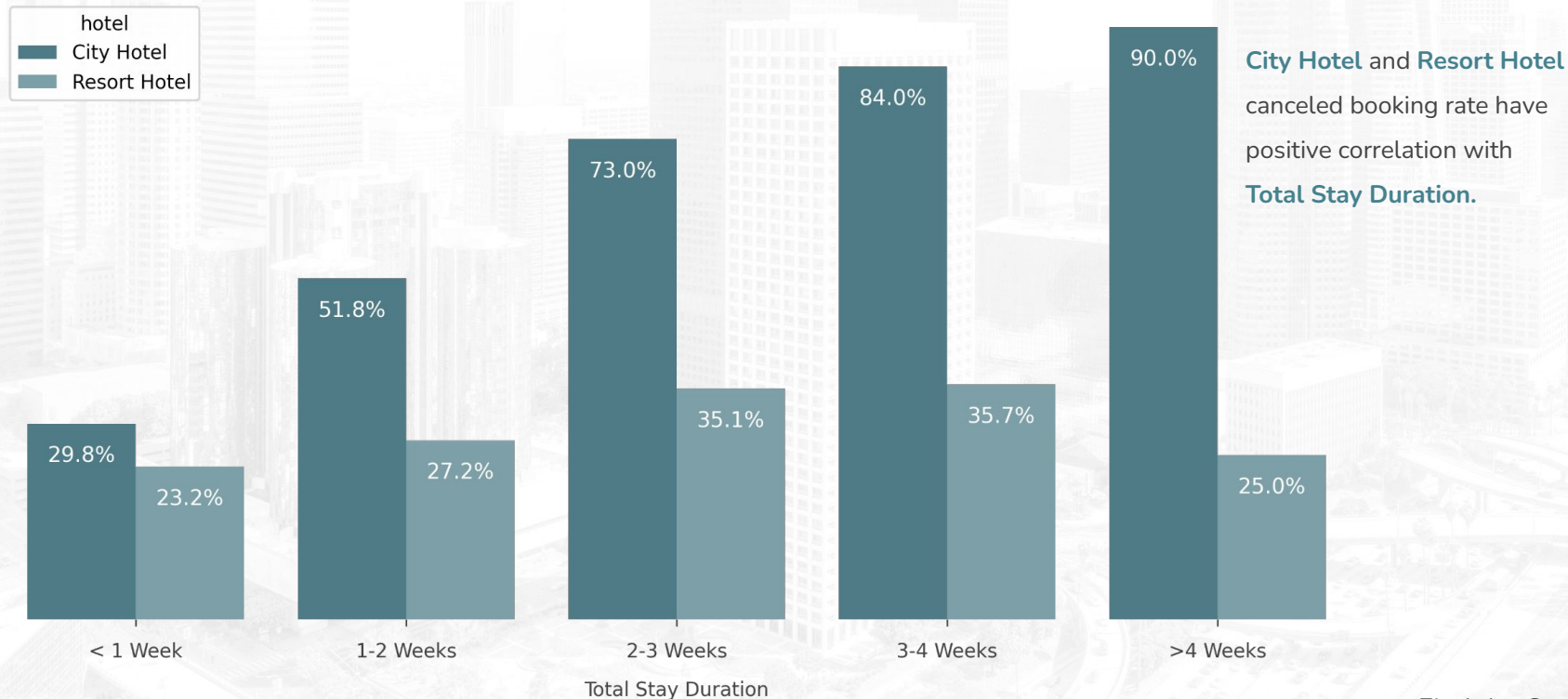
### Key Takeaways :

1. We know that **almost 30% of bookings have been canceled**. Canceled booking means opportunity costs for the hotel. Because it should be revenue for the hotel, but customers take it back. It can indirectly affect to hotel's revenue. Therefore, we need to further analyze why they canceled their booking.

# Impact Analysis of Stay Duration on Hotel Bookings Cancellation Rates

## Offer Non-Refundable Rates for Long Stay Duration Booking

Booking Cancellation Rate based on Total Stay Duration



## Key Takeaways :

1. We know that **most of the cancellation rates are dominated by city hotel booking**.
2. Besides that, **the longer stay duration booked by customers causes a higher cancellation rate** for both city hotels and resort hotels. Except for > 4 Weeks Total Stay Duration Resort Hotel Booking.
3. To prevent customers to cancel their booking, we could **offer non-refundable rates for the long stay duration booking**. But, this rate will be cheaper than usual rates that allow free cancellation. This offer could be combined with a long stay duration policy.

**Customers who make non-refundable reservations are generally more committed to their stays** because they'll have to pay if they cancel, make changes, or are no-shows.

