

Investigate Business Hotel using Data Visualization



Created by:

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“Bachelor of Mathematics from Bandung Institute of Technology who is interested in data field. Graduated from data science bootcamp with excellent grade predicate. Love to solve problems related to data analysis and data science using SQL, Python, and Tableau.”

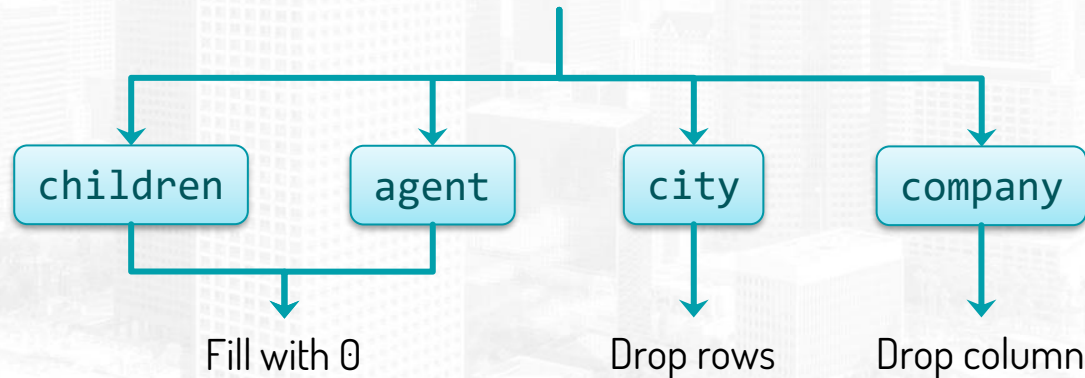
“It is very important for a company to always analyze its business performance. On this occasion, we will explore the business in the hospitality sector more. Our focus is to find out how our customers behave in making hotel reservations, and their relationship to the cancellation rate of hotel reservations.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



Total Missing Value per Columns

hotel	0
is_canceled	0
lead_time	0
arrival_date_year	0
arrival_date_month	0
arrival_date_week_number	0
arrival_date_day_of_month	0
stays_in_weekend_nights	0
stays_in_weekdays_nights	0
adults	0
children	4
babies	0
meal	0
city	488
market_segment	0
distribution_channel	0
is_repeated_guest	0
previous_cancellations	0
previous_bookings_not_canceled	0
booking_changes	0
deposit_type	0
agent	16340
company	112593
days_in_waiting_list	0
customer_type	0
adr	0
required_car_parking_spaces	0
total_of_special_requests	0
reservation_status	0

Found 4 columns with missing values



- Found 3 columns with undefined value

meal

market_segment

distribution_channel

- Replace undefined value with **mode** of each columns

Before processing

```
value counts of column meal
Breakfast      91867
Dinner         14434
No Meal        10638
Undefined       1165
Full Board       798
Name: meal, dtype: int64
-----
value counts of column market_segment
Online TA       56403
Offline TA/TO   24160
Groups          19806
Direct          12449
Corporate        5111
Complementary    734
Aviation         237
Undefined         2
Name: market_segment, dtype: int64
-----
value counts of column distribution_channel
TA/TO           97730
Direct          14483
Corporate        6491
GDS              193
Undefined         5
Name: distribution_channel, dtype: int64
-----
```

After processing

```
value counts of column meal
Breakfast      93032
Dinner         14434
No Meal        10638
Full Board       798
Name: meal, dtype: int64
-----
value counts of column market_segment
Online TA       56405
Offline TA/TO   24160
Groups          19806
Direct          12449
Corporate        5111
Complementary    734
Aviation         237
Name: market_segment, dtype: int64
-----
value counts of column distribution_channel
TA/TO           97735
Direct          14483
Corporate        6491
GDS              193
Name: distribution_channel, dtype: int64
-----
```

