Investigate Business Hotel using Data Visualization

Created by:
Yehezkiel Novianto Aryasena
hezkyaryasena@gmail.com
www.linkedin.com/in/yehezkielnov

"**Saya Yehezkiel Novianto Aryasena**. Saya merupakan fresh graduate dari Institut Teknologi Sepuluh Nopember Surabaya. Saat menjalani masa perkuliahan, saya memiliki pengalaman organisasi dan kepanitiaan yang membuat saya mampu bekerja mandiri maupun dalam tim. Saya memiliki ketertarikan untuk mempelajari hal baru terutama pada bidang data science dan saat ini sedang mendalami pengetahuan saya dalam hal tersebut dengan mengikuti course yang diselenggarakan oleh Rakamin. "
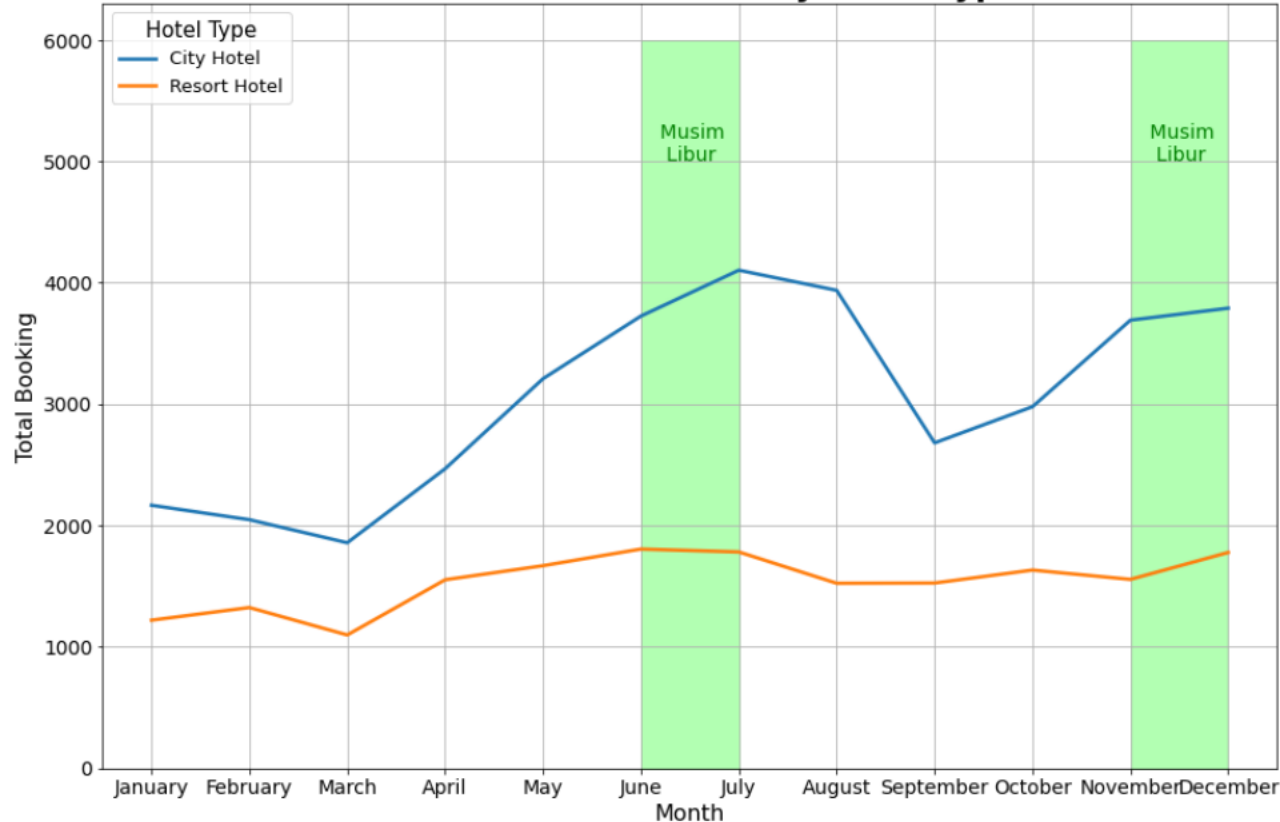
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"Sangat penting bagi suatu perusahaan untuk selalu menganalisa performa bisnisnya. Pada kesempatan kali ini, kita akan lebih mendalami bisnis dalam bidang perhotelan. Fokus yang kita tuju adalah untuk mengetahui bagaimana perilaku pelanggan kita dalam melakukan pemesanan hotel, dan hubungannya terhadap tingkat pembatalan pemesanan hotel. Hasil dari insight yang kita temukan akan kita sajikan dalam bentuk data visualisasi agar lebih mudah dipahami dan bersifat lebih persuasif. "