Based on the research, **non-refundable rates are very attractive to bookers and can increase your visibility on search engines**. On average, we see adding a **non-refundable rate plan can help reduce cancellations by at least 9% – and increase bookings by at least 5%**.

4. Besides that, we also consider **offering guests the option to pay online when they booking**.



# Last Section

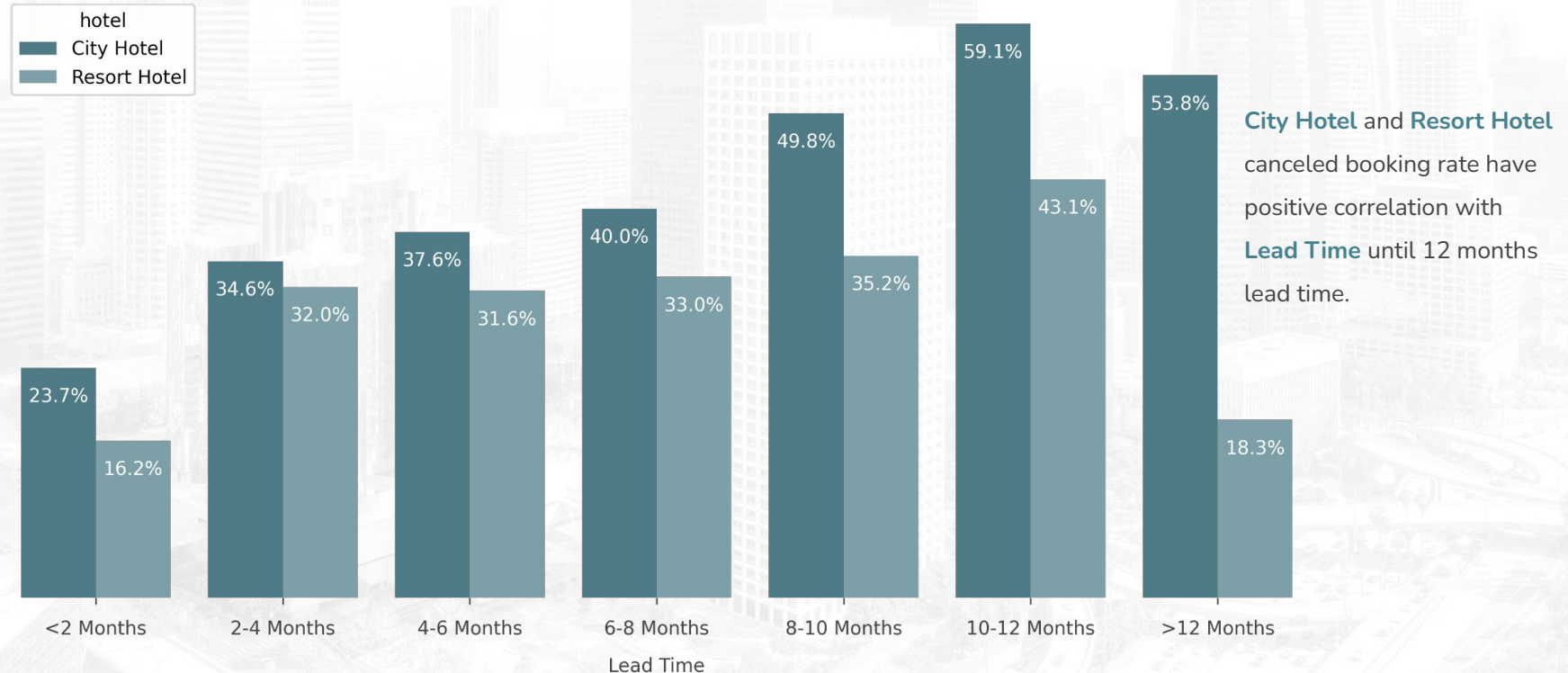
## Impact Analysis of Lead Time on Hotel Bookings Cancellation Rate



# Impact Analysis of Lead Time on Hotel Bookings Cancellation Rate

## Offer Non-Refundable Rates for Long Lead Time Booking

Booking Cancellation Rate based on Lead Time



## Key Takeaways :

1. We know that **most of the cancellation rates are dominated by city hotel booking**.
2. Besides that, **the longer stay duration booked by customers causes a higher cancellation rate** for both city hotels and resort hotels.
3. Therefore, we need to avoid getting bookings too far in advance, since those customers' plans are more likely to change and result in cancellations. **Setting a maximum lead time booking restriction** can help us to prevent this issue.
4. Besides that, we also consider **offering guests the option to pay online when they booking**.