1 Create new columns

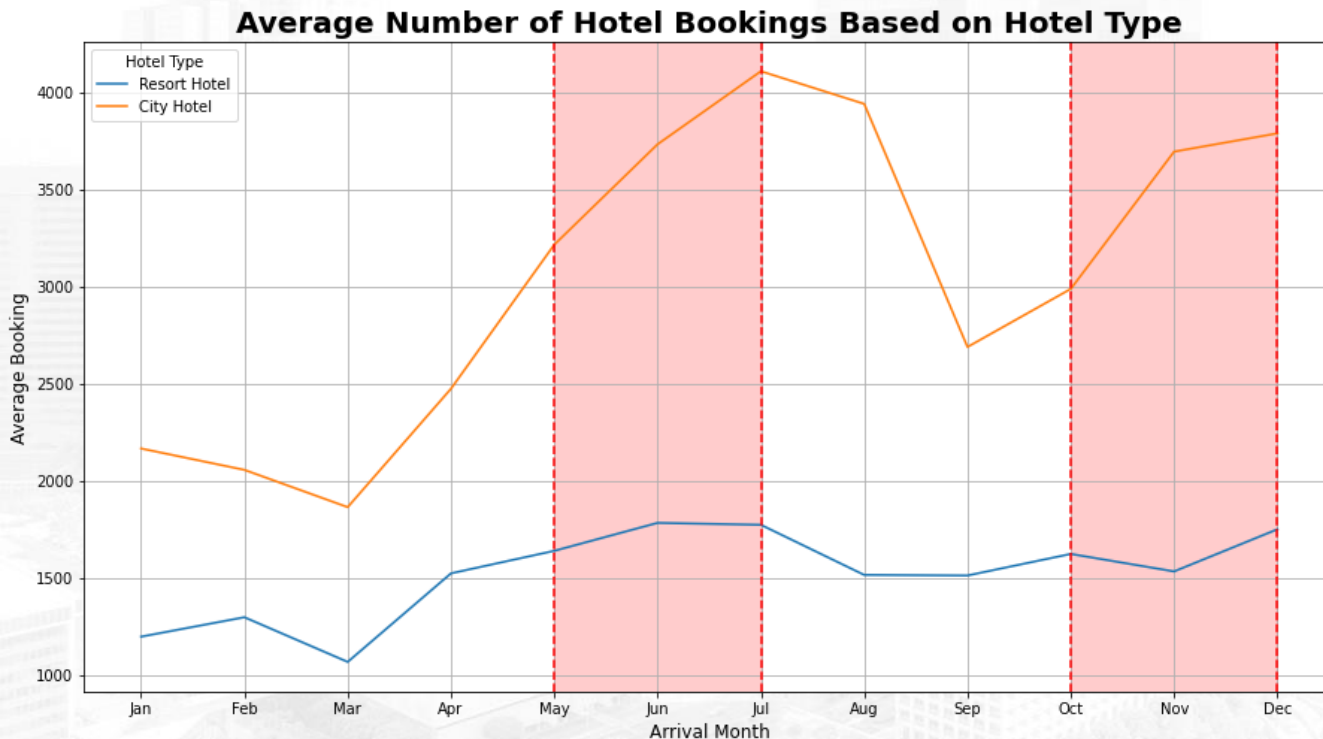
`total_guest` = `adults` + `children` + `babies`

`stay_duration` = `stays_in_weekend_nights` + `stays_in_weekdays_nights`

2 Drop rows that contains 0 values in `total_guest` and `stay_duration` columns

	Before preprocessing	After preprocessing
Total Rows	119390	118732
Total Columns	29	30