Data Preprocessing

- Problems Found :
- Missing value on column Company, Agent, City, Children
- 'Undefined Value' on column Meal
- Uncommon booking order from guest that consist 0 adult

- Treatment :
- Column Agent and Company will be dropped because of there's lot of missing value (16340 & 112593 rows)
- Missing value on column City still tolerated and will be filled by mode because it's categorical (reference: https://towardsdatascience.com/7-ways-to-handle-missing-values-in-machine-learning-1a6326adf79e)
- Missing value on column Children will be dropped because only consist 4 rows
- Assign 'Undefined' value to 'No Meal' (assumption: minimum expense on meal allocation = maximum profit for Hotel)
- Drop booking order data that consist of 0 adult

Untuk selengkapnya, dapat melihat jupyter notebook disini:
https://colab.research.google.com/drive/1V70qloeJg9r7URf5evTCtWxJk1IABGq_?usp=sharing

Total Order Per Month by Hotel Type

Analysis:

1. July is busiest month for both City and Resort type hotels

2. Both hotels had the smallest number of orders in March

3. The highest increase in the number of bookings at City Hotel occurred from March to July

4. The highest increase in the number of bookings at Resort Hotels occurred from March to June

5. During the school holiday season, both types of hotels experienced an increase in room bookings, but at Resort hotels the number of room orders tended to stagnate or remain in the holiday period from June to July.

City Hotel dan Resort Hotel memiliki bulan yang paling sibuk yaitu pada bulan Juli dengan jumlah booking masing masing hotel hampir mencapai 4000+ dan 1700+ pesanan

## Hotel Cancellation Rate by Total Stay (Night)
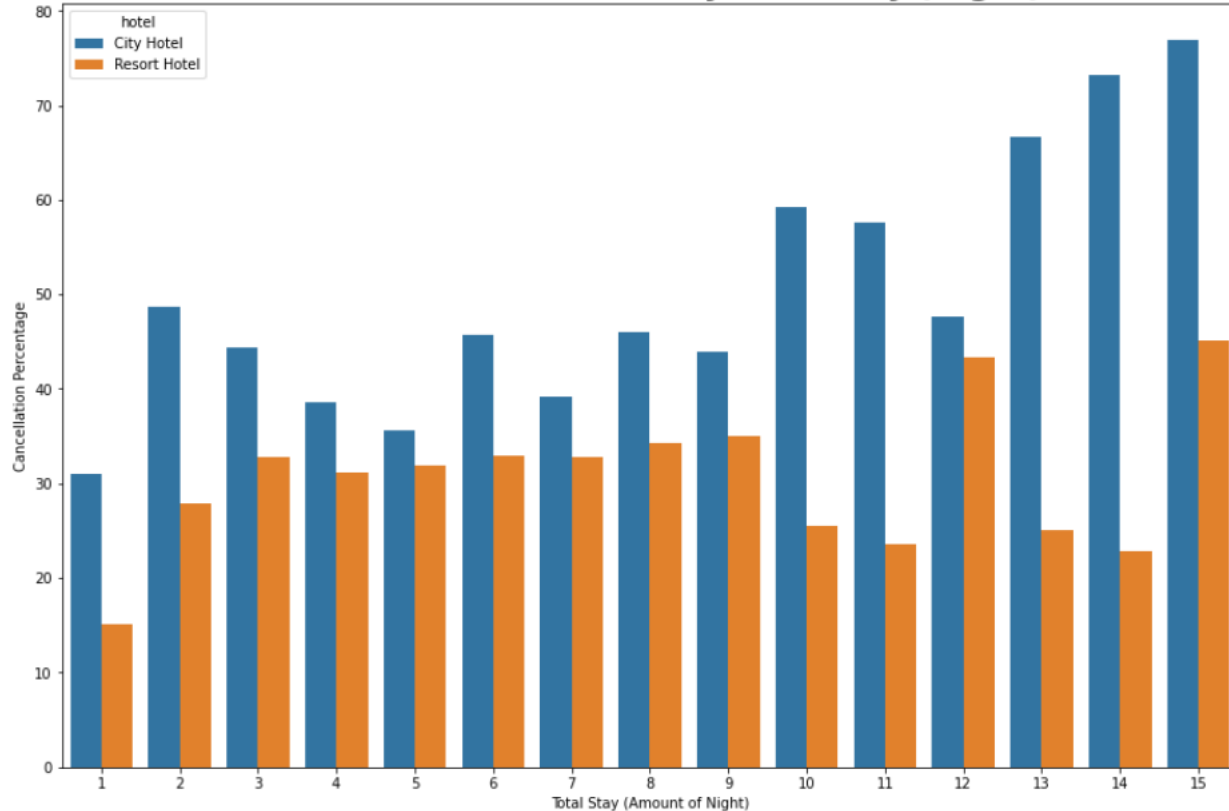
Terdapat peningkatan pembatalan pemesanan hotel yang signifikan seiring dengan bertambah lamanya malam menginap pengunjung