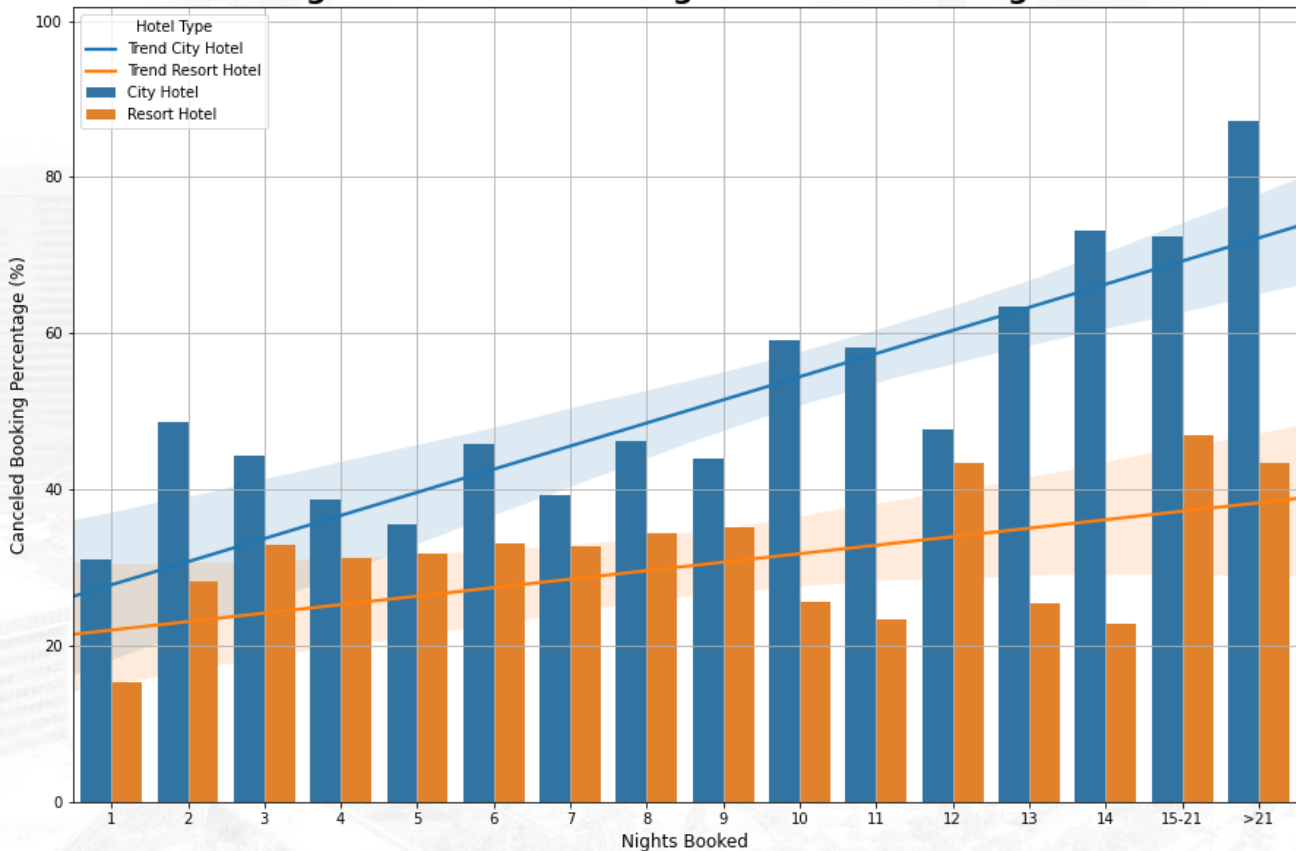
Monthly Hotel Booking Analysis Based on Hotel Type



The number of hotel bookings increases in June - July and November - December every year. Both for the type of city hotel and resort hotel. If you pay attention again, these months coincide with school holidays and year-end holidays. In these months, the hotel must be prepared to face the large number of visitors during the holiday season.



Percentage of Canceled Bookings Based on Total Nights Booked

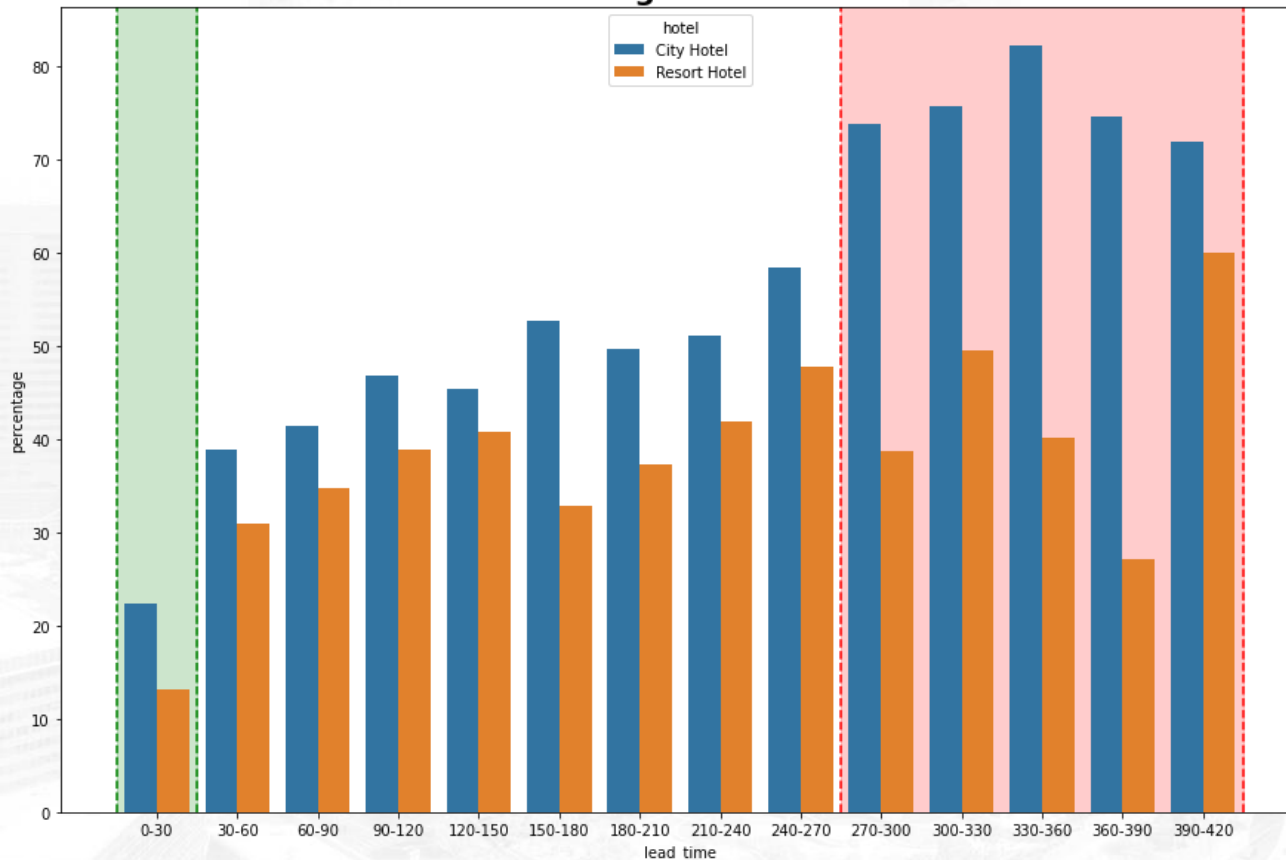


The graph above shows the trend or correlation between the duration of stay and the rate of cancellation of hotel reservations. Both types of hotels have a positive trend, where the longer the duration of the stay, the higher the probability of the booking being cancelled. As for city hotels, the positive trend is steeper (significant) compared to resort hotels.



Impact Analysis of Lead Time on Hotel Bookings Cancellation Rate

Canceled Booking Based on Lead Time



The image above shows the correlation between waiting time (the distance between hotel bookings and arrival times) and hotel booking cancellation rates. The lowest booking cancellation rate is for bookings with a waiting time of less than 30 days and applies to both types of hotels. Resort Hotels are quite stagnant with a 40% cancellation rate, while Urban Hotels have a fairly high ratio (60%) when the waiting time is around 1 year.