Analysis:

1. Both types of hotels, City and Resort Hotels, have the lowest booking cancellation rates when visitors only plan to stay for one night

2. Both types of hotels, City and Resort hotels, have the highest booking cancellation rates when visitors plan to stay for more than two weeks

3. There is a significant increase in hotel booking cancellations along with the increase in the number of nights visitors stay

Monthly Hotel Booking Analysis Based on Hotel Type

Hotel Cancellation Rate by Lead Time
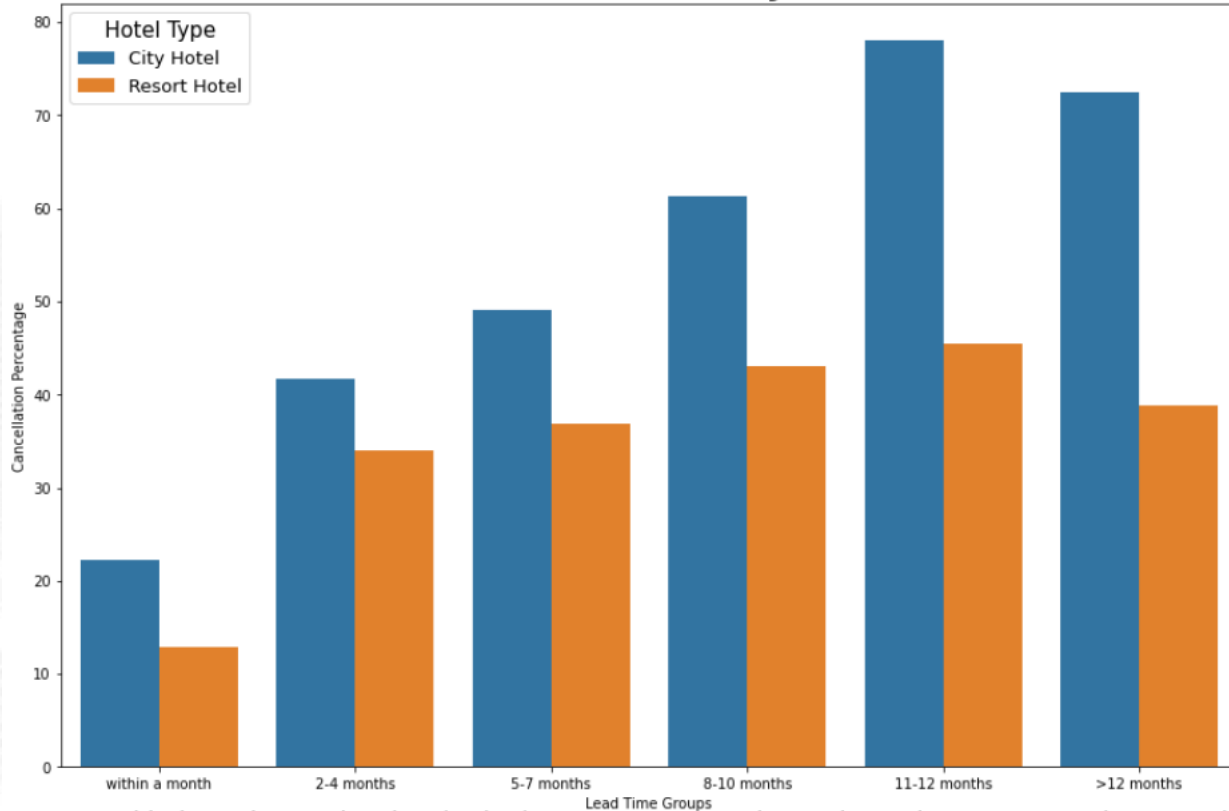
Semakin lama interval waktu (Bulan) antara pesanan dan waktu sebenarnya untuk pengunjung menginap maka pengunjung cenderung akan membatalkan pesanan tersebut

Analysis:

1. The highest cancellation rate for the two types of hotels occurs when the lead time is in the 11-12 month interval

2. The lowest cancellation rate of the two types of hotels occurs when the lead time is at an interval of 1 month

3. From the visualization above, it can be concluded that visitors tend to cancel orders if the lead time is high. This is likely to happen because during the lead time, visitors may forget or choose other options, such as staying at another hotel.